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FISCAL YEAR 2008  
REPORT TO CONGRESS

Building  
Partnerships  
to Control  
Tuberculosis

SEPTEMBER 2009



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# Building Partnerships to Control Tuberculosis

SEPTEMBER 2009

Cover photo

A boy attending an advocacy, communication, and social mobilization program organized for World TB Day in Bangladesh; such activities promote community awareness about TB in order to improve case detection and treatment adherence and to mobilize political commitment and resources for TB.

Photo credit

Bangladesh/National Tuberculosis Control Program

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# ACRONYMS AND ABBREVIATIONS

<b>ACSM</b>	Advocacy, Communication, and Social Mobilization
<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>CCM</b>	Country Coordinating Mechanism
<b>CDC</b>	U.S. Centers for Disease Control and Prevention
<b>CDR</b>	Case Detection Rate
<b>CHW</b>	Community Health Worker
<b>CBTBC</b>	Community-based Tuberculosis Care
<b>CBO</b>	Community-based Organization
<b>C-DOTS</b>	Community-based DOTS
<b>CDR</b>	Case Detection Rate
<b>DOTS</b>	Directly Observed Treatment, Short-course
<b>DRC</b>	Democratic Republic of the Congo
<b>DST</b>	Drug Sensitivity Testing
<b>EQA</b>	External Quality Assurance
<b>GDF</b>	Global TB Drug Facility
<b>GLC</b>	Green Light Committee
<b>Global Fund</b>	The Global Fund to Fight AIDS, Tuberculosis and Malaria
<b>GRZ</b>	Government of the Republic of Zambia
<b>HBC</b>	High-burden Country
<b>HIV</b>	Human Immunodeficiency Virus
<b>ISTC</b>	International Standards for Tuberculosis Care
<b>MDR-TB</b>	Multidrug-resistant Tuberculosis
<b>MOH</b>	Ministry of Health (or national equivalent)
<b>MOHSD</b>	Ministry of Health and Social Development (Russia)
<b>MOPH</b>	Ministry of Public Health
<b>MSH</b>	Management Sciences for Health
<b>NGO</b>	Nongovernmental Organization
<b>NIH</b>	National Institutes of Health
<b>NTRL</b>	National TB Reference Laboratory

<b>NTBLTC</b>	National TB and Leprosy Training Center (Nigeria)
<b>NTP</b>	National Tuberculosis Control Program (or equivalent)
<b>PAHO</b>	Pan American Health Organization
<b>PEPFAR</b>	U.S. President's Emergency Plan for AIDS Relief
<b>PLWHA</b>	People Living with HIV/AIDS
<b>PPM</b>	Public-private Mix
<b>RNTCP</b>	Revised National TB Control Program (India)
<b>TB</b>	Tuberculosis
<b>TB CAP</b>	Tuberculosis Control Assistance Program
<b>TSR</b>	Treatment Success Rate
<b>USG</b>	United States Government
<b>WHO</b>	World Health Organization
<b>XDR-TB</b>	Extensively Drug-resistant Tuberculosis

# EXECUTIVE SUMMARY



Laboratory technicians, working in a biosafety cabinet, prepare sputum samples for culture of *Mycobacterium tuberculosis*.

The United States Government (USG) has been a leader in the international fight to prevent and control tuberculosis (TB) in countries with the highest burdens of disease. Over the past 8 years, the USG, through the programs of the U.S. Agency for International Development (USAID), has allocated approximately \$730 million to save lives and prevent the spread of TB and multidrug-resistant TB (MDR-TB). These funds have been used to improve TB services in 40 countries as well as for critical investments at the global level. As a result, the USG has contributed significantly to improvements in patient care and TB control in many countries and has also made substantial contributions to innovations and improvements in the delivery of TB services.

The goal of the USG efforts to control tuberculosis (TB) is to contribute significantly to the reduction of TB transmission and deaths globally. The USG is committed to achieving the targets set forth in the Stop TB Partnership's<sup>1</sup> "Actions for Life – The Global Plan to Stop TB 2006–2015," to halve TB prevalence and deaths by 2015 compared to country levels in 1990. The Global Plan describes the actions and resources required to achieve these targets and reinforces the Stop TB Strategy, a robust technical approach launched in 2006 that builds on the directly observed treatment, short-course (DOTS) strategy to provide technical guidance for TB programs (see box, page 6).

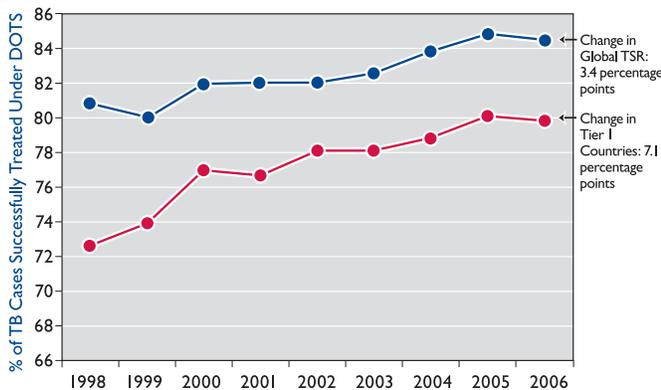
TB is a major worldwide public health threat that kills approximately 1.7 million people each year, the majority from communities in devastating poverty. In 2007, there were over 9 million new cases of TB, a slight increase from the previous year. In 2007, there were an estimated 500,000 cases of MDR-TB, including over 40,000 cases of extensively drug-resistant (XDR) TB. MDR and XDR-TB are found in all regions of the world. While TB can be found in almost every country in the world, 80 percent of estimated cases occur in just 22 developing and/or transitioning countries. Two significant threats for TB prevention and care are HIV co-infection and MDR-TB. TB is the most significant opportunistic infection contributing to HIV cases and deaths, with 15 percent of new TB cases being HIV positive. Additionally, in sub-Saharan Africa, TB is the leading cause of death. TB is a global health emergency that requires more accelerated and intensified action.

Despite sharp increases in incidence of TB during the 1990s – mainly in Africa, Eastern Europe, and Eurasia –

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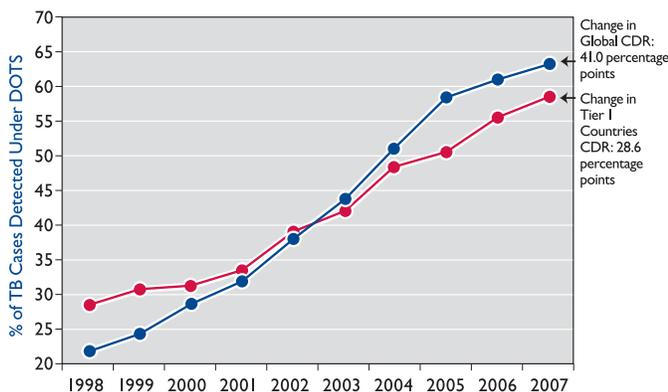
1. The Stop TB Partnership, called the Stop TB Initiative at the time of its inception, was established in 1998. Its aim is to realize the goal of eliminating TB as a public health problem and, ultimately, to obtain a world free of TB. It comprises a network of international organizations, countries, donors from the public and private sectors, governmental and nongovernmental organizations and individuals that have expressed an interest in working together to achieve this goal.

**Trends in DOTS Treatment Success Rate (TSR), Globally and for USAID Tier I Priority Countries, 1998-2007**



For new smear-positive patients.  
Source: WHO Global TB Report 2009

**Trends in DOTS Case Detection Rate (CDR), Globally and for USAID Tier I Priority Countries, 1998-2007**



For new smear-positive patients.  
Source: WHO Global TB Report 2009

the achievements made by the global TB community have been tremendous. The global TB community has set clear programmatic global targets to diagnose at least 70 percent of the estimated TB cases and to ensure that at least 85 percent of those patients successfully complete treatment. With the USG as a major contributor through USAID, global case detection rate reached 63 percent in 2007, and the treatment success rate reached 85 percent in 2006, a significant increase in rates from 1998 levels when USAID's TB program began. **Given this progress, in USAID's 20 high priority**

**countries, more than 1.2 million patients successfully completed treatment in 2007, and as a result, more than 600,000 lives have been saved.**

**Achievements**

USAID plays an important role at the global, regional, and country levels in the leadership and strategic direction for TB prevention and care. USAID is represented on the Stop TB Partnership coordinating board and is a member of all of the Partnership's technical working groups. USAID's TB programs have made impressive achievements in providing countries access to standardized and high-quality packages of tools for implementing and scaling up services. In particular, USAID's support is developing regional supranational reference laboratories, Centers of Excellence for MDR-TB, institutional capacity-building for regional TB training facilities, comprehensive packages of laboratory tools for better management of TB and MDR-TB diagnosis, and improved drug management. All of these efforts aim to ensure effective and efficient country-level implementation and scale-up of TB services resulting in improved case detection and treatment outcomes.

The major focus of USAID's program is at the country level, targeting 20 high priority, or Tier 1, countries, where USAID prioritizes the majority of its technical and financial resources. These countries have a high-burden of TB, MDR-TB, and/or have weak performance in case detection and treatment, as well as some of the most challenging environments socially and economically. Figure 2 on page 11 provides a map of the countries where USAID supports TB programs. **In USAID's Tier 1 countries, the case detection rate for new smear-positive TB cases increased from an average of 43 percent in 2003 to 57 percent in 2007, and the number of new smear-positive TB patients successfully treated increased by 54 percent from 805,781 in 2003 to 1,246,100 in 2006.** On average, these countries achieved a treatment success rate of 80 percent in 2006. These accomplishments contributed significantly to increasing the global case detection rates and treatment success rates since they are among the countries most affected by the disease.

USAID's assistance has already had an impact, contributing to an overall reduction of TB in the world from a peak of 142 new TB cases per 100,000 population in 2004 to 139 cases per 100,000 population in 2007. These very exciting results are due to the expansion of basic TB services, including availability of quality drugs through the Global TB Drug Facility (GDF), improvements in

## Country Highlights

- **Indonesia:** USAID has been one of the major supporters of the national TB program (NTP) over the last 8 years, helping to expand universal access of quality diagnosis and treatment to all public and private sectors. During this time, the program more than tripled the case detection rate and increased the treatment success rate to reach the global targets.
- **India:** USAID is providing high-level technical assistance to bolster the Indian Government's Revised National TB Control Program. India has the highest TB burden in the world, which USAID is addressing through priorities such as sustaining and improving the quality of DOTS – including expanding the access of quality by providing technical assistance to implement a routine external quality assurance system for smear microscopy in more than 12,000 designated microscopy centers.
- **Afghanistan:** USAID's program in Afghanistan supported the expansion of DOTS through primary health care services, ensuring equity, and fostering sustainability. More than 12 million people in rural areas in 13 target provinces gained DOTS coverage under USAID's program.
- **Russia:** USAID has supported the DOTS programs in prisons and detention facilities throughout Russia to significantly reduce TB prison mortality rates from 238 to 82 per 100,000 population from 1999 to 2007.
- **South Africa:** USAID has been instrumental in supporting the NTP, in collaboration with PEPFAR, to increase the testing of TB patients for HIV from 20 percent in 2006 to 64 percent in 2007, in USAID supported districts.

program quality, more engagement of private sector health care providers, better collaboration with HIV/AIDS programs, and social mobilization at the community level. **All of this evidence shows the Stop TB Strategy is working and needs to be accelerated.**

**In FY 2008, USAID's funding for TB increased significantly from \$92 million in FY 2007 to \$162 million.** With this increase, the Agency began scaling up programs in priority countries, accelerating efforts to prevent and address MDR-TB, and increased investments in critical research activities. Increases were targeted at countries with lagging case detection or treatment success rates, or those with high MDR-TB.

Substantial increases of over \$2 million per country were provided to countries with a high burden of TB or MDR-TB (see Annex F). A new program was launched in Zimbabwe, one of the global high burden countries for TB. In spite of turmoil there, USAID is improving the implementation of standardized TB treatment, increasing screening for TB among HIV-positive patients, and improving national logistics and information systems. Through USAID's regional efforts in East Africa and Asia, support was provided to regional centers of excellence for MDR-TB and regional reference laboratories.

These increased resources were used to decentralize and improve the quality of basic TB diagnostic and treatment services, increase the diagnosis and treatment of drug-resistant TB, implement infection control measures, and improve the capacity of reference laboratories. USAID also increased investments in research focusing on accelerating the introduction of new and improved TB diagnostics, and the Agency continued support for research for new anti-TB drugs.



Celebration of World TB Day in Kinshasa, DR Congo

E. BONGO ON BEHALF OF THE USAID/IDRC HEALTH TEAM

### **Remaining challenges**

Despite impressive progress, implementation of the Stop TB Strategy is slower than needed. Regional disparities reveal alarmingly low rates of treatment success in Europe (70 percent) and Africa (75 percent), due in part to MDR-TB and TB-HIV/AIDS co-infection. Efforts to engage the private sector, treatment of MDR-TB, and TB-HIV/AIDS collaborative activities need to be scaled up, while the important resources available through non-governmental organizations (NGOs) and communities should be more fully tapped.

Ensuring that all health service providers in the public and private sectors meet standard treatment and diagnostic guidelines is a critically important component of the Stop TB Strategy and of USAID's efforts. Lastly, enhanced TB detection tools currently available have not been introduced rapidly enough, and greater investment in new diagnostics, drugs, and vaccines is needed. In 2008, countries reported a total funding shortfall of \$1.5 billion compared to the requirements of the Global plan. Greater resources are needed to scale up TB control efforts worldwide.

# CHAPTER I

## USAID's Tuberculosis Program



*Community DOTS worker observes treatment at the home of a patient.*

The goal of the United States Government (USG) efforts to control tuberculosis (TB) is to contribute significantly to the reduction of TB transmission and deaths globally. The USG is committed to achieving the targets set forth in the Stop TB Partnership's<sup>1</sup> "Actions for Life – The Global Plan to Stop TB 2006–2015," to halve TB prevalence and deaths by 2015 compared to country levels in 1990. The Global Plan describes actions and resources required to achieve these targets and reinforces the Stop TB strategy, a robust technical approach launched in 2006 that builds on the directly observed treatment, short-course (DOTS) strategy to provide technical guidance for TB programs (see box, page 6).

The U.S. Agency for International Development (USAID) implements a comprehensive strategy that covers all components of the Stop TB Strategy. The primary focus of USAID's program is on supporting country-level efforts to improve TB diagnosis and treatment. In addition, USAID works in close partnership with other USG partners to target key research efforts, focusing primarily on later-stage research and on the introduction of new tools. USAID has also contributed substantially to improved approaches to implementing TB programs. USAID staff are involved in all of the Stop TB Partnership working groups, and a USAID staff member currently serves as chair of the Stop TB Partnership Coordinating Board. USAID was also heavily involved in the development of the Global Plan, the roadmap for actions in TB. USAID also works in close collaboration with the Global

Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund), as well as the World Health Organization (WHO) on TB prevention diagnosis and care.

Within the USG, TB efforts are well coordinated. There is an ongoing technical-level working group dedicated to international TB under the auspices of the Federal Tuberculosis Task Force. Specific roles have also been clearly established among the USG partners. USAID has the lead for international TB efforts, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) has the lead for TB-HIV/AIDS, the U.S. Centers for Disease Control and Prevention (CDC) works in close partnership with both USAID and PEPFAR on international efforts and has the lead for domestic TB, and the National Institutes for Health (NIH) has the lead for research.

At the country level, USAID's bilateral assistance for TB control provides financial and technical assistance to help countries scale up the Stop TB Strategy. USAID's programs aim to achieve and sustain the targets of 70 percent case detection and 85 percent treatment success among new sputum smear-positive pulmonary TB cases (the most infectious TB cases).

The launch of the Global Plan and the Stop TB Strategy, commitment by countries, and increased resources from

1. See footnote, Executive Summary, page 1.

## The Stop TB Strategy

1. Pursue quality DOTS expansion and enhancement
  - a. Political commitment with increased and sustained funding
  - b. Case detection through quality-assured bacteriology
  - c. Standardized treatment with supervision and patient support
  - d. An effective drug supply and management system
  - e. Monitoring and evaluation system, including impact measurement
2. Address TB-HIV/AIDS co-infection, multidrug-resistant TB and other challenges
3. Contribute to health systems strengthening
4. Involve all care providers
5. Engage people with TB and affected communities
6. Enable and promote research

USAID and other donors – notably the Global Fund – have built momentum and had a positive impact on global TB control efforts. The global case detection rate increased from 43 percent to 63 percent between 2003 and 2007, and the global target of 85 percent treatment success was achieved in 2006. This progress has resulted in global TB rates dropping from a peak of 142 new TB cases per 100,000 population in 2004 to 139 cases per 100,000 population in 2007.

Despite impressive progress, implementation of the Stop TB Strategy is slower than needed, as indicated by an analysis of the global TB trends, and challenges remain. Case detection is lagging in Europe and Africa in particular, where rates are 51 percent and 47 percent respectively. While overall treatment success in DOTS programs is 85 percent (2006 cohort), regional disparities reveal alarmingly low rates of treatment success in Europe (70 percent) and Africa (75 percent), due in part to multidrug-resistant TB (MDR-TB)<sup>2</sup> and TB-HIV/AIDS co-infection. The progress made in Asia is also fragile, and programs require continued strengthening. Efforts need to be accelerated to engage the private sector, treat MDR-TB, and scale up TB-HIV/AIDS collaborative activities. The important resources available through nongovernmental organizations (NGOs) and communities

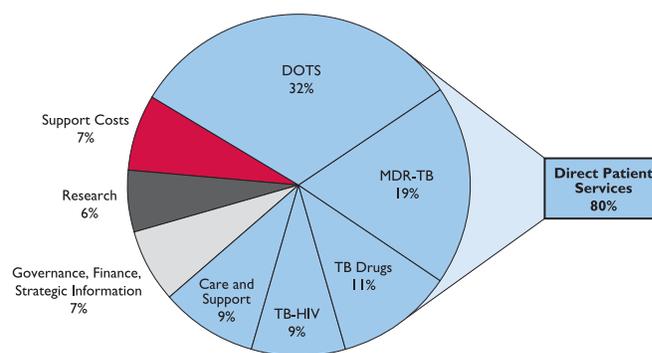
should be more fully tapped. Ensuring that all health service providers in the public and private sectors meet standard treatment and diagnostic guidelines is a critically important component of the Stop TB Strategy and of USAID's efforts. While much progress has been made, Erlina's story on page 7 demonstrates the horrific consequences of not doing so.

Lastly, enhanced TB detection tools currently available have not been introduced rapidly enough, and greater investment in new diagnostics, drugs, and vaccines is needed. In 2008, countries reported a total funding shortfall of \$1.5 billion compared to the requirements of the Global Plan.<sup>3</sup> Greater resources are desperately needed to scale up and strengthen TB control efforts worldwide.

### USAID funding allocation for tuberculosis in 2008

In fiscal year 2008, USAID's total TB funding level was \$162,154,000. As Figure 1 demonstrates, 80 percent of the Agency's budget was allocated to direct patient services, including for DOTS, anti-TB drugs, MDR-TB, TB-HIV/AIDS, and care and support to TB patients. Overall, a total of 87 percent of the budget is dedicated to health systems strengthening, including direct patient services (80 percent), and governance, finance, and strategic information (7 percent).

**Figure 1: USAID Total Funds Allocated for Tuberculosis in FY 2008**



Source: Foreign Assistance and Coordination Tracking System (FACTS)

2. MDR-TB is a form of TB that is resistant to at least isoniazid and rifampicin, the 2 most important first-line anti-TB drugs.

3. The Global Plan to Stop TB 2006–2015: Progress Report 2006–2008 (pre-publication issue), p. 40.

## Erlina's Story: Tragic Effects of MDR-TB

Erlina symbolizes the huge challenge for TB control in Indonesia and other countries. At the age of 16, Erlina became ill with cough and fever. Her father had died of TB when she was a child. When her condition worsened, her mother, believing the quality of care was higher in the private sector, took Erlina to several private doctors who prescribed various kinds of treatment. She remained ill, so the family consulted lung specialists in the local hospital, 3 hours from home. There Erlina underwent many unnecessary and expensive diagnostic tests. Her family was unable to pay the mounting hospital bills, and Erlina had to drop out of school. They had to sell the rice field and cow in order to buy the drugs that were prescribed by the private physicians. Sadly, Erlina and her family did not know free TB drugs and quality care were available in the local government health center near her house. She stopped treatment when her family could no longer afford it.

Then Erlina developed serious problems breathing and began coughing blood. She was admitted to the hospital, where her lungs were found to be completely destroyed by TB, and she had to be put on oxygen. There she was treated by a lung specialist who did not follow international standards of care. She received an inadequate treatment with only 2 anti-TB drugs (instead of the 4 commonly used), with unacceptable (toxic) dosage levels. As a result, she became resistant to all first-line TB drugs.

Erlina's condition became grave, and she died a few months later. Health workers from the nearby government health care facility visited the family to examine her relatives and other close contacts. Both her mother and little brother were diagnosed with TB and successfully treated free of charge.

**Mismanagement of TB cases in hospitals and the private sector is still widespread and of major concern in Indonesia and constitutes a direct risk for the uncontrollable spread of multidrug resistance in the country and abroad.** USAID, through the Tuberculosis Control Assistance Program (TB CAP), has worked closely with Indonesia's National Tuberculosis Control Program (NTP) to strengthen the public health care services most easily accessible to the population. However, these services are not always perceived as the best places for care, and TB patients often seek expensive and inadequate private sector services.

Through TB CAP, USAID has increased its support to the Indonesia TB control program by strengthening the basic elements of the national DOTS program and developing strategies to address the challenges of TB drug resistance and TB-HIV. There is a particular focus on building the capacity of hospitals and the private sector, implementing International Standards for Tuberculosis Care (ISTC), involving professional societies, strengthening laboratory capacity, and implementing the first pilot projects to treat drug resistant TB. These strategies will reduce TB transmission, avert deaths such as Erlina's, and ensure access to quality care at all entry points of the health care system.



# CHAPTER 2

## Tier 1 Country-level Activities

*Nurse Fikile Dlongolo speaks with school children at Sphephelo High School in Efolweni, Durban, on World TB Day.*



**T**imely detection and effective treatment of tuberculosis (TB) prevents the transmission of the disease within the community to neighbors, friends, and family members. Unnecessary pain, suffering, and death are averted. The provision of good-quality TB services is essential to reducing the toll that TB takes on families and communities as well as the economic burden on the country. USAID's programs play a key role in expanding and strengthening TB services in the countries most affected by the disease.

In fiscal year 2008, USAID supported the expansion and strengthening of directly observed treatment, short-course (DOTS) services and other components of the Stop TB Strategy in 40 countries: 20 Tier 1 priority countries and 20 Tier 2 countries. USAID focuses the majority of its technical and financial resources in the Tier 1 priority countries, which have the greatest burden of TB.

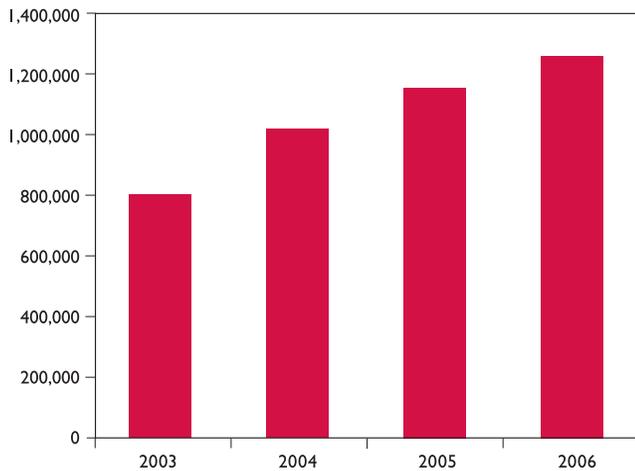
Impressive progress has been achieved in USAID assisted countries. In Tier 1 priority countries, the case detection rate increased from an average of 43 percent in 2003 to 57 percent in 2007, and the number of new smear-positive TB patients successfully treated increased by 54 percent, from 805,781 in 2003 to 1,264,100 in 2006. **As a result, more than 600,000 lives were saved in 2006 alone.**

### External Evaluation Findings for USAID's Leading Implementation Partner

The TB Control Assistance Program (TB CAP) is USAID's leading TB implementation program, programming almost 40 percent of USAID's country-level activities. TB CAP is implemented by a coalition of leading TB experts: KNCV TB Foundation, the International Union Against TB and Lung Disease, the World Health Organization (WHO), the American Thoracic Society, Management Sciences for Health (MSH), Family Health International, and the Japanese Anti-Tuberculosis Association. A team of independent evaluators found that the TB CAP Program "is a highly successful project that has made significant impact... . In countries it directly supported, TB CAP has improved capacity to provide better-quality services to control TB, and it has indirectly strengthened other countries through its significant contributions to TB control efforts."

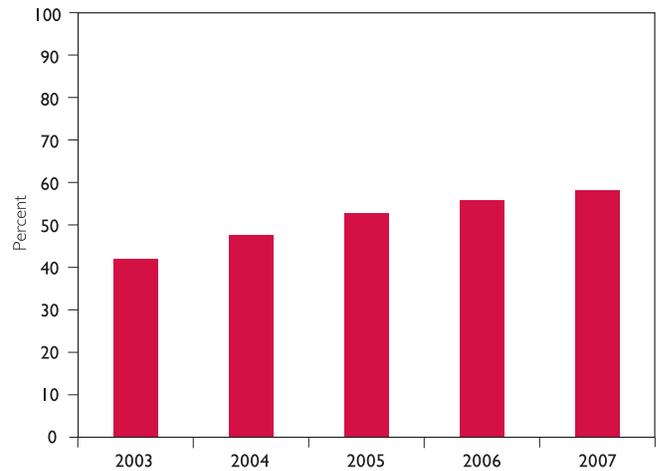
Figure 2 on page 11 provides a map of the countries where USAID supports TB programs. In this chapter, we describe activities in the 20 Tier 1 priority countries. A description of activities in USAID Tier 2 countries is provided in Annex B.

**Total Number of Sputum Smear-Positive TB Patients Successfully Treated in Tier I Countries: 2003–2006**



Source: Global Tuberculosis Control WHO Report 2009

**Average DOTS Case Detection Rate in Tier I Countries: 2003–2007**



Source: Global Tuberculosis Control WHO Report 2009

### USAID's Tier I country programs

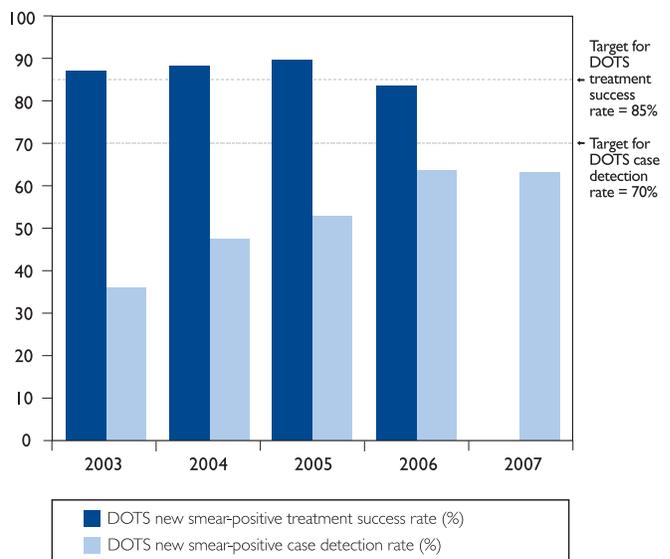
**AFGHANISTAN** ranks 22<sup>nd</sup> on the WHO list of 22 high-burden countries that account for 80 percent of TB cases in the world. Approximately 40,000 new TB cases occur annually in Afghanistan, and more than 8,000 people die from TB each year. Sixty-eight percent of Afghanistan's notified TB cases are women, and according to WHO, 3.4 percent of new TB cases are multidrug-resistant.

**With increased support, improved regional coordination, and greater collaboration between private providers and communities, DOTS coverage is now at 97 percent.** Although case detection was 64 percent in 2007, treatment success continued to be high at 84 percent in 2006 – an impressive achievement in a country with significant geographic and security challenges.

USAID currently works with the Ministry of Public Health (MOPH) at the central and provincial levels to guide the national TB control program (NTP) in expanding services, ensuring equity, and fostering sustainability. To date, the program covers 12.9 million people in rural areas in 13 target provinces throughout the country. USAID promotes expansion of DOTS coverage, increased collaboration with private providers, improved laboratory services, and engagement of communities in TB control. A public-private sector strategy was developed to increase case detection and treatment

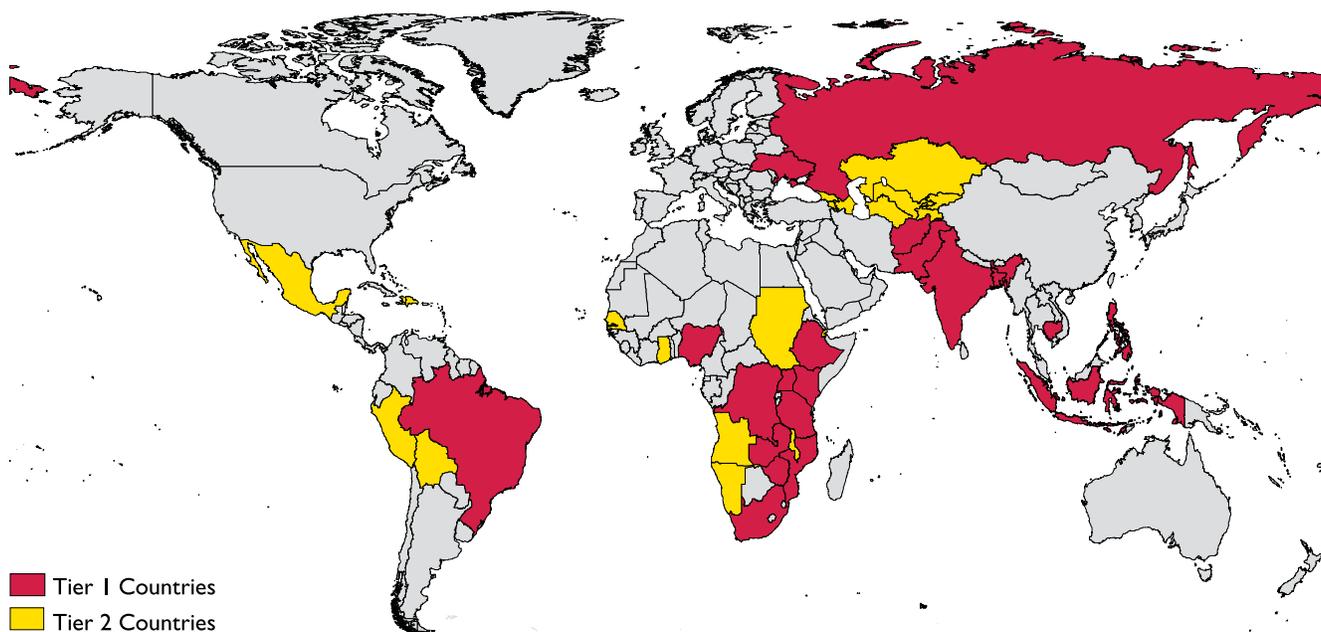
by providers in the private sector, where many people initially seek care. **Quality of care was improved by introducing standard operating procedures for health clinics and updating the national TB strategic plan.**

**Afghanistan: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

Figure 2. Map of World: USAID Tier 1 and Tier 2 TB Priority Countries



Note: USAID supports TB activities in Southern Sudan

To reduce stigma and stimulate demand for TB services, a plan for national advocacy, communication, and social mobilization is being developed and supported.

USAID assistance in 13 target provinces includes the following interventions:

- Improving TB laboratory services, resulting in more than 90 percent of laboratories in target areas having the capacity to accurately diagnose TB.
- Encouraging early case detection and promoting adherence to treatment protocols through community health workers (CHWs), mobile health teams, and non-health sector stakeholders such as religious leaders and school teachers.
- Establishing a drug management information system at the MOPH to improve drug management and reduce stockouts.
- Introducing TB infection control measures to reduce transmission.
- Promoting the discussion and dissemination of the International Standards for Tuberculosis Care (ISTC),

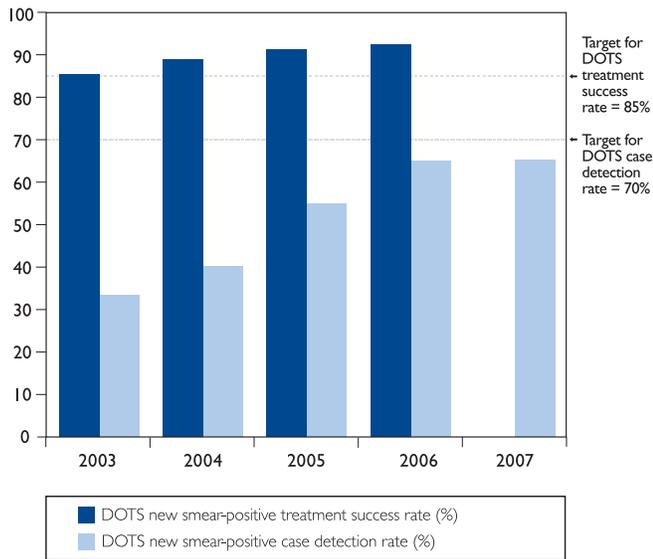
the Patients' Charter, and other treatment and care guidelines to improve the quality of care by all providers.

**BANGLADESH** is 6<sup>th</sup> among the world's 22 high burden countries. In 2007, there were an estimated 353,000 new cases of TB. Bangladesh has achieved remarkable progress in TB control over the past years. In 2006, the global target for treatment success rate (85 percent) was surpassed at 92 percent. TB diagnostic and treatment services are widely available. In 2007, case detection rate of new sputum smear-positive patients was 66 percent. **The estimated TB death rate has been reduced from 53 per 100,000 in 2003 to 45 per 100,000 in 2007.**

USAID is helping to fight TB in Bangladesh by supporting the goals outlined in the National Tuberculosis Control Program's 5-year strategy. USAID focuses on improving the quality of DOTS, as this is critical to sustaining current achievements; increasing case detection rates; and preventing the further development of drug-resistant TB.

USAID's program supports DOTS expansion in urban areas by engaging nongovernmental organizations (NGOs) that previously did not provide DOTS services, and by increasing the number of volunteers who can

### Bangladesh: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

identify persons with symptoms of TB in the community and refer them to health services. USAID has led the initiation of outreach services to populations at risk for TB-HIV/AIDS co-infection through the provision of TB screening of people living with HIV/AIDS (PLWHA), HIV testing, and referral links between clinics providing TB and HIV/AIDS services. To improve TB diagnosis, USAID supports the laboratory quality assurance system to decrease the error rate in diagnosing TB and to improve detection of MDR-TB.

USAID assistance includes the following activities:

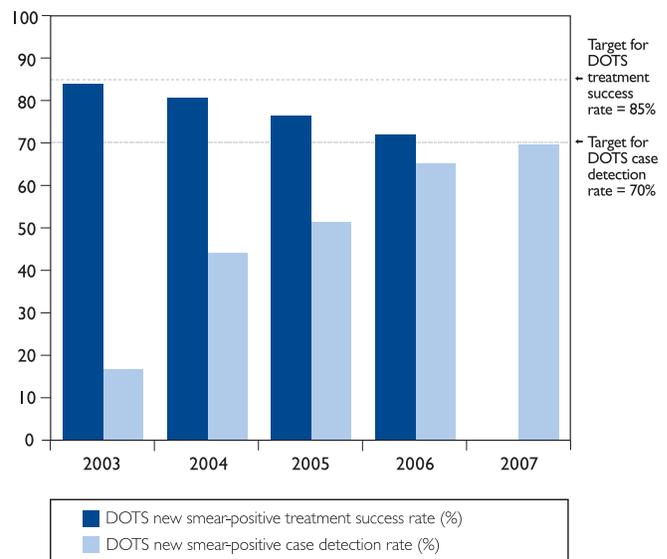
- Increasing availability of drugs provided through the Global TB Drug Facility (GDF) by improving supply chain management and procurement practices.
- Providing external quality assurance services to microscopy centers in the capital city and supervisory visits to all USAID-supported DOTS centers to decrease the error rate in diagnosing TB.
- Improving detection of TB patients by educating pharmacists, religious leaders, and factory workers to identify potential TB cases and referring them to nearby microscopy centers for diagnostic testing.

- Introducing TB infection control measures to reduce transmission of disease.
- Supporting the expansion of TB lab services by upgrading laboratories with improved diagnostic equipment, including equipment for MDR-TB detection, and installing a laboratory information system.

**BRAZIL** is the only country in the Western Hemisphere listed among the 22 high burden countries. USAID is working with Brazil's NTP, the Pan American Health Organization (PAHO), and Management Sciences for Health to combat Brazil's TB epidemic. USAID is strategically focused on the states of Rio de Janeiro and São Paulo because they contribute more than 40 percent of new TB cases every year, and co-infection with HIV runs as high as 25 percent in some major cities in these 2 states.

The country has not yet reached WHO targets for case detection and treatment success, but considerable progress has been made since USAID began assisting Brazil in 2002. **DOTS population coverage is now at 75 percent, and case detection rate has increased from 17 percent in 2003 to 69 percent in 2007.** USAID strategically invested in funding a drug-resistance survey,

### Brazil: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

the results of which influenced the government to include a fourth antibiotic for first-line TB treatment that now brings Brazil's treatment regimen in accordance with WHO recommendations. This important policy change is a critical step in preventing the development of drug resistant-TB.

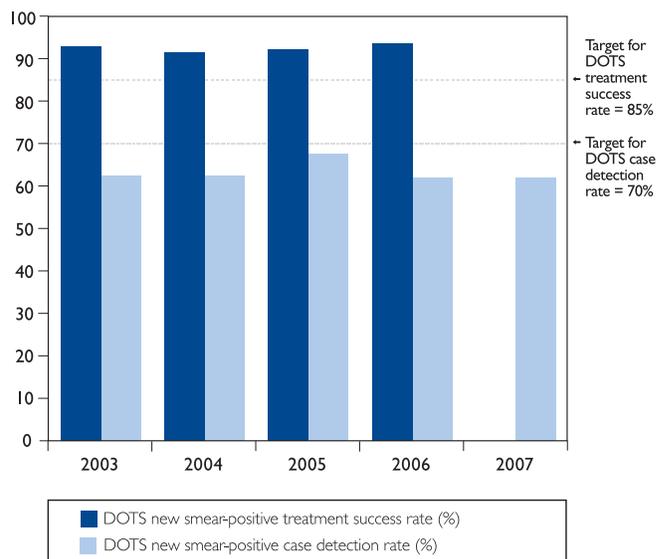
USAID support includes the following activities:

- Conducting high-level political advocacy that resulted in the inclusion of DOTS in the national TB control policy and paved the way for DOTS expansion nationally.
- Training a team to supervise, monitor, and evaluate the quality of DOTS expansion in priority municipalities through the PAHO Nurse Supervisor Training Project.
- Decentralizing the management of MDR-TB through implementation of an innovative information system – TB Manager – in all 122 MDR-TB referral centers. This software, developed by MSH, is also now being introduced in Eastern Europe, which reports the highest rates of MDR-TB in the world.
- Launching the LABMOST management system for TB pharmaceutical control and training health professionals in its use.
- Supporting the national pharmaceutical laboratory in the formulation of new 4-in-1 fixed dose combination anti-TB drugs.

In **CAMBODIA**, about 12,800 people die annually from TB, and the country is ranked 21<sup>st</sup> among the 22 high burden countries. There were more than 72,000 new TB cases in 2007, with an estimated incidence rate of 495 cases per 100,000 population. HIV prevalence among new TB cases is 7.8 percent – very high compared with the national HIV prevalence of 0.8 percent.

**The country has reached a case detection rate of 61 percent and a treatment success rate of more than 90 percent thanks to USAID-supported activities that focus on expanding access to and strengthening the quality of DOTS, on providing TB-HIV/AIDS services through the implementation of community-based DOTS (C-DOTS), and on using the public-private mix (PPM) strategy.** USAID provides technical assistance to the NTP to improve the diagnostic capacity of

### Cambodia: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

the public health system and to implement the national drug-resistance survey.

Involving the private sector is particularly important, since approximately 60 percent of people with symptoms of TB first seek care from private sector providers/drug sellers, and 35 percent of those chose not to seek further treatment. USAID supported the first C-DOTS and PPM DOTS pilot projects, now being scaled up nationally, to ensure that information better reaches people in rural areas, to encourage appropriate care-seeking behaviors, and to establish referral linkages. USAID provided assistance for the development of national guidelines for C-DOTS, which has proven instrumental in the standardized scale-up of C-DOTS.

USAID activities include:

- Referring almost 13,000 patients with symptoms of TB from private clinics and pharmacies to DOTS services in the 3-year project in the 11 out of 22 provinces with PPM efforts.
- Implementing C-DOTS in 60 percent of health centers, with more than 30 percent of those health centers and communities directly supported by

USAID. USAID has trained village health workers and traditional healers and increased health staff capacity for supervision and coordination.

- Developing a case management model for HIV-positive patients to ensure linkages to TB screening and treatment to improve diagnosis and treatment of persons with TB-HIV co-infection.
- Increasing the proportion of TB patients receiving HIV counseling and testing increased from 11 percent to 45 percent in the past 2 years.
- Providing equipment to ensure that MDR-TB can be diagnosed and strengthening laboratory diagnostic capacity through external quality assurance, training in smear microscopy, and the use of diagnostic committees to review more difficult TB cases.

**DEMOCRATIC REPUBLIC OF CONGO (DRC)** ranks 10<sup>th</sup> among the 22 high burden countries. The country had an estimated 417,156 TB cases in 2007, with an incidence rate of 392 cases per 100,000 population. Six percent of all people with TB are also infected with HIV. Although conflict and collapsed infrastructure continue to limit care-seeking and treatment, the NTP is

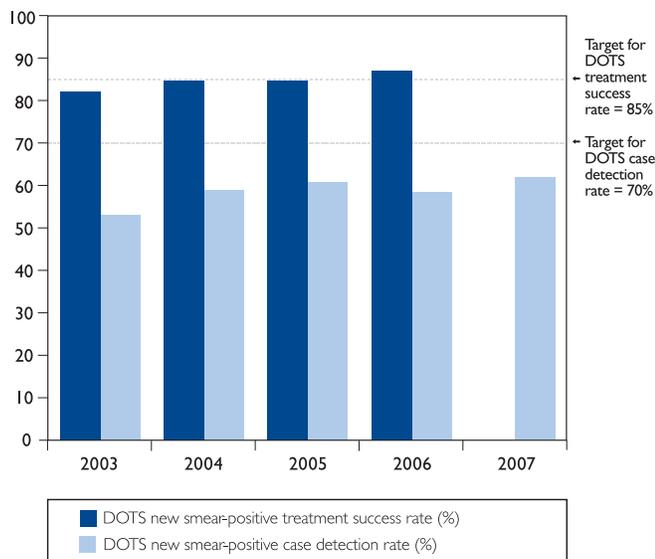
one of the strongest health programs in the country. USAID has been a major contributor to the strengthening of NTP management and leadership. However, the DRC's weak national health system is a challenge to TB program coordination. The supply of TB commodities is complicated by the country's vastness and is almost entirely dependent on air transport, greatly increasing the cost of providing basic health supplies and services.

**USAID provides ongoing support to 385 health centers representing 30 percent of all health facilities testing for TB in DRC. The support has been instrumental in helping the National TB and Leprosy Program and partners to achieve an increase in the case detection rate from 51 percent in 2001 to 61 percent in 2007. Likewise, the treatment success rate increased from 77 percent in 2001 to 86 percent in 2006.**

The presence of MDR-TB and the TB-HIV/AIDS epidemic are serious threats to TB control. USAID technical assistance has been crucial in obtaining Green Light Committee (GLC)<sup>4</sup> approval for treatment of 347 MDR-TB cases. USAID works to strengthen TB-HIV/AIDS coordinated activities, as well as improve human and institutional capacity for sustainable programs. At USAID-supported voluntary testing and counseling centers, 16 percent of TB patients tested HIV-positive in 2008.

In 2008, USAID supported the revision and dissemination of national policies and corresponding guidelines for MDR-TB and TB-HIV co-infection, as well as the completion of 2 evaluations: The DOTS Implementation Progress Evaluation showed that case detection rates are stabilizing in most provinces; however, the evaluation also highlighted under-detection of cases in South Kivu province and high rates of TB in 4 health zones of Katanga province. As a result of this evaluation, USAID initiated an intensified effort to control the high burden of TB in Katanga. Additionally, operational research has been initiated in South Kivu province to understand better the causal factors for under-detection and to develop effective responses.

**DR Congo: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

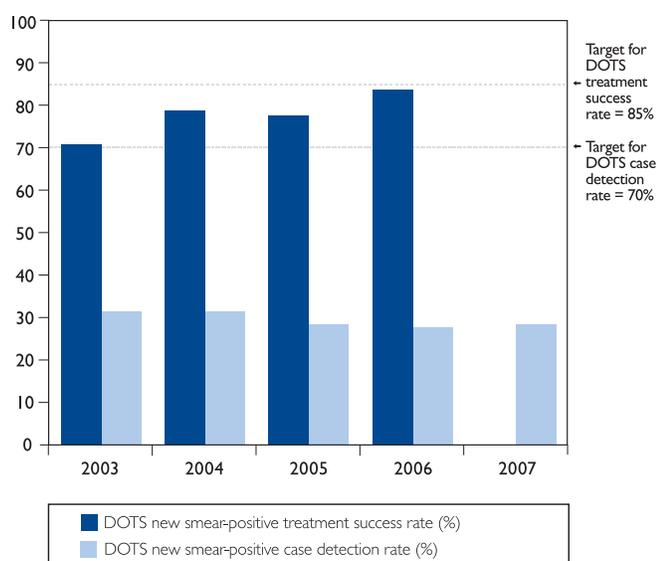
4. The GLC is a technical review committee coordinated by WHO. The GLC reviews and guides programs to treat drug-resistant TB. Programs that receive GLC approval are eligible to purchase second-line anti-TB drugs through a GLC pooled procurement mechanism at substantially discounted prices.

Additionally, USAID assistance includes the following:

- Strengthening the smear microscopy quality assurance system to reduce laboratory errors.
- Establishing a national reference laboratory (NRL) for MDR diagnosis and quality control.
- Increasing HIV testing of all TB patients at the General Reference Hospital in Lubumbashi.
- Training 1,303 community health workers (CHWs) and 61 former TB patients to identify and refer suspected cases as well as to support adherence to treatment.
- Training 807 health facility staff (doctors, nurses, supervisors, and laboratory technicians) to improve the quality of diagnosis and treatment.

**ETHIOPIA** ranks 7<sup>th</sup> among the world's 22 high burden countries. The country had an estimated 314,267 TB cases in 2007, with an estimated incidence rate of 378 cases per 100,000 population. Ethiopia is challenged by a very low case detection rate of 28 percent yet almost reaching the treatment success rate target with 84 percent. There is a TB-HIV co-infection rate of 19 percent.

**Ethiopia: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

WHO estimates that close to 5,000 patients are afflicted with MDR-TB, making up an estimated 1.6 percent of all new TB cases.

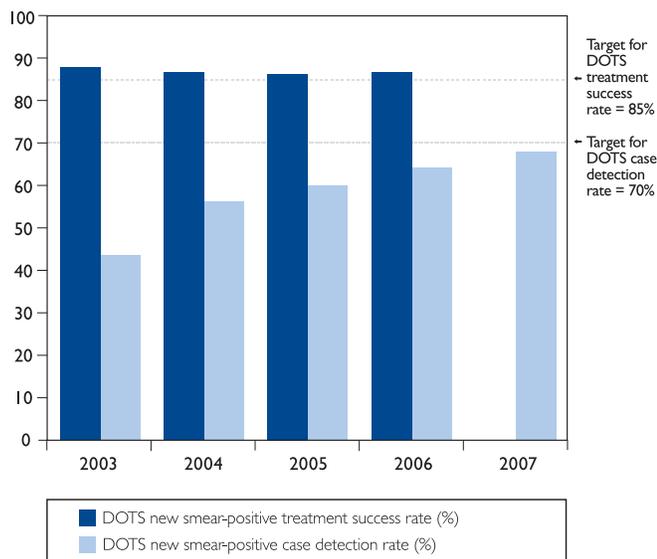
USAID technical assistance has been crucial in obtaining Green Light Committee approval for treatment of an initial 45 MDR-TB patients. **USAID has worked in collaboration with PEPFAR to support USAID's Private Sector Program, which aims to increase TB case detection in USAID-supported private clinics. This program accounted for 20 percent of TB case notifications in the capital city of Addis Ababa.** USAID activities, implemented by TB CAP, include enhancing community-based TB control and DOTS, strengthening laboratory services, supporting TB drug management systems, supporting the control of MDR-TB, and promoting infection control through behavioral change and health education.

USAID also supports the following interventions:

- Training more than 40 health care workers involved in the care of MDR-TB patients.
- Conducting a TB Infection Transmission Risk Assessment; findings were used to develop the national MDR-TB management and TB infection control guidelines.
- Strengthening the existing TB drug management system within the general drug management system through mapping and streamlining the supply chain process.
- Training 694 clinical personnel in DOTS.
- Conducting a national sensitization workshop and developing information, education, and communication materials, including a booklet on TB for health extension workers to expand community TB prevention and care activities.

**INDIA** has more people living with TB (3.3 million in 2007), more new cases of TB and MDR-TB each year (1.9 million and 130,500, respectively, in 2007), and more people dying from TB (331,000 in 2007) than any other country in the world. According to the Global Tuberculosis Control WHO Report 2009, 1 in 5 cases of TB and 1 in 4 cases of MDR-TB emerge in the country of India. The Government of India estimates that TB, as the leading infectious disease cause of mortality

### India: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

in the country, costs the nation \$300 million in direct costs and \$3 billion in indirect costs each year. USAID is a key partner with the Government of India in addressing the challenges of TB control. **USAID works in partnership with WHO and the U.S. Centers for Disease Control and Prevention (CDC) to strengthen the Government of India's Revised National TB Control Program (RNTCP).** Technical assistance focuses on priorities such as sustaining and improving the quality of DOTS, expanding services for diagnosis and treatment of MDR-TB, and strengthening linkages between TB and HIV/AIDS services and control activities.

USAID technical assistance has borne results, including:

- Supporting the RNTCP to implement DOTS expansion in Haryana state, resulting in more than 35,000 cases initiating treatment in 2008.
- Expanding intensified case finding for TB in HIV counseling and testing centers in high HIV-prevalence states. As a result, more than 124,000 TB suspects were identified and 19,000 were diagnosed as TB patients and began DOTS.

## Reaching the Excluded: The Musahars of Bihar

Bihar is the third most populous state in India. Approximately 85 percent of the population lives in the rural countryside. Poor awareness of TB, delayed care seeking, and inadequate reach of DOTS services in remote areas are major concerns in the state. Poverty and social discrimination keep vast segments of this rural population from accessing existing services.

The Musahar communities of Bihar are a microcosm of health and development needs. The strong caste system in the state imposes geographic as well as social barriers to accessing health, education, and other services. Very few health services reach the 2.1 million Musahars living in more than 1,200 villages across the state. Excluded from the mainstream, these vulnerable communities are steeped in misconceptions regarding care-seeking and other health behaviors.

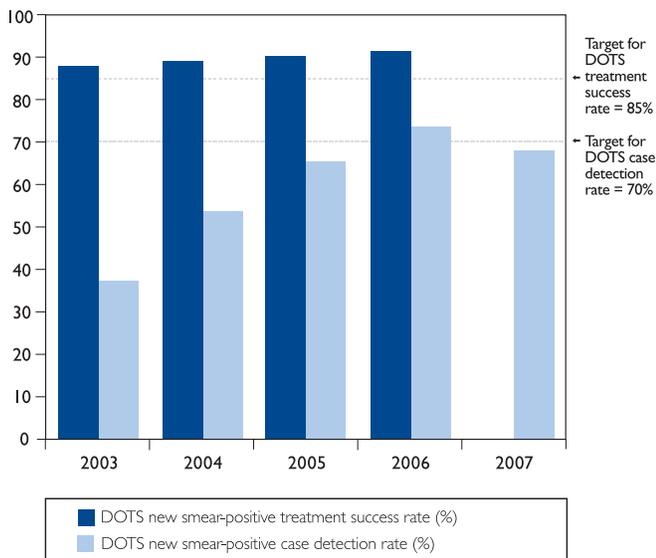
USAID is working with NGOs to provide DOTS services and to mobilize the community to detect TB and support TB patients to complete treatment. Adventist Development and Relief Agency and MAMTA Health Institute for Mother and Child partner with USAID to carry out advocacy, communication, and social mobilization (ACSM) interventions and have been steadily mobilizing the community to come forward in the fight against TB. The project covers 14 districts and is implemented in collaboration with a network of more than 60 local NGOs, community-based organizations (CBOs), and local community-based women's groups that reach into the farthest and most excluded Musahar populations within these districts. The project has increased awareness in communities about early diagnosis, treatment, and follow-up of patients with TB. The positive response from community members has been overwhelming, and there has been high demand for more technical support and trainings to increase access to the DOTS centers and to strengthen strategies for follow-up of TB patients. Lachanpur, with a population of 1,600, is one such village visited by the project's local partners, who found 4 young people and 1 elderly woman with symptoms suggestive of TB. With help from community members and the district TB office, they were able to access quality TB treatment at a DOTS center 4 kilometers away.

- Strengthening and accrediting state-level intermediate reference laboratories for the provision of culture and drug sensitivity testing (DST) services, necessary for MDR-TB diagnosis.
- Initiating treatment for the nation's first cohort of 100 MDR-TB patients.
- Providing technical assistance to implement external quality assessment for smear microscopy in more than 12,000 designated microscopy centers.

**INDONESIA** ranks 3<sup>rd</sup> on the list of 22 high burden countries, with an estimated 528,000 new TB cases in 2007. USAID has been one of the major supporters of the NTP through the TB CAP project, with more than \$23 million invested over the last 8 years. During this time, the program has been a model for other countries to scale up a geographically complex program in a short period of time. The treatment success rate has been consistently surpassed for the past 7 years. In 2007, 68 percent of the estimated new smear-positive cases were diagnosed, just shy of the global case detection target.

**Of those diagnosed, 91 percent of all new TB cases are completely treated or are cured.**

**Indonesia: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

This impressive progress has been achieved by improving the diagnosis and treatment of TB at the earliest entry point to health care services. With USAID assistance, the NTP partnered with private associations and hospitals to ensure the International Standards of Tuberculosis Care (ISTC) were adopted and implemented in the private sector to improve the quality of care (see Erlina's story on page 7). In addition, there is a continued effort to provide ongoing training for new and existing staff to maintain their skills and to conduct supervision at health facilities. USAID has also supported the NTP to improve the quality of TB diagnosis and treatment in the major prisons – a common breeding ground for the disease.

Although only 2 percent of all new TB cases are MDR-TB, there were an estimated 12,000 cases in 2007, and Indonesia is 5<sup>th</sup> on the list of 27 high priority MDR-TB countries in the world. Indonesia is also 1 of 55 countries where extensively drug-resistant (XDR-TB) has been confirmed. USAID is supporting the NTP in the first GLC approved MDR-TB pilot treatment program in Jakarta.

Specific activities supported by USAID include:

- Conducting the first representative drug resistance surveillance survey in Java Province (1,226 samples have been cultured and DST tested through quality assured laboratories).
- Training 1,183 medical doctors and other hospital staff in TB control, and strategically positioning 30 senior technical health officers in the 4 largest provinces.
- Developing internal networks for DOTS in 75 hospitals and external referral networks with health centers in 10 districts, leading to doubling of the notification of TB patients diagnosed in these hospitals.
- Developing a national External Quality Assurance (EQA) system for the laboratories, with 3 reference labs now meeting international quality control standards.
- Establishing a national strategic plan and policy document for DOTS implementation in prisons. DOTS surveillance is now established in 10 large prisons.

**KENYA** ranks 13<sup>th</sup> on the list of 22 high burden countries and has the 5<sup>th</sup> highest TB burden in Africa.

## Performing to the Standard – Engaging Large Hospitals in DOTS

A key element of successful implementation of the WHO International Standards for Tuberculosis Care (ISTC) is the referral of possible TB cases from non-TB providers in both public and private facilities to treatment centers for diagnosis, treatment, support, and evaluation.

With support from TB CAP, the NTP has established referral networks within 75 large Indonesian hospitals and external referral networks with health centers in 10 districts. Consequently, the notification of patients diagnosed in hospitals according to DOTS guidelines doubled in 1 year.

To increase the involvement of health professionals in the newly established referral networks, TB CAP mobilized professional societies through the establishment of local task forces for the implementation of ISTC. TB CAP helped create a Central Task Force within the Indonesian Medical Association that is now highly proactive and have successfully established local ISTC task forces in 13 of the largest provinces in the country. The task forces are instrumental in the acceptance of ISTC (and DOTS) among specialists and other providers. More than 100 facilitators have been trained to implement a training curriculum on ISTC and hospital DOTS referral. As a result, it is expected that case detection and treatment success will increase even further.

There was a gradual decline in TB incidence from the 1970s to the mid-1980s, but with the advent of HIV, these gains were reversed by a more than 10-fold increase in TB cases – from 10,000 in 1987 to 116,723 in 2007.

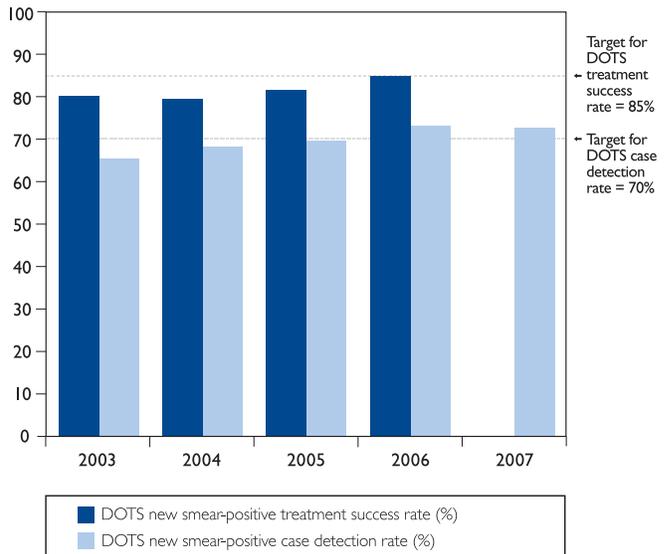
**Since 2003, there has been a gradual decline in the rate of increase of TB cases due to intensified efforts by the Kenyan government and its partners, including USAID.** These joint efforts contributed to Kenya, in 2006, being the first country in sub-Saharan Africa to meet global targets for case detection and treatment success. Kenya's burden of MDR-TB is still low; the most recent estimates by WHO suggest that 1.9 percent of all smear-positive TB cases in Kenya have MDR-TB.

Since USAID began TB activities in Kenya in 2001, improvements have occurred in DOTS expansion, the laboratory network, quality assurance, and TB drug distribution. Strong managerial and operational structures have been established at all levels. USAID has worked to strengthen interagency collaboration and establish a Kenyan Stop TB Partnership. USAID has a strong partnership with the PEPFAR TB-HIV/AIDS implementing partners, ensuring strong coordination of TB and HIV/AIDS activities, at both planning and implementation phases, through the TB Interagency Coordinating Committee. In 2007, Kenya had one of the highest rates of HIV testing among tuberculosis patients: 79 percent of TB patients were tested for HIV with 48 percent testing positive.

USAID also supports the following interventions:

- Strengthening the TB drug logistics system, focusing on forecasting and distribution of TB and other drugs, and supporting staff supervision.

**Kenya: Case Detection and Treatment Success Rates Under DOTS**

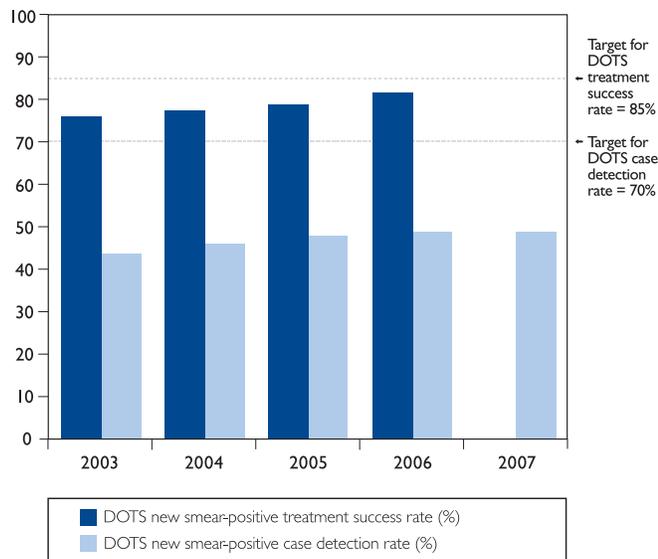


Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

- Scaling up the pilot public-private mix DOTS to expand the involvement of all providers in DOTS.
- Scaling up TB treatment initiation and adherence and strengthening and expanding community-based DOTS (C-DOTS), including an urban TB control strategy in Nairobi and other major cities.
- Developing and implementing infection control policies and TB-HIV/AIDS co-infection guidance at major hospitals and facilities.
- Implementing Advocacy, Communications and Social Mobilization (ACSM) policy guidelines to increase demand for HIV testing and TB diagnosis and treatment.
- Strengthening the surveillance capacity and routine monitoring and evaluation of TB and TB-HIV/AIDS co-infection, including MDR-TB.

**MOZAMBIQUE** ranks 19<sup>th</sup> among the WHO 22 high burden countries, with almost 92,300 TB cases in 2007. The case detection rate, at 49 percent, is below the WHO target, while the treatment success rate of 83 percent is close to the 85 percent target. The TB-HIV co-infection

**Mozambique: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

rate is high, with 47 percent of new TB patients testing HIV-positive. In 2008, an estimated 3.5 percent, or more than 3,200 new TB cases, were MDR-TB. XDR-TB was confirmed in the country in September 2007.

The main components of USAID's program in Mozambique are TB-HIV/AIDS collaborative activities, C-DOTS expansion, and laboratory strengthening. C-DOTS has been implemented in the targeted provinces of Gaza, Sofala, Nampula, and Zambezia. **Community volunteers, as part of the C-DOTS program, identified and referred 4,800 people with signs and symptoms of TB to health centers (of whom 3,264 were diagnosed with TB).** USAID and PEPFAR work with both the NTP and the HIV unit within the Ministry of Health (MOH) in a collaborative effort, together with other donors, to coordinate and expand TB-HIV/AIDS services.

Highlights of USAID supported activities and achievements include:

- More than 1,000 patients with TB in C-DOTS programs in targeted provinces receiving support from a TB treatment supporter, activists, and community volunteers.
- Distributing 25 microscopes for sputum smear examination and developing a curricula to train nurses in preparing slides for sputum exams.
- Upgrading the national and regional reference laboratories.
- Training 350 health care workers on MDR-TB management.

**NIGERIA** has the largest burden of TB in Africa and is ranked 4<sup>th</sup> among the 22 high burden countries globally. USAID remains a major donor supporting the strengthening and scale-up of interventions to prevent and control TB in Nigeria. 2008 marks the 5<sup>th</sup> year of USAID support for initiation and expansion of DOTS services in 17 states in northern Nigeria; in Lagos, the foremost commercial hub and the federal capital territory; and in Abuja, where there were no prior services.

**In 2008, with the establishment of 84 new treatment and microscopy facilities, USAID support resulted in almost 100 percent coverage of DOTS services in all local government areas in the 17 USAID-assisted states.** In these states alone, a total of 46,617 new TB cases



S. SACHER, USAID | DELIVER PROJECT

A workshop participant votes on recommendations during a TB logistics system assessment in Nigeria. Workshops such as this one, conducted in collaboration with the National Tuberculosis and Leprosy Control Program, identify issues, opportunities, and interventions to improve program management and implementation and strengthen quality assurance, with the ultimate goal of improving the diagnosis of and treatment for people with TB.

were notified and placed on treatment, representing 58 percent of new TB cases notified nationwide. According to the WHO offices in Nigeria, the case detection rate was 30 percent and the treatment success rate was 79 percent in 2008. In USAID-assisted states, WHO/Nigeria estimates the case detection rate to be much higher at 50 percent.

According to WHO, 1.9 percent of new TB cases and 9.3 percent of TB patients that have failed first-line treatment are multidrug-resistant. USAID is building the capacity of the NTP for MDR-TB diagnosis and management through the development of a strategic framework and guidelines, training curricula, and protocols. USAID supported the establishment of a TB culture reference laboratory and has plans to upgrade 2 additional laboratories.

In 2008, a total of 114,115 people accessed TB diagnostic services. WHO estimates that nearly 27 percent of new TB patients in Nigeria are HIV-positive. USAID works with PEPFAR and other partners to coordinate and improve TB-HIV/AIDS services. With other partner support, USAID has built the capacity for HIV testing in TB treatment facilities.

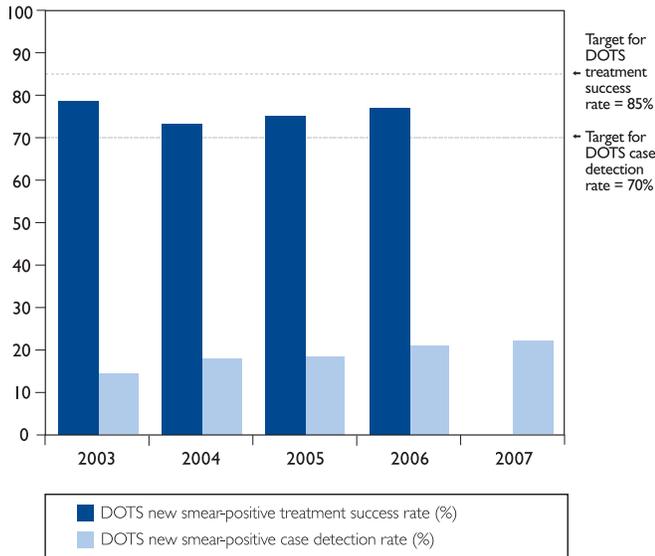
## Building Regional Capacity and Fulfilling an Ambitious Dream

The National TB and Leprosy Training Center (NTBLTC), situated in a small village near Zaria in the northern part of Nigeria, has served as a national training center for TB health staff since 1990. The Center has been a critical element in Nigeria's TB workforce development efforts, training professional health staff who work at the primary health care level, where most TB services are delivered. Among the training offered is an 8-week course for district TB supervisors and a 2-week course for laboratory technicians. With support from the Nigerian Government and other partners, many improvements were made to the Center's infrastructure and equipment, including upgrading and expanding the facility and renovating and redesigning the laboratory to ensure quality, maximize workflow, and address biohazard concerns. As a result, NTBLTC was selected to become an International Training Center for Anglophone Africa under the Institutional Capacity Building Project of the USAID-funded TB Control Assistance Program project.

Building the capacity of regional institutions to provide South-to-South capacity building is a fundamental approach of USAID's strategy to support human resource development for TB. While continuing to serve the needs of the NTP in Nigeria, the designation of the Center in Zaria as an International Training Center also enables this African institution to assist countries throughout sub-Saharan Africa build the capacity of health workers – something sorely needed in many countries in the region. When the first International Training Course on TB and TB-HIV Program Management was held on October 2008, 21 participants from 7 countries came to Zaria. For 2 weeks, they concentrated on data management and supervision, and they prepared a 6-month action plan on how they intended to incorporate the lessons learned into the TB programs in their countries.

During the opening ceremony for the first training, Dr. J. Obasanya, director of the Center, expressed that this achievement fulfilled a vision he had 10 years ago, when he saw potential for the NTBLTC to become an international training center. This dream was ultimately achieved with USAID assistance.

**Nigeria: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

USAID supports the NTP in the following areas:

- Training 2,874 health care workers, community health workers, and volunteers in DOTS service delivery, laboratory diagnosis; drugs and commodity logistics; and community TB care in 17 states in northern Nigeria.
- Finalizing the MDR-TB survey protocol.
- Establishing an International Training Center for Anglophone Africa in Zaria, Nigeria (see page 20).

In **PAKISTAN**, which ranks 8<sup>th</sup> among the 22 high burden countries, more than 297,000 people (primarily adults in their economically productive years) developed TB in 2007. The emergence of MDR-TB and TB-HIV/AIDS co-infection is a growing concern in the country. New MDR-TB cases rose from 2.0 percent in 2003 to 4.3 percent in 2007.

**DOTS treatment is available in 100 percent of the public health facilities, and the treatment success rate reached 91 percent among the 2007 cohort, surpassing the WHO target of 85 percent. The case detection rate rose from 13 percent in 2002 to 74 percent at the end of**

**2008, surpassing the WHO target of 70 percent.**

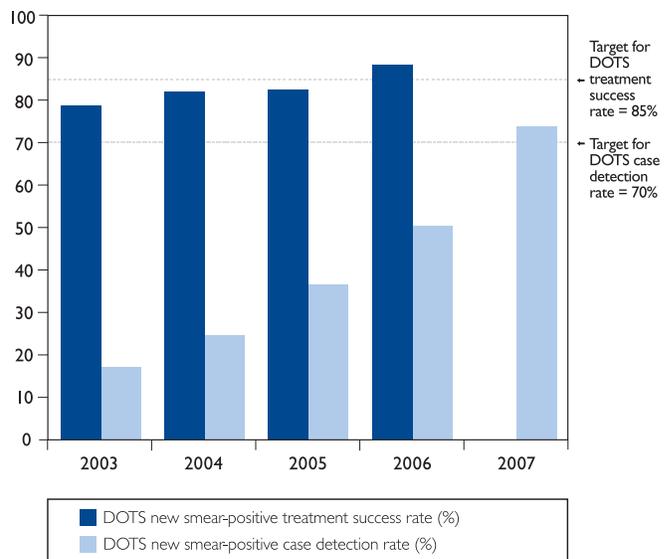
The steep and rapid rise in case detection represents increased involvement of private practitioners and community volunteers in identifying and referring TB suspects. This is a result of USAID’s support of public-private partnerships in Pakistan.

Since 2004, USAID support to the NTP for monitoring and evaluation has been critical to achieving 100 percent DOTS coverage. Through a USAID grant to WHO, support is provided for 20 national program officers who play a critical role in the NTP by assisting the district-level managers who supervise and monitor the quality of diagnosis, treatment, and reporting at individual facilities. USAID also supports PPM activities through NGOs in Lahore, Faisalabad, Khanewal, Rawalpindi, and Karachi.

Additional USAID TB activities in Pakistan include:

- Supporting a national TB prevalence survey to provide more concise estimates of the TB burden in Pakistan.
- Establishing referral links between the private sector and public sector to improve MDR-TB treatment.
- Training more than 1,000 private-sector physicians in TB detection and treatment.

**Pakistan: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.



Traditional healer Sheila Saliwa follows up with a client on TB medication. Sheila refers all persons suspected of having TB to the hospital.

- Supporting the Country Coordinating Mechanism to prepare an application for a Round 9 grant from the Global Fund.

Having reached the 70/85 target – 70 percent case detection of the estimated new smear-positive cases and successful treatment of 85 percent of these cases – Pakistan is on its way to achieving the 2015 Stop TB target, provided the DOTS strategy is effectively sustained at a high standard of quality.

The **PHILIPPINES** bears much of the world's TB burden, ranking 9<sup>th</sup> on the list of 22 high burden countries. TB is the 6<sup>th</sup> greatest cause of morbidity and mortality in the country. In recent years, however, the Philippines has made significant strides in controlling the disease. In 2004, the country surpassed global targets by achieving a case detection rate of 72 percent, and subsequently reached 75 percent in 2007. The treatment success rate also has been sustained above the global target of 85 percent for the past 7 years, reaching 89 percent in 2006. Although there has been success nationally, some provinces are still below target levels due to the varying quality of health services and social factors, including poor knowledge about TB and low numbers of persons with symptoms of TB who consult a health provider. USAID focuses its support in these low-performing areas.

USAID has been supporting TB control activities in the Philippines for the past 7 years and has contributed significantly to increased case detection and improved quality of DOTS. USAID assists the NTP, the Department of Health, and local government units in strengthening the public and private sectors' capacities to implement and expand DOTS. USAID assistance focuses on improving the policies and financing of TB control,

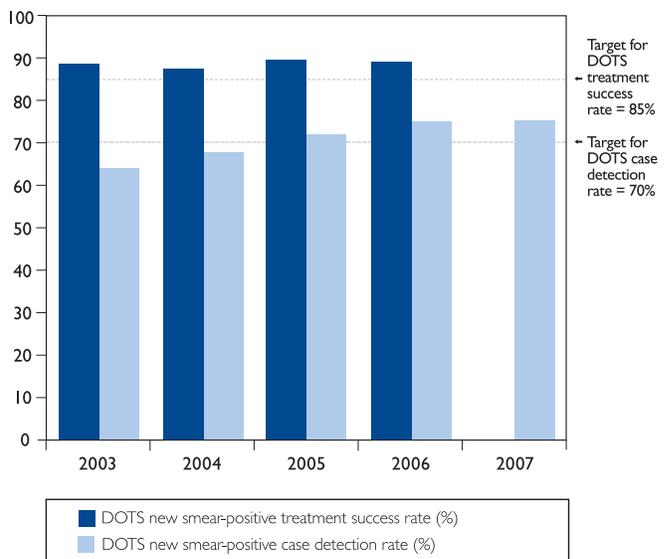
strengthening service delivery, and increasing the knowledge and demand for TB services. **In the 28 USAID-assisted provinces, covering a population of about 38 million, USAID has contributed to the diagnosis and treatment of an estimated 52,000 people with TB.**

Self-medication by patients, variable adherence to DOTS protocols, and the presence of substandard medicines on the market have contributed to the emergence of TB drug resistance. The management of MDR-TB is expanding, with support from the Green Light Committee (GLC) and the Global Fund. USAID is supporting the prevention and management of drug-resistant TB through technical input to the Global Fund's TB projects and by strengthening the drug quality monitoring system of the country's Bureau of Food and Drugs through support of post-market surveillance and drug regulation capacity.

USAID's assistance includes the following activities and accomplishments:

- Assisting in the development of the new 5-year national strategy for TB control and management.
- Establishing national policies for management of TB in children and management of MDR-TB.

**Philippines: Case Detection and Treatment Success Rates Under DOTS**



Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

## A Second Chance: From Prisoner to Peer Educator

Roman, age 31, was admitted to the Orel MDR-TB Center of Excellence in Russia in November 2007. HIV-positive and dying from MDR-TB, he was transferred there from prison. When he arrived, diagnostic testing found that he had highly resistant TB (resistant to 6 anti-TB drugs, including some second-line anti-TB drugs), and he posed a risk to other patients and the dispensary staff.

Roman was enrolled in a USAID/Global Fund-supported intensive program of MDR-TB treatment in December 2007. After 1 year of intensive treatment, including antiretroviral therapy, his TB is no longer contagious. Roman felt much better and was transferred to a continuation (outpatient) phase of treatment.

Today, Roman works as a volunteer at the Orel AIDS Center while he continues to receive TB and HIV treatment. He also serves as a lecturer and peer educator on TB-HIV/AIDS, even traveling to other regions to speak on these issues to those affected as well as to the general public. He has also repaired family relationships that had almost completely disintegrated while he was ill and in prison, and he is once again able to live safely with his wife and 2-year-old daughter.

- Developing a TB DOTS curriculum and integrating it into the curricula at 10 major medical schools.
- Training more than 4,000 providers to deliver quality DOTS services.
- Establishing a national policy standardizing TB laboratory procedures, supporting training on microscopy, and establishing fully equipped microscopy centers, resulting in 93 percent of USAID-supported laboratories performing at acceptable standards.
- Assisting with ongoing efforts of the national health insurance program to improve the process for accrediting DOTS centers and reimbursing centers for TB services.

**RUSSIA** is the only European country on the WHO list of 22 high burden countries. After years of gradual decline, TB incidence more than doubled during the 1990s after the collapse of the Soviet Union. Since 2002, however, the rate of new cases has stabilized due to intensified efforts to control TB by the government and its partners, including USAID.

High rates of treatment failure, patient default, and deaths contributed to the low treatment success rate of only 58 percent in 2007. Treatment failure and death are likely to be caused by drug resistance. Russia has the 3<sup>rd</sup> highest number of MDR-TB cases in the world, and it is estimated that XDR-TB may account for 6 percent of MDR-TB cases. Through its partners, USAID has expanded DOTS, helped the Ministry of Health and Social Development (MOHSD) to incorporate routine

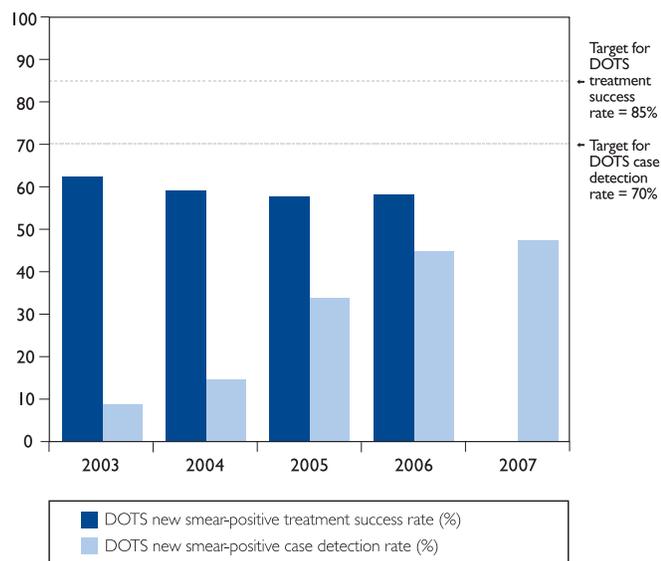
TB control into the health system to improve case detection and improve the quality of TB diagnostic services. USAID has worked with the Ministry of Justice to improve TB control in prisons. **USAID-supported DOTS programs in prisons and detention facilities throughout Russia have significantly reduced TB prison mortality rates from 238 to 82 per 100,000 population from 1999 to 2007.**

Technical assistance focuses on 9 target territories recommended by the MOHSD: Orel, Vladimir, Pskov, Belgorod, Chuvashia Republic, Khakasia Republic, Republic of Adygeya, Jewish Autonomous oblast, and Khabarovsk Krai. USAID programs have successfully treated more than 19,000 TB patients in pilot sites and contributed to successful treatment of more than 100,000 patients nationwide. In fiscal year 2008, the treatment success rate in USAID-supported federal regions exceeded the Russian average, and the number of people who defaulted from treatment decreased.

USAID specifically provided support to:

- Enrolling 526 patients in MDR-TB treatment in 4 regions.
- Training more than 2,000 health care professionals in DOTS to improve the quality of services and community-based care, including Red Cross volunteers and prison staff.
- Establishing modern infection control systems at 7 leading provincial TB facilities to prevent TB transmission among staff and other patients.

### Russia: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

- Opening a Center of Excellence for TB and MDR-TB treatment in Orel and a Center of Excellence on Infection Control in TB in Vladimir.

### Promoting excellence, improving MDR-TB treatment

USAID's TB control project in Russia is playing a leading role in combating the high number of MDR-TB cases in the country. WHO estimates that 13 percent of all new TB cases in Russia are multidrug-resistant, as are 49 percent of previously treated cases. USAID and its partners are providing effective technical assistance to help Russia comprehensively address this critical challenge to the nation's health and welfare.

In 3 regions, USAID has supported the development of Centers of Excellence that are now serving as regional training sites for MDR-TB-related topics. The 1<sup>st</sup> regional Center of Excellence on MDR-TB treatment was opened in Orel in 2007. The creation of the Center was the result of a collaborative effort among USAID, WHO, and the Central TB Research Institute, with additional support from the Global Fund's Round 4 TB grant program. USAID also funded the CDC to provide technical assistance to 5 regions, including Orel. The Center now serves as a model site for infection control,

MDR-TB treatment, and laboratory analysis. More than 200 health professionals from around Russia have been trained at the center.

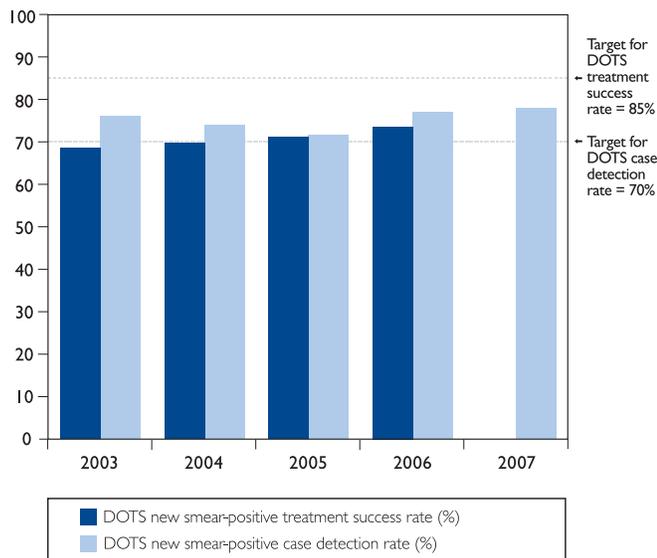
Tuberculosis is a major public health problem in **SOUTH AFRICA**, ranked 5<sup>th</sup> on the list of 22 high burden countries. South Africa had an estimated 460,600 new TB cases in 2007. Despite its investments in TB control, progress toward reaching program objectives has been slow. However, South Africa has maintained a DOTS case detection rate above the target of 70 percent since 2002, reaching 78 percent in 2004. DOTS treatment success rate increased from 61 percent in 2001 to 74 percent in 2006.

Progress and efforts against the TB epidemic in South Africa are hampered by a high TB-HIV co-infection rate; 44 percent of new TB patients test positive for HIV. The emergence and escalation of MDR-TB and XDR-TB is further exacerbating the epidemic. The number of laboratory-confirmed cases of MDR-TB more than tripled between 2005 and 2007 from 2,000 to 7,350. An unprecedented strengthening of overall TB control (diagnosis, treatment, and case-holding) is needed to bring this epidemic under control.

While USAID assistance focuses primarily on the community, district, and provincial levels, it also assists the national health system in confronting the pressures exerted by HIV/AIDS by strengthening critical health systems functions such as information flow, supervision, and TB management systems. USAID support for TB control is coordinated closely with PEPFAR support for TB-HIV/AIDS activities, which include the provision of HIV counseling and testing of TB patients as well as testing of HIV-infected individuals for TB and strengthening the referral mechanisms to ensure a continuum of care for patients. TB-HIV/AIDS integration has improved. Seventy-five percent of USAID-supported facilities provide TB-HIV/AIDS integrated care.

USAID technical assistance focuses in 5 provinces in South Africa with a high burden of TB. Through its partners, USAID has developed a mentoring approach to improve the skills of supervisors, which contributes to sustainable capacity building. Using PEPFAR funding, USAID supported services to start 13,713 HIV-positive people on TB treatment. USAID-funded projects developed the national MDR-TB management guidelines and MDR-TB recording and reporting tools, now implemented in all MDR-TB hospitals. USAID provided 80 percent of all MDR-TB training in the country. **USAID is**

### South Africa: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

**supporting the development of an infection control TB risk assessment tool, and it is estimated that about 200 facilities will have had an infection control risk assessment conducted, and infection control plans in place, by the end of 2009.**

USAID supports the following interventions:

- Improving infection control measures to prevent the spread of MDR-TB and XDR-TB through training and technical assistance and by enhancing the capacity of laboratories for diagnosis of MDR-TB and XDR-TB.
- Developing guidelines for TB control in children based on the WHO guidelines, developing a training curriculum, and training health care workers.
- Training approximately 10,500 health care workers on basic TB management, including 1,000 trained on MDR-TB management.
- Improving HIV testing for TB patients from 20 percent in 2006 to 64 percent in 2007 in USAID-supported districts.

### Hope for life: improving care for patients with TB and HIV

USAID provides support to 15 hospices to enable them to diagnose and manage TB effectively. In 2007, USAID funded the Hospice Palliative Care Association of South Africa to include TB management as part of its AIDS patient care package. The AIDS Care Training and Support (ACTS) Hospice received part of this funding from USAID for TB management. ACTS nursing staff were trained on the management of TB, and treatment supporters were trained on TB advocacy and to educate

## It Takes a Community: Caring for Anderson

Anderson, aged 29, is the son of a worker at a game lodge in Mpumalanga Province, South Africa. In the wake of the awareness campaign carried out by local hospice workers, with USAID funding, Anderson's mother reported that he was at home critically ill with vomiting, fever, and severe weight loss. He was brought to the AIDS Care training and Support (ACTS) Clinic, where an HIV test was performed, and he was found to be HIV-positive. The doctor also suspected he had TB. Anderson was admitted to an isolation ward in the Hospice inpatient unit and given TB treatment. His sputum results confirmed a positive TB diagnosis. He was started on treatment and discharged 2 days later to continue treatment at home.

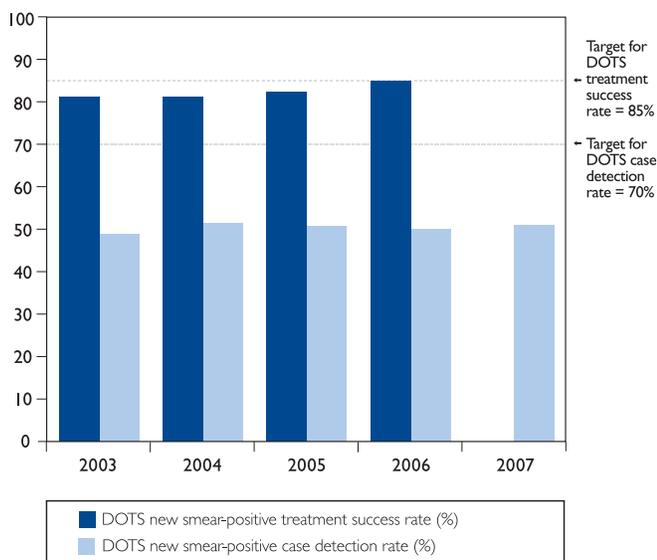
Both Anderson and his mother were provided counseling on TB, its treatment, and infection control measures to follow. His mother was trained to supervise his TB treatment at home. Anderson's close contacts, including his family, were also tested for TB, and fortunately no one was found to have TB. Two months later he was feeling much better and returned to work, and the lodge staff continue to make sure he gets his TB treatment on time. He is also in an antiretroviral treatment program in Gauteng.

The take-home messages from this story are: 1) it is important that clients seek health care early; 2) health workers should screen for both TB and HIV to provide appropriate diagnosis, treatment, care, and support; 3) all close contacts of the TB patient should be tested for TB; and 4) family and community involvement is critical to treatment adherence.

families and communities about TB. USAID funding and training ensured that Anderson received both anti-retroviral drugs and testing for TB (see Anderson's story on page 25).

**TANZANIA** ranks 15<sup>th</sup> on the WHO list of 22 high burden countries. Of the estimated 120,000 new TB cases in 2007, 49,000 were sputum smear-positive. Due to improved quality of services and evaluation, treatment success rate has slowly increased toward the WHO global target of 85 percent. However, the case detection rate of 51 percent remains below the WHO target of 70 percent. The prevalence of HIV infection among TB patients in Tanzania is estimated at 47 percent. USAID supported the training of health workers in DOTS and TB sputum microscopy. The program also supported public-private sector TB and TB-HIV/AIDS activities that started in 2008. That year, the program finalized strategies for scaling up TB in the private sector supported by community mobilization. Twenty-one of 70 private facilities were determined qualified to receive support in staff training and the provision of equipment and diagnostic reagents for TB. **As a result, during this period, 16,754 newly registered TB patients received services.**

**Tanzania: Case Detection and Treatment Success Rates Under DOTS**



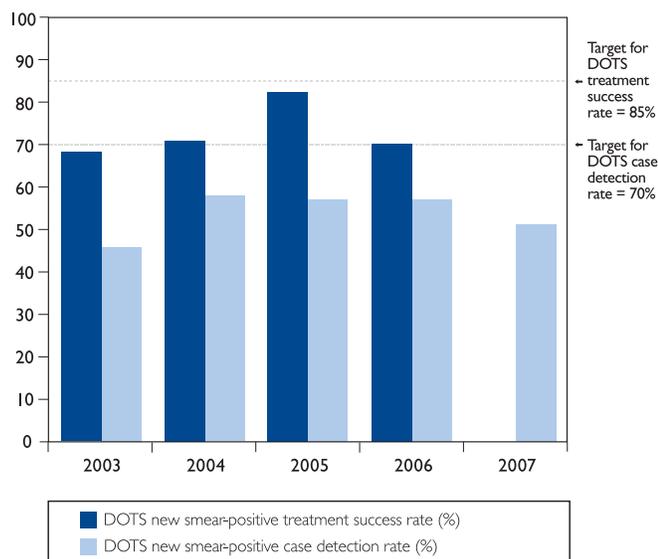
Source: Global Tuberculosis Control WHO Report 2009  
 Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

USAID supported these specific results:

- Catalyzing the national MDR/XDR response by conducting a national assessment and designing a planning tool, which together will be used to create a national MDR/XDR-TB Action Plan in 2009.
- Creating a laboratory assessment tool, piloted in 10 districts, to quantify requirements for infrastructure improvement, equipment, supplies, staffing, and training needs, and introducing a quality assurance system for smear microscopy and HIV testing as well as laboratory supervision tools.
- Improving TB case detection by conducting an evaluation of Light Emitted Diode (LED) microscopy and by training 70 staff in TB microscopy and external quality assurance procedures. Procurement of LED microscopes is in process.
- Training 81 public and private sector staff on topics including DOTS, basic computer skills, and the use of the Electronic TB Register.
- Revising the national TB and TB-HIV/AIDS curriculum for a medical and allied health sciences school in Tanzania.
- Designing an innovative approach to overcome poor access to TB diagnostic services by using bicycles to transport sputum samples to and from DOTS and diagnostic centers.
- Improving overall infection control in facility settings through the development of a standardized infection control plan, with more than 145 district level coordinators and facility staff trained in infection control planning in 10 districts.

**UGANDA** has more than 102,000 new TB cases yearly, with an estimated incidence rate of 330 per 100,000 population. The country's case detection rate (51 percent) and treatment success rate (70 percent) are significantly below WHO global targets of 70 percent and 85 percent, respectively. This suboptimal program performance is due to poor infrastructure – poorly staffed TB diagnostic and treatment facilities – and inadequate funding to support regular monitoring, supervision, and training in all 80 districts in Uganda. The prevalence of HIV at 6.4 percent further exacerbates the problem of TB control. According to WHO, about 39 percent of new TB

### Uganda: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

patients are HIV-positive. In 2001, the MOH formally adopted the community-based TB care (CBTBC) strategy to address TB services. The approach includes a 6-step process that districts implement within their TB programs. Service delivery depends on a strategic approach that relies on trained community volunteers to deliver DOTS in the community. The success of this intervention relies on partnerships between the communities (including traditional health practitioners) and formal health services. USAID has been supporting the MOH/NTP CBTBC strategy since its onset in 2001. **With USAID support, Uganda has been able to expand C-DOTS in all 80 districts nationwide.**

USAID supports the following activities:

- Providing external quality control to improve sputum smear microscopy in more than 100 laboratories.
- Training more than 290 health workers to implement C-DOTS.
- Collaborating with the Uganda's People Defense Forces to develop a modified C-DOTS for the military.

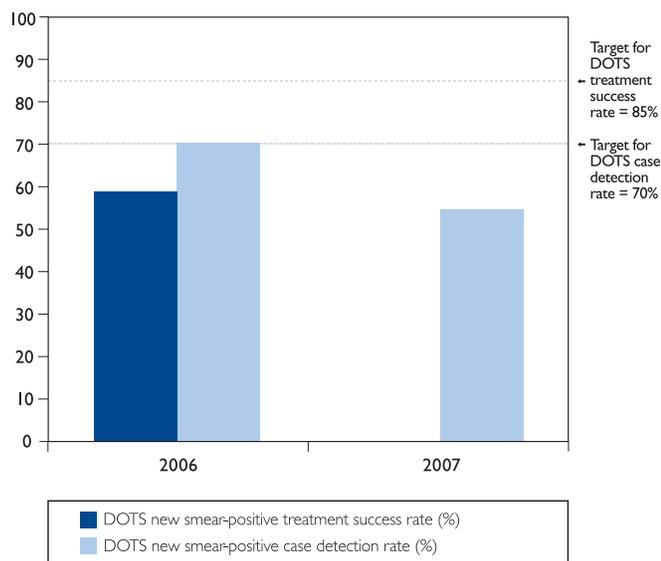
- Updating the national TB infection control policy.
- Supporting TB diagnostic centers' renovation, supply of microscopes, and training of microscopists.
- Increasing capacity at the national and district levels to support TB-HIV/AIDS coordination and supervision, including training in management and leadership.
- Supporting the MOH TB drug logistic management information system.

**UKRAINE** had an estimated 20,163 new TB cases in 2007, and its TB burden is currently one of the highest in Europe. Case detection rate is estimated to be 55 percent (well below the WHO target of 70 percent). Reported for the first time for the 2006 cohort, the treatment success rate is at 59 percent. An estimated 16 percent of new TB patients have MDR-TB – the 3<sup>rd</sup> highest proportion in the world – and the country faces a growing TB-HIV/AIDS epidemic.

As with Russia, Ukraine also saw a dramatic rise in TB after the fall of the Soviet Union. Ukraine adopted the WHO-recommended DOTS strategy for TB control in 2006 as a result of successful pilot projects and major advocacy efforts led by USAID and its partners. Through its partners, USAID has expanded DOTS, helping the MOH of Ukraine to incorporate routine TB control into the general health care system. **Due to intensified national efforts in collaboration with USAID and partners, the government reports that the TB notification rate decreased from 84 to 76 per 100,000 population in 2008.** USAID supports the implementation of comprehensive DOTS expansion activities in 10 oblasts in the east and south of the country with the greatest burden of TB. The decrease of morbidity continues to be much sharper in the USAID target project oblasts than in other oblasts of Ukraine, with a 6.2 percent annual decline in USAID-supported oblasts compared to 2.5 percent nationwide during 2006–2008.

Approximately 35 percent of the population has access to quality DOTS through USAID-funded activities, and about 13,000 patients are treated through USAID-supported project sites annually. Recent USAID-influenced policy changes indicate an increasing government commitment to improve TB treatment standards and coordination with HIV services.

### Ukraine: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
Note: Data prior to 2006 are not available. DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

- Supporting the creation of a Center of Excellence for TB and MDR-TB treatment and education in Dnepropetrovsk oblast.

Tuberculosis is a major health threat to **ZAMBIA** and is ranked among the top 10 causes of morbidity and mortality in the country. The burden of TB has increased fivefold, from a case notification rate of 105 per 100,000 population in 1985 to 506 per 100,000 in 2007. The upsurge in TB notifications is attributed to the high prevalence of HIV, which is estimated at 14.3 percent in the general population (Zambia Demographic and Health Survey, 2007). The MOH also estimates that up to 70 percent of all TB patients are also infected with HIV.

Zambia's National HIV/AIDS/STI/TB Strategic Plan has identified the treatment of TB as a specific objective for the reduction of the socioeconomic impact of HIV/AIDS and TB in the country. The backbone of TB control in Zambia is DOTS. Zambia has made tremendous gains in treatment outcomes through universal implementation of the DOTS strategy, with the treatment success rate increasing from 77 percent in 2002 to 85 percent in 2006. However, the case detection rate is only 58 percent (2007), still below the WHO target of 70 percent.

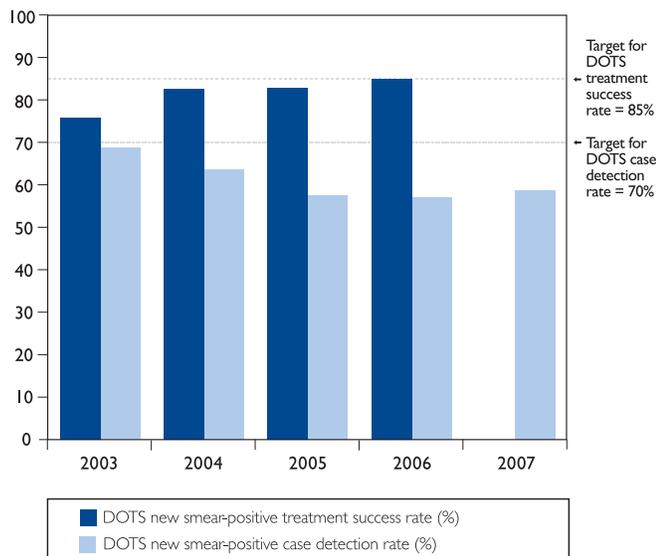
USAID's assistance includes the following interventions:

- Training 280 Ukrainian Red Cross Society visiting nurses to provide education and social support to TB patients to increase treatment adherence. About 1,500 patients completed treatment with the Red Cross nurses' support to date.
- Training more than 7,000 health care professionals in DOTS to improve the quality of services at TB hospitals and in the general health care system.
- Building laboratory capacity in 10 oblasts in smear microscopy and drug sensitivity testing by training all microbiologists and technicians.
- Improving interpersonal communication and counseling skills of TB doctors and nurses through training to be more patient oriented and to better assure treatment completion.
- Training 58 TB prison hospital staff who provide care for 1,200 prisoners with TB.

USAID has been a key partner to the Government of the Republic of Zambia (GRZ) in TB control since 2005, supporting TB control efforts in 5 of the 9 administrative provinces of Zambia. USAID support for TB control efforts in Zambia include quality improvement, human capacity development, strengthening of the TB laboratory network, community mobilization, improved management and leadership skills, and provision of equipment and reagents required for TB diagnosis.

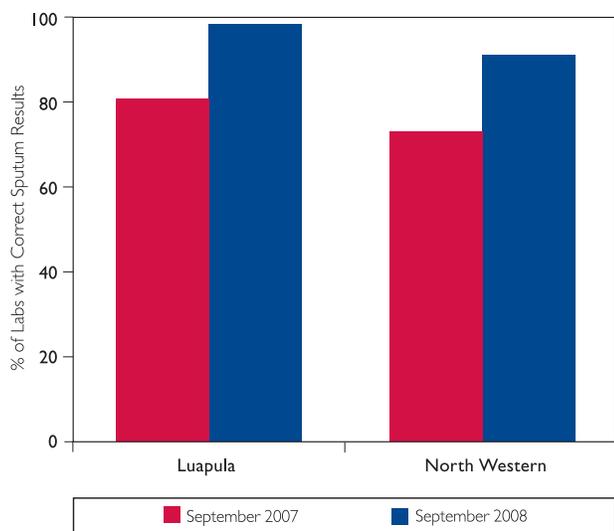
USAID collaborates with PEPFAR-funded TB-HIV/AIDS activities to integrate TB and HIV efforts in the country. USAID also collaborated with PEPFAR-funded TB-HIV/AIDS activities to support the GRZ to train 3,985 health care providers in provider-initiated HIV counseling and testing. **These efforts have resulted in 94 percent of USAID-supported laboratories reporting over 95 percent correct results for TB microscopy, 47 percent of all TB patients being tested for HIV, and increased community involvement in TB control.** USAID is developing innovative strategies for addressing human resource shortages through task shifting (see North Western and

### Zambia: Case Detection and Treatment Success Rates Under DOTS



Source: Global Tuberculosis Control WHO Report 2009  
Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

**Figure 3: Improvement in correct reading of sputum smear microscopy in 2 USAID-supported provinces in Zambia**



Source: TB CAP Zambia

Luapula Provinces example below). The activities include supporting the NTP to:

- Train 75 individuals (50 laboratory technologists and 15 lay persons) in basic TB microscopy and 50 community volunteers in community-based DOTS.
- Conduct TB laboratory quality assurance activities in 42 out of 72 administrative districts of Zambia.
- Renovate a provincial laboratory that provides service for Luapula province, with a population of over 1 million people.

Figure 3 indicates that with USAID-funded EQA support, Luapula Province has recorded improvement in correct reading of sputum smear microscopy in 9 health facilities from an average of 81.2 percent in 2007 to 98 percent in 2008. North Western Province has recorded improvement in 10 facilities, from an average of 73.5 percent in 2007 to 92 percent in 2008.

On-site evaluation visits made to the North Western and Luapula Provinces in Zambia identified the shortage of trained qualified laboratory staff as a key challenge in both provinces. A task-shifting program was adapted to address this shortage by hiring 15 high school graduates to be microscopists. USAID supported 5 weeks of microscopy training for them using MOH-approved curriculum. These efforts strengthened the access and capacity of the entire lab. Eventually, the lay microscopists will be trained on the job to become lab technologists.

**ZIMBABWE** had an estimated 104,400 new TB cases in 2007. Case detection rate declined from 42 percent in 2002 to 32 percent in 2006, but climbed to 37 percent in 2007. The low level of case detection reflects the deteriorating sociopolitical context, which has a direct impact on health service delivery in Zimbabwe.

Health services for TB control and prevention in Zimbabwe are inadequate in terms of coverage, access, and quality of care, due mainly to the lack of infrastructure and to limited human capacity. The NTP remains understaffed and can provide only limited supervision, management, and training. Treatment success rate has also declined, from 71 percent in 2001 to 60 percent in 2006. MDR-TB remains low at 1.9 percent of TB cases, and XDR-TB has not been detected, but the threat

looms as neighboring countries have both MDR- and XDR-TB. In-country routine surveillance for drug resistance is limited.

**USAID began support for TB control in the country in 2008 with funding of \$1.5 million.** Working closely with the NTP, USAID provides technical assistance at the central level to strengthen management and technical skills. To increase case detection at the community level, it promotes the implementation of C-DOTS approaches and social mobilization around TB. USAID is collaborating with PEPFAR to implement TB-HIV/AIDS activities. USAID works with the CDC to support the NTP in TB-HIV/AIDS activities. CDC's primary focus is on TB-HIV/AIDS technical and commodity support to the national laboratory system, which complements USAID's TB activities.

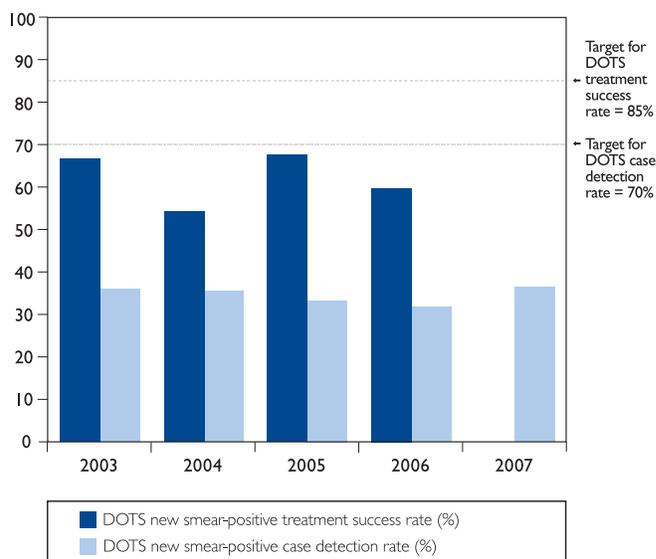
USAID has piloted TB activities in 1 province, which will serve as a model for scale-up at the national level. USAID is also working closely with the NTP to develop human resources and strengthen TB-HIV/AIDS co-infection control and treatment.

Specific activities being supported by USAID include the following:

- Promoting the use of guidelines developed by WHO for TB diagnosis and treatment in order to standardize treatment.
- Increasing TB screening of HIV-positive patients, allowing for earlier detection and initiation of treatment, and improving coordination of TB and HIV referral systems.

### Zimbabwe: Case Detection and Treatment Success Rates Under DOTS

(FY08 is the first year that USAID provided funding to Zimbabwe.)



Source: Global Tuberculosis Control WHO Report 2009

Note: DOTS treatment success rate for 2007 will be reported in the WHO Report 2010.

- Improving national logistics and information systems for TB and increasing availability of drugs for the treatment of TB.
- Improving case detection by increasing diagnostic capacity through provision of laboratory supplies, registers, and reporting forms.
- Developing infection control measures in clinic settings as well as in laboratories that process sputum specimens.

# CHAPTER 3

## Health Systems and Human Resource Capacity Development

*A community DOTS worker helps a patient with TB treatment.*



USAID's tuberculosis (TB) program investments make a direct contribution to the improvement of the overall health system at the country level. In addition, effective TB control is a highly sensitive indicator of a well-functioning health system, as it requires efficient delivery of drugs, training of health care workers, effective planning and health system governance, collection and use of data for program management and patient care, and a functioning laboratory system.

Specifically, USAID's TB efforts contribute to the overall improvement of drug management and logistics systems; the improvement of laboratory infrastructure, for TB as well as other diseases; strengthening of primary health care service delivery; improved management and performance of health care workers; and improved management of health care services at the provincial and district levels.

**Drug management/logistics:** In at least 10 countries, USAID has contributed to the strengthening of overall drug management and logistics systems through investments in TB. This assistance has strengthened the managerial and operational structures at the central, regional, and district levels for improving procurement, forecasting, and routine information management for all drugs including anti-TB drugs.

For example:

- In Kenya, USAID provided technical assistance to strengthen managerial and operational structures at the central level and introduced software to help managers forecast drug needs.
- In Bangladesh, USAID has helped build capacity for supply chain management and procurement practices, increasing the availability of drugs for TB as well as other medicines.
- In Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, USAID has piloted and helped to roll out drug logistics management information systems designed to ensure there is an uninterrupted supply of TB drugs and other medications.
- In Afghanistan, USAID is working with the Ministry of Public Health to establish a drug management information system within the ministry.

**Laboratory infrastructure improvement:** A well-functioning laboratory is a critical component of an effective TB program – and of an effective health system. A core principle for USAID's TB investments in laboratories is that the laboratories should not only be available for the diagnosis of TB, but also should be part of the overall

health system and used for the diagnosis of other diseases. In many countries, USAID is contributing to the improvement of the laboratory infrastructure in order to diagnose TB as well as other diseases.

- In Afghanistan, USAID has supported the delivery of the basic package of health services by strengthening all 202 existing laboratories in the 13 USAID-supported provinces by developing standardized curricula, providing refresher training for laboratory staff, and creating a regional external quality assurance system.
- In Indonesia, USAID has developed quality assurance networks for all diagnostic services, including health facility, regional, and national laboratories.
- In the Democratic Republic of the Congo, Malawi, Mozambique, and Kyrgyzstan, USAID has strengthened the National Reference Laboratories.
- In Zambia, USAID has supported human resources and external quality assurance to expand the number of labs and improve their quality.

**Human resource development:** In addition to training a wide spectrum of health care professionals in TB-specific interventions, USAID also contributes to building capacity at the regional and country level to plan and manage human resources.

For example:

- In Kenya, USAID developed a national human resource development plan to address staffing and training of the health workforce.
- In Malawi, USAID helped develop a comprehensive human resource development plan to increase service capacity.

In FY08, USAID provided training to 57,654 health care workers in DOTS and other components of the Stop TB Strategy.

- In Afghanistan, as part of its support for the delivery of the basic health package of services, USAID helped develop a human capacity development plan, including components to implement TB interventions and with a focus on enhancing the role of nurses.

**Primary health care/health service delivery improvement:**

In most countries, TB services are delivered as part of the primary health care system or the general health services. Investments in improving the delivery of TB services also contribute to the improvement of the primary health care system, including support for management of patients, monitoring and reporting, and outreach to the community.

For example:

- In Afghanistan, USAID developed plans for expanded basic health services, including TB treatment, to reach 90 percent of the 16.5 million people in the 13 target provinces.
- In Turkmenistan, USAID provided a wide range of training for public health professionals, including training primary health care staff on integrating TB services at the primary health care level.
- In the Philippines, USAID assisted the Department of Health in strengthening the accreditation and reimbursement process of the national health insurance program.
- In Indonesia, USAID strengthened the function of project management units at the provincial level.

# CHAPTER 4

## Global Leadership and USAID-supported Research

*George Ojango Chimuti, the TB focal person for Western Province, Kenya, follows up on quality assurance at the TB lab in Provincial General Hospital in Kakamega.*



USAID plays an important leadership role at all levels to support high-quality, comprehensive tuberculosis (TB) prevention and care programs. In addition to being the leading bilateral donor for TB control efforts, USAID is a technical leader in international TB programming. USAID is represented on the Stop TB Partnership Coordinating Board and is a member of all of its technical working groups. In addition, USAID provides strategic technical guidance and leadership to program development and implementation at the country level. Impressive achievements have been made by USAID and its partners in providing countries access to standardized and high-quality packages of tools for scaling up interventions.

One of the key components of a successful national TB program (NTP) is strategic planning and management. USAID's support has focused on ensuring that managers have the newest tools and skills necessary to run a complex and integrated program. The national TB planning and budgeting tool developed through the TB CAP is enabling the NTPs to realistically develop a 5-year strategic plan identifying resource gaps. The information is used for advocacy internally to the government and externally to various donors, including the development of successful proposals for the Global Fund. Currently, the tool is being used in 26 USAID priority countries.

A well-functioning internal and external laboratory network is crucial for TB programs. USAID supports strengthening the global and regional external supranational laboratory network. This network provides monitoring and assistance to national reference laboratories to ensure their quality for sputum microscopy, culture, and drug susceptibility testing. There is a shortage of supranational reference laboratories with the capacity to support the African region. USAID is working with partners to fill this gap in the region. In addition, USAID has developed a package of laboratory tools to better manage and implement a national internal quality assurance system for TB and MDR-TB.

As the rates of MDR-TB and the identification of extensively drug-resistant-TB (XDR-TB) increase, countries need new tools and approaches for diagnosis, treatment, and surveillance. USAID is working with partners to develop regional MDR-TB Centers of Excellence to build capacity for national programs to adequately manage and support the treatment of people with MDR-TB. In addition, USAID's support has been instrumental in the development of an MDR-TB national assessment and planning tool, new treatment guidelines, and capacity building. All of these tools are used for developing strategic plans and high-quality MDR-TB programs.



TB health workers in Nigeria share information about their work as part of a TB logistics system assessment. Facility-based surveys such as this one, conducted in collaboration with the NTBLCP, help to provide a comprehensive picture of the situation at all levels of the logistics system, from the central warehouse to primary healthcare facilities.

Until recently, the management and implementation of facility-based TB infection control has not been a major focus of the TB community. With the evidence of high mortality among TB-HIV co-infected individuals and the spread of MDR-TB, it has become a critical issue for USAID and its partners. USAID has taken a leadership role in the support for developing guidance, tools, and implementation of TB infection control programs. This assistance has built capacity at the global, regional, and country levels to develop national strategic plans, raise awareness for immediate action, and create monitoring and evaluation tools for better management.

The detection of TB cases requires the involvement of all health care providers as well as the community. USAID has supported some of the key interventions for introduction and scale-up of public-private partnerships – or public private mix (PPM) – for TB. USAID was the main supporter of the development of the International Standards for Tuberculosis Care (ISTC), one of the driving tools for engaging providers. The ISTC has provided an entry point for enticing private providers to adopt quality TB diagnosis and treatment standards. Currently, 10 out of the 20 USAID priority countries are implementing it nationwide. In addition, USAID supported the development and implementation of a PPM national assessment

and strategic planning tool, a hospital DOTS linkage tool, guidance on TB in prisons, and other materials such as the updated Handbook for Implementing the Stop TB Strategy. As a result, 13 countries are scaling up PPM activities nationwide, and 6 more priority countries have pilot projects in progress.

Managing the quality, affordability, delivery, and provision of anti-TB drugs is another vital issue. USAID is a significant leader in providing strategic guidance in TB drug management through support for the Stop TB Partnership's Global Drug Facility (GDF) and the WHO Green Light Committee (GLC), as well as other technical partners. An electronic management tool for first- and second-line anti-TB drugs was developed and implementation has begun. USAID provided assistance for developing and increasing capacity for pharmaceutical management, as well as guidance for managing TB commodities at various levels and integrating them with other programs, particularly HIV/AIDS.

USAID's global leadership contributes to high-impact interventions using best practices based on the latest evidence. All of these efforts ensure effective and efficient country-level implementation and scale-up.

### USAID-supported research

The translation of research and development into policy and programmatic norms is of strategic importance to USAID, which brings its field presence to bear on the TB research agenda, informing the research community about field-based needs and priorities, enabling field-based trials of new technologies, and moving the results of research into policy and practice in the field. In this light, USAID has a comparative advantage to contribute to research at the stage where it has direct and near-term implications for country-level TB programs, e.g., clinical trials at stage IIb for drugs, some stage III or beyond for vaccines, field demonstrations of new technologies and implementation approaches, and operations research to improve program performance. USAID prioritizes research that has the potential to change policy and practice in developing countries within 3 to 5 years. USAID has fully aligned its funding for TB research with the 2006 USAID research strategy presented to Congress, and as such, has been a leading supporter of late-stage research that is having a direct effect on country-level TB programs.

USAID invests in research that will improve the performance and public health impact of country-level TB

programs while mitigating the risks of drug resistance by 1) reducing diagnostic delay, 2) reducing the duration and improving efficacy of treatment, 3) preventing disease, and 4) increasing access to DOTS. USAID also supports the development of policies, guidelines, and practical tools to accelerate the adoption and use of new tools as they become available.

### **New drugs, improved regimens**

In fiscal year 2008, approximately 42 percent of USAID's research funding for TB was used to support late-stage evaluation of promising new drugs. In the last year, 2 of the compounds supported by USAID advanced along the development continuum. It is expected that a new drug that can shorten drug regimens and may be effective against drug-resistant disease may be registered by 2010.

USAID is leading several key clinical trials that may have an impact on current treatment standards. These trials include a comparison of the treatment outcomes of patients given fixed-dose combination tablets versus loose formulations. This study was designed to confirm that the current standard of fixed-dose combination drugs is not contributing to the emergence of drug resistance. Through the CDC, USAID is supporting an evaluation of treatment for drug-resistant TB. In addition, an ongoing study of the potential drug interactions between anti-TB drugs and antiretroviral drugs for HIV/AIDS made considerable progress in the last year.

### **New diagnostics**

In the past year, a new diagnostic technology and a revised diagnostic approach were adopted into global policy through WHO. Included in the new policy recommendations were 2 liquid culture techniques for which USAID supported field trials. Additionally, USAID supported a portion of the research and the translation of evidence into global policy for the procedural shift from 3 to 2 smears for diagnosis of TB in laboratories that had implemented an external quality assurance system. This policy change has the potential to increase case detection rates while reducing the burden of multiple tests on both patients and laboratories.

USAID continues to fund research investigating alternative diagnostic algorithms and approaches, as well as developing new technologies to screen and test for TB. In particular, USAID support is targeting the optimization of smear microscopy for routine cases, rapid detection of drug-resistant disease, and improved TB diagnosis among people infected with HIV/AIDS.

### **Improved performance of and accessibility to DOTS programs**

Through USAID Missions, important operational research has been conducted to better inform programmatic investments and to improve the performance of NTPs. This year, for example, Missions supported research to identify the barriers to coordinated TB-HIV/AIDS care and assessed reasons for poor treatment compliance among patients.



# CHAPTER 5

## Partnerships in Global Tuberculosis Control

*A patient is treated at the USAID-supported Orel Center of Excellence on TB and MDR-TB in the Russian Federation.*



Partnerships are a cornerstone of USAID's tuberculosis (TB) program. Financial, technical/programmatic, and advocacy partnerships support global, regional, and country (local) activities. Leveraging its field presence in developing and transitional countries, USAID allocates a majority of its annual TB budget to country-level programs and activities, including the Global TB Drug Facility (GDF), which provides grants for TB drugs to national TB programs in need. USAID is a member of the Stop TB Partnership, a network of more than 700 international organizations, donors, NGOs, and individuals working to eliminate TB as a public health problem. Within USG, USAID works in close partnership with the U.S. Center for Disease Control and Prevention (CDC), U.S. President's Emergency Plan for AIDS Relief (PEPFAR), and National Institutes of Health (NIH).

USAID takes the lead on international TB. PEPFAR takes the lead on TB-HIV/AIDS co-infection. CDC takes the lead for U.S. domestic TB and works closely with USAID and PEPFAR on international efforts, and NIH takes the lead on research.

USAID also partners with leading institutions in the global TB community, including the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and WHO, in addition to the Stop TB Partnership.

### **Global Fund to Fight AIDS, Tuberculosis and Malaria**

The USG is the largest single contributor to the Global Fund, making this multilateral effort a critical complement of the USG bilateral assistance program. The USG engages with the Global Fund in a number of ways at the global level beyond funding, including participating on the Board and providing critical feedback into policy and programmatic decisions. In addition, USAID works extensively with Global Fund programs at the country level to ensure coordination and collaboration are as efficient and effective as possible.

USG staff are often members of the country coordinating mechanism (CCM) to assist with governance and coordination issues. USAID TB programs strategically support the development, start-up, and implementation of Global Fund grants as well as ensuring all the activities fulfill the key gaps of countries' NTP's strategic plans.

In addition, USAID has provided extensive direct technical support to assist countries to prepare applications to the Global Fund. USAID provides technical assistance to ensure the successful implementation of the awarded grants – for example, to improve institutional and program management, strengthen governance and transparency, strengthen procurement and supply chain management, and improve monitoring and evaluation systems. Using funds set aside for technical assistance from the USG's

contribution to the Global Fund, the USG is supporting the TB Technical Assistance Mechanism of the Stop TB Partnership, which provides technical assistance to Global Fund grantees with respect to the implementation of all components of the Stop TB Strategy. A similar grant is in place to the Green Light Committee (GLC), which provides technical assistance for MDR-TB components of Global Fund grants.

### Stop TB Partnership

USAID closely collaborates with the Stop TB Partnership at a number of levels. USAID is actively engaged in all of the Stop TB Partnership's working groups, and a USAID staff member currently serves as the chair of the Stop TB Partnership Coordinating Board. USAID staff were heavily involved in the development of the "Stop TB Partnership's Global Plan to Stop TB 2006–2015," and USAID's programs are fully in line with the strategies and objectives described in that plan. A USAID grant to the Stop TB Partnership supports strengthening of advocacy, communication, and social mobilization components of country TB programs, the development of national Stop TB partnerships, and monitoring of global financial support for TB control.

### World Health Organization

USAID benefits from an historical and effective partnership with the Stop TB Department of WHO. With its mandate to serve Member States, WHO is uniquely positioned to coordinate the global surveillance of TB, TB-HIV/AIDS, and MDR-TB and to set technical norms, standards, and strategic directions that generally become policy in the disease-endemic countries and can move the field of TB forward in a cohesive manner.

In addition, the WHO network of technical experts and partners makes them an efficient coordinator of relevant assistance to countries for strategic planning, programmatic evaluations, and routine monitoring of progress.

Specifically, USAID supports WHO for key activities including:

- Global monitoring and surveillance. Each year, with support from USAID, WHO publishes a Global TB Control report that presents the WHO's latest assessment of the epidemiological burden of TB (numbers of cases and deaths) in 196 countries, and progress toward the 2015 targets for global TB control that



A laboratory technician prepares a slide for sputum smear microscopy in India.

GAVIN MACGREGOR-SKINNER/USAID

have been established within the Stop TB Partnership's Global Plan to Stop TB 2006–2015.

- Global surveillance for TB drug resistance, including technical assistance to enable countries to carry out surveillance activities and publication of a periodic global report on TB drug resistance.
- Coordination of technical assistance to countries, including support for the successful implementation of Global Fund grants.
- Development and dissemination of policies and guidelines and the provision of technical assistance related to the elements of the Stop TB Strategy, such as public-private mix, directly observed treatment, short course (DOTS), prevention and control of MDR-TB, laboratory strengthening, infection control, and human resource development for TB control.
- Operational research to identify and evaluate new approaches to delivering services that improve case detection and treatment outcomes.

USAID regional bureaus and country Missions partner with and support WHO regional offices to provide technical assistance for program monitoring and strategic planning, training, operational research, prevalence surveys, and the management of regional Centers of Excellence for various aspects of TB control.

### **Green Light Committee Initiative**

The Green Light Committee (GLC ) Initiative helps countries gain access to high-quality second-line anti-TB drugs, so they can provide treatment for people with MDR-TB in line with the WHO guidelines, the latest scientific evidence, and country experiences. The Initiative consists of a secretariat, the Green Light Committee (an expert review and WHO advisory body) and the Global Drug Facility (GDF) (the drug procurement arm of the Initiative).

The Global Fund requires that all proposals that include second-line drugs for TB be reviewed by the GLC. USAID has supported the GLC Initiative since it was established in 2000. The Agency's assistance enables the GLC to provide technical assistance to GLC applicants and Global Fund grant recipients.

### **Global TB Drug Facility**

USAID provides support for grants for TB drugs to countries in need and technical assistance and monitoring of GDF grant recipients. USAID financing also helps the GDF operate a direct procurement service through which countries, NGOs, and other donors can purchase quality-assured drugs at competitive prices. Approximately 464,000 patient treatments were provided by the GDF with USAID fiscal year 2008 funding.

### **U.S. President's Emergency Plan for AIDS Relief**

USAID activities to address TB-HIV-AIDS co-infection are closely coordinated with PEPFAR. Since 2004, an interagency collaboration between USAID and other USG agencies engaged in PEPFAR-related work has accelerated efforts to combat TB-HIV/AIDS.

During FY08, PEPFAR has placed special emphasis on 15 countries in sub-Saharan Africa, Asia, and the Caribbean, where TB-HIV/AIDS resources are used to integrate TB and HIV collaborative activities; test individuals with TB for HIV and provide TB screening, diagnosis, and treatment for people living with HIV/AIDS; improve TB infection control; enhance TB-HIV/AIDS, MDR-TB, and XDR-TB surveillance; expand supply chain management; and provide support to laboratory networks.

In the 10 countries with both PEPFAR funding and USAID TB support, USAID TB programs focus on strengthening TB services to ensure that quality care is available to individuals identified through PEPFAR programs that prioritize diagnosis of and treatment for individuals co-infected with TB and HIV. Ethiopia, Haiti, Kenya, Mozambique, Namibia, Nigeria, South Africa, Tanzania, Uganda, and Zambia have all benefited from these dual funding streams. In fiscal year 2008, members of USAID's TB team participated in the PEPFAR TB/HIV Technical Working Group, the PEPFAR Laboratory Technical Working Group, the development of the TB/HIV Headquarters Operational Plan, and in the annual review of PEPFAR Country Operational Plans.

## Annex A: Tier I Country Program Highlights

Tier I Countries	Illustrative USAID Country Program Activities and Achievements
Afghanistan	<ul style="list-style-type: none"> <li>• Improving TB laboratory services, resulting in more than 90 percent of laboratories in target areas having the capacity to accurately diagnose TB.</li> <li>• Encouraging early case detection and promoting adherence to treatment through CHWs, mobile health teams, and non-health sector stakeholders such as religious leaders and school teachers.</li> <li>• Establishing a drug management information system at the MOPH to improve drug management and reduce stockouts.</li> <li>• Introducing TB infection control measures to reduce transmission.</li> <li>• Promoting the discussion and dissemination of the International Standards for Tuberculosis Care, the Patients' Charter, and other treatment and care guidelines to improve the quality of care by all providers.</li> <li>• Improving quality of care by introducing standard operating procedures for health clinics and updating the national TB strategic plan.</li> </ul> <p><i>Highlight:</i> With increased support, improved regional coordination, and greater collaboration between private providers and communities, DOTS coverage is now at 97 percent.</p>
Bangladesh	<ul style="list-style-type: none"> <li>• Increasing availability of drugs provided through the Global TB Drug Facility (GDF) by improving supply chain management and procurement practices.</li> <li>• Providing external quality assurance services to microscopy centers in the capital city and supervisory visits to all USAID-supported DOTS centers to decrease the error rate in diagnosing TB.</li> <li>• Improving detection of TB patients by educating pharmacists, religious leaders, and factory workers to identify potential TB cases and refer them to nearby microscopy centers for diagnostic testing.</li> <li>• Introducing TB infection control measures to reduce transmission.</li> <li>• Supporting the expansion of TB lab services by upgrading laboratories with improved diagnostic equipment, including equipment for MDR-TB detection, and installing a laboratory information system.</li> </ul> <p><i>Highlight:</i> The estimated TB death rate has been reduced from 53 per 100,000 population in 2003 to 45 per 100,000 in 2007.</p>
Brazil	<ul style="list-style-type: none"> <li>• Conducting high-level political advocacy that resulted in the inclusion of DOTS in the national TB control policy and paved the way for DOTS expansion nationally.</li> <li>• Training a team to supervise, monitor, and evaluate the quality of DOTS expansion in priority municipalities through the PAHO Nurse Supervisor Training Project.</li> <li>• Decentralizing the management of MDR-TB through implementation of an innovative information system – TB Manager – in all 122 MDR-TB referral centers. This software, developed by Management Sciences for Health, is also now being introduced in Eastern Europe, which reports the highest rates of MDR-TB in the world.</li> <li>• Launching the LABMOST management system for TB pharmaceutical control and training health professionals in its use.</li> <li>• Supporting the national pharmaceutical laboratory in the formulation of new 4-in-1 fixed dose combination anti-TB drugs.</li> </ul> <p><i>Highlight:</i> DOTS population coverage is now at 75 percent, and case detection rate has increased from 17 percent in 2003 to 69 percent in 2007.</p>

Tier I Countries	Illustrative USAID Country Program Activities and Achievements
Cambodia	<ul style="list-style-type: none"> <li>• Referring almost 13,000 patients with symptoms of TB from private clinics and pharmacies to DOTS services in the 3-year project in the 11 out of 22 provinces with PPM efforts.</li> <li>• Having 60 percent of health centers implement C-DOTS, with more than 30 percent of those health centers and communities directly supported by USAID. USAID has trained village health workers and traditional healers and increased health staff capacity for DOTS supervision and coordination.</li> <li>• Developing a case management model for HIV-positive patients to ensure linkages to TB screening and treatment to improve diagnosis and treatment of persons with TB-HIV co-infection.</li> <li>• Increasing the proportion of TB patients receiving HIV counseling and testing from 11 percent to 45 percent in the past 2 years.</li> <li>• Providing equipment for drug susceptibility testing to ensure that MDR-TB can be diagnosed, and strengthening laboratory diagnostic capacity through external quality assurance, training in smear microscopy, and the use of diagnostic committees to review smear-negative TB cases.</li> </ul> <p><i>Highlight:</i> The country has reached a case detection rate of 61 percent and a treatment success rate of more than 90 percent thanks to USAID-supported activities that focus on expanding access to and strengthening the quality of DOTS.</p> <ul style="list-style-type: none"> <li>• Strengthening the smear microscopy quality assurance system to improve access and quality.</li> </ul>
Democratic Republic of Congo	<ul style="list-style-type: none"> <li>• Establishing a national reference laboratory (NRL) for MDR diagnosis and quality control.</li> <li>• Increasing HIV testing of all TB patients at the General Reference Hospital in Lubumbashi.</li> <li>• Training 1,303 CHWs and 61 former TB patients to identify and refer suspected cases as well as support adherence to treatment.</li> <li>• Training 807 health facility staff (doctors, nurses, supervisors, and laboratory technicians) to improve the quality of diagnosis and treatment.</li> </ul> <p><i>Highlight:</i> USAID provides ongoing support to 385 health center service sites, representing 30 percent of all health center testing sites in the DRC. This support has been instrumental in helping the National TB and Leprosy Program and partners to achieve an increase in case detection rate from 51 percent in 2001 to 61 percent in 2007; likewise, treatment success rate increased from 77 percent in 2001 to 86 percent in 2006.</p> <ul style="list-style-type: none"> <li>• Training more than 40 health care workers involved in the care of MDR-TB patients.</li> </ul>
Ethiopia	<ul style="list-style-type: none"> <li>• Conducting a TB Infection Transmission Risk Assessment, where the findings were used to develop the national MDR-TB management and TB infection control guidelines.</li> <li>• Strengthening the existing TB drug management system within the general drug management system through mapping and streamlining the supply chain process.</li> <li>• Training 694 clinical personnel in DOTS.</li> <li>• Conducting a national sensitization workshop and developing information, education, and communication materials, including a booklet on TB for health extension workers to expand community TB prevention and care activities.</li> </ul> <p><i>Highlight:</i> USAID has worked in collaboration with PEPFAR to support USAID's Private Sector Program, which aims to increase TB case detection in USAID-supported private clinics. This program accounted for 20 percent of TB case notifications in the capital city of Addis Ababa.</p>

Tier I Countries	Illustrative USAID Country Program Activities and Achievements
India	<ul style="list-style-type: none"> <li>• Supporting the RNTCP to implement DOTS expansion in Haryana state, resulting in more than 35,000 cases initiating treatment in 2008.</li> <li>• Expanding intensified case finding for TB in HIV counseling and testing centers in high HIV-prevalence states. As a result, more than 124,000 TB suspects were identified and 19,000 were diagnosed as TB patients and began DOTS,</li> <li>• Strengthening and accrediting state-level intermediate reference laboratories for the provision of culture and drug sensitivity testing services, necessary for MDR-TB diagnosis.</li> <li>• Initiating treatment for the nation's first cohort of 100 MDR-TB patients.</li> <li>• Providing technical assistance to implement external quality assessment for smear microscopy in more than 12,000 designated microscopy centers.</li> </ul> <p><i>Highlight:</i> High-level technical assistance from USAID, in partnership with WHO and the U.S. Centers for Disease Control and Prevention, is bolstering the Government of India's Revised National TB Control Program.</p>
Indonesia	<ul style="list-style-type: none"> <li>• Conducting the first representative drug resistance surveillance survey in Java Province (1,226 samples have been cultured and DST tested through quality assured laboratories).</li> <li>• Training 1,183 medical doctors and other hospital staff in TB control, and strategically positioning 30 senior technical officers in the 4 largest provinces.</li> <li>• Developing internal networks for DOTS in 75 hospitals and external referral networks with health centers in 10 districts, leading to doubling of notification of TB patients diagnosed in these hospitals.</li> <li>• Developing a national External Quality Assurance (EQA) system for the laboratories, with 3 reference labs now meeting international quality control standards.</li> <li>• Establishing a national strategic plan and policy document for DOTS implementation in prisons. DOTS surveillance is now established in 10 large prisons.</li> </ul> <p><i>Highlight:</i> Of those detected, 91 percent of all new TB cases diagnosed are successfully treated.</p>
Kenya	<ul style="list-style-type: none"> <li>• Strengthening the TB drug logistics system, focusing on forecasting and distribution of TB and other drugs, and supporting staff supervision.</li> <li>• Scaling up the pilot PPM-DOTS to expand the involvement of all providers in DOTS.</li> <li>• Scaling up TB treatment initiation and adherence and strengthening and expanding community-based DOTS (C-DOTS), including an urban TB control strategy in Nairobi and other major cities.</li> <li>• Developing and implementing infection control policies and TB-HIV/AIDS co-infection guidance at major hospitals and facilities.</li> <li>• Implementing Advocacy, Communications and Social Mobilization (ACSM) policy guidelines to increase demand for HIV testing and TB diagnosis and treatment.</li> <li>• Strengthening the surveillance capacity and routine monitoring and evaluation of TB and TB-HIV/AIDS co-infection, including MDR-TB.</li> </ul> <p><i>Highlight:</i> Since 2003, there has been a gradual decline in the rate of increase of TB cases due to intensified efforts by the government and its partners, including USAID.</p>

Tier I Countries	Illustrative USAID Country Program Activities and Achievements
Mozambique	<ul style="list-style-type: none"> <li>• Providing support to more than 1,000 patients with TB in C-DOTS programs in targeted provinces through a network of community volunteers.</li> <li>• Distributing 25 microscopes for sputum smear examination and developing a curricula to train nurses in preparing slides for sputum exams.</li> <li>• Upgrading the national and regional reference laboratories.</li> <li>• Training 350 health care workers on MDR-TB management.</li> <li>• Collaborating on TB-HIV/AIDS activities, expanding C-DOTS, and laboratory strengthening are the main components of USAID's program in Mozambique.</li> </ul> <p><i>Highlight:</i> In USAID assisted provinces, 4,800 people with signs and symptoms of TB were referred to health centers by community volunteers as part of the C-DOTS program (of whom 3,264 were diagnosed with TB).</p>
Nigeria	<ul style="list-style-type: none"> <li>• Training 2,874 health care workers, CHWs, and volunteers in DOTS service delivery; laboratory diagnosis; drugs and commodity logistics; and community TB care in 17 states in northern Nigeria.</li> <li>• Finalizing the MDR-TB survey protocol.</li> <li>• Establishing an International Training Center for Anglophone Africa in Zaria, Nigeria.</li> </ul> <p><i>Highlight:</i> In 2008, with the establishment of 84 new treatment and microscopy facilities, USAID support resulted in almost 100 percent coverage of DOTS services in all local government areas in the 17 USAID-assisted states.</p>
Pakistan	<ul style="list-style-type: none"> <li>• Supporting a national TB prevalence survey to provide more concise estimates of the TB burden in Pakistan.</li> <li>• Establishing referral links between the private sector and public sector to improve MDR-TB treatment.</li> <li>• Training more than 1,000 physicians in the private sector on TB detection and treatment.</li> <li>• Supporting the Country Coordinating Mechanism's application for a Round 9 grant from the Global Fund for a regional approach to cross-border activities for TB patients to improve case detection and treatment completion rates.</li> <li>• Supporting the NTP for monitoring and evaluation since 2004 has been critical to achieving 100 percent DOTS coverage.</li> </ul> <p><i>Highlight:</i> DOTS treatment is available in 100 percent of the public health facilities, and the treatment success rate reached 91 percent among the 2007 cohort, surpassing the WHO target of 85 percent. The case detection rate rose from 13 percent in 2002 to 74 percent at the end of 2008, surpassing the WHO target of 70 percent.</p>

Tier I Countries	Illustrative USAID Country Program Activities and Achievements
Philippines	<ul style="list-style-type: none"> <li>• Assisting in the development of the new 5-year national strategy for TB control and management.</li> <li>• Establishing national policies for management of TB in children and management of MDR-TB.</li> <li>• Developing a TB DOTS curriculum and integrating it into the curricula at 10 major medical schools.</li> <li>• Training more than 4,000 providers to deliver quality DOTS services.</li> <li>• Establishing a national policy standardizing TB laboratory procedures, supporting training on microscopy, and establishing fully equipped microscopy centers, resulting in 93 percent of USAID-supported laboratories performing at acceptable standards.</li> <li>• Assisting with ongoing efforts of the national health insurance program to improve the process for accrediting DOTS centers and reimbursing centers for TB services.</li> </ul> <p><i>Highlight:</i> In the 28 USAID-assisted provinces, covering a population of about 38 million, USAID has contributed to the diagnosis and treatment of an estimated 52,000 people with TB.</p>
Russia	<ul style="list-style-type: none"> <li>• Enrolling 526 patients in MDR-TB treatment in 4 regions.</li> <li>• Training more than 2,000 health care professionals in DOTS to improve the quality of services and community-based care, including Red Cross volunteers and prison staff.</li> <li>• Establishing modern infection control systems at 7 leading provincial TB facilities to prevent TB transmission among staff and other patients.</li> <li>• Opening a Center of Excellence for TB and MDR-TB treatment in Orel and a Center of Excellence on Infection Control in TB in Vladimir.</li> </ul> <p><i>Highlight:</i> USAID-supported DOTS programs in prisons and detention facilities throughout Russia have significantly reduced TB prison mortality rates from 238 to 82 per 100,000 population from 1999 to 2007.</p>
South Africa	<ul style="list-style-type: none"> <li>• Improving infection control measures to prevent the spread of MDR-TB and XDR-TB through training and technical assistance and by enhancing the capacity of laboratories for diagnosis of MDR-TB and XDR-TB.</li> <li>• Developing guidelines for TB control in children based on the WHO guidelines, developing a training curriculum, and training health care workers.</li> <li>• Training approximately 10,500 health care workers on basic TB management, including 1,000 trained on MDR-TB management.</li> <li>• Improving HIV testing for TB patients from 20 percent in 2006 to 64 percent in 2007 in USAID-supported districts.</li> </ul> <p><i>Highlight:</i> USAID is supporting the development of an infection control TB risk assessment tool, and it is estimated that about 200 facilities will have had an infection control risk assessment conducted, and infection control plans in place by the end of 2009.</p>

Tier I Countries	Illustrative USAID Country Program Activities and Achievements
Tanzania	<ul style="list-style-type: none"> <li>• Catalyzing the national MDR/XDR response by conducting a national assessment and designing a planning tool, which together will be used to create a national MDR/XDR-TB Action Plan in 2009.</li> <li>• Creating a laboratory assessment tool, piloted in 10 districts, to quantify requirements for infrastructure improvement, equipment, supplies, staffing, and training needs, and introducing a quality assurance system for smear microscopy and HIV testing as well as laboratory supervision tools.</li> <li>• Improving TB case detection by conducting an evaluation of Light Emitted Diode (LED) microscopy and by training 70 staff in TB microscopy and external quality assurance procedures. Procurement of LED microscopes is in process.</li> <li>• Training 81 public and private sector staff on topics including DOTS, basic computer skills, and the use of the Electronic TB Register.</li> <li>• Revising the national TB and TB-HIV/AIDS curriculum for a medical and allied health sciences school in Tanzania.</li> <li>• Designing an innovative approach to overcome poor access to TB diagnostic services by using bicycles to transport sputum samples to and from DOTS and diagnostic centers.</li> <li>• Improving overall infection control in facility settings through the development of a standardized infection control plan, with more than 145 district level coordinators and facility staff trained in infection control planning in 10 districts.</li> </ul> <p><i>Highlight:</i> As a result, during this period, 16,754 newly registered TB patients received services.</p>
Uganda	<ul style="list-style-type: none"> <li>• Providing external quality control to improve sputum smear microscopy in more than 100 laboratories.</li> <li>• Training more than 290 health workers to implement C-DOTS.</li> <li>• Collaborating with the Uganda's People Defense Forces to develop a modified C-DOTS for the military.</li> <li>• Updating the national TB infection control policy.</li> <li>• Supporting TB diagnostic centers' renovation, supply microscopes, and training of microscopists.</li> <li>• Increasing capacity at the national and district levels to support TB-HIV/AIDS coordination and supervision, including training in management and leadership.</li> <li>• Supporting the MOH TB drug logistic management information system.</li> </ul> <p><i>Highlight:</i> With USAID support, Uganda has been able to expand C-DOTS in all 80 districts nationwide.</p>
Ukraine	<ul style="list-style-type: none"> <li>• Training 280 Ukrainian Red Cross Society visiting nurses to provide education and social support to TB patients to increase treatment adherence. About 1,500 patients completed treatment with the Red Cross nurses' support to date.</li> <li>• Training more than 7,000 health care professionals in DOTS to improve the quality of services at TB hospitals and in the general health care system.</li> <li>• Building laboratory capacity in 10 oblasts in smear microscopy and drug sensitivity testing by training all microbiologists and technicians.</li> <li>• Improving the effectiveness of interpersonal communication and counseling skills of TB doctors and nurses through training to be more patient oriented and to better assure treatment completion.</li> <li>• Training 58 TB prison hospital staff who provide care for 1,200 prisoners with TB.</li> <li>• Supporting the creation of a Center of Excellence for TB and MDR-TB treatment and education in Dnepropetrovsk oblast.</li> </ul> <p><i>Highlight:</i> Due to intensified national efforts in collaboration with USAID and partners, the government reports that the TB notification rate decreased from 84 to 76 per 100,000 population in 2008.</p>

Tier I Countries	Illustrative USAID Country Program Activities and Achievements
Zambia	<ul style="list-style-type: none"> <li>• Train 75 individuals (50 laboratory technologists and 15 lay persons) in basic TB microscopy and 50 community volunteers in community-based DOTS.</li> <li>• Conduct TB quality assurance activities in 42 out of the 72 administrative districts of Zambia.</li> <li>• Renovate 1 TB laboratory.</li> </ul> <p><i>Highlight:</i> These efforts have resulted in 94 percent of USAID-supported laboratories reporting over 95 percent correct results for TB microscopy, 47 percent of all TB patients being tested for HIV, and increased community involvement in TB control.</p>
Zimbabwe	<ul style="list-style-type: none"> <li>• Promoting the use of guidelines developed by WHO for TB diagnosis and treatment in order to standardize treatment.</li> <li>• Increasing TB screening of HIV-positive patients, allowing for earlier detection and initiation of treatment and improving coordination of TB and HIV referral systems.</li> <li>• Improving national logistics and information systems for TB and increasing availability of drugs for the treatment of TB.</li> <li>• Improving case detection by increasing diagnostic capacity through provision of laboratory supplies, registers, and reporting form.</li> <li>• Developing infection control measures in clinic settings as well as in laboratories that process sputum specimens.</li> </ul> <p><i>Highlight:</i> USAID began support for TB control in the country in 2008 with funding of \$1.5 million.</p>

## Annex B: Tier 2 Country Program Descriptions

Tier 2 Countries	Illustrative USAID Country Program Activities and Achievements
Angola	<ul style="list-style-type: none"> <li>• Provide technical assistance to the MOH, specifically in laboratory diagnosis and clinical TB treatment.</li> <li>• Enhance TB case detection at HIV/AIDS voluntary counseling and testing (VCT) centers.</li> <li>• Implement C-DOTS activities, train community volunteers on TB prevention, and increase awareness of community leaders and organizations on TB.</li> </ul> <p>In 2008, USAID supported training for 1,156 health professionals, including 126 master trainers, and collaborated with NGOs, churches, and community leaders to train an additional 1,244 people.</p>
Armenia	<ul style="list-style-type: none"> <li>• Support the WHO to develop a 2-year action plan with the Government.</li> <li>• Support the MOH to improve the efficiency and capacity of the laboratory system.</li> <li>• Strengthen the clinical and managerial skills of employees of the MOH and the National Institutes of Health (NIH), regional health care departments, primary health care facilities, and professional associations.</li> </ul> <p>In 2008, USAID supported training for 230 nurses using a TB training module developed in collaboration with the MOH, NIH, and Basic Medical College to increase the capacity of primary care nurses to diagnose and treat TB.</p>
Azerbaijan	<ul style="list-style-type: none"> <li>• Introduce revised regulations and legislation that promote the implementation of international standards of TB control, including components of the 6 elements of the Stop TB Strategy.</li> <li>• Develop programmatic and clinical guidelines and protocols based on international standards.</li> <li>• Strengthen monitoring, supervision, and in-service training to ensure standards are correctly implemented.</li> </ul> <p>This was a new program in fiscal year 2008 and is focused on improving the policy environment and increasing the political commitment necessary for successful TB program implementation and scale-up.</p>
Bolivia	<ul style="list-style-type: none"> <li>• Establish community-based DOTS programs to reach TB patients in rural and isolated regions.</li> <li>• Help 35 priority municipalities expand DOTS and strengthen the NTP.</li> <li>• Train health providers and community health workers, improve the TB drug logistics system, and (with MOH collaboration) strengthen TB laboratories.</li> </ul> <p>In 2008, USAID supported 24 TB reference laboratories in 4 major cities to assess and improve their diagnostic capabilities and training for 330 municipal and departmental public sector health workers from 133 health facilities on new treatment norms, guidelines, protocols, and quality of care.</p>

Tier 2 Countries	Illustrative USAID Country Program Activities and Achievements
Djibouti	<ul style="list-style-type: none"> <li>• Train key staff at the NTP in reporting and recording procedures to improve program management.</li> <li>• Strengthen infection control, and improve management of MDR-TB.</li> <li>• Provide technical assistance with implementation of Global Fund programs, including support for training of doctors on MDR-TB management.</li> </ul> <p>In 2008, USAID strengthened the laboratory network, resulting in 15 labs becoming operational and performing TB microscopy with 95 percent correct results and provided technical assistance and training for laboratory technicians, resulting in the establishment of a quality assurance system and laboratory manual with standard operating procedures.</p>
Dominican Republic	<ul style="list-style-type: none"> <li>• Increase political commitment for DOTS implementation using evidence-based approaches.</li> <li>• Train health personnel, including doctors, nurses, laboratory technicians, and health promoters, in the DOTS approach.</li> <li>• Establish drug resistance surveillance systems.</li> </ul> <p>In 2008, USAID implemented a pharmaceutical procurement and logistics system that saved the NTP an estimated \$800,000. It also strengthened quality control and laboratory services to improve TB diagnostics in a network of 8 regional labs and approximately 164 provincial and local laboratories.</p>
Georgia	<ul style="list-style-type: none"> <li>• Work with the Ministry of Labor, Health, and Social Affairs and the NTP to improve case detection, and increase the management skills of all clinical and laboratory staff in Tbilisi, Poti, and in the Adjara region.</li> <li>• Provide supportive supervision and integration of TB services into the primary health care system, and improve provider education.</li> <li>• Implement an information, education, and communication campaign to engage the community.</li> </ul> <p>Between 2003 and 2007, the default rate dropped from 22.4 to 12.7 percent. In 2008, USAID introduced "DOTS Spots," an innovative approach for health clinics to deliver daily DOTS close to patient residences and improve treatment success rates.</p>
Ghana	<ul style="list-style-type: none"> <li>• Involve health workers, relatives, and community volunteers in supervising TB patients to increase treatment completion.</li> <li>• Implement C-DOTS through activities conducted by support groups for people living with HIV/AIDS.</li> <li>• Train staff in the use of the logistics management information system for TB commodities.</li> </ul> <p>In 2008, USAID supported training for staff in the use of the logistics management information system for TB commodities and for laboratory personnel from the public and private sectors on TB smear microscopy. Access to TB diagnosis increased from 211 microscopy sites to 240.</p>

Tier 2 Countries	Illustrative USAID Country Program Activities and Achievements
Haiti	<ul style="list-style-type: none"> <li>• Implement a new integrated community care and support project that delivers TB and HIV services within a continuum of care.</li> <li>• Integrate TB screening and prophylaxis into all HIV care services through different HIV care and treatment networks.</li> <li>• Improve laboratory capacity and quality assurance for TB testing, and initiate the monitoring of drug resistance at the National TB Reference Laboratory.</li> </ul> <p>In 2008, USAID strengthened the TB program leadership, management, and technical capacities at the central NTP level.</p>
Kazakhstan	<ul style="list-style-type: none"> <li>• Implement targeted interventions to improve TB programs in the capital city region of Almaty, and expand assistance for DOTS.</li> <li>• Provide technical assistance for drug management and logistics, and advocate for sustained national funding and centralized procurement of TB drugs.</li> <li>• Support the design and implementation of community mobilization activities in order to reduce stigma and encourage care-seeking behaviors.</li> <li>• Expand DOTS assistance to 5 additional regions in fiscal year 2007.</li> </ul> <p>In 2008, USAID facilitated development and national implementation of 12 standard protocols on various components of MDR-TB management, including diagnosis, treatment, and direct observation of drug use; introduced a laboratory quality assurance system for smear microscopy; and began development of a National Infection Control Strategy and a project for programmatic management of drug-resistant TB.</p>
Kyrgyzstan	<ul style="list-style-type: none"> <li>• Provide technical assistance to national-level working groups developing guidelines on laboratory, training, TB in prisons, drug management, MDR-TB, and TB-HIV/AIDS.</li> <li>• Integrate DOTS into medical education to build national capacity to control TB.</li> <li>• Expand and strengthen existing MDR-TB interventions.</li> </ul> <p>In 2008, USAID supported training for 393 TB specialists, 1,986 primary health care doctors, 183 nurses, and 94 other staff on DOTS, and 12 lab technicians on sputum smear microscopy. A logistics management information system was rolled out nationwide after pilot implementation in Talas Oblast.</p>
Malawi	<ul style="list-style-type: none"> <li>• Support the MOH goal of universal access to TB diagnosis through expansion of laboratory networks at the health-center level and sputum collection points at the community level.</li> <li>• Develop standards for TB laboratory services and the drug resistance survey protocol, and implement an MDR-TB survey.</li> <li>• Support community-based TB care and TB-HIV/AIDS co-infection activities.</li> </ul> <p>In 2008, USAID refurbished the NTRL, supported community-based TB care and TB-HIV/AIDS co-infection activities, and developed a comprehensive human resource development plan to increase service capacity.</p>

Tier 2 Countries	Illustrative USAID Country Program Activities and Achievements
Mexico	<ul style="list-style-type: none"> <li>• Promote collaboration and coordination among governmental and nongovernmental stakeholders.</li> <li>• Promote TB health education as part of a national awareness campaign, emphasizing community-based social mobilization.</li> <li>• Expand DOTS coverage and increase treatment success rates by augmenting community health worker networks and capacities.</li> </ul> <p>In 2008, USAID supported training for more than 5,500 health professionals in DOTS and supported 7 small grants that demonstrated important results in TB control in high-risk populations in the border area. Community awareness programs and a model program for treatment of drug-resistant patients were among the grant recipients.</p>
Namibia	<ul style="list-style-type: none"> <li>• Improve community knowledge, attitudes, and practices on TB and TB-HIV/AIDS.</li> <li>• Support formal collaboration between the government and the private sector.</li> <li>• Engage private sector professionals in NTP technical guidelines and the ISTC, including those on MDR-TB and extensively drug-resistant TB.</li> </ul> <p>USAID supported TB treatment and care in 2008 to 14,300 HIV-infected individuals; supported 300 service delivery outlets; and trained 1,500 individuals, including the country's first-ever cadre of health care providers on clinical management of MDR-TB.</p>
Peru	<ul style="list-style-type: none"> <li>• Improve infection control.</li> <li>• Train clinical laboratory staff in early diagnosis of MDR-TB.</li> <li>• Collaborate with the MOH on the National Sanitary Strategy for the Prevention and Control of Tuberculosis to further strengthen the national DOTS program and the capacity to address MDR-TB.</li> </ul> <p>In 2008, USAID provided technical assistance for a nationwide communication strategy to mobilize public support for TB prevention and control and funded the revision of technical norms for TB control in accordance with WHO guidelines.</p>
Senegal	<ul style="list-style-type: none"> <li>• Strengthen capacity for communities to correctly diagnose and treat TB.</li> <li>• Strengthen program management for TB at the national level.</li> <li>• Institutionalize HIV/AIDS and TB reciprocal diagnostic testing.</li> </ul> <p>In 2008, USAID created 94 support groups to reinforce the DOTS strategy at the community level, supported training for 75 health care providers in 24 care units to implement the DOTS strategy, and provided supervisory support for health care units in 30 health districts in 8 regions.</p>

Tier 2 Countries	Illustrative USAID Country Program Activities and Achievements
Southern Sudan	<ul style="list-style-type: none"> <li>• Provide technical support to the NTP focusing on TB policy, DOTS expansion, capacity building, and strategic information capacity.</li> <li>• Conduct DOTS training that emphasizes the active participation of women health workers to enhance community-based care, with the aim of increasing the number of women health care workers providing TB care.</li> <li>• Support the implementation of community-based DOTS.</li> </ul> <p>In 2008, USAID provided funds for the renovation of a NTRL in Juba and supported the rehabilitation of 5 state TB laboratories. USAID also supported training for 124 health staff in the latest TB testing, treatment, and case management at United Nations sites in former garrison towns – an important step for harmonizing the different TB treatment regimens used in the North and South and for preventing the spread of MDR-TB.</p>
Tajikistan	<ul style="list-style-type: none"> <li>• Build political support for TB control and advocate for a budget line item and increased allocation for TB programs.</li> <li>• Support community advocacy and mobilization.</li> <li>• Develop national behavior change communication strategies for general population and risk groups.</li> </ul> <p>In 2008, USAID continued to integrate and strengthen DOTS education at all levels of medical education and designed, tested, and implemented a logistics management information system for drug management to help ensure an uninterrupted supply of TB drugs throughout the country.</p>
Turkmenistan	<ul style="list-style-type: none"> <li>• Strengthen political commitment and establish coordination and collaboration between national health authorities and international partners in TB control.</li> <li>• Train primary health care staff on integrating TB services to increase patient access to DOTS.</li> <li>• Train managers to conduct operational research.</li> </ul> <p>In 2008, USAID supported rational planning of the TB laboratory network, training of staff to ensure efficient use of TB resources, and training of qualified staff to conduct laboratory services. Information, education, and communication materials for health workers, the general population, and patients were also developed and disseminated.</p>
Uzbekistan	<ul style="list-style-type: none"> <li>• Increase the quality of the DOTS strategy in the TB care network and primary health care system.</li> <li>• Strengthen the laboratory network and create rational drug management systems.</li> <li>• Build national capacity to manage MDR-TB cases, and improve infection control measures in civil and prison systems to prevent TB and MDR-TB transmission.</li> </ul> <p>In 2008, USAID supported training for 110 lab technicians in microscopy and for 280 oblast- and city-level staff in monitoring and supervision to increase sustainability of human resource capacity of the NTP. USAID also supported operational studies to better understand the causes of TB patient default and assess provider prescribing practices for TB patients.</p>

### Annex C: Case Detection Rates and New Sputum Smear-positive TB Cases Registered, Cured, Completed, and Successfully Treated

Focus Countries	DOTS Case Detection Rate (%), 2007	TB Treatment Outcomes – 2006 Cohort				
		Registered No. of Cases on Treatment (A)	No. Cured (B)	No. Completed (C)	No. Successfully Treated (B+C)	% Successfully Treated [(B + C)/A]*100
<b>Focus Countries Tier I</b>						
Afghanistan	64	12,468	9,921	608	10,529	85
Bangladesh	66	101,761	92,921	858	93,779	92
Brazil	78	34,818	11,648	13,417	25,065	72
Cambodia	61	19,349	17,484	594	18,078	93
DR Congo	61	63,488	51,790	2,947	54,737	87
Ethiopia	28	36,674	25,314	5,516	30,830	84
India	68	553,302	463,548	11,728	475,276	86
Indonesia	68	175,320	144,672	14,917	159,589	91
Kenya	72	39,154	28,621	4,683	33,304	85
Mozambique	49	18,275	14,912	208	15,120	83
Nigeria	23	39,903	25,967	4,532	30,499	77
Pakistan	67	65,589	49,072	8,619	57,691	88
Philippines	75	85,797	69,030	6,796	75,826	88
Russia	49	30,745	17,102	820	17,922	59
South Africa	78	139,516	87,820	15,148	102,968	74
Tanzania	51	24,724	19,835	1,114	20,949	85
Uganda	51	20,364	5,831	8,342	14,173	70
Ukraine	55	10,351	5,602	525	6,127	59
Zambia	58	14,025	10,762	1,149	11,911	85
Zimbabwe	27	16,205	8,757	970	9,727	60
<b>Total Tier I</b>	<b>57 (average)</b>	<b>1,501,828</b>	<b>1,160,609</b>	<b>103,491</b>	<b>1,264,100</b>	<b>80 (average)</b>

Focus Countries	DOTS Case Detection Rate (%), 2007	TB Treatment Outcomes – 2006 Cohort				
		Registered No. of Cases on Treatment (A)	No. Cured (B)	No. Completed (C)	No. Successfully Treated (B+C)	% Successfully Treated [(B + C)/A]*100
<b>Focus Countries Tier 2</b>						
Angola	102	21,499	2,308	1,500	3,808	18
Armenia	51	580	310	92	402	69
Azerbaijan	46	1,454	723	144	867	60
Bolivia	71	5,642	4,566	111	4,677	83
Djibouti	42	1,143	796	90	886	78
Dominican Republic	66	2,356	1,726	108	1,834	78
Georgia	113	1,813	1,166	202	1,368	75
Ghana	36	7,786	5,513	433	5,946	77
Haiti	51	6,873	5,067	539	5,606	82
Kazakhstan	70	6,113	4,351	57	4,408	72
Kyrgyzstan	60	1,830	1,459	48	1,507	83
Malawi	41	8,166	6,259	110	6,369	78
Mexico	99	11,564	8,506	706	9,212	80
Namibia	84	5,177	3,318	636	3,954	76
Peru	93	19,251	14,425	586	15,011	78
Senegal	48	6,882	4,778	453	5,231	76
Southern Sudan*	31	12,150	8,174	1,755	9,929	81
Tajikistan	32	1,753	1,413	66	1,479	85
Turkmenistan	90	830	676	19	695	83
Uzbekistan	46	5,642	4,123	427	4,550	81
<b>Total Tier 2</b>	<b>64 (average)</b>	<b>128,504</b>	<b>79,657</b>	<b>8,082</b>	<b>87,739</b>	<b>75 (average)</b>
<b>Totals (Tier 1 + Tier 2)</b>	<b>60 (average)</b>	<b>1,630,332</b>	<b>1,240,266</b>	<b>111,573</b>	<b>1,351,839</b>	<b>77 (average)</b>

\*Data reflect national figures from the WHO Global Tuberculosis Control Report 2009. Percents are rounded.

## Annex D: Treatment Outcomes for New Sputum Smear-positive TB Patients Reported from DOTS Services

Countries	Registered No. of Cases on Treatment	TB Treatment Outcomes – 2006 Cohort							
		% Cured (A)	% Completed (B)	% Died	% Failed	% Defaulted	% Transferred	% Not Evaluated	% Successfully Treated (A + B)
<b>Focus Countries Tier I</b>									
Afghanistan	12,468	80	5	2	1	2	6	5	85
Bangladesh	101,761	91	1	3	1	2	2	1	92
Brazil	34,818	33	39	4	0	8	3	12	72
Cambodia	19,349	90	3	3	0	2	2	0	93
DR Congo	63,488	82	5	5	1	5	2	0	87
Ethiopia	36,674	69	15	5	1	5	5	1	84
India	553,302	84	2	5	2	6	1	0	86
Indonesia	175,320	83	9	2	1	5	2	0	91
Kenya	39,154	73	12	5	0	7	3	0	85
Mozambique	18,275	82	1	10	1	5	2	0	83
Nigeria	39,903	65	11	6	2	10	2	4	77
Pakistan	65,589	75	13	3	1	6	2	0	88
Philippines	85,797	80	8	2	1	4	2	2	88
Russia	30,745	56	3	12	15	10	5	0	59
South Africa	139,516	63	11	7	2	9	5	3	74
Tanzania	24,724	80	5	8	0	3	4	0	85
Uganda	20,364	29	41	6	1	13	5	7	70
Ukraine	10,351	54	5	12	12	9	4	4	59
Zambia	14,025	77	8	7	1	3	5	0	85
Zimbabwe	16,205	54	6	8	0	5	8	19	60
<b>Average</b>	<b>1,501,828 (total)</b>	<b>70</b>	<b>10</b>	<b>6</b>	<b>2</b>	<b>6</b>	<b>4</b>	<b>3</b>	<b>80</b>

Countries	Registered No. of Cases on Treatment	TB Treatment Outcomes – 2006 Cohort							
		% Cured (A)	% Completed (B)	% Died	% Failed	% Defaulted	% Transferred	% Not Evaluated	% Successfully Treated (A + B)
<b>Focus Countries Tier 2</b>									
Angola	21,499	11	7	1	0	4	1	76	18
Armenia	580	53	16	5	10	14	1	1	69
Azerbaijan	1,454	50	10	2	3	12	22	1	60
Bolivia	5,642	81	2	3	1	6	4	3	83
Djibouti	1,143	70	8	1	1	16	4	0	78
Dominican Rep.	2,356	73	5	3	1	6	2	10	78
Georgia	1,813	64	11	3	6	10	4	2	75
Ghana	7,786	71	6	9	2	6	6	0	77
Haiti	6,873	74	8	5	1	7	3	1	82
Kazakhstan	6,113	71	1	4	16	5	2	1	72
Kyrgyzstan	1,830	80	3	5	5	5	2	0	83
Malawi	8,166	77	1	12	1	3	2	3	78
Mexico	11,564	74	6	6	1	6	2	5	80
Namibia	5,177	64	12	7	3	8	6	0	76
Peru	19,251	75	3	2	2	3	1	15	78
Senegal	6,882	69	7	4	2	10	8	0	76
Southern Sudan*	12,150	67	14	2	1	7	2	5	81
Tajikistan	1,753	81	4	4	6	4	2	0	85
Turkmenistan	830	81	2	7	5	4	1	0	83
Uzbekistan	5,642	73	8	6	6	6	1	0	81
<b>Average Tier 2</b>	<b>128,504 (total)</b>	<b>68</b>	<b>7</b>	<b>5</b>	<b>4</b>	<b>7</b>	<b>4</b>	<b>6</b>	<b>75</b>
<b>Average Tier 1 &amp; 2</b>	<b>1,630,332 (total)</b>	<b>69</b>	<b>8</b>	<b>5</b>	<b>3</b>	<b>7</b>	<b>4</b>	<b>4</b>	<b>77</b>

\*Data reflect national figures from the WHO Global Tuberculosis Control Report 2009.

Definitions:

- Cured: A patient who was initially sputum smear-positive and who was sputum smear-negative in the last month of treatment and on at least one previous occasion.
- Completed: A patient who completed treatment but did not meet the criteria for cure or failure.
- Died: A patient who died from any cause during treatment.
- Failed: A patient who was initially sputum smear-positive and who remained sputum smear-positive at month 5 or later during treatment.
- Defaulted: A patient whose treatment was interrupted for 2 consecutive months or more.
- Transferred out: A patient who transferred to another reporting unit and for whom the treatment outcome is not known.
- Not evaluated: A patient for whom the outcome was not reported.
- Successfully treated: A patient who was cured or who completed treatment.

**Annex E: Cumulative Total Number of MDR-TB Patients Reported on Treatment  
by the Green Light Committee (GLC) through 2007**

<b>Focus Countries</b>	<b>Total Reported on Treatment, cumulative through 2007</b>
<b>Focus Countries Tier I</b>	
Afghanistan	
Bangladesh	0
Brazil	
Cambodia	11
DR Congo	0
Ethiopia	0
India	0
Indonesia	0
Kenya	0
Mozambique	0
Nigeria	
Pakistan	
Philippines	915
Russia	1,377
South Africa	
Tanzania	0
Uganda	0
Ukraine	0
Zambia	
Zimbabwe	
<b>Total Tier I</b>	<b>2,303</b>

<b>Focus Countries</b>	<b>Total Reported on Treatment, cumulative through 2007</b>
<b>Focus Countries Tier 2</b>	
Angola	
Armenia	99
Azerbaijan	66
Bolivia	34
Djibouti	
Dominican Rep.	24
Georgia	11
Ghana	
Haiti	96
Kazakhstan	0
Kyrgyzstan	223
Malawi	
Mexico	174
Namibia	
Peru	4,645
Senegal	
Southern Sudan	
Tajikistan	
Turkmenistan	
Uzbekistan	669
<b>Total Tier 2</b>	<b>6,041</b>
<b>Total (Tier 1 + Tier 2)</b>	<b>8,344</b>
Notes: Countries shaded gray were not approved by the GLC as of September 30, 2008	
Source: Data provided by the GLC Secretariat, WHO Geneva	

## Annex F: USAID FY 2008 Tuberculosis Budget

TB Program (* = Tier I Focus Countries)	FY 2008 (\$)
Afghanistan*	6,943,000
Africa Regional	2,579,000
Angola	397,000
Armenia	200,000
Azerbaijan	496,000
Bangladesh*	3,670,000
Bolivia	1,326,000
Brazil*	3,200,000
Cambodia*	3,868,000
Democratic Republic of Congo*	4,372,000
Djibouti	248,000
Dominican Republic	1,289,000
East Africa Regional	1,785,000
Ethiopia*	3,370,000
Georgia	850,000
Ghana	595,000
Haiti	1,289,000
India*	8,431,000
Indonesia*	5,854,000
Joint Eurasia Regional	139,000
Joint Europe Regional	1,587,000
Kazakhstan	1,393,000
Kenya*	2,876,000
Kyrgyzstan	1,446,000
Latin America and Caribbean Regional	1,008,000
Malawi	1,389,000
Mexico	496,000
Mozambique*	2,973,000
Namibia	1,934,000
Nigeria*	4,862,000
Pakistan*	3,968,000

<b>TB Program (* = Tier I Focus Countries)</b>	<b>FY 2008 (\$)</b>
Philippines*	5,455,000
Peru	595,000
Regional Development Mission-Asia	5,753,000
Russia*	7,346,000
Senegal	843,000
South Africa*	5,951,000
Southern Sudan	595,000
Tajikistan	1,346,000
Tanzania*	2,478,000
Turkmenistan	781,000
Uganda*	2,182,000
Ukraine*	2,619,000
Uzbekistan	1,732,000
Zambia*	3,075,000
Zimbabwe*	1,587,000
Global Health-Core	30,105,000
Global Health/International Partnerships-TB Drug Facility	14,878,000
<b>Total</b>	<b>162,154,000</b>

**U.S. Agency for International Development**  
1300 Pennsylvania Avenue, NW  
Washington, DC 20523  
[www.usaid.gov](http://www.usaid.gov)