



**USAID**  
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# Accelerating Progress in the Global Effort Against Tuberculosis

FISCAL YEAR  
**2014**



U.S.AGENCY FOR INTERNATIONAL DEVELOPMENT REPORT ON  
INTERNATIONAL FOREIGN ASSISTANCE FOR TUBERCULOSIS

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# Acronyms & Abbreviations

|                    |   |
|--------------------|---|
| <b>AIDS</b>        | Acquired Immunodeficiency Syndrome                    |
| <b>ART</b>         | Antiretroviral Therapy                                |
| <b>CDC</b>         | Centers for Disease Control and Prevention            |
| <b>CPT</b>         | Co-trimoxazole Preventive Therapy                     |
| <b>DOD</b>         | Department of Defense                                 |
| <b>DOS</b>         | Department of State                                   |
| <b>DOTS</b>        | Directly Observed Treatment, Short Course             |
| <b>FY</b>          | Fiscal Year   |
| <b>GDF</b>         | Global Drug Facility                                  |
| <b>GHP</b>         | Global Health Programs                                |
| <b>GLI</b>         | Global Laboratory Initiative                          |
| <b>Global Fund</b> | Global Fund to Fight AIDS, Tuberculosis and Malaria   |
| <b>GMP</b>         | Good Manufacturing Practices                          |
| <b>HIV</b>         | Human Immunodeficiency Virus                          |
| <b>IPT</b>         | Isoniazid Preventive Therapy                          |
| <b>MDG</b>         | Millennium Development Goal                           |
| <b>MDR-TB</b>      | Multidrug-Resistant Tuberculosis                      |
| <b>NIAID</b>       | National Institute of Allergy and Infectious Diseases |
| <b>NIH</b>         | National Institutes of Health                         |
| <b>PEPFAR</b>      | President's Emergency Plan for AIDS Relief            |
| <b>PPM</b>         | Public-Private Mix                                    |
| <b>SDG</b>         | Sustainable Development Goal                          |
| <b>TB</b>          | Tuberculosis  |
| <b>UNAIDS</b>      | Joint United Nations Programme on HIV and AIDS        |
| <b>USAID</b>       | U.S. Agency for International Development             |
| <b>WHO</b>         | World Health Organization                             |
| <b>XDR-TB</b>      | Extensively Drug-Resistant Tuberculosis               |
| <b>Xpert</b>       | Xpert <sup>®</sup> MTB/RIF                            |



Women and children wait outside a TB clinic in Zimbabwe. Photo by USAID

## Executive Summary

Tuberculosis (TB) kills almost three people every minute. It is one of the deadliest diseases in the world, predominantly affecting the most vulnerable – men, women, and children whose immune systems are already weakened through malnourishment, disease, or other factors. Drug-resistant strains of TB have spread to almost all countries of the world and pose an increasingly urgent public health challenge.

Despite TB's devastating impact, we look to the future with hope and optimism. Effective diagnostic tools and medicines are available, and most forms of TB can be cured. Since 1990, TB deaths have declined by 47 percent, and TB prevalence has declined by 42 percent globally. Recent innovations have dramatically expanded our ability to rapidly diagnose all forms of TB and provide appropriate, life-saving treatment and care. Some new and improved drugs, diagnostic tools, and programmatic approaches are in the pipeline and are likely to be rolled out over the next few years. As the largest bilateral donor in combating TB globally, the U.S. Government has saved millions of lives and provided vital support to TB patients and their families. The U.S. Government's leadership contributed to the world successfully meeting the ambitious Millennium Development Goal (MDG) of decreasing TB incidence by 2015. The world is also on track to meet the MDG target of 50 percent reduction in mortality by the end of 2015 and has set a new goal of fully eliminating TB as a global health threat by 2030.

Preventing the spread of TB and the development of drug-resistant TB strains is vital to safeguarding U.S. national interests. Reducing TB morbidity and mortality is an important element of the U.S. Government's efforts to improve global health and reduce poverty.

The U.S. Government's investments in combating TB have yielded impressive health dividends. Working in the highest-burden countries that often provide limited access to quality healthcare, the U.S. Agency for International Development (USAID) has played a pivotal role in achieving global targets on TB prevalence and mortality. Our contributions have helped these countries achieve a 43 percent decrease in TB-related mortality and a 42 percent decrease in TB prevalence since 1990. These declines have contributed substantially to overall global declines in TB prevalence and mortality.

In FY 2014, USAID focused on: preventing the spread of TB through earlier detection of individuals with TB; support to develop high-quality TB treatment and care programs; creation and development of MDR-TB diagnostic and treatment services; and expansion of research and innovation capacity. USAID helped 26 priority countries strengthen their TB strategies and programs and provided focused assistance to an additional 28 countries to implement their national TB programs.

Across its programs, USAID worked closely with government, private sector, academia, and community partners to increase the impact and sustainability of USAID investments. With FY 2014 funding, USAID helped provide high-quality TB treatment for over 2.7 million TB patients, including 60,000 multidrug-resistant TB (MDR-TB) patients. In 2014, USAID also worked closely with global country partners to improve TB surveillance and estimates of TB burden. For example, USAID worked with the World Health Organization (WHO) to support TB prevalence surveys in

high-priority countries, which has resulted in a better understanding of the TB burden. USAID also partners with the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and with affected countries, and affected countries to maximize the impact of the Global Fund's TB and TB/HIV grant portfolio of approximately \$6 billion across 100 countries.

The U.S. Government is committed to directing its future investments in high-burden TB countries to achieve even greater global health progress and ensure the best possible use of funds. As outlined in the U.S. Government Global TB Strategy (2015 – 2019)<sup>1</sup>, the U.S. Government will partner with affected countries and international organizations to **reach** every person with TB, **cure** those in need of treatment,

**prevent** new infections, and curb the spread of the disease. Under this strategy, the U.S. Government will work to reduce TB incidence by 25 percent from 2015 levels, successfully treat at least 13 million TB patients, initiate appropriate treatment for at least 360,000 MDR-TB patients, and provide antiretroviral therapy (ART) to 100 percent of registered HIV-infected TB patients by 2019. USAID will lead the implementation of this strategy, in close coordination with other U.S. Government agencies involved in global TB care.

With the strong support of the U.S. Congress and increased engagement and investment from affected countries, communities, and multilateral partners, we will continue to prevent the spread of disease and drive down deaths to achieve our ultimate goal of a world free from the threat of TB.



<sup>1</sup> <https://www.usaid.gov/sites/default/files/documents/1864/Reach-Cure-Prevent-2015-2019-TBStrategy.pdf>

# The Global Tuberculosis Context

**“In our global economy, progress in even the poorest countries can advance the prosperity and security of people far beyond their borders, including my fellow Americans.”**

—President Barack Obama

**“TB is the child of poverty—and also its parent and provider.”**

—Archbishop Desmond Tutu

TB is a disease that has plagued humankind for centuries. While curable, TB remains one of the world’s major causes of illness and death and poses a continued threat to U.S. citizens at home and abroad. In 2014, approximately 9.6 million people developed TB, including 3.2 million women and 1 million children, and 1.5 million people died. TB kills more than 4,100 people each day. Approximately 95 percent of these deaths occur in low- and middle-income countries. Worldwide, more than 2 billion people are infected with the bacterium that causes TB (*Mycobacterium tuberculosis*) and are at risk of developing active TB disease. Other health-related factors that suppress an individual’s immune system can increase a person’s risk of developing active TB, including malnutrition, smoking, diabetes, and being infected with HIV.

Often a disease of the poor, TB afflicts vulnerable populations such as the homeless, slum dwellers, migrants, refugees, and other at-risk populations

exposed to crowded conditions, such as miners (who are also susceptible due to exposure to dust) and prisoners. TB is among the top five causes of death among women of reproductive age and affects people in the most economically productive age groups.<sup>2</sup>

## TUBERCULOSIS PREVALENCE AND DETECTION

Improved TB prevalence data has significantly affected global TB burden estimates and will inform future efforts to curb the disease. In particular, WHO estimated 9.6 million TB cases in 2014, an almost 12 percent increase from the previous two years, due in large part to improved prevalence survey data from Nigeria and Indonesia. The data from these two countries add roughly 1 million cases to the previous global estimates. As improved data give a clearer picture of the global burden of TB, USAID will continue to identify priority actions, from prevention to cure, to achieve the 2030 goal of a world free from TB.

Every year more than 3.5 million people with TB do not receive quality-assured treatment and care because they are not properly diagnosed and/or not reported to national TB programs. A majority of the “missing” 3.5 million people do not receive or do not have access to appropriate services. Many of these individuals die from TB, and many of those who survive the disease end up infecting people around them. Most of the 3.5 million missing cases are in 10 countries: Indonesia, India, Nigeria, Pakistan, Bangladesh, South Africa, Democratic Republic of the Congo, China, Tanzania and Mozambique. USAID is partnering with key countries to help them scale up their TB detection and treatment programs.

2 <http://www.who.int/mediacentre/factsheets/fs104/en/>

**Table I. Where Are the Missing 3.5 Million TB Cases?**

**TOP TEN COUNTRIES**

| Country                          | Estimated TB burden | Total TB notifications, 2014 | Estimated missing TB cases |
|----------------------------------|---------------------|------------------------------|----------------------------|
| Indonesia                        | 1,000,000           | 322,806                      | 677,194                    |
| India                            | 2,200,000           | 1,609,547                    | 590,453                    |
| Nigeria                          | 570,000             | 86,464                       | 483,536                    |
| Pakistan                         | 500,000             | 308,417                      | 191,583                    |
| Bangladesh                       | 360,000             | 191,166                      | 168,834                    |
| South Africa                     | 450,000             | 306,166                      | 143,834                    |
| Democratic Republic of the Congo | 240,000             | 115,795                      | 124,205                    |
| China                            | 930,000             | 819,283                      | 110,711                    |
| Tanzania                         | 170,000             | 61,571                       | 108,429                    |
| Mozambique                       | 150,000             | 57,773                       | 92,227                     |

**DRUG-RESISTANT TUBERCULOSIS**

The increase in drug-resistant TB (DR-TB) threatens to reverse recent gains in combating TB globally. Inadequate TB diagnosis and treatment contribute to the development and spread of multidrug-resistant TB (MDR-TB), a form of TB that is resistant to two of the most important first-line drugs (rifampicin and isoniazid), and the spread of extensively drug-resistant TB (XDR-TB), which fails to respond to standard first-line drugs as well as standard second-line drugs (injectables and fluoroquinolones). MDR-TB now occurs worldwide, with an estimated 480,000 cases in 2014, making up about 3.3 percent of all new TB cases. XDR-TB has been reported in more than 100 countries. HIV and MDR-TB is a particularly deadly combination — people living with HIV are more likely to develop TB, and those with MDR-TB are more likely to die, even if they are diagnosed and receive treatment.

While more than 85 percent of TB patients who are notified are successfully treated, WHO reports that globally only approximately 48 percent of individuals diagnosed with and treated for drug-resistant TB (both MDR and XDR-TB) are successfully treated. If

the spread of drug-resistant TB is not prevented and controlled quickly, we are likely to see a dramatic increase in TB-related deaths along with significantly increased treatment costs and a reversal of the progress made over the last 20 years.

The Obama Administration recognized the urgent need to address antimicrobial resistance, directing the U.S. Government to “work domestically and internationally to reduce the emergence and spread of antibiotic-resistant bacteria” under the Presidential Executive Order *Combating Antibiotic-Resistant Bacteria*.<sup>3</sup> The White House is currently leading the development of a National Action Plan for Combating MDR-TB. The National Action Plan specifies a set of targeted interventions that address the core domestic and global challenges to effectively control MDR-TB. The plan is a call to action to make a significant impact on rapid detection and treatment of MDR-TB globally and in the United States, as well as contribute to the discovery and development of innovative and effective ways to diagnose, treat, and prevent MDR-TB.

<sup>3</sup> <http://whitehouse.gov/blog/2014/09/18/new-executive-actions-combat-antibiotic-resistance-and-protect-public-health>



Healthcare workers treat a patient with MDR-TB at the Pathein Gyi Tuberculosis Hospital in Burma. Photo by The Global Fund / John Rae

## TUBERCULOSIS AND HIV/AIDS

TB is the leading cause of death among people living with HIV, accounting for one in three HIV-related deaths. Of the 9.6 million people who developed TB in 2014, 1.2 million (13 percent) were HIV-positive, with four out of five TB/HIV cases and deaths occurring in sub-Saharan Africa. With U.S. Government support and investment, many countries have scaled up collaborative TB/HIV activities over the last decade, resulting in an estimated 5.8 million lives saved from 2005 to 2014. Among people living with HIV, early initiation of ART combined with isoniazid preventive therapy (IPT) can reduce the risk of TB by up to 97 percent. However, in 2014, only 35 percent of the estimated number of people with both TB and HIV received

ART, and only 23 percent of countries reported using IPT. Furthermore, less than half of the estimated 1.2 million HIV-positive TB cases were reported in 2014.

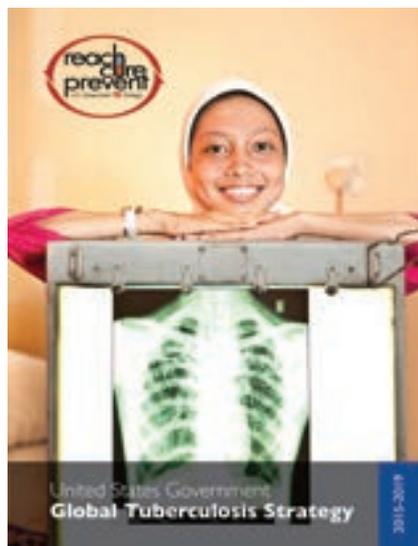
The U.S. Government has committed to work with international partners to reach global targets, including UNAIDS' "90-90-90" targets, which aim to diagnose 90 percent of people living with HIV, place 90 percent of those diagnosed with HIV on ART, and ensure viral suppression of 90 percent of those on ART by 2020. The U.S. Government is also working with partners to reach 100 percent of HIV-positive TB patients with ART by 2019. Achieving these targets will contribute significantly to the Obama Administration's call for the world to end extreme poverty by 2030.

## TUBERCULOSIS AND POVERTY

TB disproportionately affects people living in poverty and imposes further financial hardships on TB patients and their families. Even when TB diagnosis and treatment are available free of charge, the cost of accessing care can be difficult for families to bear. On average, TB patients in low- and middle-income countries lose three to four months of work and up to 30 percent of their annual income. This financial burden is greater for persons with MDR-TB and for the extremely poor. Households affected by TB often resort to coping mechanisms that can cause further hardship: children may be taken out of school to help an ailing parent or to seek paid work to support the family; and patients may take out loans, sell household items, or seek financial help from relatives. This healthcare-related impoverishment increases the future risk of TB for the entire affected family, thus continuing or worsening the cycle of poverty and disease. By combating TB globally, USAID is contributing to the global goal of ending extreme poverty, which President Obama endorsed at the Sustainable Development Summit in 2015.<sup>4</sup>

## POST-MDG 2015 GLOBAL TUBERCULOSIS STRATEGY

There has been significant, measurable progress over the last decade and a half in the global effort against TB. The world successfully met the MDG goal of reversing TB incidence by 2015. Since 1990, the global community reduced the number of deaths from TB by 47 percent and reduced TB prevalence by 42 percent. Further, since 1995, 66 million people have been successfully treated for TB. This progress was achieved by focusing the increased funding for combating TB on intensifying TB case finding, expanding access to high-quality TB diagnosis and treatment, and supporting research and innovation.



These successes inspired WHO's 194 Member States, including the United States, to adopt the End TB Strategy<sup>5</sup> and its goal of a world free of TB. The U.S. Government has embraced WHO's ambitious targets of reducing TB deaths by 95 percent and reducing TB incidence by 90 percent by 2030. Further, at the Sustainable Development Summit in September 2015, President Obama affirmed U.S. Government support for the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) – the successor framework to the MDGs. The SDGs include the goal of “ensuring healthy lives and promoting well-being for all at all ages” and the associated target of ending the TB epidemic by 2030.<sup>6</sup>

Achieving this SDG target will require continued investment, innovation, and partnership. The U.S. Government Global TB Strategy (2015-2019) lays out how the U.S. Government will direct and coordinate its investments in the global fight against TB by concentrating on four priority areas: improved access to high-quality, patient-centered TB services; prevention of TB transmission and disease progression; strengthened TB service delivery platforms; and accelerated research and innovation.

4 <https://www.whitehouse.gov/the-press-office/2015/09/27/remarks-president-sustainable-development-goals>

5 [http://www.who.int/tb/post2015\\_strategy/en/](http://www.who.int/tb/post2015_strategy/en/)

6 <http://www.un.org/sustainabledevelopment/health/>

# U.S. Government Leadership in Combating TB Globally

## U.S. GOVERNMENT INVESTMENTS

The U.S. Government is a leader in the global fight against TB and the largest bilateral donor in this effort. With funds from fiscal year 2013, the U.S. Congress appropriated<sup>7</sup> over \$800 million in global TB activities through USAID bilateral TB programs, PEPFAR TB/HIV programs, TB research

and development through NIH, and the U.S. Government contribution to the TB portion of the Global Fund.<sup>8</sup>

The U.S. Government's investment in the Global Fund is a vital component of its response to the TB epidemic, amplifying bilateral investments and expanding the geographic reach of U.S. investments.

<sup>7</sup> Under the 2008 Tom Lantos and Henry J. Hyde United States Global Leadership Against HIV/AIDS, Tuberculosis and Malaria Reauthorization Act

<sup>8</sup> The U.S. Government contributes 1/3 of the overall funding for the Global Fund. The TB grants make up approximately 18% of the total amount.

**Table 2. U.S. Government Agencies Contributing to Global TB Care**

|   |   |
|---|---|
| <b>USAID</b>  | <ul style="list-style-type: none"> <li>• <b>Lead agency for international TB care and treatment</b></li> <li>• Strengthens national TB programs and ministries of health</li> <li>• Expands access to high-quality TB and MDR-TB diagnostic and treatment services, including research</li> <li>• Implements PEPFAR-funded TB/HIV programs</li> </ul>                   |
| <b>Department of State (DOS)/PEPFAR</b>   | <ul style="list-style-type: none"> <li>• <b>Lead agency for combating HIV-associated TB</b></li> <li>• Implements TB/HIV programs</li> </ul>  |
| <b>Centers for Disease Control (CDC)</b>  | <ul style="list-style-type: none"> <li>• <b>Lead agency for domestic TB control</b></li> <li>• Provides technical support and strengthens ministries of health</li> <li>• Conducts clinical and operational research</li> <li>• Implements PEPFAR-funded TB/HIV programs</li> </ul>   |
| <b>Department of Defense (DOD)</b>  | <ul style="list-style-type: none"> <li>• Monitors TB diagnostic service quality</li> <li>• Conducts operational TB research</li> <li>• Facilitates access to TB services in crisis and conflict settings</li> </ul>   |
| <b>National Institutes of Health (NIH)/ National Institute of Allergy and Infectious Diseases (NIAID) *</b> | <ul style="list-style-type: none"> <li>• <b>Lead agency for TB biomedical and translational research</b></li> <li>• Conducts and supports biomedical and translational TB research</li> <li>• Facilitates the development of new TB drugs, vaccines, and diagnostics</li> <li>• Contributes to biomedical research capacity building in TB-endemic countries</li> </ul> |

\*NIH does not receive appropriated funds for programmatic contributions to global TB care. NIH-supported science is focused on improving the fundamental understanding of, and ways to combat, TB.

# USAID Achievements in Combating TB Globally

During FY 2014, USAID continued to provide leadership in major aspects of global TB care, supporting: TB detection and diagnosis to prevent the spread of disease; access to quality TB care; country capabilities to prevent, detect, and treat drug-resistant TB; and research and innovation targeted at the development of the most important new tools to fight TB.

In FY 2014, USAID strengthened national TB programs in 26 priority countries, helping country partners establish, implement, monitor, and evaluate national strategies for combating TB and MDR-TB. In these priority countries, USAID helped provide high-quality TB diagnosis and treatment for more than 2.7 million TB patients, including 60,000 MDR-TB patients diagnosed and initiated on treatment, in 2013. In addition, USAID supported TB programs in 28 additional countries through targeted technical assistance in designing and implementing Global Fund grants and through regional platforms.

Over the past five years, USAID has helped priority countries provide treatment for more than 7 million TB patients, with a treatment success rate of 87 percent, and has supported those countries

to diagnose and initiate treatment for more than 220,000 MDR-TB patients.

In USAID priority countries, deaths from TB decreased by 42 percent since 1990, and the overall prevalence of TB decreased by 43 percent. These declines in TB prevalence and mortality have contributed significantly to overall global declines.

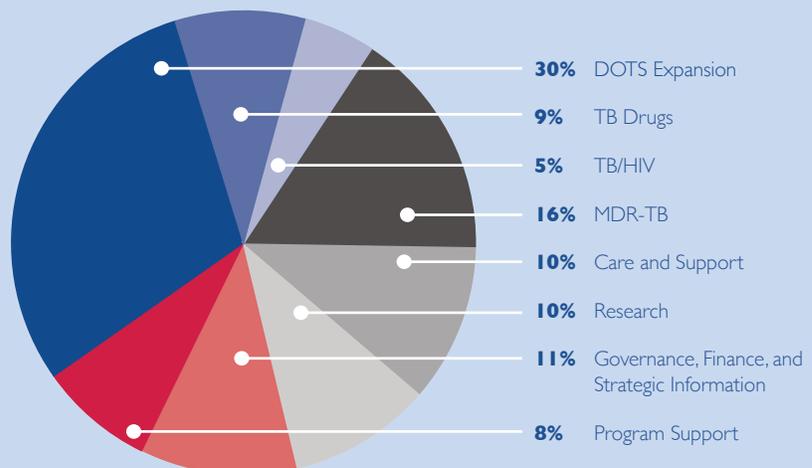
During FY 2014, USAID continued to work within country government systems to build national capacity to combat TB, avoiding the creation of parallel systems and increasing the sustainability of countries' TB investments. USAID also worked closely with country and international partners to ensure that U.S. Government funding complemented country domestic investments and Global Fund grants.

One of the major challenges countries face is local capacity to implement the required interventions to improve the quality of the national systems and services. USAID invests in building local capacity among a variety of stakeholders through training and on-the-job mentoring and supervision. In 2014, USAID trained more than 30,000 people in TB interventions.

**Figure 1: USAID TB Expenditures in FY 2014**

In FY 2014, the U.S. Congress appropriated \$243 million through USAID's Global Health Programs (GHP) account to support TB programs worldwide. Of this total, USAID invested:

- 71 percent in TB diagnosis, treatment, care, and support
- 10 percent in TB-related research
- 11 percent in governance, finance, strategic information
- 8 percent in program support



## **The TB Situation Room: A Coordinated and Strategic Approach for Action**

*USAID is an active participant in the TB Situation Room, which is a platform for partner coordination. Through the TB Situation Room, USAID and partners have supported the roll out of the Global Fund's new funding model, supported countries with the development and implementation of TB grants, and coordinated the provision of technical support.*

The TB Situation Room was launched in 2013 by USAID, the Global Fund, the Stop TB Partnership, and WHO. Since its inception, the Situation Room has successfully delivered on its mission to ensure high-impact TB grants by helping countries develop and implement grants through the new funding model. In 2014, the Situation Room provided support and coordination to over 30 countries. The Situation Room's Early Warning System, information sharing, and rapid deployment of targeted support have led to improved impact of TB funding.

The Situation Room supports countries through all stages of the Global Fund's funding model, including developing a strong evidence base, robust national strategic plans, concept notes prioritized for impact, inclusive country dialogues with key affected populations addressed and integrated TB/HIV concept notes. The Situation Room's data-driven approach also provides key insights into the Global Fund's TB grant portfolio, allowing countries and partners to identify and address common challenges. This has resulted in an increase in annual funding disbursements for TB grants. The Situation Room has been at the forefront in providing best practices for others. The Situation Room has proven itself as a model for strategic impact and a strong example of partnership in action.

USAID works closely with multilateral organizations including WHO, the Stop TB Partnership, and the Global Fund. In FY 2014, USAID provided significant support to WHO's Global TB Program, engaging with WHO on policy and guideline development and supporting the development and release of WHO's annual Global TB Report and reports on the surveillance of drug-resistance TB. USAID has been a member of the Stop TB Partnership since its inception. The Partnership mobilizes a wide range of partners to address TB efforts globally, regionally, and within countries. In addition, the Global Drug Facility, part of the Partnership, plays a vital role in ensuring quality-assured TB drugs are available and affordable globally.

In FY 2014, USAID continued to support the development, management, and implementation of Global Fund TB grants. With financial support from the U.S. Government and other donors, the Global Fund is a major international financing mechanism for implementing national TB strategic plans in over 100 countries. USAID works closely with countries to ensure their Global Fund grants support the most important TB interventions to prevent, diagnose, and treat more TB, MDR-TB, and TB/HIV patients, as well as improve access to high-quality TB prevention, diagnosis, treatment, and care services. The implementation of programs such as MDR-TB requires significant technical support. During FY 2014, USAID helped countries with high TB burdens adapt to the Global Fund's new funding model, which aims to maximize the impact of Global Fund grants. USAID invested heavily in supporting countries with high TB burdens through all stages of the new Global Fund application process, from the development of epidemiological analyses and the completion of national TB program reviews to the revision and finalization of national TB strategic plans and the submission of strong concept notes. USAID, in coordination with PEPFAR and other U.S. Government agencies, is mapping existing technical

assistance support and future needs for all countries with high TB burdens. USAID is also working closely with other technical assistance providers, such as the Government of France, to ensure there is no duplication of efforts.

USAID is also helping build national TB programs' capacity to successfully manage and implement their Global Fund grants, including by supporting in-country TB advisors in 14 priority countries. These advisors, embedded within national TB programs, help program staff implement their national TB strategic plans and Global Fund grants. In some countries, the TB advisors have helped develop Global Fund concept notes and will provide continued support to national TB programs to ensure their Global Fund TB grants are successful.

## **INTENSIFYING CASE FINDING**

An estimated 3.5 million of the nearly 9.6 million people who get sick with TB each year are not reported to national TB programs. Although some of these people are diagnosed and/or treated in the private health sector, which often fails to notify national authorities of TB cases and investigate the close contacts of TB patients, many more are never diagnosed or treated. Intensified efforts to reach and treat every person with active TB are vital to curbing the global TB epidemic.

### ***Improved Case Finding Through Strengthened Diagnostic Networks.***

In FY 2014, USAID continued to invest in strengthening TB diagnostic networks. Quality diagnostic networks enable health facilities to provide rapid, accurate diagnoses for individuals with all forms of TB. This in turn enables providers to initiate appropriate treatment for TB patients quickly, thereby improving patient outcomes and reducing the spread of TB. At the national level, USAID helped countries strengthen laboratory

and diagnostic networks to increase access to services, such as culture, molecular testing, and drug susceptibility testing. USAID also worked with ministries of health to help them map and develop clear plans to strengthen key diagnostic services, such as developing algorithms for introducing new diagnostic tools along with quality-assured smear microscopy. During FY 2014, USAID helped 15 countries develop TB laboratory strategic plans.

At the global level, USAID supported the Global Laboratory Initiative (GLI), which brings key organizations and experts together to provide leadership and develop guidance on issues such as national TB laboratory accreditation, laboratory network strategic planning, and consultant training. The GLI also provides guidance on laboratory policies, such as the use of Xpert technology in diagnosing all forms of TB, including pediatric and extrapulmonary TB.

### ***Community-Based Initiatives to Improve TB Case Detection, Treatment and Care.***

In FY 2014, USAID supported community-based TB interventions in 13 countries, ranging from TB education and awareness campaigns to community-level sputum collection and treatment support. In Mozambique, USAID expanded coverage of community-based TB care activities to over half the population and supported seven local organizations in Mozambique that together referred almost 29,000 presumptive TB cases from community settings to health facilities. Of these referred patients, nearly 18 percent were diagnosed with TB and linked to care. Approximately 75 percent of all TB cases reported in the targeted region were referred or diagnosed by USAID-supported volunteers.

**“I had sputum positive TB in 2003 and I was successfully treated. Early this year, I had a chronic cough for three weeks, and I thought that I had TB again. I submitted my sputum sample and within 24 hours, I had my results. Luckily, it was negative. Thanks to this system many TB patients are going to be diagnosed and treated on time before they get too sick.”**

**—Presumptive TB client,  
Kuwadzana clinic, Harare  
City**



A reliable and efficient system for transporting TB specimens (e.g., sputum samples) is essential for effective patient care, allowing for more rapid diagnosis, initiation of treatment, and patient follow-up. To help achieve this, USAID expanded and improved Zimbabwe’s specimen transport system, Riders for Health. *Photo by USAID*

Despite recent improvements in Zimbabwe’s TB laboratory infrastructure, a significant proportion of rural populations live far from sites where TB microscopy is performed. To address this challenge in TB diagnosis and care, USAID partnered with Zimbabwe’s existing transport system, Riders for Health, to launch a dedicated TB specimen transport system in three major cities in Zimbabwe, including the capital city of Harare. Under this system, motorcycle drivers transport TB specimens from health facilities to diagnostic centers on a daily or weekly basis and deliver laboratory results back to the relevant health facilities. This initiative enabled patients to receive accurate TB diagnoses within one to two days in urban settings and seven days in

remote rural areas, instead of having to wait for two to three weeks to receive their test results and start life-saving treatment.

The transport system also generated renewed trust in the national health system among the communities served. Following the successful completion of this three-city pilot project, USAID expanded the service to cover 24 districts. The system currently consists of 42 motorcycles, which serve over 40 percent of Zimbabwe’s health facilities. Preliminary results show a six-fold increase in the number of Xpert tests performed in Mutare District and Mutare City and a four-fold increase in the number of TB and MDR-TB cases diagnosed among people living with HIV.

## **CASE STUDY: Multiple Approaches to Increase TB Case Finding**

Increased case finding often relies on multi-sectoral approaches to be successful. In Bangladesh, USAID analyzed the gaps and opportunities for TB case finding and put together a multi-pronged response. The country was already doing well in identifying smear-positive cases in the public sector; but notifications of smear-negative and extrapulmonary cases and patients from the private sector were worryingly low. Partners implemented a full package of initiatives to address these gaps. Support for patient transport and x-rays resulted in the number of notified smear-negative cases almost doubling.

USAID supported 13 NGOs working to increase case finding at the community level, yielding notification of almost 15,000 TB cases in 2014. USAID funding to the Diabetes Association of Bangladesh resulted in the identification of 887 cases among diabetics, who are at high risk of TB. The project's orientation of 3,768 private graduate doctors and 7,764 non-graduate doctors on identification and referral of presumptive TB cases resulted in the referral of 41,581 presumptive TB cases for diagnosis and management. The project found that a mixture of methods is needed to successfully find TB patients in the various places they seek care.

## **ACCELERATING DIAGNOSIS AND TREATMENT FOR DRUG-RESISTANT TB**

Drug-resistant TB — including MDR-TB and XDR-TB — is a growing challenge to global efforts to prevent, diagnose, and treat TB. Drug-resistant TB can be spread directly from person to person and can also develop within a person who receives inadequate treatment for drug-susceptible TB. MDR-TB and XDR-TB treatment regimens are much longer than regular TB treatment regimens; require many more drugs, most of which have toxic side effects; and have lower cure rates. This is particularly true for people living with HIV, for whom a diagnosis of XDR-TB or MDR-TB is often a death sentence.

MDR-TB treatment is a lengthy and painful process that requires up to 24 months of treatment, involving injections and a cocktail of expensive drugs that can have severe side effects, including hearing loss. The drugs cost over 50 times more than those used to treat drug-susceptible TB. Furthermore, many countries still insist on providing a considerable amount of treatment in hospitals, putting a strain on their healthcare systems and taking an economic and emotional toll on patients and their families. The length of MDR-TB treatment regimens, combined with their severe side effects, results in poor treatment adherence. Globally, fewer than half of MDR-TB patients successfully complete treatment.<sup>9</sup>

The number of new MDR-TB cases globally continues to rise, due to improved case finding, diagnostics, and reporting, as well as the continued spread of MDR-TB. In 2014, WHO estimated there were approximately 480,000 new MDR-TB cases, 75 percent of whom had not yet started treatment.

<sup>9</sup> [http://www.who.int/tb/challenges/mdr/mdr\\_tb\\_factsheet.pdf?ua=1](http://www.who.int/tb/challenges/mdr/mdr_tb_factsheet.pdf?ua=1)

### **USAID Support for MDR-TB Service**

**Scale-up.** In FY 2014, USAID provided technical assistance to develop effective MDR-TB management plans and create the capabilities in priority countries to diagnosis and treat MDR-TB. The plans include strategies for increasing domestic funding for MDR-TB services, securing additional donor funding, introducing and expanding rapid and accurate detection of drug-resistant TB, and developing and improving MDR-TB treatment capacity through better and more adaptive models that involve affected communities and provide

supportive services and medicines. USAID also supported MDR-TB programs by providing training, web-based teaching, and on-the-job mentoring to healthcare workers who provide MDR-TB services.

**MDR-TB Commodity Availability.** As MDR-TB case finding improves, the demand for second-line TB medicines and commodities increases. To deliver effective MDR-TB treatment to all who need it, countries must be able to procure a sufficient quantity of internationally quality-assured MDR-TB drugs at affordable prices.

## **Infection Control to Prevent TB Transmission**

To limit the spread of TB, infection control measures must be strengthened. The co-mingling of individuals with TB symptoms and other patients in hospitals and crowded waiting areas creates perfect conditions for TB transmission. Hospitals and other healthcare and high-congregate settings can reduce TB transmission and curb the spread of disease by strengthening infection control policies and protocols, training healthcare staff in infection control procedures, providing appropriate equipment and supplies, and regularly screening healthcare workers for TB.

In FY 2014, USAID worked with country partners, including ministries of health, to provide training, capacity-building support, and guidance to help countries improve their infection control capabilities. USAID also helped countries develop national TB infection control guidelines and increased political support for, and scale-up of, infection control measures. During FY 2014, USAID supported improvements in TB infection control measures in over 400 healthcare facilities, offering training and technical assistance to facility staff and providing commodities such as surgical masks, respirators, and fans.

In Ethiopia, USAID supported the development of building design and engineering standards for healthcare facilities to reduce the spread of airborne infections. Ethiopia now has complementary regulations governing the building design of healthcare facilities to prevent the transmission of airborne infectious diseases, including TB. Ethiopia is only the second Sub-Saharan country to have these important regulations in place.

In Ukraine, USAID worked to improve TB infection control and reduce TB transmission by supporting a shift to outpatient TB programs and establishing a TB infection control expert group. USAID provided the TB expert group with the training and equipment required to monitor the status of infection control measures in Ukraine's healthcare settings. The expert group's input has directly informed and improved Ukraine's national TB strategy.

In Kenya, U.S. Government agencies worked together to help manage an unexpected rise in the number of TB and MDR-TB patients in the Dadaab refugee camps, resulting from the ongoing insecurity in Somalia that has increased the migration of TB and MDR-TB patients to Kenya.

In FY 2014, USAID worked with the Global Drug Facility (GDF) and other partners to improve the availability of quality-assured second-line drugs for MDR-TB treatment. With USAID's leadership, sufficient quantities of second-line drugs are available to meet countries' needs as they scale up their MDR-TB treatment programs. USAID and the GDF have increased the global availability of TB drugs and created the second-line drug market, resulting in a 32 percent drop in the price of an average MDR-TB treatment regimen. USAID also helped countries avoid TB drug stock-outs and treatment disruptions by facilitating countries' use of the USAID/GDF's flexible funding mechanism, which allows countries to purchase drugs when they have been assured funds (domestic or Global Fund) that they cannot access in time to prevent stock-outs.

During FY 2014, USAID supported the WHO prequalification process for two important second-line TB drugs: capreomycin (the first second-line injectable MDR-TB drug to receive WHO prequalification) and levofloxacin active pharmaceutical ingredient. Prequalification will ensure patients receive quality-assured drugs and improve global access to MDR-TB treatment. Due to the WHO prequalification of another finished pharmaceutical product for capreomycin, the GDF price for the product was cut in half. USAID will continue to support a stable and secure market for second-line TB drugs as the numbers of quality-assured MDR-TB drugs and MDR-TB patients increase.

Bedaquiline, the first new class of antibiotics approved by the FDA in nearly 50 years, is a powerful new drug to fight drug-resistant TB and has been licensed for use in combination with other drugs when existing treatment regimens to treat MDR-TB are not effective. However, access

to bedaquiline is challenging in many countries due to the high cost of the treatment regimen, limited information about its safe use, and lack of suitable in-country systems to ensure appropriate use and monitoring. To address this issue, USAID worked with Janssen Therapeutics, one of the Janssen Pharmaceutical Companies of Johnson & Johnson, to facilitate access to bedaquiline. Through USAID, Janssen Therapeutics will donate \$30 million worth of the drug SIRTURO® (bedaquiline) to support quality MDR-TB and XDR-TB treatment programs. The partnership allows Janssen Therapeutics and USAID to work together to safely introduce and support the use of bedaquiline in nearly 100 low- and middle-income eligible countries, enabling these countries to access the life-saving drug for free under certain conditions.

**TB and MDR-TB Commodity Forecasting and Management.** As national TB programs scale up their TB and MDR-TB treatment services, they must also implement effective drug and commodity management systems in order to avoid stock-outs or surpluses. Accurate forecasting, quantification, and management of drug and commodity stocks are vital but often difficult when there is an unpredictable demand. To improve countries' procurement processes and avoid stock-outs and surpluses of TB and MDR-TB drugs and commodities, USAID supported the development of QuanTB, an innovative electronic forecasting and quantification tool that transforms complex calculations into a dashboard. When used on a regular basis, QuanTB serves as an early warning mechanism, providing information on actual versus planned consumption and on impending expirations and stock-outs of medicines. QuanTB is available in six languages to any country program wanting to use it and will be used in 16 countries by the end of 2015.

**Figure 2: QuanTB Dashboard**



On the dashboard above, generated by the **QuanTB tool**, red, yellow, and green colors serve as an **Early Warning System**, allowing decision makers to see at a glance: the stock situation of all the drugs; drugs which will expire (in order to prioritize their usage to avoid waste); and when drug orders should be placed to avoid stock-outs of critical TB drugs. The names of various drugs are listed on the left and the months run along the top of the dashboard. **The color-coded system makes it easy for decision makers to understand the drug stock situation quickly. Red indicates a danger of stock-out, yellow indicates orders already placed and to monitor when they will be received, and green indicates how long that drug will last in stock.** Ultimately, the QuanTB dashboard helps national TB programs track and more effectively manage TB drugs and commodities.

**Innovations in MDR-TB Diagnosis, Treatment and Care.** USAID is committed to the development, scale-up, and implementation of innovations to improve MDR-TB services. In FY 2014, USAID worked with partners to evaluate the efficacy of new MDR-TB treatment regimens and supported a shift to outpatient MDR-TB

treatment models, with the goal of improving patient outcomes while reducing per-patient costs. USAID also supported technology-based innovations such as the use of mobile banking to support MDR-TB treatment adherence.

For instance, in Bangladesh, USAID is using mobile banking to support an ambulatory MDR-TB treatment model, which allows patients to finish MDR-TB treatment outside of the hospital setting. Under this model, patients receive a small allowance to help with nutrition and transportation during the two years of treatment, and treatment supporters receive small allowances to cover transportation costs. As more patients were started on MDR-TB treatment, it became challenging to ensure everyone received their allowance in a timely manner. To address this challenge, USAID worked through partners and with Dutch-Bangla Bank, Ltd. to develop a program that allowed the national TB program to send payments directly to patients and supporters through mobile banking services. This system allowed patients and supporters faster and easier access to funding. There are now more than 400 patients and 300 treatment supporters using the mobile banking system in Bangladesh with great success.



Photo by USAID

**“I will be  
an example  
for my  
community  
that MDR-TB  
is curable.**

–Jaloliddin Khaitov,  
MDR-TB patient

## Hopes Raised in Rasht: USAID Expands MDR-TB Service Coverage in Tajikistan

The Rasht Valley is a remote area in the mountainous northeastern region of Tajikistan, where there is widespread under-detection of TB and MDR-TB. In 2013, USAID launched a comprehensive MDR-TB awareness campaign and supported the installation of an Xpert instrument in Rasht’s TB center. Before this project was initiated, residents had no access to MDR-TB treatment or diagnostics, and those diagnosed with MDR-TB could not be started on treatment unless they moved to one of only a few districts in the country where MDR-TB treatment was available.

The introduction of Xpert in Rasht has been enormously successful. Since 2013, 1,975 patients were tested for TB and MDR-TB. To further improve MDR-TB diagnostics in the region, USAID collaborated with the local government and primary healthcare providers to set up an effective sputum transportation system and procure second-line drugs for patients in need of MDR-TB treatment. These efforts have provided Rasht Valley residents with accurate, timely diagnosis and access to appropriate treatment, thus saving the lives of hundreds of patients and reducing MDR-TB transmission within the region.



Malawi youth commemorate World TB Day on March 24. Photo by USAID

## PROMOTING RESEARCH AND INNOVATION

Despite advances in TB prevention and treatment, progress towards eliminating TB continues to be hampered by the lack of point-of-care tools to detect TB and MDR-TB (particularly among people living with HIV); the unavailability of effective, well-tolerated drugs that could shorten TB and MDR-TB treatment courses; and the absence of a vaccine to prevent it. However, TB prevention, treatment, and care can and must be strengthened through continued operational and implementation research and improved application of current technologies.

The U.S. Government – through NIH, CDC, USAID, and other agencies – provides leadership in all aspects of biomedical, operational, and implementation research. USAID invests in research activities aimed at improving TB detection and treatment, preventing TB transmission, and strengthening TB service delivery. USAID also innovates at the programmatic level, continually seeking ways to improve TB service quality, coverage, and cost-effectiveness in collaboration with ministries of health, private sector partners, and affected communities.

### **Building Country-Level Research Capacity.**

In FY 2014, USAID supported research partnerships and in-country training programs designed to build the technical and research capacity of ministries of health and public health professionals. Such partnerships generally included training for clinical, laboratory, and program staff on evidence-based methods for preventing, diagnosing, and treating TB in the context of the country's TB epidemiology. By bolstering countries' technical and research capacity, USAID is enabling countries to rigorously evaluate and continually improve their TB programs.

### **Improving MDR-TB Treatment Regimens.**

USAID supported an innovative, nine-month MDR-TB treatment model developed in Bangladesh that reported treatment success rates as high as 80 percent, compared to the global MDR-TB treatment success rate of approximately 48 percent. To confirm findings from the original Bangladesh study and lay the groundwork for translating these findings into national policy guidelines in high-burden countries, USAID continues to support a randomized controlled clinical trial (the STREAM study) that is investigating whether a standardized nine-month treatment regimen for MDR-TB can yield patient outcomes that are comparable to or better than those that result from the current, WHO-recommended, 18- to 24- month treatment regimen. If the efficacy of the new regimen is proven through the STREAM study, it could revolutionize the management of MDR-TB by offering better-tolerated, shorter, and more efficacious treatment. The STREAM study is currently being implemented in seven sites across four countries (Ethiopia, Mongolia, South Africa, and Vietnam) and has completed enrollment of 90 percent of the required sample size.

In FY 2014, USAID started preparing for the second phase of the STREAM study. This second phase will evaluate the efficacy of two new drug regimens, both of which include the newly approved TB drug bedaquiline, with the aim of either replacing the injectable MDR-TB drugs that are associated with

severe side effects or shortening the treatment regimen to six months.

### **Improving TB Data Collection and Analysis Through Electronic Recording and Reporting Systems.**

With USAID support, national TB programs in Cambodia and Indonesia made significant advances in the development and implementation of electronic reporting systems that improved the collection and analysis of TB data. The information gathered through these systems helps countries understand their TB epidemics and develop more effective, country-specific TB programs. In Cambodia, following several years of technical assistance, the electronic system has been fully handed over to the national TB program. The system includes patient-level data on all MDR-TB patients enrolled since 2011, which is important for ensuring proper monitoring of the lengthy treatment. The information on MDR-TB is also used to determine the quantity of second-line drugs needed.

Additionally, USAID supported the development and piloting of new electronic TB data collection and reporting systems in Ethiopia, Mozambique, and Zimbabwe. The national TB programs in each of these countries will continue to refine the new reporting systems and begin scaling up their use in FY 2015.

During FY 2014, nine operational research initiatives were completed, and their results were disseminated in countries, where they were implemented. One of the studies carried out in Zimbabwe uncovered an average delay of four weeks between the onset of TB symptoms and the seeking of appropriate medical care. Patients in rural settings were the slowest to seek TB diagnosis and treatment, often attempting to self-diagnose and self-medicate before seeking formal care. The study called for more interventions to increase patient understanding of TB symptoms and patient awareness of the availability of TB care and treatment services.

## **Operational Research in Philippines Helps MDR-TB Patients Stay on Treatment.**

USAID support for operational research in the Philippines has led to significantly improved TB programs and patient outcomes. USAID funded an in-country advisor, placed within the national TB program, to help evaluate and improve TB services within the Philippines. Among other activities, this advisor interviewed almost 100 MDR-TB patients who dropped out of the MDR treatment program to identify the reasons behind the country's high MDR-TB treatment drop-out rate. The resulting research helped identify the primary reasons why MDR patients do not complete treatment. Based on the findings, the country's national TB program is modifying its clinical approach to MDR-TB management, moving to shorter treatment regimens, more community-based care, and increased pharmacovigilance.<sup>10</sup>

## **The Power of Private Sector**

**Collaborations.** In FY 2014, USAID facilitated collaboration among public and private providers in Afghanistan, Botswana, Cambodia, Indonesia, and Nigeria. Within project areas, this work led to an 80 percent increase in the number of private providers that collaborated on TB activities with their respective national TB programs, including more than 3,000 private providers collaborating with their national TB programs in FY 2014. Within the supported areas, these efforts resulted in 33,666 TB patients being notified to national surveillance systems by private providers – a more than 2.5-fold increase from the previous year and a five-fold increase from FY 2012.

## **Innovating Through Private Sector Partnerships.**

In many countries, the majority of people with TB symptoms first seek care in the private sector. In FY 2014, USAID worked with the private sector, government partners, and affected communities to develop effective, innovative Public-Private Mix (PPM) approaches to TB treatment and care. Under PPM models, the public sector and non-governmental organizations actively engage with the private sector, enabling and encouraging private providers to identify, refer, and treat people with signs and symptoms of TB.

In many countries with high TB burdens, there are vast numbers of private sector providers, the majority of whom are not well linked to the broader health system or their colleagues. To address this issue, USAID and the World Bank co-hosted a meeting, "Public-Private Mix (PPM) Models for the Sustainability of Successful TB Control Initiatives" in May 2014.<sup>11</sup> Meeting participants examined various health financing and health delivery models, including results-based financing, health insurance, conditional cash transfers, line-item budgets from national governments and donors, social franchising, and social businesses, for their potential to contribute to sustainable and scalable private sector engagement in, and contribution to, TB control. Meeting participants also examined PPM models in India, Indonesia, Nigeria, and the Philippines. This led to follow-up work in these countries, with a focus on helping TB programs take advantage of growing health insurance schemes to reach private providers.

<sup>10</sup> Pharmacovigilance is defined as the science and activities relating to the detection, assessment, understanding, and prevention of adverse effects or any other drug-related problem. WHO, 2015.

<sup>11</sup> [http://www.who.int/tb/careproviders/ppm\\_tb\\_dcmeeting\\_report.pdf](http://www.who.int/tb/careproviders/ppm_tb_dcmeeting_report.pdf)

# Looking To the Future with Optimism: The U.S. Government Global TB Strategy (2015-2019)



The U.S. Government is committed to working with the global community in an effort to reach every person with TB, cure those in need of treatment, and prevent new infections. To reach these goals, U.S. Government agencies will leverage their collective strengths and continue to collaborate closely.

During 2015 – 2019, the U.S. Government will focus its global TB efforts and resources on four key technical areas:

- Improve Access to High-Quality, Patient-Centered TB, DR-TB, and TB/HIV Services
- Prevent TB Transmission and Disease Progression
- Strengthen TB Service Delivery Platforms
- Accelerate Research and Innovation

## **Improve Access to High-Quality, Patient-Centered TB, DR-TB, and TB/HIV Services.**

All individuals affected by TB need access to high-quality, patient-centered, and affordable TB diagnostic, treatment, and care services. The U.S. Government will work with country partners to increase access to TB services, with a particular focus on: identifying and eliminating barriers to accessing TB services; involving patients and their families in the design, implementation, and review of TB programs; building comprehensive diagnostic networks; and integrating TB services with broader health and social support services.



Kedibone Mdolo, a nurse and TB survivor, has become a leading community educator in South Africa on the TB risk to healthcare workers. Photo by USAID / Rob Mesite

## **Prevent TB Transmission and Disease Progression.**

The U.S. Government will work to reduce disease progression through: increased and targeted screening for active TB; prompt initiation of appropriate treatment for TB patients; improved infection control measures; and improved management of latent TB infections.



A community DOTS worker makes a home visit in Burma. Photo by USAID

### **Strengthen TB Service Delivery Platforms.**

The U.S. Government will work with country partners to address health system constraints and strengthen TB service delivery platforms. The U.S. Government will focus on increasing countries' political and financial commitments to combating TB; strengthening drug and commodity management systems; improving the quality, availability, and use of data in decision-making; and strengthening human resources for health. The U.S. Government will also work to ensure an adequate global supply of affordable, quality-assured TB medicines.

### **Accelerate Research and Innovation.**

The U.S. Government will support the development and uptake of new, more effective tools and approaches to preventing, detecting, and treating TB. Particular areas of interest include improved treatment regimens, improved diagnostic tools, and the use of biomarkers to track infection and disease progression. The U.S. Government will also support operational research designed to examine and evaluate the implications and outcomes of scalable interventions as they are rolled out in real world settings.

## **U.S. Government TB Targets**

The U.S. Government will work with affected countries and other partners during 2015-2019 to:

- Reduce TB incidence by 25% from 2015 levels
- Successfully treat at least 13 million TB patients
- Maintain treatment success rates of >90% for patients with drug-susceptible TB
- Initiate appropriate treatment for at least 360,000 patients with drug-resistant TB
- Provide ART for 100% of patients with TB/HIV co-infection

# Conclusion

We are now at a crossroads between ending the TB epidemic by 2030 and witnessing millions more TB deaths. Despite recent declines in TB deaths and prevalence, the downward trajectory is not fast enough, and TB remains a serious threat to individuals around the world. Without continued investment and innovation, TB, MDR-TB, and XDR-TB will continue to spread, making the TB epidemic more difficult and costlier to address in the future. Approximately **2 billion people** are currently infected with the TB bacterium and are at risk of developing active TB disease. Over **3.5 million people** are not getting effective TB care; nearly **half a million people** are suffering from MDR-TB; and TB remains a leading killer of people living with HIV.

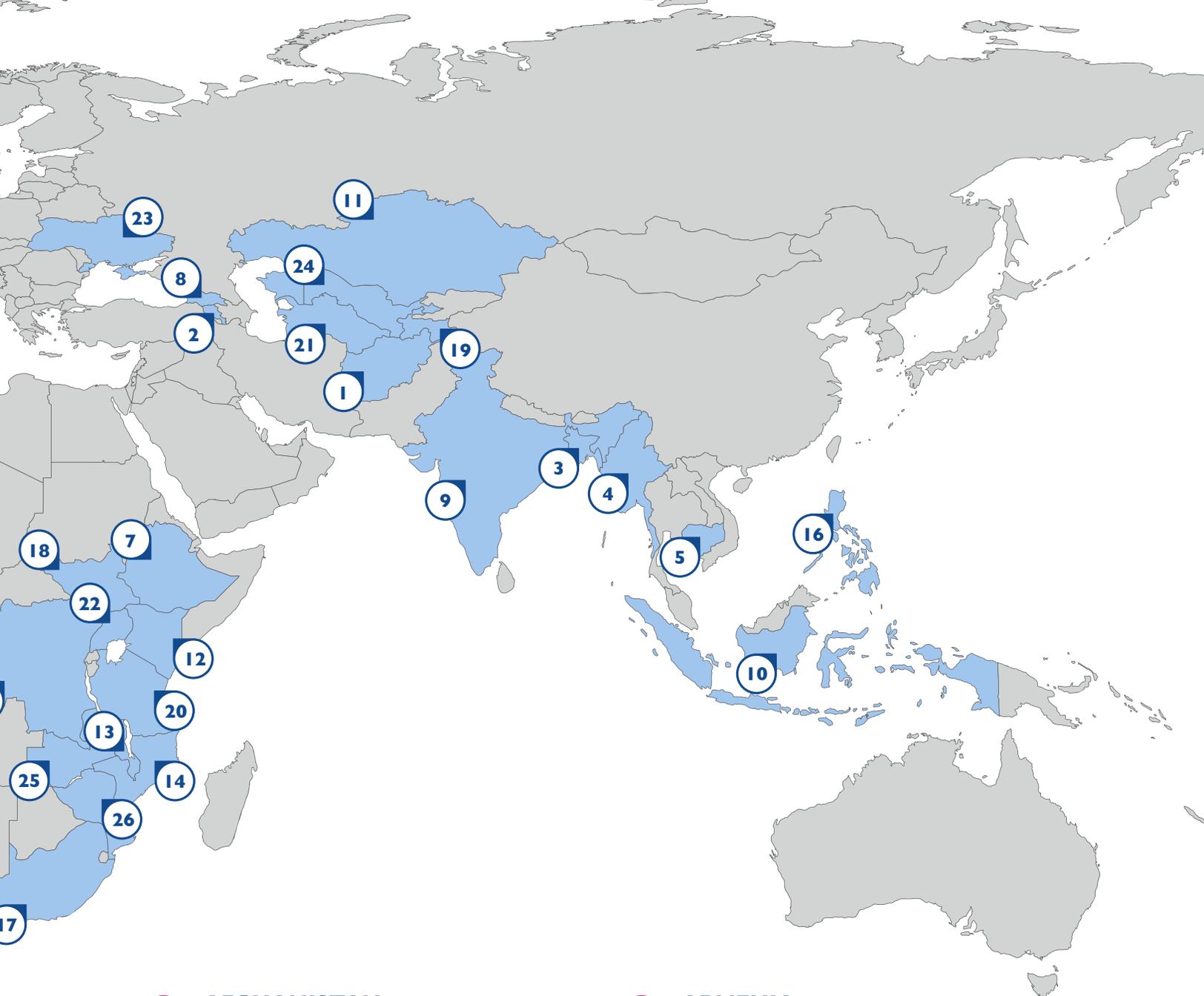
The global community will achieve a world free of TB only with the active and coordinated engagement of high-burden countries, donor governments, international organizations, community groups, and the private sector. The road ahead will be hard, but with continued investment, partnership, and leadership we have the potential to end the TB epidemic.



## APPENDIX

### FY 2014 Highlights for USAID Priority Countries for TB Care

This section presents highlights for USAID country-based projects in TB. These projects focus on supporting national TB programs and strategies and piloting innovative approaches that can be expanded through domestic or Global Fund financing. USAID TB funds are fully coordinated with, and increase the impact of, other financing sources.



**1 AFGHANISTAN**

Between 2011 and 2014, USAID supported TB training for 454 health workers and made Directly Observed Treatment, Short Course (DOTS) available in 80 (71 percent) public and private health facilities in Kabul. This initiative increased TB case notification by 65 percent and helped triple the number of children placed on IPT. This success led the Ministry of Health to support the rollout of urban DOTS programs in four additional cities. USAID also increased access to TB services in remote areas by training and supporting community health workers in 13 provinces. During 2011 to 2014, these workers identified and referred 60,541 presumptive TB cases to diagnostic centers and provided DOTS to 3,894 TB patients, with a treatment success rate greater than 90 percent.

**2 ARMENIA**

In FY 2014, USAID entered into a new partnership with the Government of Armenia to improve TB control in the country. Under this partnership, USAID will help the national TB program detect more TB cases, especially among vulnerable populations, and start health reform activities that will reduce the hospitalization of TB patients, reduce the cost of TB treatment, and expand the network of outpatient facilities.

### **3 BANGLADESH**

Through installation of 39 Xpert machines, USAID has sparked major progress in the identification and treatment of patients with TB and MDR-TB. In FY 2014, 9,033 patients were diagnosed with TB, including 971 patients diagnosed with MDR-TB, using Xpert. USAID also introduced an approach to treat MDR-TB patients in their communities rather than requiring long-term hospitalization. This reduced direct and indirect costs to patients and allowed them to remain connected to their families. In FY 2014, 474 MDR-TB patients were enrolled into this community-based treatment.

### **4 BURMA**

In FY 2014, USAID provided essential care and support for more than 500 MDR-TB patients who were receiving life-saving treatment under a Global Fund grant. By providing nutritional support, psychosocial support, and transportation to MDR-TB patients throughout the toxic, two-year treatment regimen, USAID helped improve treatment adherence and success. USAID also supported the development of national guidelines for MDR-TB management, which have been accessed by hundreds of Burmese medical professionals.

### **5 CAMBODIA**

USAID helped the national TB program improve its use of Xpert to diagnose TB and improve its specimen transport and case referral systems. This resulted in a 12 percent increase in the number of MDR-TB cases diagnosed and a treatment initiation rate of 92 percent among diagnosed MDR-TB patients. USAID also supported increased case finding in hospital settings and among children who were close contacts of TB patients.

### **6 DEMOCRATIC REPUBLIC OF CONGO**

To improve MDR-TB diagnosis and treatment outcomes, USAID supported the installation of Xpert machines, trained 23 provincial laboratory personnel in their use, and strengthened

community-based treatment adherence packages. Of 125 MDR-TB patients who started treatment in 2011 and received treatment adherence packages and support throughout the reporting period, an impressive 84 percent completed treatment.

### **7 ETHIOPIA**

USAID is significantly improving TB services in the two largest regions in Ethiopia. In the 10 zones receiving USAID support, TB cure rates have improved from 71 percent three years ago to almost 88 percent. The cure rate in these zones is significantly higher than the national average of 69 percent.

### **8 GEORGIA**

In FY 2014, USAID developed a health management information system for TB control that helps providers to monitor DOT and provide cash incentives and transportation fees to eligible patients to improve treatment outcomes. Moreover, the system allows healthcare workers to target those patients who are most at risk for not completing treatment. USAID developed a mobile application for use by community-based epidemiologists responsible for TB contact tracing and follow-up care of patients lost to treatment.

### **9 INDIA**

In four cities in India (Hyderabad, Kolkata, Chennai, and Delhi), USAID supported an innovative and comprehensive program to test all children with signs and symptoms of TB with Xpert. During seven months of implementation in FY 2014, there was a three-fold increase in TB case detection among children and increased detection of MDR-TB cases that would have gone undiagnosed under traditional diagnostic methods. More than 90 percent of the children diagnosed with MDR-TB were initiated on life-saving treatment.

## **10** **INDONESIA**

With USAID support, Indonesia's TB laboratory network expanded to include 12 internationally accredited reference laboratories, eight of which test for MDR-TB. An additional 41 peripheral laboratories have the capacity to detect MDR-TB using Xpert. Through this expanded network, TB case finding has significantly improved, the number of patients enrolled in treatment has doubled, and the time to treatment was reduced from 81 to 15 days, which contributed to a reduction in MDR-TB mortality from 8.3 percent to 1.5 percent. Treatment services were expanded so that 26 fully operational Programmatic Management of Drug-resistant TB centers, with nine sub-referral hospitals and 698 satellites, cover the large, geographically dispersed population.

## **KAZAKHSTAN**

**11** USAID collaborated with the private sector to improve the quality of TB drugs produced in Kazakhstan. In 2014, USAID trained 74 pharmaceutical professionals on internationally accepted Good Manufacturing Practices (GMP), increasing participants' understanding of GMP principles by 41 percent and helping the four TB drug manufacturers in Kazakhstan achieve their goal of 100 percent GMP compliance by the end of 2015.

## **KENYA**

**12** USAID supported Kenya's national roll-out of Xpert technology through site assessments, installation of 18 Xpert machines, and training for laboratory staff. USAID also supported an alert system designed to ensure real-time delivery of test results, thus reducing the lag time between testing and treatment initiation.

## **13** **MALAWI**

USAID supported Malawi's efforts to intensify TB case finding among people living with HIV. In FY 2014, 238,797 HIV/AIDS patients were screened for TB; 4.6 percent of the patients screened were identified as presumptive TB cases, 9,762 were tested for TB, and 1,191 were confirmed as TB cases. Over 98 percent of these confirmed cases were placed on TB treatment.

## **14** **MOZAMBIQUE**

With USAID's technical and financial support, Mozambique's national laboratory network doubled the coverage of quality-assured smear microscopy; more than 100 new centers opened across the country in FY 2014. Coverage of Isoniazid Preventive Therapy (IPT) for people with TB/HIV co-infection tripled in USAID-supported districts, with almost 50,000 people receiving IPT during FY 2014.

## **15** **NIGERIA**

Nigeria is successfully rolling out community management of MDR-TB, with support from USAID. In FY 2014, 10 states implemented a community-based model for MDR-TB care. Approximately 125 MDR-TB patients were enrolled – all with positive intermediary results. The model was put to the test when 35 MDR-TB patients were discharged prematurely from a hospital in Lagos during the Ebola crisis. Community-based solutions were found for each MDR-TB patient without interrupting their treatment or transmitting the disease to others in the community.

## **16** **PHILIPPINES**

USAID worked with local partners to strengthen TB programs at the barangay (grassroots village) level. This resulted in a 27 percent increase in the number of presumptive TB cases identified and tested with microscopy, and a 23 percent increase in the number of smear-positive TB patients provided treatment.

17

**SOUTH AFRICA**

USAID provided support to 24 districts in nine provinces. A total of 57,846 bacteriologically positive TB patients were seen, out of which 45,617 were successfully treated (79 percent treatment success) — which is higher than the national treatment success rate. Project staff also worked with the National Department of Health to roll out new second-line drugs (linezolid and bedaquiline). Through this support, 500 patients were initiated on treatment and closely monitored to ensure adherence through USAID-funded nongovernmental organizations. In FY 2014, a total of 133,996 TB patients were registered, including 74,020 HIV-positive patients.

18

**SOUTH SUDAN**

USAID worked with partners to support TB/HIV services for South Sudan's more than one million internally displaced persons (IDPs) and refugees and established TB services in IDP camps and protection of civilian sites. USAID also supported community engagement in TB services and care in Juba County, helping improve treatment success rates in supported areas from 52 percent to 92 percent.

19

**TAJIKISTAN**

USAID worked with national and local leaders to develop and implement an outpatient model of TB care. Results from the nine pilot districts demonstrate that implementation of this model is resulting in improved treatment adherence, improved health outcomes, and reduced costs. Out of 536 registered TB patients, 310 (58 percent) were put on outpatient care, and the number of patients with missed doses decreased from 29 to 11.

20

**TANZANIA**

Through effective use of standard operating procedures (SOPs) and new guidelines and training for intensified TB case finding among children, the percentage of all TB patients that were children increased to nearly 12 percent in 2014 in USAID-supported areas of Tanzania. Certain regions, like Arusha and Zanzibar, have exceeded the target of

15 percent for pediatric cases as a percentage of total notifications. USAID is also supporting the piloting of intensified case finding and infection control activities in 32 congregate settings throughout priority regions.

21

**TURKMENISTAN**

USAID worked with the Government of Turkmenistan to develop protocols for treating TB in children and pregnant women. USAID also supported drug-resistant TB detection and management training for 23 individuals, all of whom are now accredited as national trainers and will provide cascade trainings at the regional level.

22

**UGANDA**

USAID supported implementation of a DOTS model in urban Kampala, which increased the proportion of TB patients on treatment (from 14 to 52 percent) and improved the treatment success rate (from 71 to 78 percent). It also led to a sustained improvement in TB/HIV service coverage, with 98 percent of TB patients receiving HIV testing, 97 percent of TB/HIV patients receiving co-trimoxazole preventive therapy (CPT), and 81 percent of TB/HIV patients receiving ART.

23

**UKRAINE**

With USAID support, Ukraine's TB diagnostics became more reliable and effective. Smear case detection at primary care facilities in USAID-supported oblasts is almost three times higher than elsewhere in Ukraine (3.1 percent compared to 1.2 percent). Additionally, Ukraine finished its first drug-resistant TB survey in 2014, with support and funding from USAID. Preliminary results will be available in early 2015.

24

**UZBEKISTAN**

In 2014, Uzbekistan's Ministry of Health, with support from USAID, led the first comprehensive assessment of its TB pharmaceutical management system, which includes 35 facilities across five oblasts. The findings of this assessment are being incorporated into a comprehensive strategy to improve TB pharmaceutical supply monitoring and management in Uzbekistan.



A TB worker conducts a screening at an outpatient clinic in Indonesia. *Photo by USAID*

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### ZAMBIA

With support from USAID, Zambia achieved a TB treatment success rate of 89 percent and increased the proportion of registered TB patients tested for HIV from 83 percent in 2011 to 89 percent in 2013. USAID also provided training for 1,127 healthcare workers in DOTS and funded Zambia's first TB prevalence survey.

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### ZIMBABWE

In FY 2014, USAID improved Zimbabwe's TB specimen transport system, enabling patients to receive accurate TB test results within one to two days in urban settings and seven days in rural settings, instead of having to wait for two to three weeks to receive their test results and start life-saving treatment. Following a successful pilot program in Harare and two other major cities, USAID expanded this service to 24 districts, serving over 40 percent of Zimbabwe's health facilities.



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