

# CHALLENGE TB

Annual  
Report

Year 1

October 1, 2014 – September 30, 2015



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TUBERCULOSIS FOUNDATION

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KNCV Tuberculosis Foundation (KNCV)

Management Sciences for Health (MSH)

International Union Against Tuberculosis and Lung Disease (The Union)

Interactive Research and Development (IRD)

PATH

World Health Organization (WHO)

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The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.



# Contents

Abbreviations .....	4
Executive Summary .....	5
Introduction .....	7
Challenge TB Countries .....	8
CTB Contribution to USAID Targets .....	9
Mortality .....	10
Incidence .....	11
Case Detection .....	12
Multi-Drug Resistant TB (MDR-TB) .....	13
Antiretroviral Therapy (ART) .....	14
Achievement by Objective/Sub-Objective .....	15
Objective 1. Improved Access to high-quality TB, MDR-TB and TB/HIV services .....	15
Sub-objective 1. Enabling Environment .....	15
Sub-objective 2: Comprehensive, High Quality Diagnostics .....	19
Sub-objective 3: Patient-centered Care and Treatment .....	25
Anika's story – Childhood TB in Bangladesh .....	32
A Healthy Appetite Back At Last – Nigeria .....	33
Objective 2. Prevention of transmission and disease progression .....	34
Sub-objective 4. Targeted Screening for Active TB .....	34
Sub-objective 5. Infection Control .....	35
Sub-objective 6. Management of latent TB infection .....	36
Objective 3. Strengthened TB platforms .....	38
Sub-objective 7. Political commitment and leadership .....	38
Bollywood Icon engaged as a Patient Advocate and TB Champion - India .....	39
Sub-objective 8. Comprehensive partnerships and informed community involvement .....	40
Sub-objective 9. Drug and commodity management systems .....	42
Sub-objective 10. Quality data, surveillance and M&E .....	43
Sub-objective 11. Human resource development .....	45
Core Projects .....	47
Knowledge Exchange .....	48
Publications .....	49

# Abbreviations

ACSM	Advocacy, communication and social mobilization
AFB	Acid fast bacilli
ART	Antiretroviral therapy
CDR	Case Detection Rate
DOT	Directly observed treatment
DOTS	Directly observed treatment short course
DR	Drug resistance
DRC	Democratic Republic of Congo
DRS	Drug resistance survey
DST	Drug susceptibility testing
EQA	External quality assurance
ERR	Electronic recording & reporting
GDF	Global Drug Facility
GF	Global Fund for Aids, Tuberculosis and Malaria
GLI	Global Laboratory Initiative
HRD	Human resource development
IC	Infection control
IPAC	Portuguese Institute of Accreditation
IPT	Isoniazid preventive therapy
JATA	Japan Anti Tuberculosis Association
KNCV	KNCV Tuberculosis Foundation
LQMS	Laboratory quality management system
MDR	Multidrug resistance
MDR-TB	Multidrug-Resistant Tuberculosis
M&E	Monitoring and evaluation
MoH	Ministry of health
MSH	Management Sciences for Health
NGO	Non governmental organization
NTP	National TB program
NRL	National reference laboratory
NTRL	National tuberculosis reference laboratory
OR	Operations research
PCA	Patient-centered approach
PLHIV	People living with HIV/AIDS
PMDT	Programmatic management of drug-resistant tuberculosis
PPM	Private public mix
PV	Pharmacovigilance
QICA	Quarterly interim cohort analysis
RIF	Rifampicin
SLD	Second line drug
SRL	Supra-national reference laboratory
SOP	Standard operating procedures
TA	Technical assistance
TB	Tuberculosis
TB CAP	Tuberculosis Control Assistance Program
TBCTA	Tuberculosis Coalition for Technical Assistance
TB-IC	Tuberculosis infection control
USAID	United States Agency for International Development
USG	United States Government
WHO	World Health Organization
XDR-TB	Extensively drug-resistant tuberculosis
Xpert	GeneXpert MTB/RIF



## Executive Summary

In Year 1, October 2014-September 2015, Challenge TB (CTB) laid a strong foundation for contributing to the United States Government (USG) Global TB strategy (2015-2019) for TB care and prevention over the next four years of CTB full-scale implementation. CTB implements projects at the country, regional and international/global level with the majority of the program's work being done through country-specific projects. As of September 30, 2015, there were 19 total country projects implemented in Year 1 under CTB. Some of the program's most significant achievements from Year 1 are highlighted below.

In Indonesia, with technical support from CTB, mandatory notification of TB has been included in a final draft Decree of the Minister of Health. This means TB will be a notifiable disease and all health providers delivering TB services will be obliged to report cases to the NTP. Through regulation enforcement on mandatory notification, it is expected that large numbers of diagnosed TB patients in the private sector will be captured by the surveillance system.

In Mozambique, after three years of preparation (and technical support from TB CAP, TB CARE I and CTB), the NTRL in Maputo, Mozambique was accredited by the Portuguese Institute for Accreditation (IPAC) for ISO 15189 in March 2015.

In March 2015, CTB-Vietnam introduced the Quarterly Interim Cohort Analysis (QICA) tool developed by KNCV, which aims to improve patient management as each and every patient must be evaluated every quarter during his/her treatment episode. By doing so, poor patient care or issues with recording and monitoring will become apparent and can be discussed and resolved on the spot by supervisors and peer reviewers.

In Vietnam, CTB also continued the work started under TB CARE I for the introduction of Bedaquiline, Delamanid and shorter MDR-TB regimens in three provinces (Ha Noi, Ho Chi Minh City and Can Tho). Technical assistance was provided to the NTP to develop and finalize the guidelines, standard operating procedures (SOPs) for pharmacovigilance (PV) and safe use of new drugs, and to train providers in three pilot provinces. The first patient is expected to initiate BDQ in early November 2015.

Between January and September 2015, compared with the same period of 2014, in Kabul, Afghanistan, CTB-implemented Urban DOTS succeeded in increasing the identification of persons with presumptive TB by 5% (from 14,781 to 15,523), which ultimately resulted in an 13% increase in TB case (all forms) notification (from 3,750 to 4,248); there was also a 12% increase in notification of bacteriologically confirmed TB cases (968 to 1,086) and an increase in the TSR to 74% (from 72% in 2014).

Also in Afghanistan, a total of 27,949 household contacts were screened for TB in Year 1; this led to identification of 5,324 (19%) individuals with presumptive TB, of which 4,901 (92%) were tested for TB (sputum smear microscopy and/or chest X-ray). This resulted in the diagnosis of 251 (5%) new bacteriologically confirmed cases and 491 (10%) cases with all forms of TB put on treatment. Out of household contacts screened for TB, 6,520 (23%) were children under the age of five of which 4,678 (72%) were started on isoniazid preventative therapy (IPT). TB infection control (TB-IC) was expanded to 40 additional health facilities; cumulatively, the number of health facilities implementing TB-IC in targeted provinces reached 185 (51% of existing health facilities) by the end of September 2015, including five high-risk sites.

In the Democratic Republic of Congo (DRC), CTB supports active TB case finding efforts through several local partners. One partner conducted door-to-door visits among hard-to-reach impoverished populations. A total of 7,239 persons with symptoms suggestive of TB were identified and referred to TB diagnostic and treatment centers; 73% (5,319) of these referrals arrived at the centers, and among those, 364 (7%) bacteriologically confirmed TB cases were diagnosed. All patients were started on treatment.

CTB supported the phased roll out of IPT among people living with HIV (PLHIV) in Zimbabwe – A total of 83 sites were offering IPT services by the end of Year 1. The support also included targeted mentorship visits to 10 IPT sites to complement visits planned under Global Fund (GF). From January to August 2015, there were 270,471 TB screening episodes among PLHIV, 106,889 PLHIV were eligible for and 24,544 (23%) were initiated IPT. Of the cohort that was initiated on IPT from January to March 2014, 67% (11,830/17,676) completed IPT.

In Cambodia, CTB implemented contact investigations (CI) at the community level to identify and refer children with presumptive TB to health centers and referral hospitals for work-up and diagnosis. To facilitate this process, CTB trained HCWs in clinical management of childhood TB, tuberculin skin test (TST) administration, chest x-ray reading skills and IPT. Within Year 1, 1,559 children, close contacts of smear positive index cases, were screened for TB, out of these 390 (25%) children were eligible for IPT, of which 287 (74%) were initiated on IPT. Out of those who were screened for TB, 361 (23%) children were referred to hospitals for clinical evaluation including TST, physical and history examination, and chest x-ray; 32 (9%) of those referred were diagnosed with TB and treatment was initiated.

In India, CTB launched the *Call to Action for a TB-Free India* to mobilize a wide range of stakeholders including the corporate sector to end TB in the country. The campaign will build political will and leadership and increase the visibility of TB as a pressing national issue. A high-visibility dialogue was convened with the US Ambassador to India, Richard Verma, along with noted industrialist and philanthropist, Ratan Tata, and Bollywood megastar, Amitabh Bachchan. They called on corporate leaders to support and contribute to the Government of India's efforts to end TB in India. Financial commitments, workplace policy changes, and formal agreements are expected to come in the following year.

CTB-India also accelerated access to quality TB diagnosis for children in four major cities (Delhi, Hyderabad, Chennai and Kolkata) through a network of four laboratories and 272 referral facilities. By offering upfront Xpert testing to 15,347 presumptive TB patients between September 2014-September 2015, a total of 1,253 (8%) TB cases were detected, of which 104 (8%) were diagnosed with rifampicin resistance; 1,029 (82%) TB/DR-TB cases initiated treatment.



"If I can be cured of drug-resistant TB, everyone can too." Cured MDR-TB Patient - Indonesia (Photo: Moh. Roni)



# Introduction

Challenge TB (CTB) is USAID's flagship global mechanism for implementing the United States Government (USG) TB strategy as well as contributing to TB/HIV activities under the U.S. President's Emergency Plan for AIDS Relief (PEPFAR).

Launched on October 1st, 2014, this five-year cooperative agreement (2014-2019) builds and expands upon previous USAID global programs, namely TB CARE I (2010-2015), the Tuberculosis Control Assistance Program (TB CAP, 2005-2010) and Tuberculosis Control Technical Assistance (TBCTA, 2000-2005). KNCV Tuberculosis Foundation (KNCV), which also led the aforementioned programs, leads a unique and experienced coalition of nine partners implementing CTB. The coalition partners are: American Thoracic Society (ATS), FHI 360, Interactive Research and Development (IRD), International Union Against Tuberculosis and Lung Disease (The Union), Japan Anti-Tuberculosis Association (JATA), Management Sciences for Health (MSH), PATH and the World Health Organization (WHO).

Working closely with Ministries of Health, USAID, Global Fund, the Stop TB Partnership and other key stakeholders at a global, regional, national and community level, CTB contributes to the global End TB Strategy targets:

**Vision:** A world free of TB

**Goal:** To end the global TB epidemic

**By 2025:** A 75% reduction in TB deaths (compared with 2015) and less than 50 cases per 100,000 population.

Aligned with the USG strategy to prevent and control TB, CTB has three objectives and 11 sub-objectives, each with several focus areas for interventions:

## **Objective 1: Improved access to high-quality patient-centered TB, DR-TB & TB/HIV services by:**

1. Improving the enabling environment
2. Ensuring a comprehensive, high quality diagnostic network
3. Strengthening patient-centered care and treatment

## **Objective 2: Prevent transmission and disease progression by:**

4. Targeted screening for active TB
5. Implementing infection control measures
6. Managing latent TB infection

## **Objective 3: Strengthen TB service delivery platforms by:**

7. Enhancing political commitment and leadership
8. Building comprehensive partnerships and informed community engagement
9. Strengthening drug and commodity management systems
10. Ensuring quality data, surveillance and monitoring & evaluation
11. Supporting human resource development.

CTB implements projects at the country, regional and international/global level with the majority of the program's work being done through country-specific projects. As of September 30, 2015, there were 19 total country projects being implemented under CTB (Namibia and Uzbekistan were in development). At the regional level, CTB launched a project in the East Africa Region, which builds upon the successes of previous individual regional projects under TB CARE I while leveraging those partnerships for greater reach and results.

Through core funding, CTB is also working on priority projects that have implications for TB prevention and control globally. Core projects that were launched during the reporting period include 1) Transmission: Quantifying the effect of interventions on transmission of *Mycobacterium tuberculosis* (*M.tb*), and 2) Measurement of stigma.

# Challenge TB Countries

(Namibia & Uzbekistan begin work in Year 2)

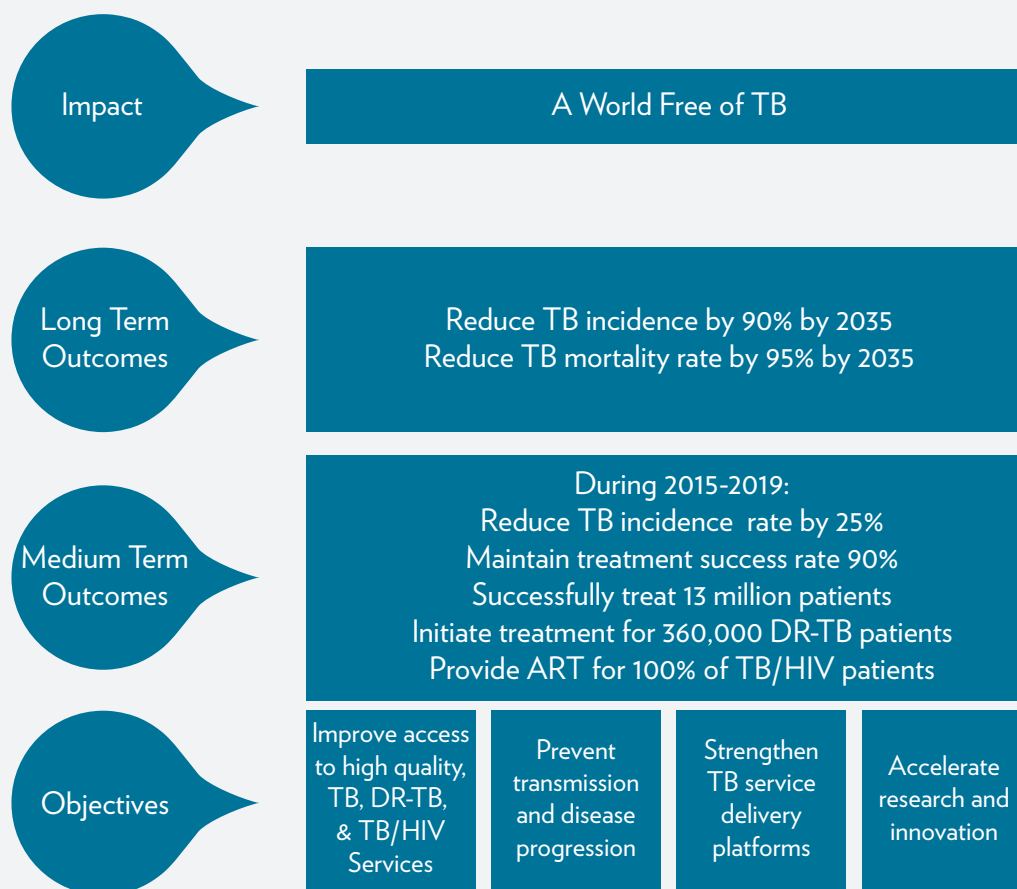
- 1 Nigeria**  
Implementation date: June 2015  
Investment level: High  
Sub-objectives: 1, 2, 3, 4, 7 and 10
- 2 Botswana**  
Implementation date: August 2015  
Investment level: Low  
Sub-objectives: 2, 9 and 11
- 3 DR Congo**  
Implementation date: January 2015  
Investment level: High  
Sub-objectives: 1, 2, 3, 5, 6, 7, 8, 10 and 11
- 4 Zimbabwe**  
Implementation date: January 2015  
Investment level: High  
Sub-objectives: 2, 3, 4, 6, 7, 8, 10 and 11
- 5 Mozambique**  
Implementation date: January 2015  
Investment level: High  
Sub-objectives: 1, 2, 3, 5, 6, 7, 10 and 11
- 6 South Sudan**  
Implementation date: January 2015  
Investment level: Medium  
Sub-objectives: 1, 3, 5, 7 and 10
- 7 Malawi**  
Implementation date: April 2015  
Investment level: Medium  
Sub-objectives: 1, 2, 3, 5, 10 and 11
- 8 Tanzania**  
Implementation date: January 2015  
Investment level: High  
Sub-objectives: 1, 2, 3, 4, 5, 7, 8, 10 and 11
- 9 Ukraine**  
Implementation date: January 2015  
Investment level: Medium  
Sub-objective: 3



- 10 Ethiopia**  
Implementation date: January 2015  
Investment level: Medium  
Sub-objectives: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11
- 11 Afghanistan**  
Implementation date: January 2015  
Investment level: Medium  
Sub-objectives: 1, 3, 5, 7 and 10
- 12 Tajikistan**  
Implementation date: January 2015  
Investment level: Low  
Sub-objectives: 3 and 9
- 13 Kyrgyzstan**  
Implementation date: October 2015  
Investment level: Low  
Sub-objective: 3
- 14 India**  
Implementation date: January 2015  
Investment level: High  
Sub-objectives: 1, 2 and 7
- 15 Bangladesh**  
Implementation date: January 2015  
Investment level: High  
Sub-objectives: 1, 2, 3, 4, 5, 7, 9, 10 and 11
- 16 Burma**  
Implementation date: April 2015  
Investment level: Medium  
Sub-objectives: 1, 2, 3, 4, 5, 7, 8, 9 and 10
- 17 Cambodia**  
Implementation date: January 2015  
Investment level: Medium  
Sub-objectives: 1, 2, 3, 4, 5, 6, 10 and 11
- 18 Vietnam**  
Implementation date: January 2015  
Investment level: Low  
Sub-objectives: 1, 2, 3, 5, 7, 8, 10 and 11
- 19 Indonesia**  
Implementation date: January 2015  
Investment level: High  
Sub-objectives: 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10

# CTB Contribution to USAID Targets<sup>1</sup>

CTB is aligned with three major objectives, and medium- and long-term outcomes as defined by the USG strategic framework presented below:



While contributing to this USG strategy, CTB started tracking selected indicators in CTB-supported countries that are linked to programmatic activities and relevant to CTB goals, objectives/sub-objectives and intervention areas. In Year 1, October 2014-September 2015, CTB laid a strong foundation for contributing to the USG Global TB strategy (2015-2019) for TB care and prevention over the next four years of CTB full-scale implementation.

Below, the data are presented for 21 countries that received CTB funds in Year 1 (19 countries with approved work plans as well as Namibia and Uzbekistan that had work plans under development and started in October 2015). These include high-level indicators that are found in the USG strategy (i.e. TB mortality, incidence, case detection rate, the percentage of new and previously treated TB cases with multi-drug resistant TB (MDR-TB), and the percentage of individuals with HIV-associated TB initiating ART). Furthermore, under each CTB objective/sub-objective section, data are presented on USAID mandatory indicators for every CTB country, including key outcome indicators such as treatment success rate and the number of TB patients successfully treated as well as the number of DR-TB patients initiating second-line treatment.

For population/patient-based indicators, data extracted from the WHO Global TB Report 2015 serve as CTB baseline (usually data for 2014), which will be used to monitor CTB contributions towards achieving USG strategic framework medium- and long-term outcomes over the next four years. For programmatic indicators that follow the project cycle (October-September), these data are collected directly from the CTB country projects.

1. CTB is assisting NTPs to improve the prevention and control of TB from a country perspective; in addition to in-country resources (government funding, etc.), countries are often also assisted through other means such as the Global Fund (GF). Therefore it is difficult to measure to what extent changes in these indicators are attributable only to CTB interventions. In some countries, CTB operates on a selected range of technical areas and the geographic area is not always country-wide. The technical area indicators (see Section 4) can help to tease out CTB's contribution in specific areas.

# Mortality

Estimates of TB mortality vary considerably across CTB countries, with highest mortality among HIV-negative people reported for African and East Asian countries (Figure 1). According to the WHO 2015 report, the number of TB deaths (among HIV-negative people) averaged 16 per 100,000 population globally in 2014; mortality in only five (24%) CTB countries (Tajikistan, Uzbekistan, Kyrgyzstan, Ukraine and Zimbabwe) was reported below the global average. The estimated number of TB deaths among HIV-positive people per 100,000 population was highest in the African region (Figure 2).

Figure 1: Mortality (excludes HIV+ TB), per 100,000 population, 2014 (WHO 2015)

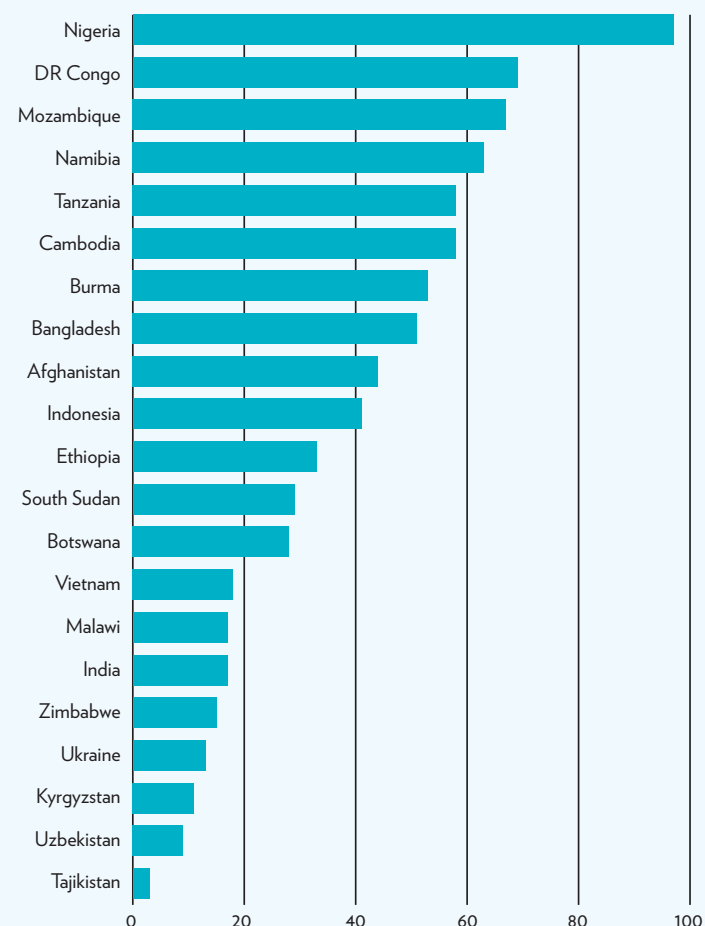
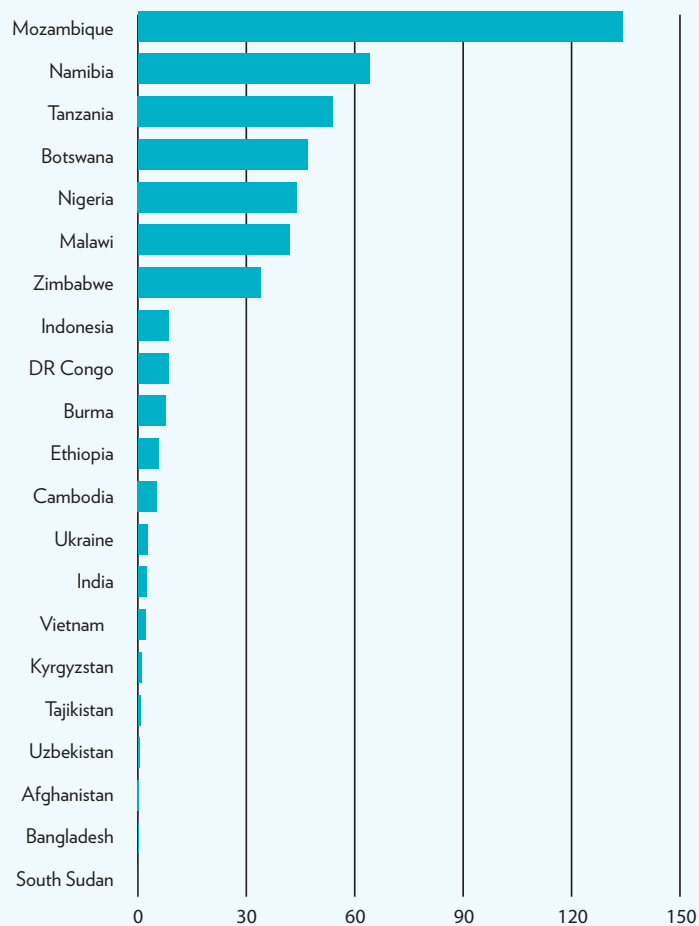


Figure 2: Mortality (HIV+ TB only), per 100,000 population, 2014 (WHO 2015)



On-the-job Xpert training, Tanzania (Photo: Edgar Luhanga)



## Incidence

In 2014, there were an estimated 9.6 million incident cases of TB globally, equivalent to 133 cases per 100,000 population (WHO 2015 report). Figure 3 shows that 18 (86%) CTB countries have an estimated TB incidence above the global average, with the highest rates reported in African and East Asian countries; the highest rates of HIV-positive TB are reported in African countries (Figure 4).

Figure 3: Incidence (includes HIV+ TB), per 100,000 population, 2014 (WHO 2015)

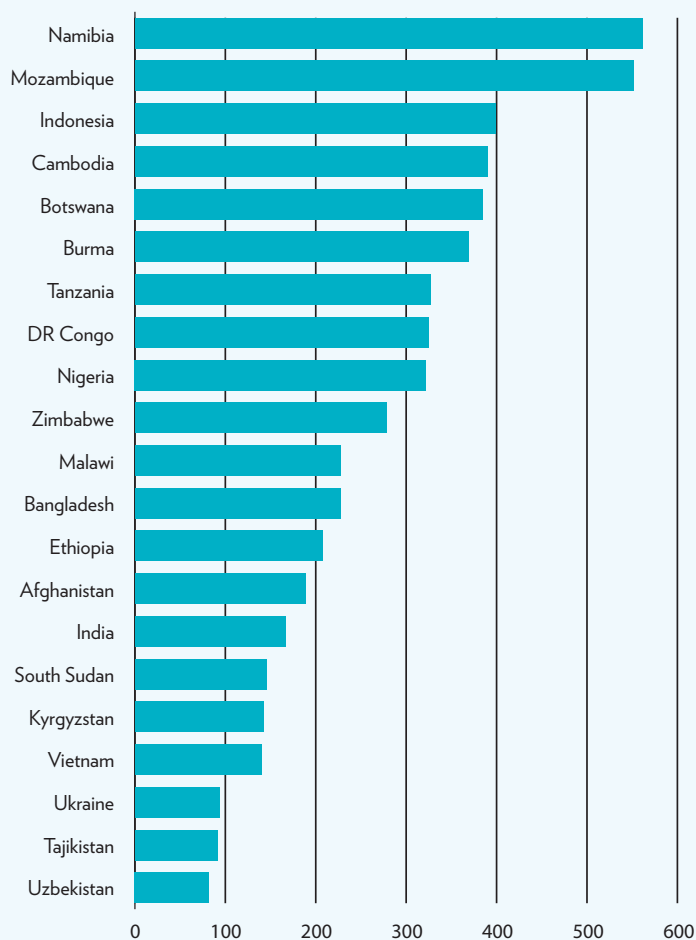
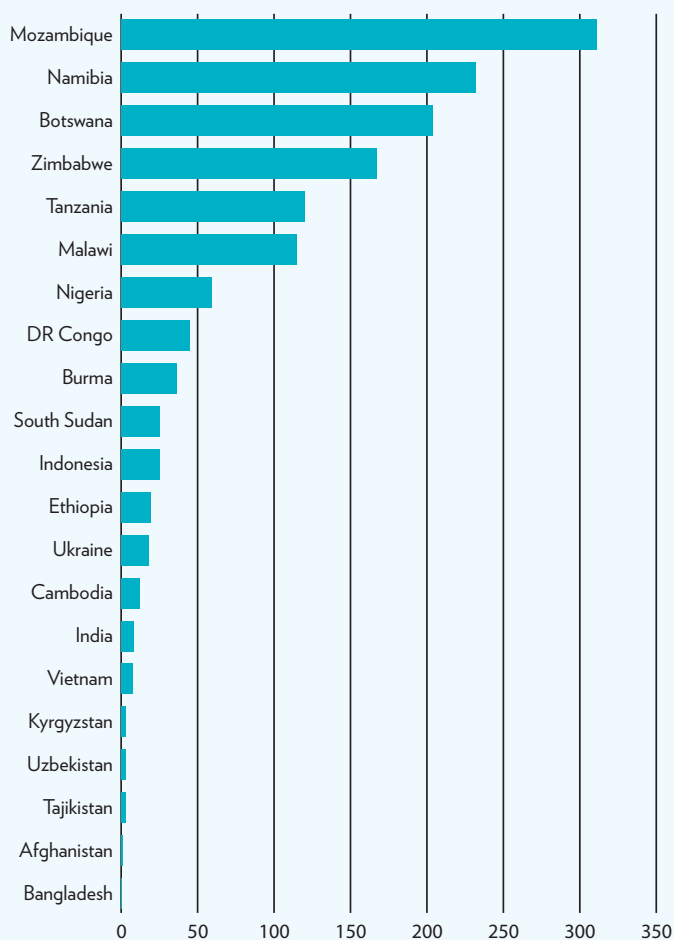


Figure 4: Incidence (HIV+ TB only), per 100,000 population, 2014 (WHO 2015)

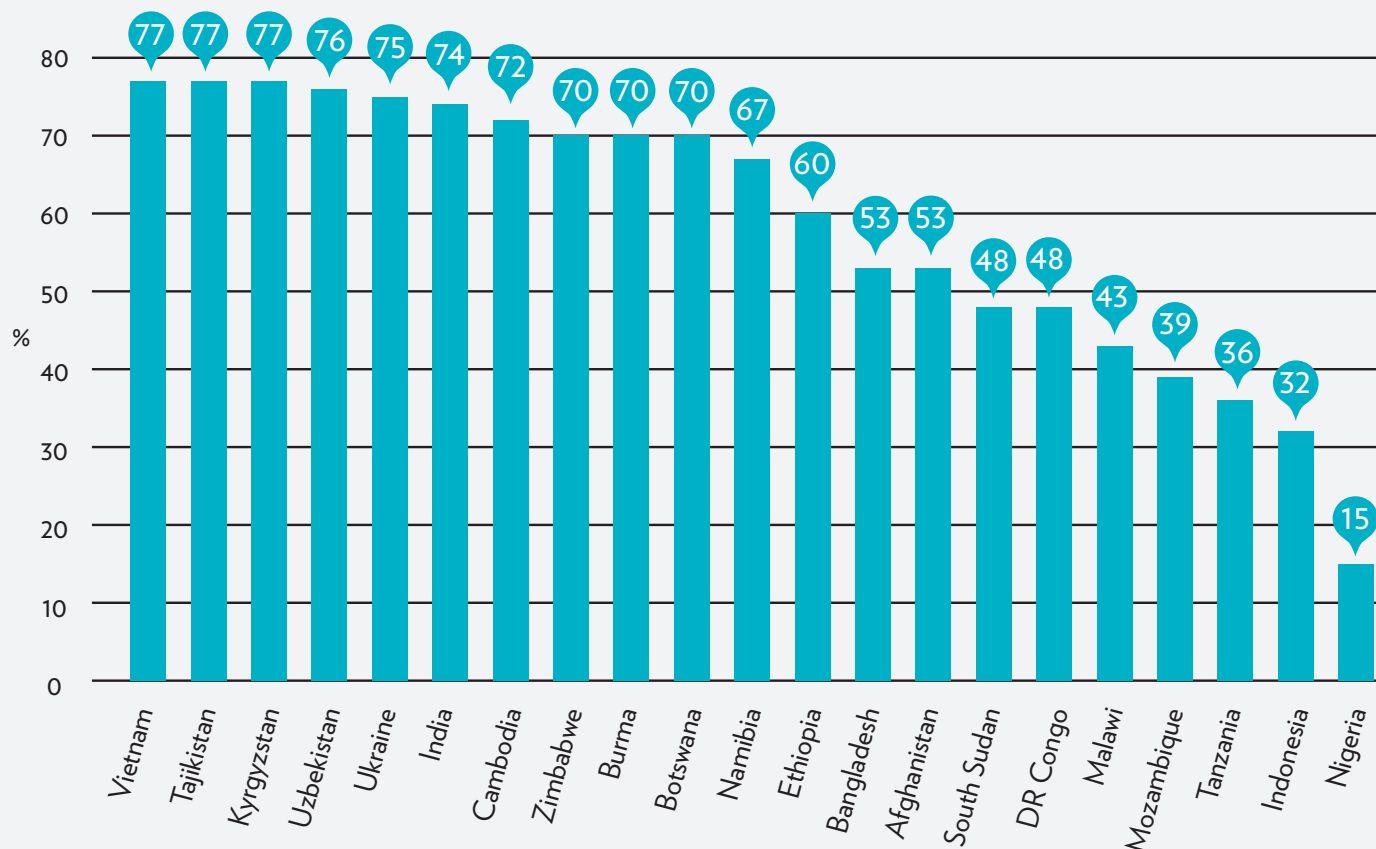


Lab technicians from private hospitals practicing sputum smear microscopy, Afghanistan (Photo: Delaqa Safi)

## Case Detection

The best estimate of the case detection rate (CDR) for all forms of TB globally in 2014 was 63% (WHO 2015 report); out of 21 CTB countries, 11 (52%) countries have a CDR above the global average (Figure 5), but which are far below the 90% global End TB Strategy priority target.

Figure 5: Case detection rates (percentage), all forms, 2014 (WHO 2015)



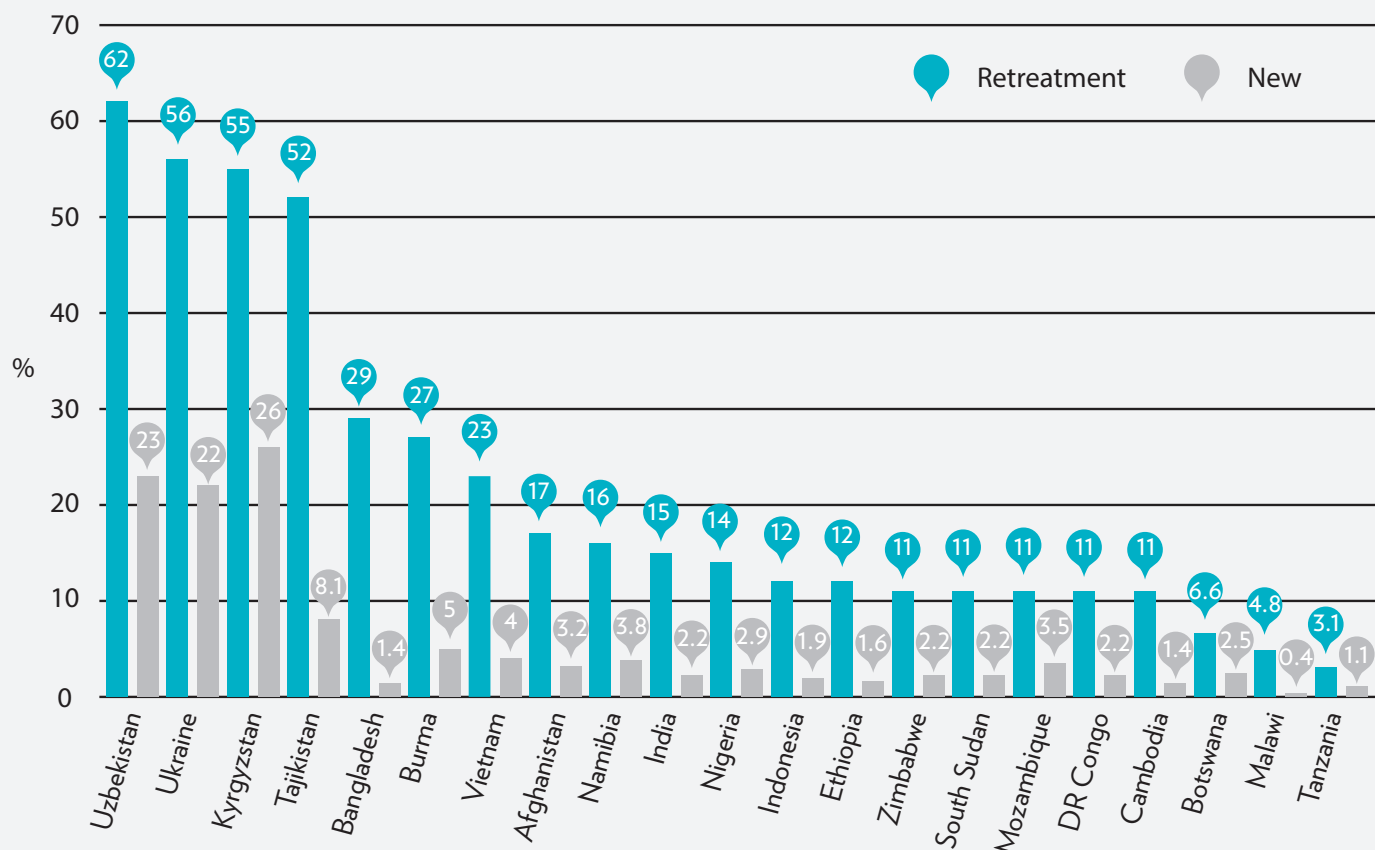
Active Case Finding - Cambodia (Photo: Ngo Menghak)



## Multi-Drug Resistant TB (MDR-TB)

The estimated proportions of new and previously treated TB cases with MDR-TB in 21 CTB countries are shown in Figure 6, with highest proportions reported for Central Asian and Eastern European countries.

Figure 6: Estimated percentage of TB cases (new and retreatment) with MDR-TB, 2014 (WHO 2015)

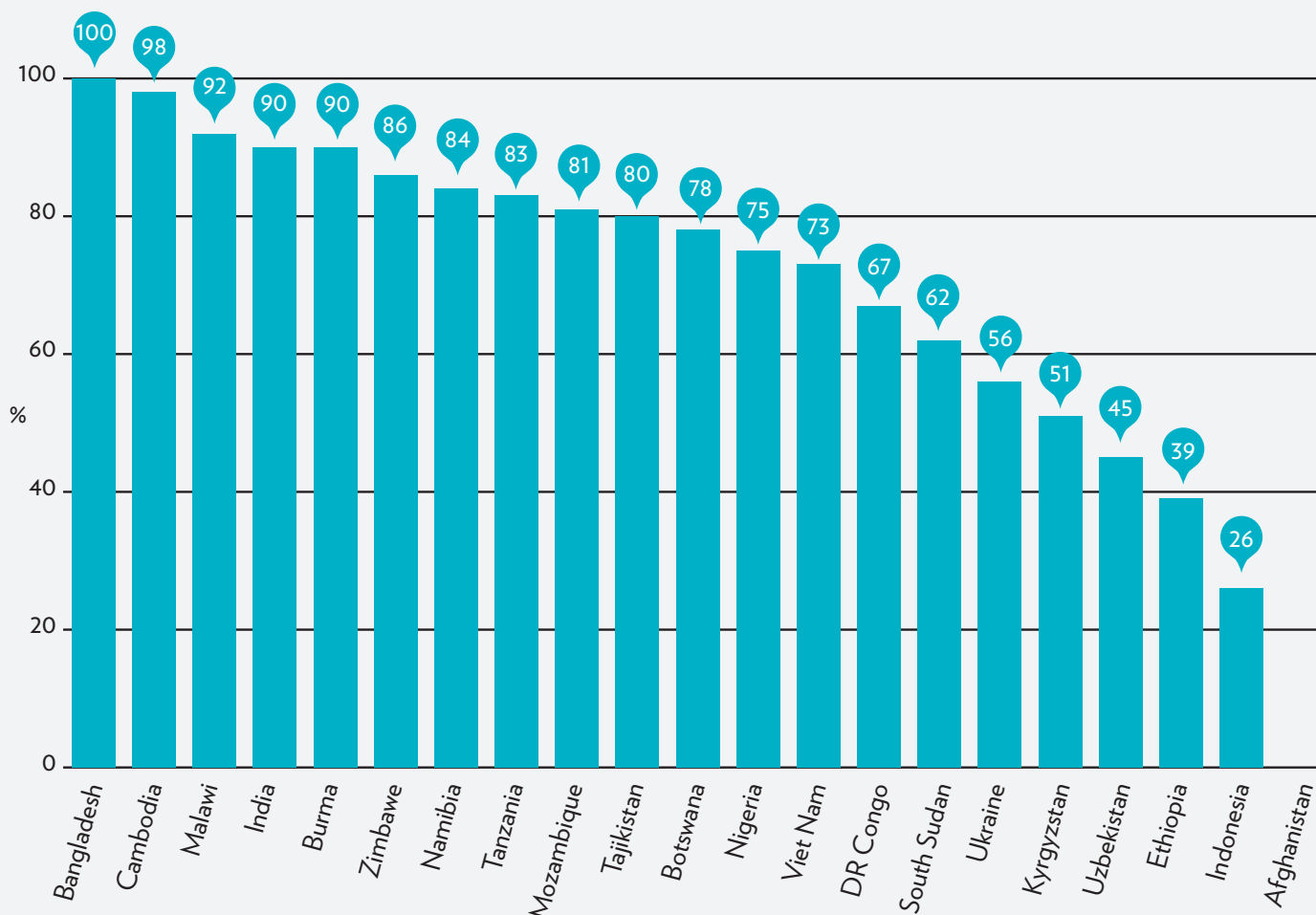


National data-driven supportive supervision, Zimbabwe (Photo: Nqobile Mlilo)

## Antiretroviral Therapy (ART)

In 2014, coverage of ART for notified TB patients who were known to be co-infected with HIV reached 77% globally (WHO 2015 report). For this indicator, 11 (52%) CTB countries were reported being above the global average (Figure 7), with a total of 80% (146,460) of HIV-positive TB patients having started ART in all 21 CTB countries.

Figure 7: Percentage of HIV-positive TB patients on ART, 2014 (WHO 2015)





# Achievement by Objective/Sub-Objective

In Year 1, CTB implemented projects in 19 countries<sup>2</sup> (see page 8 for basic information on individual country projects). In the following subsections, Year 1 achievements will be discussed by objective/sub-objective. Achievements and results from country, core and regional projects are also highlighted. More detail on country-level activities and results can be found in country-specific Annual Reports.

## Objective 1. Improved Access to high-quality TB, MDR-TB and TB/HIV services

To achieve this objective, CTB is working in three areas:

- 1. Enabling environment** - In most countries a wide range of providers (i.e. private, public, parastatal) are not engaged in the entire TB services continuum, and communities lack proper knowledge and tools to understand the signs/symptoms of TB, combat the stigma surrounding TB, as well as how to support TB patients undergoing treatment;
- 2. Comprehensive, high quality diagnostics** - TB diagnosis is not accessible to all presumptive TB patients through a well-organized TB laboratory network allowing for quality assured TB diagnostic testing including basic (i.e. LED microscopy) and more advanced techniques (i.e. culture/DST/Xpert);
- 3. Patient-centered care and treatment** - Many patients cannot access quality care, resulting in delayed or erroneous diagnosis and treatment. Correct diagnosis is hampered by a combination of lack of awareness among health staff, poor quality of the diagnostic process, and poor communication with patients, leading to under- or over-diagnosis. The scale-up of programmatic management of drug-resistant TB (PMDT) has been slow because of the difficulty of incorporating quality diagnosis and treatment of MDR-TB into weak health systems. Treatment regimens are long and use drugs that may cause toxic reactions that require costly specialized care. Patient management is still fragmented (e.g., separate for TB and HIV).

## Sub-objective 1. Enabling Environment

### CTB intervention areas

- 1.1. Provision of services according to national guidelines for all care providers and risk groups
- 1.2. Community empowered, especially among risk groups
- 1.3. Health seeking behavior improved for types of services
- 1.4. Patient-centered approach integrated into routine TB services for all care providers for a supportive environment.

### Key Results

- A total of 3,009,709 TB cases (all forms) were notified in 21 CTB countries in 2014
- 12 (57%) CTB countries had case notification data reported by private providers
- 12% of total TB cases were reported by private providers in 12 CTB countries in 2014
- 12 (57%) CTB countries reported data on community contributions to case notifications
- Six percent of notified TB patients came from community referrals in 12 CTB countries in 2014
- Three (17%) out of 18 CTB countries provided data reported for prisons in 2014

2. In addition, Namibia and Uzbekistan had work plans under development so their baseline data are included as well.

# Private Sector Engagement

In 2014, a total of 3,009,709 cases (all forms<sup>3</sup>) were notified across all 21 CTB countries. Case notification data reported by private providers were available in 12 (57%) countries - 317,103 (12%) of cases in these 12 countries were reported by private providers in 2014; similarly, 12 (57%) countries reported data on community contributions to case notifications – 172,810 (6%) of notified TB patients came from community referrals in these countries in 2014; three (17%) out of 18 countries provided data for prisons. The proportion of cases reported by private providers varied from 1% in Cambodia to 22% in Malawi<sup>4</sup>, and the percentage of notified TB patients from community referrals ranged from 1% in Burma and India to 42% in Bangladesh (Table 1).

Table 1: Indicator 3.1.1 Number of cases notified by setting (i.e. private sector, pharmacies, prisons, etc.) and/or population (i.e., gender, children, miners, urban slums, etc.) and/or case finding approach, 2014

CTB Country	TB cases (all forms) notified in CTB countries (2014)*	TB cases reported by private providers (2014)*		TB cases reported by prisons (2014)**		TB cases notified from community referrals (2014)*		Children 0-14 (2014)*	
		n	%	n	%	n	%	n	%
Afghanistan	31,746	2,826	9%			1,088	3.4%	4,454	14%
Bangladesh	191,166	22,960	12%			79,477	41.6%	6,262	3%
Botswana	6,019							419	7%
Burma	138,352	25,978	19%			1,304	0.9%	36,301	26%
Cambodia	43,059	465	1%			14,115	32.8%	12,050	28%
DRC	115,795					12,649	10.9%	3,438	3%
Ethiopia	119,592	16,876	14%			14,399	12.0%	15,917	13%
India	1,609,547	194,992	12%			19,713	1.2%	95,709	6%
Indonesia	322,806	28,186	9%			8,707	2.7%	23,170	7%
Kyrgyzstan	6,390			202	3%			438	7%
Malawi	16,267	3,500	22%					1,827	11%
Mozambique	57,773			667	1%	2,868	5.0%		
Namibia	8,972							877	10%
Nigeria	86,464	13,031	15%					5,463	6%
S. Sudan	8,335								
Tajikistan	5,807	883	15%	160	3%	883	15.2%	334	6%
Ukraine	31,701							532	2%
Tanzania	61,571	4,724	8%			10,416	16.9%	6,463	10%
Uzbekistan	18,345					7,191	39.2%	1,913	10%
Vietnam	100,349	2,682	3%					144	0.1%
Zimbabwe	29,653							2,290	8%
<b>Total</b>	<b>3,009,709</b>	<b>317,103</b>	<b>11.6%</b>	<b>1,029</b>	<b>1.5%</b>	<b>172,810</b>	<b>6.4%</b>	<b>218,001</b>	<b>7.2%</b>

\*2014 national level data (WHO 2015 report)

\*\* 2014 national level data reported by 18 CTB country projects (Namibia and Uzbekistan [work plans under development] as well as Malawi [late start] did not provide annual data)

3. All new and relapse cases (previously treated excluded)

4. This high percentage is due to the definition of private providers used in the WHO 2015 report. Alongside private individual and institutional providers as well as corporate/business sector providers, mission hospitals, nongovernmental organizations and faith-based organizations are also included. These organizations (especially mission hospitals) provide relevant diagnostic and treatment services to a significant number of TB patients in Malawi. Part of CTB's scope of work in Year 2 is to map out where Malawi stands with private-for-profit providers.

With an aim to increase case notification, in Year 1 CTB made considerable efforts to improve the enabling environment by focusing on interventions and strategies ensuring intensified/active case finding for all risk groups by all care providers both in healthcare settings and at the community level. Highlights for CTB support in the area of private sector engagement:

- In both Bangladesh and Burma, to lay the foundation for scaling up engagement of a wide range of providers through PPM, national situation analyses and PPM strategies were completed;
- In Cambodia, a hospital engagement approach was introduced in hospitals with high patient numbers, with TB symptom screening initiated in all out-patient and in-patient departments including at pediatric and diabetes clinics/wards.
- In Indonesia, with technical support from CTB, mandatory notification of TB has been included in a final draft Decree of the Minister of Health. This means TB will be a notifiable disease and all health providers delivering TB services will be obliged to report cases to the NTP. Through regulation enforcement on mandatory notification, it is expected that large numbers of diagnosed TB patients in the private sector will be captured by the surveillance system.

## Key Populations

In Year 1, CTB prepared a strategy for successful TB care and prevention among key populations. Key populations were identified based on the results of the risk prioritization exercise and will be targeted by the project over the next four years. This was often combined with a situation assessment, revision of national policies and guidelines, and implementation of strategies targeted to key population groups.

Highlights of CTB support in working with key populations:

- In Bangladesh, an urban TB strategy was drafted to improve early case detection and adherence to treatment among the urban poor. When the strategy is finalized in Year 2, there will be strong involvement of local NGOs through sub-grants; these local partners will implement community-based active case-finding activities particularly in under performing areas and among targeted high risk populations in urban slums.
- In Tanzania, the national advocacy, communication, and social mobilization (ACSM) strategy was revised and training materials were developed with inclusion of behavior change communication aspects among key populations including mining communities, PLHIV, pediatric patients with respiratory illness, diabetic patients, injecting drug users and the elderly. In the Democratic Republic of the Congo (DRC), the national TB care and prevention policies and guidelines were updated to include recommendations on new case-finding algorithms and the use of GeneXpert MTB/Rif (Xpert), particularly in TB risk groups and vulnerable populations, such as prisoners.
- The 2011 TB prevalence survey in Cambodia documented a high prevalence among elderly. To address this, semi-active case finding activities were conducted among elderly Cambodians visiting pagodas. Within four months (June – Sept. 2015) of implementation, 3,033 elderly were screened for TB symptoms, of which 1,797 (59%) had at least one symptom suggestive of TB. A total of 37 active TB cases (2% of presumptive TB patients) were identified with bacteriologically confirmed TB and an additional 58 others (3% of presumptive TB patients) with strong suggestion of TB based on their symptoms (but not sputum smear positive) were referred to referral hospitals for further evaluation.

## Patient-Centered Approaches (PCA)

Community empowerment and integration of PCA into TB services has been another priority for CTB, with the following efforts made in Year 1:

- In Afghanistan, CB-DOTS was implemented in 15 new provinces by involving local NGOs - this contributed to the identification of 78,000 presumptive TB patients, among whom 3,281 (4%) TB patients (all forms) were diagnosed.
- The empowerment and expansion of patients' groups in Indonesia is providing additional support to MDR-TB patients; currently, seven patients' groups are established in various regions with a total membership of 102.
- The CB-DOTS manual in Mozambique was revised to include new components such as PCA, community infection control, and contact tracing.
- In Ukraine, the patient-centered approach for MDR-TB care was developed based on an ambulatory care model and aiming at quality improvement of MDR-TB services.

## Leveraging and Expanding Upon Challenge TB Work



The Dutch Ministry of Foreign Affairs (DGIS) committed 7.5 million Euros to KNCV as co-funding for CTB. This DGIS funding is meant to be integrated with CTB's strategic framework and have a particular focus on Global Fund support to TB/HIV programs. The DGIS funding follows the same timeline as CTB for five years, ending in 2019.

The framework developed by KNCV and agreed on with DGIS is based on two pillars:

Increase case finding and treatment success through engagement of non-public sector; Improve Global Fund implementation through long-term technical assistance (LTTA). To strengthen engagement of the non-public sector to provide quality patient-centered TB/HIV services, the project aims to develop a scalable model that enables effective partnerships between (local) governments, private health care providers and civil society organizations. Specifically, the model will pave the way towards a broader provider base and informed community demand for accessible, quality and patient-centered TB/HIV services in the non-public sector. To improve Global Fund implementation, the project will apply the USAID model of LTTA in selected non-CTB countries.

In Year 1, relevant country-specific activities were started up in Kazakhstan and Nigeria. Stakeholder meetings were conducted in the selected geographic areas, Almaty and Lagos, with the local TB and HIV programs, implementing partners including CTB in Lagos, civil society, as well as private providers and professional associations. In particular, the stakeholder meeting in Almaty was the first of its kind where the NTP, NAP, city health services, civil society and private providers were together at one table discussing TB and TB/HIV care. Mapping exercises were also conducted to better understand the basic landscape regarding TB/HIV care in the public and private sector, as well as how civil society is engaged. Based on the mapping results, the focus for the country-specific models was identified and translated into activities for Year 2.

In Nigeria, the mapping identified three main priorities; 1) quality assurance including supervision; 2) capacity building and 3) advocacy for engagement of non-public sector. Of the three priorities it was decided to focus on quality assurance for which a framework will be developed and piloted in Lagos. Although the State TB and Leprosy Control Program (STBLCP) would still maintain their role in supportive supervision, it was agreed that a model system to assess quality in the private sector would support expansion of TB/HIV services and ensure that non-public facilities engaged are able to provide quality services and manage TB/HIV care according to national guidelines and international standards for care. This model should also include input from the community/patient perspective. Thus, the project is proposing to take a health systems approach through a TB/HIV lens. Ultimately the project aims to develop a model for quality assurance of non-public facilities including input from the STBLCP structure, patients and an independent body to look at overall quality according to agreed upon quality standards, such as the Safe Care model of PharmAccess. It was also agreed to explore setting a minimum standard for TB screening and referral to be set as for all providers—public and private. As a start, Year 2 activities will first focus on the private facilities that are now engaged with the STBLCP to provide TB services - 103 in total. The aim is to work within the existing system to strengthen it rather than create a parallel system. Thus, an inventory will be conducted of all regulatory bodies in Lagos, including implementing partners and their assessment tools from which a draft quality assurance tool will be developed. The draft tool will be tested in ten facilities and based on results it will be finalized for further roll out. Quality improvement plans will be developed for the facilities assessed and where there is need to improve TB/HIV capacity, CTB and the STBLCP will be engaged. During the period of demonstration assessments a local partner or partners will be identified to take on the role of independent quality assessors. Strategies for expansion will be explored in collaboration with CTB and partners from Year 3 onward.



## Sub-objective 2: Comprehensive, High Quality Diagnostics

### CTB intervention areas

- 2.1. Access to quality TB diagnosis ensured
- 2.2. EQA network for lab diagnostics & services functioning
- 2.3. Access to quality culture/DST ensured
- 2.4. Access, operation and utilization of rapid diagnostics (i.e. Xpert) ensured for priority populations
- 2.5. Laboratory information management system operational and utilized
- 2.6. Expedient laboratory specimen transport and results feedback system operational
- 2.7. Bio-safety measures in laboratories ensured

### Key Results

- Eight (44%) out of 18 CTB countries reported they had a national TB laboratory operational plan in place as of September 2015
- Eight (50%) out of 16 CTB countries have at least one reference laboratory implementing a laboratory quality management system in 2015
- No CTB countries have met all 11 GLLI-approved TB microscopy network standards as of September 2015
- Five (28%) out of 18 CTB countries had >20% of new bacteriologically confirmed TB cases tested for RR-/MDR-TB in 2014
- Ten (56%) out of 18 CTB countries with >50% of previously treated TB cases tested for RR-/MDR-TB in 2014.



Sputum Motorbike Transport, Delivery of GeneXpert cartridges at Lapai Hospital, Niger State – Nigeria (Photo: Jan-Willem Dogger)

In Year 1, eight countries reported they had a national TB laboratory operational plan in place (Table 2). Out of these eight, four plans (Botswana, Kyrgyzstan, Burma and Vietnam) were reported to follow standard technical and management principles for a quality work plan to build and strengthen the existing TB laboratory network (Figure 8); however, the quality and implementation status of these plans is being currently assessed by CTB, which will help to define the scope of work/technical assistance CTB will provide in this area to these countries over the coming years.

Table 2: Indicator 2.1.2 A current national TB laboratory operational plan exists and is used to prioritize, plan and implement interventions, 2015\*

0= Operational plan not available

1= Operational plan available

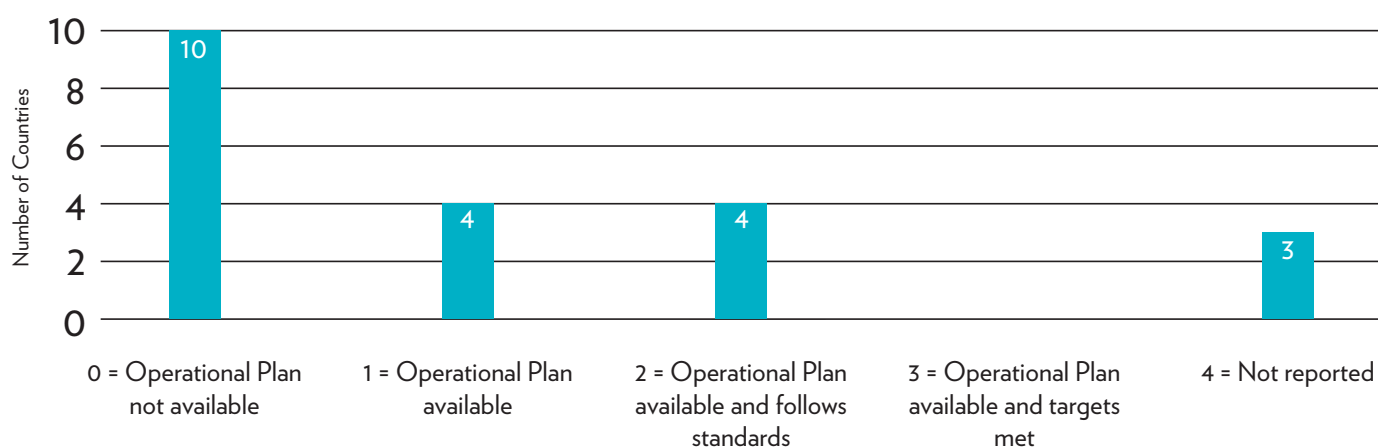
2= Operational plan available and follows standards

3= Operational plan available and meets annual implementation targets.

CTB Country	Score
Botswana	2
Kyrgyzstan	2
Burma	2
Vietnam	2
Afghanistan	1
Ethiopia	1
Mozambique	1
Nigeria	1
Bangladesh	0
Cambodia	0
DRC	0
India	0
Indonesia	0
S. Sudan	0
Tajikistan	0
Ukraine	0
Tanzania	0
Zimbabwe	0

\*Data for Malawi, Namibia and Uzbekistan are not yet available.

Figure 8. Number of countries by national TB operational plan status, 2015





In some countries, CTB had to start with the development of a national TB laboratory strategic plan (e.g. Bangladesh) or a situation analysis of the national TB reference laboratory (NTRL) as the first step towards developing a national laboratory strategic plan and its annual operational plan (e.g. DRC and Burma).

In eight countries, there was at least one reference laboratory implementing laboratory quality management system (LQMS) in 2015. Among these, Ethiopia, Tanzania and Zimbabwe had eight, six and two reference laboratories implementing TB-specific LQMS, respectively; whereas, for rest of the countries, LQMS was implemented in one NTRL only (Table 3). In some countries, major emphasis was made on strengthening external quality assurance (EQA) (e.g., DRC and Indonesia), which is just one of many aspects of laboratory operations to assure accuracy and reliability of testing.

Through the East Africa (EA) regional program (the region for implementation of this program covers the USAID EA region and member states of East, South, Central and Horn of Africa region, though the focus will be in six countries: Ethiopia, Kenya, Rwanda, Somalia, Tanzania, and Uganda), CTB supported the national and supra-national TB laboratory (SNRL) in Uganda with an aim to establish a regional network of NTRLs from the aforementioned countries, and strengthen regional support for conducting anti-TB drug resistance surveillance. Although the regional project only started in July 2015, the SNRL participated in the regional stakeholders meeting held in Nairobi. The meeting and the field visits showcased and underlined the challenges for cross-border TB control and collaboration especially from Somalia which is in the process of putting up a national TB reference laboratory with the support of the Uganda SNRL. Translation of the TB laboratory Infection Control SOPs for Somalia developed by the SNRL was initiated.

Table 3: Indicator 2.2.6 Number and percentage of TB reference laboratories (national and intermediate) within the country implementing a TB-specific quality improvement program i.e. LQMS, 2015\*

CTB Country	Number of TB reference labs implementing LQMS	Total number of TB reference labs	Percentage of TB reference labs implementing LQMS
Botswana	1	1	100%
Tanzania	6	6	100%
Zimbabwe	2	2	100%
Ethiopia	8	9	89%
Kyrgyzstan	1	2	50%
DRC	1	3	33%
Mozambique	1	3	33%
Afghanistan	0	2	0%
Bangladesh	0	3	0%
Cambodia	0	1	0%
Indonesia	0	3	0%
Burma	0	3	0%
Nigeria	0	6	0%
S. Sudan	0	1	0%
Tajikistan	0	1	0%
Vietnam	0	2	0%

\*Data for Malawi, Namibia, and Uzbekistan are not yet available; data for India and Ukraine not validated yet.

In Year 1, CTB invested in the expansion of microscopy networks (e.g., Ethiopia, Mozambique and Indonesia), mostly by procuring and distributing LED microscopes to high-volume health facilities, which has improved access to more sensitive and quality smear microscopy. A more systematic approach will be taken for strengthening microscopy networks next year, as none of CTB countries had all 11 GLI-approved TB microscopy network standards met in 2015 (nine standards were met in two countries (Ethiopia and Zimbabwe) only, and seven or fewer standards were met by the remaining 12 countries, Table 4).

Table 4: Indicator 2.2.7 Number of GLI-approved TB microscopy network standards met, 2015\*

Country	GLI standard											Number of Standards Met
	1	2	3	4	5	6	7	8	9	10	11	
	Network and services are well defined in National strategy	Microscopy manual and SOPs align with WHO recommendations	Coverage by population is documented	Sufficient number of qualified and competent staff per workload	All Microscopy labs are in the EQA program and receive regular supervision	Global reporting and recording templates are used at all levels	Procurement and Distribution of supplies is ensured	EQA policy includes private sector labs	Dedicated budget for quality assured AFB Microscopy	AFB Microscopy labs are safe with practices according to WHO recommendations	National specimen referral policy is in place to ensure additional testing for high risk groups (MDRTB/ HIVTB)	
Ethiopia	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	9
Zimbabwe	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	9
Ukraine	No	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	7
Nigeria	Yes	No	Yes	No	Yes	Yes	No	Yes	No	No	Yes	6
Botswana	Yes	Yes	Yes	No	No	Yes	No	No	No	No	Yes	5
Burma	Yes	Yes	Yes	No	No	Yes	No	No	No	No	Yes	5
Afghanistan	Yes	No	Yes	No	Yes	Yes	No	No	No	No	No	4
Bangladesh	No	Yes	No	No	No	Yes	Yes	No	Yes	No	No	4
DRC	No	No	Yes	No	No	Yes	No	Yes	No	No	Yes	4
Indonesia	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes	4
Kyrgyzstan	No	No	Yes	No	No	No	No	No	Yes	No	Yes	3
S. Sudan	Yes	Yes	No	No	No	Yes	No	No	No	No	No	3
Tajikistan	No	No	No	No	Yes	Yes	No	No	No	No	Yes	3
Tanzania	Yes	No	No	No	No	Yes	No	Yes	No	No	No	3
Mozambique	No	No	No	No	No	No	No	No	No	No	No	0

\*Data not yet available for Cambodia, India, Malawi, Namibia, Uzbekistan and Vietnam

An expedient laboratory specimen transport and results feedback system (launched under TB CARE I) was further expanded in Zimbabwe. In Year 1, CTB supported 50 motorcycles in the three major cities and 42 rural districts of the country with a total population of 8,294,437 to ferry sputum and other biological samples (including blood, urine, stool, and dried blood spot specimens for early infant diagnosis of HIV) for diagnosis and treatment monitoring to laboratories. For the period October 2014 to June 2015, 207,105 specimens were transported, of which 51,120 (25%) were TB specimens. The significant proportion of non-TB related specimen reflected the relative contribution of project support to overall health systems strengthening.

In Mozambique, the transportation of specimens from peripheral health facilities to the district or provincial level is a major challenge countrywide. In Year 1, CTB conducted an exercise to identify possible transport systems that would efficiently and effectively transport samples from remote areas. CTB completed the assessment and one courier service was identified, but with prohibitively high costs (~US\$100,000 per district per year). Therefore, in Year 2 CTB will take a different approach. In close coordination with DPS Tete and Damien Foundation, CTB will pilot a model of integrating a sample transportation system with existing CB-DOTS services and sample transportation services for HIV care.

In Bangladesh, CTB provided support to the NTP to ensure the biosafety measures in four laboratories (NTRL, Kulna RTRL, Chittagong RTRL and Damien laboratory). The project initiated international procurement for provision of 14 biosafety cabinets, which will be completed in Year 2.

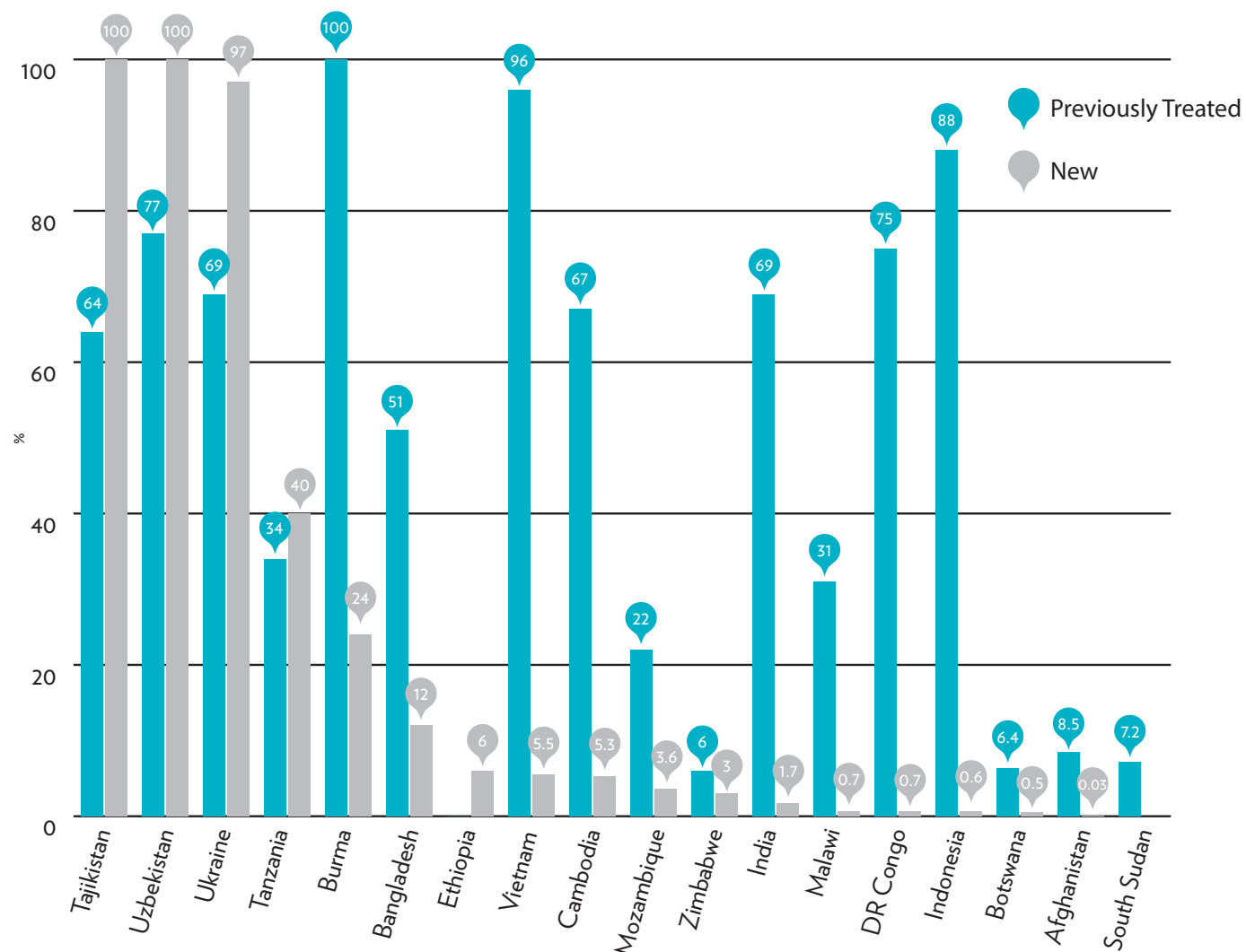
The NTRL in Mozambique is the first lab to be accredited by the Portuguese Institute of Accreditation (IPAC) out of a group of 250 laboratories selected for accreditation (please see the success story below). CTB provided technical assistance to the NTRL, as a part of the implementation process for accreditation. The accreditation process started in 2011 with FHI 360 playing a significant role in the process with the initial renovation and modernization done under TB CAP; TA continued under TB CARE I and CTB until full accreditation was achieved.

Based on WHO data, DST coverage remained low in CTB supported countries in 2014 – there were just five (24%) countries (Tajikistan, Uzbekistan, Ukraine, Tanzania and Burma) with >20% of new bacteriologically confirmed TB cases tested for RR-/MDR-TB, and ten (48%) countries with >50% of previously treated TB cases tested for RR-/MDR-TB (Figure 9). Taking into account a considerable contribution CTB is making towards scaling up Xpert diagnostic network in targeted countries (through procuring and installing GeneXpert machines and cartridges, improving knowledge and skills of laboratory personnel, supporting transportation of sputum samples, etc), DST/Xpert coverage is expected to significantly increase in Year 2 and beyond.



Sputum Motorbike Transport, Zimbabwe (Photo: The Union Zimbabwe)

Figure 9. Percentage of bacteriologically confirmed TB cases (new and previously treated) who are tested for RR-/MDR-TB, 2014 (WHO 2015)\*



\*Data not reported for Kyrgyzstan, Namibia and Nigeria in the WHO 2015 Global TB Report.

## Accreditation of the Maputo National Tuberculosis Reference Laboratory (NTRL): Huge step forward for TB Control in Mozambique

After three years of preparation, the NTRL in Maputo, Mozambique was finally accredited by the Portuguese Institute for Accreditation for ISO 15189 on March 27, 2015. The Accreditation Certificate for the laboratory includes techniques for the diagnosis of TB by fluorescence microscopy and as well as solid and liquid culture exams. The certificate is the highest international recognition of technical competence and quality management in laboratories. The Mozambique NTRL is now one of the few public medical laboratories in Africa and the first among the 250 laboratories of the Stepwise Laboratory Quality Improvement Process Towards Accreditation Initiative (SLIPTA) to achieve international accreditation.

The ceremony was presided over by the Minister of Health, with participation of the National Directors from the National Institutes of Health and Maputo Central Hospital, Technical staff and experts from the NTRL and partners. For the Minister, the accreditation of the Maputo NTRL was:  
*"... a milestone under the MoH's efforts to control TB in Mozambique, a disease with significant weight in public health."*

A certificate of merit was issued to the CTB Lab Technical Officer by the MoH as an acknowledgement of her contribution to the NTRL on biosafety and biosecurity during the accreditation process by the Portuguese Institute of Accreditation.



## Sub-objective 3: Patient-centered Care and Treatment

### CTB intervention areas

3.1. Ensured intensified case finding for all risk groups by all care providers

3.2. Access to quality treatment and care ensured for TB, DR-TB and TB/HIV for all risk groups from all care providers

### Key Results

- A total of 3,009,709 cases (all forms) were notified in 21 CTB countries in 2014
- Twelve (67%) out of 18 CTB countries provide case notification data disaggregated by key population group and/or case finding approach in 2015
- Seven percent of reported TB cases were children (0-14) in 19 CTB countries in 2014
- Out of all reported TB cases, the proportion of children (0-14) was within 5-15% range in 13 CTB countries (68% of 19 countries reporting data on children in 2014)
- Three (14%) out of 21 CTB countries exceeded 90% treatment success rate (TSR) (2013 cohort)
- No CTB countries provide TSR data disaggregated by key population groups
- A total of 53,022 RR-/MDR-TB cases were detected in 21 CTB countries in 2014
- A total of 46,282 RR-/MDR-TB cases initiated second line drug (SLD) treatment in 21 CTB countries in 2014
- Five (24%) out of 21 CTB countries exceeded 75% TSR for RR-/MDR-TB (2012 cohort) in 2014

As mentioned above, a total of 3,009,709 cases (all forms) were notified in 21 CTB countries in 2014; across 19 CTB countries, a total of 218,001 (7%) childhood TB cases (0-14) were reported (Table 1). Only three CTB countries (Cambodia, Bangladesh, and Tanzania) exceeded 90% TSR for new and relapse patients in 2014 (Table 5). None of the CTB countries provides TSR data disaggregated by key population group.



MDR-TB Patient and Doctors, Ethiopia (Photo: KNCV Ethiopia)

Table 5: Indicator 3.2.1 Number and percent of TB cases successfully treated (all forms), 2014 (WHO 2015)

CTB Country	Number of cases successfully treated	2013 Cohort	Percentage of cases successfully treated
Bangladesh	171,192	184,077	93
Cambodia	33,048	35,536	93
Tanzania	58,288	64,053	91
Ethiopia	39,035	43,860	89
Vietnam	90,954	102,196	89
Afghanistan	26,846	30,507	88
India	1,094,636	1,243,905	88
Indonesia	286,512	325,582	88
Mozambique	20,303	23,072	88
Tajikistan	4,631	5,263	88
DRC	97,822	112,439	87
Burma	117,984	135,614	87
Namibia	7,239	8,418	86
Nigeria	79,117	91,997	86
Kyrgyzstan	4,809	5,658	85
Uzbekistan	14,420	17,373	83
Malawi	14,579	17,779	82
Zimbabwe	28,222	35,278	80
Botswana	5,295	7,254	73
S. Sudan	5,213	7,240	72
Ukraine	21,105	29,726	71

### Intensified case finding and improved access to quality treatment

In addition to the work done under sub-objective 1 for improving enabling environment, CTB efforts to ensure intensified case finding and improved access to quality treatment and care for TB for all risk groups from all care providers included:

- The urban DOTS approach, which engages various stakeholders including the private sector and NGOs, has been expanded to four new densely populated cities in Afghanistan. Importantly, this is also combined with DOTS expansion to prisons, pediatric and diabetes centers. In addition to increased case notification, this has significantly contributed to improved treatment success in Kabul. Between January and September 2015, compared with the same period of 2014, CTB-implemented Urban DOTS succeeded in increasing the identification of persons with presumptive TB by 5% (from 14,781 to 15,523), which ultimately resulted in an 13% increase in TB case (all forms) notification (from 3,750 to 4,248), 12% increase in notification of bacteriologically confirmed TB cases (968 to 1,086), and an increase in the TSR to 74% (from 72% in 2014).
- CTB-Bangladesh engaged professional associations (e.g., Bangladesh Diabetes Association and Bangladesh Pediatric Association) to conduct TB screening among diabetic patients and pediatric contacts.
- In Indonesia, a coalition of seven professional organizations and the Communicable and Non-communicable Disease Directorate of the MoH signed a TB and Diabetes Mellitus Governance Consensus Charter in August 2015, with support from CTB. The coalition will work towards implementation of a bi-directional screening protocol that was successfully piloted from October 2014 – February 2015.
- In South Sudan, CTB improved access to quality treatment and care for local communities and internally displaced persons (IDP) by integrating TB services into primary health care centers located in Central Equatorial State and IDP camps.



## Childhood TB

- CTB-India accelerated access to quality TB diagnosis for children in four major cities (Delhi, Hyderabad, Chennai and Kolkata) through a network of four laboratories and 272 referral facilities. By offering up front Xpert testing to 15,347 presumptive TB patients during the period September 2014 to September 2015, a total of 1,253 (8%) TB cases were detected, of which 104 (8%) were diagnosed with rifampicin resistance, and 1,029 (82%) TB and DR-TB cases initiated treatment.
- CTB-Zimbabwe conducted a Childhood TB situational analysis and generated evidence for adaptation of the Union desk guide for the diagnosis and management of TB in children.
- CTB-Ethiopia supported the finalization of the national childhood TB care and prevention roadmap, which was subsequently endorsed by MoH and disseminated to all key stakeholders in the country.
- In Nigeria, CTB started implementation of new approaches to childhood TB care and prevention in high-burden pediatric sites by linking them to the State TB Program and implement intensified case finding among children through training of medical and non-medical officers in these sites.
- In Vietnam, CTB provided technical assistance to the roll-out and evaluation of the childhood TB work plan for 2015-2020 by conducting a workshop using the *Benchmarking Tool for Childhood TB Policies and Practice* (developed by KNCV) resulting in the 2015-2020 implementation plan development.
- In Ukraine and Kyrgyzstan childhood TB policies and practices were assessed through use of the *Benchmarking Tool for Childhood TB Policies and Practice*, with leading pediatric TB experts (using TB CARE I core funds). The data will be used as a baseline for childhood TB initiatives in the country and will guide the planning of potential childhood TB-related activities in the coming years.



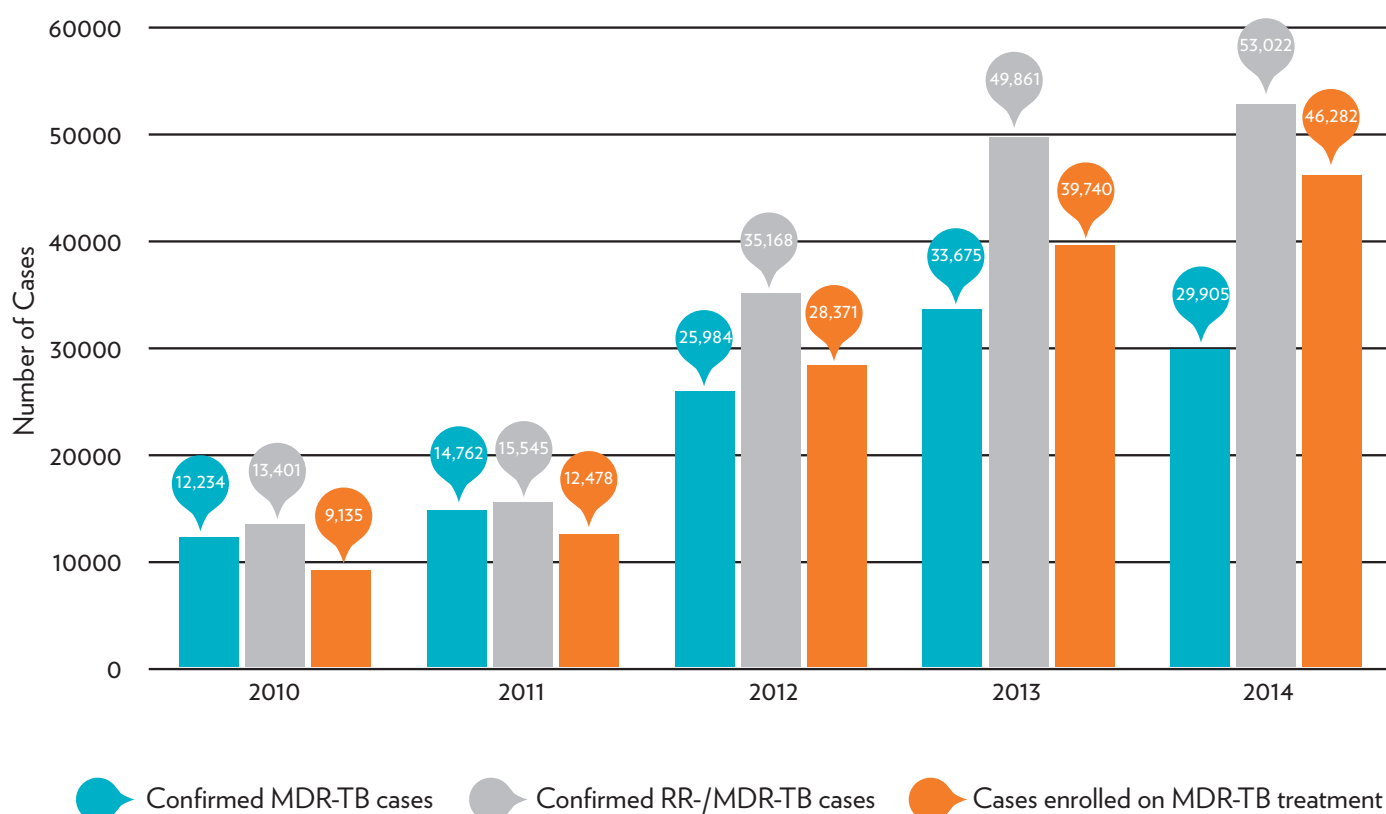
Children - Zimbabwe (Photo: Tristan Bayly)



## MDR-TB diagnosis and treatment initiation

In 2014, a total of 53,022 RR-/MDR-TB cases were reported and 46,282 (roughly 87%) RR-/MDR-TB cases initiated treatment in 21 CTB countries (Table 6). Overall, since 2010, there has been a sizable increase in the diagnosis of confirmed MDR-TB by culture/drug susceptibility testing (C/DST), diagnosis of confirmed RR-TB and MDR-TB (Xpert and C/DST) as well as treatment initiation for confirmed and unconfirmed MDR-TB<sup>5</sup> across all 21 CTB countries (Figure 10).

Figure 10. Number of confirmed MDR-TB cases diagnosed by culture/drug susceptibility testing (C/DST), MDR-TB cases and additional RR-TB cases detected (Xpert and C/DST), and cases enrolled on MDR-TB treatment (i.e. confirmed and unconfirmed MDR-TB), across all 21 Challenge TB countries, 2010-2014 (WHO, 2015)



It is likely that previous USAID-funded projects (e.g., TB CARE I (2010-2014), which worked in 14 current CTB countries) prioritizing scale up of programmatic management of drug-resistant TB (PMDT) have significantly contributed to these gains, which is expected to further increase through CTB support over the next four years. This statement is supported by available 2015 NTP data (not yet complete) collected through CTB - in all 21 CTB countries; so far an estimated 40,524 patients were diagnosed with confirmed RR-TB and MDR-TB, and a total of 35,579 (roughly 88%) patients initiated treatment for unconfirmed and confirmed MDR-TB between January – September 2015 (Table 6). When extrapolated out for all of 2015, this indicates RR-/MDR-TB diagnosis (~53,908) and SLD treatment initiation (~47,330) will slightly surpass 2014 totals.

5. In 2014, WHO added variables on 'lab-confirmed RR- and MDR-TB cases identified' and 'laboratory-confirmed RR/MDR-TB patients who started treatment for MDR-TB', which may have affected how countries report on confirmed MDR-TB diagnosed (as some countries cannot differentiate between MDR and RR-TB based on their diagnostic algorithm). This may explain the stagnation in MDR-TB diagnosis, but major increases in RR/MDR-TB case notification.



Table 6: Diagnosis of confirmed RR-TB and MDR-TB (Xpert and C/DST) as well as treatment initiation for unconfirmed and confirmed MDR-TB, 2014 and January-September 2015

(2014: WHO Global TB Report 2015; 2015 data reported from the NTP via CTB; data that are not yet available have been extrapolated and appear in red).

CTB Country	Number of MDR-TB cases detected					Number of MDR-TB cases initiating SLD				
	Total 2014	Jan-Mar 2015	Apr-Jun 2015	Jul-Sep 2015	To date in 2015	Total 2014	Jan-Mar 2015	Apr-Jun 2015	Jul-Sep 2015	To date in 2015
Afghanistan	88	14	22	18	54	88	14	22	18	54
Bangladesh	994	250	226	238	714	945	229	228	229	686
Botswana	41	22	20	21	63	73	22	20	21	63
Burma	3,495				2,621	1,537				1,153
Cambodia	110	20	21	23	64	110	17	19	23	59
DRC	442	82	71	102	255	436	82	71	84	237
Ethiopia	503				648	557				597
India	25,748				19,311	24,073				18,055
Indonesia	1,812	443	515	460	1,418	1,284	368	380	349	1,097
Kyrgyzstan	1,267	355	315	335	1,005	1,157	355	315	335	1,005
Malawi	106				80	64				48
Mozambique	544	155	131	143	429	482	155	131	143	429
Namibia	350				263	327				245
Nigeria	798	270	304	287	861	423	110	164	137	411
S. Sudan	6	2	4	4	10	-	-	-	-	-
Tajikistan	902	140	169	149	458	804	113	166	165	444
Ukraine	7,735	2,148	2,559	2,189	6,896	8,201	2,011	2,528	2,133	6,672
Tanzania	516	74	61	30	165	143	34	23	30	87
Uzbekistan	4,955				3,716	3,665				2,749
Vietnam	2,198	371	516	345	1,232	1,532	371	516	345	1,232
Zimbabwe	412	88	86	87	261	381	88	83	86	257
Total	53,022				40,524	46,282				35,579

In 2014, only five (24%) CTB countries exceeded 75% TSR for RR-/MDR-TB (2012 cohort) (Table 7). Globally, only 50% of patients on MDR-TB treatment were successfully treated, largely due to high rates of mortality and loss to follow-up (WHO 2015 report). Although it is believed that the investment made by previous USAID-funded projects will start improving results in CTB countries from 2015 (i.e., 2013 cohort and onward), CTB needs to immediately address the high rates of mortality and lost to follow-up to increase TSR to 75% and more in all CTB countries.

Table 7. Indicator 3.2.7. Number and percent of MDR-TB cases successfully treated, 2014 (WHO 2015)\*

CTB Country	Number of MDR-TB cases successfully treated	2012 Cohort	Percentage of MDR-TB cases successfully treated
Ethiopia	225	271	83
Cambodia	87	110	79
Burma	350	443	79
Zimbabwe	176	234	75
Tanzania	33	45	73
Bangladesh	364	505	72
Afghanistan	27	38	71
Vietnam	506	713	71
Botswana	44	63	70
Namibia	141	208	68
Tajikistan	353	535	66
DRC	86	134	64
Kyrgyzstan	488	775	63
Malawi	12	19	63
Nigeria	95	154	62
Indonesia	233	432	54
Uzbekistan	731	1491	49
India	6,463	14,051	46
Ukraine	1,889	5,556	34
Mozambique	60	214	28

\*Data for South Sudan are not shown as currently there is no MDR-TB case management in country.

## TB/HIV

In 2014, coverage of ART for notified TB patients who were known to be co-infected with HIV reached 77% globally (WHO 2015 report). For this indicator, 11 (52%) CTB countries were reported being above the global average (Figure 7), with a total of 80% (146,460) of HIV-positive TB patients having started ART in all 21 CTB countries. Globally, 51% of notified TB patients had a documented HIV test result (WHO 2015 report), whereas the average for CTB countries reached 57% in 2014 (WHO 2014 data).

Highlights of CTB support to intensified case finding and improved access to quality treatment and care for DR-TB and TB/HIV in Year 1 include the following:

- In March 2015, CTB-Vietnam introduced the Quarterly Interim Cohort Analysis (QICA) tool developed by KNCV, which aims to improve patient management as each and every patient must be evaluated every quarter during his/her treatment episode. By doing so, poor patient care or issues with recording and monitoring will become apparent and can be discussed and resolved on the spot by supervisors and peer reviewers.
- CTB-Bangladesh implemented an mHealth system for monitoring treatment adherence with DOT during MDR-TB treatment at community level. This mHealth application was initially developed and introduced by TB CARE II. It is a web based monitoring tool that assists 676 DOT providers and managers to keep track of DOT and identification of adverse drug reactions, as well as linking patients to clinical experts for treatment advice.
- CTB conducted an assessment of five proposed sites for decentralized PMDT services and expanded MDR-TB ambulatory care in Tanzania. Among the assessed five sites, three sites were found to have adequate conditions for MDR-TB treatment initiation. This is a start for decentralizing MDR-TB care and prevention from the one and only MDR-TB referral site (Kibong'oto).

- CTB-Ukraine is advocating for the integration, expansion and decentralization of MDR-TB services into the primary health care system in Ukraine. To ensure good treatment adherence and treatment success within the framework of the new ambulatory care model, CTB involved the Ukrainian Red Cross Society to provide psycho-social and economic support to MDR-TB patients.
- In Vietnam, CTB conducted an assessment of TB/HIV collaborative activities followed by a national joint planning workshop on strengthening TB/HIV collaborative activities and integrated service delivery. With the participation of the NTP and the Vietnam Administration of HIV/AIDS Control (National AIDS Control Program) the most appropriate interventions to be supported by the Global Fund and CTB were identified during the workshop.
- In Tanzania, CTB and the NTP conducted a health facility assessment at district level to evaluate their readiness for the introduction of TB/HIV one-stop shop integrated service.
- TB and HIV services were mapped in Indonesia to complete GIS (Geographical Information System) data sources for linkage of these services in ten CTB districts. It is expected that GIS will help to improve planning on TB/HIV services by mapping TB DOTS and HIV care sites (HIV counseling and testing as well as ART), including hospital services.

### New drugs and novel regimens

In Year 1, CTB invested in the introduction of shorter MDR-TB regimens and new anti-TB drugs [Bedaquiline (BDQ) and Delamanid (DLM)], for pre-XDR and XDR-TB patients and otherwise complicated forms of MDR-TB:

- Vietnam - CTB continued the work started under TB CARE I for the introduction of BDQ and DLM and shorter MDR-TB regimens in three provinces (Ha Noi, Ho Chi Minh City and Can Tho). Technical assistance was provided to the NTP to develop and finalize the guidelines, SOPs for pharmacovigilance (PV) and safe use of new drugs, and to train providers in three pilot provinces. The first patient is expected to initiate BDQ in early November 2015.
- Indonesia – through CTB support, the NTP is now ready to introduce BDQ into the TB control program. The cohort event monitoring (CEM) PV guideline and training materials were finalized and three hospitals were trained on their use as well as reporting in e-TB Manager.
- Kyrgyzstan, Tajikistan and Burma - CTB completed the assessments of the M/XDR-TB situation and the readiness of the NTP. Estimations of the number of pre-XDR, XDR and HIV co-infected MDR-TB patients who would qualify for the use of new drugs and regimens were calculated; implementation plans have been developed for Year 2.



DOTS Treatment - Afghanistan (Photo: MSH)



## Anika's story – Childhood TB in Bangladesh

Anika was a twenty-two month old baby girl living in Belai Chandi Kuthipara in the northern part of Bangladesh when she became sick. She was admitted to the LAMB's Missionary Hospital in Parbotipur, one of the many NGOs where Challenge TB is funding more active types of case-finding among high-risk groups such as children, people living with HIV and diabetes. Anika had classic TB symptoms (fever, cough and weight loss) combined with a suspect chest x-ray so she was immediately put on treatment for TB.

Diagnosing TB in children is made difficult by their inability to provide a sputum sample, so a process called gastric lavage and sputum-smear microscopy were used to complete the diagnosis. For Anika, this confirmed her diagnosis of TB. After six months of directly observed treatment (DOT), she was finally cured. Contact tracing was done to find the origin of the TB; her parents were screened as were those around her and in the neighborhood, but no one suffering from TB symptoms was found.

Unfortunately one year later, Anika became ill again and her parents went back to the hospital. As it was a relapse case, the doctor also sent her sample for GeneXpert. GeneXpert is a highly sensitive test that can also detect drug-resistant strains of TB and it confirmed that Anika had drug-resistant TB (DR-TB). She was immediately referred to the National Institute of Chest Diseases and Hospital (NIDCH) in Dhaka, where Challenge TB supports treatment initiation for DR-TB. Anika was hospitalized for two months until she showed improvement before being allowed to continue her treatment at home under community-based programmatic management of DR-TB (cPMDT) that is provided by a team of health workers supported by Challenge TB.

“আল্লাহর বরকত”  
by the blessing of Almighty God we are getting all kinds of help and support. Otherwise, how would we be able to cure our daughter of this dreadful disease?” (Mother of Anika)

Initially, the drugs upset her stomach and made her nauseated, but after the doctor taught her parents how to administer the medicine with sugar and milk, she was able to tolerate her medication. Anika's family is also receiving social support from Challenge TB in the form of food and all the costs relating to her treatment, and as a result her physical condition is slowly improving.

“Thanks to the doctor in the hospital who taught me how to mix the drug with milk and sugar to make them palatable to my child, I can now administer her drugs myself.”

Currently childhood TB cases constitute approximately three percent of the total cases reported in Bangladesh, but the actual disease burden of childhood TB is unknown. However, it is clear that only a small proportion of the estimated number of childhood TB cases are being diagnosed and that DR-TB is on the rise (12 children have been treated for multi-drug resistant TB since 2008). Anika's story shows that active case finding, investing in training, and new technologies are saving lives.

Anika with her mother and grandmother



## A Healthy Appetite Back At Last – Nigeria

Thirty-three year old Hamza Leiman is a husband and a father with a three-year old daughter. He is the bread winner in his family and although he does not have a formal education, he manages to provide for his family's needs. In 2012, his wife was concerned about his significant weight loss and constant cough. She urged him to seek medical help. When he did, he was diagnosed with TB and put on treatment. In 2013, he was cured of TB and discharged.

Then disaster struck for a second time, as he again began to cough constantly and this time he became bedridden. Hamza lost both his appetite and as a result, a tremendous amount of weight. His conversations became blurry and his ribs hurt whenever he tried to talk, cough or laugh and as a result he was not able to work nor provide for his family; these were tough times for him and his wife.

As his health deteriorated, his concerned wife urged him to visit a medical facility for another checkup. Paiko Community Center used a GeneXpert Machine provided by Challenge TB to confirm that Hamza had a rifampicin (an important drug in the treatment of TB) resistant strain of TB. Drug-resistant TB (DR-TB) arises when improper treatment regimens are used or when patients do not complete their whole course of treatment. DR-TB treatment can take up to 20 months to complete.

Disaster struck for a second time, as he again began to cough constantly and this time he became bedridden.

Hamza has only been on treatment for three weeks, but he has already noticed a significant degree of improvement. Not surprisingly, his wife is happy that his appetite has returned and that he has gained some weight. He said the pains in his ribs have reduced and now his voice is audible again. For the first time in a long time, he can have a proper conversation with his wife and the people around him.

Although the treatment has only just begun, he is optimistic- he does not mind the daily visits to the community center for medication. For him, the benefits he has seen so far outweigh any downsides of the side-effects and the most remarkable thing is the increase in his appetite: even as he talks about it, he says he is thinking of food.



Hamza in an open air waiting area, Paiko Community Center, Nigeria

## Objective 2. Prevention of transmission and disease progression

To accelerate the decline of the TB epidemic by preventing more people from becoming infected and developing TB disease, CTB is working in three areas:

- 1. Targeted screening for active TB** - Most countries have weak national policies and do not implement active case finding (ACF) and contact investigation;
- 2. Infection control (IC)** - Despite well-established principles, IC is not universally or appropriately applied in most countries; and
- 3. Management of latent TB infection (LTBI)** - Implementation of treatment for LTBI, if done at all, is limited mainly to PLHIV and children less than five years of age.

### Sub-objective 4. Targeted Screening for Active TB

#### CTB intervention areas

- 4.1. Contact investigation implemented and monitored
- 4.2. TB social determinants identified, appropriate interventions designed, implemented and monitored

#### Key Result

Three (17%) out of 18 CTB countries reported cases identified through ACF/CI in 2015

Implementation of ACF/CI activities was part of the Year 1 work plan in eight CTB countries; three countries (17%; Cambodia, Afghanistan and DRC) reported cases identified through ACF/CI approach. Along with the expansion of ACF/CI as a tool for improving case identification, building relevant data registration and reporting systems is one of the priorities to make sure that CTB has an adequate evidence base for planning and implementation ACF/CI and evaluating progress in this area.

CTB efforts in terms of ACF/CI in Year 1 included:

- CTB developed/updated strategies, guides and tools for ACF/IC and sensitized stakeholders to ensure a targeted and effective approach to improve case finding and care in Ethiopia and Tanzania. Implementation of ACF/CI activities will start from Year 2 onward.
- In Cambodia, semi-active case-finding activities (also called enhanced case finding) were conducted among elderly Cambodians visiting 86 pagodas in CTB targeted areas. Health center staff and village health support group went together to pagodas during holy days to screen elderly and monks for TB symptoms. Rather than referring elderly individuals with presumed TB to distant TB screening centers, sputum samples were collected on-site and transported to laboratory centers for Xpert testing or for smear microscopy (the results of this exercise are described on page 16). Furthermore, CTB supported the NTP in conducting ACF among inmates and prison staff in six prisons. The algorithm used by the NTP started with chest x-ray (CXR) screening of all prisoners regardless of TB symptoms. There were 4,429 inmates screened by CXR. Among those, 13% (563) had abnormal CXR, 36% (203) of which were identified as presumptive TB. Of those, 27% (55) were diagnosed with TB and are getting TB treatment – 45% (25) are bacteriologically confirmed TB patients.
- Contacts investigated and treated in Afghanistan – CTB implemented CB-DOTS/ DOTS in 15 provinces and densely populated cities by involving local NGOs in Afghanistan. Contact investigation was strengthened and further improved, namely the CTB team assisted the NTP to identify index cases and investigate active TB

among household members of bacteriologically confirmed TB cases to find unidentified cases, with a specific focus on women and children. In Year 1, a total of 27,949 household contacts were screened for TB; this led to the identification of 5,324 (19%) individuals with presumptive TB, of which 4,901 (92%) were tested for TB (sputum smear microscopy and/or chest x-ray). This resulted in the diagnosis of 251 (5%) new bacteriologically confirmed cases and 491 (10%) cases with all forms of TB put on treatment. Out of household contacts screened for TB, 6,520 (23%) were children under the age of five of which 4,678 (72%) were started on IPT.

- TB patients were found via door-to-door ACF initiatives in DRC – CTB supports active TB case finding efforts through several local partners. One partner in South Kivu, ALTB (Les Ambassadeurs de Lutte Contre la Tuberculose au Sud Kivu, made up of current or former TB patients) conducted door-to-door visits among hard-to-reach impoverished populations. A total of 7,239 persons with symptoms suggestive of TB (mainly chronic cough) were identified and referred to TB diagnostic and treatment centers; 73% (5,319) of these referrals arrived at the centers, and among those, 364 (7%) bacteriologically confirmed TB cases were diagnosed. All patients were started on treatment.

## Sub-objective 5. Infection Control

### CTB intervention areas

- 5.1. Compliance with quality TB-IC measures in health care, community and congregate settings ensured
- 5.2. TB surveillance among HCW ensured

### Key Results

Seven (33%) out of 21 CTB countries reported HCWs with TB in 2014

According to WHO, seven (33%) CTB countries reported on HCWs with TB in 2014 (Table 8). This indicates that TB surveillance systems among HCWs in most of CTB countries are not yet functional. Given the critical importance of monitoring TB disease occurrence among HCWs, who are considered at high risk for acquiring TB through workplace exposures, building a relevant TB surveillance system among this group is a priority for CTB for the next years.

Table 8: Indicator 5.2.3. Number and percentage of health care workers diagnosed with TB during reporting period, 2014 (WHO 2015)\*

CTB Country	Number of HCWs diagnosed with TB	Total Number of HCWs working in the public and private sector	Percentage of HCWs diagnosed with TB
Botswana	22,124	84	0.4%
India	2,390,000	3,606	0.2%
Kyrgyzstan	69,958	49	0.1%
Mozambique	40,405	182	0.5%
Namibia		51	
Tajikistan	68,027	31	0.0%
Ukraine	690,777	355	0.1%
Uzbekistan	371,410	116	0.0%

\* No data was reported from Afghanistan, Cambodia, Bangladesh, Burma, DRC, Ethiopia, Malawi, Namibia, Nigeria, S Sudan, Tanzania, Uzbekistan, Vietnam and Zimbabwe.



Highlights of CTB support to TB-IC in Year 1 included:

- The FAST (Find cases **A**ctively, **S**eparate safely, and **T**reat effectively) strategy was introduced as a key intervention for TB-IC in Cambodia by implementing triage of patients and maintaining separate wards for infectious patients, including isolation rooms at MDR-TB sites in regional hospitals. In addition, CTB provided training and technical support to conduct TB screening among HCWs in regional hospitals using a symptom check-list, chest x-rays, and Xpert tests.
- In Afghanistan, SOPs were revised to align with the WHO policy on TB-IC in health care facilities, congregate settings and households. Front-line health care workers were then trained as a step in the expansion of TB-IC to additional health facilities nationwide. TB-IC was expanded to 40 additional health facilities; cumulatively, the number of health facilities implementing TB-IC in all 15 provinces reached 185 (51% of existing health facilities) by the end of September 2015, including five high-risk sites (MDR-TB hospital in Kabul, Pul-e-Charkhi prison, Nangerhar prison, Jalalabad reference laboratory and Kandahar prison).
- In collaboration with the NTP and Vietnam Administration AIDS Control, CTB-Vietnam provided TB-IC training to 199 TB and HIV care providers (from HIV outpatient, voluntary counseling and testing, and methadone clinics) at provincial and district level in Ninh Binh. TB surveillance among HCWs was continued by collecting relevant data in 67 TB units at national and provincial level.
- In Burma and Malawi, CTB conducted a situational analysis of TB-IC implementation. Both countries will update their guidelines to incorporate new approaches such as the FAST strategy and new tools for example for monitoring and benchmarking compliance with TB-IC standards.

## Sub-objective 6. Management of latent TB infection

### CTB intervention areas

#### 6.1. LTBI diagnosis and treatment among high risk groups ensured

##### Key Results

- Nine (43%) out of 21 CTB countries reported on the number children under the age of 5 years who initiated IPT in 2014
- A total of 155,357 children under the age of 5 years initiated IPT in these 9 CTB countries in 2014

Based on NTP data, nine (43%) out of 21 CTB countries reported on the number of children under the age of 5 years who initiated IPT in 2014, with a total of 155,357 such children reported in these nine countries (the highest numbers were reported in Ukraine and Mozambique, i.e., 114,400 and 17,026, respectively)(Table 9). Data registration and reporting gaps remain in a majority of the countries.

Table 9: Indicator 6.1.11. Number of children under the age of 5 years who initiated IPT, 2014 (WHO 2015)\*

CTB Country	Number of children under five who initiated IPT
Afghanistan	8,792
Bangladesh	3,848
Cambodia	2,300
Kyrgyzstan	550
Mozambique	17,026
Nigeria	3,811
Ukraine	114,400
Tajikistan	2,496
Vietnam	2,134
<b>Total</b>	<b>155,357</b>

\*No data reported from Botswana, Burma, DRC, Ethiopia, India, Indonesia, Malawi, Namibia, S. Sudan, Tanzania, Uzbekistan and Zimbabwe



CTB efforts made in this area in Year 1 include:

- CTB updated pediatric TB policies and guidelines and trained health professionals to ensure that eligible patients are put on preventive treatment and followed up (Ethiopia, Vietnam and Mozambique).
- In Vietnam, in CTB priority areas, 1,128 children under the age of five were notified as contacts to the TB patients and of them 1,036 (92%) were put on IPT.
- In Cambodia, CTB implemented CI at the community level to identify and refer presumptive TB children to health centers and referral hospitals for work-up and diagnosis. To facilitate this process, CTB trained HCWs in clinical management of childhood TB, TST administration, chest x-ray reading skills and IPT. Within Year 1, 1,559 children, close contacts of smear positive index cases, were screened for TB, out of these 390 (25%) children were eligible for IPT, of which 287 (73%) were initiated IPT. Out of those who were screened for TB, 361 (23.2%) children were referred to hospitals for clinical evaluation including TST, physical and history examination, and chest x-ray; 32 (9%) of those referred were diagnosed with TB and treatment was initiated.
- In Bangladesh, CTB implemented child TB contact tracing and IPT for children under five through the sub-grantees by applying a simple symptom-based approach for screening of under five children who are in household contact with a sputum smear positive index case through health providers. A total of 1,402 eligible children were identified and 1,392 provided IPT.
- IPT for People Living with HIV (PLHIV) was expanded in Indonesia - IPT for PLHIV is now being scaled up after the successful piloting during TB CARE I. Nine out of 42 ART hospitals in ten CTB districts are now appointed as IPT sites. In North Sumatera, the IPT policy has been well accepted in nine districts where it will be rolled out.
- CTB supported the phased roll out of IPT among PLHIV in Zimbabwe - A total of 83 sites were offering IPT services by the end of Year 1. The support also included targeted mentorship visits to ten IPT sites to complement visits planned under GF. From January to August 2015, there were 270,471 TB screening episodes among PLHIV, 106,889 PLHIV were eligible for and 24,544 (23%) were initiated IPT. Of the cohort that was initiated on IPT from January to March 2014, 67% (11,830/17,676) completed IPT.

## আপনি কি শিশুর যক্ষ্মা রোগের লক্ষণ সম্পর্কে জানেন?



দুই সপ্তাহের বেশি সময়  
ধরে কাশি ও জ্বর থাকা



দিনে দিনে ওজন  
কমে যাওয়া

## Objective 3. Strengthened TB platforms

To strengthen TB platforms, CTB is working in the following five areas:

- 1. Political commitment and leadership** - Health reforms, including financing, pose constant challenges to NTPs trying to sustain and increase their budgets. Central units of NTPs often have insufficient skills in areas such as planning, financial management, and outreach to private partners, which are hampering their leadership and management capacity;
- 2. Comprehensive partnerships and informed community involvement** - Effective alliances within and outside government are lacking in most countries, i.e. there are no active national TB partnerships that includes public, private, and civil society members;
- 3. Drug and commodity management systems** - Efficient procurement and distribution mechanisms are not often in place, which may result in chronic shortages of medicines and commodities undermining TB control;
- 4. Quality data, surveillance and M&E** - Efficient data collection and analysis systems are lacking to assist leaders and managers to use data for decision-making and prepare for rapid adoption of new technologies, tools, policies, and best practices;
- 5. Human resource development (HRD)** - There is a need for strong, competent leadership within NTPs to plan and manage human resources through appropriate HRD strategies including a supportive supervision system in place to strengthen the capacity of staff at all levels.

### Sub-objective 7. Political commitment and leadership

#### CTB intervention areas

- 7.1. Endorsed, responsive, prioritized and costed strategic plan available
- 7.2. In-country political commitment strengthened
- 7.3. Leadership and management competencies and capacities of NTPs ensured

#### Key Results

- Current National Strategic Plan (NSP) for TB is available in 18 countries; CTB provided technical support to five countries in updating of NSP
- No CTB country projects had private sector partners providing cost-share to CTB project activity budget in 2015

In Year 1, no countries had local private sector partners providing cost-share to CTB project activity. Under this sub-objective, CTB launched a major effort in India. CTB designed the Call to Action for a TB-Free India to mobilize a wide range of stakeholders to end TB in India. The campaign will build political will and leadership and increase the visibility of TB as a pressing national issue. CTB also engaged the corporate sector to come on board for TB. A high-visibility dialogue was convened with the US Ambassador to India, Richard Verma, along with noted industrialist and philanthropist Ratan Tata and Bollywood megastar Amitabh Bachchan. They called on corporate leaders to support and contribute to the Government of India's efforts to end TB in India. Senior representatives of companies, foundations and trusts were present. These events are the first step in this direction; commitments/changes in terms of financial contributions, workplace policy, and formal agreements are expected to come in the following year.

CTB efforts in this area in other countries included the following:

- In Botswana, CTB helped to update the national strategic plan for TB control through development of an addendum (2015 - 2017) in line with the global post-2015 End TB strategy and the Global Fund New Funding Model requirements.

- In Afghanistan, CTB strengthened NTP's leadership and governance by defining its core functions at national and provincial level and assessing the NTP's ability to implement these functions.
- CTB provided technical support and guidance to KPMAC-UGM (Center for Health Insurance Management and Costing Policy, Gadjah Mada University) in Indonesia to finalize and endorse the TB-JKN (TB National Health Insurance) technical guidelines, ensuring the coverage of TB out- and inpatient service costs under the National Health Insurance scheme.
- CTB worked with the NTP to engage with 32 members of the parliamentary portfolio committee on health to lobby for increased domestic funding for TB in Zimbabwe. This was the first direct engagement that has happened between NTP and the Parliament of Zimbabwe. The engagement resulted in 14 of the 32 parliamentarians signing the Barcelona Declaration, a global commitment by parliamentarians to end TB.

## Bollywood Icon engaged as a Patient Advocate and TB Champion - India

Mr. Amitabh Bachchan is the most popular Indian Bollywood star and an icon who has a huge following in India and globally (17.4 million Twitter followers currently).

The US Ambassador to India, Mr. Richard Verma wrote to Mr. Bachchan asking him to be a part of the TB-Free India Campaign. The CTB team then reached out to Mr. Bachchan with an engagement plan. Mr. Bachchan has been a TB patient himself and suffered from TB of the spine. He has also engaged with the Bombay Municipal Corporation on TB in the past and showed his willingness to be part of the National Call to Action for a TB-Free India.



The CTB team briefed him on the stigma surrounding TB, arming him with the key messages that TB can happen to anyone, and is curable if diagnosed and treated. The team also explained why TB needs political, administrative and public action, especially in India, which has the highest number of TB cases in the world. However, many cases remain "missing" -not captured in the national program data, but hidden in the private sector, where their TB may be incompletely treated.

Mr. Bachchan agreed to talk about his own battle with the disease and act as a patient advocate for the TB-Free India Campaign. As a first step, he agreed to be part of the Mumbai Dialogue, an event organized by CTB, where he made an appeal to both corporations and the media to take action on TB.

At The Mumbai Dialogue, Mr Bachchan said: "My reason for joining this initiative is personal. As someone who suffered from TB, I can tell you of the devastation this disease can cause to a person's life. It can often take months to be diagnosed. Even when the diagnosis is accurate, getting the right treatment is not always easy. Patients need intensive care and support from their family, communities, and healthcare providers. However, as a TB survivor, I can also tell you that this is a disease that can be fought against and won over. I believe we all have a role to play – as corporate leaders, community leaders, philanthropists, and individuals – in making India TB-Free."

Mr. Bachchan posted his engagement on Facebook and Twitter. The Facebook post received 73,948 likes and 1475 shares.



## Sub-objective 8. Comprehensive partnerships and informed community involvement

### CTB intervention areas

- 8.1. National partnership and coordinating bodies functioning with appropriate representation and capacity
- 8.2. Global Fund grant ratings improved

### Key Results

- Six (33%) out of 18 CTB countries with an established national Stop TB partnership in 2015
- Five (28%) out of 18 CTB country projects engaged local partners in project implementation in 2015
- Twenty-one (91%) out of 23 GF TB grants implemented in 16 countries were reported to have rating B1 (adequate) or better as of September 2015.

Six (33%) out of 18 CTB countries had national Stop TB partnerships in place by the end of Year 1, although these partnerships had adequate organizational structure in three countries only (Table 10).

Table 10: Indicator 8.1.3. Status of National Stop TB Partnerships as of September 2015\*

The score based on below:

0 = no National Stop TB Partnership exists, 1 = National Stop TB Partnership established, and has adequate organizational structure; and a secretariat is in place that plays a facilitating role, and signed a common partnering agreement with all partners; but does not have detailed charter/plan, and does not meet regularly/produce deliverables; 2 = National Stop TB Partnership established, has adequate organizational structure and in a participatory way has developed detailed charter/plan, but does not meet regularly and does not produce deliverables; 3 = National Stop TB Partnership established, has adequate organizational structure, has developed detailed charter/plan, meets regularly and critical deliverables are produced.

CTB Country	Status of National Stop TB Partnerships
Vietnam	3
Afghanistan	2
Nigeria	2
Indonesia	1
Mozambique	1
Tajikistan	1
Bangladesh	0
Botswana	0
Cambodia	0
DRC	0
Ethiopia	0
India	0
Kyrgyzstan	0
Burma	0
S. Sudan	0
Ukraine	0
Tanzania	0
Zimbabwe	0

\*Data from Malawi, Namibia and Uzbekistan are not yet available.

Five (28%) out of 18 CTB country projects (Bangladesh, DRC, Ukraine, Indonesia and Zimbabwe) engaged local partners<sup>6</sup> in project implementation. This low result was probably due to the delay in selection/contracting/ grants awarding to local partners. As all of these preparations were completed by end of Year 1 in most of the countries, the number of local partners engaged in CTB is expected to significantly increase in Year 2. Data on the percentage of USAID TB funding directed to these local partners (CTB mandatory indicator 11.1.5) are provided in Figure 12 (page 46).

Three of these countries provided data on the percentage of local CTB partners operating budgets covered by diverse, non-USG funding sources (indicator 8.1.4) for all local partners in country<sup>7</sup>:

- Bangladesh - seven partners (range 0% - 99%, median: 90%)
- DRC – four partners (range 40-92%, median: 46%)
- Ukraine – one partner (98%).

This information was requested, but is not yet available for a local partner in Indonesia and two local partners in Zimbabwe. CTB will continue monitoring these data as subcontracts are officially signed with local partners in Year 2 and beyond. As of September 2015 (end of Year 1), 21 GF TB grants (84%) across 18 countries out of 25 grants implemented in all 21 countries were reported to have rating B1 (adequate) or better (CTB mandatory indicator 8.2.1)(Table 11).

Table 11: Indicator 8.2.1. Global Fund Grant Rating as of September 2015\*

*A1 Exceeds expectations, A Good performance, A2 Meets expectations, B1 Adequate, B2 Inadequate but potential demonstrated, C Unacceptable.*

CTB Country	Global Fund Grant Rating
Indonesia	A1 (Aisyiyah)
Kyrgyzstan	A1
Vietnam	A1
Tanzania	A1
Bangladesh	A2
Burma	A2 (Save the Children Federation)
Tajikistan	A2 (Project Hope)
Nigeria	A2 (Institute of Human Virology Nigeria)
Cambodia	A
Afghanistan	B1
DRC	B1
Ethiopia	B1
India	B1
Indonesia	B1 (MoH)
Malawi	B1
Mozambique	B1
Namibia	B1
Nigeria	B1 (Association For Reproductive And Family Health)
S. Sudan	B1
Ukraine	B1
Zimbabwe	B1
Botswana	B2
Burma	B2 (UNOPS)
Tajikistan	B2 (UNDP)
Uzbekistan	B2

\*Data from Malawi, Namibia and Uzbekistan obtained from Aidspar<sup>8</sup>

6. A local organization is defined as any local (not international) organization receiving funds through CTB

7. Non-USG funds cover every other funding source, including other international/local donors (i.e. Global Fund, World Bank, EU, etc.), private sector organizations, individual donations, academic grants, investment income, and any other revenue. Data are shown only for the local partners that had approved subcontracts with CTB by the end of September 2015.

Based on Aidspace grant performance analysis data<sup>8</sup>, the average GF TB grant scores from 2013-2015 by region are presented below:

- All countries – between B1 and A2
- Southern and Eastern Africa – between B2 and B1
- South East Asia – between A2 and B1
- Eastern Europe and Central Asia – mostly A2

In Year 1, CTB was closely involved in GF support from concept note development, to grant program implementation plan development, and preparations for grant signing. From Year 2 onward, CTB will be closely involved in various aspects of GF grant implementation to ensure maximum impact of GF and USG investments in these countries.

## Sub-objective 9. Drug and commodity management systems

### CTB intervention areas

- 9.1. Well-functioning procurement and supply chain management system in place
- 9.2. New and ancillary drug regimens for TB/MDR/LTBI patients available, as appropriate

### Key Result

11 (61%) out of 18 CTB countries<sup>9</sup> reported data on the number of stock outs of anti-TB drugs in 2015; out of these, two CTB countries reported stock outs.

Based on NTP data, 11 (61%) out of 18 CTB countries reported data on the number of stock outs of anti-TB drugs in 2015 (out of these 11, only Indonesia and DRC reported stock outs, and the other nine countries stated no stock outs were reported). Seven countries (39%) could not report on stock outs, which may indicate that there are data registration and reporting gaps in commodity management for more than third of CTB countries.

In Year 1, CTB initiated discussion with national health authorities to optimize procurement of anti-TB drugs. For example, in Botswana, the MOH independently procures all drugs and commodities for the NTP via a government tender procurement process, which has some challenges with respect to delays and possible inefficiencies with spending. Based on the data from the other countries, CTB is providing additional evidence on potential savings (particularly on SLDs) and avoiding longer lead times so that the MOH considers a change over to GDF procurement.

Furthermore, CTB provided technical assistance to the countries that are planning for the introduction of new drugs (e.g., Kyrgyzstan, Tajikistan) for quantification of BDQ and DLM to be procured through GF grants. Furthermore, the CTB strategy in Tajikistan is to improve management of TB medicines through building NTP's capacity on drug management and implementation of an early warning system by using of QuanTB at all supply chain levels.

8. <http://www.aidspace.org/page/grant-performance-analysis>

9. Malawi, Namibia and Uzbekistan excluded



## Sub-objective 10. Quality data, surveillance and M&E

### CTB intervention areas

10.1. Well functioning case or patient-based electronic recording and reporting system is in place

10.2. Epidemiologic assessments conducted and results incorporated into national strategic plans

### Key Results

- Four (22%) out of 18 CTB countries with a case-based, real-time ERR system functioning at national and subnational levels for both TB and MDR-TB (score  $\geq 3$ ) in 2015
- Two (11%) out of 18 CTB countries assessed WHO standards and benchmarks to certify surveillance systems and vital registration for direct measurement of TB burden in 2015

By the end of Year 1, 16 (89%) countries reported electronic reporting to national level (score=1); in four countries only (India, Indonesia, Ukraine and Vietnam), a case-based real-time ERR system was functional at national and subnational levels for both TB and MDR-TB (score=3) (Table 12). Only two countries (Burma, Ukraine) assessed WHO standards and benchmarks to certify surveillance systems and vital registration for direct measurement of TB burden in 2015, both of which were done with WHO (non-CTB) support.

Table 12: Indicator 10.1.4. Status of electronic recording and reporting system as of September 2015\*

Score based on below:

0=R&R system is entirely paper-based; 1=electronic reporting to national level, but not patient/case-based or real time; 2= patient/case-based ERR system implemented in pilot or select sites (TB or MDR-TB); 3=a patient/case-based, real-time ERR system functions at national and subnational levels for both TB and MDR-TB; 4= a patient/case-based, real-time ERR system is functional at national and subnational levels for both TB and MDR-TB completely and meets WHO standard for TB surveillance data quality

CTB Country	Status of electronic recording and reporting system
India	3
Indonesia	3
Ukraine	3
Vietnam	3
Bangladesh	2
Botswana	2
Cambodia	2
Nigeria	2
S. Sudan	2
Tajikistan	2
Tanzania	2
Afghanistan	1
DRC	1
Ethiopia	1
Kyrgyzstan	1
Zimbabwe	1
Mozambique	0
Burma	0

\*Data for Malawi, Namibia and Uzbekistan are not yet available.

e-TB manager is being used in seven CTB countries (Bangladesh, Cambodia, Indonesia, Namibia, Nigeria, Ukraine and Vietnam) for TB or MDR-TB case management, laboratory reporting, SLD management and reporting. Highlights of CTB support under this area include:

- In Cambodia, CTB supported the implementation of e-TB Manager in MDR-TB sites nationwide, and handed it over to NTP, with the current system being able to generate a real-time MDR-TB report. Based on the strengths of the e-TB manager system, the NTP expanded its use for both MDR- and drug-susceptible TB surveillance (via another USAID-funded project).
- GxAlert was introduced in Botswana with CTB assistance. GxAlert is an internet database application which automatically sends results from Xpert machines over an internet connection to GxAlert, which also provides robust and clear documentation to the existing electronic M&E systems, removing the need for manual transcription or submission of results.
- Implementation of data quality assessments at district-level facilities in Mozambique highlighted data challenges such as wrong classification of patients during case notification and treatment outcome.
- CTB assessed the current needs/situation in Vietnam with regards to the functioning of TB-HIV reporting and recording systems in country to inform the updating of the web-based, case-based electronic TB surveillance and program management system (VITIMES).
- CTB-Zimbabwe rolled out the “National guide on TB data collection, analysis and use for health workers” (developed through TB CARE I), which provides step-by-step guidance to HCWs on collection, analysis and use of routine TB data at all levels of the health care system.

### **CTB-supported operations research studies**

No operations research (OR) studies were completed in Year 1. During the reporting period, CTB focused on preparatory work (e.g., in DRC, Ethiopia and Tanzania) such as identification of national OR priorities and development of a national OR agenda, which will provide guidance to implementation of OR studies over the coming years. CTB will report on two mandatory indicators: 10.2.6. % of operations research project funding provided to local partner (provide % for each OR project) and 10.2.7. Operational research findings are used to change policy or practices (ex, change guidelines or implementation approach) accordingly.

### **Prevalence and drug resistance surveys**

Status of TB prevalence surveys in CTB countries in Year 1:

- Bangladesh – ongoing;
- Mozambique - NTP is in the process of finalizing the prevalence survey protocol. The expected survey start date is 2016;
- Vietnam - the second national prevalence survey is planned in 2016/2017. CTB provided technical assistance for the survey protocol development;
- Zimbabwe - the first national TB prevalence survey was completed in August 2015, (the final report has not been disseminated yet).

### **Drug resistance surveys (DRS) in CTB countries in Year 1:**

- India – DRS ongoing with technical support from WHO and funding from USAID.
- Indonesia - CTB provided TA to support the DRS. The draft protocol was completed; currently, NTP is preparing for fieldwork to start in January 2016.
- Ukraine – A DRS was started in 2013 and finished in 2014, covering the entire country. The survey report is expected to be published by WHO soon.
- Zimbabwe – DRS fieldwork was ongoing as of September 30, 2015, and is expected to be completed by August 2016.

## Sub-objective 11. Human resource development

### CTB intervention area

#### 11.1. Qualified staff available and supportive supervisory systems in place

#### Key Result

15,286 HCWs (8,996 males and 6,290 females) trained in 17 CTB countries in 2015

A total of 15,286 HCWs<sup>10</sup> (8,996 males and 6,290 females) were trained through CTB support in 17 countries in Year 1 (Table 13).

Table 13: Indicator 11.1.3. Number of health care workers trained<sup>11</sup>, by gender and technical area, in Year 1\*

CTB country	Number of health care workers trained by gender		
	# Trained males	# Trained females	Total # Trained
Afghanistan	634	100	734
Bangladesh	529	125	654
Botswana	55	55	110
Burma	113	384	497
Cambodia	4,511	1,897	6,408
DRC	299	113	412
Ethiopia	495	192	687
Indonesia	916	1,969	2,885
Kyrgyzstan	14	33	47
Mozambique	200	171	371
Nigeria	107	71	178
S. Sudan	203	75	278
Tajikistan	0	0	0
Ukraine	26	77	103
Tanzania	19	13	32
Vietnam	127	144	271
Zimbabwe	748	871	1,619
<b>Total</b>	<b>8,996</b>	<b>6,290</b>	<b>15,286</b>

\*No training occurred in India, Malawi, Namibia and Uzbekistan.

Number of HCWs trained by sub-objective area is presented in Figure 11, showing the highest number of trainees for patient-centered care and treatment, followed by targeted screening for active TB, and comprehensive high-quality diagnostics.

10. Healthcare workers include health facility staff, community health volunteers, laboratory staff, sputum transport technicians, and community-based DOTS workers. Training includes any in-person, virtual, or on-the-job training that is longer than half a day and for which curriculum is available

11. Training includes any in-person, virtual, or on-the-job training that is longer than half a day and for which curriculum is available



Figure 11: Number of HCWs trained by CTB sub-objective (total of 15,286), Year 1

As for strengthening supportive supervisory systems, CTB invested in the development of an integrated supervision model in Mozambique, which enables undertaking joint supervisory visits in multiple technical areas, revision and finalization of supportive supervision guidelines. In Tanzania, the main focus was made on TB/ HIV supportive supervision and mentorship visits conducted in selected facilities at district and regional level.

Data on CTB mandatory indicator 11.1.5, the percentage of USAID TB funding directed to local partners, were provided by five (28%) out of 18 country projects, with the results presented in Figure 12.

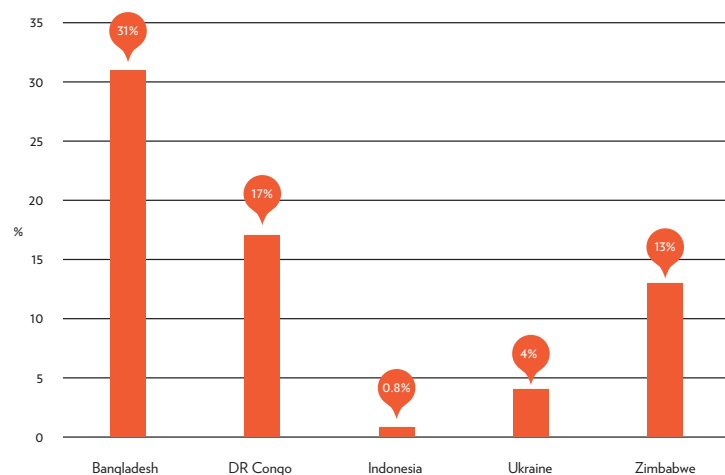
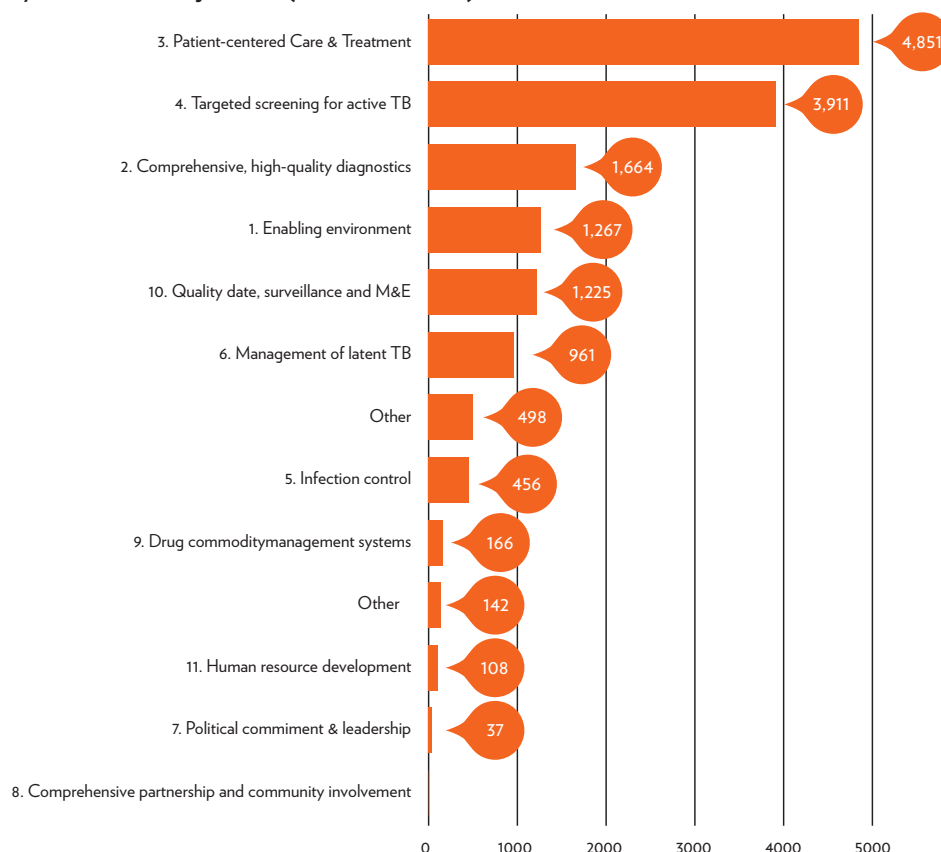


Figure 12: Percentage of USAID TB funding directed to local partners by country, Year 1



PEJABAT patient support group in North Sumatra, Indonesia (Photo: Tassya Sinaga)



## Core Projects

CTB is working on priority projects that have implications for TB prevention and control globally. Core projects that were launched during the reporting period included: 1. Transmission: Quantifying the effect of interventions on transmission of *Mycobacterium tuberculosis* (*M.tb*), approved in July 2015; and 2. Measurement of stigma, approved in September 2015.

### Core Transmission Project

The overall objective of this CTB core project is to evaluate to what extent USAID-supported interventions have had an impact on transmission of *Mycobacterium tuberculosis* (*M.tb*). It will investigate this in:

- a) Specific facilities
- b) Among high-risk populations such as urban dwellers, miners and prisoners
- c) Communities at large.

The secondary objective is to map transmission patterns (both for TB and MDR-TB). Results of both objectives will provide recommendations for future USAID investments. Ultimately the findings of such studies will be used to develop/design and target future interventions.

USAID/W approved the work plan in July 2015, buy-in was received from the USAID Country Missions in two countries, a site assessment was done in Indonesia (September 2015), and in Tanzania a combined mission on site assessment and protocol development was held (September 2015).

USAID encouraged the steering committee to expand on the number of countries (e.g. Kyrgyzstan, India, DRC and Nigeria), and Zimbabwe was proposed as a possible alternative. In Year 2, the plan is to start data collection in Tanzania and Indonesia, and do scoping missions and protocol development in three other countries.

### Measurement of Stigma

The over-arching objective of this core project is to develop valid, feasible, and efficient methods for measurement of TB stigma at the levels of community, patient, and health worker populations. In this four-year project, actual implementation/results reporting will take place in Years 2-4.



Door-to-door visits among hard-to-reach communities in South Kivu, DRC (Photo: Olivier Bahati Rusumba)

The Challenge TB website is the central point of the project's communication and information and has all of the program's reports, stories, events and tools. The website was launched in June this year and is already attracting a wide audience:

## Summary of Visitors to the Challenge TB Website

Number of Visitors	3,809
Number of countries visitors came from	124
Number of Pages Viewed	8,730
Total Number of Documents Downloaded	2,520

## 10 Most Popular Downloads

1. Recommendations for Investigating Contacts of Persons with Infectious Tuberculosis in Low- and Middle-income Countries - 2015 (Number of Downloads: 56)
2. Understanding and Using Tuberculosis Data - 2014 (56)
3. Childhood TB Training Toolkit - 2014 (38)
4. International Standards of Tuberculosis Care - 3rd Edition 2014 (33)
5. TB Laboratory Assessment Tool - English 2012 (27)
6. Guide to Medical Management of MDR-TB - 2013 (26)
7. The Use of Delamanid in the Treatment of Multidrug-Resistant Tuberculosis - 2014 (26)
8. Data Quality - An M&E Workshop Facilitators Guide - 2014 (24)
9. A Guide to Monitoring and Evaluation for TB/HIV Collaborative Activities - 2015 (18)
10. GeneXpert Training Tools Package - 2015 (18)





Below is a list of tools or publications that have been developed and released in Year 1, all of which can be found on the Challenge TB website:

<http://www.challengetb.org/library>

## Challenge TB Brochure

A new brochure highlighting the goals, unique qualities and operational reach of the CTB program (i.e. countries where the program works) has been produced.

[http://www.challengetb.org/publications/Challenge\\_TB\\_Brochure.pdf](http://www.challengetb.org/publications/Challenge_TB_Brochure.pdf)

## Challenge TB Publications Brochure

This is a reference guide for all the published tools. It contains each tool broken down by technical area, a description, and a link to the download. It is updated on a monthly basis.

[http://www.challengetb.org/publications/Challenge\\_TB\\_Publications.pdf](http://www.challengetb.org/publications/Challenge_TB_Publications.pdf)

## MDR-TB Case Management – A Toolkit for Trainers (Ukrainian)

This training guide covers the latest methods of MDR-TB diagnosis and treatment and provides examples, individual and group exercises, clinical cases, case studies and other resources. The manual is part of a set of training materials, which also includes a set of handouts for trainees and presentations for each topic.

[http://www.challengetb.org/publications/tools/country/MDR-TB\\_Curriculum\\_Ukraine.pdf](http://www.challengetb.org/publications/tools/country/MDR-TB_Curriculum_Ukraine.pdf)



We would like to acknowledge all the people across the world who make Challenge TB possible; our gratitude and thanks go out to all our partners and everyone in the field.

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E-mail	<a href="mailto:pmu@challengetb.org">pmu@challengetb.org</a>
Website	<a href="http://www.challengetb.org">www.challengetb.org</a>
Twitter	<a href="https://twitter.com/challengetb">#challengetb</a>

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