

Challenge TB  
Year 3  
Performance  
Monitoring Report  
Oct 1 – Dec 31, 2016



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FROM THE AMERICAN PEOPLE



**CHALLENGE TB**



## About Challenge TB:

Challenge TB is USAID's flagship TB care and prevention project. It is implemented by a unique coalition of nine international organizations:

## Led and managed by:

KNCV Tuberculosis Foundation

## Coalition Partners:

American Thoracic Society (ATS)

FHI 360

Interactive Research & Development (IRD)

International Union Against Tuberculosis and Lung Disease (The Union)

Japan Anti-Tuberculosis Association (JATA)

Management Sciences for Health (MSH)

PATH

World Health Organization (WHO)

## Cover photo:

School children practice covering their coughs, Rangoon, Burma

Credit: Hein Htet

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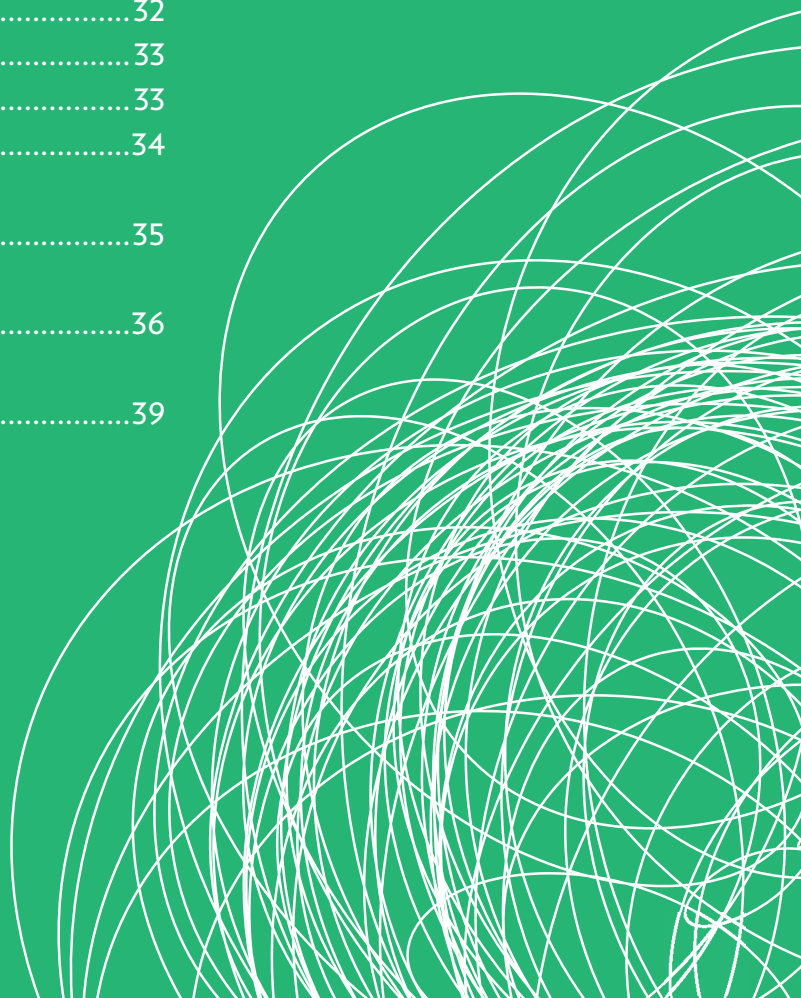
## Disclaimer

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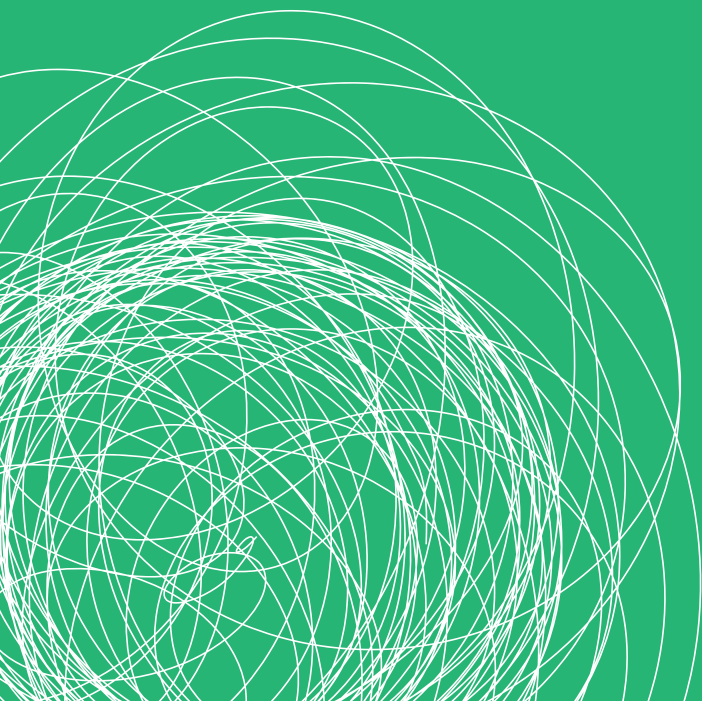
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# Abbreviations

ACF	Active Case Finding	HF	Health Facility
ACF	Active Case Finding	IC	Infection Control
ACSM	Advocacy, communication and social mobilization	IDP	Internally Displaced Persons
aDSM	active TB Drug-Safety Monitoring and Management	IT	Information Technology
AFB	Acid-fast bacilli	IPC	Infection Prevention Committee
ART	Antiretroviral Therapy	IPT	Isoniazid Preventive Therapy
BAIS	Botswana AIDS Impact Survey	JATA	Japan Anti Tuberculosis Association
CB-DOTS	Community-Based DOTS	LED	Light Emitting Diode
CCM	Country Coordinating Mechanism	LMIS	Logistic Management Information System
CDC	Centers for Disease Control and Prevention	LTBI	Latent TB Infection
CHW	Community Health Worker	KNCV	KNCV Tuberculosis Foundation
CI	Contact Investigation	MDR-TB	Multidrug Resistant Tuberculosis
C/DST	Culture/Drug Susceptibility Testing	M&E	Monitoring and Evaluation
CPLT	Provincial TB and Leprosy Coordination Departments	MoH	Ministry of Health
CSCP	Community Sputum Collection Points	MSH	Management Sciences for Health
CTB	Challenge TB	MTB+	Mycobacterium Tuberculosis detected (GeneXpert MTB/RIF)
DHIS2	District Health Information Software Version 2	NFM	New Funding Model
DM	Diabetes Mellitus	NGO	Non-Governmental Organization
DOT	Directly Observed Treatment	UNSE	United Nations Special Envoy
DOTS	Directly Observed Treatment Short Course	NSP	National Strategic Plan
DQA	Data Quality Assessment	NTP	National TB Program
DRC	Democratic Republic of the Congo	NRL	National Reference Laboratory
DR-TB	Drug-Resistant TB	NTRL	National TB Reference Laboratory
DST	Drug Susceptibility Testing	OR	Operations Research
ECSA	East, Central and Southern African Health Community	PEPFAR	President's Emergency Plan for AIDS Relief
ERR	Electronic Recording and Reporting	PIH	Partners in Health
EQA	External Quality Assurance	PLHIV	People Living with HIV
FLD	First Line Drug	PMDT	Programmatic Management of Drug-resistant Tuberculosis
GDF	Global Drug Facility	PMV	Patent Medicine Vendors
GF	The Global Fund to fight AIDS, Tuberculosis and Malaria	PMU	Project Management Unit
GLC	Green Light Committee	PPM	Private Public Mix
GLI	Global Laboratory Initiative	PR	Principal Recipient
HC	Health Center	PV	Pharmacovigilance
HCW	Health Care Worker	RIF	Rifampicin
		RR-TB	Rifampicin-resistant TB
		SLD	Second-Line Drug
		SOP	Standard Operating Procedure
		SR	Sub-Recipient
		TA	Technical Assistance
		TB	Tuberculosis
		TB-IC	TB Infection Control
		TB CAP	Tuberculosis Control Assistance Program
		ToR	Terms of reference
		ToT	Training of Trainers
		TSR	Treatment Success Rate
		UNDP	United Nations Development Program
		USAID	United States Agency for International Development
		WHO	World Health Organization
		XDR-TB	Extensively-Drug Resistant Tuberculosis
		Xpert	Xpert MTB/RIF



Challenge TB (CTB) is the flagship global mechanism of the United States Agency for International Development (USAID) to prevent and control tuberculosis (TB). This performance monitoring report summarizes program progress, achievements and challenges during the first quarter of Year 3, September-December 2016, across the 22 country projects, the East Africa regional project, and six approved core projects. The program's most significant achievements from the reporting period, as well as the challenges for the next quarter are highlighted below.

## Main Achievements

## Country Projects

**Afghanistan** - In five urban DOTS cities (Kabul, Herat, Kandahar, Jalalabad, and Mazar-e-Sharif), CTB conducted home visits to 807 index bacteriologically confirmed TB cases, for which 4,410 household contacts were registered and screened for signs and symptoms for TB. Among these individuals, 255 (6%) presumptive TB patients were identified and tested for acid fast bacilli (AFB); 34 (13%) were diagnosed as bacteriologically confirmed TB cases and 61 (24%) as clinically confirmed (pulmonary and extra-pulmonary) TB cases, and all of them were started on treatment.

**Bangladesh** - The number of people with presumptive TB tested by Xpert reached 12,595, with 4,462 (35%) patients with confirmed TB. Of these, 221 (4.8%) were rifampicin-resistant TB (RR-TB) cases; 217 (98%) RR-TB patients started MDR-TB treatment, and 211 (97%) of the enrolled MDR-TB patients adhered to second-line treatment throughout this quarter. The main factors contributing to the good adherence were social support and incentives provided to the patients and DOT providers, strong monitoring through mHealth, and extensive supervision by CTB staff. The NTP-reported the treatment success rate (TSR) was 73% for MDR-TB patients (2013 cohort), which is much higher than the 52% reported globally, and lost to follow-up remains low at 10%.

**Botswana** - The number of RR-/MDR-TB cases diagnosed and put on treatment has increased to 27 cases (compared to 18 cases in 2014 and 16 cases in 2015 for the same quarter). In total, 109 RR-/MDR-TB cases were diagnosed and initiated on treatment in 2016. This is an increase in number of RR-/MDR-TB cases identified from 2015 (80 MDR-TB cases) and 2014 (84 MDR-TB cases). This increase in the number of RR-/MDR-TB cases could be attributed to the rollout of GeneXpert and its adoption as 'initial TB diagnostic test' for all presumptive TB cases since the beginning of 2016.

**Burma** - CTB financially and technically supported the development of the TB National Strategic Plan (NSP) 2016-2020, which was launched in the capital Nay Pyi Taw at the official launching ceremony of the End TB Strategy and TB NSP 2016-2020 carried out with the participation from the Minister of Health, high level officials from respective health departments and members of parliament.

**DRC** - CTB supported four local partner NGOs to implement ACF activities in eight targeted provinces. This quarter, a total of 99,274 people among both general populations and at-risk groups were screened for TB; among them, 10,358 (10%) presumptive TB cases were referred to appropriate TB services; 9,116 (88%) were tested for TB by smear examination; among presumptive TB cases tested 1,093 (12%) were diagnosed with TB: 924 (10%) were bacteriologically confirmed, 92 (1%) were clinically confirmed, and 77 (1%) were diagnosed with extra-pulmonary TB.

**Ethiopia** - A temperature-controlled vehicle specimen transportation system procured by USAID/HEAL-TB project, became operational under CTB. To date, the introduction of cold chain sputum transportation in Amhara, Oromia, and Addis Ababa has brought significant improvement in the average sputum transportation and delivery time from the previous 5-7 days before August 2016 to 1-2 days this quarter. More than 2,100 samples were transported using this new system since August, 2016. A full impact analysis will be completed and the results will be reported next quarter.

**India** - PATH initiated the training consortium together with the PEPFAR partners and Mumbai District AIDS Control Society (MDACS) for streamlining HIV counselor trainings in Mumbai. MDACS with support from PEPFAR partners conducted one induction and five refresher trainings attended by 152 counselors and supervisors. Through PEPFAR/PATH support, 72% (762/1,063) of TB patients diagnosed this quarter received free HIV screening at the 24 networked private facilities. Of those screened, 2% (13/762) HIV-positive patients were detected, and 12/13 (92%) positive patients were further linked to the HIV centers in the public sector.

**Indonesia** - Through a national level workshop, the Indonesian Childhood TB Technical Working Group (TWG) used the KNCV Childhood TB Benchmarking Tool to determine the baseline data and assess the current situation on childhood TB policy and implementation. Stakeholders, including MoH (NTP and Child Health), relevant professional associations and societies, representatives from selected provinces, and partners (CTB, WHO, World Vision Indonesia) participated in the workshop. Out of 20 standards, 10 standards were met, 7 standards were partially met, and 3 standards were not met. The TWG agreed on a plan of action related to each standard and planned to adapt the KNCV Childhood TB Benchmarking Tool for district level use.

**Malawi** - CTB supported mass screening in three prisons, where a total of 3,007 prisoners and 27 prison staff were screened for TB. In total 1,108 (37%) prisoners and 12 (44%) prison staff were identified as having presumptive TB; out of these, 23 (2%, 765 cases per 100,000) prisoners (but no staff) were identified as TB cases through Xpert testing and were initiated on TB treatment at respective district hospitals.

**Nigeria** - CTB-Nigeria supported DOTS and Local Government Supervisors to visit the houses of bacteriologically positive TB patients to conduct screening and investigate their contacts for TB disease. Through these efforts a total of 1,627 TB patients in 14 CTB-supported states were visited; 5,869 household members were screened for TB; 1,032 (18%) presumptive TB cases identified and tested; 169 (16%) *Mtb* cases were detected through microscopy and Xpert testing; one RR-TB case was identified; all have been started on treatment.

**Tanzania** - CTB continued to support the decentralization of PMDT services that started the previous quarter, with 12 more sites from different parts of the country initiating DR-TB patients on treatment, making a total of 20 sites. Out of the 38 patients initiated on MDR-TB treatment during the quarter, 19 (50%) received care from decentralized sites. Experienced clinicians and nurses from the national level provide mentoring to regional and district coordinators as well as HCWs once a patient is identified. Cohort reviews are also regionalized to accommodate decentralization. The Northern, Eastern and Lake zones conducted cohort reviews during the quarter with 29, 44, and 25 patients reviewed respectively.

**Zimbabwe** - CTB supported the revision of the NTP paper based recording and reporting tools for case finding as well as care and treatment for all levels of health care. The new tools which were revised basing on the WHO 2013 definitions will adequately capture the top ten indicators of the End TB strategy and The Global TB report indicators; also, new and emerging NTP programming interventions, such as contact investigation, new WHO recommended diagnostic and screening tools, TB and diabetes, TB surveillance among HCWs, etc. SOPs were also developed to standardize data capturing and reporting. The revised tools will be finalized for print and distribution to all TB management units in January 2017. The District Health Information Software 2 (DHIS2) will be customized to facilitate data entry using the revised format.

## Core Projects

**Bedaquiline (BDQ)** - This project facilitates the introduction of ND&R in 22 CTB countries (including Kazakhstan). In addition, a separate Core Project facilitated the introduction of ND&R in Papua New Guinea (PNG). At the end of 2016, the totals for 13 countries with patients on treatment included 775 individuals on regimens containing BDQ, 70 on regimens containing delamanid and 549 on shorter regimens. An additional two countries, Botswana and Tanzania had patients on ND&R in previous years (2014 and 2015). ND&R have not yet been introduced in nine CTB countries.

**Stigma** - This is the first quarter of the Core Measurement - Stigma “Bridge Funding” project to develop a stigma measurement manual and to publish a supplement to the International Journal of Tuberculosis and Lung Disease (IJTLD) journal. The Stigma Special Issue supplement will be comprised of 12 papers on ways to measure TB stigma, the relationship between TB stigma and HIV stigma, the impact of TB stigma on health seeking behavior, the distribution of TB stigma across settings, and the correlates of stigma at individual, facility and country level. Ten out of 12 papers for publications were developed, reviewed, finalized and submitted to IJTLD. The supplement should be published in May 2017.

**UN Special Envoy (UNSE) for Tuberculosis** - The UNSE played a key role in the UN High Level Meeting on HIV/AIDS in June, which resulted in stronger language on TB/HIV co-infection in the Political Declaration on HIV and AIDS. The final declaration language was very strong on TB – calling for a 75% reduction in TB/HIV co-infection and an additional statement supporting accelerated funding and targeting of services for key populations.

**TB Prevention** - The second annual Trial Steering Committee meeting took place during The Union Conference in Liverpool and the first Data Safety and Monitoring Board – ahead of trial enrollment - took place through a teleconference. Following the procurement of the clinical trial insurance in South Africa in Year 2, the clinical trial insurance policy for Ethiopia has been drafted and will be finalized in the next quarter. In addition, SOPs and case report forms (CRFs) were finalized. Finally, the agreement between KNCV and Sanofi for the donation of Priftin® (rifapentine) and Winthrop® (isoniazid), including the donation of additional isoniazid was finalized and signed. Sanofi has delivered the initial shipment of 8,000 boxes of rifapentine to South Africa and they are being stored in a warehouse under appropriate conditions. Additionally, 182 bottles of isoniazid have been delivered and stored in the same warehouse.

## Main Challenges

As mentioned in previous reports, CTB countries continue to face challenges in closing the gap between diagnosis and treatment initiation as well as in producing and using quality PMDT data in a timely fashion. These challenges were analyzed in the Year 2 Annual Report, and based upon the results this problem is being addressed by the project in various CTB countries, in parallel with implementing and scaling-up new drugs and shorter regimens (ND&R) for MDR-TB.

# Introduction

Challenge TB 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 1, 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 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, Challenge TB contributes to the WHO 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, Challenge TB has three objectives, each with several focus areas for interventions:

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

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

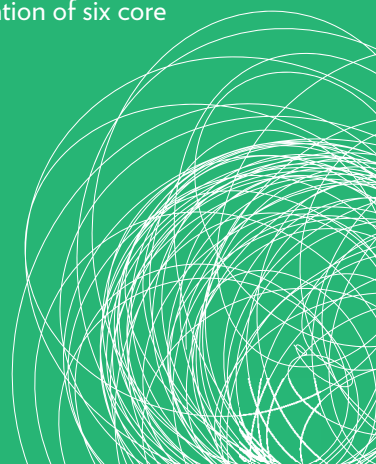
**Objective 2: Prevent transmission and disease progression by:**

- Targeted screening for active TB
- Implementing infection control measures
- Managing latent TB infection

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

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

CTB implements projects at country, regional and international/global level with the majority of the program's work being done through country-specific projects. As of December 30, 2016, 22 countries were implementing CTB (CTB-Zambia begins implementation in Year 3). At the regional level, CTB continued implementation of the East African Region project (more information available on page 35), and also continued the implementation of six core projects this quarter (see page 36 for more details).



# Global Fund

By the end of December 2016, CTB was operating in 22 countries with a total of 37 signed grants. For these 37 grants taken together, the average disbursement performance is 71%, which is an improvement from the previous quarter when the average disbursement performance was 57%. Several countries also have disbursement performance scores greater than 100% suggesting high absorption rates when taking the implementation time into consideration. The disbursement performance score is reached by looking at the amount of signed grant funds disbursed to the country taking the months remaining for implementation. The table below details all 37 grants.

Country	Grant	NFM Start Date	NFM End Date	% of Signed Amount Disbursed	Grant Rating	Disbursement Performance (%)
Kyrgyzstan	KGZ-C-UNDP	July 2016	December 2017	42%	N/A	118
Ukraine	UKR-C-AUN	January 2015	December 2017	80%	B1	116
Ukraine	UKR-C-AUA	January 2015	December 2017	76%	B1	110
Uzbekistan	UZB-T-RDC	July 2016	July 2018	25%	N/A	100
Burma	MYN-T-SCF	January 2013	December 2016	100%	A2	98
Vietnam	VNM-T-NTP	July 2015	December 2017	58%	A1	94
India	IDA-T-WVI	October 2015	December 2017	54%	B1	93
Indonesia	IDN-T-MOH	January 2016	December 2017	47%	N/A	91
Afghanistan	AFG-T-UNDP	April 2015	December 2017	59%	B1	90
Tanzania	TZA-T-MOH	July 2015	December 2017	56%	N/A	90
Ukraine	UKR-C-UCDC	January 2015	December 2017	61%	B1	89
India	IDA-T-CTD	October 2015	December 2017	50%	A2	87
DRC	COD-T-CARITAS	July 2015	December 2017	53%	N/A	85
Cambodia	KHM-T-CENAT	January/15	December 2017	58%	N/A	85
Bangladesh	BGD-T-NTP	July 2015	December 2017	52%	A2	84
India	IDA-T-IUATLD	October 2015	December 2017	48%	A1	84
DRC	COD-T-MOH	July 2015	December 2017	51%	N/A	82
Afghanistan	AFG-T-MOPH	February 2015	December 2017	53%	B1	78
Zambia	ZMB-C-CHAZ	July 2015	December 2017	47%	N/A	76
Botswana	BWA-C-ACHAP	February 2016	December 2018	25%	N/A	76
Tanzania	TZA-C-STC	July 2015	December 2017	44%	N/A	71
South Sudan	SSD-T-UNDP	July 2015	December 2017	44%	A2	71
Zimbabwe	ZWE-T-MOHCC	January 2015	December 2017	48%	A2	70
Bangladesh	BGD-T-BRAC	July 2015	December 2017	43%	A1	70
Mozambique	MOZ-C-FDC	July 2015	December 2017	42%	C	68
Zambia	ZMB-B-MOH	July 2015	December 2017	42%	B1	67
Malawi	MWI-C-AA	January 2016	December 2017	30%	C	58
Botswana	BWA-C-BMOH	February 2016	December 2018	17%	N/A	53
Mozambique	MOZ-T-MOH	July 2015	December 2017	30%	B2	49
Indonesia	IDN-T-AISYIYA	January 2016	December 2017	25%	A2	48
Malawi	MWI-C-MOH	January 2016	December 2017	25%	B1	47
Namibia	NMB-T-MOHSS	October 2013	December 2017	36%	B1	46
Ethiopia	ETH-T-FMOH	July 2015	December 2017	26%	N/A	42
Nigeria	NGA-T-ARFH	July 2015	December 2017	25%	B1	40
Tajikistan	Tjk-T-HOPE	January 2016	May 2018	16%	N/A	38
Tajikistan	Tjk-T-RCTC	January 2016	May 2018	15%	N/A	35
Burma	MYN-T-UNOPS	January 2013	December 2016	26%	A1	25
Nigeria	NGA-T-IHVN	July 2015	December 2017	16%	B1	25

In November 2016, the CTB GF Officer visited Zimbabwe for a short visit to become more familiar with the GF issues on the ground and better understand the grant management challenges at the NTP and how/if the GF Hub can provide

additional support. During the visit the GF Officer attended a CCM TB Oversight Committee meeting and assisted with the final planning of GF Hub supported TA for Zimbabwe's concept note to be submitted in 2017. During the visit it was clear that the country coordinating mechanism (CCM), the program coordination unit (PCU) and the NTP (including other partners) are fully available to discuss progress, challenges and to look for solutions for a successful TB grant. Planning for the next funding cycle was clarified and a way forward agreed upon in discussion with the CCM secretariat, PCU, NTP, WHO and The Union.

The GF Hub continued to support CTB countries to start planning the TA needs for concept note development. On December 15, the GF sent allocation letters to all countries eligible for GF funding. Within each letter, the full allocation was communicated including a recommended disease split to be discussed and finalized at country level. Further, the allocation letters also included information regarding the recommended application modality and if a country was eligible to apply for catalytic funding. Of the US\$9 billion allocated in December, US\$1.75 billion was specific to TB. The total amount allocated for TB in the 22 CTB countries was US\$1.07 billion, which is about 60% of the GF TB investment in the 2017-2019 cycle. Furthermore, eight CTB countries are eligible for catalytic funding with the potential to receive an additional US\$81 million to focus on finding the missing TB cases.

Four countries have approved GF Hub mini workplans to cover TA needs for the 2017-2019 process - Cambodia, Vietnam, Tanzania, and Indonesia. Most of the activities planned within these four mini workplans will be carried out in Year 3 Quarter 2 and 3; however, the epi-analysis TA for Vietnam was completed in December 2016. Zambia, a new CTB country, was specifically supported with the development of their new NSP. The development process started in December 2016 and is expected to be completed in February 2017.

It is expected that the bulk of the planning for the GF 2017-2019 cycle will be completed early next quarter when the respective CCMs have had a chance to review the allocation letters and finalize development of roadmaps and TA needs for GF applications. However, as of end of the quarter most CTB countries have identified a consultant or in-country team to support concept note development. The eight countries without an identified consultant include: Burma, an early applicant and submitted a concept note in June 2016; Namibia and Botswana, which do not need to submit concept notes until August 2017 and January 2018; India and South Sudan, which are not requesting GF Hub support for TA; Indonesia is awaiting confirmation; and Nigeria and Zambia have not yet identified a consultant. Furthermore, 13 countries have developed roadmaps that outline the development process including TA plans for both external and internal consultants. The GF Hub will continue to monitor preparations for the GF 2017-2019 cycle for all CTB countries. Support will be provided where necessary to prepare consultants for their TA assignments.

Below is a summary of highlights from three countries that illustrate CTB support for GF related activities:

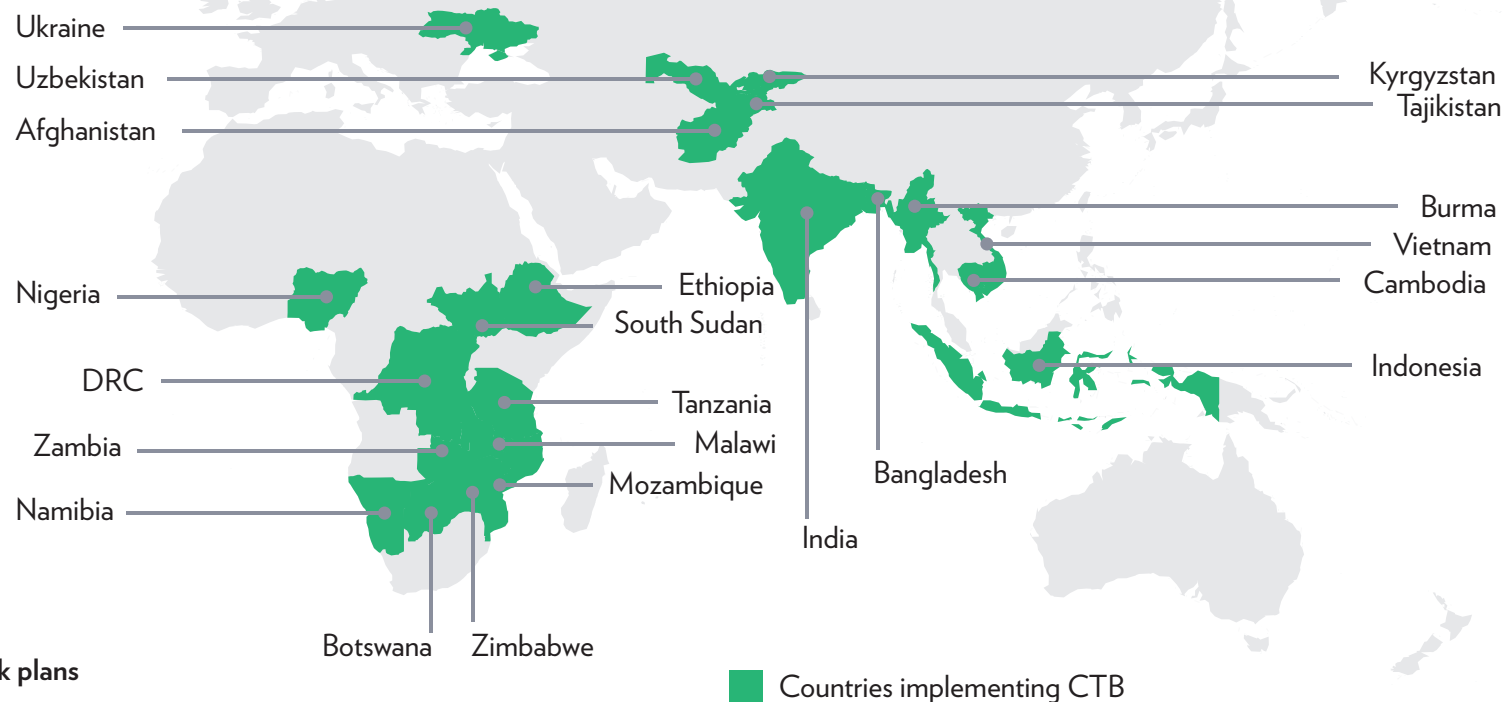
**Indonesia** - CTB continues to be a major partner in supporting efforts in Indonesia to accelerate the implementation of the current GF grant. An Xpert workshop/training for 188 new Xpert sites was successfully completed. CTB has successfully supported the NTP in securing funding for additional GeneXpert machine procurement from GF and government funding. CTB partners assisted the NTP to develop scale-up plans, execute the procurement process, placement and capacity building for an additional 200 GeneXpert machines from the GF and 201 machines from government funding. CTB also supported the NTP in the quantification of the cartridge supply needs, keeping oversight of Xpert utilization and cartridge consumption.

**Kyrgyzstan** - CTB supported the implementation of the GF grant by working with the MoH and Department of Drug Provision (DDP), who granted permission for the importation of BDQ into the country this quarter. CTB team conducted several meetings with MoH/DDP to provide information about BDQ, its vital importance for M(XDR)-TB patients, and the plan for responsible implementation of treatment regimens containing BDQ in the country. Several rounds of meetings and communications were conducted this quarter at the high policy level with participation of key national and international stakeholders. CTB developed two ways for the importation of BDQ: inclusion on the list of drugs imported without registration and as humanitarian aid. BDQ was imported into Kyrgyzstan in December 2016 as humanitarian aid and the NTP provided customs clearance until the end of 2016, patient enrollment is planned in January 2017.

**Malawi** - CTB supported the implementation of the GF NFM grant through TA provision to the Procurement and Supply Management (PSM) component. Procurement of health commodities constitutes a significant proportion of the NFM grant, and has been implemented. A PSM Technical Advisor seconded by CTB to NTP oversees procurement of all GF supported procurements and the in-country supply management of health commodities. Permission was obtained from the Office of Directorate of Public Procurement to procure mobile X-ray vans, it is expected that the procurement contract will be signed in January 2017.

# Country Projects

As of December 31st, 2016, 22 countries were implementing CTB (see map). The table below summarizes the technical reach of the approved Year 3 CTB country work plans.



## CTB sub-objectives covered in Year 3 country work plans

Technical Areas	Challenge TB Countries																					# Countries working in technical area
	AF	BA	BO	BU	CA	DRC	ET	India	Indo	KR	MA	MO	NA	NI	SS	TJ	TN	UKR	UZB	VT	ZM	
1. Enabling Environment		X		X	X		X		X	X	X	X		X	X		X	X			X	13
2. Comprehensive, high quality diagnostic network	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	19
3. Patient-centered care & treatment	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	20
4. Targeted screening for active TB		X		X	X		X				X	X		X			X				X	9
5. Infection Control	X	X		X	X	X	X		X		X	X	X		X		X	X		X		14
6. Management of latent TB infection		X			X	X			X						X							5
7. Political commitment & leadership	X	X		X	X	X	X	X	X				X	X	X			X			X	14
8. Comprehensive partnerships and informed community involvement	X	X	X	X	X	X	X		X				X	X	X	X	X	X			X	15
9. Drug and commodity management systems				X		X	X			X	X		X	X		X		X	X			10
10. Quality data, surveillance and M&E	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X			X	X	17
11. Human resource development	X	X	X	X	X	X	X		X	X		X	X	X	X		X	X			X	16

Cambodia, DRC, South Sudan and Uzbekistan Year 3 workplans not yet approved, activities reported based on the approved Year 2 workplan.  
Zambia starts in Year 3 - workplan not yet approved

# Programmatic Management of Drug-Resistant TB

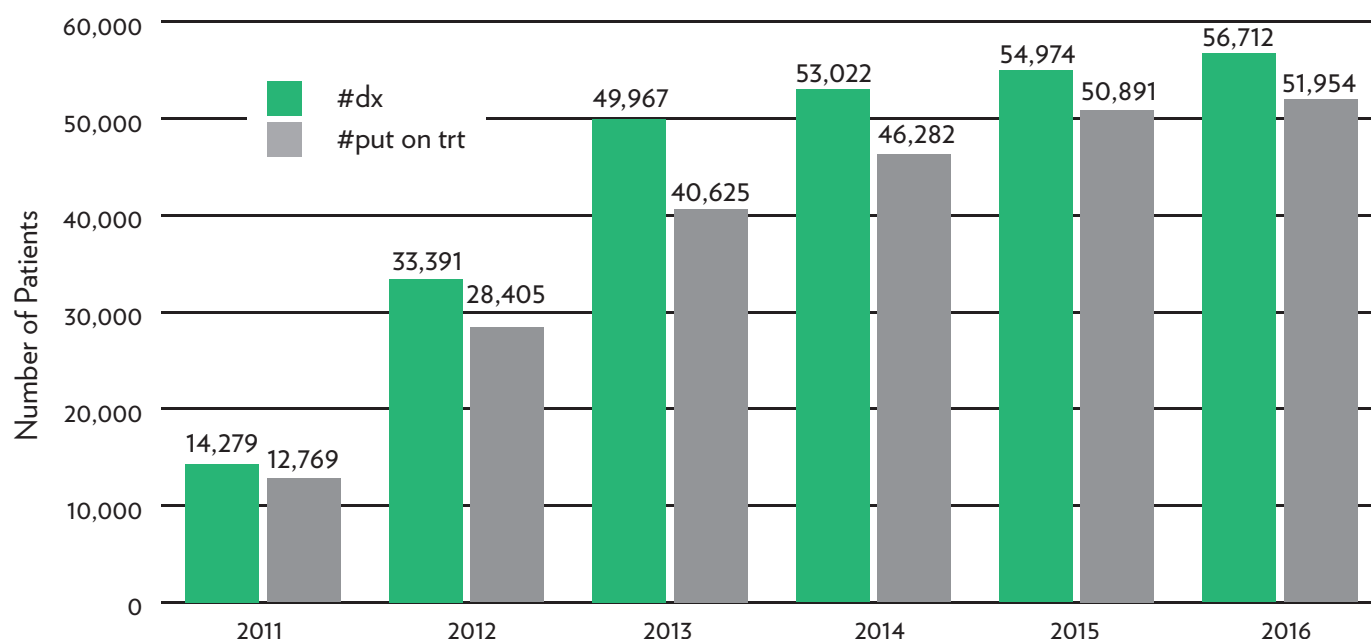
CTB is supporting the implementation of PMDT and the project is monitoring MDR-TB diagnosis and treatment data quarterly to track progress in PMDT scale-up and to inform project activities at country and global levels. CTB relies on data reported officially to WHO (before 2016), and also gathers data directly from NTPs for the most recent quarters in each country. The table below summarizes the number of MDR-TB including RR-TB patients diagnosed and the number of patients (unconfirmed and confirmed) started on treatment from 2011 thru 2016. The graph on page 12 shows the summarized totals per year to capture the overall trend across CTB countries.

**Diagnosis of confirmed RR-TB and MDR-TB (Xpert and C/DST) as well as treatment initiation for unconfirmed and confirmed MDR-TB, 2011-2016 in 21 CTB countries**  
(2011-2015: WHO Global TB Database; 2016 data reported from the NTP via CTB; data that are not yet available have been extrapolated based upon available data and appear in red)

Countries	WHO Data										NTP data via CTB									
	2011		2012		2013		2014		2015		Jan-Mar 2016		Apr-Jun 2016		Jul-Sep 2016		Oct-Dec 2016		2016	
	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt	#dx	# put on trt
Afghanistan	22	22	38	38	49	48	88	88	81	81	20	20	22	22	25	25	75	75	142	142
Bangladesh	612	390	701	505	807	684	994	945	954	880	242	208	280	273	228	203	221	223	971	907
Botswana	46	71	52	67	59	59	41	73	57	61	27	27	27	27	27	27	28	28	109	109
Burma	690	163	778	442	1,984	1,537	3,495	1,537	2,793	2,207	755	500	708	621	451	346	451	346	2,365	1,813
Cambodia	56	83	117	110	131	121	110	110	77	75	29	29	28	28	20	23	28	28	101	102
DRC	88	138	133	269	261	359	442	436	499	413	126	118	120	84	90	258	120	84	661	591
Ethiopia	216	199	294	289	558	413	503	557	597	597	169	168	169	168	168	169	169	168	676	676
India	4,221	3,384	17,253	14,059	23,289	20,763	25,748	24,073	28,876	26,966	7,219	6,742	7,219	6,742	7,219	6,742	7,219	6,742	28,876	26,966
Indonesia	466	255	818	432	1,074	819	1,812	1,284	2,135	1,519	436	265	415	230	446	207	1,629	1,146	2,926	1,848
Kyrgyzstan	679	804	958	958	1,590	1,160	1,267	1,157	1,116	1,158	360	341	383	381	372	361	372	361	1,486	1,444
Malawi	26	15	27	19	28	19	106	64	93	65	0	0	35	23	18	12	18	12	71	47
Mozambique	184	146	283	215	359	313	544	482	646	646	150	146	172	168	161	157	161	157	644	628
Namibia	194	194	216	216	225	218	350	327	320	308	79	71	79	76	92	85	92	89	342	321
Nigeria	95	39	107	225	669	432	798	423	1,241	656	349	265	369	304	359	285	359	285	1,436	1,138
South Sudan	7	0	3	0	1	0	6	-	20	0	1	0	3	0	3	0	3	0	10	0
Tajikistan	598	380	780	536	1,065	666	902	804	675	636	175	175	210	210	197	197	194	160	776	742
Tanzania	36	32	83	44	95	95	516	143	178	123	49	40	45	40	50	44	41	38	185	162
Ukraine	4,530	4,957	7,615	7,672	10,585	9,000	7,735	8,201	9,397	9,787	2,481	2,453	2,493	2,479	2,051	2,028	2,320	2,362	9,345	9,322
Uzbekistan	794	855	2,212	1,419	5,751	2,647	4,955	3,665	2,149	2,149	537	537	537	537	537	537	537	537	2,149	2,149
Vietnam	601	578	774	713	994	957	2,198	1,532	2,602	2,131	818	542	674	572	746	456	746	875	2,984	2,445
Zimbabwe	118	64	149	105	393	315	412	381	468	433	193	166	132	115	0	0	132	125	457	406
Total	14,279	12,769	33,391	28,405	49,967	40,625	53,022	46,282	54,974	50,891	14,216	12,813	14,129	13,138	13,320	11,989	15,048	14,014	56,712	51,954

Data from seven countries are based on projections of (equal level) 2015 or incomplete 2016 data; Zambia data not included.

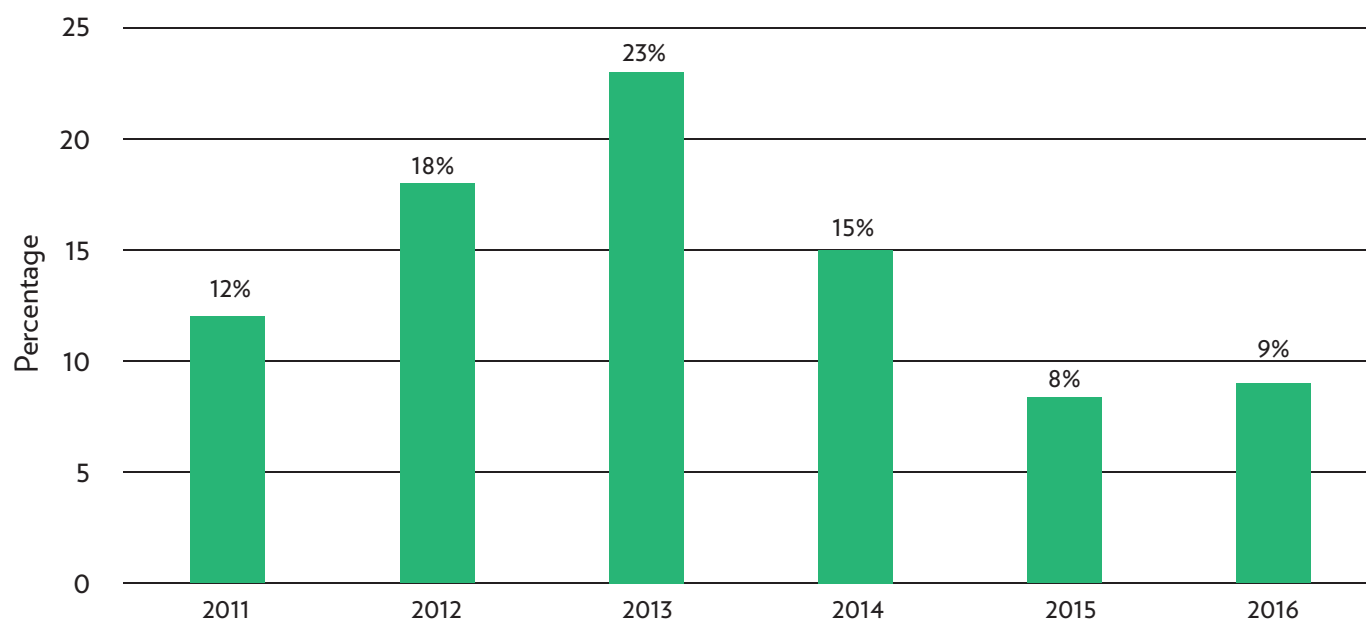
Number of confirmed RR-TB and MDR-TB patients (Xpert and C/DST) diagnosed, and number of unconfirmed and confirmed MDR-TB patients started on treatment, 2011-2016 (2011-2015: WHO Global TB Database; 2016 data reported from the NTP via CTB), 21 CTB countries\*



Data from seven countries are based on projections of (equal level) 2015 or incomplete 2016 data; Zambia data not included

The data for 2016 need to be interpreted with some caution as these data are reported by NTPs via CTB and may be different when after validation they are reported to WHO for the Global TB Report 2017. For India, the 2016 data is based upon projections of (equal level) 2015. These initial 2016 data (updated from what was reported in previous quarters) project a 7% and 12% increase in diagnosis and treatment initiation from 2014 (CTB baseline) to 2016, respectively. Again, based on this 2016 data, more pronounced increases over this period are noted in Botswana (166% in #dx and 49% in #trt), Nigeria (80% and 169%), Vietnam (36% and 60%), Indonesia (61% and 44%), Mozambique (18% and 30%), Ethiopia (34% and 21%), and Ukraine (21% and 14%). The approximate gap between diagnosis and treatment initiation has decreased since 2013 and remains at 9% based on 2016 data (see below). Based on 2016 data, the biggest gaps are observed in Indonesia (58%), Malawi (51%), Burma (30%), Nigeria (26%), and Vietnam (22%).

#### Gap between diagnosis and treatment initiation, 2011-2016\* in 21 CTB countries



Data from seven countries are based on projections of (equal level) 2015 or incomplete 2016 data; Zambia data not included.

## New drugs and novel regimens

In 2016, eligible patients have been started on ND&R in 13 countries (13 have BDQ, six include DLM, and three include shorter treatment regimens [STR]). In total, 775 patients were started on BDQ, 70 patients were started on DLM, and 549 patients were started on STR in 2016.

### Number of eligible patients\* started on BDQ or DLM (national data) in CTB countries in 2016

CTB Country	# of eligible patients started on BDQ	# of eligible patients started on DLM	RR-/MDR-TB cases started on STR	# of BDQ or DLM trt initiation sites	STR		BDQ		DLM	
					Total # of reported SAEs	Total # of reported SAEs led to a death	Total # of reported SAEs	Total # of reported SAEs led to a death	Total # of reported SAEs	Total # of reported SAEs led to a death
India	226	0	0	6	0	0	16	3	0	0
Kazakhstan	157	49	0	U	0	0	0	0	0	0
Uzbekistan	120	0	n/a	2	n/a	n/a	0	n/a	n/a	n/a
Vietnam	85	n/a	104	85	n/a	n/a	n/a	n/a	n/a	n/a
Indonesia	45	n/a	0	4	n/a	n/a	13	4	n/a	n/a
Bangladesh	38	5	0	1	n/a	n/a	2	1	0	0
PNG	28	0	n/a	U	0	0	0	0	0	0
Tajikistan	25	4	3	3	0	0	0	0	0	0
Namibia	14	1	0	2	0	0	1	0	0	0
DRC	13	0	442	13	0	0	0	0	0	0
Burma	12	7	0	1	0	0	2	0	2	0
Ethiopia	11	4	n/a	1	0	0	2	1	0	0
Mozambique	1	0	U	1	n/a	n/a	n/a	n/a	n/a	n/a
Tanzania	0	0	n/a	1	n/a	n/a	n/a	n/a	n/a	n/a
Botswana	0	0	0	1	n/a	n/a	n/a	n/a	n/a	n/a
<b>Total</b>	<b>775</b>	<b>70</b>	<b>549</b>	<b>121</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>9</b>	<b>2</b>	<b>0</b>

\*STR, BDQ and DLM have not yet been introduced in Afghanistan, Cambodia, Kyrgyzstan, Malawi, Nigeria, South Sudan, Ukraine, Zambia, and Zimbabwe.

The core BDQ project is only working in PNG and Kazakhstan

U=Unknown

Eligibility varies by country but should follow WHO/NTP criteria, which usually entails pre-XDR, XDR-TB and MDR-TB patients with adverse drug reactions and/or poor tolerance to standard second-line drugs.

## Most significant achievements

The progress and achievements from October thru December 2016 for the 22 CTB country projects active during the quarter, are summarized in the rest of the report.



CTB Laboratory Technical Officer mentoring a GeneXpert super-user on module replacement - Tanzania (Photo: Lucy Dalusi)

# Afghanistan

CTB-Afghanistan, led by MSH and with KNCV as a collaborating partner, aims to assist the NTP to reach its strategic objective of increasing TB case notifications by at least 6% annually through the provision of quality TB services to all communities. The project works in 15 of the country's 34 provinces.

**DOTS implementation** - A total of nearly two million outpatients attended health care facilities in the CTB-supported provinces. Of these, 49,945 (2%) presumptive TB patients were identified, 48,830 (98%) patients were tested for AFB, and 3,040 (6%) patients were bacteriologically confirmed TB cases. In total, 7,475 (15%) TB cases of all forms TB were diagnosed and put on treatment during the quarter, an 18% increase. Similarly, there was a 24% increase in bacteriologically confirmed cases and a 27% increase in all forms TB case notification between the first and last quarters of 2016.

**Urban DOTS implementation in densely populated areas** - From April-June 2016, CTB maintained implementation of DOTS in the densely populated areas of the five cities of Kabul, Mazar, Herat, Jalalabad and Kandahar. CTB helped the NTP expand DOTS to 10 public and private health facilities, and 166 Urban DOTS health facilities were engaged by the end of June 2016 (92 in Kabul and 74 in the other four Urban DOTS cities). CTB trained 159 health care staff members such as nurses, doctors, and laboratory technicians to follow SOPs for TB case finding and treatment, including laboratory assessment and microscope repair and maintenance. In total 150 supervisory visits were conducted and 625 individuals attended the awareness events in those five cities. As a result, the health care workers (HCWs) in the five urban cities identified 13,408 presumptive patients who were tested for TB; among them, 1,052 (8%) were diagnosed as bacteriologically confirmed TB cases, and 3,347 (24%) were diagnosed with all forms of TB between April-June 2016. Out of these 3,347 cases, 488 (15%) and 57 (2%) cases were identified in private health facilities and prisons, respectively.

**Urban DOTS implementation** - CTB maintained DOTS implementation in the densely populated areas of Kabul, Mazar, Herat, Jalalabad, and Kandahar. CTB helped the NTP expand DOTS to eight public and private health facilities, increasing the number of operating Urban DOTS facilities to 200 by the end of December 2016 (116 in Kabul and 84 in the four other cities). CTB trained 238 HCWs to follow SOPs for TB case finding and treatment, including laboratory assessment and microscope repair and maintenance. This quarter, HCWs in these five cities identified 12,008 presumptive TB patients who were tested for AFB; 852 (7%) were diagnosed as bacteriologically confirmed TB cases, and 2,953 (25%) were diagnosed with all forms of TB, and all were put on treatment. Kabul is unique in the capacity to diagnose extra-pulmonary TB and is the referral point for diagnosis in the country, and therefore has high proportions of all forms of TB cases.

**Contact investigation (CI)** - In five urban DOTS cities (Kabul, Herat, Kandahar, Jalalabad, and Mazar-e-Sharif), CTB conducted home visits to 807 index bacteriologically confirmed TB cases, for which 4,410 household contacts were registered and screened for signs and symptoms of TB. Among these individuals, 255 (6%) presumptive TB patients were identified and tested for AFB; 34 (13%) were diagnosed as bacteriologically confirmed TB cases and 61 (24%) as clinically confirmed (pulmonary and extra-pulmonary) TB cases, and all of the cases were started on treatment. In Kabul, a total of 361 index TB cases were investigated and 2,220 household contacts were registered and all screened for TB; out of these, 280 (13%) were found to be presumptive for TB and were examined for AFB; 27 (10%) were diagnosed as bacteriologically confirmed TB cases and were put on TB treatment. IPT was initiated among 294 children under the age of five.

**Community Based DOTS (CB-DOTS) implementation** - CTB helped the NTP with CB-DOTS implementation through local NGOs. In 15 CTB-supported provinces, the number of presumptive TB cases referred by the community increased by 14%, from 9,550 previous quarter to 10,925 this quarter; the number of bacteriologically confirmed TB cases referred by the community increased by 25%, from 580 to 723; similarly, the number of TB patients under treatment by CHWs increased by 11%, from 850 to 942. In total CHWs/community members screened 33,254 community members in 15 provinces, among them 10,925 (33%) presumptive TB cases referred by the community and all (100%) were examined for TB. A total of 723 (7%) bacteriologically confirmed cases and 850 (8%) all forms of TB cases were detected; a total of 942 (60%) TB cases started receiving treatment from CHWs/community members.

**Operations research** - CTB assisted the NTP to develop and submit 21 abstracts for The Union Conference in Liverpool. The conference accepted 13 (62%) abstracts, which were presented in Liverpool in October 2016. Through these abstracts, the NTP and CTB strived to document best performances, provide answers to basic questions regarding TB, and evaluate various aspects of the TB program. The NTP decided to use the information and recommendations from these studies to update the national strategic plan for TB and ensure that the recommendations are addressed during the next GF grant round and other projects, namely, to ensure the expansion of urban DOTS to similar settings and develop SOPs for TB among diabetic patients.

# Bangladesh

CTB-Bangladesh is being led by MSH in close collaboration with KNCV. CTB is supporting the NSP 2020 targets: (1) Increase annual case detection of all forms of TB to 230,000 (from baseline of 184,507 in 2013); (2) Ensure universal access to DST; (3) Treat 100% of detected MDR-TB cases and achieve a TSR of at least 75% in detected MDR-TB cases; and (4) Decrease TB mortality from 51/100,000 to 40/100,000.

**GxAlert national rollout** - CTB installed GxAlert at eight out of a total of 39 GeneXpert sites. National rollout to all sites will be completed by March, 2017. CTB continued to provide maintenance support for GeneXpert machines so that all machines remain functional. This quarter, a total of 12,595 tests were completed and 4,462 (35%) patients were diagnosed with *Mtb*, out of which 221 (5%) were RR-TB cases.

**Improved TB case notification and treatment outcomes** - The number of cases notified per 100,000 population increased from 124 in Jul-Sep 2015 to 136 in Jul-Sep 2016. The CTB contribution to TB case notification has been consistently between 16-18% over the last 12 months. Childhood TB notification is still low - out of the total cases notified, only 2,293 (4%) of cases were children in Jul-Sep 2016. The TSR has remained at 94% for over four quarters.

**Improved MDR-TB patient retention and treatment outcomes** - A total of 217/221 (98%) RR-TB patients started MDR-TB treatment, and 97% of the enrolled MDR-TB patients have been adhered to second-line treatment this quarter. The main factors contributing to the good adherence were social support and incentives provided to the patients and DOT providers in 19 districts, strong monitoring through mHealth in 17 districts, and extensive supervision by CTB staff. The NTP reported an annual TSR of 73% for MDR-TB patients (2013 cohort) which is much higher than the 52% reported globally, and lost to follow-up remains low at 10%. CTB continued to monitor the side effects of drugs either through direct supervisions or mHealth calls. During this quarter, the most frequent side effects were joint and muscle aches (27%), decreased appetite (26%) and other gastrointestinal complaints (26%).

**Contact investigation and IPT among children** - Among the household contacts of the 54,598 index TB cases registered from July to September 2016, 2,229 children under the age of five were eligible for IPT, and 2,075 (93%) were started on IPT. The national database does not currently track completion, but CTB is working with the NTP to include completion data.



# Botswana

CTB-Botswana led by KNCV, aims to assist the NTP in strengthening laboratory services and planning for novel intervention strategies by providing regular and routine support through long-term TA both at the NTP and the NRL.

**National TB Reference Laboratory (NTRL) fully operational** - After being closed for almost two years, the NTRL has been successfully renovated and is now fully operational. About 729 culture/DST tests have been performed during the quarter, but this is not the true picture of the NTRL's culture/DST capacity as this was just after the re-opening. Facilities around the country are being fully sensitized about the re-opening and the number of samples for patient follow-up testing and DST evaluation is expected to rise significantly during the coming quarters.

**Increase in the number of RR-/MDR-TB patients put on treatment** - The number of RR-/MDR-TB cases diagnosed and put on treatment has increased to 27 cases (compared to 18 cases in 2014 and 16 cases in 2015 in the same quarter). In total, 109 RR-/MDR-TB cases were diagnosed and initiated on treatment in 2016. This is more than the number of RR-/MDR-TB cases identified in 2015 (80 MDR-TB cases) and 2014 (84 MDR-TB cases). Higher numbers of RR-/MDR-TB cases are expected over the next quarters because of the rollout of GeneXpert and its adoption as 'initial TB diagnostic test' for all presumptive TB cases since the start of 2016.

**Combined implementation of national TB and HIV surveys** - The first national TB prevalence survey is scheduled for 2017, a similar timeframe as the fifth Botswana AIDS Impact survey (BAIS). The NTP, the National AIDS Coordinating Agency and Statistics Botswana have agreed to combine the two surveys so that resources are used more efficiently. The decision has been fully sanctioned by the GF, which is the main funding source for both surveys. CTB has been the key technical partner providing TA along with CDC Botswana and other partners. Progress has been made towards reviewing and finalizing the combined protocol which will be submitted for ethical review next quarter. CTB will continue to provide TA (development of SOPs, training, finalization of survey preparations, development of data management plan, support survey pilot operations, and monitoring field implementation) to the combined survey as the prime TA partner through funding sources from country GF and CTB's GF Hub. This will be the first country ever to conduct a combined national TB and HIV survey.

**Development of integrated community health guidelines** - The MoH with support from USAID Botswana is developing an integrated community health guideline. The guideline is meant to guide the implementation of integrated community TB, HIV, maternal and child health and other service areas. CTB has provided TA to the development of the guideline and the first draft is currently being reviewed by stakeholders. This is one of the key areas where CTB will continue to collaborate with USAID-funded TB partners (mainly FHI 360) over the next quarters.



Mentoring and supportive supervision to Ghanzi Hospital MDR-TB sites - Botswana (Photo: Kgwaadira, NTP)

# Burma

CTB-Burma led by FHI 360 and with KNCV as a collaborating partner prioritizes reaching key populations, strengthening the laboratory network, strengthening TB-IC, and helping the NTP in the analysis of and strategic planning for novel intervention strategies.

**Introduction of Laboratory Quality Management Systems (LQMS)** - CTB supported the introduction of LQMS to the NRL by organizing a five-day workshop “Introduction to LQMS by using GLI Tool”. This initiative for LQMS implementation towards accreditation by ISO15189 is in line with the key recommendations of the WHO/GLI consultant, Dr. Christopher Gilpin. The CTB laboratory team and DATOS, will follow-up with a situational analysis to assess the readiness for LQMS implementation in the NRL over the next quarters.

**Development of TB NSP 2016-2020** - CTB financially and technically supported the development of the TB NSP 2016-2020. On October 13th, the End TB Strategy and the TB NSP 2016-2020 were launched with the participation of the Minister of Health, high level officials from respective health departments and members of parliament. CTB provided both financial and logistical support for this event. In his speech, the Minister addressed the high level commitment for TB care and prevention in Burma and stressed the requirement of mandatory notification of TB cases and the role of research in TB care and prevention. Nationwide TV channels broadcast the event, which increased public awareness and media participation in TB care and prevention activities.

**National dialogue on active case-finding (ACF)** - CTB established collaboration between the national stakeholders to evaluate various ACF approaches currently implemented in Burma through a series of meetings and discussions, including the ACF annual evaluation meeting. Discussions with the NTP, WHO, UNOPS (GF and 3MDG) and other ACF partners allowed all participating stakeholders to voice their priorities and interests. CTB's initiative helped to establish common ground among the involved stakeholders. These efforts resulted in a clear scope of work for CTB to conduct the ACF cost-effectiveness evaluation assessment, which will proceed in Year 3. The assessment will not only cover ACF activities but also other strategies such as intensified case finding (ICF) and enhanced case finding activities. Once the study objectives and protocol are approved, data collection and analysis will start in the upcoming quarters.

**Accelerating the detection of hidden MDR-TB cases** - The most recent TB Drug Resistance Survey 2012-2013 showed that the risk of acquiring MDT-TB in Rangoon is three-times higher than other parts of the country. CTB designed a campaign called “Accelerating the Detection of Hidden MDR-TB Cases” to target this large urban and peri-urban area with ACF which will be rolled out next quarter.



School children playing a game to educate them about the TB, Rangoon - Burma (Photo: Hein Htet)

# Cambodia

Led by FHI 360 and with KNCV and WHO as collaborating partners, CTB-Cambodia provides TA to the NTP to develop strategies for TB care and prevention in rural and urban settings with the primary goal to improve case detection and to close the “diagnosis gap” by targeting specific risk groups. The rural strategy focuses on comprehensive CB-DOTS, to include key populations such as children and the elderly. The urban strategy prioritizes the engagement of large hospitals, public-private mix and prisons.

**Internal data quality improvement (IDQI)** - CTB has implemented IDQI to ensure the completeness and accuracy of recording and reporting of TB data at health centers. Standard checklist was used to measure the completeness and accuracy of TB data records. The NTP district TB supervisors and CTB staff visited 65 health centers in four districts, and noted progress had been made when IDQI results were compared to previous quarters. A noteworthy improvement was recorded on completeness of chest X-ray results of smear negative TB patients with an increase from 24% at baseline to 77% this quarter.

**Local NGO capacity building** - In collaboration with the NTP, CTB conducted three training sessions on basic TB management and care for RACHA - a local NGO implementing partner of the USAID bilateral project ‘Empowerment Community for Health’. These trainings supported RACHA field staff to improve their TB care and prevention efforts at community level. Key learning topics of the training included TB case definition, how to identify presumptive TB cases, how to register presumptive TB cases and confirmed TB patients, how to measure treatment outcomes, the definition of TB high risk groups, and how to conduct CI and ACF. A total of 82 field staff from RACHA districts and provincial TB managers actively participated in the training.

**Sustainability planning for TB care and prevention activities in prisons** - CTB met with the Deputy Director General of the General Department of Prisons (GDP) and the Head of the Department of Corrections and Rehabilitation of the GDP to present the achievement of TB care and prevention activities in the 10 CTB-supported prisons. The meeting highlighted the key collaborative efforts by CTB, GDP and the NTP to reduce the TB burden in ten prisons over the past two years and the transition of funding from CTB to the government at the end of September 2017. In the ten CTB-supported prisons, the number of TB cases diagnosed increased from 90 cases in Year 1 (15 from routine activities and 75 from ACF) to 118 in Year 2 (31 from routine activities and 87 from ACF), whereas the total prison population increased from 5,827 to 6,768, indicating

the increase from 1,545 to 1,743 cases per 100,000, respectively. GDP authorities shared their concerns about the transition, as the government does not have sufficient funds to take on TB care and prevention activities that had been previously supported by donors. Participants at the meeting discussed the possibility of including TB care and prevention activities in the proposal for the next GF grant, which will be discussed with the NTP in January 2017.

**Sharing experience at international forum** - CTB-Cambodia shared its experience of the innovations that they have been implementing over the past two years at the Union Conference in Liverpool. Two presentations were made: “Reaching the Hard to Reach, Finding the Missing Cases” and “Finding the Missing Cases in Hospital Settings”.



Child with TB symptoms undergoes TB screening by physician at Battambang Referral hospital, Cambodia (Photo: Ngo Menghak)

# Democratic Republic of the Congo (DRC)

The Union is leading the CTB project in DRC while working closely with MSH (conducting TB/HIV activities in PEPFAR-supported provinces) and KNCV. The project focuses on increased TB case finding, expanded PMDT, integrated TB/HIV care, and increasing the capacity of the NTP, HCWs and community workers.

**RR-TB case detection and patient care improved** - The activities implemented in the eight CTB-supported provinces increased the number of RR-TB cases detected through ACF and sputum transportation system (STS); and improved the treatment enrollment of MDR-TB patients through the scale-up of the implementation of the short course regimen. The number of RR-TB cases detected increased from 20 cases in the first quarter of Year 2 to 60 cases in the same quarter of Year 3. The number of samples transported through the CTB-supported STS for Xpert testing increased from 665 to 1,072, in the same quarters; 100% of the 1,072 samples transported to GeneXpert sites were tested; 348 (32%) samples were found to be *Mtb* positive (mostly retreatment cases as per the national diagnostic algorithm), of which 60 (17%) were RR-TB cases; 53 (18%) of the identified RR-TB patients were started on second-line short course regimens.

**ACF activities by local partner NGOs continued** - CTB supported four local partner NGOs to implement ACF activities in eight targeted provinces. A total of 99,274 people among the general population and at-risk groups were screened for TB; 10,358 (10%) presumptive TB cases were referred to appropriate TB services; 9,116 (88%) were tested for TB by smear examination; 1,093 (12%) were diagnosed with TB: 924 (10%) were bacteriologically confirmed, 92 (1%) were clinically confirmed, and 77 (1%) were diagnosed with extra-pulmonary TB.



Nutritional support is given to a DR-TB patient at Lumbudi CSDT in Sankuru CPLT - DRC (Photo: Mathieu Ntumba)

# Ethiopia

CTB is led by KNCV in Ethiopia with WHO and MSH as close collaborating partners. The new 18-month (Apr 2016-Sept 2017) “expanded CTB” work plan touches upon every CTB technical area with the greatest emphasis on patient-centered care especially targeting MDR-TB, community TB, and TB/HIV services. Strengthening data quality and M&E is also a cornerstone of the work plan. The project is concentrating efforts at the regional level, in Southern Nations and Nationalities (SNNPR) and Tigray regions as well as seven new regions. National-level TA is targeting only specific technical areas, while support for Urban TB activities is focused in Addis Ababa, Dire Dawa, and Harari.

**Mapping of key populations** - CTB-Ethiopia supported the mapping of key populations (e.g., people living in congregate settings such as prisons, mega projects, universities, nursing homes, refugee camps etc.) in all targeted regions. For example, in Oromia region, CTB supported the mapping of key populations with the aim of carrying out TB screening in 20 large industrial projects, 14 universities, 28 prisons, 4 holy water places (religious healing places), 1 nursing home, 1 refugee camp, 15 pastoralist communities and 4 mining areas, with an estimated total population of 1,409,396 (a detailed report on key populations will be prepared next quarter). Other activities have also started this quarter such as engaging prison administrators through workshops, training of HCWs from prisons and large industrial projects, and the provision of information materials in Oromia, Amhara, SNNPR, and Addis Ababa.

**Improving the quality of laboratory services** - CTB continued supporting decentralized EQA services in all CTB regions - from July to September 2016, EQA coverage reached 1,845 (65%) of all diagnostic health facilities; from these 1,734 (94%) diagnostic health facilities were found to have concordance results greater than 95%.

A temperature-controlled vehicle specimen transportation system procured by the USAID/HEAL-TB project, became operational under CTB. The introduction of cold chain sputum transportation in Amhara, Oromia, and Addis Ababa has brought significant improvements in the average sputum transportation and delivery time from the previous 5-7 days before August 2016 to 1-2 days this quarter. It has also shown improvement in specimen integrity, timely specimen processing by culture labs, and a decrease in the culture contamination rate caused by poor specimen storage and delivery time delays (a detailed analysis will be conducted and the results reported next quarter). More than 2,100 samples have been transported using this new system since August 2016. A full impact analysis will be completed and the results will be reported next quarter.

As part of the national initiative to make Xpert the primary test in urban setting, CTB conducted workshops for 805 HCWs and 81 lab professionals in the Addis Ababa, Dire Dawa and Harari regions. TA was also provided for the installation of 14 more GeneXpert machines in these urban areas.

**Contact screening of families of pulmonary TB index cases** - In the seven CTB-supported regions (Amhara, Oromia, Tigray, SNNP, Addis Ababa, Dire Dawa, and Harar), there were 1,448 health facilities implementing contact screening. Results of the CI cascade during April-August 2016 are presented below:

Number of health facilities implementing contact screening	1,448
Number of index smear positive TB cases	4,263
Household contacts registered (including children under 5)	10,725 (1,066)
Number of household contacts screened for TB	10,250 (96%)
Number of children under 5 evaluated for TB	1,016 (95%)
Number of presumptive TB identified	232 (2%)
Number of children under 5 presumptive identified	56 (6%)
Number of children under 5 eligible for IPT (screen negatives)	914
Number of children under 5 started on IPT	446 (49%)*
Number of TB cases identified among contacts	34 (0.3%)

Such a low yield (0.3%) brings into question the robustness of the screening procedure, which needs further exploration over the next quarters.

\* Low proportion often due to stock out of Isoniazid

**TB infection control (TB-IC)** - CTB partnered with the Tigray health office and Ethiopian Medical Students Association to conduct a regional TB-IC sensitization and awareness raising campaign through community outreach activities. This was done through face-to-face education, the distribution of 40,000 flyers distribution, banners, music, and the media (Tigray radio and television stations). The target audience included students, prisoners, bus/taxi drivers and passengers, youth TV stations, religious leaders/believers in Axum Zion church and Mekelle Mosques and the general public. This campaign was estimated to have reached more than 200,000 people.

**Drug supply and commodity management system** - An uninterrupted drug supply and a drug management system are essential for patient adherence and proper management, and in line with this, CTB in collaboration with Tigray Health Office and Pharmaceuticals Fund and Supplies Agency, distributed standard excel-based second-line drug request and requisition forms. MDR-TB treatment initiating centers were communicated with the appropriate bodies to prevent stock-outs. Such interventions have avoided potential critical shortages of second-line drugs especially Cycloserine and Capreomycin in regional DR-TB treatment initiation centers.

**Development of the national TB research plan** - CTB was the lead partner in supporting the national research advisory committee (TRAC) in the development of the national TB research plan, the country has revised the existing TB research roadmap developed in 2012, with the participation of 42 key stakeholders including Dr. Christian Leinhardt, from WHO Geneva. After a national consultative workshop and endorsement by the MoH, the national TB research plan will be launched in March 2017.



Tigray regional health office & CTB conduct regional awareness raising campaign on basic TB information - Ethiopia (Photo: CTB)

# India

The Union is leading CTB efforts in India with close collaboration from KNCV, PATH and FIND. The project has been contributing to TB care and prevention efforts in India primarily through a Call to Action to End TB in India. This advocacy campaign aims to mobilize a wide range of stakeholders to demand and sustain high-level domestic commitment to end TB in India. The other important components of the CTB-India project are addressing the gaps and limitations in childhood TB and providing universal access to HIV counseling and testing for TB patients diagnosed in the private sector.

**Call to Action for a TB-Free India** - Within the framework of 'Call to Action for a TB-Free India' (Call to Action), this quarter CTB increased visibility and advocacy for TB-Free India and mobilized a wide range of stakeholders to build political will and foster partnerships to end TB in India:

- The Call to Action National Ambassador Mr. Amitabh Bachchan opened the inaugural address at the 47th Union World Conference on Lung Health under the theme "Confronting Resistance: Fundamentals to Innovations", reaching over 3,000 participants from 126 countries. In the video message, Mr. Bachchan said, "I stand committed to making a difference as I have done before in my long association with the polio campaign until India was Polio Free." This message was widely promoted on social media: Facebook (216,000 views, 906 shares and 4,000 likes), Twitter and The Union website (<https://www.facebook.com/ForTBFreeIndia/videos/710880419085842/>).
- CTB hosted a symposium at the Union Conference in Liverpool titled 'INDIA vs. TB: Come Together, Right Now!' chaired by the director general of health Services, Dr. Jagdish Prasad. The CTB team also presented papers on advocacy with parliamentarians, media & celebrities, corporations and TB among Tibetan communities in India through eight presentations and posters at the conference.
- Two corporate foundations Omkar Foundation (the CSR arm of Omkar Realtors & Developers Pvt. Ltd.) and TCI Foundation (the CSR wing of Transport Corporation of India Limited) pledged support for a TB-Free India by signing letters of intent. As a part of the partnership, Omkar Foundation will carry out TB awareness activities for their workforce, contractual labor, communities and help in ACF in Mumbai slums and TCI Foundation will implement TB-related interventions (including ACF, setting up a DOTS center, etc.) in their 21 clinics across 12 states in India.
- Medanta - The Medicity expanded the Mission TB-Free Haryana by launching three new vans (five in total) equipped with digital X-ray machines on the first anniversary of the mission. In its first phase, the mission covered six districts where X-ray screening was conducted for past 11 months: 3,434 people were tested of whom 1,117 had X-rays suggestive of TB. The initiative is reaching out to areas where X-ray screening is not available through a mobile diagnostic van and offering this service to compliment RNTCP efforts and help in the early diagnosis of TB. The success lies in the collaboration between the private sector and the government of Haryana to offer X-ray screening for TB all across the states, something they started as a pilot in one district and which is now being scaled-up with the help of corporations and NGOs to all 21 districts.

**Comprehensive, high quality diagnostics (FIND)** - A total of 9,834 presumptive pediatric TB cases were tested with Xpert across nine project sites, detecting 761 (8%) pediatric TB cases of which 80 (11%) were RR-TB cases; the positivity on microscopy was 3%, indicating a more than three-fold higher detection rate on Xpert than with sputum microscopy. Of the 80 RR-TB cases, six (8%) patients had a past history of TB treatment and 74 (93%) were new cases. Case detection increased from 519 in previous quarter to 761 in the reference quarter. Of the 761 cases diagnosed, 527 (69%) have initiated treatment. Seventeen others (2%) died before they could initiate treatment, 19 (3%) refused treatment/were lost to follow-up, and 16 (2%) referred out. One-hundred and eighty two (24%) were not traceable, including patients who were residing outside the project cities. The treatment information of the remaining patients will reported next quarter

For 9,834 presumptive pediatric TB cases, 10,586 specimens were tested, of which 49% were non-sputum specimens. While the positivity on different specimen types varied, the highest positivity was observed in pus specimens (34% (60/178)) and lymph node tissue (33% (56/172)). Positivity for other specimens was 14% (20/146) for broncho alveolar lavage, 8% (453/5,415) for sputum/induced sputum, 6% (4/73) for ascitic fluid, 5% (29/561) for cerebrospinal fluid and 5% (170/3,629) for gastric aspirate/gastric lavage.

**Patient-centered care and treatment (PATH)** - PATH set up a training consortium together with the PEPFAR partners and the Mumbai District AIDS Control Society (MDACS) to streamline HIV counselor trainings in Mumbai. MDACS

with support from PEPFAR partners conducted one induction and five refresher trainings attended by 152 counselors and supervisors. Through PEPFAR/PATH support, 72% (762/1,063) of TB patients diagnosed this quarter received free HIV-screening at the 24 networked private facilities. Of those screened, 13 (2%) HIV-positive patients were detected, and 12/13 (92%) HIV-positive patients were further linked to HIV centers in the public sector.



Amitabh Bachchan appearing in a TV spot to raise awareness of TB - India (Photo: The Union)

# Indonesia

CTB-Indonesia is led by KNCV and implemented in collaboration with ATS, FHI 360, and WHO. In Year 3, CTB will focus on increasing TB case notifications and improving DOTS implementation by public and private sector providers supported by effective surveillance systems. CTB will strengthen the capacity for effective utilization of the expanded Xpert network, and the quality of services during scaling-up and decentralization of PMDT and home based MDR-TB treatment and care alongside with application of the patient triage approach using the shorter treatment regimen.

**The TB burden modeling tool integrated into the National Action Plan** - GF, CTB and the London School of Hygiene and Tropical Medicine collaborated on the creation of a modeling tool which is used to estimate the TB burden at district and provincial levels. This tool was used to set the national TB case finding targets for each province. Both the estimated TB burden (at the provincial and district levels) and the TB case finding target (at the provincial level) for 2017–2020 are integrated into the National Action Plan (NAP). This NAP is used as a reference for TB care and prevention by staff at all levels to achieve the NTP goal. It was also agreed that during the next national M&E meeting, a separate meeting will be convened to further discuss the estimation and target setting of the TB burden at the provincial and district levels.

**The KNCV Childhood TB Benchmarking Tool** - Through a national level workshop, the Indonesian Childhood TB TWG used the KNCV Childhood TB Benchmarking Tool to determine the baseline data and assess the current situation on childhood TB policy and implementation. Stakeholders, including MoH (NTP and Child Health), relevant professional associations and societies, representatives from selected provinces, and partners (CTB, WHO, and World Vision Indonesia) participated in the workshop. Out of 20 standards, 10 standards were met, 7 standards were partially met, and 3 standards were not met. The TWG agreed on a plan of action related to each standard and planned to adapt the KNCV Childhood TB Benchmarking Tool for use at the district level.

**ICF in six prisons conducted** - Annual TB screening was conducted in the first six prisons with CTB support. Data analysis showed that 589 (14%) of the 4,304 inmates screened were presumptive TB cases; 461 (78%) of these 589 inmates were able to produce sputum for Xpert testing. In total, TB was diagnosed in 46 inmates (1,069 cases per 100,000, which is high), of whom 44 are currently on treatment, 1 has died and 1 was released before TB treatment initiation. Annual TB screening will expand to a total of 13 prisons in the remaining three quarters of Year 3.

**Two PMDT satellites established in prisons** - CTB supported bringing MDR-TB services to prisoners: Jember and Lubuk Pakam prisons, are now equipped to become satellite MDR-TB sites, which means that there are now ten prisons with MDR-TB services in the country. These two new sites are treating MDR-TB cases diagnosed during annual TB screening with on-the-job training by the district health office (DHO) and MDR-TB hospital. Despite overcrowding, they have managed to allocate separate isolation rooms for MDR-TB cases, which improves the IC situation in those prisons. Jember prison began implementing the national electronic TB information system (SITT) after training from the DHO.



Technical officer facilitating a workshop on capacity strengthening for the National TB Patient Organization - Indonesia (Photo: Maarten Boersema)

# Kyrgyzstan

CTB-Kyrgyzstan is led by KNCV, and this project is working on strengthening patient-centered care and treatment with major focus on introduction/implementation of ND&R.

**Implementation of ND&R** - CTB facilitated the inclusion of BDQ in the list of drugs to be imported without registration in December 2016 and the clinical guideline on introduction of ND&R has been approved by the MoH. Key personnel from CTB-project sites attended international courses and trainings on PMDT/ND&R: the national MDR-TB coordinator, the head of the central MDR-TB hospital, and the CTB PMDT officer attended an advanced course on the clinical management on DR-TB for WHO European region countries in Latvia.

The project sites are ready to begin the implementation of ND&R. CTB completed final preparations such as on-the-job trainings, patient review and site assessment in October 2016. CTB also supported a training for the national reference laboratory specialists on DST for BDQ, in November 2016. The patient triage application database was introduced in the pilot sites, which was followed by training on use of the application for operators from CTB pilot sites (National TB center, Karabalta MDR-TB hospital, Bishkek city TB center, and Chui oblast TB center).



Bedaquiline arrives for a XDR-TB patient for whom it is the last hope, Karabalta MDR-TB hospital - Kyrgyzstan (Photo: Nurgulia Kulbekova)

# Malawi

KNCV is the sole implementer in Malawi. The project's primary focus is on increasing case detection through intensified case-finding, active case-finding (e.g., mobile teams using digital chest X-ray/CAD-4TB screening, followed by Xpert examination), and contact investigation. Another key focus of the project is on strengthening the NTP leadership at central, zonal and district levels. In Year 3, CTB will be implemented at the national level, in all five zones, and in 15 scale-up districts within these zones.

**Engaging private providers in TB care and prevention** - CTB in collaboration with the NTP organized a workshop for 36 private practitioners in order to review and revise the 2009 national guidelines of engaging all care providers in TB care and prevention so that they are in line with the emerging issues of TB/HIV and MDR-TB. During the workshop, areas which needed support were identified such as strengthening partnerships from the district to national level, provision of resources such as microscopes and sputum containers, and training all private practitioners so that they can be involved in TB activities including district level technical review meetings. Following the guideline revision, a series of smaller meetings will be held to finalize the document, to be followed by the training of private practitioners over the coming quarters.

**TB-IC assessments and mass screening in prisons** - In collaboration with the NTP, CTB conducted TB/HIV training and TB-IC orientation for 90 prison staff from six prisons (Chichiri, Kasungu, Maula, Mzimba, Mzuzu, and Zomba). As a follow-up, the NTP and CTB conducted TB-IC assessments using the WHO approved TB-IC standard assessment checklist for managerial, administrative, and environmental measures as well as personal protective equipment in four prisons (Maula, Kasungu, Mzimba, and Mzuzu). Following the assessment, TB-IC plans were prepared with timelines and responsible persons identified. CTB also supported mass screening at Maula, Kasungu, and Mzimba prisons, where a total of 3,007 prisoners and 27 prison staff were screened for TB. In total 1,108 (37%) prisoners and 12 (44%) prison staff were identified as having presumptive TB and out of those 23 (2%, 765/100,000) prisoners (but no staff) were identified as TB cases through Xpert testing and were initiated on TB treatment.



# Mozambique

CTB-Mozambique is led by FHI 360 and has KNCV as the sole collaborating partner. In Year 3, CTB is working closely with the NTP in the following technical areas: improving case detection (community engagement, quality assured lab network expansion), improving quality of care for all categories of patients (TB, TB/HIV, MDR-TB, and childhood TB), strengthening the TB surveillance system with a view to have an electronic individual TB register in place that is interoperable with other health information systems (MoH and HIV), and conducting the first TB prevalence survey. The project will be implemented in Nampula, Zambézia, Sofala, and Tete provinces.

**Strengthening Xpert services and rollout of GxAlert** - In Year 2, CTB supported the NTP with the revision, printing and distribution of the Xpert testing algorithm in all CTB supported districts. Building on this successful work, supportive supervision visits proved that the criteria for use of Xpert are now known by the health professionals; there has been an increase in the demand for Xpert testing (e.g., Sofala recorded a 43% increase compared to the previous quarter). In addition, CTB is now supporting the rollout of GxAlert which makes results available by SMS to clinicians and helps in the provision of early treatment to confirmed cases.

**Implementation of STS** - CTB started with the implementation of STS in two provinces, Nampula and Zambezia. An assessment of the results to date in Nampula show a 34% increase in the demand for smear microscopy and a 33% increase for Xpert, with an improved turnaround time of two days for smear and four days for Xpert. Using this system CTB is able to identify facilities that need additional support, such as peripheral health facilities that are not referring samples.

**Multiple TA support visits to health facilities** - CTB through its Provincial Technical Officers (PTO), provided multiple TA support visits to health facilities. Each PTO conducted an average of three TA visits per week targeting three different facilities, resulting in 144 health facilities receiving at least one TA visit. As a result of these visits, there has been a notable improvement in patient management and care, management of the TB register and other forms, and the filing and storage of forms/document, and there has been an improvement in the organization and services provided by the TB sector. CTB-supported districts contributed 24% (2,238 TB cases all forms) of the TB case notifications in CTB provinces.

# Namibia

CTB-Namibia is led by KNCV, and in alignment with PEPFAR Namibia, continue to work with the Namibian government, civil society and private sector to expand access to TB/HIV services. In Year 3, CTB will support activities that increase HIV testing services among TB patients and contacts, enabling easy initiation of ART in TB platforms, and improving retention and adherence to TB treatment and ART among co-infected patients.

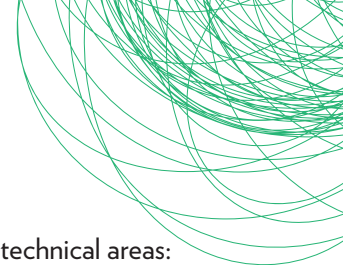
**Approval of a new diagnostic algorithm** - CTB collaborated with the NTP and other partners in the development of guidelines and testing algorithms ensuring GeneXpert for all presumptive TB cases and second-line LPA for those with rifampicin resistance. This will improve case finding because of the higher sensitivity of GeneXpert, and ensure all TB patients are screened for MDR-TB, while also ensuring all MDR-TB patients are screened for XDR-TB. The laboratory algorithm is approved by the MoH and is currently awaiting launching and implementation.

**Strengthened IPT recording & reporting** - CTB supported the use of IPT in all eligible PLHIV and child contacts of TB patients. The project continued to strengthen the use of the IPT register and revised its quarterly reporting tool and IPT treatment cascades to document and monitor IPT initiation and completion among children TB contacts including PLHIV. During this quarter, 4,938 PLHIV that were newly enrolled in HIV clinical care started IPT.

**The Union World Conference on Lung Health** - CTB supported the development and presentation of eight abstracts for the Union Conference in Liverpool, UK.

**National HIV/AIDS Conference** - CTB-Namibia participated in the first ever multi-sectoral National HIV/AIDS conference in Swakopmund, November 2016 and presented nine abstracts showcasing CTB's work.

# Nigeria



KNCV is currently the lead and sole implementer in Nigeria. In Year 3, the project covers the following technical areas: patient-centered care and treatment, comprehensive high quality diagnostics, enabling environment, political commitment and leadership as well as quality data, surveillance and M&E. CTB will work towards universal access to TB diagnosis and treatment in 14 priority states, focusing heavily on increasing case notification in a country with an estimated case detection of only 15%.

**Scale-up and implementation of contact investigation activities** - CTB-Nigeria supported DOTS and Local Government Supervisors to visit houses of bacteriologically positive TB patients to conduct screening and investigate their contacts for TB disease. In 14 CTB-supported states, through this effort:

- A total of 1,627 TB patients were visited;
- 5,869 household members were screened for TB;
- 1,032 (18%) presumptive TB cases identified and tested;
- 169 (16%) *Mtb* cases were detected;
- 1 RR-TB case was identified;
- All have been linked to treatment.

**Community outreach activities** - CTB implemented patent medicine vendor (PMVs) activities in four states. Training was provided for 47 PMVs on how to find and refer presumptive TB cases. In addition, meetings are held with the PMVs on a monthly basis in the respective states to review the progress of activity and ensure the referral of presumptive TB cases to nearby facilities. The PMVs referred a total of 1,454 presumptive TB cases, all of whom were tested. Of those tested, 166 (11%) *Mtb* cases were detected and linked to treatment. PMV activities will be scaled-up in Year 3 to all states.

**PMDT support** - Through the CTB project, a total of 172 DR-TB patients were enrolled into care of which 149 (87%) were at the community level in CTB-supported 14 states. The patients are provided with decentralized outpatient clinical follow-up on a monthly basis, especially for the management of adverse drug reactions where the progress of each patient enrolled into care is monitored. CTB is currently providing patient support for a total of 750 patients in the community.

**Accelerating TB Case Finding** - A major challenge to TB care and prevention efforts in Nigeria is low TB case finding, with only 90,584 (15%) of the estimated 586,000 TB cases in the country notified in 2015. Through the support of CTB/WHO and other TB stakeholders, the NTBLCP was supported through the Minister of Health to declare 2017 as the year of “Accelerating TB Case-Finding” in Nigeria. The major aim of this declaration is to mobilize political commitment and resources from all levels of government and partners to implement TB case finding and notification interventions. The declaration also aims to achieve the following: 1) Increasing national TB case notification by 60% in 2017 relative to 2016 level; 2) Scaling-up the use of rapid diagnostic tools (Xpert MTB/RIF and GeneXpert Omni) in all LGAs and health facilities; 3) Strengthening TB notification from all health facilities and; 4) Creating community awareness about TB among the general population. The government is expected to officially launch the document in January 2017 at the National Council of Health meeting.

**Enhanced e-TB Manager** - The e-TB Manager was enhanced with new features to support the NTP’s vision of a harmonized electronic platform that supports both drug susceptible and drug resistant TB case management, as well as easy data upload, analysis and report generation for improved program decision-making. Feedback on the piloted harmonized e-TB manager platform highlighted capacity gaps among lower level users, resulting in poor quality data analysis and reporting. The staff were mentored during targeted supervisory visits to the states. Efforts were concentrated on improving the e-TB manager system to allow users at all levels to generate and print reports directly from the system.

**Capacity building of TB program Managers** - CTB conducted a capacity building exercise for TB program Managers at the local government, state and national levels. In collaboration with the states, CTB worked to identify state-specific challenges affecting TB care and prevention efforts, such as low case finding. Using the Challenge Model (a simple learning tool for teams in the workplace to address real challenges and achieve results) the teams developed measurable action plans in addressing their state specific challenges. At the end of the exercise, a state ‘coordinator’ or ‘performance tracking lead’ was appointed to track improvements and follow-up on the activities and targets in the action plan. A total of 75 people were trained on leadership and development across five states.

# South Sudan

CTB-South Sudan is led by MSH and has KNCV as the sole collaborating partner. In Year 3, CTB will continue focusing on increasing case notification and improving treatment outcomes by supporting the expansion of quality and sustainable TB care services in three states, which have high populations and a high burden of TB and HIV. In addition, CTB will support the provision of TB services to the displaced population and expansion of quality-assured TB diagnostic services beyond the three states. CTB-South Sudan will be implemented in Year 3, and will be closed at the end September 2017.

**Enhanced TB detection through intensified case finding (ICF)** - CTB worked to build and enhance the capacity of AIDS Resistance Trust utilizing its Home Health Promoters (HHPs) to conduct routine TB case finding. Prior to the increased insecurity on the outskirts of Juba, HHPs conducted contact tracing of the smear positive index cases recorded in the health facility TB registers. Again, due to the insecurity, the movement of HHPs was restricted and therefore, CTB advised the AIDS Resistance Trust to focus its intervention in health facilities. ICF was initiated in two primary health care (PHC) centers - Munuki and Kator. Between June and December 2016, out of 331 presumptive TB cases referred by HHPs, 127 (38%) of which were smear positive cases. Between Jun and Dec 2016, 1,765 new TB cases were notified compared to 1,589 during the same period in 2015, showing an 11% increase.

**EQA for sputum smear microscopy and positivity rate** - Two demonstration sites, Kator and Munuki PHC centers have shown a significant increase in slide positivity rates (SPRs) between October and December 2016. The SPR reached 24% in Munuki and 22% in Kator, both of which can be attributed to the introduction of LED microscopy in these centers and a pre-selection practice that favors presumptive TB cases who are already quite sick; the EQA for both laboratories showed adequate performance with 95-99% concordance levels.



Conducting TB health education at the outpatient department at Munuki PHCC - South Sudan (Photo: Abraham Ayuen)

# Tajikistan

CTB-Tajikistan is implemented by KNCV. In Year 3, CTB-Tajikistan continues working to improve quality of care for patients with M(XDR)-TB by building the NTP's capacity to manage and implement ND&R. CTB will also build the NTP's drug management capacity and support the implementation of an early warning system (QuanTB) for all supply chain levels.

**Introduction of ND&R** - The first 12 M(XDR)-TB patients were enrolled on treatment regimens containing BDQ and three MDR-TB patients were enrolled on shorter regimens using the patient triaging approach. BDQ was provided to the NTP through the USAID donation program. Currently ten patients receive in-patient treatment and five patients receive out-patient/ambulatory treatment. The triaging was facilitated by the CTB team who provided TA during the consilium meetings. Prior to patient enrollment, preparatory work was completed and the key achievements are below:

- CTB procured audiometers, ECG, ultrasonic scanning and reagent kits for laboratory biochemical testing to manage adverse effects and prevent serious side effects.
- CTB supported the establishment of a STS, including the development of SOPs for sputum collection in Dushanbe and Rudaki project sites and trained 20 sputum collectors from Dushanbe. Sputum collectors from other sites will be trained next quarter. In the quarter 696 samples were collected from existing pilots and delivered to the laboratory for testing. From these samples, 104 (15%) pulmonary TB cases were detected by Xpert, of which 84 (81%) are new TB cases.
- CTB began the expansion to five new sites with an initial assessment of readiness of sites for ND&R. CTB conducted training on sample collection and transportation SOP for 15 managers of TB and PHC services.
- The patient triage application database was introduced in three CTB sites, and a 2-day workshop was held for 15 TB specialists/coordinators from Dushanbe, Rudaky TB centers and Machiton Hospital. The application was installed in 13 data-entry locations in the CTB sites. The data on patients enrolled on treatment regimens with BDQ and shorter regimens is regularly updated in the patient triage application.

**Improved drug management capacity** - Thirteen drug specialists from CTB pilot districts received e-LMIS training. Rollout in other sites is planned for Year 4. The Very Simple Pharmaceutical Management Information System (VSPMIS software) for the collection and systemization of quarterly drug reports is used to improve quality of recording and reporting on drug stock status and utilization. The project procured and provided 4G modems to six pilot districts to ensure a constant internet connection. The drug coordinators in the project sites will have the opportunity to develop quarterly drug reports using VSPMIS and report to the NTP coordinator so that consolidated drug quarterly reports can be developed.

CTB started to rollout QuanTB at the Oblast level, new computers, printers and modems were procured for the five regional TB centers. On-the-job-training on QuanTB use was conducted for two regional drug specialists of Kurgan-Tyube and Kulyab TB centers and these sites have already started entering data.



XDR-TB in-patients who are being considered for selection and enrollment on new treatment regimens - Tajikistan (Photo: KNCV)

# Tanzania

Led by KNCV, with collaborating partners PATH and ATS, CTB-Tanzania is focused on all CTB technical areas apart from the management of LTBI, and drug & commodity management systems. The project is implemented in the seven regions of Arusha, Dar es Salaam, Geita, Kilimanjaro, Mwanza, Pwani, and Zanzibar.

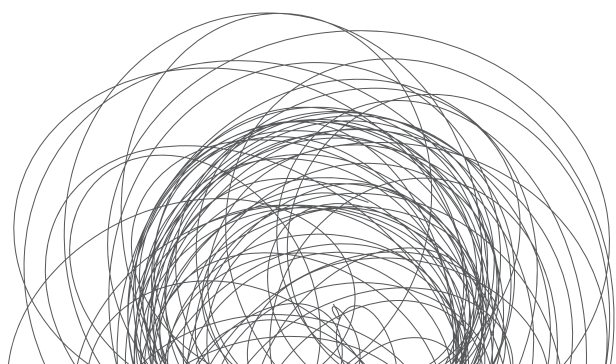
**Scaling-up rapid TB diagnostic testing** - CTB continued to support the scaling-up of rapid TB diagnostic testing in the country by servicing the HAIN machine at Kibong'oto Infectious Diseases Hospital (KIDH), training of laboratory staff and the procurement of first and second-line molecular HAIN DST reagents. This is expected to shorten the turnaround time for sputum samples sent for DST from months to days, hasten the referral of patients into appropriate care, and will fulfill one of the WHO's recommendations for implementation of shorter MDR-TB treatment regimens. Since reviving HAIN testing at the KIDH in October 2016, specimens from five presumptive MDR-TB patients have been tested for isoniazid resistance and 18 samples were tested for second-line drug resistance. One of the samples had high-level resistance to aminoglycosides and the patient is continuing to be monitored as a pre-/XDR-TB patient while on treatment. Sensitization of clinicians to send more specimens has started, as plans to revise the current algorithm to include second-line DST testing are underway.

**Sputum sample referral** - CTB supported a STS from peripheral health facilities to GeneXpert sites in two CTB priority districts. The objective of the intervention is to increase case detection and to detect more RR-TB cases from sites without GeneXpert machines while avoiding extra transport costs for patients. HCWs were oriented on sample collection and transportation and a motorcyclist was hired in each district. Criteria for enrollment were: smear-negative, HIV-positive patients, MDR-TB contacts and children under the age of 15. Out of 321 samples collected in Kwimba during the quarter, 20 (6%) had *Mtb* detected while 18 (20%) of the 92 samples in Kinondoni had *Mtb* detected.

**PMDT decentralization** - CTB continued to support the decentralization of PMDT services started in the previous quarter, with 12 more sites from different parts of the country initiating DR-TB patients on treatment making a total of 20 sites. Out of the 38 patients initiated on MDR-TB treatment during the quarter, 19 (50%) received care from decentralized sites. Experienced clinicians and nurses from the KIDH mentor regional and district coordinators as well as HCWs once a patient is identified. Cohort reviews are also regionalized to accommodate decentralization. The Northern, Eastern and Lake zones conducted cohort reviews during the quarter with 29, 44, and 25 patients reviewed respectively.

**Civil-Society Organization (CSO) capacity-building** - CTB mentored to three CSOs on governance and leadership to improve their organizational management capacity to ensure growth is accompanied by increased accountability and transparency. In addition, all three CSOs developed annual work plans and budgets to contribute to CTB activity implementation for Year 3. In Geita Region, a total of 308 close contacts of 152 index cases were examined, out of these 129 (42%) were presumptive TB cases and eight (6%) were confirmed TB cases using Xpert. In Kinondoni district, CSOs followed up 204 households of TB patients (out of 224 index cases). The number of close contacts reached was 805, from which 366 (45%) people with TB symptoms were identified, and 31 (8%) were diagnosed with bacteriologically confirmed TB and initiated on treatment.

**Comprehensive partnerships and informed community involvement** - Sensitization of Tanzanian parliamentarians on TB disease was held with 283 out of 389 (73%) members of parliament. This was followed by the launch of the country's TB Caucus by a member of the Global TB Caucus, which was signed by all 283 members of parliament who attended the session. The parliamentarians pledged full commitment and support for TB care and prevention in their constituencies. Importantly the Minister of Health pledged to increase the budget for TB care and prevention activities in the next financial year, these activities were supported both technically and financially by CTB. Together with the regional health management teams, CTB will follow-up on the implementation of the agreements in constituencies within CTB regions.



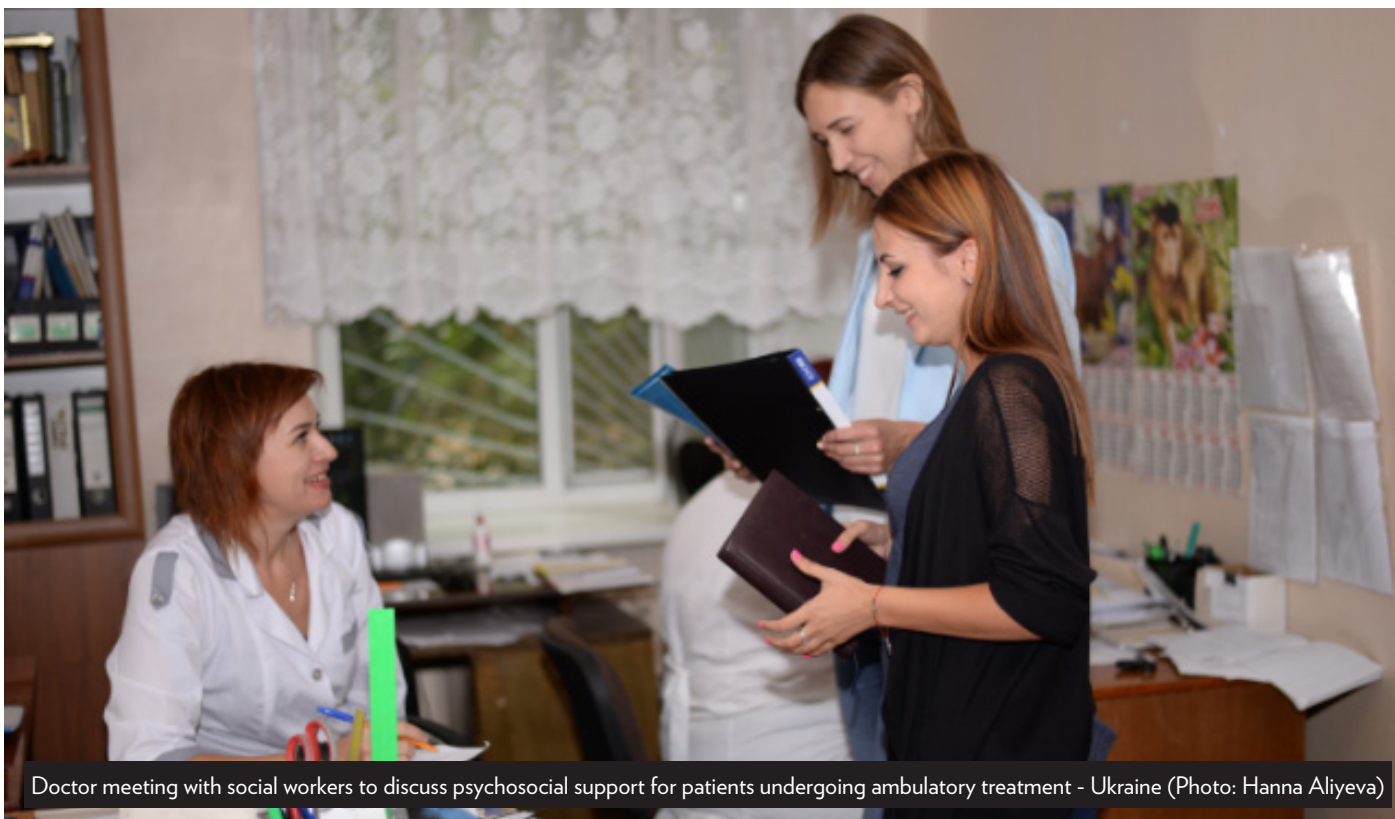
# Ukraine

PATH is the lead partner in Ukraine, working closely with KNCV. In Year 3, CTB-Ukraine continues to support the NTP by supporting more oblast TB programs to expand and improve a model for a patient-centered approach to MDR-TB care based on ambulatory treatment and quality improvement of MDR-TB control services. CTB will also build the NTP's capacity to manage and implement ND&R.

**Improved patient-centered approach to MDR-TB care** - CTB conducted an assessment mission to review current TB and MDR-TB treatment practices and develop recommendations to inform project implementation in four new project oblasts. The main barriers to proper case management at inpatient and outpatient stages of treatment included the limited capacity and preparedness of the primary health care (PHC) system to provide MDR-TB patient care, lack of laboratory supplies and limited resources of the PHC laboratories to monitor treatment, improper management of side effects, poor understanding of and inadequate practices of infection control, and stigma against MDR-TB patients among HCWs working in non-TB facilities. As a result of the assessment, the project is finalizing the oblast-specific activity plans and developing the memorandum of understanding with each oblast. The actual implementation of activities will start next quarter.

**Medical, social, and psychological support for MDR-TB patients** - CTB continues to support local NGOs and oblast branches of the Ukrainian Red Cross Society to provide medical, social, and psychological support to MDR-TB patients during the ambulatory phase of treatment. From January-December 2016 CTB-supported NGOs provided the targeted psychosocial support to 347 MDR-TB patients in the two project oblasts.

**Introduction of new drugs and shorter regimens** - The clinical guidelines for side effects management for TB and MDR-TB patients developed by the working group of leading national and international TB experts, led by the CTB team, were approved by the Scientific Council of the Yanovsky National Institute of TB and Pulmonology of the Academy of Medical Science (TB Institute) for countrywide implementation. One-thousand seven hundred copies were printed and disseminated among the oblast, rayon, and city TB institutions and TB faculty members of medical universities and post-graduate academies to enhance the prevention, treatment, and monitoring of adverse reactions (ADR) among patients being treated for TB and MDR-TB. To further implement the clinical guidelines, CTB and the TB Institute have continued to conduct a series of all-Ukrainian webinars devoted to ADR topics. Two webinars were conducted in which more than 200 TB providers participated from 24 regions. International TB experts from KNCV and WHO M/XDR Collaborative Center in Riga, Latvia, were among the presenters during the second webinar which shared the current results of using new TB drugs worldwide and presented a few cases of ADR with BDQ and DLM.



Doctor meeting with social workers to discuss psychosocial support for patients undergoing ambulatory treatment - Ukraine (Photo: Hanna Aliyeva)

# Uzbekistan

Led by WHO, and with KNCV as the sole collaborating partner, CTB-Uzbekistan is aligned with the Uzbekistan NSP 2016-2020 and the USG TB Strategy. The goal of the project is to improve patient-centered quality TB services, building local capacity and the utilization of innovations and new technologies to move forward in the global fight against TB.

**Introduction of ND&R** - Jointly with the NTP and international stakeholders CTB supported the development of the legal environment and the regulatory framework necessary for the implementation of ND&R in two pilot sites. To assist the NTP in getting ready for the start of implementation the following activities were undertaken:

- ND&R implementation plan and treatment protocol have been developed. The guiding frameworks have been prepared for practical implementation, including an optimized diagnostic algorithm, and a framework for the implementation of an active TB Drug Safety Monitoring and Management (aDSM) system including clinical monitoring.
- Pilot areas for ND&R implementation have been selected according to NTP recommendations as there are laboratories available performing second-line DST and staff with an advanced level of experience in DR-TB treatment.

**Strengthening TB-IC** - The CTB team reviewed a training module on TB-IC and updated it according to recent national sanitary-epidemiological regulations. Next quarter, CTB will conduct two nationwide trainings on modern approaches in TB-IC for the staff of TB and sanitary-epidemiological services, as well as ensuring regular supervision on TB-IC implementation in CTB regions.

# Vietnam

CTB-Vietnam is led by KNCV and works closely with WHO as a collaborating partner. The overall strategy of CTB in Vietnam is to develop, pilot and evaluate TB care and prevention innovations that are planned under the NSP (2015-2020), in close collaboration with the NTP, the USAID mission and partners. The project works in all CTB technical areas with the exception of enabling environment, targeted screening for active TB, and drug & commodity management systems.

**TB epidemiological review** - In December 2016, CTB provided TA to the NTP for the summary of the epidemiological context required for Section 1.2 of the Funding Request Template of the GF. This mission is part of the CTB TA plan for the Vietnam GFFR 2018-2020 development. The consultant worked with NTP leaders and technical groups to update trends in TB case notification rates (by type of TB, sex, age group, region, MDR-TB, XDR-TB, and regimen), compare TB case notification rates with TB burden estimates, assess current epidemiology of TB for vulnerable populations and build capacity of NTP in simple epidemiological data analysis. Through these efforts, a description of the current epidemiology of TB in Vietnam, highlighting differences from 2014 as well as new developments in the NTP since March 2014, is available for the GFFR 2018-2020 period.

**The second TB prevalence survey (TBPS)** - The GF approved the budget for the second TB prevalence survey after almost two years of resource mobilization and preparation. TA was provided to the NTP to finalize the protocol, which is now ready for translation into Vietnamese and to be submitted to the MoH for scientific and ethical approval. This TB prevalence survey is important as it will give a precise estimate of the trend of TB prevalence compared to 2006.



# Zimbabwe

The Union is leading the project in Zimbabwe with collaboration from IRD, KNCV and WHO. The Year 3 work plan prioritizes the following areas: improving access to and quality of diagnostics, increasing case finding, integrated TB/HIV care, PMDT, childhood TB, and M&E/surveillance.

**National TB guidelines** - CTB supported the revision of National TB guidelines to align with new evidence as well as country and global priorities. These included the results of the 2015 national TBPS; use of Xpert as the first line test for all presumptive TB clients following increased detection of RR-TB cases after with the current rollout of Xpert MTB/RIF; local evidence from operations research efforts; latest recommendations from WHO on scale-up use of second-line DST; targeted screening for active TB as well as introduction of ND&R for the management of M/XDR TB; diabetes screening among TB patients; TB and management of zoonotic TB and leprosy.

**Recording and reporting tools** - CTB supported the revision of the NTP paper based recording and reporting tools for case-finding as well as care and treatment for all levels of health care. The new tools were revised based on the WHO 2013 definitions and will adequately capture the following:

- The top 10 indicators of the End TB strategy and The Global TB report indicators;
- New and emerging NTP programming interventions, such as contact investigation, new WHO recommended diagnostic and screening tools, TB and diabetes, TB surveillance among HCWs, more refined age specific programming, community and private sector contribution, leprosy, cross border collaboration and IPT among others;
- SOPs were also developed to standardize data capturing and reporting. The revised tools will be finalized for print and distribution to all TB management units in January 2017. The DHIS2 software will be customized to facilitate data entry using the revised format.



A couple were all smiles after showing no signs of TB during the targeted screening for active TB - Zimbabwe (Photo: Paidamoyo Magaya)

# East Africa Region Project



CTB East Africa Region (EAR) Project is implemented by KNCV as the lead and with MSH and The Union as collaborating partners. CTB-EAR technical focus areas include: cross-border TB care and prevention and cross-country collaboration for improved TB care, prevention and surveillance; supporting National TB reference laboratories; strengthening PMDT to improve access to second-line TB drugs including new drugs and shorter regimens and M/XDR-TB case-holding and palliative care; building capacity on childhood TB; and creating a regional training corridor by linking training institutions and earmarking them for specific trainings in TB. The project has three key sub-agreements with Supra National TB Reference Laboratory – Uganda (SNRL), the East, Central and Southern African Health Community (ECSA), and the Center of Excellence - Rwanda (CoE).

**Cross-border activities accelerated** - Significant progress was made in four of the five selected border areas (Kenya-Somalia, Kenya-Uganda, Kenya-Tanzania, Kenya-Ethiopia):

- The inter-country referral tool was piloted with one MDR-TB patient who was successfully referred from Uganda to Rwanda where he is continuing with his treatment;
- The referral tool was finalized, printed and distributed to various sensitized border areas (Kenya-Somalia, Kenya-Uganda);
- Health workers in two border areas (Somalia and Uganda) were sensitized on the cross border initiative;
- The first cross border health committee meeting between Kenya (Garissa) and Somalia (Gedo region) was held. During this meeting a joint action plan was developed to improve the referral system, communication among committee members was established, and a focal point was assigned for implementation and follow-up.
- Finally, a literature review on nomadic pastoralists in the EAR was undertaken and the main findings were presented during the expert consultative meeting held in December 2016 in Kenya. Key findings include the following:
  - The movement pattern for pastoral groups is periodic and limited to their clan/sub clan areas;
  - Borders are crossed at both informal and formal crossing points with the majority using the latter (formal);
  - Compared to the general population, access to social services is much lower in the pastoral areas;
  - Some of the key services used by the community are veterinary services, education, and water for drinking and livestock;
  - The study revealed that the nomad pastoralists had poor access to health care, including TB services and immunization due to the large distances to health facilities, the attitude of health workers, and their mobile nature;
  - They have a knowledge gap on TB in terms of transmission, prevention, diagnosis, and treatment;
  - Communication among Somali pastoralists in the Horn of Africa is primarily through word of mouth. The use of cell phones is increasing, though radio is widely considered to be the most powerful mass media tool to reach the Somali community;
  - Findings from this literature review will be used to fine tune the activities in the Cross Border Initiative in the nomadic/pastoralist areas.

**Implementation of SOPs on TB Laboratory Biosafety in Somalia** - All SOPs on biosafety were disseminated in Somalia and laboratory personnel and NTP members were trained on the new procedures during a two-day workshop. The workshop's objective was to strengthen the capacity of the laboratory personnel in implementing IC measures in their facilities and respective regions within Somalia.

# Core Projects

is working on priority projects that have implications for TB diagnosis, treatment and prevention globally. Major achievements and highlights from the first quarter of Year 3, October-December 2016 are outlined on the next few pages along with GF Hub progress on page 8.

## Bedaquiline Introduction

The BDQ core coordination project is supporting the introduction of BDQ in CTB countries. A workshop for CTB country teams on the introduction of new drugs and regimens (ND&R) was conducted in June 2016 prior to the Country Directors' meeting in The Hague. The workshop aimed to strengthen capacity within global, regional and country level CTB offices to support countries' rapid introduction of ND&R for DR-TB, with a focus on the shorter 9-12 month regimens and BDQ containing regimens. With representatives from 14 CTB country projects (in-country PMDT/Technical Officers and/or Country Directors), USAID, KNCV, ATS, MSH, The Union and WHO, the workshop also allowed for immediate work planning for current Year 2 implementation and the CTB Year 3 planning cycle.

A core-funded work plan supporting BDQ introduction in Kazakhstan was approved in June and is to be completed by the end of September 2016. The project will undertake an assessment of the M/XDR-TB situation to define the needs for national rollout of ND&R in the country, and support a workshop to develop a national action plan on the rollout of ND&R.

### Progress in countries since project approval:

**Vietnam:** Treatment of patients with BDQ started in December 2015. As of June 2016, a total of 44 pre-/XDR-TB patients in three pilot provinces have been enrolled on a BDQ-containing treatment regimen. In addition, since April 2016, the shorter (nine-month) regimen was introduced in the same three sites with 68 patients enrolled as of June 2016.

**India:** The NTP published its implementation guidelines for the use of BDQ in February 2016. The drug will be available under a conditional access program at six identified pilot sites across the country. This rollout is being facilitated by CTB with additional staff being hired at the pilot sites to coordinate the enrollment of patients, counseling, monitoring adherence and PV. TA and the facilitation of review meetings and training activities are also supported. The first patients were enrolled on treatment at Guwahati, Assam, Chennai, and Tamil Nadu in June. The remaining sites are expected to initiate the patients by September. The initial 600 patient courses of BDQ have been directly donated by Janssen to the Government of India. Initial discussions in regard to the introduction of the shorter regimens in India are ongoing at the national level.

**Ethiopia:** CTB hosted a two-day consultative workshop in May at which the "National implementation plan for the introduction of new and re-purposed drugs" and the "Clinical and programmatic guide for new and re-purposed drugs" were finalized. Selection and preparation of the pilot sites, and other necessary preparatory activities are ongoing. To date, the NTP has started two pre-XDR-TB patients on BDQ containing regimens (in collaboration with Partners in Health). Enrollment at the two pilot sites is planned to start in the coming months.

**Indonesia:** Between October 2015 (when BDQ treatment started) and June 2016, 37 patients have been enrolled on BDQ-containing regimens.

**Bangladesh:** To date, 18 patients have been enrolled on BDQ containing regimens (under the End TB Project).

**Ukraine:** All the critical steps for the introduction of BDQ have been completed. Final discussions on the design of the shorter regimen will be held in July and the clinical guidelines should be endorsed in the near future. The expected enrollment date of the first patients on BDQ-containing regimens is November 2016.

**Tajikistan:** Optimized diagnostic algorithms and clinical protocols for the treatment of non-complicated MDR-TB cases and pre-/XDR-TB patients with ND&R have been developed, translated into Russian, and await finalization. To date, 15 XDR-TB patients have been enrolled on BDQ-containing regimens with the support of MSF. CTB patient enrollment is planned between October-December 2016.

**Kyrgyzstan:** All critical steps for the introduction of BDQ have been completed with the enrollment of the first patients on BDQ-containing regimens expected in November 2016. The delay in enrollment is related to the delivery of the BDQ, companion drugs, and drugs for the side effects, which will now only arrive in Nov 2016.

**Nigeria:** In August 2016, CTB TA is planned to assist the NTP in the development of an introduction plan for ND&R and the country-specific adaptation of the CTB generic programmatic and clinical guide. Enrollment of the first patients on ND&R is expected to start in January 2017.

**Botswana:** TA is proposed for August/September 2016 to assist the NTP in the development of its introduction plan for ND&R and the country-specific programmatic and clinical guide.

## Stigma

This is the first quarter of the Core Measurement- Stigma “Bridge Funding” project implementation to develop a stigma measurement manual and to publish a supplement to the International Journal of Tuberculosis and Lung Disease (IJTLD) journal. Highlights for the quarter include:

- Submission of Stigma Special Issue supplement which comprises 12 papers on ways to measure TB stigma, the relationship between TB stigma and HIV stigma, the impact of TB stigma on health seeking behavior, the distribution of TB stigma across settings, and the correlates of stigma at individual, facility and country level. Ten out of the 12 papers for publication were developed, reviewed, finalized and submitted to IJTLD. The supplement should be published in May.
- A symposium on Stigma was held during the Union Conference in Liverpool. Dr. Charlotte Colvin, Dr. Aaron Kipp of University of Vanderbilt, Amrita Daftary (McGill), and Mirjam Bakker (KIT) presented manuscripts on stigma scales with a focus on HCWs and TB patients. The symposium was attended by 25 people.
- Preparations for the development of the “TB Stigma measurement guidance” are underway.
- Validation of a HCW Stigma Scale will take place in Ethiopia and is under review at St. Peter’s hospital. The scale will be used to monitor the levels of stigma in facilities and to track improvements resulting from evidence-based interventions to reduce TB stigmatizing behavior and attitudes in facilities with high-levels of enacted stigma. As part of the validation exercise, the efficacy of the package on stigmatizing behavior and attitudes of HCW will be assessed as well as the impact of the package on patient satisfaction (process), treatment adherence (process), and treatment outcomes (e.g., interim outcomes - 9 month).

## UN Special Envoy for Tuberculosis

Dr. Goosby provided advocacy and support to the leadership of the Stop TB Partnership for a UN provision on a High Level Meeting on TB. TB will be on the international stage for the G20, the Ministerial Conference in Moscow in November and finally the High Level meeting at the UN in 2018. Dr. Goosby also received verbal confirmation that his appointment as UN Special Envoy on TB has been renewed and the Year 3 workplan covering the January-September 2017 period was approved by USAID. Finally, a tentative funding commitment for the Lancet Commission was confirmed. The scope includes: an evaluation to establish a baseline in terms of current state of the TB need and response; a forward looking review that identifies key strategies to end TB; and, looking within a select group of countries to identify the effectiveness of strategies and operational approaches necessary to meet these goals.

## Catastrophic Costs

CTB-supported Catastrophic Costs core project is implemented in Vietnam with the objective of field-testing the WHO generic protocol and instrument for measuring the proportion of TB patients (and their households) experiencing catastrophic costs in one country. This field-testing is meant to assess the cost survey in terms of feasibility and operational challenges and solutions in order to fine-tune the generic protocol and to determine a baseline of TB patients (and their households) treated in the NTP network, who incur catastrophic (direct and indirect) costs in Vietnam. Finally, the core project results are to be summarized with findings in a project report and in a peer reviewed journal paper.

During the first quarter of Year 3, the project supported the NTP in the following activities:

- Data collection for the 729 patients in the sample, including 57 participants with MDR-TB;
- Data cleaning and preliminary analysis;
- Preliminary results presented at the Union Conference in Liverpool.

The main findings and conclusions from the preliminary analysis presented in Liverpool include:

- On average, patients incurred US\$1,809 in costs as a result of TB or MDR-TB disease;
- When using indirect costs measured as income change - 59% of households incurred catastrophic costs; time loss (valued) accounted for 72% of costs borne by patients, while medical and non-medical costs accounted for 13% and 15%, respectively;
- Those in the poorest and moderately poor income categories suffered more in terms of coping and social consequences, though over all, the self-evaluated degree of financial impact, was rated as “moderate”.

After the presentation of the preliminary results, further analysis and cleaning of data took place in December 2016. Formal writing of the final results is expected in February/March 2017. These will be presented to a broad group of stakeholders at a National dissemination meeting the end of March 2017 in Hanoi, Vietnam.

## Prevention

The second annual Trial Steering Committee meeting took place during The Union conference in Liverpool and the first Data Safety and Monitoring Board – ahead of trial enrollment - took place through a teleconference. Following the procurement of the clinical trial insurance in South Africa in Year 2, the clinical trial insurance policy for Ethiopia has been drafted and will be finalized in the next quarter. In addition, SOPs and case report forms (CRFs) were finalized. Finally, the agreement between KNCV and Sanofi for the donation of Priftin® (rifapentine) and Winthrop® (isoniazid), including the donation of additional isoniazid was finalized and signed. Sanofi has delivered the initial shipment of 8,000 boxes of rifapentine to South Africa and they are being stored in a warehouse under appropriate conditions. Additionally, 182 bottles of isoniazid have been delivered and stored in the same warehouse.

The Aurum sites in South Africa have been mobilized while preparations for site mobilization at the two PHRU sites has also begun. A total of 20 participants have been enrolled at the first Aurum site (Winnie Mandela Clinic) in South Africa. Participant enrollment will resume in early January to avoid scheduling of the first monthly clinic visit during the Christmas and New Year holidays. It is expected that participant enrollment will accelerate in Quarter 2, when enrollment at other Aurum sites and PHRU (two sites) will also commence.

In Ethiopia, the Ohio State Global One Health was selected and a study protocol submitted for IRB review. Final ethics approval and regulatory approval are expected in January and February, respectively.

In Mozambique, the Centro de Investigação em Saúde de Manhiça (CISM) was selected. The study protocol was submitted to the National Health Bioethics Committee for ethics review. In Mozambique, final ethics approval must precede submission for regulatory approval with the ongoing regulatory and ethics approval processes transferred from Instituto Nacional de Saude to CISM. Final ethics approval and regulatory approval are expected to be in place before the end of March 2017.

## Short project in Papua New Guinea

This CTB-supported project is implemented by FHI 360. As of the final project report, aDSM was successfully introduced and integrated into PNG's health system. aDSM is recognized as critical to the support of DR-TB patients on ND&R, and also embraced by the NDOH and NTP as a way to strengthen routine PMDT. Only two "sentinel" sites in the country are currently treating DR-TB patients with ND&R (Daru General Hospital and Port Moresby General Hospital), but other provincial TB hospitals ("standard sites") have the capacity for rapid molecular diagnosis (GeneXpert) as well as access to treatment with the standard 20-24 month regimen. The NDOH included both sentinel and standard sites in aDSM trainings, giving active pharmacovigilance an important and overarching role in strengthening the TB platform in PNG, for new drugs and regimens and routine PMDT.

In addition, separate USAID-funding supported the donation of commodities for DR-TB management including two GeneXpert machines but have not yet been installed in Daru. Eight-hundred GeneXpert cartridges were also shipped, but to date no specimens have been tested using these cartridges. Once testing commences, CTB will coordinate with CPHL to obtain these results. Finally, 28 DR-TB patients have been initiated on BDQ. These patients are at Daru General Hospital (25) and Port Moresby General Hospital (3). A total of 85 courses of BDQ were ordered through the Donation Program. The distribution of the second batch of 30, delivered in November 2016, is now being coordinated by the NTP.

# New Publications

## Generic programmatic and clinical guide for the introduction of new drugs and shorter regimen for treatment of Multi/Extensively Drug-Resistant TB

This document describes the steps necessary to implement the shorter regimen and the new drugs for drug-resistant TB treatment including diagnosis and bacterial confirmation of drug resistance, treatment regimen design, monitoring of treatment efficacy and safety, and programmatic evaluation.

[http://www.challengetb.org/publications/tools/pmdt/Generic\\_programmatic\\_and\\_clinical\\_guide\\_for\\_the\\_introduction\\_of\\_new\\_drugs\\_and\\_shorter\\_regimens.pdf](http://www.challengetb.org/publications/tools/pmdt/Generic_programmatic_and_clinical_guide_for_the_introduction_of_new_drugs_and_shorter_regimens.pdf)

## Desk Guide for the Management and Treatment of Childhood TB

This 2016 guide is for health workers who manage sick children in first level health facilities or outpatient settings at any level of care, and NTP workers who manage children as part of NTP work. It aims to improve early and accurate case detection of children with TB, the management and outcome of children with TB, and child contact screening and management. It focuses on the diagnosis of common forms of TB in children, how to treat, when to refer, and the management of children who are close contacts of TB cases.

[http://www.challengetb.org/publications/tools/ua/Deskguide\\_Childhood\\_TB\\_2016.pdf](http://www.challengetb.org/publications/tools/ua/Deskguide_Childhood_TB_2016.pdf)



Urban DOTS expansion inauguration ceremony to Ayubi Outpatient Attendees Clinic, Kabul, Afghanistan (Photo: MSH)



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.

Design & layout - Tristan Bayly

Back cover photo - Village Health Support Group of Srolop HC in Tbong Khmum OD reviewing data in the contact investigation record - Cambodia  
(Credit: Ngo Menghak)

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