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TB CARE I

TB CARE I - Afghanistan
End of Project Report

July 1, 2011 –December 31, 2014

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Cover photo: School students from Jowzjan province aligned in the fight against TB

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List of Abbreviations

APA	Annual plan of activities
APHA	Afghan private hospital association
BDN	Bakhtar development network
BHC	Basic health center
BPHS	Basic package for health services
BRAC	Bangladesh rural advancement committee
CAF	Care of Afghan Family
CB-DOTS	Community-Based DOTS
CCM	country coordination mechanism
CHWs	Community health workers
CN	Concept note
DOT	Directly observed therapy
DOTS	Directly observed treatment short course
DST	Drug sensitivity test
F	Female
GCMU	Grant Contract management unit
GF	Global Fund
GFATM	Global fund to fight AIDS, Tuberculosis ,and Malaria
HFs	Health facilities
HMIS	Health management information system
HPs	Health posts
HRD	Human resource development
IC	Infection control
IDP	Internally displaced person

IEC	Information education and communication
IJTLD	International Journal Of TB and Lung Diseases
INH	Isoniazid
IT	Information technology
JICA	Japanese International Cooperation Agency
KNCV	Royal Netherlands Tuberculosis Foundation
Lab	Laboratory
M	Male
M&E	Monitoring & evaluation
MDR	Multi drug resistance
MDR-TB	Multi drug resistance TB
MOPH	Ministry of Public Health
MOST	Management and organizational sustainability tool
MSH	Management Sciences for Health
NGO	Non-Governmental organization
NSP	National strategic plan
NSS+	New sputum smear positive
NTI	National tuberculosis institute
NTP	National tuberculosis program
OPD	Outpatients department
OR	Operational research
PHD	Provincial health directorate
PHO	Provincial health office
PPHO	Provincial public health office
PPM	Public-private mix

PTC	Provincial TB coordinator
QRM	Quarterly review meeting
SAF	Solidarity of Afghan Family
SHC	Sub-health center
SOPs	Standard operational procedures
SS+	Sputum smear positive
TB	Tuberculosis
TB CAP	Tuberculosis control assistance program
TB CARE I	USAID tuberculosis control project
TB IC	Tuberculosis infection control
TBIS	Tuberculosis information system
TBSS+	Tuberculosis sputum smear positive
TF	Task force
TRP	Technical review board
TST	Tuberculin skin test
TV	Television
USAID	United States Agency for International Development
USD	United States Dollar
WHO	World Health Organization

Executive Summary

TB CARE I, funded by the US Agency for International Development (USAID), operated from July 2011 through December 2014 and partnered with the National Tuberculosis Program (NTP), the Ministry of Public Health, and local nongovernmental and international organizations. These included Management Sciences for Health (MSH) as lead, KNCV Tuberculosis Foundation (KNCV), the World Health Organization (WHO), the Bangladesh Rural Advancement Committee (BRAC), Bakhtar Development Network (BDN), Care of Afghan Family (CAF) and Solidarity of Afghan Family (SAF). TB CARE I assisted the NTP to expand access to TB services through implementation of Urban directly observed therapy short course (DOTS) and Community-Based DOTS (CB-DOTS); strengthen the health system with revised guidelines on standard operation procedure (SOP) for case detection and treatment; and strengthen monitoring and evaluation, surveillance, operational research, and TB infection control. TB CARE I was implemented in 13 provinces: Takhar, Badakhshan, Baghlan, Jowzjan, Faryab, Herat, Kandahar, Ghazni, Paktika, Pakiya, Khost, Kabul, and Bamyan.

During the life of the project (July 2011 to December 2014), TB CARE I sustained and further improved on achievements of the Tuberculosis Control Assistance Program (TB CAP) project (October 2008-June 2011). For instance, the TB case detection rate for all forms of TB increased from 57% in 2011 to 62% in 2014. This was higher than the national case detection rate of 54.4% in 2013. The TB case notification trend leveled at 8% annually while the treatment outcome improved and reached 89% in 2014. In total, 24,814 new sputum smears tested positive and 57,452 of all forms of TB cases were detected in TB CARE I intervention provinces. In other words, TB CARE I assisted NTP to sustain at least 8% annual increased in TB case notification throughout the project (Jul 211-Dec 2014). This resulted in improved TB case notification rates for bacteriologically confirmed and all forms of TB cases. For instance, the case detection rate for bacteriologically confirmed TB case reached 65% and for all forms of TB cases reached 62%, respectively. These rates are much higher than the average 54.4% national case detection rate for all forms of TB in 2013.

Tuberculosis Case Notification

TB CARE I focused on helping the NTP maximize its outcomes in these key technical areas: developing policy guidelines and training frontline health care staff; supporting supervisory visits, conducting on-the-job training, and providing feedback to BPHS implementers, provincial health teams, and provincial TB coordinators during quarterly review workshops; and enhancing active TB case finding at health facilities. These efforts helped improve TB case notification. During the project, the public health care system and the NTP identified 372,803 presumptive TB cases, notified more than 24,000 new sputum smear positive cases, and notified just over 57,000 TB cases of all forms in the 13 project-supported provinces.

In addition, TB CARE I assisted the NTP to conduct TB screenings among household contacts of TB patients. In 2014, the NTP screened 6,000 household contacts, identified 1,007 presumptive cases, and notified 60 TB cases of all forms and 51 bacteriologically confirmed TB cases. Also, the NTP screened and identified 3,661 children under the age of five who had contact with TB patients for signs and symptoms of TB, and put them on INH preventive therapy. In addition, the project enhanced the screening of children less than five years of age at TB CARE I intervention areas and screening for this group was significantly higher than the annual target for the fourth year of the project.

CB-DOTS Contribution

TB CARE I also supported the NTP's efforts to increase TB case notification through increasing access to quality TB services. The team ensured that people residing in hard-to-reach and remote areas received access to TB services through CB-DOTS. The implementation of CB DOTS continued through partnership with three BPHS implementers in six provinces and BRAC in seven provinces. From 2011 to 2014, in total, 60,541 presumptive TB cases were identified and referred to TB diagnostic centers by community health workers (CHWs). Among them were 3,714 bacteriologically confirmed TB cases (6%) and CHWs put them on treatment. Meanwhile 3,894 TB patients received their treatment under the observation of CHWs and community members, in brief, 16% of all new sputum smear positive TB cases notified in 13 provinces received their DOT from CHWs. In addition, CB-DOTS facilitated provision of directly-observed therapy (DOT) for TB patients in their communities and yielded improved treatment outcomes. The treatment success rate for those TB patients who received their treatment from CHWs was 98% compared to the national value of 90% for this indicator.

Urban DOTS Contribution

With TB CARE I's assistance, the NTP ensured that urban-dwelling residents received access to TB services through the NTP's Urban DOTS programs in partnership with WHO and the private sector in addition to the ministries of education, higher education, interior, justice, and defense. Urban DOTS application in facilities resulted in improved access to DOTS through covering 80 (71%) of public and private health facilities. This led to identification of presumptive TB cases and notification of sputum smear positive and other forms of TB cases. For example, during 2011-2014, presumptive TB case identification reached a total of 57,586, up from 11,900 in 2011 to 17,861 in 2014. Also, sputum smear positive TB cases notified reached 4,741, which shows a 9% increase, from 1,082 in 2011 to 1,280 in 2014, notification of all types of TB cases increased by 65% and reached 13,984 from 2,728 in 2011 to 4,500 in 2014, during the course of the TB CARE I project.

NTP Leadership and Management Capacity-Building

From October 2013 to September 2014, TB CARE I assisted the NTP in developing its national strategic plan (NSP) for 2014-2018. The role of TB CARE I was significant as the project team assisted the NTP in the necessary data collection, epidemiological assessment of TB data, and also in writing the NSP and concept note (CN) for the Global Fund to Fight HIV/AIDS, TB, and Malaria (GFATM). The Global Fund approved the CN in November 2014 and Afghanistan secured $12.4 million for the period 2015-2017. For details please see page 34.

Further strengthening NTP capacity, MSH and KNCV provided four short-term technical assistances (STTAs). These efforts resulted in revision of NSP to address the strategic gaps such as TB in children, strengthening the health system, and focus on the geographical areas where the highest number of TB cases are missed. Her Excellency Minster of Public Health of Afghanistan endorsed the NSP and it is now effective.

Also, TB CARE I provided technical and financial assistance to the NTP to conduct annual national evaluation workshops in April 2012 and August 2014. During these workshops, NTP was able to assess its performance based on annual data and to plan for the next year. In addition, NTP gained the commitment of the MOPH, donors, and local and international organizations to secure funding for quality TB activities implementation in Afghanistan.

Surveillance and M&E System Strengthening

TB CARE I assisted the NTP to conduct quarterly review workshops in all 13 provinces during 2011-2014. The workshops aimed to review each health care facility's performance on TB, provide feedback, and propose innovative approaches to increase TB case findings and treatment success rates. On average, more than 800 NGO representatives, provincial public health officers, frontline health care staff members, and provincial TB team members, attended these events.

Additionally, TB CARE I supported the NTP to provide leadership in TB surveillance system strengthening and electronic reporting system implementation that was developed during TB CAP in 2010. The TB data was aggregated at provincial levels, entered into a database, and sent electronically to the national HMIS and TB surveillance department. This integration showed that the HMIS has managed to collect more than 95% of electronic reports for all 34 provinces. However, in previous quarter only five provinces sent their electronic reports.

The project also supported the NTP to conduct data quality assessments in 2013. Results showed that the surveillance system strengthening initiatives led to improved data quality. For example, TB surveillance data for two key indicators that reported to donors such as USAID, GF, and WHO showed new sputum smear positive and all forms of TB cases have the highest accuracy of 97.5% each. There was 11% improvement in overall data accuracy – from 79% in 2008 to 90% in 2013.

TB CARE I also assisted the NTP in conducting researches and research report writing including abstracts writing and submission to The Union conference annually. In total, during 2011-2014, twenty-three abstracts were submitted to the International Union Conference on TB and Lung Diseases and 16 of these abstracts were accepted for either poster or oral presentations by this conference. In 2014, the Union Conference accepted four abstracts that were assisted by the TB CARE I project and three were accepted for oral presentations and one for poster presentation.

TB Infection Control (TB IC)

The project expanded TB IC to 140 health facilities during APA4,making health care environments safer for health care staff, clients, and communities. The time spent at health facilities by presumptive TB cases and for TB patients has reduced significantly, and early TB case detection has improved in the health facilities covered by TB IC measures. For instance, the mean time from arrival at a health facility to identification as a presumptive TB case was 26 minutes less in intervention facilities compared to control facilities. In 2014, the proportion of health facilities covered by TB IC reached 39% (140/360), however, it was 28% in 2013 and the number of presumptive TB cases identified increased by 10%, from 44,346 in 2013 to 40,642 in 2014. Also, the TBIC intervention resulted in in improved sputum examination of presumptive TB cases. For instance, 98% of the identified presumptive TB cases were examined for their infectiousness status in health facilities that applied TBIC measure, while, in third quarter of 2014, 94% of presumptive TB cases examined for their sputum examination.

Introduction

Afghanistan is one of 22 high-burden TB countries in the globe. The annual estimated prevalence is 340 and incidence for all cases is 189(WHO, Global TB report 2014). The TB death rate is 42 per 100,000 people *(Page 116, Global TB Report 2014, WHO)*. According to national TB surveillance data for 2013, the case notification rate for all TB cases is 115 per 100,000 people, or 54.5%. The treatment success rate is 91%.

TB CARE I assisted the NTP to implement its strategic plan from 2009 to 2015 (revised for 2014-2018) and aimed to improve DOTS coverage, TB case detection and treatment, reduce the number and percentage of TB patients who default from TB treatment, and improve the TB treatment success rate. TB CARE I focused on strategic areas and challenges to assist the NTP in improving the management and technical capacity of the central and intermediate TB teams as well as expand the quality of DOTS.

The project aimed to decrease morbidity and mortality by increasing case detection and treatment success of pulmonary TB patients. TB CARE I Afghanistan worked with the MOPH and NTP in four technical areas:

1. Universal access to TB services
    a. Urban DOTS implementation in Kabul city
    b. CB-DOTS implementation in 13 provinces

2. Strengthening the health system
    a. Policy document development
    b. Raising staff capacity at national and health facility level

3. Tuberculosis infection control
    a. Provide safer working environment to health care staff, clients, and communities

4. Strengthening M&E and operational research
    a. Promote evidence-based decision-making

TB CARE I Afghanistan assisted the NTP to achieve its strategic objectives of increasing case detection and treatment outcomes by implementing SOPs for case detection, diagnosis, treatment, TBIC, and TB in children in 13 provinces (Kabul, Bamyan, Baghlan, Badakshan, Jowzjan, Faryab, Hirat, Kandahar, Ghazni, Paktika, Paktiya, and Khost). Also, TB CARE I worked with the NTP on developing and expanding the country's first electronic reporting system in all 34 provinces. TB CARE I also assisted in the dissemination of IEC materials in all 34 provinces during World TB Day celebrations in March 2014.

Moreover, the project assisted the NTP in increasing access to quality TB services for vulnerable populations. TB CARE I expanded CB-DOTS in 13 provinces. In six provinces the project contracted NGOS providing BPHS to implement CB-DOTS and in seven provinces the project contracted the Bangladesh Rural Advancement Committee (BRAC) to complement the Global Fund's Round-8 CB-DOTS component. Innovative approaches for Urban DOTS have been implemented since 2009 in the densely populated city of Kabul.

Implementation Strategies:

TB CARE I has developed clear strategies for each technical area for maximum outcomes and to ensure wise, effective, and efficient use of resources. Below are the specific strategies for each technical area:

Health system strengthening strategy

- Develop key policy documents
- Revitalize and sustain TB task forces
- Establish DOTS learning centers for on-the-job training
- Implement TB leadership by utilizing the Management and Organizational Sustainability Tool

• Decentralize trainings approach: 4,002 HF staff trained in SOPs for case detection and treatment and TB IC
• Conduct joint monitoring visits (NTP, NGOs, TB CARE I) to health facilities

CB-DOTS implementation strategy

• Implement NTP CB-DOTS SOPs
• Develop and implement CB-DOTS strategic plan
• Establish partnership between NTP, NGOs, and TB CARE I
• Train CHWs in TB care provision
• Identify presumptive TB cases
• Refer TB patients
• Provide DOTS
• Use information, education, and communication materials
• Conduct community awareness-raising events
• Implement CB-DOTS through NGO partners
• Design activities to complement the GF community-based activities

Urban DOTS implementation strategies

• Urban DOTS strategic plan implementation with NTP, TB CARE I, and WHO
• SOPs for TB case detection, treatment, surveillance and TB IC
• Partnership between NTP and public/private sector
• DOTS expansion to public and private health facilities in Kabul
• Awareness-raising events

M&E and surveillance system strengthening strategies

• Engage BPHS implementers in TB reporting and TBIS database implementation
• Provide tools for NTP to improve accuracy of data
• Improve evidence-based decision-making culture within NTP/MOPH
• Empower health facility staff to plan, implement, and monitor their performances for TB services
• Document TB CARE I/MSH performance to communicate good practices with wider audience

TB infection control strategies

• Strengthen coordination mechanisms for TB IC integration at national and provincial level
• Engage all health care providers in the implementation of TB IC measures
• Advocate TB IC for rising awareness and implementation

Core Indicators

TB CARE I is working to improve seven core indicators across all countries. Table 1 summarizes the core indicator results across the life of project for TB CARE I Afghanistan as well as the Tuberculosis Control Assistance Program (TB CAP), the precursor to TB CARE I, which the coalition also led.

Table 1: TB core indicator results for Afghanistan

		C1. Number of cases notified (all forms)	C2. Number of cases notified (new confirmed)	C3. Case Detection rate (all forms)	C4. Number (and percent) of TB cases among health care workers	C5. Treatment success rate of confirmed cases	C6. Number of MDR cases diagnosed	C7. Number of MDR cases put on treatment
	2005	21850	10805	48%	NA	90%		
TB CAP	2006	25474	12468	53%	NA	84%		
	2007	28769	13213	58%	NA	87%		
	2008	28301	13136	55%	NA	88%		
	2009	26358	12497	50%	NA	86%		
	2010	28237	12947	52%	20	90%	19	17
TB CARE I	2011	28167	13789	51%	NA	91%	22	21
	2012	28370	13224	52%	NA	90%	39	38
	2013	31622	14014	54%	NA	91%	47	47

Table 2: TB CARE I intervention areas (13 provinces) core indicator results for Afghanistan

		C1. Number of cases notified (all forms)	C2. Number of cases notified (new confirmed)	C3. Case Detection rate (all forms)	C4. Number (and percent) of TB cases among health care workers	C5. Treatment success rate of confirmed cases	C6. Number of MDR cases diagnosed	C7. Number of MDR cases put on treatment
TB CAP	2008	13,599	6800				NA**	NA**
	2009	12454	6139	61 %	NA*	83%	NA	NA
	2010	14097	6565	55 %	20	86%	NA	NA
	2011	14792	7051	57 %	NA	89%	NA	NA

TB CARE I	2012	15825	6676	59 %	NA	90%	NA	NA
	2013	17345	7507	64 %	NA	90%	NA	NA
	2014	16937	7106	62 %	NA	NA	NA	NA

*The routine surveillance system of TB does not capture the TB cases among health care workers; therefore, it is not available (NA). The project helped the NTP assess the outcome of the TBIC approach. For this purpose, the project has screened 240 health care staff, 20 of whom turned out to have active TB disease.

The NTP began MDR-TB diagnosis and treatment in 2011 only in Kabul city. The NTP collected and sent samples of suspected MDR cases for final diagnosis to Karachi, Pakistan. Thus, NTP did not have MDR-TB data disaggregated by provinces. Therefore, this data is not available (NA) for TB CARE I intervention provinces.

Universal Access

TB CARE I assisted the NTP with increasing access to TB services through implementing innovative approaches such as urban DOTS in densely populated areas of Kabul city and community-based DOTS the in rural areas of 13 provinces. Two partners, WHO and MSH, work in this technical area. Additionally, NGOs under contract with TB CARE I implemented CB-DOTS in six provinces and BRAC did so in seven provinces. TB CARE I implemented the urban DOTS model as follows, by:

- Engaging new public and private health facilities in DOTS implementation in Kabul
- Implementing the urban DOTS strategic plan with NTP, TB CARE I, and WHO
- Launching campaigns to raise awareness
- Frontline staff training on SOPs for TB case detection, treatment, and TBIC
- Implementing SOPs for TB case detection, treatment, and TB IC
- Conducting quarterly review workshops and setting targets for HFs
- Carrying out contact screening

The project focused on training frontline health care workers. In total, 454 (356 male, 98 female) health care staff, including medical doctors, nurses, lab technicians, and midwives from public and private health facilities, were trained to provide quality DOTS services to their clients. As seen below, their efforts produced astonishing results.

Intermediate Results: Expand DOTS implementation to additional public and private urban facilities in Kabul city

Technical Outcomes

#	Outcome Indicators	Indicator Definition	Baseline (2011)	Target Y4 (2014)	Result Y4 (2014)
1.1.1	Number of facilities where quality of services is measured	Count the number of facilities where quality of services from a patient's perspective was measured using QUOTE or any other tool in the last 12 months. Indicator Value: Number Level: National Source: NTP and TB CARE project office Means of Verification: Report on quality of services from a patient's perspective	1,197	1,400	1,400
1.1.3	TB personnel trained on the Patients' Charter	This WHO indicator measures whether TB personnel have been trained on the use of the Patient's Charter in the last year. Indicator Value: Yes/No Level: National Source: NTP/WHO Means of Verification: Training report	NA	300	0

1.1.4	Number (%) of TB suspects identified	Numerator number of suspected TB cases identified and registered at health facilities Denominator: total number of patients over 15 years of age attended as outpatients to health facilities	91,854	120,000	117,430
1.1.5	Number (%) of contacts screened for TB	Numerator: number of contacts to TB patients screened for TB Denominator: total number of contacts i.e. TB patients multiplied by six	14,400 (80%)	20,400	23,230
1.2.1	Private providers collaborating with the NTP	Description: Number of private providers collaborating with the NTP (i.e. reporting TB case information to the NTP). This is a WHO indicator. Indicator value: Number Level: National Source: NTP/WHO Means of verification: List of collaborating private providers	91	96	99
1.2.2	TB cases diagnosed by private providers	Description: Number of new cases of TB diagnosed according to NTP guidelines by private providers Indicator value: Number Level: National Source: WHO Means of verification: Reporting forms from private facilities	1,861	2,200	3,661
1.2.3	Status of PPM implementation	Description: This indicator measures the status of the public-private mix (PPM) strategy and interventions. Indicator Value: Based on the scoring system below: 0= The country has no PPM activities 1= The country has piloted at least one PPM intervention 2= The country has a PPM strategy 3= The country has started implementation of the PPM strategy Level: National Source: NTP Means of Verification: PPM strategy; PPM reports	8 provinces Impleme ntation status:3	10 provinces Implement ation status:3	8 provinces Implement ation status:3
1.2.4	Children younger than five (contacts of SS+ adults) that were put on IPT	Description: This indicator measures the number of children under five years of age who are contacts of SS+ adults and were put on isoniazid preventative therapy (IPT). This is a WHO indicator. Indicator Value: Number Level: National and TB CARE geographic areas Source: NTP, TB CARE project, WHO Means of Verification: Reporting and Recording System reports	1,129	2,000	3,663

1.2.5	Childhood TB approach implemented	Description: Childhood TB is an important component of the NTP's strategy. This indicator measures the level to which childhood TB is addressed. Indicator value: Score based on the following: 0 = Childhood TB is not mentioned in the NTP strategic plan 1 = Childhood TB is mentioned in the strategic plan, but no activities are implemented on childhood TB 2 = Childhood TB activities are being piloted or are implemented in select sites 3 = Childhood TB is an integral part of the NTP strategic plan and regular activities are carried out. Level: National Source: NTP	3	3	3
1.2.6	Number of TB cases (all forms) diagnosed in children 0-4	Description: This indicator measures the number of TB cases (all forms) diagnosed in children 0-4 years of age. When childhood TB is a priority, being able to report on and measure changes in case notification by age group is important. Indicator Value: Number Level: National and TB CARE geographic areas Source: NTP, TB CARE project, WHO Means of Verification: Recording & reporting system reports; TB registers	1,129	2,000	
1.2.8	CB-DOTS program is implemented	Description: This indicator measures the level of implementation of CB-DOTS from introduction to piloting and scale-up. Indicator Value: Score based on below: 0 = No CB-DOTS program in the country and there are no plans prepared for this purpose. 1 = No CB-DOTS program in the country but plans are ready for piloting. 2 = NTP has piloted CB-DOTS in selected geographic areas. An implementation, including a timeline and budget with activities, should be	3	3	3

		in the plan. 3 = NTP has scaled up the implementation of CB-DOTS to additional geographic areas and data are available at the national level on CB-DOTS referrals and patients on treatment in CB-DOTS areas.			
1.2.9	Population covered with CB-DOTS (13 provinces)	Description: This indicator measures CB-DOTs coverage by looking at the population the CB-DOTS is servicing. Indicator Value: Percent Level: National and TB CARE geographic areas Source: NTP and TB CARE project Means of Verification: Census reports Numerator: Population size in the area(s) where CB-DOTS is being implemented Denominator: Total population	9,254,000 (100%)	9,254,000 (100%)	9,254,000 (100%)
1.2.10	Health facilities offering CB-DOTS services	Description: This indicator measures CB-DOTS coverage by looking at the percentage of health facilities providing CB-DOTS services. Indicator value: Percent Level: National and TB CARE geographic areas Source: NTP and TB CARE project Means of Verification: Peripheral-level reports; CB-DOTS reporting forms Numerator: Number of health facilities providing CB-DOTS services Denominator: Total number of health facilities in the area	276 (27%)	609 (61%)	451 (45%)

Key Results:

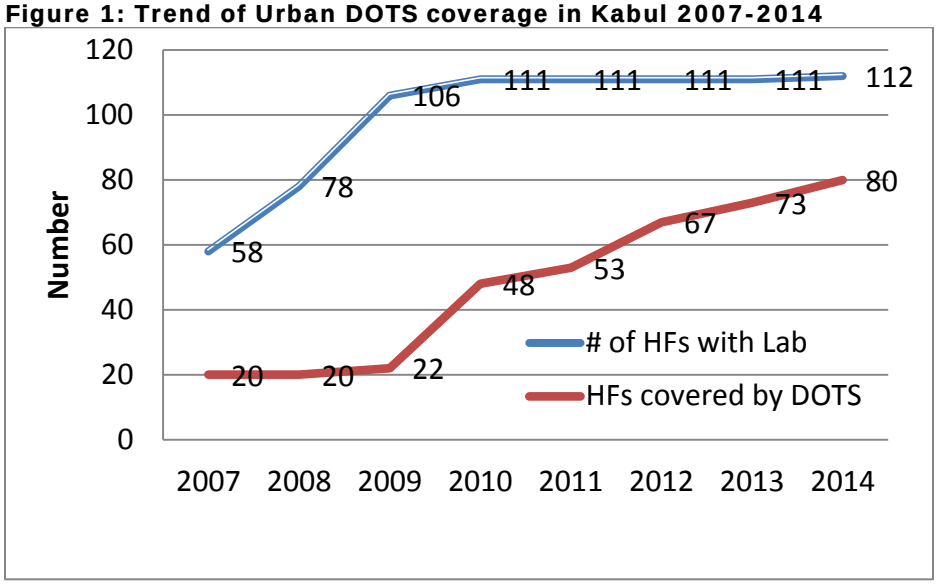
DOTS implementation in Kabul city

There are 112 public and private health facilities in Kabul with laboratory services. TB CARE I supported the NTP Urban DOTS approach to expand DOTS in Kabul city. For instance, DOTS coverage increased from 48% (53) in 2011 to 71% (80) in 2014 (figure 1). Collectively, 80 (71%) public and private health facilities are engaged in TB service delivery thus far in Kabul.

Moreover, TB CARE I was committed to improving the case detection rate and addressing vulnerable groups through household contact investigations. The active contact screening method involves health care staff visiting the homes of sputum smear positive TB patients to find those who show TB symptoms and identify children under the age of five for IPT. This approach was piloted in Kabul health facilities during APA 4 and 4,800 household contacts were screened for sputum smear positive TB cases. Among them, 315 had TB symptoms and their sputum examined for acid fast bacilli (AFB) and 36 were new bacteriologically confirmed TB cases (11%).

These activities led to an increase of presumptive TB case identification rates, an increase of confirmed new bacteriologically confirmed TB cases, and an improvement in the sputum smear conversion rate and treatment success rate (Figures 2, 3, and 4).

Figure 1: Trend of Urban DOTS coverage in Kabul 2007-2014



Urban DOTS implementation in Kabul contributed significantly to improving DOTS coverage and the quality of TB service delivery. The achievements of the Urban DOTS model implementation are summarized in Table 3.

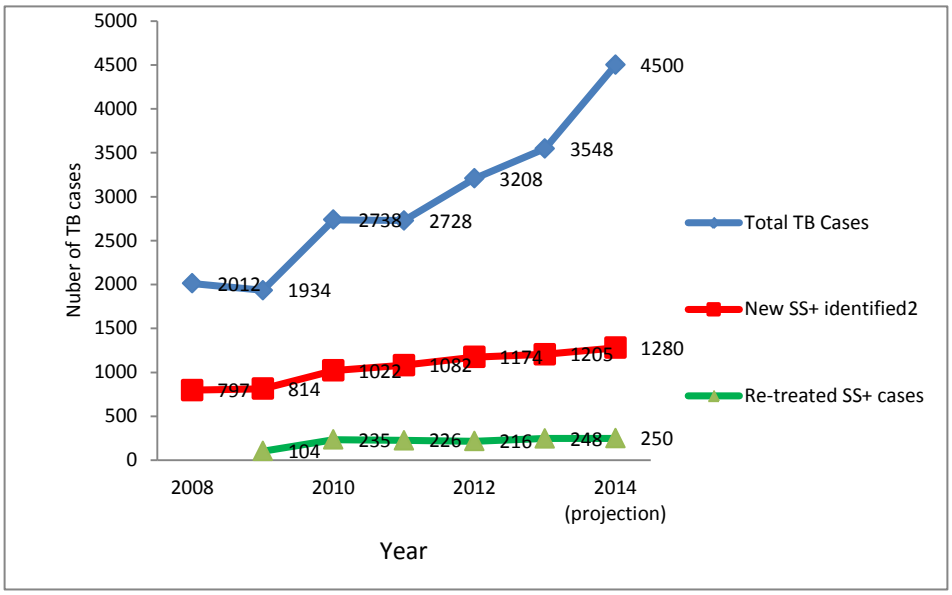
Table 3: Contribution of key TB indicators in Kabul city, 2008-2014

Year	2009	2010	2011	2012	2013	% changed (2009-2013)	2014 projection	TB CARE I Performance (Jul 2011 – Dec 2014)
No. of health facilities with lab service	106	111	111	111	111	120	112	**112**

No. of health facilities covered by DOTS	22	48	53	68	73	232%	80	**32**
Number of referral health facilities	0	5	17	20	22	340%	22	**17**
No. of TB suspects identified/examined	2,856	10,150	11,900	13,644	14,181	396%	17861	**57586**
No. of all TB cases notified	1,934	2,738	2728	3,208	3,548	84%	4500	**13984**
No. of new sputum smear positive TB cases notified	814	1,022	1,082	1,174	1,205	48%	1280	**4741**
Conversion rate of sputum smear positive cases	43%	65%	68%	70%	72%	29%	NA	**75%**
Treatment success rate of new sputum smear cases	44%	62 %	68%	70%	73	29%	NA	**74%**
Transferred out rate of new sputum smear positive cases	46%	26 %	15%	18%	18	28%	NA	**18%**

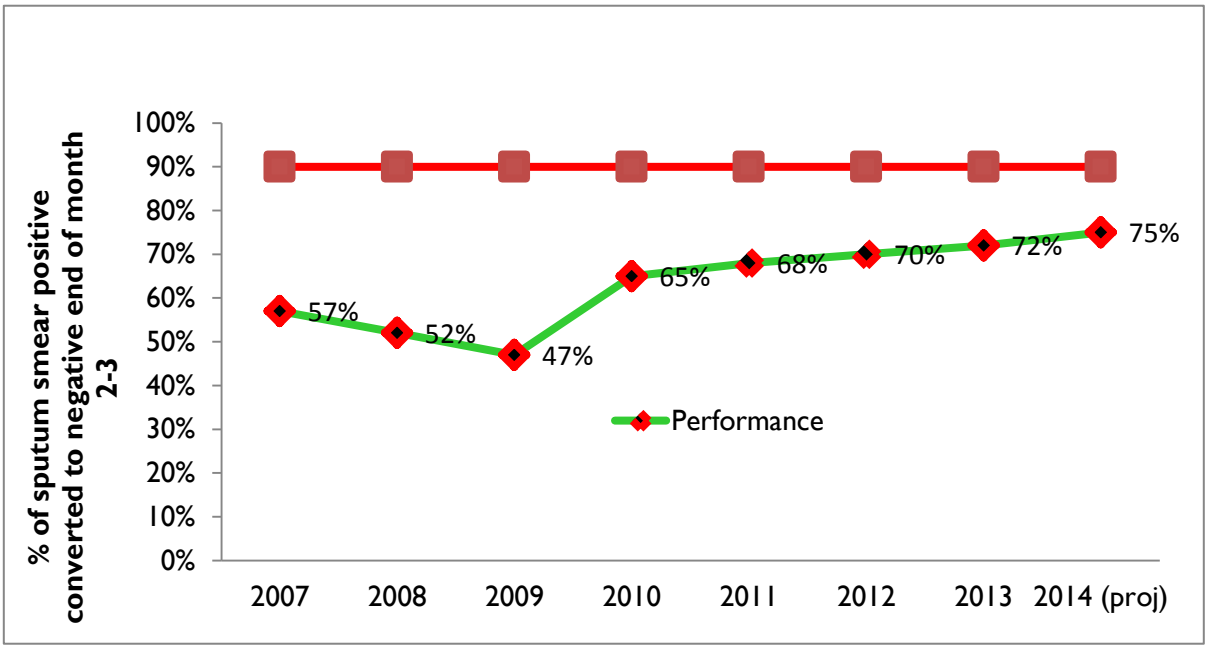
TB CARE I aimed to assist the NTP in early case detection and treatment of TB patients through SOP. Its application in Urban DOTS facilities resulted in not only improved identification of presumptive TB cases but also notification of sputum smear positive and other forms of TB cases. For instance, presumptive TB case identification increased from 1,200 in 2008 to 17,861 in 2014. Also, bacteriologically confirmed TB case notification rose from 797 in 2008 to 1,280 in 2014, and notification of all types of TB cases increased from 2,012 in 2008 to 4,500 in 2014 (Figure 2).

Figure 2: Trend of new bacteriologically confirmed and all forms of TB cases notified in Kabul city, 2008-2014



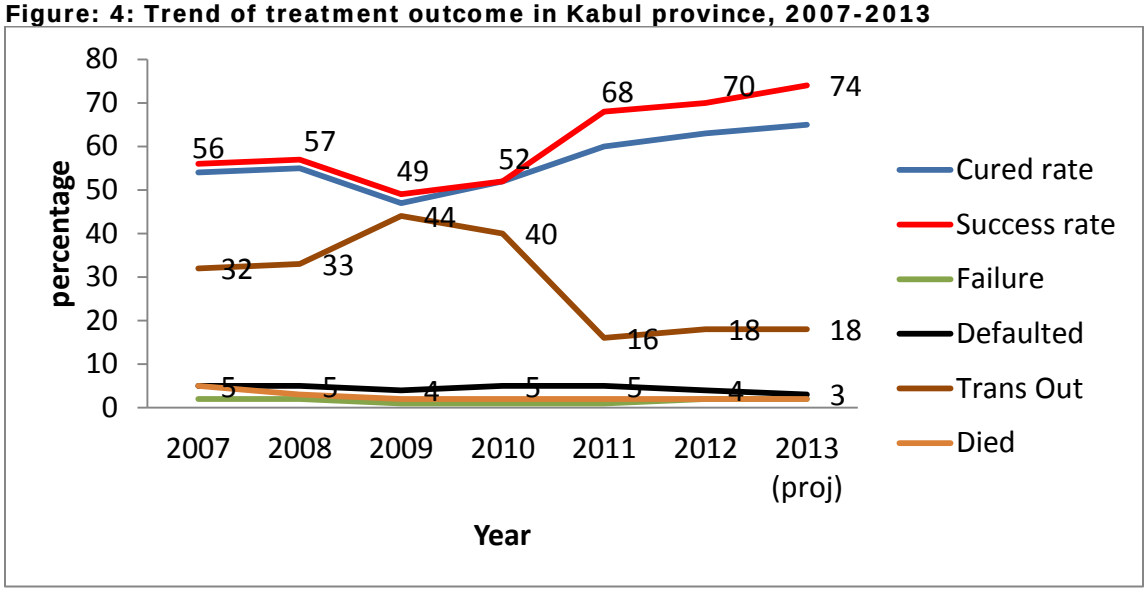
The TB CARE I Urban DOTS approach may have also improved quality of care at health facilities and consequently treatment adherence and outcomes. For instance, the sputum conversion rate – the conversion of sputum smear to negative at the end of month two or three of treatment initiation for those bacteriologically confirmed TB cases - rose to 72% in 2013 compared to 47% in 2009 (Figure 3).

Figure 3: Bacteriologically confirmed TB cases conversion rate, 2007-2014



Urban DOTS assisted the NTP to notify TB cases and significantly helped improve treatment outcomes through improving registration and reporting and follow-up of patients who transferred to other provinces. In 2014, the treatment success rate rose to 74% compared to a baseline of 44% in 2009 (Figure 4).

Figure: 4: Trend of treatment outcome in Kabul province, 2007-2013



Achievements:

1. **Conducted Urban DOTS task force meeting in Kabul city**

The Urban DOTS task force began work in 2010 and continued meeting through the TB CARE I period. The task force aimed to strengthen collaboration between the NTP and private and public sectors, aside from the MOPH, and to help ensure smooth implementation of DOTS in Kabul. Task force members included the NTP, TB CARE I, WHO, APHA, the Kabul provincial health directorate and public-private partners (PPP) department of the MOPH. The task force conducted 10 meetings and the NTP ensured proper documentation and implementation of decisions taken. These meetings improved commitment to DOTS implementation in challenging environments such as Kabul city. For example, 15 private hospitals, four health facilities/hospitals run by NGOs and six health facilities supported by non-MOPH ministries sustained DOTS implementation in Kabul city.

2. **Assisted the NTP to conduct supervision/monitoring visits from Urban DOTS health facilities in Kabul city**

In total, 320 visits were conducted to supervise, monitor, and evaluate DOTS implementation in urban health facilities and provide on-the-job training and feedback to health care workers. These steps resulted in improved recording and reporting, better referral of presumptive TB cases for diagnosis, improved treatment outcomes, and a significant decline in the transfer-out rate.

3. **Assisted the NTP urban team to improve coordination between the public and private health sector and the NTP in Kabul city**

Three workshops were conducted, which included 310 representatives from private hospitals, with an aim to increase political commitment to DOTS in Kabul city. The private-sector health representatives announced their strong commitment for implementation of DOTS in Kabul city.

4. **Implemented community awareness events in Kabul city**

To improve community awareness about TB and reduce the stigma surrounding the disease, TB CARE I Urban DOTS conducted TB orientation events for more than 900 students of Kabul universities and medical personnel of Kabul hospitals. Now, most university students know about signs and symptoms of TB and are able to refer suspected TB patients to the nearest health facilities.

In summary, Urban DOTS was able to achieve its set targets for APA4. Table 3, illustrates the comparison of planned activities against achievement during APA4 (Oct. 2013- Sept. 2014).

Challenges to DOTS Implementation in Kabul:

Kabul city's health system has lacked the support of NGOs. However, in the rest of the country NGOs, through government subcontracts, provide sustainable assistance to manage health care at public facilities. Health facilities in Kabul city are run by MOPH. Engaging the private health sector in DOTS implementation and DOTS expansion to private/public health facilities was a challenge. The private, for-profit sector was reluctant to provide a free service and demanded for incentive in cash, TB diagnostic facilities such as GeneXpert and LED microscopes and reagents for TB diagnosis and the maintaining cost of these diagnostic tools such as microscopes etc. In addition, the overburdened tertiary hospitals that were not ready to work on TB. They argued that TB was not in their scope of work and that they lacked sufficient space to identify, diagnose, and treat TB patients.

Recording and reporting of health service delivery, especially in public and private sector was a challenge for DOTS implementation in Kabul city.

There was poor commitment of national hospital staff in Kabul to perform TB DOTS activities. They said their terms of reference (TOR) did not encompass TB service delivery and they lacked proper diagnostic facilities and space to carry it out.

Most public health facilities function in substandard private rental buildings. It was a challenge for the NTP to renovate or restructure these facilities to ensure proper TB care delivery and patient flow, and to ensure that sufficient TB infection control measures were applied.

NGOs did not support health facilities in Kabul city and it was a challenge for TB program to ensure a regular supply of drug and reagents to health facilities in Kabul city. TB CARE I filled this void to a great extent but deficiencies, which should be considered in the design of next TB project.

The only specialized TB care facility (the National TB Institute) covered the largest burden of TB case diagnosis and treatment in Kabul. But during the third year of TB CARE I, staff attrition at the institute was 75%, resulting in a sudden decline of TB care provision in the city.

Hospital staff, including the specialized children's hospital and private sector facilities, were highly subject to turnover, requiring repeated training. Poor contact screening, limited diagnostic facilities, and INH preventive therapy for children under the age of five in Kabul health facilities, resulted in more missed TB cases among children that usually delayed diagnosis and treatment initiation among children.

The referral system between Kabul and the provinces resulted in a higher transfer-out rate to other health facilities. Some TB patients receive treatment in Kabul during summer and return to the provinces in the winter, which resulted in loss to follow-up and consequently a higher transfer-out rate.

CB-DOTS Implementation

One challenge for the NTP was to extend TB service delivery to hard-to-reach areas. To address this, CB-DOTS was initiated with technical assistance from TB CAP and followed during TB CARE I. This way, the NTP was able to extend quality DOTS service delivery closer to TB patients and communities. The project subcontracted this approach with four local NGOs to implement DOTS in the provinces. In addition, a subcontract with BRAC continued this approach in seven provinces to complement the Global Fund's Round-8 CB-DOTS component. As shown in Table 4, CB-DOTS resulted in improved TB case notification and treatment outcomes in the intervention provinces. Also, in 2014, the project conducted community awareness events in 10 provinces and disseminated 6,000 notebooks decorated with TB slogans and messages to students.

Key Results

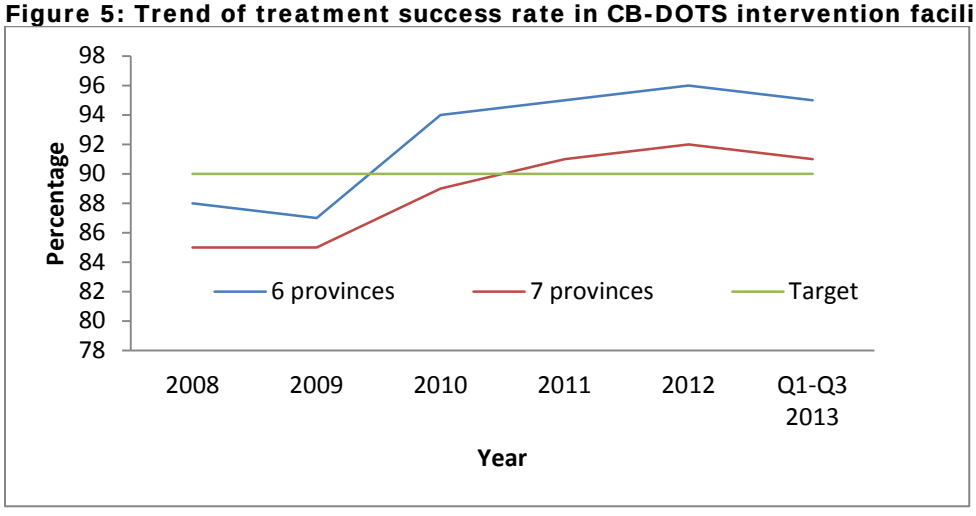
From July 2011-November 2014, an average of 20% (60,540) of all presumptive TB cases identified in the 13 provinces were referred by CHWs. In total, 3,309 bacteriologically confirmed TB cases were diagnosed out of all presumptive TB cases referred by CHWs, which makes 15% of all bacteriologically confirmed TB cases diagnosed in the 13 provinces. CHWs also provided DOT to 3,894 TB patients in communities. (Table 4)

Table 4: CB DOTS contribution to TB indicators in 13 provinces, 2009-2014

Indicator	Year					
	2009	2010	2011	2012	2013	2014 (Q1-Q3)
Number and percentage of presumptive TB cases referred by CHWs and community	6780 (16%)	16,386 (17%)	26,803 (26%)	23,220 (24%)	14,885 (14%)	9,035 (19%)
Number and percentage of TB bacteriologically confirmed cases referred by CHWs and community	359 (24%)	710 (34%)	810 (36%)	1,482 (17%)	1,089 (14%)	738 (16%)
Number of TB patients under treatment by CHWs and community	360 (20%)	679 (27%)	1,294 (32%)	996 (30%)	1,300 (28%)	951 (38%)
Treatment success rate at 13 provinces	83%	87%	89%	90%	91%	NA

CB-DOTS helped the NTP notify more TB cases and also led to improved treatment outcomes for those TB patients who received their DOT from CHWs. In all 13 provinces, the treatment success rate improved and remained high during the TB CARE I project (Figure 5).

Figure 5: Trend of treatment success rate in CB-DOTS intervention facilities 2008-2013



CB-DOTS implementation has proven more effective in provinces where BPHS carries out the intervention, and TB CARE I recommends that this be done in the rest of the provinces as well.

A female CHW provides DOT treatment for a female TB patient in Baghlan.

Health System Strengthening (HSS)

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline (2011)	Target APA4 (2014)	Result APA4 (2014)	Comments
6.1 TB control is among national health strategy priorities and has matching domestic financing and partner support.	6.1.2 CCM and/or other coordinating mechanisms include TB civil society members and TB patient groups		Yes	Yes	Yes	The TB CARE I project director is the CCM first vice chair and manages CCM activities to ensure that civil society participation
6.2 TB control components (drug supply and management, laboratories, community care, HRD and M&E) form an integral part of national plans, strategies, and service delivery.	6.2.1 TB CARE-supported supervisory visits conducted			20	18	(18 joint supervisory visits conducted from 80 HFs – Urban DOTS not included – and 68 provincial trips conducted)
	6.2.2 People trained using TB CARE funds		346 (APA1)	500	1,055 (SOP, TBIS, lab technician)	

MSH and its partners, through funding from USAID, have been working on strengthening the overall health system (HSS) and TB program since 2005. This essential area has improved significantly during TB CARE I project implementation. For example, the NTP strategic plan for 2014-2018 revised by technical support of TB CARE I and also the NTP guideline, SOPs for case detection, treatment and child TB printed and distributed to all diagnostic health facilities. Since 2011, 900 documents (national TB guidelines, SOPs and NTP annual evaluation workshop report) were printed and disseminated to all 34 provinces. Furthermore, the project also disseminated 27,470 IEC materials such as brochures, pamphlets, posters and banners for World TB day celebrations were developed and disseminated to all health facilities in the country and the World TB celebration was supported technically and financially in 13 USAID supported provinces at 228 health facilities. For instance, on average, each year 13,810,300 people were covered by this activity such as airing of TB messages to 100,000 mobile telephone users and dissemination of 800,000 brushers and 1,356 posters covering various aspects of TB were disseminated to all over Afghanistan. In addition, 1,055 individuals (female, male) were trained on SOPs for case detection, TBIC, and treatment using TB CARE I funds.

TB CARE I helped the NTP to develop and revise the essential policy documents to maximize the outcome. From 2011 to 2014, the NTP revised national TB guidelines and SOPs, and developed TB infection control and operational procedure for TB among children. Moreover, the project assisted the in developing its national strategic plan.

The NTP's leadership and management capacity was assessed and developed using the Management Organizational Sustainability Tool (MOST) for TB. In 2012, MOST workshops were conducted in seven

provinces, attended by 98 (11 female, 87 male) senior staff from PPHOs, the NTP, and NGOs. MOST assisted the NTP to measure its leadership and management capacity.

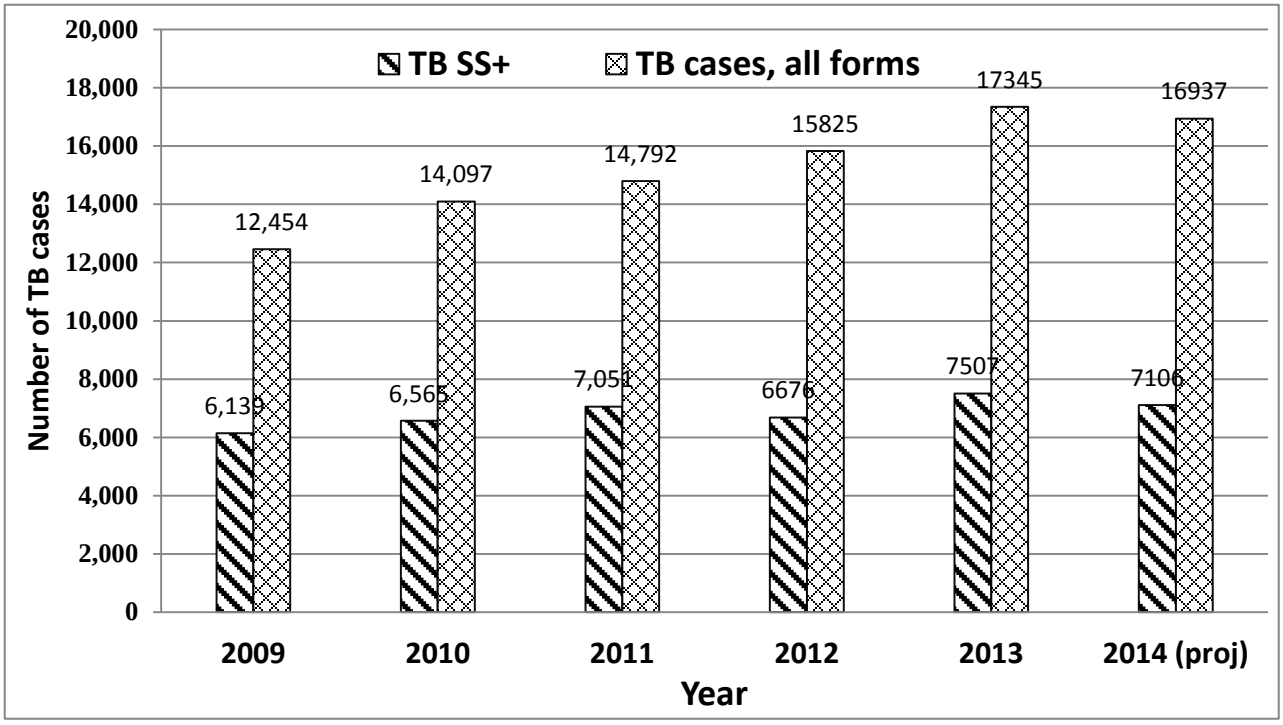
Supporting the NTP to conduct joint supervisory and monitoring visits was an essential area that was covered by the TB CARE I. On average, the NTP conducted 20 joint visits in 13 USAID-supported provinces and visited more than 240 health facilities annually. In 2014, TB CARE I achieved 90% of the target for supporting supervisory monitoring visits.

Key Achievements

From July 2011 to December 2012 TB CARE I emphasized SOP implementation for case detection, treatment, TB IC, and TB in children. Collectively, the project trained 7,914 people (7183 males, 731 females) from various disciplines on initial SOPs for case detection, treatment, TB IC, TB in children, CB-DOTS, the TB information system, and TB monitoring and evaluation.

TB CARE I, with the NTP central and provincial team, conducted supervisory and monitoring visits of health facilities in 13 provinces. SOP implementation resulted in increased access to TB services. For instance, there was an 18% increase in presumptive TB case identification/examination. In 2014, 117,430 presumptive TB cases were identified and tested for sputum smear microscopy. Of all identified as presumptive TB, over 7,106 were diagnosed as sputum smear positive TB. In addition, 16,937 cases were identified as all forms of TB demonstrating a 15% increase compared to baseline of 15,000 in 2011 to almost 17,000 in 2014. TB CARE I intervention maintained roughly 10% annual TB case notification of all forms (Figure 6). Also, TB CARE I interventions resulted in improved quality of care. The treatment success rate increased to 91% in 2013 from 83% in 2009 and sputum smear positivity rate was 7.5%.

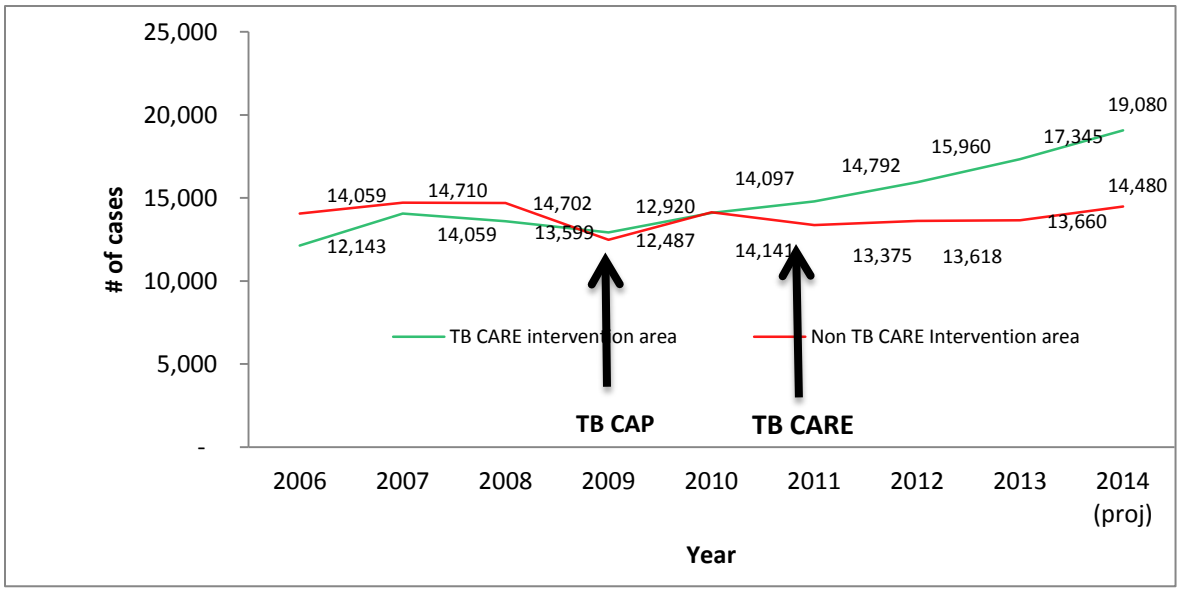
Figure 6: Trend of TB cases notified in 13 USAID-supported provinces, 2009-2014



In summary, TB CARE I led to increased case notification for all types and sputum smear positive TB cases. For example, Figure 7 demonstrates that the project assisted NTP to reach strategic objectives of notifying additional TB cases. Also, there was a 26% increase in notification of new sputum smear

positive TB cases, increasing from 6,139 in 2009 to 7,106 in 2014. Moreover, the treatment success rate rose by 8%, from 83% in 2009 to 91% in 2013 (Table 5).

Figure 7: Trend of TB case notification in USAID-supported (TB CAP-TB CARE I) areas, 2006-2014



Additionally, the TB CARE I intervention resulted in a changing trend of TB case notification in Afghanistan. Data showed that fewer cases were notified in USAID-supported provinces before TB CARE I and TB CAP began (Figure 7). After the intervention, more TB cases were notified in the 13 USAID-supported provinces compared to 21 non-USAID supported provinces (Table 5).

Table 5: Comparison of performance between USAID and non-USAID provinces, 2009-2013

	Intervention Group Health Facilities (13 provinces)						Control Group Health Facilities (21 provinces)				
Indicator	**2009**	**2011**	**2012**	**2013**	**2014**	**% change (2009-2014)**	**2009**	**2011**	**2012**	**2013**	**% change (2009-2013)**
TB suspected cases identified	49,630	99,272	96,750	108,623	117,430	137% increase	45,812	93,730	84,622	84,245	84% increase
TB sputum smear positive cases notified	6,139	7,051	6,676	7,507	7,106	16% increase	6,358	6,750	6,588	6,507	2% increase
TB cases notified, all forms	12,454	14,792	15,825	17,345	16,937	36% increase	13,904	13,375	13,618	13,660	2% decline
Treatment success rate	83%	89%	90%	89	NA	6% increase	89%	92%	92%		3% increase

Short-Term Technical Assistance to the NTP

During APA4, TB CARE I and partners KNCV and MSH provided technical assistance to the NTP. KNCV provided three consultancies in December 2013 and assisted NTP Afghanistan on the assessment to develop the NSP for 2014-2018. It provided two other consultancies in January-February 2014 and conducted the epidemiological assessment of the TB program in Afghanistan. MSH conducted two consultancies during APA4, including a joint consultancy with KNCV to assist the NTP to conduct an epidemiological assessment in January-February 2014. Another consultancy was carried out by Pedro

Suarez, TB CARE I Global Technical Lead, from MSH in September 2014, which included assisting the NTP with facilitating a national annual evaluation workshop.

During APA3, two international consultants form KNCV assisted the NTP train 76 staff members from various cadres on the project cycle management (PMC) and training for trainers (TOT).

In APA2, Pedro Suarez assisted the NTP to conduct the annual national evaluation workshop in Kabul, attended by staff from MOPH, GCMU, USAID, NGOs.

World TB Day celebration

TB CARE I assisted the NTP in conducting World TB Day celebrations in communities and districts. Celebrations involving at least 228 of 320 health facilities were aimed at increasing political commitment to DOTS implementation and TB patients. TB messages reached 9,600 direct audiences who attended these events and to a wider community through TV and radio messages.

Challenges and Next Steps

Higher BPHS and NTP staff turnover:

Central NTP staff decreased from 34 technical officers to 13, affecting program activities, especially in insecure provinces. Also, during 2013-2014 the NTP diagnostic clinic decreased medical staff by 75% and most of the staffs shifted to Afghan Japan hospital, posing a challenge for the clinic to manage TB diagnosis and treatment. At the provincial level turnover, especially among lab technicians, was higher because of low salaries and insecurity. This affected the case detection and quality of services.

Low MOPH commitment:

Currently, the government share of TB control is approximately 1% of total expenditure on TB. The NTP faces the challenge of paying incentives to its staff at the national level. Government payment to NTP staff on average is less than US $200 per month per person, resulting in unmotivated central and provincial NTP staff and delayed implementation. Additionally, in 2013, the NTP organogram was redesigned by MOPH and the technical staff of central NTP decreased to 13 from 34. To support all TB activities in 34 provinces with fewer technical staff from NTP and TB CARE I remains a challenge.

Poor referral system

The referral system between BHCs and SHC is very weak. As fewer presumptive TB cases prefer to attend diagnostic centers for their sputum smear examination. For instance, in 2013, NTP missed 48% of all presumptive TB cases to be tested for their TB. Also, there is poor follow up and feedback mechanism to ensure follow up examination and report treatment outcome.

Low central and provincial NTP coordination:

The NTP, as a vertical program, faces greater integration challenges at the central and provincial levels, requiring a high level of coordination and collaboration at various levels. TB CARE I's strategy was to accelerate the integration process at the various levels of the NTP, but in a few cases the project faced coordination challenges at the provincial and central levels. The coordination approaches of NTP at various levels need to be improved. The provincial health directorate (PHD) does not consider the TB program a priority and there is a lack of participation in quarterly review meetings. The TB coordinators do not participate in PHCC meetings in some provinces. Some of BPHS NGOs consider TB as a vertical program and the capacity of supervisors in monitoring and supervision of TB services at the HF level is weak. Engagement of the private sector is weak and the PPM program does not have a reporting system in the province, which resulted in a miss opportunity within the health system.

Insecurity: Deteriorating security in many of the provinces has delayed activities. However, TB CARE I was able to implement activities in all insecure provinces through close coordination with the provincial teams.

Infection Control

Technical Outcomes

#	Outcome Indicator	Indicator Definition	Baseline (2011)	Target Y4 (2014)	Result Y4 (2014)
3.1.1	National TB IC guidelines that are in accordance with the WHO TB IC policy have been approved	Description: The TB IC guidelines must have been approved by the NTP or MOH, and must be consistent with the 2009 WHO policy on TB-IC. The guidelines should cover controls in health care facilities, congregate settings, and households/communities. Indicator Value: Yes/No Level: National Source: NTP Means of Verification: TBIC guidelines (soft copy or government link) must be submitted to the PMU.	Yes	Yes	Yes
3.1.2	TB IC measures included in the overall national IPC policy	Description: TB IC measures must be included (in a special section on transmission-based airborne infection prevention and control) in the overall national Infection Prevention & Control (IPC) policy Indicator Value: Yes/No Level: National Source: NTP Means of Verification: National IPC policy (soft copy or government link) must be submitted to the PMU.	Yes	Yes	Yes
3.2.2	Facilities implementing TB IC measures with TB CARE support	Numerator: The number of facilities where TB CARE I supported the implementation of TB IC measures. Denominator: Total number of facilities where TB CARE I planned to support the implementation of TB IC	35 facilities in year 3	140 facilities	140
3.5.1	Health care workers screened for TB	Numerator: Number of health care staff screened for TB Denominator: Total number of health care staff	240	400	0
3.5.2	Strengthened TB IC monitoring and measurements	To monitor the progress of TB IC measures implementation 26 field visit will be conducted	26 visits in year 3	26 supervision visits	19 visits conducted

Key Results

During 2014, the TB CARE I and NTP revised TB IC SOPs and disseminated it nationwide. Also, 260 health care workers trained on the procedures. TB IC measures expanded to an additional 40 new health facilities and 40 TB IC committees established in the TB IC expanded health facilities. Each committee conducted one meeting per month, resulting in 480 meetings conducted. Four health facilities were renovated, although 20 renovations were planned and then cancelled because of new USAID policy on renovation. Moreover, 2,500 TB IC posters were printed and disseminated nationwide. Nineteen supervision visits were conducted to track project progress.

An assessment of the impact of TB IC measures was conducted to evaluate its contribution in case detection. In the assessment, three key operational indicators, the numbers of TB suspects identified, identified TB suspects examined, and new sputum smear positive cases notified, were analyzed from 2010 to 2013.

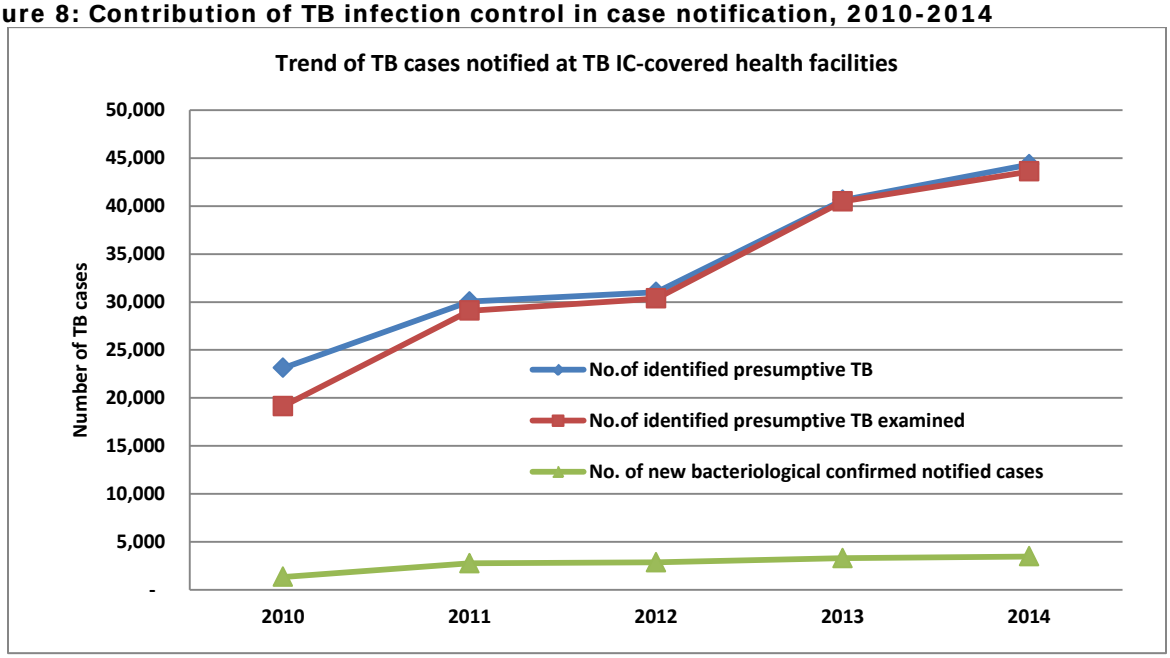
In that period, that number of TB presumptive case identification increased by 75.8% (from 23,120 in 2010 to 40,642 in 2013). Among those identified as presumptive TB cases, the number tested for TB increased by 111% (from 19,125 in 2010 to 40,489 in 2013) (Table 7). The number of newly identified TB bacteriologically confirmed cases increased by 147.7% (from 1328 in 2010 to 3290 in 2013).

Table 7: Contribution of TB IC implementation in case detection. 2010-2013

Indicators/Year	2010	2011	2012	2013	2014
No. of existing health facilities with lab services	360	360	360	360	360
No. of health facilities renovated	10	30	57	70	74
No. of health facilities covered by TB IC measures	10	35	70	140	140
No. of TB suspects identified	23,120	30,050	31,024	40,642	44,346
No. of identified TB suspects examined	19,125	29,087	30,354	40,489	43,613

Furthermore, the application of TB IC measures at 140 health facilities resulted in improved presumptive TB case identification and examination. This reduced the chance of spreading TB bacilli and provided safer environments for health care workers, clients, and communities. Infectious TB cases identified shortly after their entrance to health facilities were immediately started on medication and made aware of cough etiquette. Data from these facilities showed an upward trend in presumptive TB case identification at these 140 health facilities from 2010 to 2014 (Figure 8).

Figure 8: Contribution of TB infection control in case notification, 2010-2014



An assessment conducted in 94 health facilities in 2013 revealed that the average time from arrival of a presumptive TB case at a health facility until identification as a presumptive TB case was 32 minutes while for control facilities it was 58 minutes. Also, the average time from arrival of a presumptive TB case until diagnoses as TB infected was 54 hours for TB IC facilities and 79 hours at control facilities (See Table 8).

Table 8: Outcomes of TB IC measures on speed of service delivery at health facilities

Indicator	Intervention facilities	Control facilities	Difference in speed of service delivery between intervention and control facilities
Sample size	42 patients	52 patients	
Mean time from when a patient arrived at the health facility to when identification as a TB suspect	32 minutes	58 minutes	26 minutes
Mean time from when a patient arrived at the health facility to when a health worker collected threee or more sputum samples from the patient	81 minutes	178 minutes	97 minutes
Mean time from when a patient arrived at the health facility to departure from the facility	52 hours	73 hours	21 hours
Mean time from when the patient was diagnosed with TB to initiation on TB treatment	54 hours	79 hours	25 hours

The triage system was introduced at health facilities to look after presumptive TB cases. This resulted in earlier identification, diagnosis, and treatment initiation. In addition, about 70 health facilities were renovated to establish safer waiting areas and sputum collection booths (picture 2).

Waiting area in a clinic covered by TB IC

Monitoring & Evaluation, Surveillance, and Operation Research

Technical Outcomes

#	Outcome Indicator	Indicator Definition	Baseline (2013)	Target Y4	Result Y4
7.1.1	An electronic recording and reporting system for routine surveillance exists at national and/or subnational levels	Electronic reporting from all 34 provinces reached national level	No	Yes	Yes (25 provinces sent)
7.2.1	Data quality measured by NTP with the support of MSH/KNCV	A data quality assessment conducted by NTP	Yes	Yes	Yes
7.2.2	NTP provides regular feedback from central to intermediate level	During quarterly review workshops the health care staff receives feedback on their performances	Yes	Yes	Yes
7.3.1	OR studies completed	Number of OR conducted	1	2	2 In total, 7 OR conducted
7.3.2	OR study results disseminated	Number of abstracts presented at the Union Conference	1	2	4 In total 23 abstracts presented at Union Conference
7.3.3	To train senior NTP staff on operations research		0	25	0

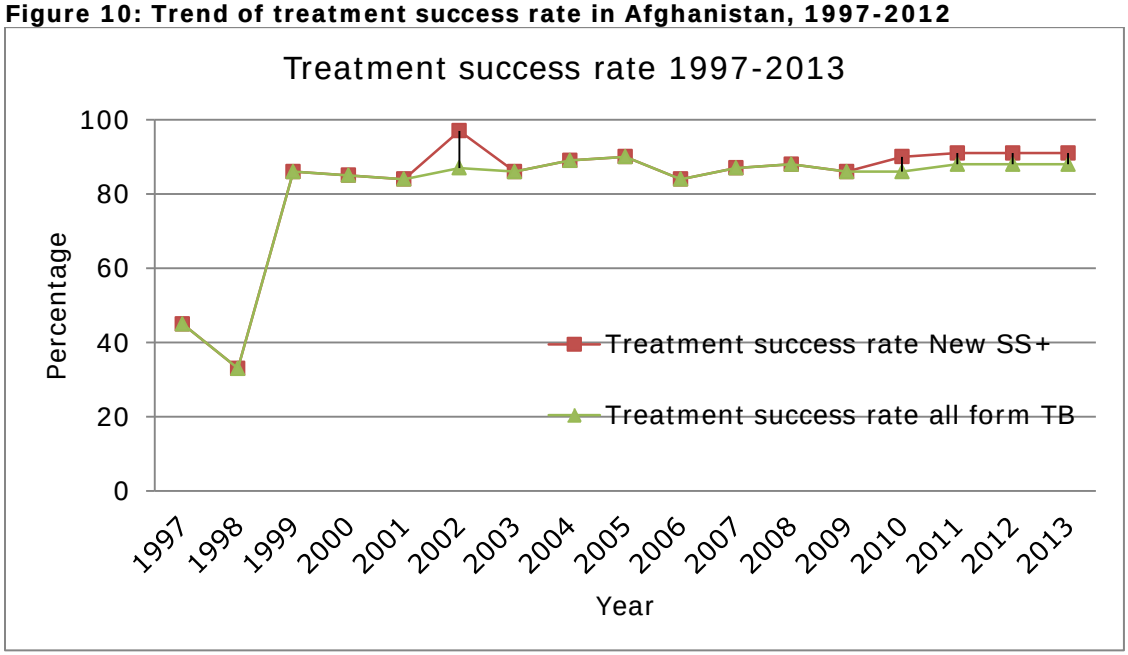
Key Results

Annual evaluation workshop:

This year the national evaluation workshop was originally planned for May 2014 but it was delayed due to the volatile security and political situation. The participants for this workshop were provincial health directors, provincial TB coordinators, BPHS implementers (NGOs), NTP senior staff, MOPH senior staff. Also represented were GCMU, the Communicable Disease Control department, Preventive Medicines department, CB-DOTS focal points from BPHS implementers, partners such as TB CARE I/MSH, WHO, and Global Fund Round-8 and Round-10. During the life to TB CARE I project, three annual evaluation workshops conducted, one in 2011, second in 2013 and third in 2014.

Since 2010, the NTP has managed to maintain a treatment success rate of 91%. The contribution of CHWs in DOT provision to TB patients in their communities is the most important factor contributing to a higher treatment success rate. The rate for those TB patients who received their DOT from CHWs was 98% compared to 91% countrywide.

Figure 10: Trend of treatment success rate in Afghanistan, 1997-2012



The NTP secured funding from GF for September 2014 to March 2015 through a no-cost extension of GF Round 8. In addition, the NTP has strong commitment from USAID for current TB CARE I follow on. The NTP also secured funding of $12 million for all first-line and second-line TB medicine from JICA for 2015-2017.

Conclusion of national annual evaluation workshop:

In 2013, Urban DOTS, that implemented only in Kabul city, notified 3,548 TB cases of all forms and the estimation for 2014 is 4,500. This is 11% of all the TB cases notified nationwide in 2013 and 14% in 2014. Also, the treatment success rate improved by 29%, from 44% (2009) to 73% (2012). Also, the PPM model that was implemented in eight cities notified 10% of all TB cases notified nationwide. CB-DOTS helped the NTP to expand DOTS in most remote and hard-to-reach areas. For instance, from 2012 to 2014, 4,426 of 49,169 presumptive TB cases turned to be sputum smear positive, a positivity rate of 9%. Also, 8,780 diagnosed TB patients received their daily anti-TB pills from CHWs in their villages. This approach reduced the cost of travelling for TB patients to health facilities for daily treatment, diminished stigma, and provided psychosocial support as well.

NTP surveillance system strengthening

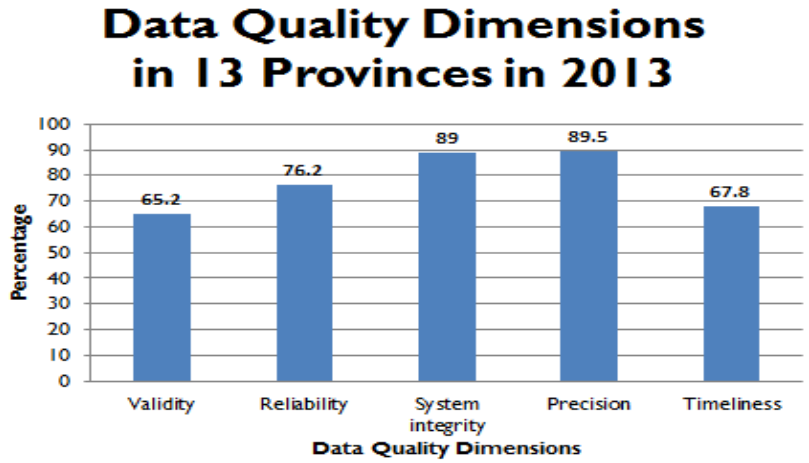
The project assisted the NTP to develop the analogue national surveillance system to an electronic system. In 2010, the TB information system database was developed in Microsoft Access and piloted in five provinces. Based on the pilot assessment, the NTP and TB CARE I decided to shift the data entry and reporting strategy and integrated the data collection and electronic reporting with the national HMIS. TB CARE I introduced the system to BPHS NGOsand trained 121 (119 male, two female) HMIS officers form NGOs and PPHOs on TBIS database utilization in August 2014. In October 2014, 67% of all health facilities that were required to submit their electronic TB reports successfully did so. In addition, the data accuracy assessment conducted in 2013 with technical assistance from TB CARE I demonstrated that two key TB indicators had the highest accuracy. The accuracy for new sputum smear positive and all form TB cases was found to be 97.5% and the overall data accuracy for all form of TB data was 90%. That shows an 11% improvement in the data accuracy compared the baseline data accuracy of 2008 (Table 9).

Table 9: Data accuracy of case notification in 2013

Variable	# Reported	# Verified	Accuracy
All TB cases (all forms)	3,348	3,262	97.4%
New sputum smear positive TB cases	1,387	1,358	97.9%
Suspected TB cases identified	17,914	16,740	93.3%
Suspected Tb cases examined	16,771	16,363	97.6%
Suspected TB cases with smear positive result	1,424	1,354	95%
Overall data accuracy for case notification	40,844	39,077	95.67%

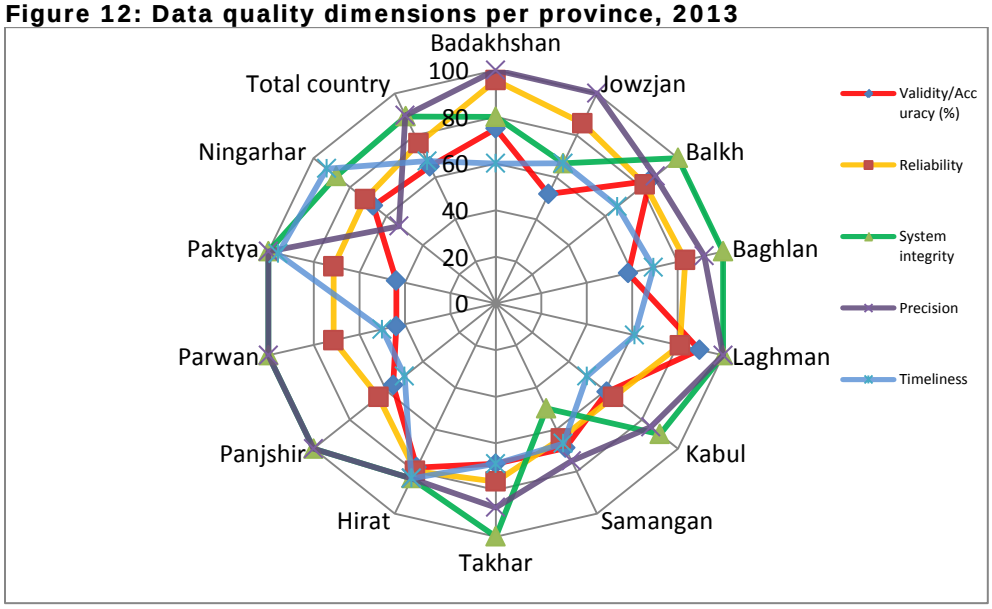
TB CARE I investigated the five dimensions of data quality and found that the validity and timeliness of TB data reporting to the NTP had the lowest scores – 65% and 78%, respectively. To improve this, in August 2014, the project trained 121 staff (119 male, two female) on the system. Shortly after this, the HMIS unit of the MOPH was able to receive electronic reports from 26 provinces. The NTP decided to integrate the TBIS with the national HMIS. Following first quarter of the full integration the HMIS department of NTP received data from 30 (88%) of provinces. Also, the electronic system automatically checked the consistency between cells and columns and if there is a discrepancy the system could not move forward unless resolved. The NTP planned to address other related data quality issues through revision of its national TB guidelines.

Figure 11: Data quality dimensions of TB data in Afghanistan



In summary, investment in surveillance and M&E improvements achieved integration of TB information into the general HMIS and yielded significant improvements in TB data accuracy. The findings vary from each province (Figure 12). The NTP planned to address province-specific gaps.

Figure 12: Data quality dimensions per province, 2013



Operational research:

With assistance from TB CARE I, the NTP conducted seven assessments and two operational research studies (Table 10). They covered: Gender distribution of bacteriologically confirmed TB cases in Afghanistan and exploring the magnitude of TB among diabetes patients in Kabul; identifying gender distribution of treatment success rate; data accuracy assessments, identifying the magnitude of TB among malnourished TB cases; and the impact of TB infection control measures on time spent at health facilities. In addition, TB CARE I assisted the NTP to conduct observational analysis and submitted eight abstracts. Three oral presentations and one poster presentation were presented at the 45th Union conference in Barcelona, Spain, and published in the International Journal of TB and Lung Diseases in November 2014. Moreover, TB CARE I drafted two papers to document the project's outcomes: "The impact of Urban Model DOTS implementation in Kabul, Afghanistan" and "Exploring DOTS implementation in a fragile and post-conflict country." These papers will be published in an international journal. For further details of all publications, see the Scientific Publication or Presentations section of this report.

TB CARE I also conducted an annual half-day long session during the Union's call for abstracts to improve their ability to document and present the achievements and challenges of the TB program in Afghanistan. This helped the NTP staff to think more strategically and scientifically about the data and improve their evidence-based decision-making skills. The TB CARE I project enabled the NTP to attend international conferences such as the Union conference. Exposure to international conferences improved their capacity to test hypotheses and be more innovative in their approaches to address the unique challenges of TB in Afghanistan.

Table 10: List of operational research with assistance by TB CARE I

Title of study	Brief results	Means of dissemination
Exploring TB treatment outcome distribution by gender in Afghanistan 2009-2011	The cure rate among females was 89.4%, compared to 85.2% among males (CI=99.9%, P>0.00001). Treatment outcomes among female were distributed as follows: 2,397 (89.4%) were cured; 35 (1.3%) completed treatment; 2,432 (90.7%) were successfully treated; 95 (3.5%) failed treatment; 73 (2.7%) died; 28 (1%) defaulted from treatment; and 41 (1.5%) transferred out. Treatment outcomes among male were distributed as follows: 1,200 (85.2%) were cured; 28 (2%) completed treatment; 1,228 (87.2%) were successfully treated; 34 (2.4%) failed treatment; 72 (5%) died; 42 (3%) defaulted from treatment; and 29 (2.1%) transferred out of treatment.	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013, http://www.theunion.org/about-the-journal/conference-abstract-books.html (2013)
Impact of Tuberculosis infection control measure on time spent at health facilities by clients and suspect TB cases in Afghanistan; cross-sectional assessment	The study discovered that in intervention HFs mean suspect identification time from arrival was 23 minutes and departure was 80.7. Also, mean sputum collection of three samples took 52 hours and time to diagnosis and initate treatment was 54 hours. In control HFs mean suspect identification time was 58.2 minutes and departure was 178 minutes; mean sputum collection time was 73 hours and diagnosis and treatment was 79 hours.	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013, S147, S188, S329, S347; http://www.theunion.org/about-the-journal/conference-abstract-books.html (2013)
Impact of TB IC implementation on magnitude of Tuberculosis infection among health care workers in ten hospitals in two Afghanistan provinces, 2011	Facilities with TB IC had fewer suspected and new sputum smear positive TB cases than facilities without it. There were 120 health care workers from facilities with TB IC screened for TB, and among them 11% were identified as TB suspect and three (27%) were diagnosed as new sputum smear positive. But out of 120 health care workers from facilities without TB IC, 18% were identified as TB suspect, and seven (31%) were diagnosed as new sputum smear positive. The HIV status among all suspected and positive cases was negative. Sixty percent NSS+ cases were diagnosed among Lab Techs and 40% among OPD/DOTs staff.	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html (2012)
Identifying contribution of community health workers on treatment outcome of TB patients in Afghanistan	In total, 853 (587 female, 266 male) new TB SS+- patients that took DOT from CHWs from 2009 to 2011 and 3,200 from control provinces were recruited in the study. Treatment outcome analysis demonstrated a treatment success rate of 832 (97.65%), a cure rate of 822 (96.4%, X^2=33, P=0.00001), and a completion rate of 10 (1.2%). In addition, 11 (1.2%) died, 3 (0.4%) defaulted, 3 (0.4%) failed, and 4 (0.4%) transferred out. Moreover, the death rate was 1% and default, failure, and transfer out rates were 0.4%, respectively. Values for these indicators in control provinces was 86.9% treatment success rate, 83% cure, 3.9% completion, 2.1% default, 1% failure, 2% death and default rates, 6% transfer out. Interestingly, the treatment outcome was equally distributed between genders.	

Effect of surveillance system strengthening initiatives on quality of tuberculosis data in Afghanistan: a cross-sectional study	Among the 61 health facilities, the average score for all five data quality dimensions was 80.1% with 71% validity, 80% reliability, 89.8% system integrity, 90.2% precision, and 73.7% timeliness. There was variation in data quality among provinces: Samangan province's health facilities scored 64.9% and facilities in Kandahar and Ghazni both had an average score of 98%. In summary, data quality improved by 5% (from 76% in 2008 to 81% in 2012). Health facilities in two provinces scored less than 70%, facilities in five provinces scored between 71-80%, facilities in another five provinces scored between 81-90%, and facilities in only two provinces scored above 90%.The data accuracy for two strategic indicators of TB, the all form TB cases and sputum smear positive TB cases, had an accuracy of 97.5%	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013, http://www.theunion.org/about-the-journal/conference-abstract-books.html (2013)
Exploring the magnitude of pulmonary TB among diabetes patients in Afghanistan	The preliminary results indicate that the incidence of pulmonary bacteriological confirmed TB is 174 out of 100,000 people. The presumptive TB case rate was 10%; however, this rate is 3% for outpatients. The incidence of TB is three times higher among diabetes patients compared to the general population. However, the prevalence of TB among diabetes patients is 522 in 100,000, which is that of the general population.	Has not been disseminated yet

TB CARE I's support to GF implementation

TB CARE I assisted the NTP to maximize GF leverage in TB and improved the coordination between the principle recipient (PR) and the NTP through CCM and TB task force meetings. Also, TB CARE I complemented the CB-DOTS element of the GF through a subcontract with BRAC. TB CARE I was a member of the CN Development Committee for the GF's new funding mechanism. With assistance from TB CARE I, three international consultants and national staff worked with the NTP to conduct an epidemiological assessment of TB and a situation analysis of TB in Afghanistan with programmatic gap analysis and a modular template section. Also, one national TB CARE I staff was fully engaged with the NTP in the process of the CN development, from the situation analysis to strategic gap identification, strategy settings and budgeting for NSP 2014-2018 and writing three sections of the CN. In brief, TB CARE I assisted the NTP with strategic gap identification and how to address it through innovative approaches that were scientifically sound and practical in the Afghanistan context, such as Urban DOTS, CB-DOTS, health system strengthening, M&E and surveillance, and active case findings. The GF approved the CN in October 2014 and Afghanistan secured funding for its essential activities for 2015-2017. The CN includes the following key activities, summarized in four modules:

1. **TB care and prevention**
    a. Case detection and diagnosis: Enhance sputum/slide sending, strengthen laboratory system and external quality assurance, improve childhood TB and TST.
    b. Reach key affected populations: Reach prisoners and enhance active case findings and emergency screening among IDPs and contact household members.
    c. Engage all care providers: Expand DOTS to public and private facilities and to private practitioners/hospitals/clinics.
    d. Community and TB care delivery: Scale up CB-DOTS, patient association, and activities to raise awareness.
    e. Collaborative activities with other sectors: Enhance collaboration with reproductive health units of MOPH and PPHO.
    f. Other: Train health care staff and print IEC materials and surveillance reporting forms.
2. **MDR-TB**
    a. Case detection and diagnosis: Strengthen sample transportation, utilize GeneXpert and DST.
    b. Treatment: The drug is purchased by JICA and is not included in the CN and NTP will procure supplies for DST and Culture.
3. **Program management**: Includes salary supplement for NTP staffs at national and provincial levels, running cost, IT cost, finance staff salary, communication cost and benefits, and grant management cost.
4. **Health information system and M&E**:
    a. Routine reporting: Revise R&R forms according to new WHO definitions; conduct quarterly review workshops in all 34 provinces of Afghanistan; supervise and monitor TB program implementation, including visits to provincial, health facility and community levels by NTP staff
    b. Surveys: Identify research areas, develop proposals, and implement OR.

In addition, TB CARE I provided technical assistance to the NTP and partners through CCM. TB CARE I is the second chair of the CCM.

Key Challenges and Way Forward - Lessons Learned and Recommendations

In 2013, the NTP was able to notify 54.4% of all estimated TB cases but still faced the challenge that 46% of TB cases went undetected annually. Most were assumed to be in the densely populated areas of Kabul, Kandahar, Herat, Balkh, Nangerhar, and Ghazni.

The highest missed opportunity existed within the public health system. For example, 2013 national HMIS data showed that subhealth centers informed national and specialty hospitals of 408,000 presumptive TB cases. However, only 216,000 of these cases were examined for sputum smear microscopy, leaving a huge gap of 48% (192,000).

So far poor active TB case finding, contact screening, and TB among children have not been addressed strategically, although contacts and children are among those most at risk for TB.

Low MDR-TB diagnostic and treatment capacity remains a challenge for TB control. Currently, samples from presumptive TB cases for MDR-TB are transferred to Pakistan for diagnosis. This approach is not sufficient to address the MDR-TB issue. For example, in 2013, the NTP was able to notify only 4.3% (49) of all estimated MDR-TB cases (1,150). Late diagnosis of MDR-TB could result in the spreading of this dangerous form of TB in Afghanistan.

Another issue includes weak coordination of TB projects between partners and provincial health offices, provincial TB coordinators, and NGOs implementing primary health care.

Fragmented implementation of PPM, Urban DOTS, and CB-DOTS in the provinces has also proven problematic. Documentation of performance of CB-DOTS and sending sputum slides is essential to evaluate the impact/outcome of these approaches. Currently, this is poorly managed and documented.

More importantly, maintaining laboratory quality through sustainable external quality assurance is essential for the TB control program and it has not been conducted in some provinces. Thus, it is strongly recommended to strengthen this system.

TB infection control initiatives were expanded to only a limited number of health facilities covered by the TB IC approach. This approach is essential to limit the spread of TB and provide safer environments for health care staff, health facility clients, and communities.

TB CARE I worked with the NTP, provincial health offices, PTCs, and BPHS implementing NGOs which were responsible for ensuring that all health services, including those related to TB, were provided at the country's 2,214 health facilities. However, there is a huge missed opportunity within health system at service delivery points. For example, in 2013, 48% of presumptive TB cases who visited health care facilities were not examined for TB. Therefore, USAID TB projects such as TB CAP and TB CARE I assisted the NTP, MOPH, and NGOs to be able to implement SOPs for case detection and treatment, TB infection control, and childhood TB. The SOPs helped health care staff to identify and examine presumptive TB cases who visited health care facilities, resulting in increased TB case notification in TB CARE I intervention areas (Figure 9). Thus, greater implementation by NGOs, PPHOs, health care staff, and PTCs is recommended to close the gap between case detection and treatment.

Better multi-sectorial collaboration could improve access to TB service delivery, and early case detection and treatment. For example, he engagement of the MOPH, Ministry of Justice, Ministry of Interior Affairs, Ministry of Defense, and private health care providers in implementing Urban DOTS led to increased access to quality TB service and delivery and improved treatment outcomes (Figure 4).

Increased opportunities in communities, rural, and hard-to-reach areas could improve access to TB services to those in need. Engagement of CHWs by TB CAP and TB CARE I in community-based DOTS implementation increased presumptive TB case identification/examination and treatment. Also, CB-DOTS reduced costs to patients because CHWs provided their medication so they did not need to pay for travel to health facilities and miss work. CB-DOTS brought TB services closer to Afghan communities.

Development of policy guidelines, training health care staff, and strengthening supervision, monitoring, and evaluation led to increased case notification and improved treatment outcomes. On-the-job training for frontline health care staff played an important role in sustaining TB case notification and treatment. Improved leadership and management capacity of provincial health teams and NGOs to implement policy guidelines is essential for sustainable TB care delivery.

Integration of the TBIS into the HMIS is an approach that sustains TB surveillance and communication from heath facilities to the national level. The USAID TB project assisted the NTP to develop an electronic reporting system to overcome challenges of data quality, especially reporting. In 2014, the TBIS electronic reporting system was fully integrated into the national HMIS and 121 staff (119 male, two female) staff were trained on this system. Shortly after this training, HMIS received electronic reporting from 26 provinces; only five provinces reported it in previous quarter. Thus, integration of TB information into the national HMIS resulted in much improved data accuracy and timeliness.

Annex I: Knowledge Exchange

Below is a list of tools and publications that were developed with support from TB CARE I Afghanistan during the project. Please contact the project staff for copies of any of the listed documents.

Technical Tools:
Strategic plan for DOTS implementation in Kabul city (Urban DOTS)
Strategic plan for DOTS implementation in rural areas (CB-DOTS)

Scientific Publications or Presentations:

Title	Journal	Date	Page
Public health solutions for combating tuberculosis in a low-income country: experience from Afghanistan	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, November 2014, http://www.theunion.org/about-the-journal/conference-abstract-books.html	November 2014	S147
Magnitude of tuberculosis in malnourished children in Afghanistan	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, November 2014, http://www.theunion.org/about-the-journal/conference-abstract-books.html	November 2014	S188
Contribution of public-private-mix (Urban DOTS) to TB control services in Kabul, Afghanistan	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, November 2014, http://www.theunion.org/about-the-journal/conference-abstract-books.html	November 2014	S329
Contribution of TB infection control (TBIC) to the TB case detection trend in Afghanistan	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, November 2014, http://www.theunion.org/about-the-journal/conference-abstract-books.html	November 2014	S347
Effect of surveillance system strengthening initiatives on quality of tuberculosis data in Afghanistan: a cross-sectional study	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2013	S147
Result from a multi-sectorial approach to implement Urban DOTS in Kabul, Afghanistan	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2013	S188
Exploring TB treatment outcome distribution by gender in Afghanistan 2009-2011	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2013	S329
Identifying the impact of standard operation procedure for tuberculosis case detection on case notification and treatment outcome in Afghanistan, 2009-2012	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2013	S347
Impact of tuberculosis infection control measures on time spent at health facilities by clients and suspect TB cases in Afghanistan; cross-sectional assessment	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 17, December 2013,http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2013	S147, S188, S329, S347

Identifying the contribution of community health workers to the treatment outcome of TB patients in four provinces of Afghanistan, 2010	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2012	S128
Identify the impact of standard operation procedure on early tuberculosis case detection in Afghanistan	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2012	S1450
Community contribution in tuberculosis control in Afghanistan	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2012	S32
Improving tuberculosis case detection and quality of care in Kabul through implementation of Urban DOTS	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2012	
Urban DOTS contribution to treatment outcome of new sputum smears positive tuberculosis cases in Kabul city 2008-2012	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2012	
Impact of TBIC implementation on magnitude of tuberculosis infection among health care workers in ten hospitals in two Afghanistan provinces, 2011	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2012	
Implementation of community-based DOTS in four provinces of Afghanistan (PS-100754-13)	International Journal of Tuberculosis and Lung Disease (IJTLD); Vol. 14, December 2012, http://www.theunion.org/about-the-journal/conference-abstract-books.html	December 2011	

Educational materials:
TB infection control information education and communication (IEC) materials

Other: