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Photo: Marion Biremon, USAID Challenge TB Project, the Kyrgyz Republic

# IMPROVING TUBERCULOSIS PREVENTION AND CARE IN CENTRAL ASIA:

## A Story of 20 Years of USAID Commitment, Partnership, and Support 1997-2017

July 2019

Photo: Marhabo Rakhimova, USAID TB Control Program, Uzbekistan

This document is published by the United States Agency for International Development (USAID) Tuberculosis (TB) Control Program, which is part of a series of five-year USAID programs designed to improve the health of the people of Central Asia by strengthening their health-care systems and services concerned with TB care and prevention. The USAID TB Control Program supports the Uzbekistan and Tajikistan governments' implementation of their national TB programs by contributing to more effective and accessible TB prevention, care, and treatment for all, especially vulnerable populations. The main objective of the $23 million TB Control Program is to reduce the burden of TB and prevent or eliminate multidrug-resistant forms of the disease.

These USAID programs have supported TB care and prevention initiatives of governments and communities in Central Asia, as well as their efforts to strengthen their health systems' human and institutional capacity, improve interagency coordination and cooperation, and increase access to TB diagnosis and treatment, so as to achieve improved health outcomes. The TB Control Program falls under the USAID's third objective: investing in people as part of the U.S. Strategic Framework for Foreign Assistance.

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**Submitted to:** USAID/Central Asia Regional Mission Health & Education Office, Almaty, Kazakhstan
http://www.usaid.gov/central-asia-regional

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## A Story of 20 Years of USAID Commitment, Partnership, and Support 1997-2017

July 2019

This report was produced for review by the United States Agency for International Development.
It was prepared by the USAID TB Control Program.

# ABBREVIATIONS

| | |
|---|---|
| **ACSM** | advocacy, communication, and social mobilization |
| **AIDS** | acquired immunodeficiency syndrome |
| **CBTS** | community-based treatment supporters |
| **CDC** | Centers for Disease Control and Prevention (United States) |
| **DOTS** | Directly Observed Treatment, Short Course |
| **DR-TB** | drug-resistant tuberculosis |
| **DS-TB** | drug-susceptible tuberculosis |
| **GDF** | Global Drug Facility |
| **HIV** | human immunodeficiency virus |
| **LMIS** | logistics management information system |
| **MDR-TB** | multidrug-resistant tuberculosis |
| **M/XDR-TB** | multidrug and extensively drug-resistant tuberculosis |
| **NGO** | non-governmental organization |
| **NTP** | national tuberculosis program |
| **PHC** | primary health care |
| **PPP** | purchasing power parity |
| **QMS** | quality management system |
| **TB** | tuberculosis |
| **USAID** | United States Agency for International Development |
| **WHO** | World Health Organization |
| **XDR-TB** | extensively drug-resistant tuberculosis |

# ACKNOWLEDGMENTS

USAID would like to thank the governments of Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. Their partnership and cooperation with USAID and other donors during the past 20 years have provided the cornerstone for the progress made in tuberculosis (TB) treatment and prevention.

Most importantly, we would like to thank the ministries of health, national TB programs, health-care professionals, community members, and other country partners who have worked tirelessly for over 20 years to improve the TB situation in Central Asia. These include policymakers, government leaders, doctors, nurses, other health-care workers, trainers, laboratory specialists, community and religious leaders, peer outreach workers, penal system employees, former patients, and countless others, for their efforts to make the changes needed to improve the health and well-being of their communities.

Through its implementing partners, USAID has provided extensive technical assistance in the region over the years, working closely with the ministry of health in each country. USAID's work could not have been possible without the support of its many implementing partners, including: Project HOPE; Abt Associates, Inc.; the Royal Netherlands Chemical Society (KNCV) Tuberculosis Foundation; The World Health Organization (WHO); Population Services International (PSI); John Snow, Inc. (JSI); AIDS Foundation East-West - Tajikistan (AFEW-Tajikistan); International Organization for Migration (IOM); and Management Sciences for Health (MSH). In addition to USAID's implementers, local non-governmental and civil society organizations have also played major roles in the success of USAID's TB interventions across the region.

We would like to express special thanks to USAID staff in each country for their leadership and guidance on TB-control projects throughout the region and, specifically, in the development of this publication. We also thank the dozens of people who provided guidance, insights, interviews, and first-hand histories for this publication.

# LIMITATIONS

Any concise publication addressing the extensive and complex TB-control activities undertaken by the United States Agency for International Development (USAID) in Central Asia over a 20-year period cannot cover everything. In this publication, we present the main USAID TB-control programs, providing examples from all the countries in the region. Space limitations have, however, prevented us from adequately addressing many other USAID activities in Central Asia. The USAID projects in the area of TB care and prevention are the main focus of this publication, but many other donors and partners have also played major roles in reducing TB in the region. Any omission of their work does not mean that USAID does not fully value their contributions to the fight against TB and to the improvement of the lives of the people of Central Asia.


Photo: Olivier Le Blanc, USAID Challenge TB Project, the Kyrgyz Republic

Since 2011, the U.S. Government has invested almost $2.9 billion in international TB control, including 1.2 billion for USAID interventions.

# CONTENTS

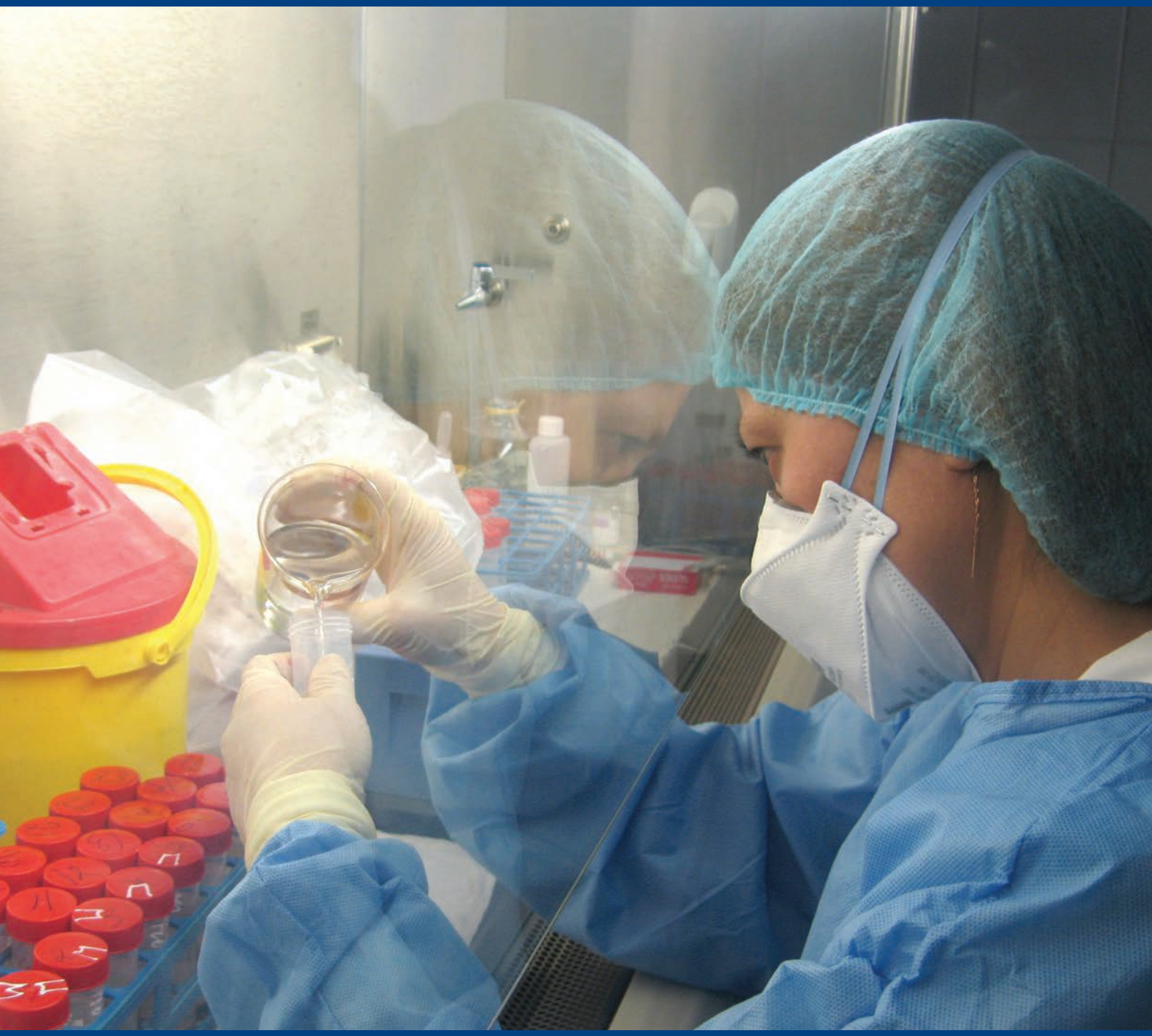


Photo: Bekzat Toksanbayeva, USAID Quality Health Care Project, Kazakhstan

"TB is a treatable and curable disease.
The vast majority of TB cases can be cured when medicines are provided and taken properly."

WHO 2018 Tuberculosis Fact Sheet

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

# EXECUTIVE SUMMARY

"Between 2000 and 2017, 54 million lives were saved through effective TB diagnosis and treatment globally."

WHO 2018 Tuberculosis Fact Sheet

United States Agency for International Development (USAID), in collaboration with partners, contributed to a drop in TB cases between 21 and 60 percent in the Central Asian countries from 2000 to 2017. TB deaths across the countries dropped between 53 and 97 percent over the same time period.

After the dissolution of the Soviet Union in 1991, the five countries of Central Asia had to overcome many problems as they struggled to rebuild their health-care systems. One of them was the spread of tuberculosis (TB). Following spikes in the numbers of TB cases and TB deaths in the first decade of independence, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan have gradually brought their TB epidemics under control. Though the fight against TB has not yet been won, all five countries have achieved dramatic decreases in numbers of TB cases and deaths from the disease. United States Agency for International Development (USAID), in collaboration with partners, contributed to a drop in TB cases between 21 and 60 percent in the Central Asian countries from 2000 to 2017. TB deaths across the countries dropped between 53 and 97 percent over the same time period. While many factors have played a role in these achievements, the assistance of the USAID has been vital.

Together with partners like the World Health Organization (WHO) and the Global Fund to Fight AIDS, Tuberculosis and Malaria, USAID has worked for 20 years to strengthen the national TB programs (NTPs) in Central Asia, as part of a broader effort to bolster the health systems across the region. The improvements have involved major systemic changes, including reforms of national policies, as well as restructured and sustainable funding for TB prevention and care. But USAID has also played a significant role in enhancing TB case finding, diagnostics, and treatment, and in reducing the stigma associated with TB.

The Agency strengthened TB case finding and diagnostics by helping the Central Asian countries upgrade their lab networks with new equipment, train staff, and introduce quality-control systems making diagnosis more accurate and quicker, and treatment more effective.

USAID improved TB cure rates by introducing the standardized Directly Observed Treatment, Short Course (DOTS) strategy, which includes a full drug-management program. It also supported updates of clinical protocols. And to increase patient adherence to treatment regimens, USAID has helped countries shift to patient-centered care, engaging community groups and introducing case management.

With USAID support, thousands of doctors, nurses, lab technicians, and community workers have been trained in TB prevention, diagnosis, treatment, and counseling skills. Thanks to USAID-supported training materials, textbooks, and national curricula, the next generation of health-care workers will be able to properly diagnose and treat TB.

USAID assistance has enabled health-care workers and community partners to directly reach hundreds of thousands of residents with information on TB, screen them for TB symptoms, and refer for testing. Millions have learned about TB symptoms from the mass media and religious and community leaders. As a result, the stigma surrounding TB has decreased, and people are more willing to openly talk about the disease, seek treatment, and even help TB patients in their communities.

USAID has focused its outreach to the region's most at-risk groups, including women, children, migrant workers, prisoners, drug users, the homeless, and people living with the human immunodeficiency virus (HIV). For instance, in collaboration with the countries' networks of centers for HIV and for acquired immunodeficiency syndrome (AIDS), the Agency has institutionalized TB screening and testing for people living with HIV. USAID has also improved TB diagnosis, treatment, and infection prevention and control in the penitentiary system.

USAID has boosted TB prevention through improved infection prevention and control measures in hospitals and clinics and limiting unnecessary hospitalizations. In 2011-12, the Agency began to work with Kazakhstan, the Kyrgyz Republic, Tajikistan, and Turkmenistan to shift TB treatment from hospitals to outpatient settings. As a result, Tajikistan now treats over 45 percent of TB cases as outpatients. The Kyrgyz Republic has also decreased its TB hospitalizations, and is using this success as a catalyst for restructuring of its TB care system. The initial steps under this plan — including reductions in unneeded hospital beds and buildings — saved the country $1 million in 2017, with similar savings expected annually. And the money saved is being redirected to other TB-care and prevention needs.

While the Central Asian countries have made significant progress in stemming the TB epidemic, they continue to struggle with the harder-to-treat drug-resistant forms of the disease. All the Central Asian countries except Turkmenistan are on WHO's list of the 30 countries in the world with highest burden of multidrug-resistant tuberculosis (MDR-TB). Thanks to new approaches introduced by USAID and other partners, however, improved treatment-adherence and infection-control measures are slowing the spread of the disease. In 2012, USAID introduced the GeneXpert® testing system to the region, making diagnosis easier, more accurate, and quicker, with drug sensitivity results now available in a matter of hours, rather than months. This allows appropriate treatment to be started sooner.

USAID has helped the NTPs to ensure that all patients get the treatment they need. In 2017, USAID introduced new drugs and shorter treatment regimens for patients with MDR-TB and extensively drug-resistant TB (XDR-TB) — with early evidence showing improved cure rates with these new drugs and shorter treatment regimens.

As the countries of Central Asia continue to improve their TB programs, support from USAID and other donors — both on the ground and globally — will be crucial. With the continued dedication of its international and national partners in Central Asia, USAID looks forward to the day in the not-too-distant future when TB will be eradicated once and for all.

Photo: Bekzat Toksanbayeva, USAID Quality Health Care Project, Kazakhstan

# INTRODUCTION

## Since the early 2000s, the Central Asian countries have made substantial progress in reducing TB incidence and deaths.

Most health care in the countries of Central Asia is provided through an extensive network of public facilities.

Patients generally receive TB care at TB-specialized hospitals and specialized clinics, as well as through the general primary health-care system.

The past 20 years have seen remarkable improvements in the tuberculosis (TB) situation in the countries of Central Asia. Systems for diagnosing and treating TB have been strengthened and, since the early 2000s, TB incidence and deaths have declined substantially. While many factors have contributed to this progress, the assistance of the United States Agency for International Development (USAID) has proven to be crucial. USAID has played a significant role in strengthening health systems throughout Central Asia, and in providing the resources, innovations, and training required to turn back the region's escalating TB epidemic.

USAID has provided this TB assistance as part of its larger effort to strengthen the infrastructure of health systems across the region, in order to decrease reliance on centralized hospitals for inpatient care in favor of primary health care (PHC) facilities located within communities. The improvements have involved major systemic changes, including reforms of existing national policies, as well as restructured and sustainable funding for TB-control systems.

Through an initial groundbreaking public-private partnership in one Kazakhstan *oblast* (province) in 1994, USAID demonstrated the possibility of introducing WHO-recommended effective and efficient TB treatment strategies, in this case the Directly Observed Treatment, Short Course (DOTS) strategy.

The success of this one pilot spurred USAID to initiate the implementation of DOTS on the national level in Kazakhstan in 1997, and later in the other four Central Asian countries: the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. This marked the beginning of a successful TB partnership between USAID and the countries of Central Asia that continues to this day.

Working in concert with country partners and international bilateral and multilateral organizations such as the World Bank, World Health Organization (WHO), the United Nations, and development agencies of other donor governments, USAID has supported the countries of Central Asia in their efforts to introduce effective, efficient approaches to TB care.

During its time in Central Asia, USAID has introduced the latest developments and innovations in TB prevention and care, with the goal of improving TB case finding, diagnosis, and treatment. USAID has upgraded the skills of health-care workers, improved infection prevention and control, and engaged communities in the fight against TB. Today, all five Central Asian countries exhibit a high level of commitment to eradicating TB.

The spread of drug-resistant forms of the disease remains a challenge across the region. Thanks to the commitment of USAID and other international and government partners, however, drug-resistant cases are being diagnosed more quickly and accurately through better lab tests, and patients are starting appropriate drug treatment sooner.

The stories in this publication demonstrate the challenges and successes that Central Asia has seen in confronting its TB epidemic. They also illustrate the resources and technical assistance provided by USAID and its partners to ensure that the countries of Central Asia can reverse the TB epidemic altogether.

**TUBERCULOSIS INCIDENCE IN CENTRAL ASIA, 2001-2016**
(NUMBER OF CASES PER 100,000 PEOPLE)

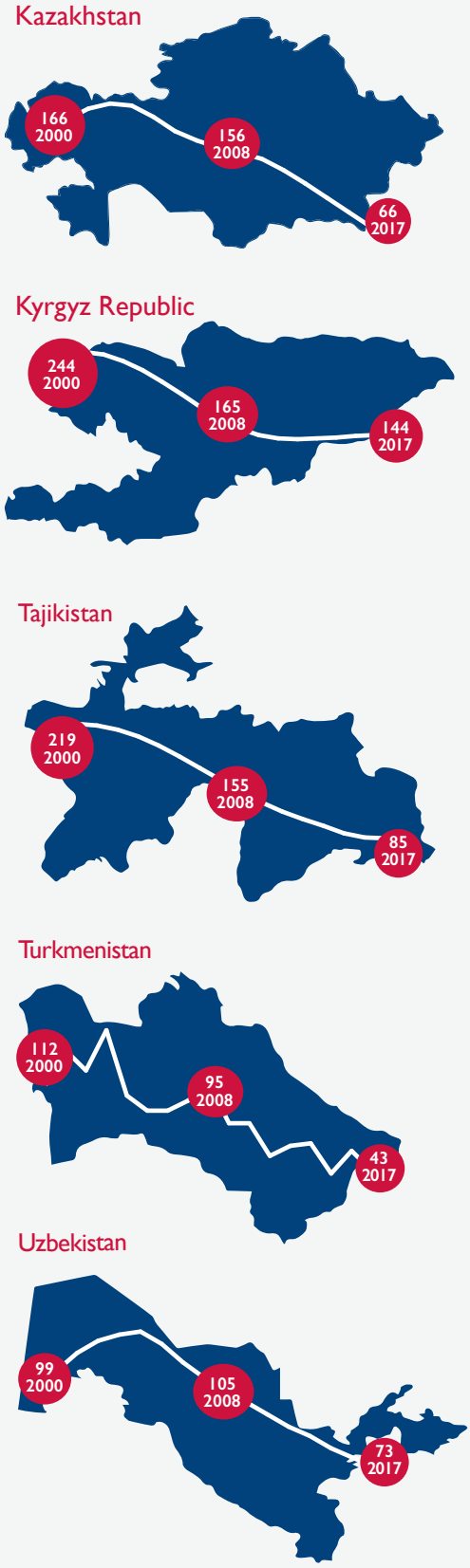
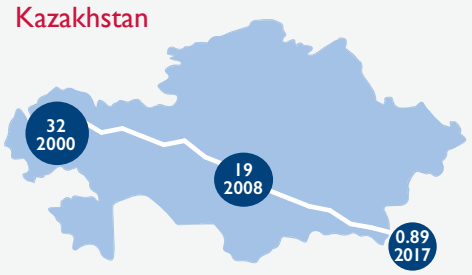


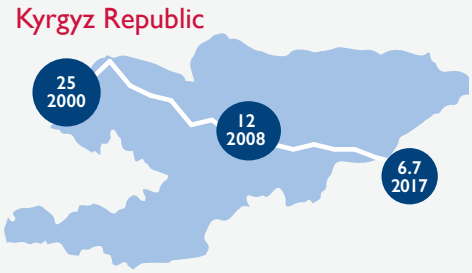
Photo: Nasrullo Ramazonov, USAID TB Control Program, Tajikistan

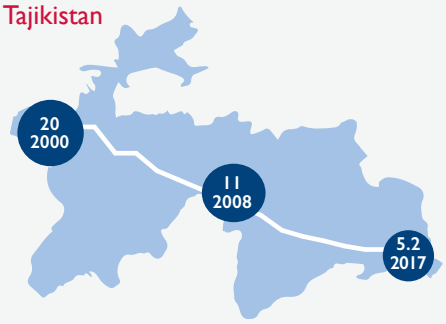
With USAID support, TB cases per 100,000 population fell between 21 and 60 percent in the Central Asian countries from 2000 to 2017. TB deaths across the countries dropped between 53 and 97 percent over the same time period.

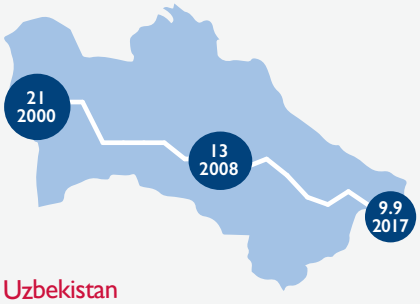
## TUBERCULOSIS MORTALITY IN CENTRAL ASIA, 2001-2016

(NUMBER OF DEATHS PER 100,000 PEOPLE)




"In 2014, for the first time in decades, TB killed more people than any other infectious disease in the world."

"*The Paradigm Shift: 2016-2020; Global Plan to End TB,*" a joint report by Stop TB Partnership, End TB, and the United Nations Office for Project Services (UNOPS).

## WHAT IS TUBERCULOSIS?

Tuberculosis (TB) is an infectious disease caused by the bacteria *Mycobacterium tuberculosis*, which typically affects the lungs (pulmonary TB), but can also affect other parts of the body (extrapulmonary TB). TB is highly contagious, and easily spread through airborne droplets (from coughing, sneezing, etc.). If you have ever had a TB skin test, you have been tested to see if you are a carrier of the TB bacteria, or have what is referred to as "latent" TB infection. An estimated 2-3 billion people globally have latent TB infection* — which is asymptomatic and noncontagious, and does not make the individual sick. A much smaller number (5-15 percent of the latent cases) will ever develop active TB disease (referred to through the rest of this document as just "TB"). TB can be fatal if not properly treated. People with human immunodeficiency virus (HIV) or an otherwise weakened immune system have a much higher chance of falling ill with active TB disease.

When diagnosed in time, TB can be cured. Still, the disease has experienced a resurgence in recent decades and is now the leading global killer among infectious diseases, surpassing the acquired immunodeficiency syndrome (AIDS) in the number of deaths worldwide. In 2017, approximately 1.6 million people worldwide died from TB.* Incomplete treatment can lead to the development of the harder-to-treat drug-resistant forms of TB, which can also be spread from person to person.

Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan all rank among the 30 countries in the world with the highest rates of the harder-to-treat multidrug-resistant tuberculosis.

*World Health Organization (WHO), Tuberculosis (TB), http://www.who.int/tb/country/data/download/en/.

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

## THE BROADER U.S. GOVERNMENT CONTRIBUTION TO TUBERCULOSIS CONTROL

The U.S. Government is a leader in the global fight against tuberculosis (TB). Between 2010 and 2014, for instance, it invested more than $2.8 billion to combat TB worldwide, including more than $1.2 billion through USAID and more than $730 million through the President's Emergency Plan for AIDS Relief (PEPFAR). The U.S. Government also contributes to the fight against TB through its Centers for Disease Control and Prevention (CDC), and provided more than $930 million to the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund).

Founded in 2002, the Global Fund is a financial institution, but it is also a partnership among governments; civil society organizations; the private sector; and people affected by TB, malaria, and/or the acquired immunodeficiency syndrome (AIDS). The Global Fund raises and invests nearly $4 billion a year to support programs run by local experts in the countries and communities most in need. Since 2004, the U.S. Government has contributed a total of $10.6 billion to the Global Fund, which supplies almost 80 percent of the external funding for TB efforts worldwide, including grants to every country in Central Asia.

USAID has also used its work in Central Asia to leverage additional financial support for TB initiatives in the region. For instance, in Uzbekistan, USAID's Central Asian Program on AIDS Control and Intervention Targeting Youth and High-Risk Groups (CAPACITY) Project supported the development of a model guide for community engagement in TB prevention. Later, with support from the Global Fund, USAID provided technical assistance that enabled the Uzbekistan Government to expand its implementation of that model into Samarkand Oblast (Province). Meanwhile, in Tajikistan a model for improved collaboration between services for TB and for the human immunodeficiency virus (HIV) was developed and included for scale-up within the National HIV/TB Strategy, which was supported by the United Nations Development Programme (UNDP)/Principle Implementation Unit (PIU).*

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* United States Agency for International Development (USAID) and TB Care I, TB Care I Annual Report Year 3 (Washington, D.C.: USAID, 2013), http://www.tbcare1.org/reports/reports/TB_CARE_I_Annual_Report_Year_3_Oct_2012-Sept_2013.pdf;
JSI Research & Training Institute, Inc., CAPACITY Project Final Report: 30 September 2004 - 29 September 2009 (Washington, D.C.: USAID 2009), 40 and 48.

## TIMELINE

### TB STRATEGIES / INNOVATIONS

### USAID'S TB PROGRAMS IN CENTRAL ASIA

**1991**
Soviet Union dissolves and the Central Asian countries gain their independence

**1992**
USAID establishes its first Central Asia mission, in Almaty, Kazakhstan

**1993**
TB declared a global health emergency by WHO

**1994-2009**
ZdravReform, ZdravPlus, and ZdravPlus 2

**1995**
TB DOTS strategy launched; over the next 20+ years, more than 30 million people worldwide will be treated via DOTS

**1995**
First MDR-TB case discovered, in London

**1997-2004**
Central Asia Tuberculosis Initiative, Phase I & II

**1998**
First USAID global TB program launched

**2000**
Stop TB Partnership initiated by WHO and over 500 partners to reduce the burden of TB, increase access to treatment, and address challenges such as TB/HIV and drug-resistant TB

**2002**
Global Fund to Fight AIDS, TB and Malaria created by a consortium of governments, the private sector, civil society and people affected by the diseases

**2003**
President's Emergency Plan for AIDS Relief (PEPFAR) launched by the US government to address HIV/AIDS globally; includes a focus on HIV-TB coinfection

**2004-2009**
Central Asian Program on AIDS Control and Intervention Targeting Youth and High-Risk Groups (CAPACITY)

**2006**
Stop TB Strategy put in place by WHO to dramatically reduce the global burden of TB

**2004-2009**
TB Control Program for the Central Asian Region

**2007**
Liquid culture and drug-susceptibility testing (DST) endorsed by WHO to test for TB drug-resistance

## TB STRATEGIES / INNOVATIONS

## USAID'S TB PROGRAMS IN CENTRAL ASIA

**2009**
Universal access to DST called for by WHO

**2009**
WHO endorses LED microscopy

**2010**
GeneXpert® endorsed by WHO; allows for simultaneous rapid TB diagnosis and determination of resistance to the drug rifampicin

**2010-2011**
Advocacy, Communication and Social Mobilization (ACSM) Activities in Eastern Europe and Central Asia Project

**2009-2014**
Dialogue on HIV and TB

**2010-2015**
Quality Health Care Project

**2010-2015**
TB Care I Program

**2012-2015**
Systems for Improved Access to Pharmaceuticals and Services (SIAPS)

**2012-2015**
Field Epidemiology Training Program (CDC)

**2012-2016**
Partnership Project for TB Control

**2012-2019**
Promoting the Quality of Medicines (PQM)

**2013**
Bedaquiline (WHO Interim guidance issued)

**2014**
Delamanid (WHO guidance issued)

**2014**
End TB Strategy adopted by the WHO

**2014-2019**
USAID TB Control Program

**2015**
Reach, Cure, Prevent Strategy (2015-2019) released by US government

**2014-2019**
Defeat TB Project

**2015**
United States releases its National Action Plan For Combatting Multidrug-Resistant Tuberculosis

**2015-2020**
Challenge TB Project

Photo: USAID TB Control Program, Uzbekistan

"The U.S. Government and the global community share a vision of a world free from tuberculosis."

"Reach, Cure, Prevent: U.S. Government TB Strategy"


Photo: USAID TB Control Program for the Central Asian Region, Turkmenistan

# THE RESURGENCE OF TUBERCULOSIS IN POST-SOVIET CENTRAL ASIA

## In 1993, WHO declared a global TB emergency.

Just as the Central Asian countries became independent in 1991, TB was experiencing a global resurgence. Thanks to antibiotics, by the 1960s, TB had largely been brought under control worldwide. However, the disease reappeared in the 1980s, fueled in part by the human immunodeficiency virus (HIV) epidemic. Subpar nutrition and living conditions contributed to the spread of TB in poorer populations, which often had no access to appropriate TB diagnosis and treatment. Incomplete or insufficient drug treatment led to an increase in the number of cases of multidrug-resistant tuberculosis (MDR-TB). In 1993, the World Health Organization (WHO) declared a global TB emergency.

After the dissolution of the Soviet Union, conditions in Central Asia were ripe for the spread of TB. The region experienced rapidly deteriorating socioeconomic conditions and worsening health outcomes for much of the population. The newly independent countries lacked experience in administering their own health-care systems and were struggling with an overall transition from centrally planned to market-based economies, and with the sudden end to centrally provided direction and financing from Moscow.

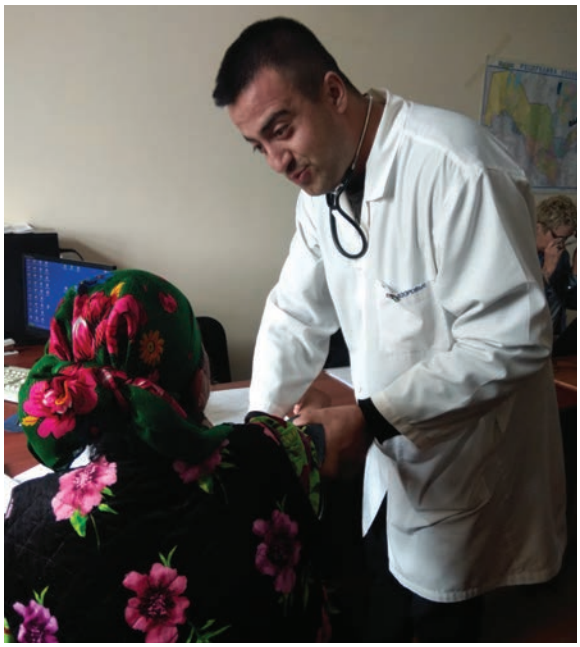


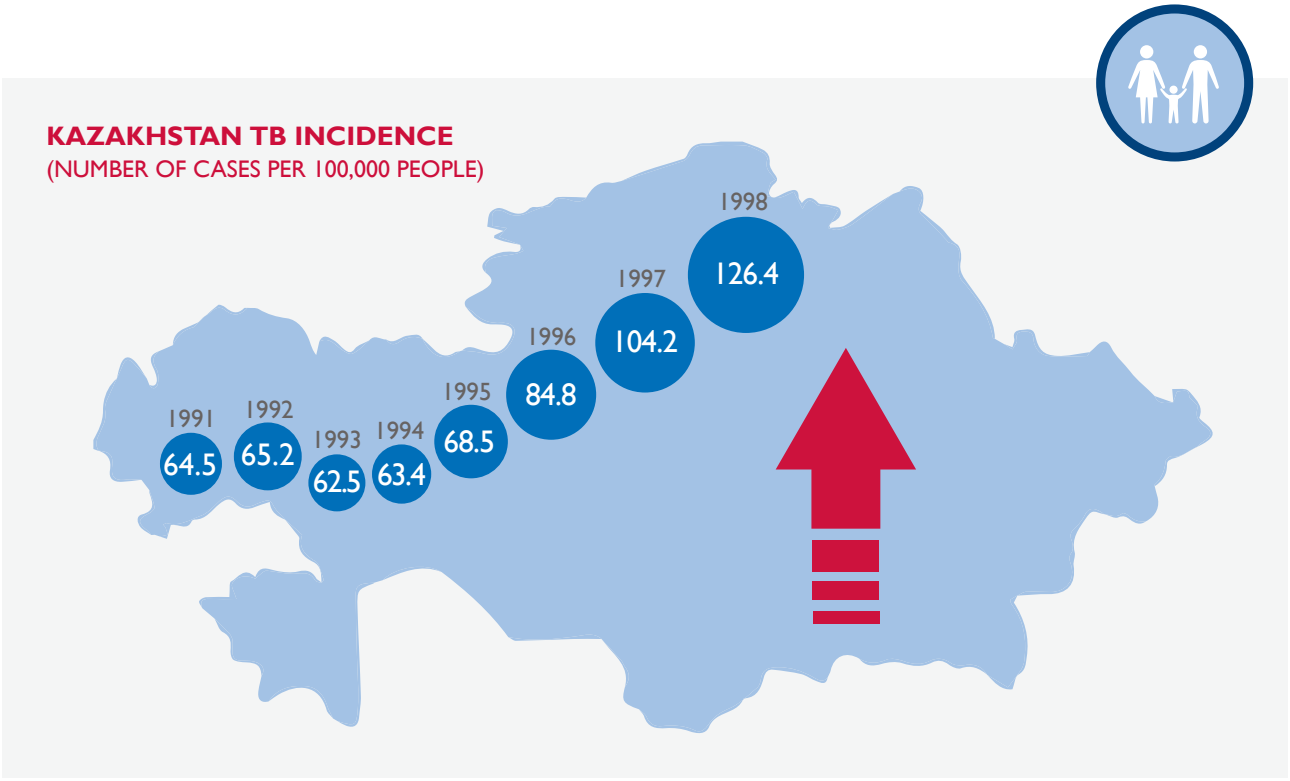
Photo: Ekaterina Godunova, USAID TB Control Program, Uzbekistan

In 2017, 1.6 million people died from TB globally.

WHO 2018 Global TB Report

In the early 1990s, the region's crumbling health-care systems were unable to effectively control the burgeoning TB epidemic. Labs could not provide accurate diagnostic services. Doctors were diagnosing and treating TB using outdated protocols, and drug stockouts were common. While access to TB care was nominally free, stigma and discrimination, geographic barriers, and cost in terms of money and time often discouraged patients from getting diagnosed or treated. Many patients who began treatment did not complete it. Increasing numbers of migrant laborers brought TB home with them. And institutional settings like prisons were ideal for the spread of TB. These factors created an environment in which the general TB epidemic exploded, and resistant strains of TB proliferated.

Not surprisingly, during this period, Central Asia saw a dramatic rise in annual TB incidence (numbers of diagnosed TB cases) and mortality (TB deaths).[1] TB incidence rate (per 100,000 population) in Kazakhstan increased 84 percent from 1991 to 1998.[2] The numbers continued to climb until 2002. During the same period, the TB mortality rate (per 100,000 population) in Kazakhstan more than tripled.[3] In Turkmenistan, TB incidence nearly doubled between 1991 and 1998.[4] Similar increases in TB were observed across the entire Central Asian region.




Similar increases were seen across the region during this period.
Incidence reported here is the number of new cases per year per 100,000 population, as reported by each country to the WHO. WHO also refers to this as the "case notification" rate.

Photo: USAID TB Control Program, Uzbekistan

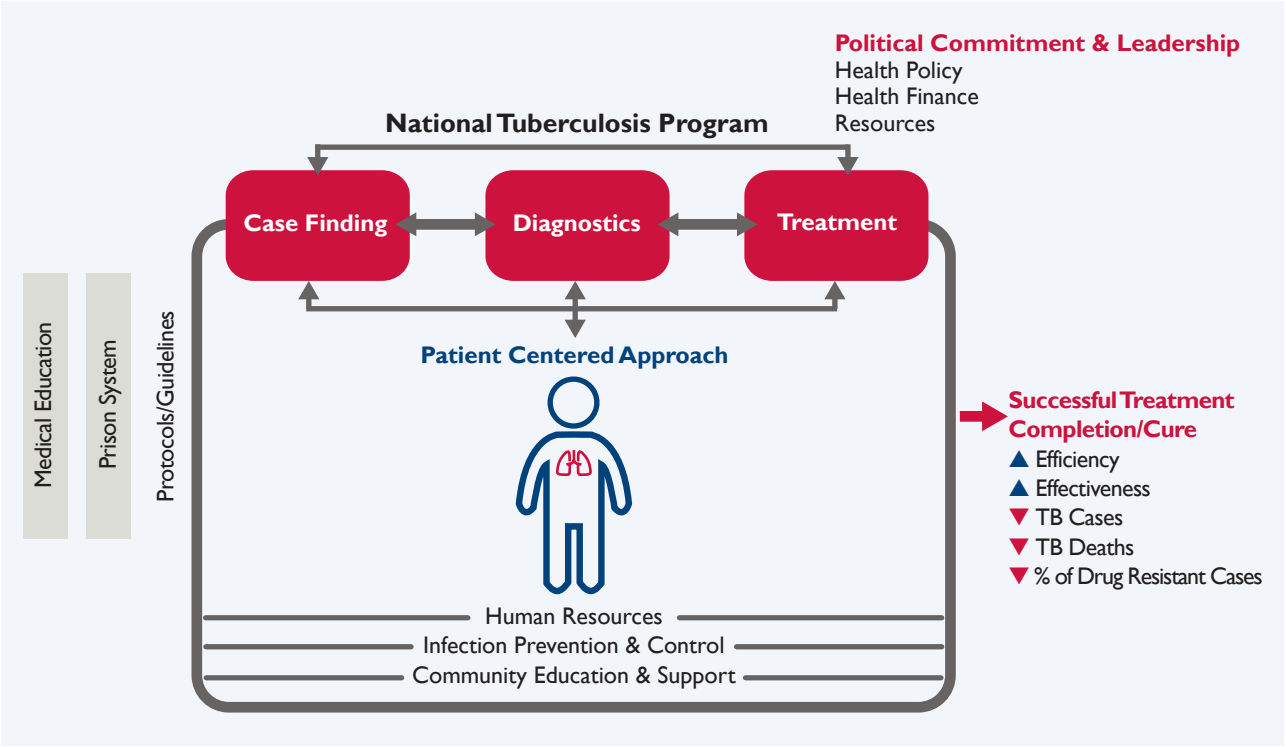
# USAID'S SUPPORT FOR TB PROGRAMS IN CENTRAL ASIA

USAID set up its first mission in Central Asia in 1992 in Almaty, Kazakhstan. In 1994, it began to help national governments strengthen their health-care systems; in 1997, USAID/ Central Asia began work with the ministries of health and national TB programs to improve TB treatment outcomes.

With the socioeconomic decline that followed the dissolution of the Soviet Union, overall health conditions in the Central Asian countries were worsening, and the health-care systems were struggling. With USAID support, these countries took initial steps in the 1990s to upgrade the quality of their primary health care (PHC) and preventive medicine; update the skills of doctors and nurses; introduce effective and efficient approaches to clinical care recommended by the by the World Health Organization (WHO); provide individuals with access to information about their health and to treatment; and upgrade health-information systems, health financing, drug management, and medical education systems.

In 1997, USAID started introducing WHO-recommended standardized, efficient, and effective approaches to TB care across Kazakhstan, and then regionwide. Since that time, USAID has supported a wide-ranging, cohesive approach to strengthening TB control in Central Asia, as shown in the figure on the following page.

At the heart of each country's TB-control efforts is a national tuberculosis program (NTP). In Central Asia, the abbreviation "NTP" is used to refer both to the written program (or strategy) and to the operational unit charged with implementing the program and with monitoring overall progress in the fight against TB in the country.




"In 2014, Ministry of Health Unified Order No. 383 on tuberculosis was adopted in Uzbekistan. [It] included the latest WHO recommendations... including new laboratory diagnostic methods... and new treatment regimens for TB/MDR-TB patients.

I would especially like to note USAID's contribution to the preparation of this Unified TB Order.

Moreover, USAID supports the National TB program in implementing the latest international approaches in TB control, taking into account all elements of the TB service and its interaction with various agencies and organizations."

Prof. Nargiza Parpieva, director, National Center of Tuberculosis and Pulmonology, Republic of Uzbekistan Ministry of Health

An effective NTP is multifaceted, and requires political commitment, policy-making, and financing to succeed. It is important to note that the figure above shows the patient in the center, as patient-centered care is now the gold standard for TB, recognized as a key approach to achieving treatment completion (i.e., cure). A patient who has recovered from TB can no longer infect others. So, with more patients cured and more cases prevented, there are fewer new TB cases and TB deaths in the region.

Since becoming active in Central Asia, USAID has worked in lockstep with country partners to strengthen all the facets of their TB programs-improving case finding, diagnostics, and treatment; building a strong human-resource base; implementing infection control; and engaging communities in the improvement of TB outcomes. USAID has also supported the strengthening of political commitment and leadership, health policy, and health finance to expedite the implementation of the national TB programs, and it has advocated for the provision of the resources needed for implementation.

With the increase in multidrug-resistant tuberculosis (MDR-TB) cases, USAID and other donors have helped country TB programs develop their national action plans for TB, with a focus on preventing the development and spread of MDR-TB, and on treating MDR-TB cases, which require more resources, high diagnostic capacity, uninterrupted supply of quality drugs, and more complex treatment and oversight.

## OVERVIEW OF KEY CHANGES SUPPORTED BY USAID IN CENTRAL ASIA

USAID's original approaches focused on drug-susceptible tuberculosis (DS-TB), while later approaches took into account the increasing levels of MDR-TB in the region.

| | Early 1990s: Decaying System and Outdated Approaches | Effective and Efficient Approaches Introduced by USAID |
|---|---|---|
| **Policy and enabling environment**  | Lack of strategic leadership for tuberculosis (TB) control | Strong national TB program<br>Higher-level working groups and thematic working groups for TB decision-making |
| | Insufficient resources dedicated to TB | Government commitment to organizing and funding TB control<br>Resources allocated to TB in a way that incentivizes effective and efficient care |
| | Outdated policies and organizational system | Clinical guidelines and protocols developed and implemented, in line with World Health Organization (WHO) recommendations |
| | Oversized, siloed system of TB-specialized institutions, which cannot support effective and efficient care | TB care integrated with a strengthened primary-health-care (PHC) system, and closely linked to the community |
| **Case finding and diagnostics**  | Mass screenings: chest X-rays for all | Focused screening of at-risk populations by community organizations; standard screening by health-care workers of all PHC patients for possible TB symptoms (coughing for more than two weeks, weight loss, night sweats) |
| | Reliance primarily on chest X-rays | Sputum microscopy for all with presumptive TB symptoms; chest X-ray remaining standard in the region |
| | Contact tracing not conducted consistently | Systematic process for tracing and testing contacts of newly diagnosed patients, especially those with MDR-TB |
| | Outdated and poorly maintained lab equipment, insufficient training for lab technicians | Upgraded lab infrastructure and well-trained lab specialists; quality control for labs implemented and institutionalized<br>As they become available, introduction of new diagnostic technologies such as GeneXpert® for rapid diagnosis of TB and drug resistance; new technologies supported with policy and training |

| | | |
|---|---|---|
| **Treatment**  | TB antibiotics, but not standardized; other drugs as recommended by physician; side effects and psychological factors not addressed; no counseling | Standardized regimen of TB antibiotics; counseling and patient education; treatment of side effects if they occur |
| | Extensive network of TB-specialized hospitals and clinics | Fewer TB hospitals/hospital beds; increased outpatient care; a move toward integration of TB care into the general health-care sector through PHC clinics |
| | Long hospitalization | Shorter hospitalization, followed by outpatient treatment |
| | | Emphasis on patient-centered care, with a shift to shorter hospitalization or fully outpatient treatment for many patients in many areas; use of case management and community support to improve adherence to treatment during outpatient phase |
| | Drugs commonly out of stock in 1990s and early 2000s | Appropriate, fixed-dose combination drugs available for all patients; quality of drugs monitored; new drugs successfully introduced for MDR-TB and extensively drug-resistant tuberculosis (XDR-TB) patients |
| **Human resources**  | Medical and nursing schools still training future health-care workers in old approaches; general practitioners receiving little training in TB | Hands-on training to upgrade skills of lab technicians, doctors, and nurses as appropriate in the identification of TB symptoms, diagnosis, and treatment of TB |
| | | Updated textbooks and curricula for future health-care workers, based on country protocols and in line with WHO recommendations |
| **Infection prevention and control**  | Outdated protocols; infection-control procedures not followed; shortages of supplies and equipment; mixing of smear-positive (highly contagious) with smear-negative patients; mixing of drug-resistant tuberculosis (DR-TB) and drug-susceptible tuberculosis (DS-TB) patients | Clear protocols in line with WHO guidelines; access to and appropriate use of necessary personal protection equipment and supplies; separation of patients into different wards; staff trained in infection control. |
| **Community education and support**  | Fear and stigma of TB prevalent; TB patients sometimes ostracized; lack of understanding and knowledge of TB amongst the general population, community leaders, and mass media; stigma keeping talk of TB underground | Community groups and religious leaders becoming knowledgeable about TB, actively educating their constituents about TB, referring individuals with possible TB symptoms for testing, and providing moral and sometimes material support for community members receiving TB treatment; current and recovered TB patients playing an active role in peer support and community education |

Photo: Olivier Le Blanc,
USAID Defeat TB Project, the Kyrgyz Republic

With the introduction of DOTS, patients received a standardized, proven course of treatment.

Hospital stays were reduced to two months for many patients, with continuing treatment taking place in outpatient clinics.

## HOW IT ALL BEGAN: INTRODUCING DOTS IN ATYRAU OBLAST, KAZAKHSTAN

As part of its overall health support to the region, the United States Agency for International Development (USAID) piloted new (for the region) approaches to TB control in Atyrau Oblast (Province). Through a public-private partnership with Chevron Corporation, USAID helped the oblast introduce the WHO-recommended Directly Observed Treatment, Short Course (DOTS) strategy for TB control. DOTS calls for standardized diagnostic procedures and standardized drug treatment for all TB cases. Instead of being given inpatient treatment at TB-specialized hospitals for six months to a year or even longer, under the DOTS pilot program, patients were hospitalized for a much shorter period (usually two months) and then received the remainder of their treatment as outpatients, stopping by their local clinic to take their medicine daily.

In the pilot oblast, TB control improved, and mortality was held in check, increasing just 14 percent over the three-year period of the program, while TB mortality rates increased in the rest of the country and throughout the region over the same period. The pilot achieved these positive results even though Atyrau Oblast originally had TB rates that were twice the national average.

After the success of the Atyrau pilot and the global TB emergency declared by WHO, USAID made a broader commitment to supporting Central Asia in its fight against TB, first by rolling out DOTS to all of Kazakhstan's 14 oblasts in 1997, with training for TB doctors, nurses, epidemiologists, lab specialists, and general health practitioners across the country; and by carrying out follow-up monitoring and evaluation visits to TB treatment sites to help partners address implementation challenges. In 2000, USAID supported the introduction of DOTS in the Kyrgyz Republic, Turkmenistan, and Uzbekistan. In late 2001, following the conclusion of Tajikistan's civil war, USAID cooperated with country partners to introduce DOTS there, as well.

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

"Everyone with TB should have access to the innovative tools and services they need for rapid diagnosis, treatment and care."

Margaret Chan, director-general of WHO, 2015


Photo: USAID TB Control Program for the Central Asian Region, Turkmenistan

# CASE FINDING AND DIAGNOSTICS

**Innovations in Diagnostics:**

**Rapid Diagnostics:** USAID-supported implementation of Cepheid's rapid diagnostic system, GeneXpert®, across the region, allowing drug resistance to be determined in a matter of hours vs. months.

**Sputum Transportation:** Through a public-private partnership, USAID helped the Kyrgyz Republic pilot a systematized sputum transportation service. Today, in two pilot *oblasts*, a private courier service transports lab specimens from the primary health-care facility to the test site, at lower cost and more effectively than the earlier ad hoc transportation methods.

## CASE FINDING: THE FIRST STEP

Effective and efficient case finding is the first step in identifying individuals with possible TB symptoms and getting them tested.

Through its collaboration with community groups and non-governmental organizations (NGOs), the United States Agency for International Development (USAID) has introduced targeted screening and referrals for at-risk groups, such as migrants, injection drug users, and people living with the human immunodeficiency virus (HIV). USAID has also worked with countries in Central Asia to improve contact tracing, so that close contacts of recently diagnosed TB patients can be notified and tested for TB, and treated as necessary. These targeted approaches were introduced into clinical protocols.

## STRENGTHENING AND SUPPORTING LABORATORIES FOR DIAGNOSING TUBERCULOSIS

Since beginning its activities in Central Asia two decades ago, USAID has cooperated with the Central Asian countries and international organizations to make lab testing more effective, more efficient, and safer.


Photo: Bekzat Toksanbayeva,
USAID Quality Health Care Project, Kazakhstan

Across the region, USAID has supported the training of thousands of lab technicians in a wide range of procedures, including the accurate detection of TB and identification of drug resistance.

## THE DIAGNOSIS OF TUBERCULOSIS

Diagnosing tuberculosis (TB) is complicated and involves more than just lab equipment. Getting a clear result requires a good sputum sample (mucus, not saliva); correct sputum storage (cold chain, for a limited time period); and, if necessary, transportation (in cold chain) to a lab. Once the sputum arrives at the lab, supplies, reagents, and equipment all need to be in place; and the lab technician needs to properly prepare the sample, run the test, and read the results.

Throughout the time USAID has been working in Central Asia, the basic test for active TB disease has been sputum smear microscopy. To conduct this test, a lab worker looks at sputum through a microscope. For the test results to be accurate, the lab worker needs to know whether she's seeing TB bacteria through the microscope or not. Then, the result is recorded and communicated back to the ordering physician.

If the lab report shows no visible presence of Mycobacterium tuberculosis in the sputum sample, the doctor may still consider TB as a possibility, as a smaller number of patients have smear-negative TB, meaning active TB disease without TB bacteria excreted in the sputum. Chest X-rays can provide important diagnostic clues that can help a doctor make a diagnosis.

If a patient is diagnosed with TB, drug sensitivity testing is still needed to determine what kind of medicine the patient needs. Today, thanks to USAID and other partners, health-care workers have received training and mentoring in sputum collection, preservation, and transportation; and labs have the necessary equipment and supplies and are staffed by well-trained technicians.

With the introduction of the GeneXpert® rapid testing system, getting an accurate result is less dependent on the expertise of the lab worker. GeneXpert® tests for both presence of TB disease and for drug sensitivity. Before GeneXpert®, patients had to wait months for drug sensitivity results; now they are available in a matter of hours.

As of the mid-1990s, the lab networks in Central Asia were completely insufficient for diagnosing TB. One of the first steps in implementing a national tuberculosis program (NTP) is to establish a national reference laboratory, which will set the standards for all laboratories in a country and receive samples from all the country's hospitals and regional labs for examination. USAID worked with the U.S. Centers for Disease Control and Prevention (CDC) to establish and strengthen national reference laboratories in Kazakhstan, Turkmenistan, and Tajikistan. The Agency also played an important role in building capacity of the national reference laboratory in Uzbekistan.

"All of the system strengthening carried out under USAID continues today, which shows the importance of the work."

Bekzat Toksanbayeva, director, National Reference Laboratory, National Scientific Center of Tuberculosis and Pulmonology, Republic of Kazakhstan Ministry of Health

**Strengthening labs:** USAID then supported establishment of laboratory networks on the national, oblast, and rayon (district) levels. Along with its partners, USAID provided necessary equipment upgrades for Central Asian labs, including modern microscopes and infection prevention and control systems. USAID, CDC, and other partners trained lab workers to prepare slides, use microscopes, and read results.

**Ensuring lab quality:** Once the laboratory networks were created, staffed, and trained, USAID introduced quality-assurance measures to guarantee that the labs would meet international standards. These measures included external quality assessments, based on internationally recommended sampling methods, and eventually quality management systems (QMSs). A laboratory QMS covers all aspects of lab operations, including infrastructure and organization, infection control and biosafety, supply management, equipment and maintenance, and referral systems and documentation. USAID supported the development of QMS guidelines, as well as the implementation and monitoring of laboratories throughout the networks.

**Testing for drug resistance:** As drug-resistant forms of TB became increasingly prevalent in Central Asia, the determination of drug sensitivity became more important. Various technologies were introduced for testing drug resistance. However, during the early 2000s, culture testing, in which the Mycobacterium tuberculosis found in a patient's sputum is cultured and grown over a period of 30-90 days, was the only way to test for drug sensitivity. In late 2010, WHO recommended a new technology, the GeneXpert®, developed by the U.S. company Cepheid. Prompt and accurate diagnoses of multidrug-resistant tuberculosis (MDR-TB) through GeneXpert® enable patients to start effective treatment sooner.

**Planning for the future:** USAID has also supported countries in their further development of lab-system strengthening plans, to help optimize the lab networks' ability to provide services effectively and efficiently. For instance, the Challenge TB Project has helped Uzbekistan develop a TB-specific five-year national laboratory strategic plan. In the Kyrgyz Republic, optimization of the laboratory network was included in the national road map for TB-system restructuring in 2017-26.

## GENEXPERT®: USAID SUPPORT FOR NEW TECHNOLOGY FOR RAPIDLY DETECTING MULTIDRUG-RESISTANT TUBERCULOSIS

In 2012, the United States Agency for International Development (USAID) funded the introduction and rollout in Central Asia of GeneXpert®, an advanced diagnostic testing platform developed by the U.S. company Cepheid. GeneXpert® not only detects the presence of tuberculosis (TB) bacteria, but also tests for resistance to the most effective first-line TB drug, Rifampicin. The presence of Rifampicin resistance is a strong indicator of multidrug-resistant tuberculosis (MDR-TB). GeneXpert® examines a patient's sputum, and can yield a result in less than two hours. Previously used test methods required weeks or even months for results to come back from a lab. Today, patients can be diagnosed while they wait, and proper treatment can be started earlier, thus dramatically increasing the probability of successful treatment for many people.

In December 2010, WHO endorsed the GeneXpert® technology and recommended that the test be used as the initial diagnostic tool for patients presumed to have MDR-TB or a coinfection of TB and the human immunodeficiency virus (HIV). Sputum microscopy is still recommended in most cases, but GeneXpert® is faster and has higher sensitivity and specificity. The technology is compact and easy to use, and does not require any advanced training or lab infrastructure. However, the costs of the GeneXpert® diagnostic machine and required cartridges for testing diagnostic samples are much higher than the costs associated with sputum microscopy.

USAID procured GeneXpert® equipment and supplies, trained personnel, and then engaged in extensive mentoring, supervision, and monitoring activities. Introducing new technologies such as GeneXpert® required specialized technical assistance with supply-distribution logistics and management, the development of routine maintenance protocols and waste-management plans, and the implementation of data recording and reporting systems. USAID also collaborated with country partners and implementers to increase the utilization of this testing platform through focused training programs for clinicians and program managers. GeneXpert® is now available at the primary-health-care level in many locations across Central Asia; this is in line with the long-term USAID goal of locating diagnostic and treatment facilities closer to where the patients live. With the help of GeneXpert®, far more people with MDR-TB are being diagnosed faster and quickly put on effective treatment regimens. As a result, fewer patients risk losing their health, time, and possibly their lives while waiting for their test results.

## BUILDING LINKAGES BETWEEN HIV AND TB PREVENTION AND CARE

Because of their weakened immune systems, people living with the human immunodeficiency virus (HIV) are at an increased risk of contracting tuberculosis (TB). TB is also notoriously more difficult to diagnose in the presence of HIV infection.

The United States Agency for International Development (USAID) helped establish linkages between the HIV and TB services in the Central Asian countries. Of note, the Agency worked to integrate regular TB screening and testing into the care algorithm for HIV patients, and to ensure that all patients with a TB diagnosis are tested for HIV. USAID also helped ensure that patients in TB hospitals could continue to receive antiretroviral therapy if hospitalized for TB.

Through the Dialogue for HIV and TB Project and the USAID TB Control Program, USAID-supported outreach workers helped co-infected patients adhere to their treatment regimens. Outreach work through non-governmental organizations and community groups also targeted populations at risk for both HIV and TB, and people living with HIV, with TB information and screening, referrals for testing, and treatment support.

Photo: Ekaterina Godunova, USAID TB Control Program, Uzbekistan

Getting a reliable TB diagnosis, however, requires more than just good labs. Specimens have to be collected and tests have to be ordered. Previously, patients had to travel to a TB center to get tested. For those living in remote areas, this could mean a bus trip lasting several hours; and the cost and time away from their jobs and family obligations could be prohibitive. In line with the goal shared by USAID and WHO of making care accessible to people near where they live, USAID worked with country partners to establish sputum collection sites at primary-health-care (PHC) facilities throughout the Central Asian countries. Sputum would be collected by the clinic and sent to the lab for testing. USAID also trained health-care workers in the proper collection and storage of sputum and in the necessary infection prevention and control measures for sputum collection and testing. Additionally, USAID supported development of diagnostic algorithms incorporating GeneXpert® testing, and trained doctors and nurses in the use of these algorithms.

In the Kyrgyz Republic, USAID developed a sputum-transportation system to more effectively link PHC with lab services. Previously, the PHC facilities themselves had to arrange the transport of collected sputum to a lab — which usually meant a nurse taking a bus into the city; in fact, it often meant that sputum samples were not always sent in for testing. Through an agreement with a private transportation company, Chui and Talas oblasts now have delivery cars running regular routes from rayon family medicine centers to central labs several times a week. Total transportation costs under the new system in the Chui Oblast pilot proved to be less than half of the cost of transportation under the old system. A side benefit is that the delivery cars also shuttle documents, drugs, and supplies back to the PHC facilities. Over the one-year period following the introduction of the new transportation system, the number of patients whose sputum was sent for GeneXpert® testing increased from 0 to 25 percent in Chui's Moskovskii district and from 18 to 77 percent in Chui's Panfilovskii district.

Photo: Nasrullo Ramazonov, USAID TB Control Program, Tajikistan

"In tuberculosis services, we are trying to integrate outpatient care for TB patients with primary care [to be] able to more efficiently monitor and manage the disease."

Yelzhan Birtanov, Minister of Health, Republic of Kazakhstan

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

## TREATMENT: HELPING TUBERCULOSIS PATIENTS GET HEALTHY

"It is a miracle that I am still alive today and that my life now has purpose and hope. I am grateful to USAID for organizing such a great team of people to support me and to believe in me and in my ability to turn my life around."

Svetlana, former TB patient, cured with support from a multidisciplinary team in Uzbekistan

Following the success of the original Directly Observed Treatment, Short Course (DOTS) pilot, in Atyrau Oblast, the national tuberculosis programs (NTPs) in all five Central Asian countries supported training and system changes to facilitate the implementation of the new treatment approaches. By 2007, all of these countries had diagnostic/treatment guidelines and national-level prikazes (presidential decrees) requiring the nationwide use of DOTS.

The United States Agency for International Development (USAID) worked with partners to implement a comprehensive set of improvements in tuberculosis (TB) treatment. These improvements are listed in the table on the following page.

## Improving Tuberculosis Treatment: Key Changes

| | |
|---|---|
| **Directly Observed Treatment, Short Course (DOTS)** | Standardized treatment, with a health-care worker (or volunteer) observing the patient taking each dose of medication |
| **Drugs** | Administration of drugs through World Health Organization (WHO)-recommended DOTS (observed treatment)<br>Drug availability<br>Drug quality<br>Logistics management, purchasing, and distribution<br>Introduction of new drugs and shorter regimes to improve the treatment of multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB) |
| **Outpatient care** | Shorter hospital stays and more outpatient care, at first to a limited extent under DOTS, then a broader shift away from hospitalization |
| **Patient-centered approach** | Support for patients, including community support, case management, and community-based treatment supporters (CBTS)<br>Providers with improved skills in patient counseling |
| **System restructuring** | Reducing the numbers of beds and closing some TB hospitals, as TB care moves increasingly into primary-health-care facilities |
| **Health policy** | Updated clinical guidelines that support recommended treatment approaches |
| **Health financing** | Changes in how providers are paid to incentivize TB care in line with recommended treatment approaches |

## GETTING QUALITY MEDICINES TO TUBERCULOSIS PATIENTS

An uninterrupted and efficient drug supply is the lynchpin for the successful treatment of TB. In the 1990s, necessary TB drugs were often unavailable in Central Asia, resulting in incomplete treatment. USAID and its international partners worked closely with the governments in the region to ensure that sufficient drugs were made available to all diagnosed TB patients, so the patients could complete their treatments without interruption. Their efforts included the introduction of drug-management systems; assistance with the preparation of grant applications for the provision of drugs when national budgets could not cover the costs; and the development of plans and political will to gradually integrate drug purchases into national health budgets.

## DIRECTLY OBSERVED TREATMENT, SHORT COURSE (DOTS)

With the global reemergence of tuberculosis (TB) in the 1980s, the International Union Against Tuberculosis and Lung Disease developed the Directly Observed Treatment, Short Course (DOTS) strategy. Under DOTS, a health-care worker (or volunteer) observes as a patient takes the prescribed antibiotics each day. The observation helps a patient stick to the treatment regimen. This is crucial, as missed doses over the six-month (or longer) treatment period can lead to the development of harder-to-treat drug resistant forms of TB. The Union first piloted DOTS in Tanzania, Malawi, Mozambique, and Nicaragua. In the early 1990s, the World Health Organization (WHO) extended this approach to China, where it proved very successful.

Since 1993, DOTS has been part of the WHO-recommended strategy for diagnosing and treating TB worldwide. The DOTS strategy has been tested and implemented in diverse settings throughout the world, resulting in cure rates of 75 percent for new infectious cases in settings where DOTS had recently been introduced, and cure rates of over 85 percent in established programs.

**Innovation:** The comprehensive support of the United States Agency for International Development (USAID) for drug management helped the Central Asian countries put drug shortages behind them. Today, drugs are available for all diagnosed patients. USAID also introduced new TB drugs to Central Asia — the first developed in over 40 years — thus offering better chances of recovery from multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB).

In 2016, Uzbekistan utilized its logistics management information system (LMIS) and QuanTB data to determine when tuberculosis (TB) drugs should be transferred from locations with excessive stocks to those with shortfalls, potentially preventing the waste of drugs valued at over $120,000. As these drug-management systems and tools continue to be implemented, TB patients will benefit from uninterrupted drug supplies, and more savings will be generated.

**Managing drug inventory:** USAID played a lead role in establishing a logistics management information system (LMIS) in all five countries for drug and supply-chain management, in order to improve supply planning for TB medicines and minimize drug shortages and overstocks.

In Tajikistan and Uzbekistan, USAID assisted in the development of an electronic tool that receives and automatically aggregates quarterly LMIS reports on consumption and stock levels of medicines. The tool has dramatically reduced the time needed to aggregate quarterly information on drug consumption and stocks. The tool has been further modified to allow drug stocks to be distributed prior to batch expiration dates, and includes an early warning system that provides information on actual versus planned consumption, potential expirations, and stockouts of medicines.[5]

USAID also helped register and certify new TB drugs for use in each country. For governments that were unable to fully finance their TB drug supplies, USAID assisted with applications to the Global Drug Facility (GDF), a worldwide mechanism that supplies quality-assured drugs at the lowest costs possible. And the Agency has helped NTPs develop the capacity to prepare GDF applications themselves.

USAID also introduced fixed-dose combination drugs to the Central Asian countries, and worked with the NTPs to include them in new treatment guidelines and train doctors in their use. These fixed-dose combinations have made dosage errors less likely, and have encouraged adherence to the recommended standardized treatment regimen. The pediatric fixed-dose drugs were the first TB drugs specifically for children to be available in the region.

Looking toward the future, USAID's Pharmaceutical Quality Management Project has helped ensure that the drugs slated for manufacture in Kazakhstan and Uzbekistan achieve prequalification status under the World Health Organization (WHO), and that the manufacturers eventually meet WHO's good manufacturing practice standards.

## Clinical Guidelines

When USAID began work on TB in Central Asia, treatment approaches were inconsistent and often not in line with international practices. To shift to the WHO-recommended treatment regimes, USAID supported the development of country-level clinical guidelines on primary health care (PHC) and hospital treatment, drug-resistant tuberculosis (DR-TB) and drug-susceptible tuberculosis (DS-TB), pulmonary and extrapulmonary TB, and both adult and pediatric TB. Once each guideline was approved for national implementation, USAID ensured that all relevant health-care facilities had a printed copy. USAID also worked with the NTP to prepare a cohort of trainers in guideline implementation. Those trainers then conducted a series of cascade trainings to prepare health-care workers for the use of the new approaches. Monitoring and mentoring were built into the process, with trainers/mentors visiting health-care workers at their facilities after the training, in order to gauge implementation of their new skills, answer questions, and provide recommendations for improvement.


Photo: Nigara Abate, USAID TB Control Program, Uzbekistan

## CHANGING THE MINDSETS OF TUBERCULOSIS EXPERTS THROUGH WORK ON CLINICAL PRACTICE GUIDELINES

In the Kyrgyz Republic, the United States Agency for International Development (USAID) made a strategic decision to provide close technical support to local tuberculosis (TB) experts for the development of evidence-based clinical guidelines, rather than having specialists from USAID projects lead the process. That approach required: the training of TB clinical leaders in the country in evidence-based medicine and guideline-development methodology; the provision of an extensive set of documents from which they could synthesize clinical recommendations; and regular meetings to discuss and debate suggested standards of care.

While this process took much longer than expected, the shift in mindset among the TB clinical leaders could never have been achieved by other methods, particularly where evidence-based recommendations required them to abandon approaches they had practiced and taught for decades. Now the Kyrgyz leaders in TB policy and treatment are outspoken opponents of mandatory lengthy hospitalization, extensive (but ineffective) disinfection of surfaces in households with TB patients, and reliance on annual X-ray screening to detect TB in the general population.

Source: USAID, *Quality Health Care Final Report* (Bethesda, MD: Abt Associates Inc, 2015).

## MOVING TOWARD OUTPATIENT MODELS OF TUBERCULOSIS CARE

After the advent of effective antibiotic treatment in the 1950s, most of the world successfully transitioned to fully outpatient treatment for most TB cases. However, across the Soviet Union, TB hospitals and long-term rest homes ("sanatoriums") remained the norm, with patients often hospitalized for more than a year.

"Receiving care at the Kokshetau outpatient clinic was vital for me because I was not separated from my child."

A young mother in Kazakhstan being treated for MDR-TB

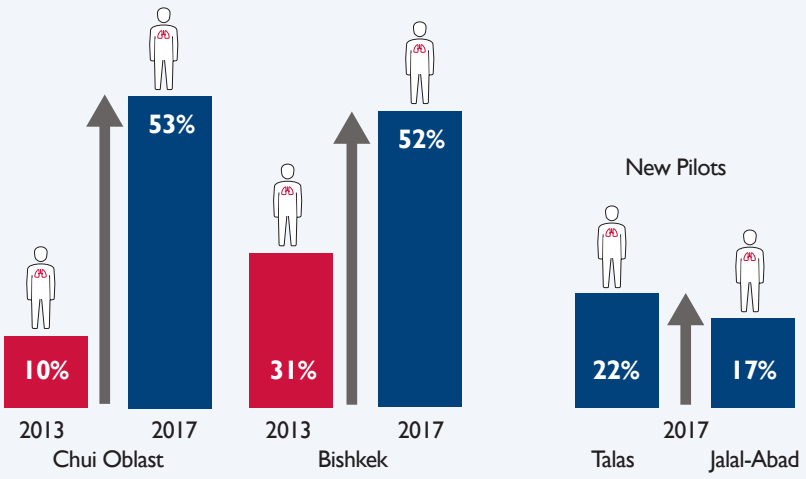
Since the 1990s, USAID's work to strengthen health-care systems in general has included efforts to bolster the preventive services at the PHC level, to make quality health care accessible near people's homes. As PHC was strengthened and DOTS implemented, the posthospitalization, outpatient component of TB treatment (the "continuation phase") was gradually moved from stand-alone TB centers to the general PHC system. Still, nearly all patients were hospitalized for part of their treatments, and the region retained its bloated nationwide networks of dedicated TB hospitals.

Beginning in 2011 and 2012, however, the governments of Kazakhstan, the Kyrgyz Republic, Tajikistan, and Turkmenistan asked USAID to help them transfer TB treatment more fully to outpatient settings. This was in line with WHO recommendations, and would improve patient quality of life and expected treatment outcomes, as well as reducing costs.

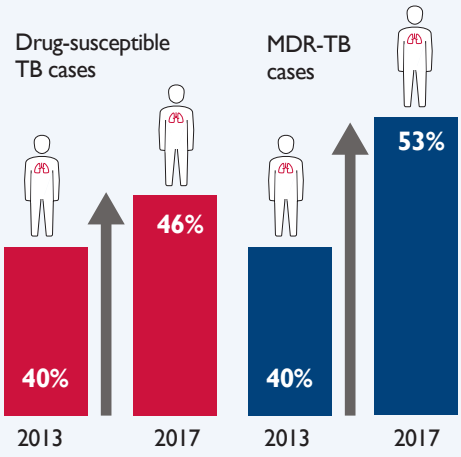
In Central Asia, infections contracted in hospitals (called "nosocomial transmission") are considered a primary factor fueling the multidrug-resistant tuberculosis (MDR-TB) epidemic. So, moving patients out of hospitals was a laudable objective. It was also expected that individuals with possible TB symptoms would be more willing to undergo testing if they did not face the prospect of spending a year or more away from home. A reduction in the time spent away from family and community support during treatment could contribute to higher rates of treatment completion.

Outpatient treatment of TB in the Kyrgyz Republic began in Chui Oblast and Bishkek city in 2014, and has continued to expand.

**Kyrgyz Republic: Proportion of TB Cases Treated as Outpatients**
(hospital stays of under 30 days for DS-TB and under 90 days for DR-TB)



**Tajikistan: Proportion of TB Cases Treated as Outpatients**
(USAID TB Control Program priority geographic areas; hospitalized less than 30 days)




Similar efforts are underway in Turkmenistan, Tajikistan, and Uzbekistan. Turkmenistan began implementing the outpatient model in 2013 with the assistance of the USAID-WHO TB Partnership Project and the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund). Tajikistan also began its shift to outpatient treatment in 2013, while Uzbekistan started transitioning in 2015. These countries are steadily increasing the number of TB patients being treated outside of hospitals, and are ensuring that they receive effective, quality care.

With strong support from USAID and other partners, and with the expansion of outpatient treatment, Tajikistan quickly reduced the number of TB beds in its hospitals by 40 percent. The Kyrgyz Republic, meanwhile, undertook major steps to ensure that health finance reform supported the shift to outpatient treatment. It also improved the PHC providers' skills, incentivized PHC staff to go the extra mile in TB care, and strengthened the support for patients to help them get through treatment.

## System Restructuring

Each of the Central Asian countries has retained a sprawling, inefficient network of TB-specialized hospitals. A holdover from the Soviet period, these facilities had crumbling infrastructure, due to many years of use, as well as poor infection prevention and control. Still, the hospitals appeared to be needed. After all, they were full of patients.

However, in 2015 a watershed analysis of the Kyrgyz TB hospital system revealed that fewer than half of all hospitalizations were justified based on the updated clinical protocols at the time. The remainder of the hospitalized individuals either never had TB or were clinically diagnosed based on chest X-rays and symptoms alone, without bacteriological confirmation in a lab; this meant that most of them could have been treated as outpatients.[6]

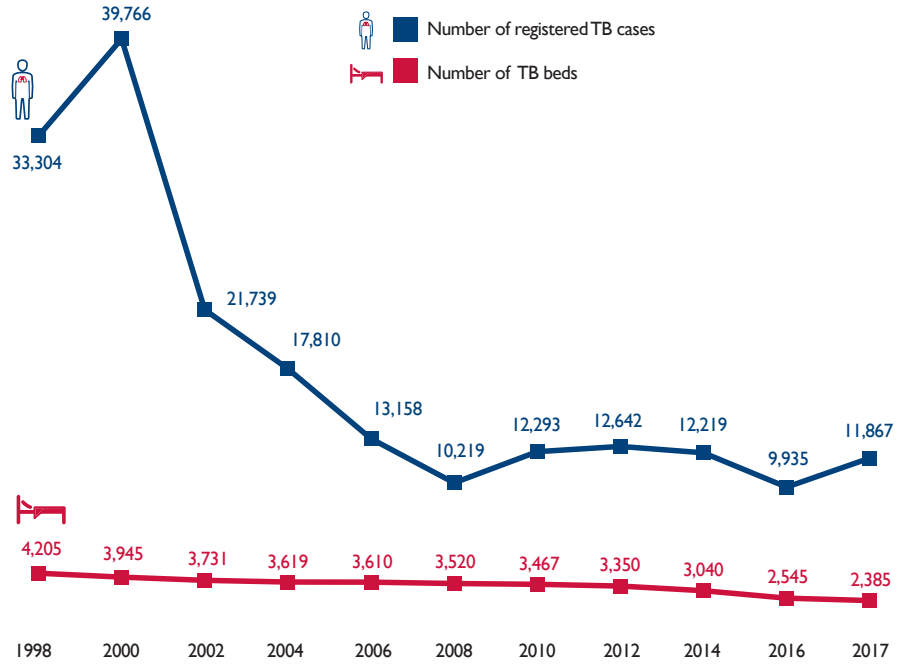
So, why did the TB hospitals stay open? TB hospital funding appeared to be a major reason: Hospital budgets were based on bed occupancy, so hospitals had an incentive to admit as many patients as possible.

In 2016, the Kyrgyz Republic changed the way TB hospitals were paid. Under the new system, payment was based on ten diagnosis-related groups. A hospital would, for example, receive a minimal payment for the treatment of a patient without a TB diagnosis, and a bit more for a smear-negative case. Hospitals would garner the highest payments for drug-resistant cases.

Based on an analysis of hospital patient profiles and facility budgets, the Mandatory Health Insurance Fund — the government agency that pays for health care in the country — calculated expected revenue for each TB hospital under the new payment system. The analysis showed that about half of them could expect to receive less money under the new system.

Using this information, together with data on the conditions and locations of TB facilities, and with support from USAID experts, the Kyrgyz NTP designed a road map for the optimization of the TB care system. This road map set out the steps of the reform of the TB health-care system in 2017-26, during which large TB hospitals would be repurposed or closed, while PHC centers — which would be smaller, but together have greater geographical coverage — would take on the responsibility for delivering on TB treatment and control targets.

## Registered TB Cases versus Numbers of TB Beds in the Kyrgyz Republic, 1998-2017




Source: USAID Defeat TB Project, with data from the Government of the Kyrgyz Republic, Ministry of Health, Republican Medical Information Center.

Even though the number of registered TB cases decreased by over 60 percent between 1998 and 2010, the number of TB beds decreased by only 17 percent over the same time period.

The downsizing of overcapacity in the Kyrgyz Republic's tuberculosis (TB) hospital system led to a savings of $1 million in 2017, and similar levels of savings are expected in future years.

These savings are being used to support improved TB services in the country.

Road map implementation has already begun. As per the road map, nine of the current 25 TB hospitals in the Kyrgyz Republic will be closed, with their beds transferred to the infectious disease wards of general hospitals; three will become specialized facilities for palliative care and for the treatment of MDR-TB and extensively drug-resistant tuberculosis (XDR-TB) cases. The remaining TB hospitals will be restructured to improve the quality of care, achieve cost efficiency, and implement adequate infection-control measures.

This ongoing process of optimizing the TB hospital system and expanding outpatient care is saving money. Downsizing in 2017 saved $1 million, and similar levels of savings are expected in future years. These funds are being used to strengthen TB prevention and care throughout the country.

Photo: Nigara Abate, USAID TB Control Program, Uzbekistan

## PATIENT-CENTERED TUBERCULOSIS CARE

**Innovation:** Through community-based treatment supporters — overseen by health-care workers — USAID is helping to make treatment completion easier for patients.

Even with the institutionalization of the DOTS strategy, the training of health-care workers, the availability of drugs, and the option of fully outpatient care for many, TB treatment is still no easy matter for patients. Daily doses of multiple antibiotics for six months to a year or more are required to beat it. An MDR-TB patient may have to take 15,000 pills and receive over 200 injections over the course of the treatment. Side effects such as nausea, vomiting, or even hearing loss may make patients want to give up the prescribed medications. Moreover, TB symptoms often go away after the initial stage of treatment, so patients may need to be motivated to keep taking their medicines until they are fully cured. Stigma and discrimination on the part of families, communities, employers, and even health-care workers may also lead patients to drop out of treatment. Many, if not all, patients require a tight support system to successfully complete their treatment.

To address these problems, USAID has sought to strengthen the counseling skills of PHC doctors and nurses working with TB patients. Through a collaboration with community groups, non-governmental organizations (NGOs), and local governments, USAID has engaged communities in an effort to check in on patients regularly and to provide moral and sometimes material support to encourage treatment completion.

### Case Management and Community-Based Treatment Supporters

As part of the shift to patient-centered care in Central Asia, which began in 2017, USAID introduced the internationally accepted practices of case management and community-based treatment support to make it easier for patients to complete their treatments and get cured.

"We have a great interest in the outcome. When the treatment is difficult and lasts for months, it is important to support the person emotionally, not to leave him or her alone with the problem. Together, we try to cope with the disease."

Bakisa Mombekova, feldsher of Ak-Sai village, Kyrgyz Republic, and the country's first recipient of TB incentive payments for health-care workers

In the Kyrgyz Republic, all patients being treated with the newly introduced drugs and shorter drug regimens have benefited from case management — organized by a case manager who is in regular contact with the patient and serves as a link between the patient and all other services s/he needs to successfully complete treatment. Case managers in the Kyrgyz Republic have provided psychological, medical, and social support. The number of patients lost to follow-up in the first six months of treatment dropped from 22 percent in 2015 (standard regimen, no case management) to 7 percent (new drugs/regimens, case management) in the first six months of 2017. USAID has worked closely with the NTP to develop a set of case-management tools and a sustainable model for case management, which will be rolled out more broadly to serve all patients in the country.

Case management approaches have varied across countries. The diagram below shows the approach used by the multidisciplinary teams in Uzbekistan.

**The Case Management Approach to Tuberculosis Treatment in Uzbekistan**


Source: USAID TB Control Program.

Throughout the region, USAID has worked with community groups to encourage patients to take their medicines on a regular basis. In 2017, USAID formally piloted community-based treatment supporters (CBTS) in the Kyrgyz Republic, with each TB patient in the pilot area, Kemin district, choosing a volunteer treatment supporter who would watch daily as the patient took his or her TB medicine. The treatment supporter had to be someone with an interest in the patient's recovery. The supporter underwent a brief TB-related training, received clear instructions on directly observed TB treatment, and signed a contract with the health-care facility. Health-care workers regularly monitored both the patient and supporter. In the case of the Kemin pilot, 47 patients worked with volunteer treatment supporters. All the patients in the pilot stayed with their treatments, and many reported that it had been easier to take their medicines and that they had felt more motivated to do so due to the CBTS.

"Over the course of time, much has been accomplished, generally huge and very impressive work. However, … XDR-TB is growing, alongside the reduction of normal TB cases and mortality."

Shakhimurat Ismailov, former director, National Scientific Center of Tuberculosis and Pulmonology, Republic of Kazakhstan Ministry of Health


Photo: USAID TB Control Program for the Central Asian Region, Turkmenistan

### Incentivizing Health-Care Workers to Go the Extra Mile

In the Kyrgyz Republic, USAID supported the introduction of incentive payments for health-care workers for each patient they successfully treat. The government health-care funds saved by hospitalizing fewer patients now cover the cost of these payments. Since 2017, the government's Mandatory Health Insurance Fund has paid $176 for each DS-TB case and $353 for each DR-TB case that was cured. To date, payments have been made for the successful treatment of over 1,600 patients, at a total cost of approximately $150,000 — a small fraction of the $1 million per year saved by reducing hospitalizations and downsizing the TB hospital system.

## MDR-TB AND XDR-TB: THE NEW BATTLEFRONT FOR TUBERCULOSIS CONTROL

For the past decade, USAID has been at the forefront of the fight against MDR-TB, both in Central Asia and globally, in collaboration with the Global Fund, WHO, and other key international partners. While the countries of Central Asia have made great strides toward bringing the TB epidemic under control, the emergence of drug-resistant strains of TB, which do not respond to standard first-line treatment, is a major challenge for the region. Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan all rank among the 30 countries in the world with the highest MDR-TB burden. Treatment for MDR-TB and its even more resistant cousin, XDR-TB, requires a cocktail of antibiotics referred to as "second-line" or "third-line" drugs. These drugs are less effective, more toxic, and much more expensive.

Drug resistance can develop when a patient does not complete a full course of treatment or receives the incorrect drugs or dosages or drugs of poor quality.[7] Poor infection control in health-care settings can also contribute to the development of drug-resistant forms of TB.

### Drug-Resistant Forms of Tuberculosis

MDR-TB: Multidrug-resistant tuberculosis (TB) is resistant to at least two of the main drugs used to treat TB: isoniazid and rifampin.

XDR-TB: Extensively drug-resistant TB is a rare type of MDR-TB that is resistant to isoniazid and rifampin, and to the fluoroquinolones and at least one of three injectable second-line drugs (i.e., amikacin, kanamycin, or capreomycin).

Source: "CDC Fact Sheet," Centers for Disease Control and Prevention, https://www.cdc.gov/tb/publications/factsheets/drtb/xdrtb.htm.

Weaknesses in the national health-care systems made these scenarios relatively common in Central Asia in the 1990s.

Improved case finding and diagnosis of MDR-TB, as well as improved access to drug treatment, have helped boost the numbers of MDR-TB patients being registered and given effective treatment.

### Introduction of New Drugs for Treating MDR-TB and XDR-TB

To cure more patients and save more lives, USAID has supported the introduction to the region of the latest WHO-accepted MDR-TB treatment regimens, some of which utilize recently developed TB drugs (delamanid and bedaquiline) in newly adapted long (20-month) and shorter (9-month) MDR-TB regimens for patients who fit specific criteria.

The new drugs have fewer side effects, and the shorter treatment period helps ensure that more patients stay with their treatments to the end. Importantly, USAID is also supporting the introduction of regimens specifically tailored to individual XDR-TB patients. This support includes a collaboration with Janssen Pharmaceuticals and the USAID partner, the Global Drug Facility (GDF), in a Bedaquiline Donation Program. Valued at $30 million, the Program provides 30,000 courses of bedaquiline treatment to low-income countries that otherwise could not afford the drug. Similarly, the GDF has negotiated a concessional price (13 times lower than the market price) for courses of delamanid with the manufacturer, Otsuka Pharmaceutical.[8]

To date, USAID has prepared all five Central Asian countries for the introduction of new drugs. In the Kyrgyz Republic, more than 700 patients have so far benefited, and 76 have already been cured. In Kazakhstan, 155 patients have been started on the new drugs, including 61 on a shorter treatment regimen. In Tajikistan, 97 patients have started on the new drugs, including 72 on a shorter treatment regimen. In Uzbekistan, 114 patients are on a shorter treatment regimen with these new drugs.

### USAID'S WORK IN TURKMENISTAN

In its first decades of independence, Turkmenistan was characterized by centralized control and isolation. Despite an environment that was not always open to international approaches, the United States Agency for International Development (USAID) has successfully supported Turkmenistan in its efforts to strengthen tuberculosis (TB) diagnostics and treatment.

USAID first helped Turkmenistan introduce the Directly Observed Treatment, Short Course (DOTS) strategy in the early 2000s. In 2008, with USAID support, Turkmenistan became the first country in the region to develop a new textbook incorporating DOTS approaches into the medical school curriculum. Collaborative work between USAID and the World Health Organization (WHO) led to the adoption of a regulation prohibiting the sale of first-line TB drugs on the open market—thereby eliminating a major risk factor for the development of drug resistance. In 2013, with support from the USAID-WHO TB Partnership Project and from the Global Fund to Fight AIDS, Tuberculosis and Malaria, Turkmenistan began reducing or eliminating hospitalization for many TB patients, with a move toward WHO-recommended safer, effective, and efficient outpatient care.

Working with youth centers supported by the United Nations Population Fund (UNFPA), Chevron, and USAID, the Agency has supported the implementation of educational sessions for young people on TB and on coinfections of TB and the human immunodeficiency virus (HIV). To develop local capacity, USAID has trained key partners in the development of TB informational materials for the public and training materials for community outreach workers.

Since 2015, USAID has focused on preparing Turkmenistan for the introduction of the new drug regimens (including shorter regimens) for multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB).

Photo: Firuz Barotov USAID Challenge TB Project, Tajikistan

"The reduction in TB mortality is a great achievement in Kazakhstan. The people, the doctors and the international organizations have contributed to this, including USAID and WHO."

Shakhimurat Ismailov, former director, National Center of TB and Pulmonology, Kazakhstan

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

## STRENGTHENING HUMAN RESOURCES

Across all of its work to improve the effectiveness and efficiency of TB prevention and care, USAID has built human capacity through training. Over the past 20 years, USAID has created a considerable knowledge and human-capacity resource base on tuberculosis (TB) across the region. The Agency has developed curricula and supported thousands of trainings to improve adherence to the primary precepts of the latest TB strategies. Individuals trained with USAID support include: TB specialists, primary-health-care (PHC) staff, nurses, laboratory specialists, drug management workers, oblast administrators, prison guards, journalists, monitoring-and-evaluation specialists, community health committees, counselors, religious leaders, and a vast range of other people with links to TB control.

USAID has worked with local medical schools to integrate USAID-developed TB training into diploma and continuing medical education programs for health professionals. Under USAID's Central Asian Program on AIDS Control and Intervention Targeting Youth and High-Risk Groups (CAPACITY) Project and USAID's TB Control Program, faculty were trained and a curriculum on TB and the human immunodeficiency virus (HIV) was successfully introduced into medical schools in four countries: Kazakhstan, the Kyrgyz Republic, Tajikistan, and Uzbekistan.[9]


## LEADING THE INTRODUCTION OF NEW TUBERCULOSIS-RELATED TEXTBOOKS

Even with all the changes in TB care in the region, in the early 2000s, most Central Asian countries were still using outdated Soviet textbooks to train their future doctors. To address this problem, USAID collaborated with national partners to update the medical school curricula.

This initiative began in Turkmenistan in 2008 through a USAID grant in coordination with the World Health Organization (WHO) country office. In 2009, the country's new TB textbook was published and adopted by the State Medical University of Turkmenistan for its curriculum. USAID supported the printing of 500 copies of the textbook, which is still in use today.

Subsequently, in cooperation with Kazakh National Medical University, the USAID Quality Health Care Project developed and, in June 2014, introduced a new TB textbook providing 1,000 copies to the university library. In September 2014, the Ministry of Health approved the textbook for use in all the country's medical schools. In 2018, in the Kyrgyz Republic, USAID officially presented 2,200 copies of a new national TB textbook for use in the country's six medical schools.

In each country, the new textbooks included the latest programmatic and clinical information and innovations regarding TB prevention and care. These textbooks were developed through close consultation with the national tuberculosis programs (NTPs), and were tailored to provide country-specific information related to TB program structure and epidemiology. Prior to the introduction of the new textbooks in these countries, topics such as infection control and epidemiology were largely unaddressed in medical schools. This lack of information had precipitated a certain level of apprehension among students with regard to treating TB patients.

As a result of this USAID-supported initiative, a new cadre of medical students in these countries are now better prepared to face the challenges of defeating TB.[10]

"The new textbooks will improve awareness, interest, and commitment towards TB care. And because they include accurate epidemiological information, they will reduce the fear students have of working with TB."

Gulnur Turdumambetova, chair, Department of Phthisiology, Kyrgyz State Medical Academy

Photo: Nasrullo Ramazonov, USAID TB Control Program, Tajikistan

"After the hospital had been destroyed during the civil war, thanks to [USAID], we were able to procure food, drugs, and high-quality effective training during this period [starting in 2002], and to rebuild the program. … And in a short period of time, this destroyed hospital has become a National TB Center of Excellence with the National Reference Laboratory."

Dr. Saidakhtam Rustamov, director, Macheton National TB Hospital, Tajikistan

## ENSURING THE BASIC INFRASTRUCTURE FOR CARE: REBUILDING A NATIONAL TUBERCULOSIS HOSPITAL IN TAJIKISTAN

After a five-year civil war in Tajikistan (1992-1997), the Macheton National TB Hospital, located near the capital, Dushanbe, was left largely in shambles, with soldiers occupying its buildings during and after the war alongside tuberculosis (TB) patients. TB patients who required hospitalization could not get the quality of care they needed.

Shortly after the war was over, the hospital director, Dr. Saidakhtam Rustamov, approached the national government and international donors for help in rebuilding the hospital infrastructure and retraining the staff. In 2002, USAID started helping to train personnel in the latest international best practices in TB care and prevention. USAID support complemented the activities of the German Development Bank (KfW), which involved the complete renovation and rebuilding of the hospital. USAID and KfW repaired buildings and hired and trained TB-care and laboratory staff. The hospital laboratory was rebuilt and equipped with microscopes and supplies.

By 2014, the Macheton National TB Hospital had become the premier health-care facility in Tajikistan, earning the designation as a National TB Center of Excellence. USAID has since supplied the hospital with advanced communications and training technologies to provide a sustainable platform for quality continuing education and knowledge sharing for health providers across the country and throughout Central Asia.

The Macheton National TB Hospital now also houses the National Reference Laboratory for Tuberculosis, which has state-of-the-art equipment and procedures for diagnosing TB. With USAID support, the hospital received a video-teleconferencing system that it uses to host regular video conferences with TB doctors throughout the country to review difficult TB cases and help make decisions regarding appropriate treatment regimens, the management of TB drug side effects, and the lengths of patient hospital stays.


Photo: Nasrullo Ramazonov, USAID TB Control Program, Tajikistan

"I kept asking myself, why should we keep silent about TB? This is a disease that impacts the lives of so many, even though it is entirely curable with proper care, and treatment is free in Tajikistan."

Karimjon Roziqov, Imam, Rasht district, Tajikistan

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

# INFECTION PREVENTION AND CONTROL

"People who work or receive care in TB facilities are at a higher risk for becoming infected with TB. Therefore, it is necessary not only to implement proper prevention measures, but also to monitor them. USAID supports our on-the-job supervision, which is very effective in correcting errors."

Dr. Gulnara Radjabova, Epidemiology Department, National Center of State Sanitary Epidemiological Surveillance, Uzbekistan

Alongside its other activities, the United States Agency for International Development (USAID) has focused on infection control, working with national partners to create up-to-date infection-control plans, policies, and clinical practice guidelines to prevent the transmission of tuberculosis (TB) to visitors at health facilities, hospital patients, laboratory technicians, medical personnel, and prison inmates and staff. USAID has also provided training for the Sanitary Epidemiological Service (SES), which oversees public health and sanitation issues at the national level.

Hospitals and primary-health-care (PHC) centers originally had little awareness of proven infection-control measures, and TB patients were routinely hospitalized for months without proper infection-control measures in place. This meant that multidrug-resistant tuberculosis (MDR-TB) patients commonly shared crowded rooms with drug-susceptible tuberculosis (DS-TB) patients, causing the latter to be infected with MDR-TB. USAID helped roll out infection-control policies at both the hospital and PHC levels, based on the Harvard-designed FAST ("Find Actively, Separate safely, Treat effectively") approach. In addition to these infection-control policies, USAID supported training for all levels of the health systems in the Central Asian countries to ensure that infection-control measures were being followed, and to reduce the spread of drug-resistant forms of TB.

## MAKING TUBERCULOSIS HOSPITALS SAFER IN THE KYRGYZ REPUBLIC

Despite the growth of investments in tuberculosis (TB) prevention and treatment over the past two decades, hospital-acquired infections have continued to be a problem for both patients and health-care workers in the Kyrgyz Republic. With assistance from the United States Agency for International Development (USAID), the Kyrgyz authorities decided to make long-overdue revisions in the national infection-control policies, and to implement new policies based on the recommendations of the World Health Organization (WHO). In 2013, USAID helped purchase infection-control equipment to support the rollout of the newly developed guidelines; it also trained personnel at seven pilot test hospitals and at the Sanitary Epidemiological Service (SES), an agency under the Ministry of Health.

"As a manager and a doctor, I [now] constantly think about ways to protect patients and staff from nosocomial infection."

Dr. Zamira Karasartova, director, Kara-Balta Hospital

All seven pilot hospitals demonstrated significant improvements in TB infection control after two years, benefitting from the timely diagnosis of TB, separation of drug-resistant from drug-susceptible TB patients, and better individual protection practices on the part of patients and health-care workers. At a TB hospital in the city of Kara-Balta, the staff saw the advantages of separating smear-negative (less infectious) from smear-positive (more infectious) patients. Where once there were almost no infection-control protocols, now practices such as TB screenings for health-care workers have become routine; and sputum-collection rooms have been set up on each floor, with enough mechanical ventilators and ultraviolet lamps to ensure that the required infection-control standards are followed. Food and medicines are now delivered separately to each ward to reduce patient interaction, and thus the risk of infection. Proper ventilation and air flow are also carefully maintained.

After participating in the initial infection-control upgrades and seeing their impact, the Kara-Balta Hospital advocated for further support from the Ministry of Health. Thanks to the hospital's advocacy efforts, the ministry allocated $143,000 to improvements in the hospital's water supply, repairs in the sewage system, the renovation of halls and wards, and the installation of additional toilets and showers to allow the necessary separation of patients.

USAID provided technical support for the implementation of these infection-control measures, which are based on the latest recommended international guidelines. The Ministry of Health has adopted the newly developed national infection-control regulations, making the effective practices now mandatory for all TB facilities in the country.

Similar initiatives implemented by USAID have ensured the updating of hospital infection-control guidelines in Tajikistan and Uzbekistan. USAID has also supported measures throughout Central Asia to prevent the spread of TB at the primary-health-care level.

Photo: Marhabo Rakhimova, USAID TB Control Program, Uzbekistan

# COMMUNITY EDUCATION AND SUPPORT

**Innovation:** One-sixth of the population of the Kyrgyz Republic was reached directly with information on tuberculosis (TB) through a single sermon delivered by imams at over 1,700 mosques around the country on World TB Day in 2017.

This intervention was part of a broader strategy by the United States Agency for International Development (USAID) of partnering with religious leaders in the Kyrgyz Republic and Tajikistan to decrease the stigma surrounding TB.

When the United States Agency for International Development (USAID) began its work in Central Asia, myths and misunderstandings about tuberculosis (TB) abounded. People did not know the symptoms of the disease. Individuals with a cough might not have thought to get tested for the disease, or they might have been afraid to get tested because of the stigma surrounding TB. Even health-care workers were reported to stigmatize TB: There was anecdotal evidence indicating that patients with TB were not always treated with respect when they sought treatment. And TB patients were often ostracized by family members and the community.

These problems obviously lessened the likelihood that people with possible TB symptoms would seek medical care. USAID sought to address them by engaging in what the World Health Organization (WHO) refers to as "advocacy, communication, and social mobilization" (ACSM), a key part of WHO's "End TB Strategy." USAID liaised with communities in order to improve their understanding of TB, reduce the stigma of the disease, and engage communities in supporting TB patients. Through outreach activities, USAID aimed to provide accurate information on how to recognize the symptoms of TB and how to seek help, and to reassure the public that TB is curable with treatment. USAID's ACSM support has contributed to the establishment of an engaged, informed, and capable civil society in Central Asia that provides a strong foundation for the sustainability of TB-control interventions.

Through its ACSM activities, USAID undertook a multipronged approach, as shown on the following page.

## ACSM: Advocacy, Communication, and Social Mobilization

| | Objective | Activity |
|---|---|---|
|  | Build capacity and ownership of the "advocacy, communication, and social mobilization" (ACSM) approach in national tuberculosis programs (NTPs) | Collaborates with partners on the development and implementation of a national ACSM strategy in all five Central Asian countries |
|  | Improve public knowledge of tuberculosis (TB) symptoms, and provide information about when to get tested; decrease the stigma of TB | Works with the mass media to improve coverage of TB. Offers training and in-country study tours for journalists to improve their understanding of TB issues<br>Provides training and produces outreach materials for community-based organizations, schools, and religious leaders<br>Produces public service announcements, educational television or radio shows, and plays<br>Provides support to partners for World TB Day events to raise awareness and screen patients for TB |
|  | Through communities and health-care worker outreach, support TB patients in completing their treatments | Develops and provides educational materials on the specifics of TB treatment for use in counseling patients<br>Trains health-care providers in counseling skills<br>Establishes patient schools and support groups<br>Engages communities in providing support for TB patients during treatment, to enable successful treatment completion |

Over time, USAID's activities have contributed to the decline of the stigma associated with TB and of the discrimination against TB patients. Twenty years ago, health-care workers would not have even considered the possibility that TB patients or former TB patients could contribute to the fight against TB. The TB patients themselves were reluctant to reveal that they were under treatment. But now, many former patients are happy to be patient advocates and members of patient-support groups, and they have even started local non-governmental organizations (NGOs) to support TB patients and their families. Positive coverage of improvements in TB care and of recovering patients, once shunned by the media, are now commonly published and broadcast.

Over the 20 years of USAID's TB activities in Central Asia, ACSM activities with partners have been both deep and wide, supporting USAID's work in case finding, diagnostics, and treatment. Below we feature just some of the many innovative approaches USAID has implemented in the region.

### Engaging Journalists to Increase Awareness of Tuberculosis

To complement its work with communities, USAID has regularly provided TB training to journalists. At the training sessions, reporters learn about the TB situation in their countries, and how TB is diagnosed and treated. With USAID support, journalists explored the media's role in TB prevention, including how they can help improve the public's knowledge about TB and promote a more tolerant attitude toward people who are affected by the disease. To generate accurate coverage of TB issues, USAID has arranged site visits for reporters so they can see TB treatment at work. USAID has also teamed with local partners to host journalism competitions in the Kyrgyz Republic, Tajikistan, and Uzbekistan for the best coverage of TB-related topics.

Additionally, in the Kyrgyz Republic, USAID has had expert guests speak on TB topics on a variety of television talk shows, both on regional and national television. The strong interest of television in openly and honestly discussing TB represents a huge shift in mindset.

In the Kyrgyz Republic, Tajikistan, and Uzbekistan, USAID developed and aired public service announcements or video clips about TB, aimed at encouraging people with potential TB symptoms to seek medical care and at reducing the stigma associated with TB. The mass media have reached 50 percent of the populations in

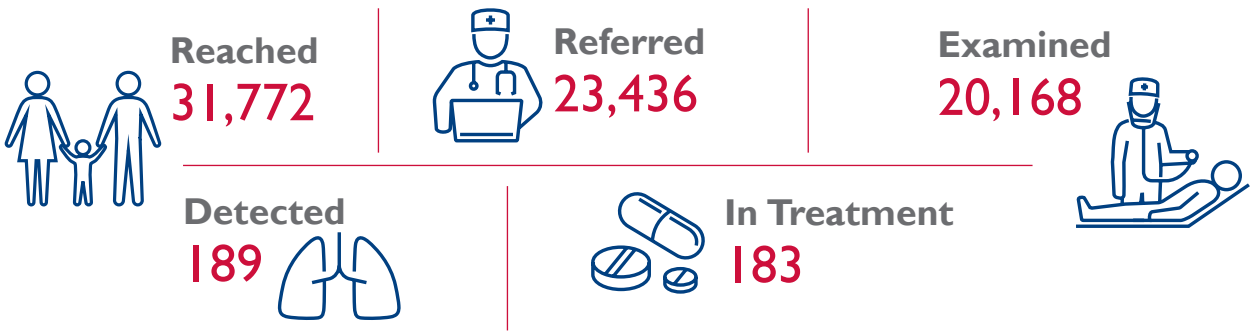
Tajikistan and Uzbekistan with TB information. Following a public service announcement in Uzbekistan, a TB treatment hotline featured in the announcement received 30-35 calls per week, versus the 1-2 calls per week received earlier. After witnessing the impact of this public service announcement, the National Center of Tuberculosis and Pulmonology decided to broadcast it on the national government-run TV station, so that even more people across the country could learn about TB, its treatment, and prevention.[11]

### Reaching Out to Communities to Raise Awareness, Reduce Stigma, and Support Patients

Across the region, USAID has supported community outreach to the most vulnerable and hard-to-reach populations, including women, children, migrant workers, prisoners, drug users, the homeless, and people living with the human immunodeficiency virus (HIV). The outreach aimed to improve knowledge and understanding of TB among the local population, and to provide direct support to patients as they undergo their courses of treatment.

In Uzbekistan, USAID fostered the establishment of multidisciplinary teams that included doctors, nurses, psychologists, peer outreach workers, and community members. These teams reached more than 31,000 people, including over 23,000 labor migrants, with information on TB, referrals for testing, and support for patients.

**Reach and Case Detection by Multidisciplinary Teams among Vulnerable Populations in USAID TB Control Program Regions, Uzbekistan, 2015 (Q2) to 2017 (Q4)**




Source: USAID, *USAID TB Control Program Annual Report Year 3* (Washington, D.C.: USAID, 2017); USAID, *USAID TB Control Program Annual Report Year 4 Quarter 1* (Washington, D.C.: USAID, 2018).

In Uzbekistan, USAID engaged mahallas, or neighborhood authorities, to increase public awareness of TB and to encourage people to discuss TB openly. Mahallas often receive small amounts of funding to help people with TB or other diseases that can affect their ability to work; and community leaders have realized that most people were not seeking these funds because they were afraid to let other people in the community know that they had TB. Following the mahallas' outreach and education work, neighborhood residents began to speak more openly about TB, and patients have become less afraid to disclose that they have the disease.

With support from USAID and other donors, a network of community and village health committees has been created in the Central Asian countries. When it comes to TB, these health committees work to raise community awareness; provide accurate information; improve detection; offer psychological support to TB patients in outpatient settings, such as primary-health-care (PHC) facilities; and reduce the level of stigma and discrimination experienced by TB patients. In Tajikistan, for example, during 2015-17, 143 community health committees were established with USAID assistance. These committees provided 407,159 people with TB information, referred 13,820 people with TB symptoms for testing, detected 561 new cases of TB, and provided support to 9,914 TB patients. After noting the successful work of the health committees, the Sughd Oblast Health Department issued an order to support these committees and integrate them into its PHC program, a move that should ensure the sustainability of the committees in this province.

## REACHING LABOR MIGRANTS

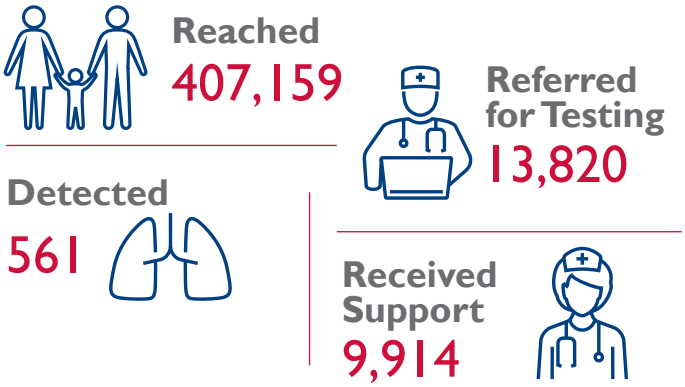
Labor migrants from Central Asia often travel to Russia, where they face overcrowded living conditions and freezing temperatures, combined with a lack of access to health care. For example, the International Organization for Migration found that half of all Kyrgyz migrants return home with health problems, including tuberculosis (TB).* In Tajikistan, USAID's TB Control Program works with the country's community health committees to reach labor migrants with information on TB, and it refers individuals with possible TB symptoms to a local health clinic for testing. From 2015 to 2017, the community health committees in Tajikistan reached over 54,800 migrants. In Uzbekistan, USAID supports multidisciplinary teams that reach vulnerable groups, including returning labor migrants. In 2015-17, the teams reached 23,885 migrants. These outreach activities are steadily contributing to the identification and treatment of more TB cases among migrants, and are thus helping to stop the further spread of the disease.

"Before I joined the program, I had no information about TB. We [outreach workers] were trained before starting our work on TB, and now I understand why TB is dangerous for migrant workers."

Migration services and outreach worker, Tajikistan

* International Organization for Migration (IOM), *Trudovaya migratsiya iz Kyrgyzstana [Labor Migration from Kyrgyzstan]* (Bishkek: IOM, 2008), 150.

**Reach and Case Detection by 143 Community Health Committees in USAID TB Control Program Regions, Tajikistan, 2015 (Q2) to 2017 (Q4)**




In the Kyrgyz Republic, over half a million households were reached through personal outreach visits by the local Red Crescent Society, village health committees, and other community groups. To target people living with HIV, intravenous drug users, and the homeless, USAID has partnered with groups that already reach these constituencies. For example, through an ongoing partnership with Alternative in Narcology, an NGO based in the Kyrgyz Republic, USAID reaches homeless people, former drug users, people living with HIV, and recently released prisoners, providing them with TB information, counselling, and referrals for testing. Through Alternative to Narcology, USAID also provides treatment support to TB patients from these at-risk groups.

### Local Government Support for TB Patients

Across the region, USAID works closely with national, *oblast*, and district governments to support TB patients during treatment. In 2010, for example, with USAID support, Tajikistan increased the involvement of local municipal authorities and communities in the provision of social and financial support to both drug-susceptible tuberculosis (DS-TB) and multidrug-resistant tuberculosis (MDR-TB) patients during their outpatient treatment, to compensate for the time the patients were unable to work. For example, the local governments allocated small land plots for planting vegetable gardens or orchards, exempted TB patients from property taxes and utility payments, and provided food and personal-hygiene packages. In sum, 3,292 TB patients and family members received social and financial support from local authorities, religious institutions, and their communities. This novel approach produced positive results: The treatment success rate for DS-TB improved from 80 percent in 2010 to 88 percent in 2013, and the rate for MDR-TB improved from 62 percent in 2010 to 66 percent in 2012.[12]

### Patient Support Groups Help TB Patients During Treatment

"We used to look at TB as a medical issue, but now realize that it has many social implications. We should not leave the patients to deal with the disease on their own. In our traditions, village communities always provide support to those in need, and TB patients now can rely on our support as well."

Jumakhon Kayumov, chairman of Tanobchi Township, Temurmalik District, Tajikistan

Even with community support, it still helps to have other patients around to compare notes with, and to have a doctor who is not rushed and will answer any medical questions that might arise. Patient schools in TB hospitals and patient support groups help fill that role. Patient schools usually focus on delivering the facts about the TB disease and treatment to newly diagnosed patients during their hospital stays. Patient support groups may be based at a health care facility or run by a community group. A doctor is usually present to respond to clinical questions. Other members may include nurses, peer outreach workers, family members, friends, or fellow TB patients who have completed their treatment. Support group members may also visit patients at their homes to provide information on TB to them and their families, and to check on the patients and encourage them to continue with their treatment regimens. With USAID support, patient support groups were established in the Kyrgyz Republic, Kazakhstan, Tajikistan, and Uzbekistan.

#### AYZADA'S STORY

"When I joined this patient support group, I felt that I was not alone. I met people who have the same disease, the same struggles, and the same side effects."

Ayzada Kurbanova, MDR-TB patient, Kyrgyz Republic

Ayzada is one of many in the Kyrgyz Republic who have contracted TB from a family member returning from seasonal work in Russia.

"My tuberculosis became drug-resistant. I was very weak and did not even drink water for a week," she recalled. Ayzada shared her story at one of the many USAID-sponsored "Defeat TB" meetings, which help patients in the Kyrgyz Republic cope with the psychological problems that can directly impact people with TB. The group discussions-covering everything from drug side effects to unemployment to the stigma among friends and family-help patients restore their hope and finish their treatment. Group members also receive vouchers that help them purchase food, thus offering them an incentive to adhere to their treatment regimens.

Patients who join the Defeat TB support groups are more likely to complete their treatment. In fact, the treatment success rate of group participants is 90 percent.

Ayzada is committed to becoming part of that statistic. As she noted, "Former TB patients and the group volunteers help me to understand that my MDR-TB is treatable and I will be able to get back to normal life."*

* Kairatbek J. Murzakimov and Anna A. Meltzer, "Kyrgyz Republic Gets New Tools to Fight TB," Frontlines, September/October 2016, https://www.usaid.gov/news-information/frontlines/september-october-2016/kyrgyz-republic-gets-new-tools-fight-tb.

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

From 2010 to 2015, more than 13,496 TB patients and their family members attended 264 USAID-supported patient support-group meetings across Central Asia.

Anatomy of Health Care Transformation: USAID's Legacy in Health Systems Strengthening in Central Asia: 1994-2015, USAID (2015)

## EMPOWERING INDIVIDUALS VULNERABLE TO TUBERCULOSIS TO SEEK EARLY DIAGNOSIS AND CARE

For several months, Svetlana,* a 35-year-old resident of Navoi, an industrial city in Uzbekistan, suffered from a debilitating cough and severe weight loss that made her weak and unable to walk or even stand. She was reluctant to seek medical care, afraid of being judged for her life choices, especially her history of drug use. But the support provided by Tatiana,* a dedicated peer outreach counselor and a member of a team of doctors and social workers organized by the United States Agency of International Development (USAID), proved to be life-changing.

A former drug user herself, and a person living with human immunodeficiency virus (HIV), Tatiana learned about Svetlana's grave condition through a network of former peers. She immediately set out to offer the nurturing and encouragement that vulnerable persons like Svetlana need if they are to benefit from early tuberculosis (TB) and HIV diagnosis and care. "Tatiana has helped me believe in myself, and realize that I was not a total failure, but just someone who stumbled. She convinced me to turn my life around and seek treatment for TB, not only for my own sake but also for the sake of my family: my young son and my mom," said Svetlana.

Throughout the world, vulnerable individuals like Svetlana are reluctant to seek treatment for TB due to a lack of information, feeling of isolation, and the stigma associated with drug use. As a result, TB, an infectious but curable disease, ends up killing many who contract it.

To address this problem, USAID's activities in Uzbekistan aim to make TB diagnosis and care more accessible to those who are marginalized due to their lifestyle or economic status. USAID's TB Control Program supports outreach within communities, where at-risk individuals are helped by teams of health care providers and peer counselors like Tatiana. The teams' coordinated patient-centered efforts, which focus on behavioral change and referral, have proven to be very effective in reaching vulnerable persons to whom TB care is not readily available.

As a result of these patient-centered efforts, Svetlana is now completely cured of TB and has started treatment for HIV. Moreover, like her mentor, Tatiana, Svetlana has dedicated herself to helping others to get tested and seek treatment for TB and HIV.

"It is a miracle that I am still alive today and that now my life has purpose and hope. I am grateful to USAID for organizing such a great team of people to support me and to believe in me and in my ability to turn my life around," said Svetlana.

*The names have been changed to protect the privacy of these individuals.

## RELIGIOUS LEADERS COMBAT TUBERCULOSIS IN TAJIKISTAN AND THE KYRGYZ REPUBLIC

Every week, Karimjon Roziqov, an imam at a mosque in Tajikistan's mountainous Rasht District, looks forward to Friday. After the weekly prayer service at his mosque, Roziqov sets aside 15 minutes to talk to the congregants about tuberculosis (TB). Imams and other religious leaders are some of the most trusted and respected public figures in the countries of Central Asia, which are predominantly Muslim, so mosques are an effective channel for reaching communities with important public health messages.

Though talking about infectious diseases like TB is never easy, religious leaders like Roziqov have been making great strides toward breaking the taboo. "I kept asking myself, why should we keep silent about TB? This is a disease that impacts the lives of so many, even though it is entirely preventable and curable, and treatment is free in Tajikistan," he said.

Today, Roziqov's mosque, which has almost 500 worshippers every Friday, serves as an effective place for the community to receive crucial information about TB. He even provides his cell phone number for residents who, due to the pervasive stigma of TB, especially in rural areas, prefer private counseling away from public view. Thanks to the training he received from the United States Agency for International Development (USAID), Roziqov recently recognized TB symptoms in Firuz,* a local resident who had recently returned home from work abroad. On Roziqov's recommendation, Firuz got tested for TB. He is now receiving treatment, and is on the road to a full recovery.

Roziqov is not alone in his efforts to openly talk to mosque-goers about TB. In the Kyrgyz Republic, on World TB Day 2017, imams from an estimated 1,770 mosques across the country spoke in one voice about the disease, as they all gave a sermon on TB that had been prepared by the Muslim Spiritual Administration, based on health information provided by USAID.

On that day, they reached an estimated 1 million mosque-goers, or one-sixth of the population of the republic, with key facts about TB. Their open talk about TB on such a large scale broke a barrier, as many people would normally refuse to speak openly about the disease. Imams explained that TB is treatable, that treatment cannot be interrupted, and that treatment is free for patients in the Kyrgyz Republic.

This is precisely what Roziqov preaches in Tajikistan. Increasingly, throughout Central Asia, TB patients are receiving the support they need, so they can be cured, rather than being isolated by those closest to them or isolating themselves due to the fear of stigma and discrimination. Across Central Asia, USAID is contributing to a better understanding of TB, and is increasing the role of civil society in its efforts to help those suffering from the disease.

*The name has been changed to protect the individual's privacy.


Photo: Ekaterina Godunova, USAID TB Control Program, Uzbekistan

"Over time we learned that moral and social support is very important for TB patients who are often isolated and afraid that they will be rejected by their community. When TB patients are visited by Village Health Committee members, neighbors see that they are not a danger, that they are seen as valuable members of our community, so neighbors continue to visit them, like for evening tea."

Mairam, nurse, First of May Village, Kyrgyz Republic


Photo: USAID TB Control Program, Tajikistan

# ENGENDERING A CULTURE OF MONITORING AND IMPROVEMENT

### Tuberculosis Management Information Systems

A national tuberculosis program (NTP) can only work effectively if it takes into account whom it is diagnosing and treating and what the diagnostic and treatment results are. Without that information, it is impossible to order the right quantity of drugs, discern trends, or determine when an intervention is necessary to improve processes.

When the United States Agency for International Development (USAID) began working in Central Asia, all five countries were still relying on the old Soviet tuberculosis (TB) reporting system. Developed before the approaches of the World Health Organization (WHO) were introduced to the region, the old system used outdated disease categories and obsolete indicators, and required that statistical data be submitted only once a year.

To make data available for decision-making at the top levels of government all the way down to the community level, USAID helped implement a new TB recording and reporting system in line with the new diagnostic and treatment approaches. Importantly, the modern system included the measurement of progress over time.

Today, most Central Asian countries have transitioned from paper-based to electronic surveillance and case management, making the recording, tracking, and analysis of data faster, and making the data easier to access and understand.

"The E-TB Register is the greatest achievement of our partnership with USAID. It is a powerful tool not only for health providers, but also for public health managers at the national and oblast levels who can now, with minimal resources, collect accurate data to monitor, evaluate, and improve TB care and prevention services nationwide."

Asliddin Rajabzoda, director, National Center for Protection of the Population from Tuberculosis, Republic of Tajikistan Ministry of Health and Social Protection of the Population

Thanks to this new system, health-care facilities actually have data in a format they can use, and they have access to analysis, as well. This represents a major change from the old system, under which data sat in stacks of paper and were not useful for decision-making. The Central Asian countries are now building a data-driven culture with real-time reporting of data to support decision-making. With the TB data available at the local level on a more regular basis, program implementers can make evidence-based decisions in a timely manner, leading to more effective TB control.

USAID has also supported overall improvements in information management across the health-care system, and, crucially, has ensured linkages between TB data and both general health data and government health payment systems.

Throughout its technical assistance activities, USAID has worked closely with country partners to analyze results and gauge improvements in the effectiveness and efficiency of TB treatments. One of USAID's important legacies in the region is that today, NTPs, health-care facilities, professional associations, and community groups collect, analyze, and use data to assess TB interventions. Monitoring systems are in place for TB care on the primary-health-care (PHC) level. Partners have tools in place for analysis, and feel confident in their capacity to interpret results and make the necessary course corrections.

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic


Photo: Nasrullo Ramazonov, USAID TB Control Program, Tajikistan

# TUBERCULOSIS CONTROL IN PRISON SETTINGS

Worldwide, tuberculosis thrives in prisons, where many people live in close quarters, ventilation and nutrition can be poor, levels of human immunodeficiency virus (HIV) and intravenous drug use are often high, and health services can be hard to access. In the 1990s, outdated procedures for treating tuberculosis (TB), as well as general neglect, led to poor TB cure rates among incarcerated patients in Central Asia. This contributed to high TB mortality rates and the continued spread of TB, both in prison and after release.[13]

The United States Agency for International Development (USAID) supported work done by the penitentiary systems of Kazakhstan and Tajikistan to improve TB control. Additionally, USAID supported the efforts of the governments of all of the countries of Central Asia to bridge the gap between the prison and civilian health-care systems, toward improved treatment and support for TB patients when they were released from prison.

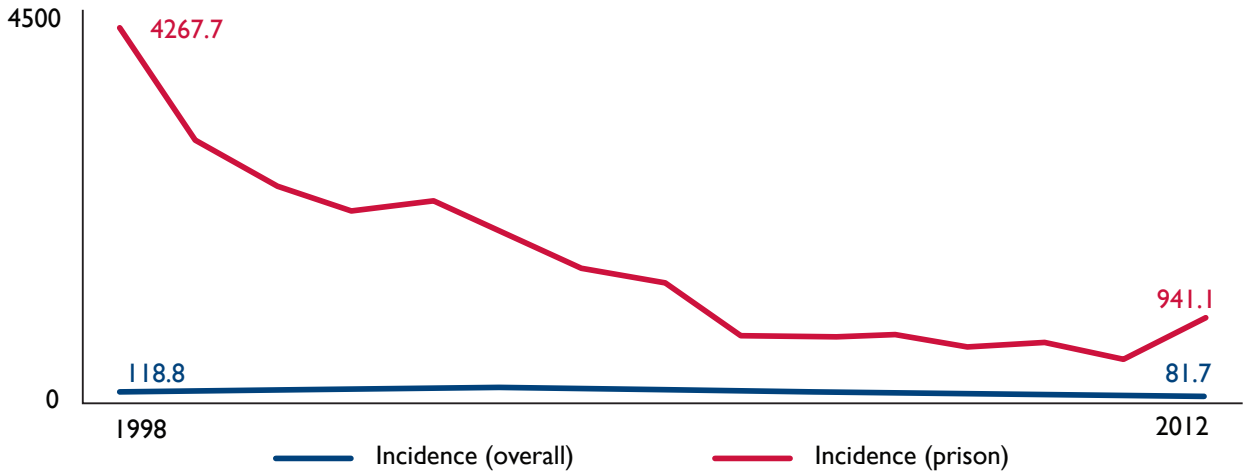
**Kazakhstan**

In 2002, deaths attributed to TB accounted for 30 percent of all prisoner deaths in Kazakhstan. Cure rates for prisoners were very low, with 30 percent reported as having been successfully treated in 2001, compared with the target rate in any TB program of 85 percent. To help address these issues, USAID supported the introduction into the Karaganda Oblast prison system of the Directly Observed Treatment, Short Course (DOTS) strategy for TB treatment, which had been proven successful in the country's civilian health sector.

An assessment of the prisons revealed that there were too few qualified medical providers, too little funding, and inadequate laboratory equipment. USAID first provided prison medical staff with specialized DOTS training, and then taught them how to evaluate how well their interventions were working. The Agency also provided laboratory equipment and training to support smear microscopy. Next, USAID trained managers and other nonmedical prison staff, including guards, so they could fully understand DOTS implementation.

The results were remarkable. Within two years, the prisons saw dramatically improved cure rates: from 30 percent before the intervention to 81 percent in the first quarter of 2003.

**Kazakhstan, TB Incidence**
(/100,000 population), 1998-2012




*Data: National TB Program, Republic of Kazakhstan Ministry of Health and Ministry of Internal Affairs*

Since then, the Karaganda prison system has served as a training center, and has hosted visits by prison medical staff from other countries in the region. In 2008, USAID began supporting infection control and lab-quality control in Kazakhstan's prisons. Later, under the Dialogue on HIV and Tuberculosis Project, USAID introduced the "START Plus" model, to promote improved HIV and TB knowledge, testing, treatment, and adherence among prisoners, and to improve prisoners' skills for reintegration into society. Over the project period, prevention services reached 23,430 prisoners, achieving improvements in prisoner knowledge about HIV transmission and TB symptoms.[14]

### Tajikistan

In 2015, the Tajikistan Ministry of Justice reported that TB prevalence in prisons was nearly twice as high as in the civilian population. That year, USAID began working with Tajikistan's prisons to prevent the spread of TB infection. Through trainings, USAID helped improve the awareness of inmates and staff of the appropriate infection-control measures, and built institutional capacity for improved infection control. Administrators, guards, and medical staff have been trained in infection-control interventions, including appropriate patterns of traffic flows, to separate high and low TB-transmission risk areas; the correct triaging of inmates with presumptive TB symptoms; and the screening of inmates at pretrial and penitentiary facilities. USAID has trained over 100 medical and nonmedical staff involved in TB detection and treatment in penitentiary settings.

"We used to believe that TB was a health-related challenge, and that all TB-related issues should be managed by health departments alone. The [USAID] seminar opened our eyes and helped us understand that the engagement of penitentiary facility administrations in the development and implementation of a strong infection-control framework for the reduction of the transmission of this disease is critical,"

Bahodur Faizulloev, penitentiary facility manager, Sughd Oblast, Tajikistan

## REACH, CURE, PREVENT: USAID'S TUBERCULOSIS STRATEGY FOR 2015-19

"Reach, Cure, Prevent," the U.S. Government's global tuberculosis (TB) strategy for 2015-19, envisions an end to TB-related deaths by reaching and curing everyone with TB and preventing the spread of the disease. The U.S. strategy aims to accomplish these goals by improving access to high-quality, patient-centered services for drug-susceptible TB, drug-resistant TB, and a combination of TB and the human immunodeficiency virus (HIV); preventing TB transmission and disease progression; strengthening TB service delivery platforms; and by accelerating research and innovation.

The goals of the U.S. strategy align with those of the Post-2015 End TB Strategy, a global initiative of the World Health Organization (WHO), which also seeks to reach and cure those with TB, prevent the spread of the disease, and achieve a TB-free world. The "End TB Strategy" specifically aims to reduce TB deaths by 95 percent and new cases by 90 percent between 2015 and 2035. It also seeks to ensure that no family is burdened with catastrophic expenses due to TB. WHO is now calling on governments to work to achieve this strategy's ambitious, but achievable targets.

The vision of a world free of TB relies on collaboration to achieve sustainable results. For this reason, powerful partnerships remain an important component of USAID's TB-related work in Central Asia. Rather than working alone, USAID provides technical and financial support to help partners fill gaps. In fact, all five Central Asian countries have been incrementally increasing their domestic TB funding. To garner additional critical funding, USAID has provided technical assistance to all the Central Asian countries in the preparation of grant proposals to agencies such as the Global Fund to Fight AIDS, Tuberculosis and Malaria and the Global Drug Facility. The Agency also assists with the implementation of the grants.

"The US Government will work with its partners around the world to reach every person with TB, cure those in need of treatment, and prevent the spread of disease and new infections."

U.S. Government's "Reach, Cure, Prevent" Global TB Strategy

Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

"We are thankful to our donors and partners for their contribution to the fight against tuberculosis in the Kyrgyz Republic. Today, our TB service is able to save practically any person with this disease."

Kosmosbek Cholponbaev, Minister of Health, Kyrgyz Republic

Photo: Ekaterina Godunova, USAID TB Control Program, Uzbekistan

# CONCLUSIONS

"One project can't totally change the situation, but [USAID] has changed the attitude of people, the government, and medical professionals."

Zoya Ni, former medical specialist and trainer, Kazakhstan and Uzbekistan

The United States Agency for International Development (USAID) is proud of its quarter-century of successful partnerships with the countries of Central Asia. As illustrated by the declining mortality rates in the region, with support from USAID and other partners, thousands of lives have been saved. The numbers of drug-susceptible cases have decreased. Through a systemic, step-by-step approach, USAID has addressed Central Asia's highest tuberculosis (TB) priorities: strengthening the national tuberculosis programs (NTPs) and building the sustainable capacity to prevent, detect, and treat TB effectively and efficiently. The tireless work of partners in implementing new approaches to diagnostics and treatment has paid off, as evidenced by the increased number of TB cases identified and enrolled in treatment, the higher cure rates, and the reduced numbers of TB deaths. All five Central Asian countries have been incrementally increasing their domestic TB funding and reducing their reliance on international donors. In fact, Kazakhstan and the Kyrgyz Republic now fund most of their TB programs.

While the challenge presented by multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB) cannot be underestimated, the new diagnostic tools, greater drug availability, and systemic improvements that USAID has helped implement in the region have prepared the NTPs to successfully cure more patients and prevent the further development and spread of drug-resistant forms of TB. However, a concerted effort will still be needed to combat drug resistance moving forward.

"In recent years, Uzbekistan has made significant progress in the fight against tuberculosis. In this fight, we were not alone. Our long-term partnership with USAID allowed us to continuously improve our TB service in line with the latest world trends, to introduce scientific and technological innovations, to increase the skills of medical and nonmedical personnel, and to scale up patient-centered approaches to the treatment of tuberculosis, which, in general, can be called a new stage in achieving the goals of the national tuberculosis program: reducing morbidity and mortality in Uzbekistan."

Mirzagaleb Tillyashaykhov, director, National Oncology Center, former director, National Center of Tuberculosis and Pulmonology, Republic of Uzbekistan Ministry of Health

As the largest bilateral donor to the global TB effort, the U.S. Government supports programs in more than 50 countries with the highest burdens of TB. USAID remains passionately committed to the fight against TB, and will continue to work closely with the countries of Central Asia in this fight. Working with NTPs, the World Health Organization (WHO), the Global Fund, and others, USAID will continue to help Central Asian countries access the latest developments in TB-related technology, medications, and approaches.

Given the continued dedication of its international and national partners in each Central Asian country, USAID looks forward to the day in the not-too-distant future when TB will be eradicated once and for all.

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The U.S. Government has documented a 45 percent decrease in TB-related mortality and a 41 percent decrease in TB prevalence since 1990 in the countries with U.S. Government-supported programs.

"Reach, Cure, Prevent: U.S. Government TB Strategy"

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Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic


Photo: Nigara Abate, USAID TB Control Program, Uzbekistan

## **TIMELINE:** USAID'S TB PROGRAMS IN CENTRAL ASIA

**1991** — Soviet Union dissolves and the Central Asian countries gain their independence.

**1992** — The United States Agency for International Development (USAID) establishes its first Central Asia mission, in Almaty, Kazakhstan.

**1994** — USAID/Chevron public-private partnership introduces the WHO's Directly Observed Short Course (DOTS) strategy in a pilot project in Atyrau oblast, Kazakhstan.

**1997-2001 — The USAID's Central Asia Tuberculosis Initiative, Phase I:** Based on a successful pilot project initiated in Kazakhstan by a public-private partnership with Chevron and Project HOPE, USAID enabled an expansion of support for national tuberculosis programs (NTPs) in Central Asia. This was done by funding technical support for TB programs in Kazakhstan through Project HOPE, then expanding support for such programs within the region by introducing DOTS, including work on legal and policy components; training DOTS clinical trainers and TB specialists; jointly monitoring a DOTS implementation program; establishing TB programs in prisons; and engaging in Information, Education and Communication activities.

Under various grants, USAID continued supporting the development of policy reforms and national TB programs, improving laboratory testing quality and capacity, and training health professionals to treat patients according to the DOTS guidelines recommended by the World Health Organization (WHO).

**1994-2009 — USAID ZdravReform, ZdravPlus and ZdravPlus II projects:** Under these three projects, involving a consortium of agencies led by Abt Associates, USAID supported overall health system strengthening, including improvements in health policy and health financing systems, health worker training, strengthening of primary health care, and overall capacity-building for the health sector. The projects facilitated integration of TB services into primary health care; contributed to TB policy development; supplied office and laboratory equipment, supplies and reagents; engaged in TB ACSM activities; and supported improvements in infection control.

**2001-2004 — USAID Central Asia Tuberculosis Initiative, Phase II:** USAID continued to fund TB programs implemented by Project HOPE in order to expand the scale and improve the quality and effectiveness of ongoing TB efforts in Central Asia that had started under earlier grants, in partnership with WHO, the Centers for Disease Control and Prevention (CDC), and other agencies.

**2004-2009 — USAID's Central Asian Program on AIDS Control and Intervention Targeting Youth and High-Risk Groups (CAPACITY) Project:** Led by John Snow, Inc. (JSI), this project reflected USAID's commitment to supporting appropriate and sustainable multisectoral responses. CAPACITY worked with country coordination mechanisms, national centers for the treatment of acquired immunodeficiency syndrome (AIDS), state sanitary and epidemiological services, non-governmental organizations (NGOs), implementing partners and donors. The project increased the capacity of local and other USAID partners to benefit from the significant increase in resources available from the Global Fund to Fight AIDS, Tuberculosis and Malaria; World Bank; the United Kingdom's Department for International Development (DFID); and other donors. It focused on technical assistance, assessment, monitoring, evaluation, research, strategic planning, training and capacity development.

**2004-2009 — USAID Tuberculosis Control Program for the Central Asian Region:** Through a Project HOPE-led consortium, USAID continued its support for: 1) building political commitment by establishing high-level working groups and thematic working groups, supporting oblast roundtables and promoting sustainable financing of NTPs; 2) improving human and systems capacity for TB control by strengthening TB laboratory networks and human capacity, creating rational TB drug-management systems, improving program management and recommending plans for integrating vertical TB control activities into the general health-care services; and 3) raising community awareness and encouraging care-seeking behavior.

**2010-2011 — Advocacy, Communication and Social Mobilization (ACSM) Activities in Eastern Europe and Central Asia Project:** Implemented by PATH, this project enhanced the capacity of civil society organizations and NTPs at the oblast and national levels to plan, design, implement, support and evaluate relevant ACSM interventions in support of TB control. Through targeted technical assistance and training, the global health organization PATH collaborated with local partners to build on and strengthen ongoing USAID efforts that had been emphasizing TB-related ACSM strategies and activities to complement technical interventions and ensure that they were designed to help the Central Asian countries meet global, regional, and national TB targets.

**2009-2014 — Dialogue on the Human Immunodeficiency Virus (HIV) and TB:** Population Services International (PSI) led the USAID Dialogue on HIV and Tuberculosis Project, which focused on evidence-based HIV prevention and TB treatment targeting key populations (intravenous drug users, female sex workers, prisoners, migrants and gay men), on generating demand among key populations for HIV counseling and testing as an entry point to HIV care and treatment services, and on improving TB detection and treatment adherence among key populations.

**2010-2015 — Quality Health Care Project:** This project, led by Abt Associates, focused on the supply side of health care for HIV and TB, as well as maternal/child and reproductive health. To support improved outcomes in these areas, the project worked to enhance the health sector's capacity to plan, deliver, manage, and monitor enhanced programs and services, and assisted local partners in strengthening the collection, analysis, and use of data for public health program planning and policy development.

**2010-2015 — TB Care I Program:** The Royal Netherlands Chemical Society (KNCV) Tuberculosis Foundation led this global cooperative program to support the implementation of the U.S. Government

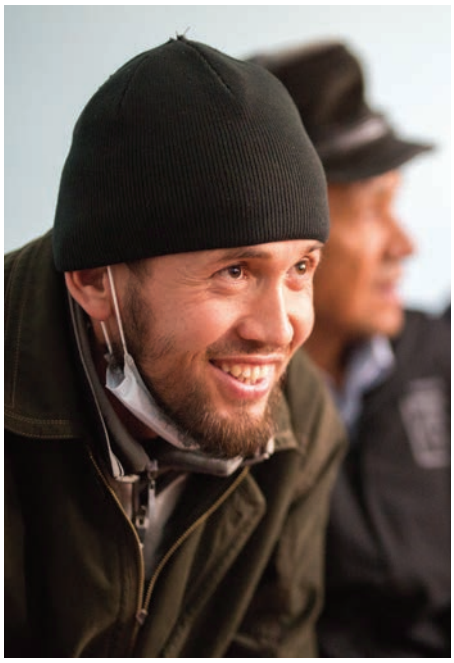


Photo: Olivier Le Blanc, USAID Defeat TB Project, the Kyrgyz Republic

Global Tuberculosis Strategy (2009-14), as well as the HIV/TB-related activities of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), including those in Central Asia.

**2012-2015 — Systems for Improved Access to Pharmaceuticals and Services (SIAPS):** Implemented by Management Sciences for Health, the project's primary goal was to strengthen the TB control system of Tajikistan, Uzbekistan, and Turkmenistan by improving information systems to address the threat of TB and multidrug-resistant tuberculosis (MDR-TB) and by ensuring the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes.

**2012-2016 — Partnership Project for TB Control:** This project aimed to improve prevention and control of tuberculosis and multidrug- and extensively drug-resistant tuberculosis in Uzbekistan and Turkmenistan.

**2012-2019 — Promoting the Quality of Medicines (PQM):** Implemented by U.S. Pharmacopeial Convention (USP), this project focused on Kazakhstan and Uzbekistan with the goal of improving the quality of TB medicines produced by major pharmaceutical manufacturers in Kazakhstan and Uzbekistan by enhancing their capacity to comply with international standards of good manufacturing practices.

**2014-2019 — USAID TB Control Program:** Project HOPE is leading the current program, which supports Uzbekistan's and Tajikistan's implementation of their NTPs by providing more effective and accessible TB prevention, diagnosis, and treatment for all, including vulnerable populations. The USAID TB Control Program aims to reduce the burden of TB and prevent multidrug-resistant forms of the disease in Tajikistan and Uzbekistan. It covers a wide range of technical areas, including training health care workers to strengthen the health system, improving interagency coordination and cooperation, and increasing access to TB diagnosis and treatment.

**2014-2019 — Defeat TB Project:** Abt Associates is leading a coalition in the Kyrgyz Republic to reduce the burden of tuberculosis (TB) and development of drug-resistant strains of the disease, support equitable access to quality health care for vulnerable groups, and strengthen the national health care system.

**2015-2020 — Challenge TB Project:** Challenge TB is the flagship global mechanism for implementing USAID's TB strategy; it also contributes to TB/HIV activities under the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). Challenge TB is led by the KNCV Tuberculosis Foundation. Project implementation in Turkmenistan is led by WHO. In Central Asia, Challenge TB has introduced and supported successful implementation of new TB treatment drugs and shorter drug regimens for X/MDR.

# BRIEF COUNTRY FACTS

## Kazakhstan

Total Population: **18 million** (2017)

Gross National Income per Capita (PPP): **$23,530** (2017)

Percentage of Population Below Poverty Line: **2.5%** (2015)

Population Proportion 0-14 Years of Age: **28%** (2017)

Life Expectancy at Birth: **f 75/m 67** (2016)

Estimated TB Incidence: **66/100k** Population (2017)

Estimated TB Cases with MDR-TB (2017): **26%** (new); **44%** (retreatment)

Treatment Success Rate (2016 Cohort): Total cases registered/started treatment: **14,124**

Percent successfully completed treatment: **81%**

**In Kazakhstan, TB deaths decreased from 3,100 in 2007 to 160 in 2017.**

## The Kyrgyz Republic

Total Population: **6.2 million** (2017)

Gross National Income per Capita (PPP): **$3,620** (2017)

Percentage of Population Below Poverty Line: **25.6%** (2016)

Population Proportion 0-14 Years of Age: **32%** (2017)

Life Expectancy at Birth: **f 75/m 68** (2016)

Estimated TB Incidence: **144/100k** Population (2017)

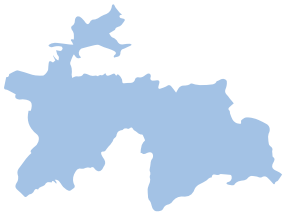
Estimated TB Cases with MDR-TB (2017): **26%** (new); **61%** (retreatment)

Treatment Success Rate (2016 Cohort): Total cases registered/started treatment: **8,087**

Percent successfully completed treatment: **76%**

**In the Kyrgyz Republic, the TB case detection rate improved from 63 percent in 2010 to 76 percent in 2014.**

## Tajikistan



Total Population: **8.92 million** (2017)

Gross National Income per Capita (PPP): **$3,690** (2017)

Percentage of Population Below Poverty Line: **31.3%** (2016)

Population Proportion 0-14 Years of Age: **35%** (2017)

Life Expectancy at Birth: **f 73/m 69** (2016)

Estimated TB Incidence: **85/100k** Population (2017)

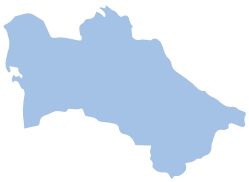
Estimated TB Cases with MDR-TB (2017): **20%** (new); **23%** (retreatment)

Treatment Success Rate (2016 Cohort): Total cases registered/started treatment: **6,365**

Percent successfully completed treatment: **85%**

**In Tajikistan, TB case detection improved from 52 percent in 2007 to 78 percent in 2017.**

## Turkmenistan



Total Population: **5.76 million** (2017)

Gross National Income per Capita (PPP): **$17,250** (2017)

Percentage of Population Below Poverty Line: Not available

Population Proportion 0-14 Years of Age: **31%** (2017)

Life Expectancy at Birth: **f 72/m 65** (2016)

Estimated TB Incidence: **43/100k** Population (2017)

Estimated TB Cases with MDR-TB (2017): **14%** (new); **38%** (retreatment)

Treatment Success Rate (2016 Cohort): Total cases registered/started treatment: **2,550**

Percent successfully completed treatment: **83%**

**In Turkmenistan, TB incidence decreased over 60 percent from 2000 to 2017.**

## Uzbekistan

Total Population: **32.39 million** (2017)

Gross National Income per Capita (PPP): **$2,000** (2017)

Percentage of Population Below Poverty Line: **14.1%** (2013 )

Population Proportion 0-14 Years of Age: **28%** (2017)

Life Expectancy at Birth: **f 75/m 70** (2016)

Estimated TB Incidence: **76/100k** Population (2017)

Estimated TB Cases with MDR-TB (2017): **24%** (new); **63%** (retreatment)

Treatment Success Rate (2016 Cohort): Total cases registered/started treatment: **18,704**

Percent successfully completed treatment: **83%**

**In Uzbekistan, TB deaths decreased 70 percent from 2001 to 2017.**

## SOURCES:

Where not otherwise indicated, country TB statistics come from publicly available WHO data. Other data included in this document come from monitoring conducted by staff of the USAID projects in the region, as part of routine project monitoring.

TB epidemiology data and data in the Country Summaries are taken from the World Health Organization Global Health Observatory data repository, http://apps.who.int/gho/data/node.main.1315?lang=en; WHO/Europe European Health for All database, http://data.euro.who.int/hfadb; and World Bank Open Data, http://data.worldbank.org/

## PHOTO CREDITS:

The photos are from the photo archive of the USAID health projects, and credit goes to the many project staff members who have taken these photos over the years.

## NOTES:

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