IMPACT

Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis Project

End-of-Project Report

October 1, 2012 to July 31, 2018

Cooperative Agreement No. AID-492-A-12-00014
July 31, 2018

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INNOVATIONS and MULTISECTORAL PARTNERSHIPS
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Photos by KDador and RCarlos/PBSP

The Matigsalug of Kitaotao, Bukidnon province are, like other indigenous groups, a vulnerable population at greater risk of tuberculosis (TB) and dying from it because of their situation. But proud and hardy as they are, the Matigsalug refused to let economic difficulties, their remote location, and bad roads limit their access to TB diagnosis, treatment, and care. With USAID assistance and the staunch support of the Provincial Health Office, mandatory representatives of indigenous peoples (IPMRs) like Berlito (above, third from left), who are tasked to craft local laws, trained on the basics of TB. Today, he and 252 other IPMRs representing seven indigenous tribes across the province conduct TB education in their communities, identify presumptive TB cases, and refer them to the nearest health center to be examined and treated as appropriate. Community volunteers meanwhile completed a three-day training on quality-assured smear preparation. Now called informal laboratory workers, they prepare sputum smear slides right in their village (extreme right). They then bring the slides to the Rural Health Unit in the town center to be examined through microscopy. This saves tribal members PhP200 per head each way to travel nearly 22 kilometers by *habal-habal* (motorcycle taxi) to a health facility for diagnosis. In the cover photo, Provincial Health Officer Dr. Ricardo Reyes explains to a young mother how TB may be passed on to family members and how it can be treated.

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Activity Title	**Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis (IMPACT)**
Activity Timeline	**October 1, 2012 to July 31, 2018**
Award Number	**AID-492-A-12-00014**
USAID Office	**Office of Health**
Implementing Partner	**Philippine Business for Social Progress**
Total Funding	**$28,232,846.95 (PhP1,185,779,571.95)**
Geographic Coverage	**17 Regions, 32 Provinces, and 11 Highly Urbanized Cities**

EXECUTIVE SUMMARY

The magnitude of the tuberculosis (TB) problem in the Philippines placed the country ninth among 22 high-TB burden countries that accounted for 80% of TB cases in the world. Meanwhile, the 2003–2004 national drug resistance study revealed that the prevalence of multidrug-resistant tuberculosis (MDRTB) among new cases was 3.8%, and among previously treated patients was 20.9%. The resulting combined prevalence of 5.7% ranked the Philippines ninth among the 27 countries with 85% of the global burden of MDRTB.

The country's implementation of the Directly Observed Treatment, Short Course (DOTS) strategy in the public health sector starting 2002 had enabled the Philippines to chart significant progress in TB control. With a case detection rate (CDR) of 75% and a treatment success rate (TSR) of 88% in 2007, the Philippines compared favorably in TB case finding and case holding vis-à-vis the average global performance of 63% and 85%, respectively (WHO, 2009). However, the national average CDR and TSR masked high variations in program performance across cities and municipalities. And while TB control continues to gain broader support and greater momentum, it needs to keep pace with the rate of infection.

Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis (IMPACT) was a five-year technical assistance (TA) project that sought to respond to the abovementioned challenges. The Project provided TA to the Department of Health National TB Control Program (DOH-NTP) and worked directly with 43 provinces and cities with the greatest burden of TB disease and lowest performance in both case detection and cure rates. IMPACT engaged both public and private sectors at the national and local levels to detect and successfully treat TB cases. The outcomes of the Project's interventions were measured against a set of national program indicators and targets.

Based on the Cooperative Agreement, IMPACT – which started operations in October 2012 – would have concluded in September 2017. The Project, however, was given a 10-month extension up to July 2018.

Project technical assistance (TA) beefed up TB case notification in U.S. Government-assisted sites by 34% —281 per 100,000 population in Year 5 (FY2017), up from 209 per 100,000 population in Year 1 (FY2012), achieving 96% of the end-of-project (EOP) target (290 per 100,000 population). Meanwhile, 90% of TB cases were successfully treated in USG sites by end of Year 5, equivalent to 95% of the target treatment success rate (that is, 95%) by EOP. The Project reached 50% of the Filipino population with quality TB care through a strengthened health system.

Key to these achievements was the committed participation of partners at the community, local government unit (LGU), regional, and national levels in both public and private sectors. Project-developed algorithms, guidelines, procedures, job aids, and other tools as well as those of IMPACT's predecessor complemented each other and were used synergistically. Partners'

involvement and project TA together raised the numbers for case notification rate and treatment success rate.

Finding TB Cases. To strengthen case finding, IMPACT scaled up access to and availability of quality TB services. At the community level, a total of 755 USAID-trained informal laboratory workers in 211 remote smearing stations provided diagnostic services to 5,686 clients, 344 of whom were confirmed to have TB. Project engagement of 374 private hospitals as DOTS-referring or providing facilities led to direct sputum smear microscopy testing of 52,954 patients and treatment initiation of 18,303 individuals. More than 2,300 engaged private pharmacies referred a total of 42,118 presumptive TB cases to DOTS facilities. Tracking pharmacy referrals, however, remains a challenge that the new TB projects may want to address.

About 9 in 10 jails in USG sites are now implementing TB-DOTS, a significant leap from less than 4 in 10 jails in Year 1. Project support to TB mass screening in 16 jails and prisons screened 16,181 inmates among whom 442 TB patients initiated treatment. The number of children less than 15 years old treated for TB rose sharply to 96,052, exceeding the EOP target of 86,000. TB screening in schools along with implementing the TB Caravan in communities made this possible.

Mobilizing community-based organizations, community health teams, and *barangay* (village) health workers (BHWS) through a national-level partner (Catholic Bishops' Conference of the Philippines Episcopal Commission on Health Care); NGOs; and direct TA to various groups like indigenous peoples, senior citizens, and Muslim religious leaders collectively contributed 14% of notified cases in USG sites by end of Year 5. This exceeds by 4 points the 10% PhilPACT target for community contribution to case notification.

To ensure that identified TB cases were successfully referred to a DOTS facility and attended to, the Project set up the parameters and developed the tools for establishing service delivery networks (SDN). Thereafter, IMPACT assisted service providers from the community as well as the public and private sectors in eight provinces in developing referral protocols and the policy that will govern the agreement among members of the SDN. Similarly, the Project supported 32 project sites in strengthening drug-resistant (DR) TB case finding and referral. The TA, among others, sought to increase the involvement of rural health units as well as provincial and city health offices in programmatic management of DRTB, and established the protocol for and guidelines in finding and managing DRTB patients.

IMPACT capacitated 42,604 BHWs, midwives, medical technologists, nurses, and physicians to sustain implementation of project interventions and provide quality TB care by training them in the various components of the WHO Stop TB strategy. These included empowering people with TB (37%); engaging all health service providers (28%); health systems strengthening (25%); and addressing multidrug-resistant TB, TB-HIV, and TB among the poor and vulnerable populations (10%).

Ensuring All TB Patients are Cured. Interventions to improve and sustain treatment success rate focused on strengthening drug supply management (DSM) and enhancing treatment compliance. An uninterrupted supply of anti-TB drugs is essential to ideal treatment outcomes. Following this, the Project trained nine project sites in three regions on pharmaceutical management using the "Practical Guide to Pharmaceutical Management" developed by SIAPS. The training was reinforced with quarterly meetings and onsite DSM monitoring and mentoring visits. Stock outs are highly variable and seasonal, but in Year 5 only 1%, or 15 of 1,473 DOTS facilities in USG-assisted sites experienced a stockout, a significant accomplishment vis-à-vis the target of 10%.

In the Project's extension year, IMPACT tested a number of tools and interventions designed to improve treatment compliance. The pilot test of the training manual on interpersonal communication and counseling for TB service providers, interrupter and contact tracing through TB surveillance officers, and Choice Architecture pointed to their potential in providing patient-centered care while ensuring treatment compliance. The Project recommends the use of these tools/interventions subject to certain conditions detailed in this report.

Ensuring an Enabling Environment for TB. To establish an environment that backstops the provision of quality TB care, IMPACT supported, among others, initiatives toward evidence-based program management, ensuring the quality of and funding for TB control through DOH certification and PhilHealth accreditation, and putting in place local policy support for the local TB program.

From 2015 to 2017, 41–43 provinces/highly urbanized cities conducted data quality check (DQC) workshops. DQC, which checks on the completeness, accuracy, consistency, and timeliness of NTP records and reports, enabled each NTP team to identify and correct common recording errors, and improve data analysis and program management. DQC helped halve the time it took to submit validated program reports – from 6 months to 3 months – from the end of a review quarter. Funding support from Department of Health regional offices for the conduct of DQC workshops suggests a move toward the institutionalization of DQC.

The Project facilitated a total of 71 program implementation review (PIR) workshops. Conducted midyear, the Project-designed PIR provided LGUs the evidence to back annual program planning, which begins in the third quarter of the calendar year. The PIR, originally framed along the objectives and strategies of the 2010–2016 Philippine Plan of Action to Control Tuberculosis (PhilPACT), has been revised to anchor it on the framework of the 2017–2022 Philippine Strategic TB Elimination Plan Phase 1 (PhilSTEP1).

Technical assistance in obtaining DOH certification and PhilHealth accreditation of TB-DOTS facilities enabled LGUs to maintain the quality of DOTS services and secure funding for TB control. By the end of Year 5, 7 in 10 DOTS facilities in USG sites were accredited by PhilHealth, up from less than 5 in 10 DOTS facilities in Year 1. Nearly half (44%) of 679 LGUs that were monitored used PhilHealth TB-DOTS reimbursements estimated at PhP303 million.

Project TA that adopted a participatory approach guided LGUs in crafting evidence-based policies appropriating funds for TB control. By end of the Project, the proportion of LGUs in 38 USG-supported sites (this excludes ARMM provinces) that had enacted ordinances with budget support to TB control was twice (70%) that of the 2012 baseline (35%). In Year 5, these legislative issuances allocated a total budget of PhP71 million that LGUs mobilized to augment supply of anti-TB drugs and supplies, provide incentives to community health volunteers, and extend enablers to TB patients, among others.

At the national level, IMPACT supported DOH-NTP in the conduct of the Joint Program Review (JPR) in 2013 and 2016. The Project's technical inputs to both JPR fed into the writing of two seminal documents: the updated 2010–2016 PhilPACT released in 2014, and the 2017–2022 PhilSTEP1. Additionally, the Project coordinated program partners in updating the NTP Manual of Procedures (MOP), which led to the release of its 5th edition also in 2014. Thereafter, IMPACT developed an online course on the NTP MOP. Tests showed the course's viability as a form of distance education that could address the sporadic need for training new hires across the country.

Technical support to the National Tuberculosis Reference Laboratory helped NTRL secure ISO 15189 accreditation. ISO 15189 stamped a quality seal on all laboratory procedures provided by the reference laboratory, guaranteeing end-users of the safety, reliability, and good quality of NTRL procedures.

IMPACT provided technical inputs to the development of the three-phased national TB communication campaign led by CHANGE. Subsequently, the Project measured the influence of the campaign's third phase on presumptive TB cases' seeking consultation, and on TB patients' completion of TB treatment. The number of consultations did increase in the study sites during the period January to March 2017. But no statistical difference was found when this was compared with the number of consultations in the preceding quarter (Oct–Dec 2016) and during the same period in the previous year (Jan–Mar 2016). Of the 365 patients who completed treatment during the assessment period, 265 received SMS (text messages) daily to remind them to take their anti-TB medicines. All 265 of them said the SMS reminders spurred them to complete their treatment. This points to the potential of daily text messages in reinforcing patients' decision to adhere to and complete treatment at minimal cost and effort.

IMPACT assessed gender issues in accessing care, focusing on time elapsed to access TB diagnostic services after perceiving the onset of TB symptoms, and treatment adherence and completion. The findings showed that sex does not affect decision-making to consult, but gendered expectations and roles do. For instance, women, who play a primary role in child rearing and maintaining the household, are motivated to consult because they want to be healthy for their children and family. Men, on the other hand, seek consultation because as breadwinners they need to be employed, which requires them to secure a fit-to-work certificate.

This Project's recommendations on various interventions are presented in this report and are written in blue font. Selected technical assistance packages developed by IMPACT have been put together in a compendium that may be accessed at http://www.pbsp.org.ph/impact/.

Total cost (USAID grant) of the Project was Php 1,185,779,571.94 or $28,232,846.95 (whichever is less).

CONTENTS

LIST OF TABLES, FIGURE, AND BOXES

ABBREVIATIONS

ACSM	advocacy, communication, and social mobilization
ADR	adverse drug reaction
AF	area facilitator
AIDERS	Accelerating Implementation of DOTS Enhancements to Reach Special Populations
AO	administrative order
AOR	agreement officer's representative
ARMM	Autonomous Region in Muslim Mindanao
BBFI	Bayanihan Bulakeño Foundation, Inc.
BCC	behavior change communication
BCTB	bacteriologically confirmed TB
BEC	basic ecclesial community
BHS	*barangay* (village) health station
BHMC	barangay health management council
BHW	barangay health worker
BJMP	Bureau of Jail Management and Penology
BMMC	barangay malaria microscopy center
BuCor	Bureau of Corrections
CALABARZON	Cavite, Laguna, Batangas, Rizal, Quezon
CAR	Cordillera Autonomous Region
CBCP	Catholic Bishops' Conference of the Philippines
CBCP-ECHC	Catholic Bishops' Conference of the Philippines Episcopal Commission on Health Care
CBHP	community-based health program
CBO	community-based organization
CBO/FBO	community-based organization/faith-based organization
CD	clinically diagnosed; compact disc
CDTB	clinically diagnosed tuberculosis
CHANGE	Communication for Health Advancement through Networking and Governance Enhancement
CHO	city health office; city health officer
CHT	community health team
CHV	community health volunteer
CHW	community health worker
COR/AOR	contract officer's representative/agreement officer's representative
CSR	corporate social responsibility
CxR	chest X-ray
DCAT	Directly Observed Treatment, Short Course Compliance Assessment Tool
DepEd	Department of Education
DILG	Department of the Interior and Local Government
DMSF	Davao Medical School Foundation, Inc.
DO	development objective

DOH	Department of Health
DOH-ARMM	Department of Health Autonomous Region in Muslim Mindanao
DOH-NTP	Department of Health National Tuberculosis Control Program
DOH-RO	Department of Health Regional Office
DOLE	Department of Labor and Employment
DOT	directly observed treatment
DOTS	directly observed treatment, short course; delivery of tuberculosis services
DQC	data quality check
DR	drug resistant
DRTB	drug-resistant tuberculosis
DSM	drug supply management
DSSM	direct sputum smear microscopy
DS	drug susceptible
DSTB	drug-susceptible tuberculosis
DSWD	Department of Social Welfare and Development
EOP	end of project
EQA	external quality assessment
FBO	faith-based organization
FDA	Food and Drug Administration
FDC	fixed-dose combination
FDUP	Foundation for the Development of the Urban Poor
FY	fiscal year
GF	Global Fund for Tuberculosis
GIDA	geographically isolated and disadvantaged area
GIS	geographic information system
HC	health center
HIV	human immunodeficiency virus
HH	household
HLGP	Health Leadership and Governance Program
HOA	homeowners' association
HPDP2	Health Policy Development Program 2
HUC	highly urbanized city
IC	infection control
ICF	intensive case finding
ICRC	International Committee of the Red Cross
iDOTS	Integrated Directly Observed Treatment, Short Course
IDP	internally displaced people
IEC	information, education, and communication
ILW	informal laboratory worker
IMPACT	Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis
inter-CA	inter-cooperating agencies
IP	indigenous people
IPC	interpersonal communication
IPCC	interpersonal communication and counseling
IRR	implementing rules and regulations

ISO	International Organization for Standardization
ITIS	Integrated Tuberculosis Information System
JPR	Joint Program Review
KMITS	Knowledge Management and Information Technology Service
KsFI	Kinasang'an Foundation, Inc.
LCE	local chief executive
LCP	Lung Center of the Philippines
LCP-NCPR	Lung Center of the Philippines National Center for Pulmonary Research
LGU	local government unit
LNSP	Laboratory Network Strategic Plan
LOP	life of project
LTFU	lost to follow-up
MAT	Municipal Appraisal Tool
MDRTB	multidrug-resistant tuberculosis
MDR/XDRTB	multidrug-resistant/extensively drug-resistant tuberculosis
medtech	medical technologist
MHO	municipal health office; municipal health officer
MOODLE	Modular Object-Oriented Dynamic Learning Environment
MOP	Manual of Procedures
MOU	memorandum of understanding
MRL	Muslim religious leader
MSA	multisectoral alliance
MTB/RIF	*Mycobacterium tuberculosis*/rifampicin
NCR	National Capital Region
NNS	number needed to screen
NTP	National Tuberculosis Control Program
NTP JPR	National Tuberculosis Control Program Joint Program Review
NTP MOP	National Tuberculosis Control Program Manual of Procedures
NTP PMDT	National Tuberculosis Control Program Programmatic Management of Drug-resistant Tuberculosis
NTPS	National Tuberculosis Prevalence Survey
NTRL	National Tuberculosis Reference Laboratory
OSCA	Office of Senior Citizens Affairs
PBSP	Philippine Business for Social Progress
PCC	provincial coordinating committee
PCC/CCC	provincial coordinating committee/city coordinating committee
PEBL	participatory evidence-based legislation
PHANSuP	Philippine Non-government Organization Support Program
PHIC, PhilHealth	Philippine Health Insurance Corporation
PhilCAT	Philippine Coalition Against Tuberculosis
PhilPACT	Philippine Plan of Action to Control Tuberculosis
PhilSTEP1	Philippine Strategic Elimination Plan for Tuberculosis Phase 1
PHN	public health nurse
PHN/RHM	public health nurse/rural health midwife
PHO	provincial health office; provincial health officer
PhP	Philippine peso

PIR	program implementation review
PMDT	Programmatic Management of Drug-resistant Tuberculosis
PMSA	provincial multisectoral alliance
PPhA	Philippine Pharmacists Association, Inc.
PTSI	Philippine Tuberculosis Society, Inc.
PTSI-PCHRD	Philippine Tuberculosis Society, Inc. – Philippine Council for Health Research and Development
Q4Y4	Quarter 4 Year 4
QA	quality assurance
QAS	quality assurance system
RCC	regional coordinating committee
RDQA	Routine Data Quality Assessment
RHM	rural health midwife
RHU	rural health unit
RIT/JATA	Research Institute for Tuberculosis/Japan Anti-Tuberculosis Association
RO	regional office
RR	rifampicin resistance
RRTB	rifampicin-resistant tuberculosis
RSA	rapid situational analysis
RSS	remote smearing station
RTDL	rapid tuberculosis diagnostic laboratory
SAP	stand-alone practice; stand-alone practitioner
SDN	service delivery network
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SKSM	*Samahan ng Kababaihan* ng Sta. Margarita
SS	symptom screening
STC	satellite treatment center
STTA	short-term technical assistance
TA	technical assistance
TASC	Technical Assistance Support to Country
TAT	turnaround time
TB	tuberculosis
TBDAA	tuberculosis disease activity assessment
TB-HIV	tuberculosis-human immunodeficiency virus
TB LINC	Linking Initiatives and Networking to Control Tuberculosis Project
TB MAC	Tuberculosis Medical Advisory Committee
TBMS	tuberculosis mass screening
TC	treatment center
TC/STC	treatment center/satellite treatment center
TDPH	TB-DOTS–providing hospital
TDRH	TB-DOTS–referring hospital
TDRN	TB-DOTS referral network
TESDA	Technical Education and Skills Development Authority
TML	tuberculosis microscopy laboratory
TOT	training of trainers
TREAT TB	Technology, Research, Education and Technical Assistance for Tuberculosis

TST	tuberculin skin test
TWG	technical working group
USAID	United States Agency for International Development
USG	United States Government
WESADEF	Western Samar Development Foundation, Inc.
WHO	World Health Organization
XDR	extensively drug-resistant
Y1	Year 1
Y2	Year 2
Y4	Year 4
Y5	Year 5
ZFF	Zuellig Family Foundation

I. SITUATIONER

In a span of 10 years, from the National Tuberculosis Prevalence Survey in 1997 till the 2007 NTPS, the burden of TB disease in the country was estimated to have declined 38% in the prevalence of culture-positive pulmonary TB and 28% in smear-positive PTB. Yet TB remained a major public health problem, with the Philippines ranking ninth among 22 high-TB burden countries that accounted for 80% of TB cases in the world. Moreover, the 2003–2004 national Drug Resistance Study revealed that the prevalence of multidrug-resistant tuberculosis (MDRTB) among new cases was 3.8%, and among previously treated patients was 20.9%. The resulting combined prevalence of 5.7% ranked the Philippines ninth among the 27 countries with 85% of the global burden of MDRTB.

The institution of the Directly Observed Treatment, Short Course (DOTS) strategy in 1996 and its nationwide implementation in the public health sector starting 2002 had enabled the country to chart significant progress in TB control. With a case detection rate (CDR) of 75% and a treatment success rate (TSR) of 88% in 2007, the Philippines compared favorably in TB case finding and case holding vis-à-vis the average global performance of 63% and 85%, respectively (WHO, 2009). However, the national average CDR and TSR masked high geographic variations in program performance. The 2007 NTPS estimated that more than 50% of all estimated smear-positive TB cases were in Luzon, with 36% of this burden in the National Capital Region (NCR), Central Luzon, (Region 3), and CALABARZON (Region 4A). The Autonomous Region in Muslim Mindanao was recorded among those with very low CDR and cure rate for smear-positive TB cases.

The Department of Health National Tuberculosis Control Program reported that by the end of 2012, the country has reduced by 50% TB prevalence and mortality rates relative to the 1990 baseline. This marked the Philippines as one of seven countries that had met their Millennium Development Goal (MDG) targets for TB ahead of the 2015 deadline. With the United Nations' move from the 2015 MDGs to the Sustainable Development Goals (SDGs) for 2030, the world community accelerated the fight against TB. The World Health Organization crafted a new and holistic strategy that envisioned a world free of TB. The 2014 End TB Strategy has set out to cut TB incidence rate and deaths by 50% and 75%, respectively, by 2025 compared with the 2015 level. For the Philippines, these targets were magnified with the new TB incidence – estimated based on the 2016 NTPS findings – of 554 per 100,000 population, up from WHO's pre-survey estimate of 322 per 100,000 population.

II. THE PROJECT AND ITS OBJECTIVES

Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis (IMPACT) was a five-year technical assistance (TA) project that sought to respond to the abovementioned challenges. The Project provided TA to the Department of Health National TB Control Program and worked directly with 43 provinces and cities – in Luzon, Visayas, and Mindanao, including the Autonomous Region in Muslim Mindanao – with the greatest burden of TB disease and lowest performance in both case detection and cure rates. IMPACT engaged both public and private sectors at the national and local levels to detect and successfully treat TB cases. Guided by a harmonized blueprint of technical assistance and research initiatives, and the USAID TB Portfolio Results Framework, the Project worked with other USAID cooperating agencies and key partners involved in TB control. IMPACT measured the outcomes of

project interventions against a set of national program indicators and targets identified in the enhanced Philippine Plan of Action to Control Tuberculosis (PhilPACT) 2010–2016. Based on the Cooperative Agreement, IMPACT – which started operations in October 2012 – would have concluded in September 2017. The Project, however, was given a 10-month extension up to July 2018.

The goal of IMPACT, as originally set, was to reduce TB prevalence by 30%, achieve 85% case detection rate for all forms of TB, and 90% cure rate for new smear-positive cases in all participating sites by 2017 relative to the 2010 baseline.

The Project aimed to achieve three objectives:

- strengthen demand for TB services through adoption of healthy behaviors within families;
- improve supply of TB services, including the availability and quality of public sector services and selective expansion of private sector providers; and
- remove policy and systems barriers to support supply of and demand for TB services.

IMPACT complemented the health programs of USAID Philippines and other development partners. Its activities aligned with the principles of the United States Government Global Health Initiative and the Government of the Philippines' Universal Health Care agenda (*Kalusugan Pangkalahatan)*.

III. ACCOMPLISHMENTS

DEVELOPMENT OBJECTIVE 1

Table 1. Project Performance vis-à-vis Development Objective 1 Indicators, Year 1 to Year 5 (Oct 1, 2012–Sept 30, 2017)

No.	Indicators	Baseline	EOP Target FY2017	Target Year 1	Perform-ance Year 1	Target Year 2	Perform-ance Year 2	Target Year 3	Perform-ance Year 3	Target Year 4	Perform-ance Year 4	Target Year 5	Perform-ance Year 5	Overall Perform-ance	Perform-ance vs Target	Remarks
TB1	Case notification rate, all forms, in USG-assisted sites (per 100,000 population)	209/ 100,000 (2012 NTP Report)	290	209	203	215	205	248	269	260	285	290	281	281	96%	
	Numerator				89,061		102,129		146,058		157,887		157,349	157,349		
	Denominator				43,829,201		49,901,793		54,254,116		55,398,712		55,960,413	55,960,413		
TB2	Case detection rate, all forms, in USG-assisted sites	74% (2012 NTP Report)	95%	76%	74%	79%	77%	85%	88%	90%	99%	95%	87%	87%	92%	
	Numerator				89,331		102,129		146,031		157,887		157,349	157,349		
	Denominator				120,530		132,240		165,551		159,548		180,193	180,193		
TB3	Cure rate, new bacteriologically confirmed, in USG-assisted sites	83% in 2010 (based on RFA)	90% (2015 cohort)	83% (2011 cohort)	83%	85% (2012 cohort)	84%	87%	81%	89%	80%	90%	76%	76%	84%	
	Numerator				29,435		37,739		38,143		35,747		38,213	38,213		
	Denominator				35,369		45,067		46,810		44,607		50,133	50,133		
TB4	Treatment success rate, all forms, in USG-assisted sites	89.6% (cohort of 2011)	95% (2015 cohort)	NA	NA	91%	90%	92%	90%	94%	91%	95%	90%	90%	95%	
	Numerator						82,393		105,591		127,953		145,241	145,241		
	Denominator						91,820		116,786		140,499		160,665	160,665		
TB5	TB prevalence rate (per 100,000 population)	520 in 2010 (based on RFA)	375/ 100,000	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	NA	NA	NA	NA	NA	1,159*	Archived indicator *Source: 2016 NTPS
TB6	Number of vulnerable groups participating in TB control	21	850 (cumulative count)	50	82	100	177	250	439	300	123	150	12	833 (cumulative count)	98%	
TB7	Percentage of municipalities and cities with organized barangay-level CBOs participating in TB control and are linked with TB- DOTS facilities	13%	60% (478 of 796)	10%	8%	20%	18%	40%	33%	50%	52%	60%	60%	60%	100%	

No.	Indicators	Baseline	EOP Target FY2017	Target Year 1	Perform-ance Year 1	Target Year 2	Perform-ance Year 2	Target Year 3	Perform-ance Year 3	Target Year 4	Perform-ance Year 4	Target Year 5	Perform-ance Year 5	Overall Perform-ance	Perform-ance vs Target	Remarks
	Numerator	87	413	69	52	138	122	318	262	398	412	478	475	475		
	Denominator	689	689	689	689	689	689	796	796	796	796	796	796	796		
TB8	Percentage of notified TB cases that are referred by CBOs/CHTs/BHWS	No data	15%	NA	NA	5%	10%	8%	5%	10%	12%	15%	14%	14%	93%	
	Numerator						2,028		7,904		19,059		21,969	21,969		
	Denominator						20,532		146,033		157,449		158,490	158,490		
TB9	Percentage of provinces/cities with functional multisectoral alliances (MSA) or PCC/CCC to combat TB	0 (0 of 38)	86% (32 of 38)	0	0	0	0	13%	28%	46%	46%	86%	46%	46%	53%	
	Numerator		37		0	0	0	6	12	20	20	37	20	20		
	Denominator		43		38	38	38	43	43	43	43	43	43	43		
TB10	Number of TB cases referred to DOTS facilities by non-NTP providers in USG-assisted sites	2,872 (2010 NTP quarterly report in IMPACT project sites)	114,400 (cumulative Y1–Y5)	5,000	6,251	7,000	12,778	12,400	38,062	42,000	66,610	48,000	76,390	199,833 (cumulative Y1–Y5)	175%	
TB11	Percentage of private hospitals participating in TB control as DOTS providing or DOTS referring in USG-supported areas	29% (80 of 279) (partial data)	70%	5%	22%	30%	58%	40%	76%	65%	88%	70%	88%	88%	125%	
	Numerator		299		107		280		369		374	299	374	374		
	Denominator		427		484		484		527		427	427	427	427		
TB12	Percent TB microscopy laboratories (TMLs) performing TB microscopy within EQA standards (95% or higher rate of correct microscopy results)	68% (2011 EQA Report – 1,752 TMLs with 95% correct microscopy results	95%	70%	80%	85%	80%	90%	85%	95%	95%	95%	91%	91%	96%	
	Numerator		1,243		543	699	839	1,025	966	1,156	1,153	1,243	1,197	1,197		
	Denominator		1,309		683	822	1,049	1,139	1,139	1,217	1,217	1,309	1,309	1,309		
TB13	Number of children <15 years old treated for tuberculosis in USG-supported areas	7,439	86,000 (cumulative Y1–Y5)	13,500	10,495	14,500	18,021	17,000	19,448	20,000	24,849	21,000	23,239	96,052 (cumulative Y1–Y5)	112%	
TB14	Percentage of prisons/jails implementing DOTS in USG-supported areas	23% (46 of 196)	95%	70%	32%	80%	76%	90%	82%	95%	91%	95%	93%	93%	98%	Change in denominator reflects updated number of jails based on annual mapping
	Numerator		214		62		148		184		206		200	200		
	Denominator		225		196		196		240		225		215	215		

No.	Indicators	Baseline	EOP Target FY2017	Target Year 1	Perform-ance Year 1	Target Year 2	Perform-ance Year 2	Target Year 3	Perform-ance Year 3	Target Year 4	Perform-ance Year 4	Target Year 5	Perform-ance Year 5	Overall Perform-ance	Perform-ance vs Target	Remarks
TB15	Percent of USG-assisted service delivery points that experience a stockout of any TB drug during the defined reporting period	93%	10%	15%	17%	30%	1%	15%	35%	10%	15%	10%	1%	1%	<1%	Denominator reflects number of DOTS facilities in updated master list based on annual mapping; includes DOTS-providing hospitals
	Numerator		147		214		1,279		495		222		15	15		
	Denominator		1,473		1,258		1,288		1,415		1,436		1,473	1,473		
TB16	Percentage of LGUs conducting data quality checks (DQC) annually	No available data	90%	NA	NA	NA	NA	60%	100%	75%	95%	90%	95%	95%	106%	
	Numerator								43		41	39	41	41		
	Denominator								43		43	43	43	43		
TB17	Number of new MDRTB cases diagnosed and initiated on treatment	626 (2012 PMDT report)	3,365 (for Y5)	1,100	1072	1,725	1,810	1,725	2,680	3,365	3,543					This indicator was replaced by TB17a and TB17b in Year 5
	Male			TBD	728		TBD		1,880		2,288					
	Female			TBD	344		TBD		800		1,255					
TB17a	Number of new MDRTB cases detected	3,837	4,583									4,583	4,053	4,053	88%	New indicator starting Year 5
	Male	2,687											2,826	2,826		
	Female	1,150											1,227	1,227		
TB17b	Number of new MDRTB cases that initiated second-line treatment	3,543	4,583									4,583	3,961	3,961	86%	New indicator starting Year 5
	Male	2,288											2,743	2,743		
	Female	1,255											1,218	1,218		
TB18	Percentage of successfully treated new multidrug-resistant TB (Category IV) cases	56% (2009 PMDT national report)	75% (FY2014 Cohort)	NA	NA	NA	NA	NA	NA	68%	54% (FY2013 cohort)					TSR for MDRTB reported only in Year 4
	Numerator										578					
	Denominator										1,072					
TB19	Number of health care providers trained in the components of the WHO Stop TB strategy with USG funding	20,264	30,000	1,000	6,084	6,844	14,880	5,000	25,307	3,000	42,523	220	81	42,604 (Cumulative Y1-Y5)	142%	
	Male				882		2,139		5,069		7,246		10	7,256		
	Female				5,202		12,741		19,955		35,277		71	35,348		
TB20	Percent of DOH regional offices outsourcing TA provision	0%	50%	0%	0%	10%	0%	25%	12%	40%	29%	50%	41%	41%	78%	Denominator was changed from 51 CHDs/

No.	Indicators	Baseline	EOP Target FY2017	Target Year 1	Perform-ance Year 1	Target Year 2	Perform-ance Year 2	Target Year 3	Perform-ance Year 3	Target Year 4	Perform-ance Year 4	Target Year 5	Perform-ance Year 5	Overall Perform-ance	Perform-ance vs Target	Remarks
																provinces/HUCs to 17 DOH *regional offices* starting Year 3
	Numerator	0	9	0	0	6	0	4	2	7	5	9	7	7		
	Denominator	51	17	51	51	51	51	17	17	17	17	17	17	17		
TB21	Percent of DOTS facilities that are PhilHealth accredited in USG-supported areas	48%	75%	15%	52%	55%	61%	60%	61%	70%	69%	75%	75%	70%	93%	Denominator changes are due to increasing number of DOTS facilities
	Numerator	654	1,105		656		766	841	855		986		1,037	1,037		
	Denominator	1,366	1,473		1,258		1,258	1,401	1,401		1,436		1,473	1,473		
TB22	Percentage of LGUs utilizing PHIC reimbursement per guidelines	No data available	50%	NA	NA	NA	NA	15%	26%	35%	34%	50%	45%	45%	89%	New indicator starting Year 3
	Numerator		340						174		232		303	303		
	Denominator		679						679		679		679	679		Denominator does not include ARMM LGUs
TB23	Percentage of budget in DOH regional offices utilized for TB	NA	90%					70%	91%	80%	92%	90%	95%	95%	106%	
	Numerator								286,881,503.28		349,016,735.96		302,908,098.92	302,908,098.92		
	Denominator								316,333,480.00		378,090,040.20		320,410,379.27	320,410,379.27		
TB24	Percent of LGUs with policy issuances that allocate resources for TB services	35%	70%	0%	23%	30%	36%	50%	53%	60%	63%	70%	70%	70%	100%	
	Numerator	199	476		130	171	206	340	358	408	432	476	478	478		
	Denominator	571	679		571	571	571	679	679	679	679	679	679	679		Denominator does not include ARMM LGUs. Denominator changed to 679 to include LGUs in five demonstration sites that were subsequently counted as regular sites.

Reasons for Variance. The performance target is achieved if the accomplishment vis-à-vis end-of-project (EOP) target is within ± 10%. If accomplishment versus EOP target is less or greater than 10% of performance target, reasons for variance are provided.

OUTCOME INDICATORS

1. **Case notification rate (CNR)** – performance target achieved (96% of target)

2. **Case detection rate (CDR)** – performance target achieved (91.6% of target)

3. **Cure rate, new bacteriologically confirmed** – performance target not achieved (84% of target)

With the revision of the NTP Manual of Procedures (MOP) in Year 3, greater focus on treatment success rate (TSR) as an NTP core indicator affected cure rate (CR) accomplishment. Cure rate in USG sites progressively decreased from 84% in Year 2 to 81% (Year 3), 80% (Year 4), and 76% in Year 5. Consequently, the EOP target of 90% was not reached. While the Project continued to advocate for ensuring compliance with sputum follow-up examinations during data quality check and mentoring activities, the national policy on core NTP indicators was the major factor that determined compliance of DOTS facilities, and greatly affected this indicator.

4. **Treatment success rate (TSR), TB all forms** – performance target achieved (95% of target)

COMPONENT 1

1. **Number of vulnerable groups participating in TB control** – performance target achieved (98% of target)

2. **Percentage of municipalities and cities with organized barangay-level CBOs participating in TB control and are linked with TB-DOTS facilities** – performance target achieved (100% of target)

3. **Percentage of notified TB cases that are referred by CBOs/CHTs/BHWs** – performance target achieved (93% of target)

4. **Percentage of provinces/cities with functional multisectoral alliances (MSA) or provincial coordinating committees (PCC) to combat TB** – performance target not achieved (53.5% of target)

By end of Year 5, only 46% (20 of 43) of the project sites were assessed to have functional MSAs based on the Project's definition of functionality, that is, implementing its strategic plan, with organizational structure and clear roles and functions, and holding regular meetings. The EOP target was 86% (37 of 43) of project areas with functional MSAs.

Since Year 1, several project areas with existing MSAs (e.g., Laguna, Rizal, Masbate, and Northern Samar) had not significantly progressed in mobilizing LGU partners for TB control despite IMPACT's effort and resources to assist partner-LGUs in making their MSAs viable and functional. In Laguna, the NTP coordinator in charge of the MSA resigned and was not replaced up until the Project's conclusion. In Masbate, the NTP medical coordinator was too busy since he also served as hospital chief and could not

attend to the MSA. Moreover, the NTP nurse coordinator took a long leave of absence; hence, she was unable to work on the MSA. For the province of Rizal, the relationship between the NTP team and the Provincial Health Office was less than auspicious, which affected the growth of the MSA. In Northern Samar, the NTP core team was unable to facilitate the capacity-building needs of the MSA.

In NCR, the cities of Caloocan, Makati, Malabon, Mandaluyong, Marikina, Pasay, Taguig, and Valenzuela were not interested in organizing their respective MSA. They preferred to tap their existing local health boards instead. For the other project areas without MSAs, the PHOs' lack of interest and the unfavorable political situation were the common reasons that prevented the establishment of MSAs.

COMPONENT 2

1. **Number of TB cases referred to DOTS facilities by non-NTP providers in USG-assisted sites** – performance target exceeded (175% of target)

For Year 1 to Year 5, cumulative accomplishment was 175% of the EOP target (I99,833 vs. 114,400). As discussed in previous reports, only referrals from the private sector and jails were included in targeting for this indicator since only these sectors had available data in the NTP reporting system. With the revision of the NTP Manual of Procedures in Year 3 (2015), contribution of both *other government agencies* and *communities* were disaggregated and available resulting in higher non-NTP contribution.

2. **Percentage of private hospitals participating in TB control as DOTS providing or DOTS referring in USG-supported areas** – performance target exceeded (125% of target)

At the end of Year 5, cumulative performance for this indicator was 88%, surpassing the target of 70%. This translates to 374 of 427 private hospitals in USG-assisted areas engaged in TB-DOTS. Of the 374 private hospitals, 282 (66% of 427) were engaged directly by Philippine Tuberculosis Society, Inc. in 26 project sites through a sub-grant agreement with IMPACT. The rest were engaged either by PBSP-Global Fund for TB (GF) project or directly by DOH regional offices with additional project assistance in local DOTS network activities – including coordination meetings, data quality check, program implementation review, and monitoring visits. The total number of private hospitals in USG sites was also reduced from 484 in Year 1 to 427 in Year 5 in light of DOH reclassification of facilities, which downgraded many hospitals to infirmaries.

3. **Percent TB microscopy laboratories (TMLs) performing TB microscopy within EQA standards (95% or higher rate of correct results**) – performance target achieved (96% of target)

4. **Number of children <15 years old treated for tuberculosis in USG- supported areas** – performance target exceeded (112% of target)

Total cumulative accomplishment for this indicator was 112% of the EOP target (96,052 vs. 86,000). The number of child TB cases increased annually from 10,495 in Year 1 to 24,849 in Year 4, with a slight dip to 23,239 in Year 5. The Project had set a conservative target because of widespread stockout of pediatric anti-TB drugs in Year 1. However, with a more stead supply (both from national and local procurement) beginning Year 3, active case finding increased the number of child TB cases.

5. **Percentage of prisons/jails implementing DOTS in USG-supported areas** – performance target achieved (98% of target)

6. **Percent of USG-assisted SDPs that experienced a stockout of any TB drug during the defined reporting period** – performance target achieved (<1%)

7. **Percentage of LGUs conducting data quality checks (DQC) annually** – performance target achieved (106% of target)

COMPONENT 3

1. **Number of new MDR-TB cases detected** – performance target not achieved (88% of target)

For Year 5, the Project detected 4,053 (88%) of the 4,583 target cases in USG-assisted areas. Of this number, 2,826 (70%) were males and 1,227 (30%) were females. The performance target could have been achieved if all presumptive drug-resistant tuberculosis (DRTB) cases from health centers and private practitioners had been referred for Xpert MTB/RIF testing and if household contacts of all index DRTB cases had been screened. Project monitoring revealed that presumptive DRTB cases were missed in the RHUs because the staffs did not comply with the updated NTP Manual of Procedures on the use of presumptive TB master list, resulting in non-referral for Xpert MTB/RIF testing of presumptive DRTB patients. There was also lack of efficient recording, reporting, and monitoring. Compliance with Xpert MTB/RIF testing of presumptive DRTB was also low in several areas owing to the limited number of Xpert sites.

To help improve case finding during the project extension period, IMPACT continued to monitor and mentor selected priority USG-assisted sites (Pampanga, Cavite, and Las Piñas,) and helped PMDT facilities in screening household contacts of diagnosed DRTB cases. IMPACT engaged private physicians to refer presumptive TB patients for Xpert MTB/RIF testing. The Project set up a referral mechanism with the LGUs to ensure that specimens from these physicians can be tested in rapid TB diagnostic laboratories or RTDLs (previously called Xpert sites).

2. **Number of new MDR-TB cases that have initiated second-line treatment** – performance target not achieved (86% of target)

The Project enrolled 3,961 (2,743 males and 1,218 females) of 4,053 DRTB cases detected in Year 5 in USG-assisted areas. Since the Project did not meet the expected number of MDRTB cases detected for Year 5, the performance for this indicator was only 86% of the 4,583 targeted DRTB cases to be enrolled. This indicator was not achieved as the Project also was not able to achieve target for number of diagnosed DRTB patients. Reasons why patients already diagnosed were still lost to treatment were: (i) patients refused to be treated because of distance of treatment facilities, (ii) patients were not informed of the test results (especially those who went directly to an RTDL, and (iii) the satellite treatment center (STC) or RHU staff did not follow up on newly diagnosed patients with DRTB.

COMPONENT 4

1. **Number of health care providers trained in the components of the WHO Stop TB strategy with USG funding** – performance target exceeded (142% of target)

Eighty-one additional TB health workers were trained with U.S. Government funding in Year 5 as most training initiatives had already been completed mid-stream of the Project. IMPACT's revalidated cumulative performance (from Year 1) for this indicator remained at 42,604 trained health workers, exceeding by 42% the revised end-of-project target of 30,000. The total number of trained health workers included 1,664 participants from non-U.S. Government-assisted sites.

The over-achievement of the target number of trained health workers was largely attributed to DOH-NTP's directive to ensure all TB health workers are trained on the revised NTP Manual of Procedures by 2014. This covered rural health midwives as well as *barangay* (village) health workers (BHWs) and community health volunteers (CHVs). Moreover, the modest target set for BHWs and CHVs, despite their estimated 95,000 population, contributed to the overall underestimation. The conversion of the five demonstration sites (Benguet, Isabela, Romblon, Masbate, and Surigao del Norte) to regular project sites and the inclusion of trained health workers from engaged private hospitals likewise added to the total.

Trainings that employed project staff as resource speakers or facilitators in Years 1 to 3, even if not primarily funded by IMPACT, were also included in the overall tally.

2. **Percent of DOH Regional Offices outsourcing TA provision** – performance target not achieved (82% of target)

By the end of Year 5, only 41% of Department of Health regional offices had outsourced some of their TA needs.

A major hindering factor in outsourcing was the limited number of qualified contractors for the technical services the regional offices wish to outsource, including training for new or updated NTP guidelines and protocols. Moreover, many ROs hesitated to outsource because (i) they were wary of audit issues for a relatively uncommon and/or unfamiliar practice, (ii) their technical writing skills were limited, (iii) outsourcing services was not included in their budget plan, and (iv) they preferred not to assign training to private service providers.

COMPONENT 5

1. **Percent of DOTS facilities that are PhilHealth-accredited in USG-supported** – performance target achieved (93% of target)

2. **Percent of LGUs utilizing PhilHealth reimbursement per guidelines** – performance target not achieved (89% of target)

From a sample of 386 LGUs in USG-assisted sites that received PhilHealth reimbursements, 83 (21%) LGUs did not use their PHIC TB DOTS reimbursement because they preferred to pool the funds and share them among themselves at the end of the year.

3. **Percent of LGUs with policy issuance that allocate resources for TB services** – performance target achieved (100% of target)

DEVELOPMENT OBJECTIVE 2

Table 2. Project Performance vis-à-vis Development Objective 2 Indicators (Basilan, Sulu, Tawi-Tawi, and Marawi City), October 1, 2013 – September 30, 2017

Performance Indicators	Baseline Value	EOP Target	Target Year 2	Perform-ance Year 2	Target Year 3	Perform-ance Year 3	Target Year 4	Perform-ance Year 4	Target Year 5	Perform-ance Year 5	Overall Performance
Number of clients reached in health (TB) outreach activities conducted	50	2,300 (cumulative)	500	375	600	1,034	700	1,012	500	882	3,303 (cumulative Y2–Y5)
Percentage of municipalities with organized barangay-level CBOs participating in TB control (%)	0	90			20	70	80	88	90	88	88
Numerator	0	39			9	30	34	38	39	38	38
Denominator	43	43			43	43	43	43	43	43	43

Reasons for Variance. Monitoring project performance for the first DO2 indicator (*Number of clients reach in health [TB] outreach activities conducted*) started in Year 2. For the second DO2 indicator (*Percent of municipalities with organized barangay-level CBOs participating in TB control*), monitoring began in Year 3 with the adoption of USAID's new Results Framework for Development Objective No. 2 for conflict-affected areas in Mindanao.

Performance target is achieved if accomplishment vis-à-vis end-of-project target is within ± 10%. If accomplishment versus EOP target is less than or greater than 10% of performance target, reasons for variance are provided.

Achievements related to the DO2 performance indicator during the Project extension period (October 1, 2017 to April 30, 2018) are also discussed below.

1. **Number of clients reached in health (TB) outreach activities conducted** – performance indicator exceeded (144% of target)

By end of Year 5, a total of 3,303 clients in conflict-affected areas, particularly Marawi City, Basilan, Sulu, and Tawi-Tawi, had been provided TB services (viz., TB screening, sputum analysis, TB education) during outreach activities, including treatment for those with TB.

2. **Percentage of municipalities with organized barangay- level CBOs participating in TB control** – performance target achieved (98% of target)

IV. MAJOR IMPLEMENTATION ISSUES

AREAS OF CONCERN	IMPLEMENTATION ISSUES	ACTION TAKEN	RECOMMENDATION/ PLANNED ACTION IF NOT RESOLVED
Supervision and mentoring of TB health care providers	The technical assistance was primarily intended for the national and regional NTP teams, with the provincial, city, and municipal NTP teams as secondary beneficiaries. However, most regional and provincial NTP coordinators also cover other public health programs, which limited their time for supervisory and mentoring visits to health workers in their coverage areas. This prevented them from holding important face-to-face meetings with service providers and together identifying solutions to challenges at the field level. This situation prevailed even though almost all of NTP teams acknowledged the importance of these visits in improving the quality of care provided to clients and the data submitted to NTP.	The Project developed a monitoring and mentoring tool that includes a checklist and guide on how to conduct monitoring and mentoring. With support from DOH-NTP, the Project collaborated with regional and provincial NTP teams and scheduled the conduct of supervisory, monitoring, and mentoring visits to rural health units and health centers.	
Human resource needed to ensure that the infection loop is effectively stopped	Not all household contacts of TB patients are screened and initiated in on treatment if found with the disease. Even though this important activity was always suggested by Project staff with regional, provincial, and city NTP teams during monitoring and mentoring visits,	This issue is related to the inadequate number of health providers and to effective planning to ensure that household contact tracing is conducted for 100% of patients regularly in a timely manner. To find out how this can be done, the Project	There is a need to augment health staff of DOTS and PMDT facilities to ensure that they can conduct household contact tracing for all TB patients.

AREAS OF CONCERN	IMPLEMENTATION ISSUES	ACTION TAKEN	RECOMMENDATION/ PLANNED ACTION IF NOT RESOLVED
	household contact tracing was not conducted regularly in sites visited by the combined Project and NTP teams.	deployed TB surveillance officers during the extension period to trace and screen household contacts of TB patients.	
Logistics	Stockout of anti-TB medicines occasionally occurred in DOTS facilities. This was attributed to delay in procurement at the national level and to distribution issues – from national to regional offices and then to provincial/city, and from province to municipalities.	The Project upgraded its TA on LGU policy development to include specific provisions on budget allocation for medicines and other items required in TB service delivery.	The Project recommends that DOH-NTP implement for NTP drugs the system used for family planning commodities, wherein third-party contractors deliver medicines up to the RHU/health center level.

V. MILESTONES, KEY TASKS, AND ACTIVITIES

Since the mid-1990s, the Philippines has consistently been among the top 10 high-TB burden countries in the world. While the country had achieved the Millennium Development Goal of reversing TB incidence, prevalence, and mortality by as much as 50% (compared with the 1990 baseline) three years earlier than the 2015 deadline, TB continued to plague the country as one of the top 10 common causes of illness and death among Filipinos.

With the Philippines being an early adopter of the recommended new Xpert MTB/RIF rapid diagnostic test in 2012, new opportunities and challenges emerged amidst persistent issues and concerns in the implementation of the National Tuberculosis Control Program (NTP). To help the country move beyond the Directly Observed Treatment, Short Course (DOTS) strategy of the mid-1990s, and pursue the then more comprehensive Stop TB strategy, IMPACT built on the gains of previous initiatives and collaborated with other TB stakeholders to reduce TB prevalence by 30%, and achieve 85% case detection rate for all forms of TB and 90% cure rate for new smear-positive cases in all participating sites by 2017 relative to the 2010/2012 baseline.

Informed by the findings and recommendations of the 2012 USAID Philippines External Evaluation of the TB Portfolio (2006–2011), the baseline information from the rapid situational analysis in USG sites, and the 2013 NTP Joint Program Review (JPR), the Project formulated its work plans framed on the objectives of the medium-term Philippine Plan of Action to Control Tuberculosis 2010–2016 and consistent with the eight PhilPACT strategies, as follows:

I. Localize implementation of TB control
    a. Maintain high political commitment at the national level, and implement strategies to scale up political commitment at sub-national levels, especially among municipalities
    b. Prioritize the completion and rollout of policies in progress, including efforts to renew TB as a notifiable disease
    c. Ensure an effective mechanism for coordinating the different TB projects in the USAID Philippines portfolio and their integrated monitoring and evaluation
II. Monitor health system performance
    a. Use case notification rate (CNR), especially at the provincial level (and below), to monitor performance in case detection
    b. Consider strengthening routine monitoring and supervision at all levels of the NTP, including validating the effectiveness of the system to provide DOT and for recording and reporting
    c. Operationalize data systems
III. Engage both public and private health care providers
    a. Strengthen the referral system in private health facilities
    b. Expand DOTS coverage to all public facilities, especially hospitals
    c. Scale up the engagement of private providers and NGOs, including strengthening the referral system in private health facilities
    d. Address human resource constraints
    e. Provide refresher training for existing PMDT facilities and expansions sites

IV. Promote and strengthen positive behavior of communities
    a. Adopt broader communication efforts, targeting the general public, to increase awareness of the availability and social acceptability of free public TB services
    b. Increase/Accelerate identification of suspects to be examined by smear microscopy
    c. Given that the DOH relies so much on *barangay* (village) health workers (BHWs) for expanding the scope and coverage of health programs, including TB, assess and monitor the quality of services that BHWs and community volunteers deliver

V. Address multidrug-resistant TB, TB/HIV, and the needs of vulnerable populations
    a. Continue supporting strategies that target vulnerable populations, particularly indigents and children
    b. Implement intensified case finding
    c. Address high default rate among drug-resistant TB patients

VI. Regulate and make available quality TB diagnostic tests and drugs
    a. Improve the coverage and quality of smear microscopy at the service delivery level
    b. Transition from the three-smear to the two-smear diagnostic algorithm
    c. Reduce provider-related diagnostic delay
    d. Continue providing management and technical assistance (TA) to help maintain and expand the laboratory network through support to the National TB Reference Laboratory and to engaging private laboratories, among others
    e. Expand access to treatment while maintaining the current level of cure rate
    f. Improve the drug supply management system

VII. Certify and accredit TB care providers
    a. Continue to fast track certification of DOTS facilities in order to accelerate PhilHealth accreditation
    b. Provide TA and support to ensure sufficient infection control in the increasing number of PMDT diagnostic and treatment centers

VIII. Secure adequate funding and improve allocation for TB care, and ensure efficiency of fund utilization
    a. Build financial management capacity at the LGU and regional levels to expedite distribution and utilization of funds
    b. Promote trust funds for TB reimbursements, and finalize guidance to ensure sharing of reimbursements to TB care providers

The following pages present IMPACT's accomplishments along the above-cited strategies and activities. These outputs are arrayed according to three major program challenges: (i) enhancing TB case finding to improve case notification rate, (ii) improving and sustaining treatment success rate, and (iii) ensuring an enabling environment for quality TB care. Two other sections discuss the Project's (iv) technical assistance to the Department of Health National Tuberculosis Control Program (DOH-NTP) at the national-level, and (v) other technical assistance that do not fit in the above categories. Recommendations and action lines that DOH-NTP, the new USAID TB projects, and other key TB players may want to pursue are written in blue font.

A. Enhancing TB Case Finding to Improve Case Notification Rate

IMPACT provided technical assistance to strengthen health systems *for improving case notification*, putting in place the service delivery structure, policy support, human resource capability, health information, financing, and governance instruments needed to raise CNR.

1. To strengthen case finding, IMPACT provided technical assistance in scaling up the availability and accessibility of quality TB services using three approaches

The Project adopted the following approaches to scale up the availability and accessibility of quality TB services: (i) bringing TB services to the *community*, (ii) engaging the *private sector*, and (iii) working with *other government agencies*. TB cases detected through these interventions were measured by the Project as "non-NTP contribution." Initially, the Project disaggregated this contribution into those from the private sector and from jails, the baseline for which was 2,872 cases in USG sites (2010 NTP quarterly report). Project interventions helped raise non-NTP contribution to a cumulative 199,833 TB cases in the five-year project life, exceeding the end-of-project target of 114,400.

a. The Project engaged the community *to find TB cases and provide DOTS services*

Easy access to services is basic and fundamental to moving clients to seek health care. The 2007 National Tuberculosis Prevalence Survey (NTPS) showed that those who did not seek consult despite having symptoms of TB were among the missing TB cases. Distance, time, and cost hindered access to TB services, which led to poor health-seeking behavior. To address this challenge, the Project implemented **strategies to bring services closer to the community**.

i. Remote smearing stations

The remote smearing station (RSS) involved training *barangay* (village) health workers (BHWS) as informal laboratory workers (ILWs) to serve as smearers in a barangay health station or any post in the community. This allows patients in geographically isolated and disadvantaged areas to be tested through direct sputum smear microscopy (DSSM). In five years, the Project trained a total of 755 ILWs and installed 211 RSSs. Some project areas had more than one ILW per RSS; hence, some ILWs were stationed as laboratory aide in RHUs. The Project documented at least 5,686 clients served in remote smearing stations; TB was diagnosed in at least 344 of them.

The Project assisted the National Tuberculosis Reference Laboratory (NTRL) in developing the draft policy guidelines on establishing and sustaining remote smearing stations. This draft DOH Administrative Order has been endorsed to the Department of Health National Tuberculosis Control Program (DOH-NTP), its approval and release still pending.

ii. Barangay malaria microscopy centers

Similar to the RSS approach, upgrading barangay malaria microscopy centers (BMMCs) as TB microscopy laboratories (TMLs) aimed to bring TB diagnosis to the community. Established by the malaria program, the Project upgraded five of these BMMCs to become model TMLs. This involved training five malaria microscopists from five barangays in three municipalities (San Mariano, Cauayan, and Ilagan) in **Isabela** province. Monitoring in December 2016 six months post-training showed that three of the four BMMCs

visited provided DSSM services for up to 10 presumptive TB cases in 6 months. The fourth BMMC was non-functional because its microscope was defective and had been pulled out for repair. This pilot shows that in areas where the established BMMC is functional, expanding its services to include TB microscopy is a viable option.

iii. Itinerant medical technologists

To improve access to microscopy services in access-poor areas with no medical technologists, IMPACT supported the engagement of itinerant medical technologists. This initiative helped leverage local government units' (LGUs) commitment to hire medical technologists as regular LGU personnel within one year. IMPACT has hired a total of 22 itinerant medical technologists for 17 municipalities, 5 provinces, and 1 city. Sixteen of these medtechs were included in the assessment conducted in Year 5. Ten (62%) of the 16 medtechs were hired by the LGU after the one-year contract with IMPACT: six permanent positions, two provincial contractual positions, one municipal contractual position, and one contractual position at the DOH Regional Office. Three other medical technologists were hired by their respective municipality in Year 3.

In the three years (2014–2016) since IMPACT hired them, the itinerant medtechs in 16 sites provided DSSM services to 10,269 presumptive TB cases, detecting 1,262 positive TB cases. They also conducted 2,878 follow-up sputum examination for TB cases.

Future TB projects may explore the option of hiring medical technologists to serve in areas without this critically needed human resource as a leverage for LGUs to subsequently hire them in the regular plantilla.

iv. TB Caravan

The TB Caravan is an active case-finding approach that targeted specific high-risk or vulnerable groups and brought both screening and diagnostic tests to the community. It applied both symptom and chest X-ray screening and used Xpert MTB/RIF testing as the primary diagnostic test. The Project developed various algorithms that addressed local needs and resources, and assisted the LGUs in planning and implementing them.

The groups among which IMPACT conducted screening activities included urban poor adults, prison inmates, household contacts both children and adults, malnourished children in school and in the community, the elderly in a congregate setting, and children in orphanages. Results of the screening activities are summarized in Table 3 according to the risk group screened, screening and diagnostic tests used (algorithm), the total number screened, absolute yield of TB cases, and number of individuals needed to screen (NNS) to detect one TB case.

Based on the results of these screening models, the Project recommends the following:

a) Chest X-ray should be used as a screening tool in addition to the symptom questionnaire.
b) Xpert MTB/RIF is the preferred diagnostic test. In addition to its greater sensitivity and detection of rifampicin resistance, it is especially beneficial for community-based screening where the testing capacity of a single Xpert operator is much higher than that of a microscopist.

c) Screening of household contacts, inmates, and persons living with HIV should be continued per existing policy. Screening among the urban poor is recommended.
d) Targeted screening of high-risk groups among indigenous peoples and in geographically isolated and disadvantaged areas should be included in regular RHU/health center (HC) plans to improve access to services.
e) Screening of malnourished children, specifically severely wasted children, is recommended to be integrated in *Operation Timbang Plus*, DOHs' annual weighing and height measurement campaign targeting all pre-schoolers, and the school-based feeding program of the Department of Education.
f) Screening of people residing in congregate settings may be considered if local assessment deems that such groups have limited access to TB services.

Table 3. Results of Screening Activities among Various Risk Groups, 2015–2017

Vulnerable Group (*Implementer/s*)	Screening Test	Diagnostic Test	Number Screened	Total TB Yield	NNS
Urban poor adults (*GF*, *IMPACT*)	Symptom and CxR	Xpert MTB/RIF	332	22	15
Inmates, Quezon City Jail (*ICRC*, *IMPACT*	Symptom and CxR	Xpert MTB/RIF		137	21
		DSSM		42	68
Child household contacts (*IMPACT*)	Symptom, CxR, and TST	3/5 clinical criteria	698	112	6
Adult household contacts (*IMPACT*)	Symptom and CxR	DSSM	472	11	43
Malnourished children in schools (*IMPACT*)	Symptom, CxR, TST	3/5 clinical criteria	247	5	50
Malnourished children in community (*IMPACT*)	Symptom and TST	3/5 clinical criteria	345	5	69
The elderly in congregate setting (*IMPACT*)	Symptom and CxR	DSSM	237	1	237
		CD		34	7
Children in orphanage (*IMPACT*)	Symptom and TST	3/5 clinical criteria	160	6	27

CD = clinically diagnosed; CxR = chest X-ray; DSSM = direct sputum smear microscopy; GF = Global Fund for TB; HH = household; ICRC = International Committee of the Red Cross; IMPACT = Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis; MTB/RIF = *Mycobacterium tuberculosis*/rifampicin; NNS = number needed to screen; TST = tuberculin skin test

During the extension year, IMPACT undertook screening among all patients consulting in health facilities (RHUs/HCs). This facility-based intensified case finding employed (i) a risk-screening tool, (ii) chest X-ray screening of those at risk of TB through private providers contracted by the Project, and (iii) DSSM or Xpert MTB/RIF test as diagnostic tools.

In all, 24,144 adults were screened using the symptom/risk questionnaire and/or chest X-ray. Due to change some changes in implementation procedures, there was a cluster of clients who went directly to chest X-ray screening (n=622) without the use of the screening form. Also, a group of those with

symptoms still underwent chest X-ray as secondary screening tool (n= 1,016). Table 4 summarizes these accomplishments according to the three groups of clients.

Table 4. Summary of Accomplishments of Intensified Case Finding in Health Facilities, USG Sites, April 2018

Items	No SS (CxR only)	With Symptoms	No Symptoms	TOTAL
Total number of patients	622	2,352	21,140	**24,144**
Number of chest X-ray done*	622	1,016	7,490	**9,128**
Number of presumptive TB screened	235	348	1,832	**2,415**
using chest X-ray	*(38%)*	*(34%)*	*(24%)*	***(26%)***
Patients with DSSM/Xpert	44	128	328	**500**
Patients with positive DSSM and/or	11	45	48	**104**
Xpert	*(25%)*	*(35%)*	*(15%)*	***(21%)***
Number of BCTB registered	9	38	39	**86**
Number of CDTB registered	2	39	83	**124**

BCTB = bacteriologically confirmed tuberculosis; CDTB = clinically diagnosed tuberculosis; CxR = chest X-ray; DSSM = direct sputum smear microscopy; SS = symptom screening; USG = United States Government
*This does not include an additional 3,757 chest X-rays that were done (29% of total CxRs), results of which were received beyond the implementation cut-off date, i.e., March 30, 2018. Hence, these were not encoded and not included in data analysis.

The Project concluded that:

a) screening all adult consults by symptom screening, and chest X-ray screening of those with TB risk factors will lead to increased identification of presumptive TB cases;
b) the risk factors that will give the highest TB yield and lowest cost per consult are being urban poor dwellers and being male;
c) the biggest gap in improving case finding through ICF in health facilities is the linkage between identified presumptive TB and diagnostic testing through DSSM or Xpert. Better access to an Xpert site (within the same LGU) improves testing rate for Xpert MTB/RIF;
d) use of Xpert MTB/RIF as primary test under current program indications (risk groups only) resulted in lower rate of bacteriological confirmation compared with DSSM. Based on the NTPS 2016, using Xpert MTB/RIF as primary diagnostic test can further increase the yield for bacteriologically confirmed tuberculosis; and
e) in resource-constrained settings, prioritizing risk groups and determining the required logistics may be done based on prevalence of risk conditions among adult consultations.

Based on the above, the Project recommended to DOH-NTP to focus CxR screening on specific risk groups instead of all risk groups or all consultations. The massive screening might overwhelm the health system and result in many individuals screened but few tested. The Project recommended the use of Xpert MTB/RIF test as the primary diagnostic tool, and improving access to these services to increase TB yield.

The collective ICF experience provided inputs to the draft DOH administrative order on systematic screening for tuberculosis that IMPACT endorsed to DOH-NTP. A new recommendation incorporated in the proposed policy was the use of chest X-ray as the more sensitive tool than symptom screening only,

especially among high-risk groups. The Project also developed the operational guidelines for TB Caravan in communities and for TB mass screening in jails. Both are now being used by the PBS-Global Fund for TB project in active case finding among inmates and other at-risk populations.

b. The Project expanded private sector *involvement in finding TB cases and providing DOTS services*

One of the Project's approaches to finding TB cases is the engagement of the private sector. The 2007 National Tuberculosis Prevalence Survey found that a significant proportion of presumptive TB cases either self-medicated or consulted a private physician or private hospital. If private physicians diagnosed TB among TB presumptives, the patients were not notified to NTP. Given this, the Project expanded the engagement of the private sector in DOTS.

Private sector engagement involved (i) private hospitals, (ii) pharmacies and drugstores, (iii) workplaces, and (iv) stand-alone practitioners (SAPs). The objective of this strategy was to capture the portion of clients consulting with the private sector. In addition, the Project engaged private technical assistance providers to work with communities, and this is discussed under community engagement in this report.

i. Hospitals

Despite patients' preference to consult with private facilities, only 7% of the private hospitals surveyed in Metro Manila in 2005 provided DOTS services, 8% referred TB clients, and 10% reported their TB patients (PTSI, 2005). Through a sub grantee, the Philippine Tuberculosis Society, Inc. (PTSI), the Project assisted local governments in implementing the DOH guidelines on hospital DOTS by engaging private hospitals.

Initially, a technical working group that included IMPACT and PTSI reviewed and revised the DOH guidelines on hospital DOTS. The revised set of guidelines was subsequently signed as DOH Administrative Order (AO) 2015-0029. This AO became the basis for engaging PTSI, which worked with PhilCAT (the GF sub grantee for hospital engagement) in developing interim training modules for both DOTS-referring and DOTS-providing hospitals. Technical assistance to these hospitals included advocacy, capacity building, coordination and linkage with LGUs, and monitoring. By end of Year 5, this TA package has helped raise to 88% (374 of 427) the proportion of DOTS-referring or providing hospitals in USG sites, up from the 29% (80 of 279) baseline in 2012. PTSI engaged 282 of these hospitals, which led to DSSM testing of 52,954 patients, and treatment initiation among 18,303 patients.

To sustain participation of engaged private hospitals and motivate those that were not yet engaged to participate, the Project collaborated with DOH-NTP and Health Facilities and Services Regulatory Bureau to facilitate the inclusion of two NTP standards in the hospital licensing checklist. These standards required (i) a list of diagnosed TB cases in the hospital and (ii) the presence of a hospital TB referral logbook. The new policy in hospital licensing took effect in 2017.

ii. Pharmacies

Recognizing that a significant number of presumptive TB cases self-medicate with pharmacists as the first point of contact for this group, the Project applied the pharmacy DOTS approach through a sub grantee, the Philippine Pharmacists Association (PPhA). Pharmacists, pharmacy assistants, and pharmacy owners were trained to share TB information with their customers and refer those with TB symptoms to the nearest DOTS facility. The target was to saturate at least 60% of pharmacies in selected

areas. A total of 4,426 pharmacies were oriented on and engaged in pharmacy DOTS. This accounted for 62% of the total number of mapped pharmacies. More than half of the engaged pharmacies, or 54% (2,377), referred a total of 42,118 presumptive TB cases to DOTS facilities.

To determine whether referrals made by engaged pharmacies successfully accessed TB services in a DOTS facility, IMPACT conducted an independent referral tracking in five selected sites, namely **Tarlac**, **Rizal**, **Mandaluyong**, **Cebu**, and **Bukidnon** provinces. Tracking showed that only 14% (159 of 1,125) of pharmacy referrals was documented to have visited a DOTS facility. TB was diagnosed in 37% (59 of 159) of the successful referrals, who thereafter were treated for tuberculosis. Tracking of pharmacy referrals remains a major challenge as the feedback between RHUs and pharmacies had not been effective in many sites owing to the volume of referred patients and the small staff complement of the RHUs.

At the policy level, PPhA assisted in revising the Pharmacy Law. The law's provisions pertinent to TB include the restriction of antibiotics sale to a specific category of pharmacy, and the use of a referral logbook for clients, whether presumptive or diagnosed TB cases, referred to another health care provider.

Meanwhile, the action taken by the Food and Drug Administration (FDA) and Technical Education and Skills Development Authority (TESDA) guarantees the sustained conduct of the pharmacy DOTS training. FDA now requires a standard training for pharmacy assistants certified by TESDA that includes TB and the Pharmacy DOTS Initiative in the standard training modules.

In light of the Pharmacy Law, the Project is recommending that compliance with the regulatory measures mentioned above and effective interventions for tracking referrals be the focus of technical assistance in future engagement of pharmacies.

iii. Workplaces

Private companies and workplaces present a potential source of private-sector contribution to case notification. In support of the Department of Labor and Employment's (DOLE) requirement for private companies to put in place a policy on TB in the workplace, IMPACT conducted briefing sessions for 190 companies and program management training for 186 workplaces. Of the 186 companies, 50 (27%) conducted TB educators' training and 73 (39%) drafted their TB policies. Of the companies monitored, a total of 416 presumptive TB had been referred; however, data on subsequent diagnostic testing and final diagnosis was unavailable. In Year 3, monitoring among 57 companies that had been provided program management training showed they had 169 documented diagnosed TB patients who successfully initiated treatment at a DOTS facility.

As a sustainability measure, IMPACT proposed to DOLE in 2015 to revise the TB in the workplace policy issued in 2005 to reflect the changes in the revised NTP Manual of Procedures and incorporate capacity building for TB in workplaces. However, the new DOLE leadership decided to just develop an information brochure to reflect changes in the program. The Project partnered with Occupational Safety and Health Center of DOLE in crafting the contents of the brochure, which was developed, reproduced, and distributed by DOLE among workplaces in 2016.

To strengthen the TB program in workplaces, the Project recommends the following: (i) prioritize TA for companies with increased risk of TB transmission (e.g., those with cramped working and living space) instead of applying a blanket approach, (ii) improve access to TB case-holding services through the

company clinic or company nurse, (iii) ensure all presumptive TB cases identified through annual employment chest X-ray are referred to a DOTS facility for diagnosis and appropriate treatment, and (iv) initiate the modeling of a private company-led engagement to determine its viability.

Box 1

LGU support makes for strong TB control in the workplace

Calamba City (2017 population: 448,782) is one of the local government units (LGUs) that have successfully implemented the TB program in the workplace. From 2014 to 2016, there was a 2% significant difference in the TB case-finding performance of Calamba, with the contribution of the workplace included.

A first-class city in **Laguna** province, the LGU built on the gains achieved with IMPACT assistance and expanded TB program implementation in other companies with the support of the Department of Health Regional Office 4A. The city government of Calamba, through the Project's technical support, crafted and implemented an ordinance requiring private companies to attend the TB orientation conducted by the City Health Office (CHO) as part of renewing business permits.

From 2013 to 2017, the LGU partnered with 94 workplaces. Participating companies put in place policies that required employees with TB symptoms to report to the company clinic. The company clinic then referred the employee to the CHO. When TB was confirmed in an employee, the CHO informed the company nurse of the diagnosis and requested him/her to pick up the anti-TB drugs allocated for the patient. Engaged companies' implementation of their TB policy was monitored by the City Health Office.

Calamba's TB program in the workplace also owed its success to the application of the patient-centered approach to managing TB patients. Workplaces allowed confirmed TB patients to undergo treatment at the company clinic with the nurses as treatment partners. Prior to providing the anti-TB drugs, all treatment partners were oriented on their roles and responsibilities. The adoption of the patient-centered approach not only reduced the patient load of the CHO; it also ensured adherence to the sputum follow-up schedule and patients' treatment compliance. Conflicting work and clinic schedule and patients' out-of-pocket expense for travel were also addressed.

iv. Stand-alone practice model

IMPACT had noted the limited participation of physicians in the TB program even within DOTS-engaged hospitals. Not all private physicians practicing in a hospital and not every one of their patients were willing to refer or be referred, respectively, to a DOTS facility. Nearly a third of patients opted for private treatment rather than referral to a DOTS facility. The Project also recognized that many practicing

physicians were not affiliated with a private hospital. To address this, IMPACT implemented the stand-alone practice (SAP) model.

The SAP model implemented by sub grantee PTSI aimed to notify cases privately treated by hospital-based physicians. PTSI developed simplified recording forms and advocated with DOTS-providing hospitals or public DOTS facilities to register TB patients even if they were prescribed anti-TB medicines by the attending private physician.

During the 6-month implementation of SAP in seven provinces and eight highly urbanized cities, 35 physicians agreed to participate based on a set of inclusion criteria and following a convenience sampling method. Majority of the doctors were specialists in pulmonology, pediatrics, or infectious diseases. A total of 354 cases representing only half of the total number of TB patients diagnosed by 27 (77%) of the formally engaged physicians were reported under the SAP model. The low participation and reporting rates were traced back to the recording form that physicians found tedious to accomplish despite its being simpler than the actual NTP record. As a result, data on treatment outcome was limited, which prevented analysis of case holding among stand-alone physicians.

The SAP pilot test indicated that a notification system other than routine registration in NTP records will likely increase TB case notification. This finding is consistent with the experience with the pilot on mandatory TB notification implemented during the extension period, which is described below. The form may be used by both hospital- and community-based physicians who do not refer their TB patient to DOTS facilities.

v. Stand-alone physicians linked to rapid TB diagnostic laboratories

The 2016 NTPS indicated that less than a fifth (19%) of 2,815 interviewees with TB symptoms consulted a health worker. Of those who consulted, 67% went to the public health sector; the rest (33%) may have consulted private physicians.

During the Project extension, IMPACT engaged both hospital-based and stand-alone private physicians to provide them the opportunity to refer presumptive TB cases for free Xpert MTB/RIF testing, and at the same time pilot test the mandatory TB notification system. TB notification stipulated in the Comprehensive Tuberculosis Elimination Plan Act (Republic Act 10767) is expected to bolster TB case finding in both public and private sectors.

Of the 816 private physicians who were mapped in three project sites (viz., Pampanga, Cavite, and Las Piñas), a third (33%) or 273 were oriented on new TB diagnostic tests and TB case notification. Majority (72%) or 197 of those who completed the orientation signified their willingness to notify TB cases.

Project-hired project associates, also called “medical representatives” (medreps), linked identified private physicians to rapid TB diagnostic laboratories (RTDLs) and health facilities. These medreps regularly reminded the physicians to refer presumptive TB cases for free Xpert MTB/RIF testing. They also documented the number of presumptive TB cases, of diagnosed TB/drug-resistant (DR) TB cases, and of enrolled cases coming from private physicians.

Referrals to Xpert facilities was expedited through a referral flow that all key players – DOH RO, PHOs/HUC, RTDLs – agreed on. This allowed private physicians to refer presumptive TB cases directly to an RTDL for Xpert MTB/RIF testing without passing through a rural health unit (RHU) or health center

(HC) as traditionally practiced. Test results were released to the referring physicians three ways: (i) through the patient concerned, (ii) via SMS or text message from the RTDL or STC staff, or (iii) through the medrep who delivered them from the RTDL to the doctor's clinic.

Results. In all, 44 (16%) of 273 private physicians oriented on new TB diagnostics, referral, and mandatory notification referred 113 presumptive TB cases for Xpert MTB/RIF testing (Table 5). Of those referred, less than half (43%), or 49 patients, were successfully tested. Some patients claimed they got lost in the facility where the RTDL was located while others were overwhelmed by the number of patients in the facility, and thus decided not to proceed with the test.

TB was bacteriologically diagnosed in 11 (23%) patients that included 8 rifampicin-susceptible and 3 rifampicin-resistant cases. Meanwhile, a referring physician clinically diagnosed TB in one patient despite a negative Xpert MTB/RIF test. Monitoring showed that all six TB patients from Cavite and four (66%) of the six TB cases in Las Piñas had initiated treatment. Eight (66%) of the 12 diagnosed TB cases were notified to NTP by their physicians, 10 of whom initiated treatment.

Table 5. Tuberculosis Cases Diagnosed in 3 USG Sites and Notified, April 2018

Project Sites	No. of Private MDs Who Referred	No. of Presumptive TB Cases Referred	No. of Presumptive Cases TB Tested by Xpert MTB/RIF	No. of TB Cases Diagnosed	No. of TB Patients Initiated on Treatment	No. of TB Cases Notified
Cavite	13	18	6	6[a]	6	5
Las Piñas	18	39	28	6[b]	4[c]	3
Pampanga	13	56	15	NA	NA	NA
TOTAL	**44**	**113**	**49**	**12**	**10**	**8**

MD = medical doctor; MTB/RIF = *Mycobacterium tuberculosis*/rifampicin; NA = not available; NTP = National Tuberculosis Control Program; TB = tuberculosis; USG = United States Government

[a] 6 = 4 rifampicin (RIF) susceptible, 1 RIF resistant, 1 clinically diagnosed

[b] 6 = 4 RIF susceptible, 2 RIF resistant

[c] 4 = 2 RIF susceptible, 2 RIF resistant

Pilot Test of Mandatory TB Case Notification. In support of DOH-NTP, IMPACT developed a testing protocol for TB reporting based on the draft DOH Administrative Order on policies and guidelines on mandatory TB notification. The protocol was presented to and approved by DOH-NTP. This protocol was used in the pilot test of mandatory TB notification.

Together with NTP and in consultation with other stakeholders, the Project developed a TB case notification form used in the pilot test. Based on this form, the Project, collaborated with DOH Knowledge Management and Information Technology Service (KMITS) in designing a Web-based application for TB case notification for private physicians who preferred to notify TB cases electronically. Private physicians who agreed to participate were registered and provided individual login username and password.

By the end of the pilot, only 15 (7%) of 197 private physicians who signed up to participate in TB notification reported 20 (86%) of 23 TB cases diagnosed between January and March 2018. It can be surmised that some physicians who agreed to notify have not yet reported their TB cases at the time of data collection. The experience underscored the need for TB notification officers to regularly and continuously follow up on private physicians to remind them to notify TB cases.

Challenges. While majority (197 of 273), or 72%, of private physicians were receptive to notifying TB cases, engaging them was a challenge. Mapping and advocacy activities entailed substantial investments in effort and resources. Assembling private physicians for group advocacy meetings was quite difficult owing to their varying individual availability. One-on-one meetings through clinic visits took time and effort.

The registration procedure for private physicians willing to participate was a long drawn-out process. DOH-KMITS needed two to four weeks to provide individual login username and password to participating physicians. Private physicians engaged in group clinic practice requested that a single login username and password for the group be allowed as this was more convenient and practical for them. Additionally, private physicians in Las Piñas working in franchise multispecialty clinics articulated the need to seek, from their main or mother clinic, approval to participate since their patients will be recorded in the franchise clinic's registry. Lastly, private physicians from Pampanga who signified their participation through paper-based reporting required that the hard copy of the TB notification reports be picked up at their clinics.

Recommendations. Given that DOH-NTP will implement mandatory TB notification across Regions 3 and 4A and NCR with the assistance of PBSP-Global Fund for TB project, IMPACT recommends the following:

a) involve relevant medical societies and specialty groups at the national level to advocate for compliance of their members and chapters/sub-groups with mandatory TB case notification;
b) acknowledge or give recognition to private physicians participating in the DOTS referral network;
c) make online registration available and accessible to private physicians and develop a user-friendly mobile application (Android and IOS) for TB notification;
d) ensure easy access to and reliability of electronic or web-based mandatory TB notification at all times, and the availability of an offline TB notification system;
e) provide innovative incentives (e.g., access to free Xpert MTB/RIF testing) to private physicians for compliance with mandatory TB notification;
f) develop capability-building modules and advocacy materials on mandatory TB notification and train regional, provincial, and city trainers/NTP staff/TB notification officers;
g) designate TB notification officers and clearly define their roles at all levels; and
h) LGUs should put in place a mechanism for collecting the hard copy of TB case notification forms.

c. *The Project worked with* other government agencies *to find TB cases among and provide DOTS services to identified vulnerable groups*

i. Bureau of Jail Management and Penology

Jails and prisons are high-prevalence settings for tuberculosis. The 2009 PTSI-PCHRD prevalence survey in selected jails in the country showed that TB was four times more prevalent among inmates than in

the general population. In the same year, DOH, the Bureau of Jail Management and Penology (BJMP), and the Bureau of Corrections (BuCor) issued their respective guidelines for TB control in jails and prisons. The Project assisted detention authorities of BJMP and BuCor in expanding their capability to implement these policies through a training on the NTP Manual of Procedures (MOP) for jails and prisons. With project TA, the proportion of jails with trained health staff implementing TB-DOTS rose to 93% (200 of 215) in 2017, up from the 23% (46 of 196) baseline in 2012.

With IMPACT support, DOH, BJMP, and BuCor updated their policies in 2015 consistent with the revised NTP MOP. Corresponding interim training modules were likewise developed. To enhance post-training performance by the jail health staff, it was deemed important to capacitate the BJMP regional health staff on monitoring and mentoring. A training on monitoring, supervision, and evaluation for BJMP regional coordinators and prison medical TB teams was thus developed and conducted in collaboration with the International Committee of the Red Cross (ICRC). Among jails and prisons monitored (n=100), the Project noted that 4,286 presumptive TB were identified and 582 TB patients were detected on implementation of entry screening, cough surveillance, and exit screening.

In addition to routine case finding in jails, the Project introduced active case finding through TB mass screening (TBMS). In collaboration with BJMP, ICRC, and the local government of **Quezon City**, 2,995 inmates and personnel in Quezon City Jail were screened for TB. Of 261 TB cases, 80 (31%) were DRTB. TB treatment was provided to 240 patients while the remaining 21 cases were endorsed to Quezon City Health Department for treatment at the local health centers. Results were convincing enough that guidelines for TB mass screening in jails were sought by DOH-NTP and the initiative was replicated in other jails and prisons. PBSP-Global Fund for TB project subsequently included TBMS in jails as part of the activities that they support. The Project directly assisted 16 jails and prisons in conducting TBMS, which screened 16,181 inmates among whom 442 TB patients initiated treatment.

ii. Department of Education

School-based screening, together with community-based TB caravans, were the main interventions to improve TB case finding among children. From a 2012 baseline of 7,439 children treated for TB in USG sites, project TA gradually raised this number to 10,000–24,000 per year from 2013 to 2017, with a final cumulative accomplishment of 96,052, exceeding the EOP target of 86,000.

TB Screening among Schoolchildren. Children are considered vulnerable to TB. However, due to the sheer number of school-aged children as well as the uncertainty of their compliance with bacteriological testing, it was not practical to venture into a massive school-based screening program. This was reinforced by the 2013 NTP Joint Program Review, which discouraged such screening. What the Project did instead was to pilot a screening program for undernourished schoolchildren in General Trias in **Cavite** and Barugo in **Leyte**. Results showed TB yields comparable with that for contact screening (i.e., around 2% of those screened were diagnosed as TB). However, almost all these cases were clinically diagnosed due to children's inability to submit sputum for testing. In spite of this, the respective DepEd division offices replicated the initiative in other schools with the assistance of DOH regional offices to ensure that these vulnerable children had access to TB diagnosis.

Thus far, DOH is not keen on adopting screening of school-aged malnourished children as part of the National TB Control Program owing to the limited yield of bacteriologically confirmed cases in the Project's screening initiatives. For now, it remains a local DepEd initiative that future TA providers should review to update IMPACT's recommendations.

Box 2

USAID supports tuberculosis screening among malnourished children

Posted to Philippines Health Highlights World TB Day Special Part 2, USAID Philippines Office of Health, March 31, 2017

Aurora Lorena Prado could not figure out why her 9-year old son, Anand, was underweight. "When Anand remained undersized despite regularly eating nutritious meals from the school's feeding program, I got worried," Aurora shared. It was a good thing she decided to have her son tested for tuberculosis (TB) at her son's school, Barugo II Central Elementary School in **Leyte** province. That was when she found out Anand had TB.

Like many public elementary schools, the Barugo II Central Elementary School implemented the Department of Education's feeding program, but with a twist. Severely underweight students were identified and enrolled in feeding activities and were screened for TB using a screening model developed by USAID through the Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis (IMPACT) Project. After receiving an orientation on TB by the Municipal Health Office physician and nurse, the teachers screened the school's 18 undernourished students using the TB screening model's assessment questionnaire. The exercise identified five children (28%) with symptoms of TB. All of them subsequently tested positive for TB and were enrolled in treatment. Anand was one of them.

TB among children is particularly difficult to diagnose due to difficulty identifying symptoms and accessing quality diagnostic facilities. In the Philippines, it is estimated that 31,000 children develop TB each year. Malnutrition puts people at higher risk for TB; underweight individuals are shown to have 3.5 times higher risk of TB than those with normal weight. Moreover, malnutrition can itself be a manifestation of TB.

The local office of the Department of Education, Municipal Health Office, and USAID's IMPACT Project expanded the intensive TB case-finding program among malnourished children the following school year in seven schools in **Leyte** province and in two schools in **Cavite** province. A total of 827 malnourished school children were screened, 112 (13%) of whom tested positive for TB and were enrolled in treatment.

The USAID-developed TB screening model does not require the use of a chest X-ray, a test that is not always available in resource-scarce towns and which many patients often cannot afford. Instead, TB diagnosis relies on taking the student's history of exposure to TB, assessing for symptoms, and administering a tuberculin skin test that is provided free of charge by the rural health unit. By integrating programs to address malnutrition and TB, USAID is helping more children to get screened, diagnosed, and treated for TB.

Today, Anand is in Grade 4 and is free of TB. He has gained weight, his attendance in school has improved, and so has his participation in class. For that Aurora profusely thanks all those who made it

Integrating TB in the Elementary School Curriculum. The education and health sectors in Gingoog City, **Misamis Oriental**, effectively harnessed their commitment, creativity, and energy to support TB control. In orientations led by the Department of Education City Division and the City Health Office (CHO), and with technical inputs from IMPACT, 153 Grades 3–8 teachers and school supervisors walked through the basics of TB control. They identified TB topics and messages they will integrate in science, music, art, physical education, and health (MAPEH) to ensure complementary and comprehensive coverage of TB in their lesson plans. Lastly, they enhanced their lesson plans with the TB messages. Games, contests, role playing, and video showing were among the means the teachers used to explain TB and the simple steps the students can take (e.g., covering the mouth when coughing and sneezing) to prevent its spread. The CHO planned to set up a referral mechanism with DepEd, and monitor the effect of TB teaching on

Box 3

Schoolchildren raise tuberculosis awareness among their peers

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Schoolchildren equipped with correct information on tuberculosis (TB) can become effective TB control advocates, as Gingoog City Health Office (CHO) in **Misamis Oriental** province has found. In partnership with the City Division of the Department of Education and using USAID-developed TB information materials, the CHO briefed about 50 top pupils in Grades 5 to 8 from both public and private schools on the cause of TB, mode of transmission, prevention, and cure. The orientation corrected long-held misconceptions on TB, for example, that it is hereditary, and that the spoon and fork used by a TB patient can transmit TB bacteria and should therefore be separated from those of other household members. The orientation stressed that TB is curable. Trust in the schoolchildren, called "Kiddie TB Patrollers," appeared to be high not only among their peers but older students as well. A college student with TB symptoms who was briefed on TB and advised by one Kiddie TB Patroller to consult with the CHO underwent treatment and completed the regimen.

The Kiddie TB Patrollers ran their TB information campaign through (i) room-to-room sessions, where patrollers conducted 30-minute talks on TB for each class; (ii) extracurricular, such as walk-for-a-cause, quiz bee, jingle composing, slogan making, editorial cartooning, and essay writing contests; (iii) use of social and local mass media, such as the TB Kiddie Patrollers Facebook page; (iv) sharing TB information with family members; and (v) house-to-house visits where they interviewed and talked to neighbors and other residents in their barangays about TB.

In all, 200 pupils from 10 public and private schools in the city had been trained as Kiddie TB Patrollers from 2014 to 2017. During the same period, they successfully referred 140 presumptive TB cases to the CHO. TB was diagnosed in 65 of these individuals, all of whom initiated treatment. Of this number, 26 patients were cured while 34 completed treatments.

This good practice, once scaled up, will help improve TB case finding and bring people to proper treatment and care.

referral of pupils and their relatives with TB symptoms.

DOH-RO 10 has forwarded the TB module to DOH Disease Prevention and Control Bureau, which favorably endorsed the use of the material. As a follow-on, the Project recommends that the initiative be reviewed to see how it can be strengthened and scaled up.

iii. Department of Social Welfare and Development

In the second year of the Project, IMPACT assisted the Department of Social Welfare and Development (DSWD) in implementing a DOH-funded TB control project in a residential home for the elderly. The Project supported Haven for the Elderly in Tanay, **Rizal**, in planning and conducting systematic screening (or TB caravan) of the elderly residents, training the health staff, and coordinating with stakeholders, mainly LGUs.

Project assistance not only led to the detection of TB in 31 patients who initiated treatment. It also resulted in a DOH–DSWD agreement to issue a joint policy on TB control in congregate settings. The Project drafted the policy in consultation with both agencies. Project experience in conducting systematic screening in an orphanage (children in congregate settings) in Makati as well as observations made in another DSWD center – the Elsie Gaches Village – provided additional inputs to this policy product. IMPACT has endorsed the draft policy to DOH-NTP, which as of this writing was awaiting approval of both DOH and DSWD.

2. The Project developed referral systems to ensure TB cases were successfully referred and attended to

a. Service delivery network (SDN) with the multisectoral alliance as lead orchestrator

As multiple partners for both service delivery and policy support were engaged, the Project saw the need for a coordinating body and guidelines to facilitate the smooth referral of clients between and among different providers. To this end, the Project provided assistance in installing a formal local DOTS network with the following elements: (i) a network of health providers from the community as well as the public and private sectors, (ii) a multisectoral alliance as coordinating body, (iii) a policy issuance or formal agreement among partners, (iv) documented procedures and protocols, and (v) a clear monitoring and evaluation system. The Project assisted eight provinces/cities (**Pangasinan**, **Bulacan**, **Nueva Ecija**, **Pampanga**, **Batangas**, **Cavite**, **Makati City**, and **Quezon City**) in installing all these components except for the formal policy issuance (this remained a draft in all sites except in Batangas). Guidelines for establishing and sustaining local DOTS network were drafted and endorsed to DOH-NTP, which planned to issue the guidelines as a department memorandum.

The Project recommends tapping the multisectoral alliance (MSA) as the coordinating body for the SDN. This is consistent with the provisions of the draft guidelines for establishing and sustaining local DOTS network, and was incorporated in the draft policy of the eight project sites mentioned above.

b. PMDT case-finding and referral system

The rapid situational analysis conducted by IMPACT in the first two quarters of Year 1 showed that programmatic management of drug-resistant tuberculosis (PMDT) was predominantly centralized (nationally, TC/STC-driven) and donor driven. The treatment centers/satellite treatment centers (TCs/STCs) had their own advocacy activities to increase drug-resistant (DR) TB case finding. Moreover, DRTB case holding remained the sole responsibility of TC/STC staff.

With their many complex roles, TCs/STCs found it difficult to follow up on patients beyond their catchment areas, resulting in more patients lost to follow-up. The Project thus focused on increasing the involvement of rural health units, and provincial as well as city health offices (PHOs/CHOs) in finding missing DRTB cases and managing them. Specifically, IMPACT conducted workshops in 32 project sites outside NCR to improve the referral system and address the following gaps: (i) absence of protocol and guidelines in referring cases from peripheral DOTS units to PMDT facilities; (ii) limited roles of PHOs and CHOs in PMDT implementation; (iii) lack of awareness that all retreatment cases should be referred for DRTB screening; (iv) inaccessibility of PMDT treatment and laboratory facilities; (v) lack of efficient feedback mechanisms between TCs/STCs and RHUs; (vi) lack of integrated recording, reporting, and monitoring system for DSTB and DRTB implementation; and (vii) the RHUs' perception that their role in PMDT implementation was limited to giving drugs through directly observed treatment (DOT).

The technical assistance improved the referral system and helped increased the number of referrals and diagnosed DSTB and DRTB cases from the RHUs. More specifically, (i) NTP forms and attachment of laboratory (DSSM, chest X-ray) results were correctly accomplished, (ii) LGUs assisted in transporting sputum specimens to rapid TB diagnostic laboratories (RTDLs) and patients from the RHU to PMDT facilities, (iii) LGUs facilitated distribution of second-line drugs to RHUs where patients were decentralized, (iv) RHU staff were trained and retrained to enable them to manage DRTB patients, (v) financial support to the TB program was provided for in local ordinances, and (vi) PHOs and CHOs began to monitor PMDT and RHU facilities that provided integrated DOTS (iDOTS) services.

Integrated DOTS (iDOTS). This strategy integrates in health facilities the policies and procedures of PMDT and basic DOTS. It adopts the WHO recommendation to institute patient-centered care in TB management.

iDOTS implementation was pioneered by health centers in the National Capital Region. However, they applied varying implementation approaches. Thus in 2014, IMPACT together with DOH-National Capital Regional Office (NCRO) consulted with DOH-NTP, LGUs, and other partners toward standardizing the guidelines for iDOTS implementation. The outputs of the workshops mentioned above provided IMPACT the evidence for enhancing the general guidelines for iDOTS implementation originally crafted by NTP and TASC. The iDOTS guidelines for NCR, developed with IMPACT support, served as a generic template for all the regions in the country.

The iDOTS strategy was institutionalized in DOH Regional Office 6 and DOH NCRO through a memorandum they issued on September 3, 2015 and July 17, 2016 respectively.

iDOTS assessment. To determine the impact of implementing iDOTS, the Project assessed the initiative in Iloilo Province and Iloilo City. The assessment indicated that DRTB case finding increased from 2 in 2015 to 19 in 2017 in 12 iDOTS facilities, but TSR for those managed in iDOTS in 2015 (0%) and 2016 (66%) was lower than that for those managed in STCs/TCs at 64% and 68%, respectively.

The assessment found that iDOTS implementation was hindered by (i) policy gaps (e.g., infection control, public hospitals as PMDT service provider); (ii) weak supervision and monitoring – by regional and provincial health offices – of RHU compliance with prescribed guidelines and protocols; (iii) poor compliance of RHUs with prescribed guidelines and protocols like use of presumptive TB master list and progress report on ADRs; (iii) limited budgetary support from LGUs for laboratory testing, transportation and allowances for health staff during duty travel and advocacy and orientation activities; (iv) incongruent workload and availability of trained and willing workforce; (v) untrained or insufficiently trained midwives, barangay health workers, and treatment partners; (vi) resistance or low motivation of health workers to attend to DRTB patients; (vii) iDOTS staffs' lack of access to DRTB data on ITIS; (viii) poor recording and reporting as evidenced by incompletely filled treatment cards and other PMDT records; and (x) limited skills of RHU staff in data analysis and utilization.

While the iDOTS strategy is conceptually sound, a national scale-up is not feasible at this time. The strategy is best applied in areas where the TB burden is high, the key players (DOH-RO, PHO, provincial and district hospitals, LGUs) are highly involved and well informed, and dedicated staffs are available to run it.

The identified hindering factors point to the need for phased implementation of iDOTS. This will allow implementers to focus on putting in place support systems at the regional, provincial, and local government levels. These include (i) making available and applying a readiness assessment tool to determine facilities' preparedness to provide iDOTS services; (ii) trained service providers (e.g., on determining when to refer a patient to a physician); (iii) logistical support (e.g., availability of sputum transport, RTDLs, laboratories for blood chemistry, X-ray facilities, drug and supply management); (iv) routine monitoring, supervision of, and mentoring service providers on clinical management and program implementation; (v) developing a monitoring and mentoring plan for PMDT implementation at the RHU level; and (vi) fast tracking the development of a PhilHealth benefit package for MDRTB. In the meantime, RHUs should continue providing MDRTB diagnosis and treatment until they have shown their capacity to manage drug-resistant TB patients.

The Project recommends the continued use of Xpert MTB/RIF as the primary diagnostic tool for MDRTB. Instead of using various names like PMDT, iDOTS, and ComPCare that sows confusion, only one label should be used to identify DRTB services. The new USAID TB projects should closely examine PMDT implementation through the iDOTS strategy and determine how this can be improved.

Recommendations on improving policy support; expanding the service delivery network; and addressing financing, health workforce, and information management are detailed in the iDOTS assessment report.

GxAlert. GxAlert is an internet database application system that works as a laboratory information system capable of sending real time notifications (through SMS and email), generating real time reports, and monitoring overall utilization and performance status of each Xpert MTB/RIF machine, including inventory and calibration schedules. IMPACT and PBSP-Global Fund for TB project supported this initiative and commissioned SystemOne to install the system and train its users. In April 2017, SystemOne trained local counterparts (IMPACT, KMITS, NTRL, NTP, DOH-RO 4A, and Laguna PHO) in installing and monitoring the GxAlert system in the country. The local team cascaded the training to DOH-ROs 3 and 4A and thereafter to the PHOs. GxAlert was installed in 40 RTDLs in the provinces of **Bulacan**, **Nueva Ecija**, **Pampanga**, **Tarlac** and all five provinces in Region 4A (**Batangas**, **Cavite**, **Laguna**, **Quezon**, **Rizal**).

DOH Knowledge Management and Information Technology Service (KMITS) facilitated the linkage of the GxAlert system to ITIS by using the DOH server as host. As part of the goal to unload the RTDL and PMDT treatment facility staff of encoding the same demographic data, IMPACT assisted DOH in linking and matching the data from GxAlert to ITIS. A total of 2,600 cases with Xpert results have been matched and linked to ITIS data.

The pilot test showed the potential of GxAlert as a laboratory information system. However, given its subscription cost (about $65,000 per year for 40 GxAlert machines), DOH-NTP would like to explore alternative systems that will give the same results at a more sustainable cost.

The Project recommends that DOH-NTP continue using the GxAlert system with minimal assistance from SystemOne and implement it in phases. The Project also recommends that DOH-NTP (i) include Xpert supplies management in the revision of the NTP MOP laboratory module to avoid redundant steps in laboratory supplies management; (ii) integrate in the GxAlert system a facility for notifying referring physicians – through SMS – on the test result; and (iii) ensure that DOH-NTP has sole access to Philippine NTP data. Upgrading GxAlert to include SMS notification will require additional costs for the services of a programmer and SMS.

3. The Project expanded TB case finding by mobilizing partners at the community level and in the public and private sectors

The activities described below helped establish 475 LGU–CBO (community-based organizations) partnerships by end of the second quarter of Year 5. This led to IMPACT's achieving 99% (475 of 478) of the end-of-project target for the indicator *Percentage of municipalities and cities with organized barangay-level community-based organizations participating in TB control and are linked with TB-DOTS facilities.*

The aggregate effects of community mobilization led CBOs, community health teams (CHTs), and BHWs to contribute 14% of notified cases in USG sites by end of Year 5. This is 4 percentage points higher than the 10% PhilPACT target for community contribution to case notification.

a. Engaging community-based partners using three modalities

Under the Philippine Plan of Action to Control Tuberculosis (PhilPACT 2010–2016) Strategy 4 – Promote and strengthen positive behavior of communities – a key performance target was *Number of barangays that have community-based organizations (CBOs) participating in TB control that are linked with DOTS facilities increased by 50%.* IMPACT directly supported efforts to reach this target and adopted the indicator *Percentage of municipalities and cities with organized barangay-level CBOs participating in TB control and are linked with TB-DOTS facilities.* To attain the target for this indicator, IMPACT pursued three modalities for engaging community- and faith-based organizations (CBOs/FBOs) and linked them with LGUs as partners in implementing TB control activities.

The three modalities were as follows: (i) partnership with the national network of the Catholic Bishops' Conference of the Philippines – Episcopal Commission on Health Care (CBCP-ECHC) to capacitate dioceses and parishes as LGU/RHU partners in community-based TB program implementation, (ii) engaging six NGOs that served as TA providers in LGU-CBO engagement, and (iii) direct project TA to

PHOs and RHUs to capacitate existing CBOs as partner s of LGUs/RHUs. Each of these is discussed below.

i. Partnership with the Catholic Bishops' Conference of the Philippines – Episcopal Commission on Health Care (CBCP-ECHC)

USAID has had firsthand experience in mobilizing a faith-based organization (FBO) when IMPACT's predecessor, the TB LINC Project, assisted Zamboanga Sibugay Diocese of Ipil in integrating TB control activities in the diocese's Community-based Health Program (CBHP). With USAID support, CBHP parish volunteers trained on the basics of TB. Subsequently, they identified and referred TB presumptive cases to RHUs, and served as treatment partners to those undergoing TB treatment.

In 2014, IMPACT and CBCP-ECHC entered into a memorandum of understanding (MOU) to facilitate the integration of the TB program in basic ecclesial communities (BECs) in all dioceses. The MOU provided for IMPACT's support to capacity building of parish volunteers, and establishing a link between the dioceses and the LGUs and Provincial Health Offices concerned, as well as between the parishes and rural health units. This partnership resulted in the engagement of 354 parishes across 13 dioceses in 12 USG sites covering a total of 205 LGUs (Table 6).

Table 6. DOTS-Engaged Dioceses and Parishes in 12 USG Sites, 2017

Province	No. of LGUs Engaged Per Province	Diocese	No. of Engaged Parishes
Benguet	9	Diocese of Baguio	9
Isabela	11	Diocese of Ilagan	14
Cavite	5	Diocese of Imus	8
Laguna	15	Diocese of San Pablo	48
Quezon	17	Dioceses of Lucena and Gumaca	20
Masbate	19	Diocese of Masbate	19
Cebu	47	Archdiocese of Cebu	154
Western Samar	7	Diocese of Calbayog	7
Zamboanga del Norte	27	Diocese of Dipolog	27
Zamboanga Sibugay	16	Diocese of Ipil	16
Compostela Valley	11	Diocese of Tagum	11
Surigao del Norte	21	Diocese of Surigao	21
TOTAL	**205**	**13 Dioceses**	**354**

LGU = local government unit; USG = United States Government

To capacitate the volunteers for their tasks, IMPACT implemented a two-tier training. First, a two-day training of trainers (TOT) capacitated coordinators of CBHPs, social action commissions, and health committees from the different dioceses. At least two representatives from each parish participated in the training and were expected to conduct the rollout training for their parish volunteers. Second, those who attended the TOT collaborated with IMPACT in conducting the rollout training on community-based TB education and interpersonal communication (IPC). Likewise, they facilitated the joint RHU-parish annual action planning and target setting on TB education, case finding, and case holding.

By Year 5, trained parish workers in *seven* project sites with complete data had reached a total of 12,640 individuals with TB education sessions (Table 7). Of this number, 814 (6%) presumptive TB cases were successfully referred to DOTS facilities, among whom 224 (28%) TB cases, all forms, were notified.

The Project recommends continued collaboration with the network of parish volunteers of CBCP-ECHC in areas where Catholics comprise a significant segment of the community. The PHO may engage the diocese in a provincial-level partnership. In like manner, the LGU/MHO may engage the parishes in a municipal-level partnership. The dioceses and parishes involved will need to be capacitated in TB program implementation at the community level.

Table 7. TB Case Finding Conducted by CBCP-ECHC in 7 USG Sites, 2014–2017

Province	No. of Individuals Reached with TB Education	No. of Presumptive TB Cases Identified	No. of Presumptive TB Cases Successfully Referred	No. of Enrolled TB Cases (All Forms) Notified
Isabela	210	64	64	41
Laguna	2,456	161	126	36
Quezon	535	91	67	24
Masbate	44	3	3	2
Cebu	1,450	90	90	24
Zamboanga Sibugay	7,708	374	374	85
Surigao del Norte	237	90	90	12
TOTAL	**12,640**	**873**	**814**	**224**

CBCP-ECHC = Catholic Bishops' Conference of the Philippines Episcopal Commission on Health Care; TB = tuberculosis; USG = United States Government

Even after the termination of IMPACT technical assistance to CBCP-ECHC due to Project closeout, engaged dioceses and parishes continued their participation in the national TB program. This sustained involvement is best exemplified by the Diocese of San Pablo in **Laguna** province. The Diocese reported that in the first quarter of 2018, 51 TB education sessions reached 1,238 individuals in 27 parishes. Parish volunteers identified 25 TB presumptive cases and successfully referred 15 of them. Of these referrals, five TB patients were enrolled in treatment and notified to NTP.

To signify their intention to sustain TB control activities, the Diocese set the schedule of TB reporting for the second quarter on July 7, 2018 during their next general assembly.

ii. Engagement of NGOs as technical assistance providers to mobilize community-based organizations for active case finding

In its third year, IMPACT engaged five NGOs as technical assistance providers (TAPs) to capacitate and mobilize CBOs in case finding and case holding, and help LGUs in five provinces to attain their targets for case detection and treatment success rates. The NGOs and the respective province they assisted were:

a) Philippine NGO Support Program (PHANSuP) for **Pangasinan**,
b) Research Institute for Tuberculosis/Japan Anti-Tuberculosis Association (RIT/JATA Philippines, Inc.) for **Bulacan**,
c) Western Samar Development Foundation (WESADEF) for **Western Samar**,
d) Davao Medical School Foundation (DMSF) for **Davao Oriental**, and
e) Kinasang'an Foundation, Inc. (KsFI) for **Sarangani**.

The five TAPs achieved their key deliverables, namely (i) the execution of MOUs between the CBOs and the 31 target municipal LGUs; (ii) training of 1,013 CBO-identified volunteers on community-based TB education and interpersonal communication; and (iii) installation of the referral, reporting, and recording mechanism between the CBOs and RHUs.

The training taught the CBO volunteers basic TB facts; the local TB situation, including case detection and cure rate performance in the municipality; barriers to case finding and case holding; the roles and responsibilities of frontline TB volunteers in case finding and case holding; and how to prepare their action plan and set their performance targets.

The CBO volunteers reached 23,930 individuals with TB information and related messages. They identified 787 (3%) presumptive TB cases of whom 559 (71%) were successfully referred to DOTS facilities. In this cohort, TB, all forms, was diagnosed in 168 (30%) cases all of whom enrolled in treatment.

Notably, three of the five NGO-TAPs purposively engaged women's groups to partner with LGUs. These were:

a) Bayanihan Bulakeño Foundation, Inc. (BBFI), mobilized through RIT/JATA Philippines, Inc.;
b) Samahan ng Kababaihan ng Sta. Margarita (SKSM), an organization present in all barangays in Western Samar; mobilized through WESADEF; and
c) Women's Federation of Manay in Davao Oriental, mobilized through DMSF.

These women's organizations helped the TAPs attain their deliverables. Among the three, BBFI had the most and well-documented contribution to TB case finding, as shown in Table 8.

Table 8. TB Case Finding Conducted by Bayanihan Bulakeño Foundation, Inc. in 5 Municipalities in Bulacan, 2015–2016

Municipality	No. of Individuals Reached with TB Education	No. of Presumptive TB Cases Identified and Referred	No. of Presumptive TB Cases Successfully Referred	No. of TB Cases Diagnosed and Enrolled in Treatment
Baliwag	161	20	5	4
Calumpit	438	54	28	22
Paombong	586	20	19	6
San Ildefonso	429	195	106	12
San Miguel	951	113	99	44

TOTAL	**2,565**	**402**	**257**	**88**

TB = tuberculosis

Interviews with the women volunteers indicated that initially they were highly motivated to participate in the TB program. They cited the following reasons for their participation: (i) to stop the spread of the disease in their community, (ii) "pity for fellow community members who had TB," and (iii) "delight or unexplained satisfaction to serve their community members and be part of their healing process." The women volunteers felt proud that the RHU staff and other important personalities in the community acknowledged their work. More importantly, their participation empowered them; they developed self-confidence to face other people.

As with similar initiatives, the women encountered challenges, including (i) spousal disapproval of their participation in TB control activities, (ii) lack of or insufficient support for their transportation expenses, and (iii) feeling exhausted when dealing with uncooperative patients who refused to follow agreements. Nonetheless, many of them expressed willingness to continue participating in the TB program provided they received adequate logistics and supportive supervision from the LGU and the NGO that mobilized them.

Based on the experience above, mobilizing women volunteers should be continued where feasible. But efforts to mobilize MORE men as TB educators, peer counselors, and treatment partners need to be strengthened. This is necessary in light of the 2016 National TB Prevalence Survey finding on the preponderance of male patients living with TB.

Engaging NGOs as technical assistance providers is recommended for LGUs with funds to cover the cost of contracting these NGOs. Engaging TAPs for about three years will give them enough time to build, strengthen, and sustain the partnership they helped forge between the LGU and the CBOs.

IPCC Support to NGOs. To improve interpersonal interactions between health workers and TB patients, IMPACT employed interpersonal communication and counseling (IPCC) training, a technical assistance package developed by TB LINC, its predecessor. The IPCC framework drew on the GATHER (greet, ask, tell, help, explain, return/refer) approach and the WHO Cough to Cure Pathway. The Project collaborated with CHANGE in upgrading this IPCC training course to include modules on social marketing and emotional intelligence.

As a preparatory step, IMPACT conducted IPCC training of trainers in Year 1 with municipal health officers, nurses, and midwives as participants. Subsequent rollout trainings were conducted through Year 4, capacitating a total of 8,722 frontline health workers in all sites, consisting of nurses, midwives, barangay health workers (BHWs), and community health team members. The trained health workers applied their IPCC skills as they interacted with individuals with TB symptoms during active case finding. BHWS and CHT members also applied their IPCC skills in case holding as they performed their role as treatment partners.

The Project used the TB education module of the IPCC training mainly for one-on-one and small-group settings during health workers' and CBO/FBO volunteers' community-level activities for TB prevention and case finding.

The IPC training for volunteers is intended to capacitate them to effectively conduct TB education and referral in one-on-one and small-group settings. Because they are not medical professionals, they

should not be expected to address medical issues that may be raised during their IPC interactions. On the other hand, the IPCC training for nurses and midwives should include modules for TB education and counseling to address medical issues that patients and presumptive TB cases might raise during their interpersonal interactions. IMPACT recommends that DOH-NTP put out a guideline/advisory that clearly delineates training on interpersonal communication for volunteers and IPCC for nurses and midwives who serve as frontline TB health workers.

iii. Direct technical assistance to community-based partners

At the start of the Project, IMPACT supported LGUs to effectively partner with CBOs existing in the area. This is to ensure that LGU-CBO collaboration will lead to finding and treating TB cases. The Project recommended to the LGU to assign a point person to manage the partnership, including building the capacity of the CBO for community-based TB control and installing a referral system between the CBO and the RHU, among others.

Indigenous Peoples in Pampanga, Bukidnon, and other Provinces in Mindanao. The Philippines is a culturally diverse country with around 13% of the total population comprised of indigenous peoples (IPs) belonging to more than 100 ethnolinguistic groups. The IPs are mostly found in Mindanao (61%) and Luzon (33%). Because of their often remote geographic locations, their limited financial means, their low health awareness, and poor health-seeking behavior, IPs are a vulnerable group at greater risk of TB. Hence, IMPACT sought to provide technical assistance to LGUs in engaging IP leaders and volunteers in TB control efforts. Starting in Year 2, IMPACT technical support enabled LGUs to tap into IP networks to educate indigenous communities on TB, and do active case finding and case holding.

In Luzon, IMPACT continued USAID/TB LINC's work with Aetas, particularly in the municipalities of Porac and Floridablanca in **Pampanga** province (Box 4). IMPACT assisted these LGUs in conducting, in additional barangays in Porac, trainings with barangay councils that led to the creation of barangay TB management councils among Aeta communities. The Project supported the training of Aeta BHWs as IEC providers. Building on their indigenous health knowledge, systems, and practices, the Aeta BHWs adapted Western concepts of health care and made them more culturally acceptable to the Aetas. This enabled them to dispel local myths and misconceptions about tuberculosis.

The Project facilitated the training of selected Aeta BHWs as informal laboratory workers who served in remote smearing stations. Aeta BHWs were also trained to serve as DOTS treatment partners during case holding. In addition to the Aetas in Pampanga, members of the Dumagat tribe in **Bulacan** province were also reached with TB education, albeit in a limited capacity, through tribal assemblies.

In Mindanao, the Project supported TB orientation of tribal leaders as well as indigenous health workers and volunteers so they could facilitate community assemblies and convey key TB control messages to their fellow tribespeople. This strategy allowed the Project to reach the Subanons of **Zamboanga del Norte**, the seven tribes in **Bukidnon** (viz., Bukidnon, Higaonon, Manobo, Matigsalug, Talaandig, Tigwahanon, and Umayamnon), and the Mamanuas in **Surigao del Norte**.

Senior Citizens. In Year 4, the Project collaborated with the Provincial Health Offices in **Cebu** and **Leyte** to tap the potential of senior citizens organized under the Office of Senior Citizens Corporate Affairs (OSCA) to contribute to the TB program. Box 5 talks about this initiative.

Muslim Religious Leaders (MRLs). With IMPACT technical support and in consultation with DOH-ARMM, the association of Ulama or Islamic scholars in the country called Darul Iftah crafted the *fatwa* (Islamic ruling) on TB. The fatwa encourages people with cough of at least two weeks to consult health workers trained on TB care and avail of proper medication, if diagnosed with TB. The TB fatwa is one of the world's first such issuances on TB by Islamic clergy. The document was translated into Maranao and Tausug, two major dialects in ARMM.

In Year 2, IMPACT oriented on TB (including MDRTB and TB in children) 65 Muslim religious leaders (MRLs) representing 11 municipalities in **Basilan**, and 15 MRLs from 10 municipalities in **Tawi-Tawi**. The Project encouraged the MRLs to integrate key TB information in their Islamic teachings in the *madrasa* or Islamic school and in culturally acceptable dissemination activities such as the *khutbah* or sermon during Friday congregational prayers.

In **Basilan**, the Project worked with MindanaoHealth, Philippine Information Agency, Department of Education, Commission on Population, and the Isabela City Foundation in disseminating the fatwa and other key TB messages along with adolescent reproductive health messages among young people.

In **Lanao del Sur**, MRLs participated in medical and outreach missions to educate the Muslim community on TB using the fatwa as IEC material. MRLs and LGU leaders in the province tapped radio communicators' groups and used two-way radio networks for the fatwa and TB information drive.

Urban Poor. In March 2013, the Project entered into a sub-grant with the Foundation for the Development of the Urban Poor (FDUP) for the implementation of a TB program through 13 homeowners' associations (HOAs) in **Quezon City** and three HOAs in **Caloocan City** that were affiliated with FDUP. The objectives were to develop a behavior change communication (BCC) model for addressing TB among the urban poor as a vulnerable group, and to mobilize community groups as networks of IEC providers.

The Project's engagement of FDUP involved mobilizing community health volunteers (CHVs) among the urban poor. The CHVs' primary responsibility was to find TB cases, that is, identify residents exhibiting symptoms similar to TB, and encourage them to undergo diagnosis at barangay health centers that serve as TB-DOTS facilities. Referred patients were asked to provide samples of their sputum, and diagnosis of TB was confirmed through direct sputum smear microscopy or DSSM.

Prior to deploying the CHVs, IMPACT trained them on IPCC and basic TB facts. The Project also provided IEC materials, such as the *UBOKABULARYO* flyer and flip chart. Through these trainings and IEC materials, IMPACT introduced the HOA-CHVs to the Cough to Cure (C2C) Pathway. Since the trained HOA-CHVs' major role was active case finding, most of the information and communication addressed the four steps of the C2C pathway: (i) seek early care, (ii) go to a DOTS facility, (iii) complete diagnosis, and (iv) start treatment. General assemblies and meetings of HOAs served as venues to engage communities in TB discussion. Misconceptions that reinforced stigma surrounding the disease were addressed in these gatherings.

Among the associations, those under the Urban Poor Alliance of *Kyusi* (UPAK) of Brgy. Batasan Hills and *Kaisahang Ugnayan ng Mamamayan* (KUM) of Brgy. Loyola Heights succeeded in identifying presumptive TB cases and referring them to DOTS facilities. The Project gained valuable insights and lessons in partnering with urban poor groups to combat TB.

By the very nature of their organization, FDUP and the HOAs were concerned primarily with housing security and with addressing threats of relocation or eviction. Hence, point persons and volunteers were unable to spend adequate time for TB case-finding activities. As a result, the objective of developing a BCC model for TB care among urban poor did not materialize. While a couple of federations had promising

Box 4

Helping indigenous people help themselves to fight tuberculosis

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Nearly 1,500 indigenous people called Aetas in seven *barangays* (villages) in Porac and Floridablanca in Pampanga were educated on, screened, and tested for tuberculosis with USAID assistance. Comprising 4 percent of the two municipalities' total population of 265,000, the Aetas' geographic isolation and lack of education limited their access to socioeconomic opportunities, including health services. With their mountain villages located 10–12 kilometers from the nearest health center, the Aetas needed to spend $12 and travel about an hour to avail themselves of TB diagnosis, treatment, and care. In response, USAID through IMPACT project collaborated with the Department of Health Regional Office 3 (DOH-RO 3) and Pampanga Provincial Health Office to bring a mobile X-ray laboratory to the villages to provide chest X-ray services onsite. USAID also coordinated with the municipal local governments and their Rural Health Units on prioritizing laboratory examination of the Aetas' sputum specimens to promptly confirm the presence of TB and initiate treatment.

The two-week TB case-finding initiative enlisted the assistance of USAID-trained Aeta community health volunteers (CHVs). Previously oriented on TB disease and how to identify individuals with TB symptoms, these CHVs screened villagers for symptoms of tuberculosis, specifically cough of any duration. Aeta women who had trained as informal laboratory workers assisted DOH-RO 3 medical technologists in preparing sputum smears that were later brought to the nearest Rural Health Unit for microscopy testing and reading.

In all, 1,409 Aetas with TB symptoms were identified and asked to present themselves for diagnosis on designated dates and places in the villages. Of this number, 1,151 were X-rayed while 421 had their sputum examined through microscopy. A total of 241 children less than 4 years old and those who cannot expectorate were screened for exposure to TB bacteria through tuberculin skin test. TB was diagnosed in 71 patients, all of whom the RHUs enrolled in TB treatment.

Counselling led by trained Aeta CHVs capped the long diagnostic procedure. Aeta CHVs reminded community members to observe cough manners to prevent the spread of TB bacteria. The need to complete treatment was emphasized to ensure cure and prevent TB from developing into its drug-resistant form that is more expensive and takes longer to treat.

Many of the Aetas who received treatment expressed their thanks for the TB services that USAID "took the effort and time to bring all the way up to their villages" in the mountains. For her part, Rowena Lahut, a 36-year old mother of four who tested positive for TB, realized that "not every cough should be dismissed just like that." She added "Our midwife comes here regularly and it is important that we tell her if we have cough, especially one that lasts for days and days, so that we could be given the right treatment."

practices, the Project did not have sufficient volume of cases and empirical body of information from which to derive a real, theory-based behavior change communication model.

The experience with FDUP showed that it is feasible to mobilize urban poor HOAs to contribute to TB control. But engaging them should focus on TB education, which can be integrated in general assemblies and regular meetings, and less on case finding.

Box 5

The elderly join community-based advocacy for tuberculosis prevention

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The nearly 6.3 million elderlies in the country, 60 years old and older (2010 Census of Population), represent a sector with the potential to significantly contribute to tuberculosis (TB) prevention and control. USAID recognizes the important role of the elderly people in influencing community norms and decision-making. Through the IMPACT project implemented by the Philippine Business for Social Progress, USAID mobilized senior citizens in 21 municipalities and cities in Cebu and Leyte provinces, Visayas region, to raise awareness of their communities about TB.

Nelida Borja, 75, federation president of the Tanauan, Leyte municipality's Office for Senior Citizens Affairs shared, "When the rural health unit offered us to be part of the TB program, most of the members of our association were excited because of the opportunity to help others, especially our members who are vulnerable to TB. We didn't hesitate to get involved."

In collaboration with Cebu and Leyte Provincial Health Offices, USAID trained about 350 older men and women, including retired teachers and other professionals, in TB education and case finding. The senior citizens also learned during the training practical TB infection control measures. After the training, the elderly conducted in their respective communities TB education sessions and discussed cough etiquette, TB symptoms, myths and misconceptions, and where to consult and get tested for TB. In three months, the elderly reached 16,000 community members with information on TB. They were also able to refer to the nearest health facilities 707 people with TB symptoms of whom 33 were found to be positive for TB and were enrolled in treatment.

By getting involved in TB education and case finding, the senior citizens not only boost their sense of worth in the community, but they also protect themselves and the community from TB. Angel Allado, 69, federation president of Dulag, Leyte municipality's Office for Senior Citizens Affairs affirmed, "Our role in TB control is important especially in influencing our members and the young people in our community to seek early consultation and treatment. With our involvement, we are able to watch over our members and neighbors in need of medical attention, particularly those with cough or TB symptoms, and to refer them to the rural health unit for testing and treatment, if needed."

Taking off from the Project experience, IMPACT recommends the engagement of CBOs as LGU partners in TB program implementation when the following hold true:

a) The LGU has existing resources, or can find the necessary resources, to engage a CBO.
   – Mobilizing CBOs is faster when there is no need to wait for external resources.

b) The LGU's case detection and treatment success rates are low.

c) The number of BHWs in the LGU is low (that is, 1 BHW serves more than 20 households).
   – CBOs will provide the extra hands that will push TB control activities forward.

d) There are CBOs in the LGU, specifically those that implement health-related activities, willing to partner with the LGU.
   – CBOs with pre-existing health agenda will make it easier to integrate TB control activities. CBOs that are willing to participate but have no prior health-related activities may still be engaged, but it will take more than two years for the engagement to yield significant outputs given the expected learning curve.

Box 6

Finding tuberculosis among internally displaced persons in Marawi City

Between November 2017 and March 2018 of the extension period, the Project initiated intensified TB case finding (ICF) among internally displaced persons (IDPs) affected by the Marawi siege. With project support, Marawi City Health Office screened 1,006 adults in Saguiaran and Bito Buadi Itowa evacuation centers using chest X-ray. Seventy-five (7%) had X-ray findings suggestive of TB, all of whom underwent GeneXpert MTB/RIF testing. Of those tested, one was positive for rifampicin-resistant TB and was immediately enrolled in MDR-TB treatment at Amai Pakpak Memorial Center. Forty-five (60%) patients were found positive for MTB but negative for rifampicin resistance. They were referred for and subsequently enrolled in DSTB treatment.

At the Sagonsongan temporary shelter in Marawi City, chest X-ray results for 78 (8%) of 1,000 adults were suggestive of TB. All 78 patients underwent GeneXpert MTB/RIF testing, among whom 37 (47%) patients were confirmed positive for MTB but negative for rifampicin resistance. No case of rifampicin-resistant TB was found among the 78 cases tested. Results of the ICF activities are shown in Table B6.1 below.

Children who were contacts of registered adult TB cases from Saguiaran and Bito Buada Itowa Evacuation centers was also screened for TB on December 16–21, 2017. Of 343 children screened

Box 6 (cont'd)

using chest X-ray and tuberculin skin test, 28 were found to have TB and immediately enrolled in pediatric fixed-dose combination treatment (Table B6.2).

Table B6.1. TB Screening Among Adult Internally Displaced Persons in Marawi City, March 2018

Area	Number of Adults Screened	Results					Number Enrolled in Treatment		
		Chest X-ray Screening		Xpert MTB/RIF Test			DRTB	DSTB	Total
		Negative	Positive	RRTB (+)	MTB (+)/ RRTB (-)	MTB Not Detected			
Saguiaran and Bito Buada Itowa	1,006	931	75	1	45	29	1	45	46
Sagonsongan	1,000	922	78	0	37	41	0	37	37
TOTAL	**2,006**	**1,853**	**153**	**1**	**82**	**70**	**1**	**82**	**83**

DRTB = drug-resistant tuberculosis; DSTB = drug-sensitive tuberculosis; MTB = *Mycobacterium tuberculosis*; MTB/RIF = *Mycobacterium tuberculosis*/rifampicin resistance; MTB (+)/RR(-) = *Mycobacterium tuberculosis* positive, rifampicin resistance negative; RRTB (+) = rifampicin resistance positive

Table B6.2. TB Screening among Children, Saguiaran, Lanao del Sur and Bito Buadi Itowa, Marawi City, December 2017

Number of Children Screened				Result	Number Enrolled in FDC Treatment
Age Group	Male	Female	Total	TST/CxR (+)	
0–4 years	63	44	107	2	2
5–15 years	119	117	236	26	26
TOTAL	**182**	**161**	**343**	**28**	**28**

CxR (+) = chest X-ray positive; FDC = fixed-dose combination; TST = tuberculin skin test

On October 23–26, 2017, the Project together with Marawi City Health Office (CHO), Lanao del Sur Provincial Health Office, and DOH-ARMM held TB DOTS orientation among 150 community health volunteers working in 16 evacuation centers in Saguiaran, Lanao del Sur, where 4,160 individuals/ 832 families displaced by the Marawi siege were temporarily sheltered. Six untrained nurses under the DOH Nurse Deployment Program (NDP) and two untrained medical technologists were included in the orientation. An additional 50 CHVs from Barangay Bito Buadi Itowa, Marawi City, participated in the orientation. These CHVs assisted the Saguiaran Rural Health Unit and Marawi CHO in providing TB education, screening presumptive TB cases, and collecting and transporting sputum specimens for GeneXpert testing. They also served as treatment partners in their respective evacuation center.

b. Private transport companies

The Project sought to disseminate TB information via alternative routes. Specifically, the Project engaged private transport groups to provide TB information to their employees and the riding public. The advocacy message to these groups was that participating in TB control is consistent with the principles of corporate social responsibility (CSR) and good corporate citizenship.

The Project engaged Victory Liner in March 2015. Supported by PBSP's Corporate Affairs unit, the Project connected with the bus company through Doña Marta T. Hernandez Foundation, the CSR arm of Victory Liner, Inc., and its workers' union – *Nagkakaisang Lakas ng Manggagawa ng* Victory Liner (literally, united strength of the workers of Victory Liner). The aim was to get the company to show TB IEC videos aboard its buses and in the bus terminal in Caloocan City. The Project conducted TB health education for drivers, conductors, and other personnel. It also provided CD copies of public service advertisements then airing on national television ("Glee" and Split Screen) developed by the CHANGE project.

In June 2016, the Project similarly engaged other transport companies in partnership with the local government of Pasay City. The Project assisted the Pasay City Health Office (CHO) in advocacy meetings with Philtranco Service Enterprise, Inc. (PSEI, owner and operator of the Philtranco and JAM Bus Lines), Five-Star Bus Lines, and Del Monte Land Transport Bus Company. Of these companies, only PSEI was receptive. IMPACT facilitated the signing of a memorandum of understanding between PSEI and the local government of Pasay City. Subsequently, IMPACT assisted in disseminating TB IEC materials like videos, posters, and stickers in selected terminals and bus units of the transport company. From January to March 2017, the Project recorded a total of 46,764 exposures to the TB videos shown in the 38 bus units in the two JAM terminals and in the Philtranco bus terminal in Pasay. Of these, 3,370 were from the Pasay Philtranco terminal, 27,076 from Buendia terminal, and 16,318 from the Cubao terminal.

The most significant facilitating factor in this engagement was the very high-level buy-in of the involved parties. From the very start, the PSEI President and Head of Marketing saw the potential marketing value of their involvement. On the other hand, department heads from the Office of the Mayor, City Health Office, and Tourism Office of Pasay City acknowledged the public health benefits of promoting TB control in buses and terminal, particularly since almost all major bus lines had terminals in their city.

In contrast, the Project's entry point with Victory Liner was mid-level of the corporate structure (the corporate social responsibility unit), the human resource unit, and down to the bus company's workers' union. The engagement yielded no results, as the involved partners were not able to follow through on the agreements, citing competing priorities related to their work. Moreover, the LGU partner – Caloocan City Health Office – came in almost a year after the engagement.

For initiatives that seek to establish public-private partnerships, IMPACT recommends the following:

a) strive to establish contact with and commitment at the highest possible level of the corporate structure;

b) position the engagement in terms of capitalizing on the positive DOH and USAID brands for the public relations and marketing gain for the company; and

c) start with immediately doable activities to attain initial success (e.g., focus on straightforward rather than multifaceted behavior change communication).

4. **IMPACT supported case finding by strengthening the capacity of service providers to find TB cases**

a. Training on NTP Manual of Procedures, 5th edition

The Project contributed significantly to the development, printing, and rollout of the revised NTP Manual of Procedures (MOP), 5th edition. The NTP MOP is the key reference of all TB health workers in both public and private sectors. With its release, TB service providers needed to immediately comply with the new case definitions, policies, standard operating procedures, reporting requirements, and the unified diagnostic algorithm for adults and children that incorporated the role of Xpert MTB/RIF test and the latest standardized treatment regimens. To enable them to do so, IMPACT led the rollout trainings on the revised NTP MOP across all project sites. In collaboration with DOH central and regional offices, the Project extended assistance to many non-USG sites by serving as resource speakers and/or facilitators in the rollout trainings. The NTP MOP was complemented by the Philippine Clinical Practice Guidelines on the Diagnosis, Treatment, Prevention and Control of Tuberculosis among Filipino Adults, 2016 Updates. This is an evidence-based consensus for clinicians and policymakers developed with project support.

eLearning. IMPACT also developed an online training course on the new NTP MOP, 5th edition as a form of distance education for health workers who cannot leave their work stations. Using the open-source Modular Object-Oriented Dynamic Learning Environment (MOODLE) adopted by many open-universities worldwide, the online course could address the sporadic need for training new hires across the country, particularly those who are technology-savvy, after onsite training opportunities had been missed. It provides an option to comply with certification and PhilHealth accreditation requirements. With two pilot courses successfully conducted and with improved internet access and computerization in health facilities, distance learning can be a viable option for the planned Department of Health Academy should this initiative be pursued to fruition. Given the popularity of social media applications, a similar interface, if feasible, is suggested in future enhancements to ease familiarity with and promote wider acceptance of the online course.

b. Training on TB disease activity assessment (TBDAA)

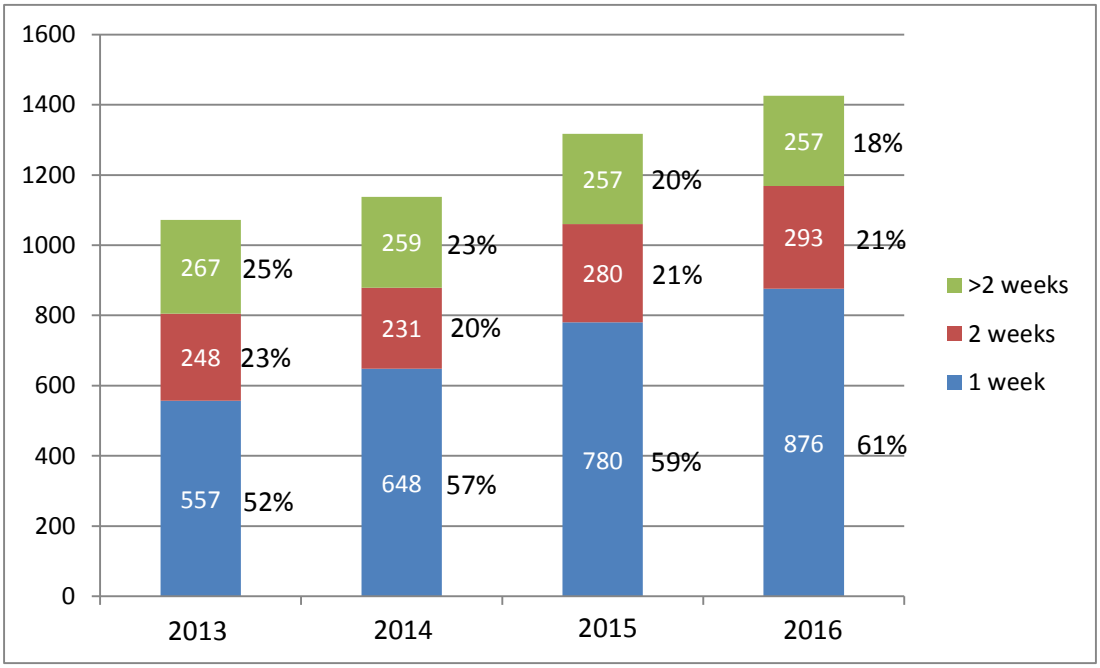
With the revised NTP MOP recommending less dependence on TB diagnostic committees to address common bottlenecks in case finding, the Project developed the TBDAA modules for adults and children. The objective was to help clinicians in correlating chest X-ray findings with clinical presentation and laboratory results in order to determine active TB cases through a series of participative case discussions on demonstration X-ray plates. TBDAA is particularly useful in determining disease activity among high-risk groups with no bacteriologic confirmation yet were symptomatic and/or had suggestive radiologic findings despite the common ambiguous official interpretation (i.e., PTB of unknown activity). In areas where drug supply for children was adequate or forthcoming, TBDAA was combined with hands-on workshops on tuberculin skin test (TST) administration and interpretation to improve case finding in this underserved vulnerable group.

Training participants, particularly physicians who had limited competence due to minimal exposure during their formal medical education, highly appreciated the course, specifically the review of common radiologic findings of pulmonary TB. TBDAA was given a rating of 4.68 out of a 5-point Likert scale in the

Visayas training. It was also cited by several participants as an "important session" and the skill of reading chest X-ray plates as their "most important learning."

Loosely correlating the impact of the said trainings with improved case finding, a survey of 9,906 cases from 190 public TB health facilities in USG sites from 2013 to 2016 showed a statistically significant favorable decline of about 1 to 3 days in the mean turnaround time towards the last two years. The number of cases started on treatment within a week from initial consultation improved by up to 9 percentage points in 2016 while those with prolonged turnaround time (i.e., longer than 2 weeks) declined by as much as 7 percentage points towards the last year (see graph).

Turnaround Time from Initial Consultation to Start of Treatment in 19 USG Sites, 2013–2016 (Weeks)



With this desirable effect on health service delivery, the course could easily be replicated with assistance from private radiologists as outsourced resource speakers or workshop facilitators. However, given the hesitance of many DOH regional offices in contracting services in the private sector and the reluctance of the Philippine College of Radiology to collaborate, additional requests for this technical assistance were left unanswered but may be addressed by working instead with pulmonologists, particularly those who cover such competencies in medical schools, or those endorsed by the Council of Tuberculosis of the Philippine College of Chest Physicians.

c. Training on infection control and biosafety

i. Infection control

Ensuring a safe environment for patients and health workers is an identified performance target in the 2010–2016 Philippine Plan of Action to Control Tuberculosis (PhilPACT). To meet this commitment, the Project assisted the DOH regional offices in cascading the country's Guidelines on Infection Control (IC) for TB and Other Airborne Infectious Diseases. Despite this effort, however, only about half of 292 public health facilities monitored had an identified IC team (48%), implemented their IC plan (41%), and reported health facility improvements related to infection control (52%). Only a fifth (21%) conducted TST or provided annual chest X-ray services (22%) as part of health worker surveillance. These findings reinforce the 2016 NTP Joint Program Review finding on the country's poor compliance with IC guidelines and highlight the need to continuously monitor its implementation. The inclusion of IC standards in certification and accreditation standards is also necessary in curbing this weakness in TB service delivery.

ii. Biosafety training

In collaboration with the National TB Reference Laboratory (NTRL), the Project developed a localized biosafety training module to help improve the skills of TB laboratory workers – in culture and drug susceptibility testing centers, RTDLs, and TMLs – in proper infection control and emergency response in the workplace. The training module was field tested twice in 2017 to improve it. The course is currently being used by the NTRL training unit in their GeneXpert (Xpert MTB/RIF) trainings and will be incorporated in other offered trainings (e.g., DSSM, culture, and drug susceptibility test).

d. Improving external quality assessment

Improved access to quality TB diagnostic services is key to achieving increased TB case detection and high CNR, particularly good direct sputum smear microscopy and the expanded use of Xpert MTB/RIF test. To ensure quality diagnosis, the Project promoted the regular conduct of and assisted in external quality assessment (EQA) of TB microscopy laboratories (TMLs).

The national EQA performance in 2011 was 68%, or 1,752 of 2,576 TMLs with 95% or higher correct microscopy result. In USG sites, this performance improved from 80% in 2013 to 96% (1,197 of 1,243) of targeted TMLs by the end of Year 5. Ten of 43 sites did not meet the targeted EQA performance in 95% of TMLs. This was attributed mainly to delayed slide rechecking due to absence or multitasking of an EQA controller.

Other challenges encountered included the lack of logistical support for travel to the different TMLs, and the inadequacy of EQA feedback, especially among unit heads or administrators. Despite these, the rest of the sites generally fared better through various project interventions such as EQA feedback meetings, zonal or modified EQA approaches (i.e., in Tawi-Tawi), monitoring visits, and program review. These strategies were incorporated in the draft revision of the DSSM EQA policy, developed in the form of an administrative order with project assistance and endorsed to DOH-NTP and NTRL. This has yet to be approved and released, however.

To promote and sustain optimal functioning of microscopes among TMLs, the Project developed a quick guide on preventive maintenance, including a poster-type job aid, for medical technologists and microscopists. These tools were reproduced and disseminated among all TMLs in USG sites. A training module on microscope preventive maintenance was also developed and piloted for DOH-RO 3 in Year 4. NTRL laboratory personnel were among those trained during this pilot.

e. Training in various components of the WHO Stop TB strategy

Cumulatively, 42,604 health workers were trained in the various components of the WHO Stop TB strategy: empowering people with TB (37%); engaging all health service providers (28%); health systems strengthening (25%); and addressing MDR-TB, TB-HIV, and TB among the poor and vulnerable populations (10%).

Barangay health workers and community heath volunteers accounted for 35% of all health workers trained. Nurses made up a fifth (21%) of training participants, while midwives were noted at 9%, doctors at 7%, pharmacy and pharmacy assistants at 7%, and medical technologists at 3%. Students (as TB advocates and potential health workers), local chief executives, and others left unclassified were estimated at 18%. The private sector contributed 30%, or 12,586, of the revalidated tally.

Over a third (36%) of training participants were from Mindanao – including 7% from ARMM – while Visayas (19%), South Luzon (18%), and North Luzon (16%) accounted for nearly a fifth each. The rest (11%) were from the National Capital Region. About 4 (83%) in every 5 participants were females. Annex A shows the distribution of health workers trained in the components of WHO Stop TB strategy by region, by profession, and by sector.

Leveraged Support. The Project successfully leveraged support from its partners in addressing interventions and other priorities in project sites thereby promoting better fund utilization. Since 2014, DOH regional offices provided funding estimated at PhP6.18 million for at least 21 TB-related training events – including those for non-USG sites and those conducted with IMPACT assistance as resource speakers and facilitators. In addition, the Project conducted a total of 93 training events as technical assistance to PBSP-Global Fund for TB (GF) project, part of the estimated PhP10.5 million support leveraged by IMPACT during the same period.

B. IMPROVING AND SUSTAINING TREATMENT SUCCESS

1. Improving drug supply management (DSM)

An uninterrupted supply of anti-TB drugs is essential to ideal treatment outcomes and this has led to the good practice of initiating drug therapy only when an adequate supply is assured throughout the prescribed treatment duration. This eventually became a rate-limiting step for case detection as it would be futile to look for active TB cases if no appropriate management can be offered. As mentioned in previous reviews, the country experienced frequent interruptions in supply of first-line anti-TB drugs (NTP JPR, 2013; USAID, 2012).

While other partners focused on assisting the DOH central level, the Project built the capacity of regions, provinces/cities, and DOTS facilities in pharmaceutical management using tools developed by SIAPS. This covered quantification and requisition; inventory management, storage, and distribution; rational use; and monitoring and evaluation. Nine project sites in three regions were trained on the "Practical Guide

to Pharmaceutical Management," followed by quarterly meetings and onsite DSM monitoring and mentoring visits. Specific to quantification, requisition and distribution, the five provinces of Region 4A, namely **Batangas**, **Cavite**, **Laguna**, **Quezon**, and **Rizal**, practiced the "pull system" of distribution through timely quarterly requisition and allocation based on requests. Deliveries to the regional offices, however, were not in accordance with this recommended system and resulted in an over- or undersupply during certain periods. Drug procurement and distribution issues at the national level must therefore be addressed first before expecting any improvements at subnational levels.

Occurrence of stock outs in project sites was highly variable and seasonal, with 1–35% of DOTS facilities in USG sites experiencing stockout per year. In Year 5 when the performance target was 10%, only 1% (15 of 1,473) of DOTS facilities in USG-assisted experienced a stockout.

2. Improving compliance with tuberculosis treatment

a. Interpersonal communication and counseling for PMDT

To determine the reasons for the high lost to follow-up (LTFU) rate among patients enrolled in PMDT, the Project led the conduct of the "Evaluation of Loss to Follow-up during Multidrug-resistant Tuberculosis Treatment in the Philippines." The study's key recommendations were (i) implement clinical management training of doctors and nurses to improve their clinical skills in managing DRTB patients, (ii) revise the enabler support to patients, and (iii) develop an IPCC training material to improve rapport between patients and health care workers.

To address the third recommendation, IMPACT in collaboration with PBSP-Global Fund for TB project developed and finalized the Interpersonal Communication and Counseling (IPCC) Training Manual for TB Service Providers. The manual discusses the issues encountered by patients in the TB treatment continuum, and the use of appropriate counseling and communication models to better understand patients' perception of the disease process and its management. The first version was developed and pilot tested in Year 4.

A total of 29 participants from Lung Center of the Philippines – National Center for Pulmonary Research (LCP-NCPR), DOH-NTP, TCs/STCs, and IMPACT attended the first batch of training in 2015. Two more batches of training in December 2017 were participated in by 51 physicians and three nurses from 54 PMDT TCs/STCs in 14 regions in the country. All four LCP-NCPR participants (1 physician and 3 nurses) were identified to become counselors and facilitators for future training. The IPCC Training Manual will be used by the LCP-NCPR PMDT Training Unit as reference material and training module for PMDT

Box 7

Job aid addresses adverse drug reactions

One of the findings of the LTFU study was that adverse drug reactions (ADRs) were one of the common reasons for interrupting treatment. ADRs can be easily managed, but clinicians may not always be present to address them. To help nurses in STCs and iDOTS facilities manage ADRs, the Project developed a job aid that tells them how to address vomiting, the most common and bothersome ADR. The contents were primarily based on existing DOH-NTP guidelines for managing adverse drug reactions to anti-TB medications. Following DOH-NTP's review, the job aid was printed and distributed among RHUs in **Pampanga**, **Cavite**, and **Las Piñas**. A soft copy of the job aid was provided to DOH-NTP for eventual reproduction and distribution.

service providers. IMPACT recommends that the module be used by ALL TB service providers.

b. Interrupter tracing through TB surveillance officers (TSOs)

Based on previous monitoring of TCs/STCs in **Pampanga**, **Cavite**, and **Las Piñas**, contacts of DRTB cases had not been screened regularly because of the fast turnover and insufficient number of staffs in these facilities in 2016–2017. Screening would have identified active cases of TB among close contacts of patients and contributed to case-finding targets. In addition, patients who were interrupting were not followed up. This contributed to the low DRTB treatment success rate of 54% (PMDT 2014 cohort) that was way below the PhilPACT target of 75%.

To address these challenges, the Project deployed staffs, called TB surveillance officers (TSOs), to TCs/STCs in the three project extension sites to assist in screening contacts of patients diagnosed with DRTB. The objective was to reduce the health facilities' backlog in household contact tracing, which will increase case finding and improve case holding. Of the 362 identified contacts (Pampanga, 127; Cavite, 42; Las Piñas, 193), the TSOs and STCs screened 267 presumptive TB cases (Pampanga, 119; Cavite, 34; Las Piñas, 114) and tested them using Xpert MTB/RIF assay. DSTB was confirmed in two TB cases while DRTB was diagnosed in three patients.

The TSOs listed all patients in each of the three STCs in Pampanga, Cavite, and Las Piñas, who were enrolled from January 2017 to January 2018, and identified those who were interrupting treatment. Patients who were visited were prioritized using the following criteria: (i) with almost two months consecutive absences during the baseline monitoring, (ii) missed more than 10% of doses since initiation of treatment and had been consistently absent for at least a week since January 2018 during baseline monitoring, (iii) with history of good compliance (more than 90% adherence rate) since treatment initiation but had been consistently absent for at least a week, and (iv) with more than 50% absences from December 2017 to January 2018.

In all, 65 (41%) of 155 patients enrolled in the target STCs were followed up, that is, visited at home, called by phone, or sent SMS messages. Forty-three (66%) of the 65 patients showed improved attendance and intake of anti-TB medications. The most common reasons for interrupting that patients cited were (i) distance and cost of going to and from the STC, (ii) conflicting schedule of treatment and work, (iii) financial issues, and (iv) adverse drug reactions.

Patients with ADRs were referred to the STC staff and physicians for proper action. To address the issues of cost, travel time from residence to the STC, and conflicting schedules of treatment and work/school, the Project applied Choice Architecture. Forty patients were given options on who will supervise their treatment and where DOT will be carried out. In Cavite, three interrupters were successfully endorsed to trained treatment partners. In Las Piñas and Pampanga, patients were still waiting for the availability of trained community treatment partners on the last day of project monitoring. Implementation of Choice Architecture among DRTB patients is discussed in detail below.

The assistance of PBSP-Global Fund for TB field nurses as well as nurses hired by DOH regional offices to counsel TB patients contributed to improvements in patients' daily intake of anti-TB medicine. It is noteworthy that in one satellite treatment center, the STC physician's visit to the home of a patient prompted the patient to continue treatment. Previous visits and attempts of STC staff had failed to get

the patient back to treatment. If the personal attention given by a physician could spur interrupters to return to treatment, STCs may want to consider home visits as part of physicians' routine work.

The Project recommends that contact tracing be included in routine NTP monitoring, mentoring, and supervision to ensure that active TB cases in the households are identified immediately. The NTP guidelines must explicitly set the timeline for complete screening of all contacts.

c. Choice Architecture

During the Project extension, the Project implemented Choice Architecture and concluded that it is a patient-centered **intervention** that facilitates patients' selection – from an array of DOT options – of who acts as their treatment partner and where (location) directly observed treatment will be administered, and can potentially result in better treatment outcomes.

To address the high loss to follow-up (LTFU) and low treatment success rate (TSR) in **Pampanga**, **Cavite**, and **Las Piñas**, the Project implemented Choice Architecture to help TB patients make a better decision on who acts as their treatment partner and where (location) directly observed treatment (DOT) will be administered. WHO has identified treatment supervision as a key factor that influences LTFU and TSR. The technical assistance (TA) on Choice Architecture draws on the WHO 2017 guidelines for treating drug-susceptible TB, which indicate that treatment outcomes were best with health providers and trained lay personnel as treatment partners. Family members as treatment partner was still presented as an option but was less preferred compared with the previous two options. In terms of location, community- and home-based DOT were found better than facility-based DOT.

Choice Architecture has the following distinct characteristics: (i) it does not force certain outcomes upon anyone, (ii) it does not forbid any options, and (iii) opting out is easy.

Results of Implementation among Drug-susceptible TB Patients. In all, the Project monitored 32 of 81 facilities across three project extension sites. This consisted of 5 of 32 RHUs in Pampanga, 16 of 19 health facilities in Cavite, and 11 of 30 health centers in Las Piñas City.

A total of 813 DSTB patients were enrolled in the 32 facilities that implemented the intervention. Of this number, 737 (91%) were exposed to Choice Architecture discussion. Monitoring data showed that community- and home-based treatment were the most preferred options by the patients. Barangay health workers (BHWs) were the most frequent treatment partner (DOT provider). These options correspond to the WHO 2017 recommendations and were chosen by 70% of the patients.

Results of Implementation among Drug-resistant TB Patients. The Project bundled Choice Architecture with the TA on interrupter tracing and contact screening among drug-resistant (DR) TB patients. Project-engaged TB surveillance officers (TSOs) traced a total of 76 interrupting DRTB patients and interviewed them to determine the root cause of their treatment interruption. Patients whose main barriers to treatment adherence were distance and cost (traveling from their house to the satellite treatment center and vice versa) and time (conflict with work and daily schedule of treatment) were exposed to Choice Architecture discussion and presented with other treatment locations and suitable DOT providers. Forty-one of 76 interrupting DRTB patients qualified for Choice Architecture discussion. This consisted of 33 patients in Pampanga, six in Cavite, and two in Las Piñas. As a result, Choice Architecture was credited as one of the contributing factors in the observed improvement in treatment adherence of DRTB patients in project implementation sites (see section on TSO of

this report for more details).

Comparing the DOT choices of both DS and DRTB patients, the data appear to validate the Project's Choice Architecture hypothesis that facilitating patients' choices will result in "home and community DOT as the patients' preferred options." The patients' preferred community DOT locations were: (i) barangay health station/health center that is near patients' residence, (ii) barangay hall, and (iii) residence of treatment partner. With facility-based DOT, patients would have to contend with barriers of distance, cost, and time (conflict between the health center service schedule and their daily routine); community- and home-based DOT precisely addressed these barriers.

Implementation Challenges

a) LGU partners were concerned that they did not have enough health workers and volunteers to support community- and home-based DOT. As a result, they usually defaulted to the other options such as Option 6 – Facility-based DOT or Option 7– Home-based DOT with relative as treatment partner, which are both less preferred per WHO 2017 treatment guidelines.

b) Health workers newly introduced to Choice Architecture were observed not discussing the options adequately.

c) Choice Architecture was not discussed with patients when the health worker the Project had oriented on CA was unavailable. Health staffs who were present defaulted to Option 6 – Facility-based DOT. This constitutes a "violation" of the Choice Architecture principle that no option should be imposed or withheld or forbidden.

d) Health workers lacked the readiness and support to allow their *provision* of community- or home-based DOT to patients who chose these options.

Based on the project experience on Choice Architecture, IMPACT recommends the following:

1. Continue to monitor the adherence rate/treatment completion of all patients who were exposed to Choice Architecture and whose DOT choice was supported by the local health staff. Monitoring will show whether Choice Architecture helped improve treatment adherence among both DRTB and DSTB patients.

2. Should the monitoring show the effectiveness of Choice Architecture and NTP decides to adopt CA as part of treatment initiation protocol, IMPACT further recommends the following:

    a) Incorporate corresponding guidelines in the proposed revision of the Manual of Procedures (MOP), and train health workers to apply this technique.
    b) Encourage/Incentivize mobilization of more lay volunteers as DOT providers to complement BHWs, possibly as an informal pool or members of a patient-support group (PSG). The lay volunteers could be former TB patients and their relatives, barangay officials, teachers, retired professionals, and senior citizens. In this light, DOH-NTP central office should consider capacitating and supporting the local NTP teams in PSG formation.

c) When there are no health workers/volunteers to serves as DOT provider, consider other options like Option 7 – Home-based DOT with family member as treatment partner and Option 8 – Video-observed treatment.
d) Capacitate BHWs as treatment partners of DRTB patients.

d. Reconfiguring the Consilium into the TB Medical Advisory Committee

When programmatic management of DR-TB services was implemented in additional sites in Metro Manila in 2005, the Philippines created a specialized team called Consilium. The Consilium is a multidisciplinary case management committee composed of program staff, physicians, nurses, and other health care workers with expertise on DRTB management. This committee meets regularly to confirm the diagnosis, determine treatment regimens, assess response to treatment, and determine final treatment outcome through a consensus using standards based on the WHO Guidelines for Programmatic Management of Drug-resistant TB.

With further PMDT expansion to different regions in the country and with the increase in the number of cases, the Regional Green Light Committee (rGLC), WHO's advisory body on DRTB, recommended in 2012 to decentralize the Consilium to the regions. In response to the recommendation, new physicians were mentored and became Consilium officers. PMDT treatment facilities were grouped according to geography (three main island groups and NCR) and two Consilium officers were assigned to each main group. The subgroup was called Regional Consilium. Initially, the meetings were conducted face to face, but due to geographical and logistic challenges, cases and recommendations were sent via email and cases were no longer discussed in real time.

The increase in the number of cases sent via email became a burden to the Consilium officers; hence, some referrals were not properly reviewed and answered. To address this, the GLC recommended in 2014 that the national Consilium regularly supervise the regional Consiliums, and ensure that regional Consilium officers are well trained in clinical management of drug-resistant TB.

Implementing standard short-term regimens called for enhancing the roles and composition of the Consilium, which was renamed as Tuberculosis Medical Advisory Committee (TB MAC). In support of this body, the Project developed the TB MAC guidelines for national and regional levels in collaboration with DOH-NTP, NTRL, TASC, TREAT TB, and USAID. The guidelines were intended to provide technically sound and evidence-based recommendations to clinicians and health providers who manage patients with DRTB and those with difficult-to-treat DRTB. This is expected to correct diagnosis and management, and prevent development of further drug resistance and complications. The task was to review clinically diagnosed cases, approve those for empiric treatment, and provide recommendations on difficult cases (e.g., patients with renal or liver failure, pregnant women, patients with uncontrolled ADRs). The set of guidelines was released in August 2017 through DOH Department Order 2017-0362 and incorporated in the updated PMDT Implementing Guideline released in the same month.

The TB MAC provides a community of practice where RHU physicians may refer and discuss difficult DRTB cases. As a venue where physicians confirm diagnosis, determine the appropriate treatment regimen, and assess the final treatment outcome, it enables doctors to sharpen their clinical skills toward better patient-centered care. The national TB MAC is now in place and functional. At least four regional TB MACs are operational in Regions 5, 6 and 10, and NCR.

C. Ensuring an Enabling Environment for Quality TB Care

1. The Project provided technical support to improve program management

Following the development and rollout of the revised NTP MOP, the Project continued to assist RHUs in implementing the TB control program through monitoring and evaluation activities. Technical assistance covered data quality check (DQC), program implementation review (PIR), and monitoring/mentoring visits. These activities provided a venue for reviewing both case-finding and case-holding performance of each RHU/health center, and planning remedial measures to address gaps and issues.

a. Data quality check (DQC)

From 2015–2017, from 95–100% of USG sites (i.e., 41–43 provinces/cities) conducted a DQC workshop. Held quarterly, semi-annually, or annually for each site. This was done mostly in a workshop setting and, occasionally, as part of a regular monitoring visit to the RHU. DQC enabled each NTP team to identify and correct common recording errors, and improve data analysis and program management. It helped reduce the time it took to submit validated program reports – from 6 months to 3 months – from the end of a review quarter. Funding support from Department of Health regional offices for the conduct of DQC workshops suggests a move toward the institutionalization of DQC.

Primarily based on the guidelines developed by the TB LINC project, IMPACT customized the workshop design to include onsite comparison with ITIS data entries and system-generated reports in anticipation of an eventual shift to electronic reporting by 2017. The enhanced technical package was endorsed to DOH-NTP as a standard procedure, together with a technical advisory recommending a gradual shift to onsite DQC among facilities with documented low data quality. This assumes that full implementation of ITIS will minimize data quality issues because of automated data entry validation rules and report generation. Funding support from DOH regional offices beginning Q4Y4 for 11 of the 23 DQC workshops suggests a gradual move toward the institutionalization of DQC.

In 2015, the Project implemented a similar DQC initiative largely based on WHO Routine Data Quality Assessment (RDQA) procedures in 18 DOTS facilities across nine project sites. IMPACT recommended RDQA as an onsite ITIS-based activity. A report on the experience was forwarded to WHO and DOH-NTP.

IMPACT also designed a DQC activity for PMDT. The activity design included lectures on how to conduct DQC using paper-based and ITIS data. Using this design, the NTP core teams of DOH-ROs 4B, 11, and 12 learned how to identify, validate, and analyze PMDT data. This led to a better appreciation and understanding of their roles as regional NTP coordinators. It also spurred them to improve PMDT implementation in their areas, most notably in Region 4B. PMDT DQC is now routinely conducted as part of the validation procedure of DOH-NTP and PBSP-Global Fund TB project.

TB Geographic Information System (GIS) Dashboard. To help monitor key program indicators, the Project developed a TB geographic information system (GIS) dashboard. Linked to the DOH Integrated

TB Information System (ITIS) database, the GIS dashboard was designed to track, in real time, NTP performance and other demographic statistics at national and subnational levels. It provides a color-coded general overview of the TB burden and the status of program implementation. Using a third-party commercial software service (ArcGIS) for map plotting, the system displays graphs and tables that could be incorporated in reports to help program managers understand trends and related data. With the data summarized in graphs and presented in color, they can also be used as an advocacy tool for LCEs.
The TB GIS dashboard is highly dependent on a fully functional ITIS, the timely encoding of registered cases, basic computer hardware, good internet access, and IT-literate personnel. Its development took four years as ITIS itself simultaneously developed other new modules (e.g., laboratory, PMDT) and required several systems upgrade to accommodate the systems requirements of TB GIS (e.g., data traffic overload and, initially, lengthy data processing that led to prolonged buffering or computers hanging).

The basic TB GIS dashboard is currently incorporated in ITIS as one of its added features, and subsequent subscription to the ArcGIS software will be borne by DOH-NTP for the GIS's continuing functionality. The Project has left its proposed GIS enhancements with DOH Knowledge Management and Information Technology Service to pursue in the future as agreed with DOH-NTP.

b. Program implementation review (PIR)

To help review NTP performance at the provincial and city levels, the Project developed an activity design for PIR that used the 2010–2106 Philippine Plan of Action to Control TB (PhilPACT) as framework.

In the past five years, the Project funded and facilitated a total of 72 provincial/city PIR workshops. These were timed at midyear to precede the annual planning cycle of LGUs, which begins in the third quarter of each calendar year. In some USG sites, the DOH regional office funded the PIR, with IMPACT facilitating the activity. These activities were not included in the 72 PIR workshops mentioned above.

Upon the launching in Year 5 of the Philippine Strategic TB Elimination Plan Phase 1 (PhilSTEP1) 2017–2022, the Project revised the PIR design based on the framework of the new national TB strategic plan. The revised design was included in the technical assistance package, tools, and guidelines for the regionalization of PhilSTEP1. These were subsequently endorsed to DOH-NTP and were proposed to be used in monitoring the regional TB strategic plans (described further below).

c. Monitoring and mentoring

Starting Year 4, the Project focused on monitoring the implementation of all previously provided technical assistance, and mentoring RHU staff on various aspects of TB program implementation. This was done in collaboration with the PHOs/CHOs and the DOH ROs with the objective of enhancing their capacity to do monitoring and mentoring when the Project phases out.

IMPACT developed a standard monitoring and mentoring guide specific to project TA, and trained the Project's area facilitators (AFs) to use the tool. In all, the Project completed 909 facility visits across all 43 project sites during which the AFs discussed locally appropriate interventions with the RHU based on monitoring findings. The more salient findings were (i) household contact tracing was more consistently done during follow-up visits when the RHU staff had been mentored in engaging community health volunteers for contact investigation; (ii) referral of presumptive DRTB for Xpert testing had improved, although this was dependent on accessibility of Xpert sites; (iii) the status of DOH certification and

PhilHealth accreditation had been updated; and (iv) attribution of cases to specific sources (e.g., community, private providers) had improved as shown in the presumptive TB master list.

The Project monitoring tool was designed to specifically look into progress in implementing project interventions. However, it also covered many aspects of the TB program. Hence, IMPACT forwarded the tool to DOH-NTP during the latter's revision of the current NTP MOP monitoring tool. In the end, DOH-NTP opted to revise the NTP MOP monitoring tool and subsequently field-tested it.

d. Mentoring the supervisors of community health volunteers

While most barangay health workers had adequate supervision through the public health nurses (PHNs) and rural health midwives (RHMs), community- and faith-based organization (CBO/FBO) volunteers did not have the same level of supervision because they were outside the RHU organizational structure. To address this gap, the Project shifted its approach from training volunteers to mentoring the NTP supervisors (PHNs/RHMs) and CBO coordinators. The intention was to enable PHNs/RHMs to mentor the volunteers and provide supportive supervision particularly during intensified case finding. The mentoring TA package was implemented in Year 4 and the first half of Year 5.

Based on the insights learned from the initial implementation, the Project developed a technical assistance package on mentoring to serve as guide for partners implementing LGU-CBO engagements for TB control. The mentoring guide is available as a working document that future projects and DOH-NTP may pick up, finalize, and send out as field guide.

2. The Project ensured the quality of DOTS services and additional funds for TB control through DOH certification and PhilHealth accreditation of TB-DOTS facilities

The Department of Health started certifying TB-DOTS facilities in 2006 with the following objectives: (i) provide the public and payers of health care the assurance that TB-DOTS facilities are capable of providing safe and effective DOTS services to TB patients, and (ii) standardize the provision of DOTS by applying a uniform set of standards. On the other hand, PhilHealth supports the quality of DOTS services by accrediting health facilities and health care providers even as it guarantees sustained delivery of quality DOTS services through a financial package for DOTS facilities.

By the end of Year 5, the total number DOTS facilities in 43 U.S. Government-supported sites that were accredited by PhilHealth was 70% (1,037 of 1,473), up from the baseline of 48% in 2012, but 5 percentage points lower than the end-of-project target of 75%.

IMPACT assisted the LGUs in 43 project sites in assessing their facilities for DOH's DOTS certification and PHIC accreditation, filing claims for the DOTS benefit package, and using PhilHealth reimbursements as additional financing resource for TB control. For RHUs that were already DOH certified and PHIC accredited, TA focused on ensuring continuous participation and accreditation. For RHUs that were not yet certified, TA included individual facility coaching or group TA on accomplishing the PhilCAT self-assessment form to secure certification by the DOH regional office or the Regional Coordinating Committee-NTP.

Follow-on TA included, among others, orientation sessions on increasing availment of the TB-DOTS benefit package, tools for improving and tracking PhilHealth claims and reimbursements, and workshops on utilizing and accessing the trust fund from TB-DOTS reimbursements By end of Year 5, 303 (44%) of 679 monitored LGUs in USG sites have utilized PHIC reimbursements for TB services. Access to the

reimbursements, lodged in a trust fund, were mandated by a resolution or ordinance. As a follow-on, the Project recommends that a mechanism be developed for tracking availment and improved utilization of the PhilHealth TB-DOTS benefit package.

3. TA on participatory evidence-based legislation enabled LGUs to craft policies that appropriated funds for TB control

Findings of the Project's rapid situational analysis and consultations with NTP teams confirmed the need for policy and budget support for local TB control. The Project responded with a TA package on participatory evidence-based legislation (PEBL) for TB control. This was designed for municipal health officers (MHOs) and LGU officials, specifically the health committee chairpersons of the *Sanggunian Bayan* or SB (municipal legislative council), the SB secretariat, and other key officials involved in health policy making.

By end of Year 5, the Project had achieved the end-of-project target of 70% (478/679) of LGUs in 38 USG-supported sites (this excludes ARMM provinces) that have enacted policy issuances with budget support to the local TB control program. This is a marked improvement on the 2012 baseline of 35% (199 of 571 LGUs).

The policy issuances allocated a total budget of PhP71,153,178 in Year 5. Component cities and municipalities claimed the lion's share of this aggregate, at 79% or PhP56,039,534. Provinces and highly urbanized cities accounted for the balance, 21%, equivalent to PhP15,113,644. In the Autonomous Region in Muslim Mindanao, 12 of 14 LGUs with approved TB issuances allocated a combined amount of nearly PhP1.9 million.

The approved TB ordinances identified a variety of expense items for which the appropriation may be spent. These included purchase of anti-TB drugs, medicines, and reagents; advocacy, IEC, and health promotion; capability-building activities; participation in external quality assessment; monitoring and supervision of DOTS facilities; renewal of DOTS accreditation; operational expenses of multisectoral alliance, TB council, TB task force or similar bodies; reproduction of NTP forms; incentives for barangay health workers for their involvement in TB-related activities; incentives for treatment partners for their assistance to TB patients; maintenance of community-based remote smearing stations; provision of honorarium to medical technologists, microscopists, and laboratory technicians; and local support to PMDT implementation.

The experience of the municipality of Odiongan, Romblon province (Box 8) illustrates how a local policy paved the way for an LGU to use PhilHealth reimbursements for TB control activities.

Engaging the provincial, municipal, and city leagues. Recognizing the role of LGUs in strengthening localization of TB control programs, IMPACT, through a sub-grant mechanism, engaged the Leagues of Cities/Municipalities/Provinces of the Philippines (LCP, LMP, and LPP) as institutional facilitators of LGU advocacy for TB control. The leagues were tasked to advocate with and encourage all local chief executives in the project sites to provide policy and financial support to sustain TB control program implementation.

National-level issuances such as the LMP Resolution, LCP National Executive Board Resolution, and the LPP General Assembly Resolution expressing full support to the National TB Control Program and PhilPACT emanated from the leagues. League partners mounted LCE dialogues with their MHOs on TB program challenges and prepared audiovisual presentations with messages from their national officers urging LCEs nationwide to support their advocacy for TB control.

The three leagues worked to pass TB ordinances that provided for budgetary support for TB control. Despite their supposed clout, access to, and influence over their member-LCEs, the LGU leagues were not able to meet the target number of policies supporting TB control. Based on this experience, the Project recommends that it is best to mobilize LGU leagues, at the most, as co-conveners of LGU health summits at the regional and local levels, and as part of multisectoral alliances in TB elimination at the national, regional, and local levels.

Box 8

Local policy opens up funds for better health services

Political will and a policy issuance paved the way for the municipality of Odiongan, **Romblon** province, to mobilize PhilHealth reimbursements for better TB service delivery.

Spurred by data on the province's tuberculosis problem so graphically presented at the 2013 provincial health summit, the health committee chair of Odiongan's *Sangguniang Bayan* (municipal legislative council) felt the need to act. He knew that financial resources to move the LGU's TB control program were available from PhilHealth TB-DOTS reimbursements. But how to dip into this cache was the question.

It was a good thing the League of Municipalities of the Philippines (LMP) Romblon Chapter and IMPACT were on hand. Together, they assisted him, as the main sponsor, in crafting a policy issuance that mandates the creation of a trust fund for PhilHealth reimbursements. They also coached him to rally support from his colleagues at the Sangguniang Bayan. After much debate and consultation, the Sanggunian passed Municipal Ordinance No. 2013-06, which set the guidelines on the use, management, disposition, and allocation of the trust fund/reimbursements related to all PhilHealth benefit packages, including TB-DOTS, maternal and child health, and newborn care. The said ordinance has allowed the LGU access to additional monies for TB control activities.

For the period 2013 to 2016, the LGU received PhilHealth reimbursements for TB-DOTS worth PhP1.6 million. This amount came from the claims payment to 742 TB patients who completed treatment during the said period. Adhering to the provisions of the municipal ordinance, the LGU disbursed a total of PhP1.1 million. This was used to cover (i) honorarium of health workers involved in TB care; (ii) procurement of medicines, like streptomycin and ethambutol, and supplies (e.g., syringes, needles); and (iii) printing and reproduction of various TB-DOTS recording and reporting forms.

As of this writing, the former chair of the Sangguniang Bayan Committee on Health now sits as the vice mayor of Odiongan, a position he uses to further improve his constituents' access to quality health services.

4. **Establishment of multisectoral alliances facilitated collaboration between local NTP teams and multisectoral/multidisciplinary groups**

The Project achieved its Year 4 target of 46% (20 of 43) of provinces/cities with functional multisectoral alliance (MSA) or PCCC/CCC) to combat TB, but failed to meet the mark (86% or 37 of 43 provinces/cities) by the end of the Project owing to various challenges.

Local government units implementing TB control programs have wide variations in performance in case finding and case management. Aside from poor health-seeking behavior of presumptive TB cases, low case detection, low cure, and low treatment success rates were found to be related as much to problems with the health systems as the political will of local authorities and policy makers to provide tangible support to TB control, and the commitment of support of multisectoral groups to participate in the
program. One of the Project's strategies to address these systemic barriers was the establishment of MSAs to facilitate collaboration and partnership between LGU service providers and local multisectoral groups.

Starting in Year 2, the Project began assisting LGU partners in either organizing or strengthening their respective MSAs. Specifically, IMPACT provided technical inputs in advocacy, communication, and social mobilization workshops and MSA meetings; and facilitated the TB strategic planning. The strategic plans included advocacy, IEC, and social mobilization activities in support of demand generation and service provision.

Despite best efforts to persuade partners to activate their MSAs, majority of the LGUs in NCR decided not to organize a new alliance. Instead they opted to maintain their local health board. Other provinces meanwhile were not able to push through with the formation of the MSA because of unfavorable political conditions. These explain why the Project was unable to achieve its end-of-project target of 86% (37 of 43) of LGUs having functional MSAs. Nonetheless, the Project had sufficient empirical information and learnings that enabled it to develop a step-by-step module titled "Guidelines in the Formation and Strengthening of Multisectoral Coordinating Committee." The module is part of the technical assistance packages that IMPACT handed over to DOH-NTP at the end of the Project.

5. Training on outsourcing aimed to address the human resource need in the TB control program

The 2013 NTP Joint Program Review (JPR) underscored the need to address the lack of human resource in TB service delivery. In response, the Project trained DOH regional and provincial health offices on outsourcing non-core services and TA requirements at the service delivery level to private providers and NGOs. Drawing on an earlier TA module of HPDP2, health workers were instructed on the key elements required in scopes of work, the process of selecting private TA service providers competitively, and monitoring compliance with terms of reference. The Project simplified and tailored the module to the needs of NTP.

Several successful outsourced services were documented in seven of the Project's nine target regions – including some provinces, as follows:

a) DOH-RO 1 engaged the University of the Philippines College of Public Health to conduct microscopy training, and hired a private consultant as lead facilitator for the development of the six-year regional TB strategic plan based on PhilSTEP1;
b) DOH-RO 2 outsourced the training on maintenance and handling of microscopes, and the training on counselling;
c) DOH-RO 3 outsourced their requirements for transport and distribution of TB drugs to various LGUs;
d) DOH-RO 7 outsourced mobile chest X-ray services for screening jail and prison inmates;
e) DOH-RO 9 engaged Ateneo de Zamboanga University for the development of a software for online DOTS certification;

f) DOH-RO 10 (Misamis Oriental) signed a memorandum of agreement with the private Gingoog Sanitarium Hospital for chest X-ray services for presumptive TB cases; and
g) DOH-NCRO outsourced its HIV proficiency training, which included TB-HIV management.

But the rest of the ROs hesitated to outsource because (i) they were wary of audit issues for a relatively uncommon and/or unfamiliar practice, (ii) their technical writing skills were limited, (iii) the pool of qualified contractors is limited, (iv) outsourcing services was not included in their budget plan, and (v) they preferred not to assign training to private service providers.

A review of the outsourcing initiative listed the following recommendations to consider in developing future technical assistance packages on outsourcing:

a) provide orientations or training activities on the procurement processes and contracts management in general, and highlight outsourcing in particular;
b) simplify further the procurement processes and requirements for outsourcing while emphasizing not only the requirements but also the flexibilities in the procurement/ outsourcing process that are within the bounds of the procurement law;
c) provide opportunities for discussion on auditable items, with representatives from the Commission on Audit, if possible, during orientations and other training activities;
d) involve program staff and those from the Planning, Finance, and Procurement units in capacity-building activities;
e) schedule orientations and training activities regularly to accommodate newly hired and/or newly re-assigned staff;
f) encourage regional offices to include projects or activities for outsourcing in their proposed work plans;
g) provide regional offices at the soonest possible time with a copy of their final and approved annual work plan so that they can initiate processes for outsourcing as early as possible;
h) establish a hotline for technical assistance on procurement outsourcing processes;
i) create and regularly update a roster of potential contractors for various NTP technical services for outsourcing;
j) consider advertising, ahead of time, NTP's need for contractors for technical services together with information on the minimum requirements that bidders must satisfy;
k) support interested bidders or potential contractors in building their capacity to qualify as future contractors of NTP technical services; and
l) offer training of trainers on the different courses in the NTP to interested potential contractors for training and other human resource development activities.

D. TECHNICAL ASSISTANCE TO DOH-NTP (NATIONAL LEVEL)

1. Updating PhilPACT 2010–2016 and crafting PhilSTEP1 2017–2022

In 2013, midway to concluding the 2010–2016 Philippine Plan of Action to Achieve Control of Tuberculosis (PhilPACT), DOH-NTP convened a team of international and local experts to conduct the NTP Joint Program Review (JPR 2013). Four technical specialists from IMPACT were included in the teams that conducted site visits and assessed the eight thematic areas comprising the PhilPACT strategies. Subsequently, PhilPACT was updated with the same specialists providing technical inputs to the strategies on DOTS service delivery, MDRTB and vulnerable groups, information management system, and governance. The updated PhilPACT was released in 2014.

With PhilPACT approaching its 2016 conclusion, DOH-NTP convened the 2016 NTP Joint Program Review, again with four IMPACT technical specialists as members. The 2016 JPR recommendations formed the bases for the new strategic plan, the Philippine Strategic TB Elimination Plan (PhilSTEP).

The technical writing group for the new medium-term TB strategic plan included four IMPACT technical specialists who sat in the subgroups on health promotion/demand generation, information system, service delivery, and governance. Project interventions provided the evidence supporting the strategies and most of the key activities in PhilSTEP1. This, in effect, institutionalizes these interventions in the TB control program. These include (i) engagement of community-based groups for TB; (ii) integrated marketing communication; (iii) financing through PhilHealth TB-DOTS benefits; (iv) alternative teaching/learning platforms for all NTP health care workers; (v) integrating NTP modules in school curricula; (vi) linking ITIS to other information systems; (vii) mandatory TB notification; (viii) data quality check; (ix) monitoring and facilitative supervision; (x) annual performance assessment and improvement planning; (xi) strengthening infection control in health facilities; (xii) improving the capacity of quality assurance centers; (xiii) systematic screening of TB high-risk and vulnerable groups; (xiv) integrated DOTS (iDOTS); (xv) expanding private sector engagement; (xvi) establishing, supporting, and sustaining provincial/city DOTS networks; (xvii) multisectoral coordinating committee for LGU governance; and (xviii) development of local TB elimination plan.

Following the completion of the national TB strategic plan, the Project developed for DOH-NTP the guidelines for regionalizing PhilSTEP1, including the activity design and tools for regional and provincial/city dissemination activities and workshops. The Project's technical specialists served as key resource speakers and facilitated or co-facilitated the conduct of these workshops in 13 regions (Regions 1, 2, 3, 4A, 4B, 5, 6, 7, 8, 9, 13, CAR, and ARMM). In the extension year, the Project assisted in completing the draft regional PhilSTEP plans of six regions (Regions 3, 4A, 5, 6, CAR, and ARMM).

2. Assistance to the National TB Reference Laboratory in securing ISO 15189 accreditation

A major technical assistance to the National TB Reference Laboratory was support to securing ISO 15189 accreditation for NTRL. Box 9 provides details of the TA.

With project support, the Laboratory Network Strategic Plan or LNSP (based on PhilPACT 2010–2016) was completed in Year 2. A formative assessment conducted in Year 4 and led by IMPACT showed that the LNSP was not well disseminated and seldom used for planning, budgeting, and reviewing laboratory activities. The assessment thus recommended that the LNSP be integrated in the new national TB strategic plan (i.e., PhilSTEP1) and that a simple briefer or popular version be developed and disseminated at all levels.

Box 9

National TB Reference Lab awarded ISO accreditation

Posted to Philippines Health Highlights, USAID Philippines Office of Health, January 31, 2018

On December 21 2017, the Department of Health's National Tuberculosis Reference Laboratory (NTRL) received ISO 15189 accreditation, making it the first laboratory of the Research Institute for Tropical Medicine to receive this type of accreditation. ISO 15189 is an international standard that specifies the quality management system requirements for medical laboratories.

Issued by the Philippine Accreditation Bureau of the Department of Trade and Industry, the accreditation places a quality seal on all laboratory procedures provided by NTRL, guaranteeing end-users of the safety, reliability, and good quality of NTRL procedures. These procedures include microscopic examination of clinical specimens, culture isolation of Mycobacteria, and susceptibility testing of anti-TB drugs.

Preparation and application for ISO 15189 accreditation, which took two years, were completed with technical assistance from USAID's Innovations and Multisectoral Partnerships to Achieve Control of Tuberculosis (IMPACT) project, implemented by the Philippine Business for Social Progress, and consortium partner FHI 360. USAID partners trained all management and technical personnel of the NTRL on ISO 15189, supported them to establish an internal auditor's team and to conduct an internal audit of laboratory procedures. USAID partners also assisted in documenting technical and management standard operating procedures, including NTRL's Quality Manual.

NTRL director, Dr. Cecilia Ama, recognized USAID's technical assistance to make ISO accreditation possible, stating, "ISO 15189 accreditation has given us greater confidence to lead the country's laboratory network and deliver quality services. It inspires and motivates us to do better work."

3. Developing the operational guide for PMDT facilities

Expansion of PMDT services to different provinces in the country allowed patients easier access to diagnosis and treatment, thereby preventing transmission, disease complications, and death. However, as the number of facilities increased, varying implementation styles were noted during project monitoring. Moreover, the roles and tasks of the staffs working with TB and DRTB patients were not clear, and the process flow varied and lacked standard.

To address the above cited gaps, the Project documented existing processes and procedures in PMDT treatment centers and satellite treatment centers, which provided the bases for an operational guide for PMDT facilities. The guide specifies the job description of PMDT staffs, sets the daily clinic procedures and operations, and outlines the workflow for patient-centered care.

IMPACT endorsed the operational guide to DOH-NTP for approval and dissemination to all PMDT facilities.

4. Developing the Program Managers' Course

The Project developed a TB program managers' course to address gaps and issues in technical and managerial capability among NTP regional and provincial teams. The course aimed to enhance program managers' oversight and administrative skills – including strategic thinking and responsive planning – in addressing service delivery gaps. It was proposed as a preparatory course for health workers who are in or about to assume managerial posts. The pilot run of the course, which incorporated the TB Roadmap approach of the Health Leadership and Governance Program, was modestly successfully in Region 7. However, the course's further development was deferred because the Philippine Strategic TB Elimination Plan Phase 1 for 2017–2022 was then being finalized and the NTP Manager wanted to focus mainly on monitoring and evaluation. The Project highly recommends that the course be developed and completed immediately to coincide with the periodic review and possible revision of NTP goals and strategies.

5. Technical support to developing the national TB communication campaign and measuring its effect on health-seeking behavior

National TB Communication Campaign. IMPACT played a major role in supporting the demand-generation efforts of DOH-NTP. In 2013, DOH-NTP convened various stakeholders and partners – including IMPACT and CHANGE, the lead USAID health communication project – to draw up the national TB communication campaign. The result was a three-phased media campaign that targeted people with TB symptoms, people who interrupt or default during treatment, other vulnerable groups, health service providers, and influencers of people with TB or TB symptoms, such as family and co-workers. IMPACT technical specialists provided inputs on how the Project as well as TB LINC, its predecessor, implemented advocacy, communication, and social mobilization in getting key players to participate in TB control.

Additionally, the Project provided technical support in translating into various dialects the TB IEC materials developed at the national level. IMPACT–local partner collaboration translated IEC materials into (i) Northern Subanen dialect, with the Provincial Multisectoral Alliance (PMSA); (ii) Maranaw dialect, through the Dansalan TB Council of the Islamic City of Marawi and the PMSA; and (iii) the Visayan language, through *Koalisyong Misasmisnon Batok* TB (literally, Misamis coalition against tuberculosis) of Misamis Oriental. The Project also supported the translation of the TB fatwa into Filipino, Maguindanaoan, Maranaw, and Tausug languages.

Measuring the Effect of the TB Mass Media Campaign. Between January and March 2017, IMPACT in collaboration with CHANGE determined whether the third phase of the national TB mass media campaign influenced presumptive TB cases' seeking consultation, and TB patients' completion of TB treatment.

The communication campaign consisted of a TV commercial that talked about the need to consult when one has cough of two weeks or more. The TV ad was aired for a total of 11 weeks from September to December 2016 over two major television channels, namely ABS-CBN and GMA. IEC materials, specifically posters, fans, and stickers, complemented the TV ad. These materials illustrated TB symptoms, transmission, and prevention, and the need to consult when one experiences cough of two

week or more. These were distributed among the target audience in 17 RHUs/health centers in eight project sites. Reminders to complete TB treatment were sent everyday through SMS (text message) to 207 patients and 14 treatment partners of TB patients who did not have mobile phone.

Of the 1,803 respondents interviewed, 1,278 (71%) consulted with the RHU/health center for cough and the rest (29%) for other symptoms of TB.

In all, 897 (89%) of 1,008 respondents who had seen the TV ad on TB said it had influenced them to seek consultation. A similar proportion of respondents said the same thing for the other IEC materials: fan (89%), poster (90%), sticker (89%) and a video on *Ubo* (literally, cough) 101 at 85%.

While the number of consultations increased in the study sites from January to March 2017, no statistical difference was found when compared with that in the preceding quarter (Oct–Dec 2016) and during the same period in the previous year (Jan–Mar 2016). Given that some facilities do not regularly maintain a presumptive TB master list, IMPACT validated the number of presumptive TB who consulted with the RHU/health center by examining the TB laboratory register and counting those who underwent direct sputum smear microscopy. Again, no statistical difference was found in the number of presumptive TB who consulted during the three time periods.

A total of 265 (73%) of 365 patients who completed treatment during data gathering received the SMS reminders. All 265 of them reported that the reminders helped them to complete the treatment. This finding points to the potential of SMS reminders to reinforce patients' decision to adhere to their treatment. With the increasing availability of computer and mobile applications, daily text messages can be sent out automatically with minimum effort and cost. The Project recommends that local and national TB program managers strongly consider the use of SMS to improve case holding.

Given the shorter duration of the TB Phase 3 campaign compared with that of previous campaigns, the Project recommends that DOH-NTP consider implementing more extensive national as well as community-based communication campaigns together with other innovative interventions that will address behavioral barriers to improving treatment adherence.

Measuring the effect of a communication campaign on behavior should be designed early on as an integral part of any behavior change communication initiative. Monitoring at the national and local levels should always complement future communication campaigns to continuously provide a basis for and logic to succeeding campaigns.

6. Developing the compendium of IEC materials

In Year 5, the Project conducted a review of existing TB IEC materials used by the TB program in the last 10 years (2006–2016), whether produced by USAID-assisted projects or by DOH partners. The review sought to determine which IEC materials were still relevant and useful based on audience reach, message effectiveness, and action orientation.

Based on the review, the Project prepared a catalogue of materials that could still be used, reproduced, and disseminated. The review showed that none of the materials could be used without updating certain sections. The findings and the compendium were then presented to DOH-NTP for inputs and

comments. Based on these inputs, the Project enhanced the compendium to include specific guidance in improving the materials.

The experience with this undertaking highlighted a key learning—the review of materials should lead to updating the materials to reflect current information needs and behavioral objectives. It is also recommended that this kind of activity be conducted at the start of a project.

7. Harmonizing the TA plan of key TB partners

In January 2013, DOH-NTP together with USAID cooperating agencies, WHO, and PBSP-Global Fund for TB project harmonized the technical assistance and research agenda of TB partners and identified needed interventions in areas covered by USAID assistance. Together with other active TB stakeholders, harmonization workshops were held annually thereafter to monitor the progress of commitments and coordinate proposed activities for the succeeding year. Box 10 tells more about this initiative.

Box 10

Putting our act together: The TA harmonization workshops

Throughout its project life, IMPACT closely coordinated with all TB stakeholders – including other relevant cooperating agencies, implementing partners, and non-governmental organizations. The Project hosted annual harmonization workshops that allowed all TA providers to list their proposed and ongoing activities according to identified needs of DOH-NTP in the medium-term strategic plans (i.e., PhilPACT and PhilSTEP1) for TB elimination. This provided an opportunity to examine the proposed annual plans of all organizations, track prior commitments, and generate an agreed line-up of activities. The harmonized TA plan served as an overall guide for all partners and TB control program managers at national and subnational levels in prioritizing activities. It promoted agreements and partnerships while allowing clarifications and avoiding duplications regarding objectives, scope, and manner of all TB-related interventions across the country. This yearly gathering of TB players was cited by many as a good practice worth replicating in other health programs.

8. Technical assistance to the Green Light Committee visits to the Philippines

IMPACT participated in the 2014 and 2016 monitoring visits of the Green Light Committee (GLC), the DRTB advisory body of WHO. In 2014, GLC consultants forwarded nine recommendations, five of which the Project responded to, as follows:

GLC Recommendation	Action Taken
Review the need for additional GeneXperts; consider developing a patient referral network and sputum transport before installing new GeneXpert machines	• Developed a DRTB referral system in 32 project sites • Oriented service providers in 32 project sites on sputum collection, packaging, and transport
Pursue treatment decentralization as early as possible and ensure treatment is closer to the patient	• Developed the iDOTS implementing guidelines and monitored iDOTS implementation
Improve health education for patients and encourage more interaction between staff and patients	• Developed the counseling training module for TB health care providers
Revise and expand the list of available ancillary medicines	• Assisted DOH-NTP in identifying ancillary medicines for adverse drug reactions due to second-line anti-TB drugs (the list is included in the PMDT Implementing Guidelines)
Implement short treatment regimens and new drugs as appropriate	• Participated in protocol development for the 9-month treatment regimen study and the bedaquiline study • Participated in monitoring implementation of the two studies

9. Gender assessment

Informed by the findings of the 2016 National TB Prevalence Survey, IMPACT assessed gender issues in accessing care, focusing on gender-related areas of TB services that the survey did not tackle, specifically:

a) **time elapsed to access TB diagnostic services after perceiving onset of TB symptoms.** If there are delays in accessing diagnosis, what are the sex-specific reasons for such delays? (Research question: Why do women [or men] have a longer period of delay before diagnosis?)
b) **treatment adherence and completion.** If one sex is less likely to complete treatment, explore the reasons for such phenomenon. (Research question: Why are men [or women] less likely to complete treatment?)

The assessment was conducted in six municipalities/HUC in three project extension sites: Arayat, Macabebe, and Porac in **Pampanga**; Bacoor and Imus in **Cavite**; and **Las Piñas City**. The assessment found, among others, that:

> *"Gender roles of women and men affect access to TB services, i.e., [from] diagnosis to treatment. Both women and men TB patients have access to TB services. However, married men are more advantaged because they have more time to visit the center regularly and have more access to*

rest without the worries of reproductive responsibilities compared with women patients. Women patients would need support in their housework and child-rearing roles so that they can enjoy rest and be provided with proper nutrition because of their tendency to disregard their own needs in favor of the husband and children.

Sex does not affect decision-making to consult. Gendered expectations and roles do. Women are motivated to consult because they want to live for their family and children. Men are required to consult because they need to obtain a fit-to-work certificate to be accepted for employment."

Key recommendations of the study are:

a) sensitize the men and women to encourage male participation in the home and in community activities for the prevention and treatment of TB and overcoming stigmatization;
b) conduct counseling for the immediate family of patients to debunk the myths about TB, avoid discrimination, and become sensitive to the needs and feelings of patients. Include gender sensitivity, and shared parental and reproductive responsibilities in the counseling; and
c) intensify information dissemination at the barangay level that will reach the far-flung areas of rural towns so people will be aware that there is a cure for TB and free services and medicines are available at the DOTS center. Information strategies should be designed separately for women and men.

E. Other Technical Assistance

1. Support to the Health Leadership and Governance Program

IMPACT worked with Zuellig Family Foundation (ZFF) on the integration of TB in Health Leadership and Governance Program (HLGP) courses for health officers and local chief executives. The Project also developed the TB Roadmap and Municipal Appraisal Tool (MAT) for assessing the enabling environment for LGUs' successful implementation of the TB control program. Based on performance indicators and targets of the 2010–2016 PhilPACT, the NTP MOP, and the DOTS Compliance Assessment Tool (DCAT), responses were assigned scores used for color-coding the building blocks and thereby identify gaps and priorities in the TB technical road map's six pillars for Universal Health Care.

ZFF piloted the tools and subsequently used them as secondary guide or road map for LGUs that were unable to meet NTP targets for case detection rate and treatment success rate. With the modestly successful implementation of the tools in select provinces, the Project recommends them to be further promoted, once revised, among LCEs and local TB managers to accommodate performance targets and strategies of PhilSTEP1 and the new NTP MOP directives.

2. Replicating SIAPS's barangay health management council

The barangay health management council (BHMC) is a health governance committee at the village level that is expected to collaborate with the city/municipal health officer in developing community-based programs to address the barangay's TB burden and other priority health needs. It aims to engage village officials, health workers, and community stakeholders (e.g., church, schools) to coordinate their efforts to strengthen local health systems and complement efforts of the CHO/MHO to provide TB control and

other health services. BHMCs were first successfully established in urban poor settlements in one district in Quezon City by SIAPS.

In Year 5, the Project sought to find out if BHMCs can be successfully replicated in a rural setting and in another urban area. For comparison between urban and rural settings, the municipality of Alfonso, Cavite (rural) and Las Piñas City (urban) were selected. Three barangays in Alfonso (Upli, Pajo, and Taywanak) and another three barangays in Las Piñas were selected by the respective CHO/MHO and local NTP teams because of their relatively big populations and high number of TB cases compared with other barangays in the municipality/city.

With technical assistance from IMPACT and LGU partners, all three BHMCs in Alfonso issued a resolution officially creating the barangay health management council, with each BHMC allocating an initial fund of PhP10,000 to support its activities. In Las Piñas, one of the three barangays passed a resolution; the other two did not seem interested to do so. All six BHMCs drew up their respective annual plan with a corresponding budget. The BHMCs also sought barangay support for transporting TB patients and sputum specimens to the DOTS facility. TB orientation for BHWs were carried out by the Alfonso BHMCs, with the assistance of the LGU and IMPACT.

Process documentation showed that BHMCs in Alfonso, Cavite, were more active than those in Las Piñas. For example, a BHMC in Alfonso initiated sputum tests in schools to assess students and teachers for TB. This was led by a BHMC member representing teachers. The BHMC encouraged other members to find community members with TB symptoms and advise them to go to the DOTS facility for checkup. This experience is illustrated in the words of the BHMC co-chair in Pajo, Alfonso:

> "Before, we would only learn of TB patients when they approached the health center because they could not bear their illness anymore. Now (after the creation of BHMC), we're aware of the symptoms [of TB] and are able to encourage people to go for medical checkup and early treatment, if found positive for TB."

The replication experience highlighted the BHMC's value as a venue for CHO/RHU– barangay government collaboration in planning, budgeting, target setting, and implementing TB control activities at the village level.

3. Responding to disasters

In Year 2, typhoon Yolanda (international name: Haiyan) damaged health facilities, primarily barangay health stations as well as rural health units and hospitals. USAID Office of Health, through the IMPACT and VisayasHealth projects, assisted the affected areas with critically needed logistical support identified by local partners. IMPACT provided relief assistance valued at PhP5 million ($116,279) distributed among local health offices through their respective Center for Health Development, now called DOH regional offices. Long-term assistance (e.g., human resource augmentation, provision of microscopes) was extended through TA Plus.

The Project also developed and administered a post-disaster TB risk assessment form. This eventually became part of DOH Administrative Order 2015-0039 for TB management during disasters, another Project-assisted policy product for the DOH.

In 2017, after the five-month conflict between insurgents and government troops in Marawi City, the Project coordinated with DOH-ARMM and respective LGU responders to facilitate implementation of the

said policy. IMPACT provided assistance in conducting systematic screening in camps for internally displaced people in Marawi and surrounding municipalities. This initiative screened 2,349 evacuees using chest X-ray, diagnosed 111 TB cases, and enrolled them in treatment. Based on the experiences in Marawi City and with Project technical assistance, DOH-RO 10, DOH-ARMM, and other key players reviewed the policy on TB management in disaster and forwarded their recommendations to DOH-NTP.

The Project responded to several emergency disaster situations. In December 2012, a medical team composed of IMPACT project staff from the Manila and Mindanao field offices provided emergency medical services to the residents of Davao Oriental province following typhoon Pablo (international name: Bopha). The team provided consultations and medicines to 344 individuals, majority of whom were suffering from acute respiratory tract infection and diarrhea. PBSP, through its Mindanao regional office, purchased a total of 4,500 Sphere and distributed these among 4,040 families. The total cost of the IMPACT-funded packs was PhP2,510,271.00 ($59,768).

The Project similarly assisted communities affected by the 2013 armed conflict and widespread flashflood in Zamboanga City. The twin disasters displaced 23,794 families who received USAID assistance valued at PhP1 million ($23,255).

ANNEX A. Distribution of Health Workers Trained in the Components of WHO Stop TB Strategy

Annex A Table 1. Distribution of Health Providers Trained in the Components of the WHO Stop TB Strategy with USG Funding, by Region, 2017

Region	Health Providers Trained	
	Number	Percent (%)
North Luzon	6,817	16
NCR	4,686	11
South Luzon	7,669	18
Visayas	8,095	19
Mindanao, Non-ARMM	12,355	29
ARMM	2,982	7
TOTAL	**42,604**	**100**

ARMM = Autonomous Region in Muslim Mindanao; NCR = National Capital Region; TB = tuberculosis; USG = United States Government; WHO = World Health Organization

Annex A Table 2. Distribution of Health Providers Trained in the Components of the WHO Stop TB Strategy with USG Funding, by Profession, 2017

Profession	Health Providers Trained

	Number	Percent (%)
Registered nurse	8,947	21
Midwife	3,834	9
Medical doctor	2,982	7
Pharmacist/Pharmacy assistant	2,982	7
Medical technologist	1,278	3
Student, LCE, others	7,566	18
BHW/CHV	15,014	35
TOTAL	**42,604**	**100**

BHW = *barangay* (village) health worker; CHV = community health volunteer; LCE = local chief executive; TB = tuberculosis; USG = United States Government; WHO = World Health Organization

Annex A Table 3. Distribution of Health Providers Trained in the Components of the WHO Stop TB Strategy with USG Funding, by Sector, 2017

Sector	Health Providers Trained	
	Number	Percent (%)
Private	12,586	30
Public	30,018	70
TOTAL	**42,604**	**100**

TB = tuberculosis; USG = United Stated Government; WHO = World Health Organization

ANNEX B. List of Technical Assistance Products and Assessment Reports

1. **Mentoring Supervisors of Community Health Volunteers in TB Program Implementation**

   This toolkit presents the tools, templates, and steps in mentoring supervisors of community health volunteers (CHV) in TB program implementation. The tools and templates in this toolkit were developed based on the collective experience of local government partners of the IMPACT Project.

   This toolkit is intended for three types of audience. The first is the rural health physician and public health nurse in rural health units (RHUs) as immediate supervisors and first-level mentors of community health volunteer (CHV) supervisors. The secondary users are the CHV supervisors as mentors of their CHVs. The third group of users is NTP coordinators and technical staff of provincial health offices (PHOs), city health offices (CHOs) of highly urbanized cities who serve as technical assistance providers for RHUs/CHOs.

2. **Guidelines in Conducting the Workshop on Strengthening PMDT Case Finding, Case Holding and Referral System**

   This toolkit presents the tools, templates, and steps in conducting the Workshop on Strengthening PMDT Case Finding, Case Holding, and Referral System in support of the tuberculosis control program. The tools and templates in this toolkit were based on the collective experiences of local government partners of the IMPACT Project.

   This toolkit is intended primarily for NTP staff at the Department of Health regional offices who are assigned to provide technical assistance to provinces and highly urbanized cities. It is also

designed for DOH Health Development Management Officers and Provincial/City Health Office NTP team members assigned to conduct the Workshop on Strengthening PMDT Case Finding, Case Holding, and Referral System in the province or HUC.

3. **Guidelines in Conducting Data Quality Check**

This toolkit presents the tools, templates, and steps in conducting data quality check in support of the tuberculosis control program. The tools and templates in this toolkit were developed based on the collective experiences of local government partners of the IMPACT Project.

This toolkit is intended primarily for NTP staff at DOH regional offices assigned to provide technical assistance to provinces and highly urbanized cities, Development Management Officers, and Provincial/City Health Office NTP team members involved in data quality check.

4. **Guidelines in the Formation and Strengthening of the Multisectoral Coordinating Committee**

This toolkit presents the tools, templates, and steps in the formation and strengthening of a multisectoral coordinating committee in support of the TB control program. This toolkit should be used together with the toolkit for "Establishing DOTS in SDN." The tools and templates in this toolkit were developed based on the collective experiences of local government partners of the IMPACT Project.

This toolkit is intended primarily for NTP staff at the Department of Health regional offices who are assigned to provide technical assistance to provinces and highly urbanized cities. DOH Development Management Officers, and Provincial/City Health Office NTP team members can also use it as guide in conducting the Workshop on Strengthening PMDT Case Finding, Case Holding, and Referral System in the provinces or HUCs.

5. **Guidelines in Establishing a DOTS Network**

This toolkit presents the tools, templates, and steps in establishing local Delivery of TB Services (DOTS) network in support of the tuberculosis control program. The tools and templates in this toolkit were developed based on the collective experiences of local government partners of the IMPACT Project.

This toolkit is intended primarily for NTP staff at the Department of Health regional offices who are assigned to provide technical assistance to the provinces and highly urbanized cities, and also for DOH Development Management Officers and Provincial/City Health Office NTP team members involved in establishing a DOTS network at the local level.

6. **Local Health Policy Development: Participatory Evidence-based Legislation for the TB Control Program**

This toolkit presents the tools, templates, and steps in developing participatory evidence-based local policies in support of the tuberculosis control program. The tools and templates in this toolkit were developed based on the collective experience of local government partners of the IMPACT Project.

This toolkit is intended for officers of health offices at the national, regional, provincial, city, and municipal levels who are assigned to conduct training in the formulation, implementation, and evaluation of local health policies at the local level.

7. TB Caravan: A Mobile Case-finding Strategy

This toolkit details the criteria for site selection, target clientele, required logistics, proposed procedures, data management, and monitoring and evaluation for the TB Caravan strategy. The tools and templates in this toolkit were developed based on the collective experiences of the Department of Health National Tuberculosis Control Program and local government partners of the IMPACT Project.

This toolkit is intended for health program managers at different levels (DOH RO, PHO/CHO, and RHU) who will oversee planning, implementation, and monitoring of systematic screening programs. Secondary users are development partners who will support such activities.

8. eLearning Course on the NTP Manual of Procedures, 5th edition

The revised NTP MOP online course is an alternative to the traditional classroom type MOP training course. It is designed primarily for information technology (IT)-literate physicians and nurses in DOTS facilities, with secondary targets as follows: IT-literate physicians and nurses from hospitals, private facilities, and partner agencies who are involved or will be involved in NTP implementation. Teaching and learning will be carried out in the Philippine TB eLearning Site at http://impact.pbsp.org.ph:181/PhilTB.E-Learning until the DOH assigns a suitable site for hosting it. The course is web-based and can be easily accessed by registered trainees using any laptop or desktop PC with access to the internet of at least 500kbps bandwidth. The course uses the open-source Modular Object-Oriented Dynamic Learning Environment (MOODLE) adopted by many open universities worldwide and customized for distance learning on the NTP MOP.

The course is divided into 11 modules; the last 10 correspond to the 10 chapters of the NTP MOP, 5th edition. Around 24–32 hours of self-study (about 6–8 hours of study per week) over a period of 4 weeks are required for this course. Except for the scheduled live online group chats, trainees may schedule their own study time (e.g., in the morning, during breaks, at night, after office hours, on weekends), but within the prescribed course schedule. The course facilitators will provide guidance and an IT specialist will be available for IT support.

ANNEX C. Explanation for Planned Technical Products Not Completed or Implemented

1. Develop a position paper that outlines HR issues and their effect on TB program performance and public health in Las Piñas

   During project planning for the extension period, analysis of case-finding performance of **Las Piñas City** revealed a low case notificationrate of 246 per 100,000 population in 2016. Root cause analysis points to the lack of staff, specifically physicians, as a key factor in the low program performance. Two of the physicians are assigned to two health centers each, which translates to a high workload for them. Passive TB case finding is thus the practice. In addition, the City Health Officer and the NTP managers were not utilizing data to substantiate the effects of inadequate health human resources nor were they advocating with the LCE for support to health human resources (HR).

   To address this challenge, the Project included in the plan for the extension period to develop a position paper that outlines HR issues and their effect on TB program performance and public health in Las Piñas. The objective was to secure LCE support for additional staff to effectively implement the TB control program. An advocacy material will be developed as well to help NTP managers to effectively communicate the content of the position paper. This specific activity was, however, deleted from the final work plan after comments received during the final presentation of the proposed activities to USAID and WHO in the first quarter of the extension period, as WHO Medical Officer Dr. Raj advised the team not to proceed with this activity for the extension period given that this is actually a very huge undertaking and will also require more cooperation and collaboration with the LCE and City Health Officer of Las Pinas, which may require more time than what the extension period can provide, hence the project may not be able to complete the tasks before the completion of the project. After re-examining our planned activities and timelines, we heeded this recommendation, unfortunately, we were not able to delete this activity from the final work plan submitted and subsequently approved by USAID.

2. TB GIS Dashboard monitoring

   The project developed the TB GIS dashboard, which shows using real-time graphs and charts trends in NTP performance per local government unit and their TB health facility. The dashboard color-codes geographic divisions among regions and provinces that highlight hotspots for TB incidence and treatment defaults to facilitate analysis and determine interventions. The TB GIS dashboard was well received in sites where orientations were conducted, and supported even by WHO as an aid for TB program management. The project therefore planned to monitor the utilization of this tool in year 5, however, KMITS faced challenges in the last quarter of Year 4 of the project and temporarily deleted this feature in its opening interface, and it was only during the last quarter of the extension period that KMITS was finally able to reintroduce this tool. The project was able to verify that this tool is already up and running again by the 2nd quarter of the extension period, however, by that time, the project is no longer in a position to conduct the planned monitoring. KMITS and NTP agreed to incorporate the monitoring of the utilization of this tool in their usual monitoring activities.

3. Develop a guide (job aid) for VOT

The project planned and implemented several technical interventions for the first time during the extension period, which were expected to provide the necessary traction to improve case finding and case holding of TB patients. One of these innovations provide TB patients and health workers an innovative option for treatment modality, called video-observed treatment (VOT), instead of directly observed treatment (DOT), as part of the **Choice Architecture for Patient-centered Supervision of Patients' Treatment**. The Project oriented health workers on the different available choices for choice architecture, including VOT, and the project also planned to develop a guide (job aid) for VOT during the extension period. However, during monitoring of uptake of the different modalities of choice architecture as reflected in the project's Y6Q2 report, there was only one (1) TB patient who opted to use this modality. For this reason, the project decided not to proceed with developing the guide (job aid) for this, as such guide is not likely to be used extensively in the near future. This maybe be due to the perceived expensive cost of sending video clips which is needed as part of this intervention.

4. LGU-CBO engagement assessment

   The project planned to assess the implementation of the technical assistance on engagement of CBOs by LGUs. There was a delay in finding a suitable consultant to do this assessment, hence some delay was encountered by the project in implementing this assessment. When the assessment was completed by the assigned consultant, the project deemed his product not acceptable, and provided guidance on further improving his report. However, after several attempts by the consultant, even with guidance from the project, we still did not find his report acceptable. For this reason, we informed the AOR that we will not be accepting the assessment report and hence we are not able to deliver this product.

5. Procedural guide for the engagement of transport groups in TB elimination

   The project has documented its engagement of a transport company together with a local government as part of demand generation for TB services. It was intended by the project to develop this documentation into a guide for future partners and NTP on the step by step way of engaging transport groups in TB prevention and control. However, due to several challenges, including the demand for staff time in implementing and monitoring several innovations introduced by the project during the extension period, we were not able to complete the development of this guide. The project thus requested the AOR to allow the submission of this documentation as a working document for engaging transport company in TB prevention and control, which can later be further improved by NTP or future partners into a step by step guide.

6. Procedural guide in organizing and engaging patient support group

The project initially developed a draft procedural guide in organizing and engaging patient support group. However, upon review at the project level, we determined that this draft guide still needs major revisions in order to be a stand-alone document that will help LGUs and partners to truly organize and maintain patients support group. For this reason, the project requested the AOR to allow the submission of the same document as a "working document" that future partners or the NTP can use in fully developing a guide for organizing and maintaining patient support groups