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**TB CARE I**



**TB CARE I – Central Asian Republics (CAR)  
End of Project Implementation & Performance Review Report**

**October 1, 2010 – December 31, 2014**

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**Submitted: December 19, 2014**

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## List of Abbreviations

CAR	Central Asia Region
DOT	Directly Observed Treatment
DR-TB	Drug Resistant Tuberculosis
DST	Drug Susceptibility Test
EKO	East Kazakhstan Oblast
GeneXpert MTB/RIF	Gene-molecular rapid diagnosis technology for TB and TB with rifampicin resistance detection
GFATM	Global Fund to fight AIDS, Tuberculosis and Malaria
HIV	Human Immunodeficiency Virus
HRD	Human Resources Development
HSS	Health Strengthening system
IC	Infection Control
MDR-TB	Multi-drug resistant Tuberculosis
M&E	Monitoring and Evaluation
MSF	Médecins Sans Frontières
MOH	Ministry of Health
MoIA	Ministry of Internal Affairs
MTB	Mycobacterium Tuberculosis
NCTP	National Center for Tuberculosis Problems
NRL	National Reference Laboratory
NTP	National Tuberculosis Program
OR	Operational Research
OTBD	Oblast Tuberculosis Dispensary
PIU	Project Implementation Unit
PHC	Primary Health Care
PMDT	Programmatic Management of Drug-Resistant TB
QHCP	Quality Health Care Project
RIF	Rifampicin
Rif+	Rifampicin resistant
SES	Sanitary and Epidemiological Service
SLD	Second Line Drug
SOP	Standard operational procedure
TB	Tuberculosis
TWG	Thematic Working Group
USAID	United States Agency for International Development
WHO	World Health Organization
XDR-TB	Extensively Drug Resistant Tuberculosis

## Executive Summary

The USAID-supported five-year (2010-2015) TB CARE I Project is implemented in Central Asian Countries by KNCV Tuberculosis Foundation (KNCV). Since the first year of the Project, beginning in May 2011, TB CARE I has been implemented in three Central Asian countries – Kazakhstan, Kyrgyzstan and Uzbekistan. In May 2012, TB CARE I expanded to Tajikistan.

TB CARE I worked within the USAID approved TB CARE I strategies for CAR and worked closely with National TB Program (NTP) leadership and staff to align its strategy with the current national needs.

In Kazakhstan, TB CARE I was implemented at the national level, through collaboration with the National TB center, and at oblast/municipal levels in Almaty city and Akmola, East Kazakhstan and North Kazakhstan oblasts. TB CARE I is implemented in collaboration with NTP/MOH, the Prison Service, PIU GFATM, USAID, The Quality Health Care Project and Dialogue on HIV and TB projects, and other local and international partners working in the field of TB control in Kazakhstan.

In Kyrgyzstan, TB CARE I was implemented in key geographic areas, including the capital of the country (Bishkek) and Issyk-Kul oblast. Collaborating partners are government bodies (national TB programs, Ministries of Health and the State System for Execution of Punishments), international organizations (USAID Dialogue TB/HIV, Quality Health Care, Gauting Supranational Laboratory, MSF, ICRC, AFEW) and other donors such as GFATM, World Bank, KFW.

TB CARE I in Tajikistan worked at the national level and in pilot districts of Temurmalik, Dangara, Baljuvan, Farhor and Rasht Zone close collaboration with NTP, the PIU UNDP (R8), Project HOPE (RCC/R3), USAID Quality Health Care Project, Caritas Luxembourg, MSF and local partners in TB control in Tajikistan.

In Uzbekistan, TB CARE I activities were implemented within the WHO country office at the national level, Tashkent oblast, Bukhara, Navoi, Kashkadarya and Khorezm regions in collaboration with NTP/MoH, MoI USAID, PIU GFATM, KfW, Quality Healthcare and Dialogue on HIV and Tuberculosis projects, MSF, and other local and international partners working in TB control in Uzbekistan.

TB CARE I Program worked in six technical areas: Universal Access, Laboratory, TB Infection Control (TB-IC), Program Management of Drug Resistant Tuberculosis (PMDT), Health System strengthening and Monitoring & Evaluation (M&E) and Operational Research.

### **Country Investment:**

Kazakhstan: \$ 4,397.692

Kyrgyzstan: \$ 2,552.242

Tajikistan: \$2,930.653

Uzbekistan: \$2,430.810

- The major achievement of TB CARE I in Tajikistan is increasing the involvement and getting the commitment of local municipal authorities and communities in the provision of social support to the TB and MDR TB patients during the ambulatory treatment. As a result, 192 TB and MDR TB patients received different types of social support from Khukumats that included allocation of land plots to establish vegetable gardens or orchards, and construction of dwelling houses, exemption from property taxes and utility payments, and the provision with food and hygienic packages. This approach had not been tried before and produced positive results; engagement of local authorities contributed to the sustainability of the patient support system. TB CARE I made progress involving religious leaders and community activists in supporting TB patients and increasing their adherence to treatment.
- In Tajikistan, there was a significant increase of detection of TB and MDR-TB cases in TB CARE I pilots. Overall, in 2013 the number of detected TB cases (all forms) increased in all TB CARE I pilots; these increases varied from 11% (Rasht, Nurabad districts) to 92% (Tajikabad) in comparison with 2012. In addition, detection of MDR TB cases increased by 2.5 times. It was achieved by the introduction of GeneXpert MTB/RIF (Xpert) testing, development of National Strategy on Implementation of GeneXpert MTB/RIF, including diagnostic algorithms and clinical

protocols for Xpert, strengthening of the sample transportation system, training TB and PHC providers on rapid diagnostic technology and sample transportation protocol.

- In Tajikistan, with TB CARE I support, a PMDT Program was introduced in nine TB CARE I pilot districts. All detected MDR-TB patients from Rasht area and four districts of Khatlon Region have been enrolled into treatment with SLDs procured by USAID (28 MDR TB patients in 2013 and 54 in 2014). Quality care of these patients was ensured in all TB CARE I pilots by training of medical providers (TB specialists, PHC doctors, managers and DOT nurses of TB and PHC services) involved in treatment of DR TB and regular monitoring and supervision visits.
- Xpert machines have been purchased for the first time in Kazakhstan with support of USAID. TB CARE I's support contributed to reducing the time to get a patient on treatment from 76 to 8.5 days. Director of the National Tuberculosis Control Center for the Republic of Kazakhstan, Tleukhan Abildayev, noted, "Implementation of rapid diagnostic method of MDR TB allowed us to start treatment of MDR TB patients earlier to reduce transmission of tuberculosis in the society. It is a great progress of the National TB program of Kazakhstan". National TB program included additional 75 Xpert machines to be procured countrywide for the next year. With the help of Global Fund, NTP will ensure all Xpert machines have Xpert cartridges in time. All maintenance and troubleshooting will be done directly through the authorized local service company.
- Due to successful implementation of the full outpatient care model in Akmola oblast, the percentage of patients enrolled in outpatient care reached 32% in APA4, compared to only 10% in APA1 throughout the region. As a project result, Akmola model is taken as a basis for the expansion of outpatient treatment in Kazakhstan and is included in the complex plan for National TB for 2014-2020. Funds released from reduction of hospital beds will stay with the TB service and will go for the outpatient settings, development of staff, hiring of psychologists, lawyers, social workers, etc.
- The institutionalization of WHO-recommended TB approaches has been encouraged in Kazakhstan through USAID support in the development of the national policy on MDR TB guidelines adopted by the Ministry of Health in 2014. "The newly-developed MDR-TB guidelines were urgently needed to respond effectively and in a timely manner to the needs of the patients with drug resistance TB in our country," said Elmira Berikova, Deputy Director of National TB Center. These policies are now available to clinicians, researchers and all medical staff nationwide.
- In Kyrgyzstan, percentage of TB patients put on outpatient care treatment in six Family Medicine Centers (FMC's) of Bishkek increased from 18% in 2012, to 26% in 2014, and the treatment success rate in Bishkek city stayed at 85.5%.
- TB CARE I and the Ministry of Health of the Republic of Uzbekistan have developed a number of important strategic and methodological documents in the area of TB control – the National Plan on M/XDR TB prevention and control for 2012-2015, Guidelines on TB infection control, National strategy on Xpert MTB/RIF use, Guidelines on psychosocial support to TB patients; Training module on clinical management of MDR TB cases, etc.
- Also in Uzbekistan, TB CARE I supported the NTP to improve its technical capacity on various aspects of TB control - TB IC, outpatient care, rapid TB diagnosis, M&E, transitional TB care for ex-prisoners etc. - by training of 1,257 specialist (F=645) from all levels of TB service – from central to district level.

**Regional Recommendations:**

- To decrease terms from detection of TB prior to the treatment of TB patient through active detection of TB in TB suspects and people with complaints on TB, implementing rapid methods of TB and MDR TB diagnosis and adequate treatment at rayon level.
- To promote full outpatient care for different categories of TB patients
- To continue work on the establishment sustainable patient support systems
- To involve civil societies, NGOs, ex-TB patients in ACSM and provision of patient support systems
- To organize the hierarchical structure (national – regional - district) for the planning and implementation of the TB IC measures
- To approve the national training programs on TB IC for health specialists and to invite trainers who have been trained during TB CARE I
- To improve skills of specialists on the use of electronic surveillance systems
- To increase local capacities in conducting operational researches

## Kazakhstan

### Introduction

Kazakhstan is the ninth largest country in the world, with a population of approximately 17 million. About 54% of the population lives in urban settings, and thus the rural areas are very sparsely populated. The country is divided into 16 districts: 14 provinces and the cities of Almaty and Astana. The districts are divided into 240 rayons. Twenty-four percent of the population is under 15 years of age.

The USAID-supported, four-year (2010 – 2014) TB CARE I project is implemented in Central Asian countries by KNCV. During the four project years, TB CARE I was implemented at the national level, through collaboration with the National TB Center, and at oblast/municipal levels in Almaty city and Akmola, Eastern Kazakhstan and Northeast Kazakhstan oblasts. TB CARE I's implemented in collaboration with NTP/MOH, the Prison Service, Agency on Consumer Right Protection, PIU GFATM, USAID The Quality Health Care Project and Dialogue on HIV and TB projects, and other local and international partners working in the field of TB control in Kazakhstan.

The total covered population in TB CARE I pilot sites is 2,705,350 (~ 16%) of 17,160,774 of Kazakhstan's general population.

TB CARE I Kazakhstan focused on six strategic directions: Providing universal and early access to quality TB service, strengthening of laboratory service through implementation of Xpert technology, introduction of infection control standards, improvement of PMDT, health system strengthening, monitoring and evaluation, and strengthening capacity for operational research. Key achievements from the Project implementation are summarized below:

#### Universal access

- A protocol on the administration of outpatient care and psychosocial patient support was developed and implemented in practice in the Akmola region. As a result, the numbers of in-patient TB beds decreased and different types of outpatient care settings were established, reducing duration of in-patient TB treatment (0-1 month for TB, 2 – 3 months for MDR-TB).
- Ministry of Health and the NTP took Akmola pilot on full outpatient care and psychosocial patient support as a model for scale up in the country and included it in the Kazakhstan National Complex Plan for 2014 – 2020 (approved on May 27, 2014).
- As an essential element for provision of outpatient care there were established and institutionalized a sustainable comprehensive psychosocial support system for TB patients (psychologists and social workers included in the staffing list). With TB CARE I support, in-home education was organized for children with TB since children with TB are not allowed to go to school. Strong advocacy from the project has leveraged increased local government funds for the social support of TB patients (from 200,000 USD in 2011 to 340,000 USD in 2013).
- With TB CARE I's technical support, 32% (491) of the 1,534 registered TB/MDR-TB patients in Akmola Oblast were enrolled in outpatient care in APA4 compared to only 10% in APA 1. No patients on full outpatient care were lost to follow up.
- TB CARE I supported the government's efforts to improve TB measures in the prison transportation system. As part of the Prison TB Service plan, the policy regulation has been developed and described the IC norms on improving air conditions during the transportation of prisoners nationwide.
- The non-medical staff from pilot sites are trained, focusing on personal protection measures for infection control and the role of prison staff in TB control in prisons. Fifty seven participants were trained in Semey) in 2013-2014. During this training, the trainers explained the IC measures necessary to prevent TB and the important work of non-medical staff in prison TB control. Zero TB disease was detected among non-medical staff during the last two years.

#### Laboratories (GeneXpert implementation)

- The National Plan for implementation and optimal use of Xpert was developed, which allows much faster detection of drug resistant TB forms and timely onset of treatment.

- Strong collaboration and coordination between TB CARE I project, NTP and Global Fund project allowed avoiding interruption in supply of Xpert cartridges in all Xpert sites.
- The diagnostic algorithm, clinical protocol and maintenance plan for the use of Xpert and the SLD treatment protocol were incorporated into the revised national order on (DR) TB.

#### Infection control

- The national TB IC guidelines were jointly developed and are currently under approval by the Ministry of Health;
- Individual IC plans of activities have been developed and implemented in Akmola, Eastern Kazakhstan and Northeast Kazakhstan;
- Technical instructions on constructing of transport for prisoners in line with international IC standards have been developed upon requirement of government.

#### Programmatic Management of Drug Resistant TB

- The national guidelines have been developed, which incorporate WHO recommendations to apply state-of-the-art approaches to management of multi-drug resistant tuberculosis;
- The Protocol on management of TB in children is developed and incorporated in the national policy regulation (updated MoH order 218). All the documents have been adopted by the Ministry of Health in 2014.
- Newly revised and updated directives of MoH (Order #218) on TB (MDR-TB) control are in line with the latest WHO recommendations.
- The WHO compendium "Best practices in prevention, control and care for drug resistant tuberculosis" was published in September 2013, included the publications (1) Kazakhstan. Implementation of GeneXpert; (2) Kazakhstan. Psychosocial patient support; and (3) Kazakhstan. Policy, legislation and guidelines for TB, developed with support of TB CARE I.

#### Health Strengthening System

- The project supported participation of 20 national experts in the international conferences and trainings.
- Through the life of the project TB CARE I conducted national and regional trainings for 540 national specialists on programmatic and clinical issues of TB control program.
- Three cross-study visits through Central Asian national TB programs have been conducted for 18 national specialists to exchange best practices within the countries' programs.

#### M&E, Operational Research

- The online TB electronic information system for prison system was developed in August 2013. This system will allow the exchange of data between civilian and prison systems to avoid double entries, errors and improve the surveillance system in the country.
- Support in updating the data base in penitentiary system, and ability to exchange TB data between the penitentiary and civil services through the epi-surveillance system.
- The operational research has been conducted on the main project activities; the results of the research data were presented at international conferences. Three studies (evaluation of Xpert piloting in Kazakhstan, evaluation of psycho-social support system in EKO and evaluation of outpatient patient care in Akmola oblast) have been completed. The results of the first two studies have been disseminated in September 2014 but the results of the last study will be disseminated at the end of December 2014. As per the request of the USAID, TB CARE I is conducting the Xpert cost effectiveness study that will be completed at the end of December and results will be disseminated in January 2015.

## Core Indicators

TB CARE I has seven core indicators that the program as a whole is working to improve across all countries. Table 1 summarizes the core indicator results across the life of the project for TB CARE I- <insert country name>, as well as the Tuberculosis Control Assistance Program (TB CAP), the precursor to TB CARE I, which our coalition also led.

		<b>C1.</b> Number of cases notified (all forms)	<b>C2.</b> Number of cases notified (new confirmed)	<b>C3.</b> Case Detection Rate (all forms)	<b>C4.</b> Number (and percent) of TB cases among healthcare workers	<b>C5.</b> Treatment Success Rate of confirmed cases	<b>C6.</b> Number of MDR cases diagnosed	<b>C7.</b> Number of MDR cases put on treatment
	2005	22368	6912	30,9%	N/A	80,2	N/A	N/A
T B C A P	2006	19956	6324	31,7%	N/A	70,8	8144	N/A
	2007	19572	6201	31,7%	N/A	70,7%	8470	1771
	2008	19670	6193	31,5%	213 (1.1%)	68,5%	7808	2346
	2009	16735	5355	32,0%	237 (1.4%)	64,1%	8466	6082
	2010	15643	4926	31,5%	198 (1.3%)	62%	7336	5740
T B C A R E I	2011	14396	4305	29,9%	182 (1.3%)	60.8%	7386	5311
	2012	13763	4053	29,4%	175 (1.3%)	61.3%	7608	6525
	2013	12510	3590	28,7%	130 (1.0%)	58.0%	7176	6913

## Universal Access

### **Full outpatient care**

Under this technical area, TB CARE I promoted adoption of outpatient care model, with the focus on psychosocial patient support in Akmola region. Starting in 2011, TB CARE I's goal in Kazakhstan was to pilot the comprehensive outpatient care approach for non-infectious patients in Akmola Region to show the benefits to both the NTP and patients, thus persuading the Ministry of Health (MoH) to scale it up nationwide.

TB CARE I promoted adoption of outpatient care for most TB/MDR TB patients, taking into account that long term hospital admission might have negative social, psychological and emotional effects not only on patients (especially children) but their families as well.

Through the established Akmola regional multidisciplinary working group, TB CARE I developed a protocol on outpatient care in the pilot oblast of Akmola that describes admission criteria and organization of the outpatient care, including DOT provision in outpatient care settings, criteria for patient support, and monitoring and evaluation.

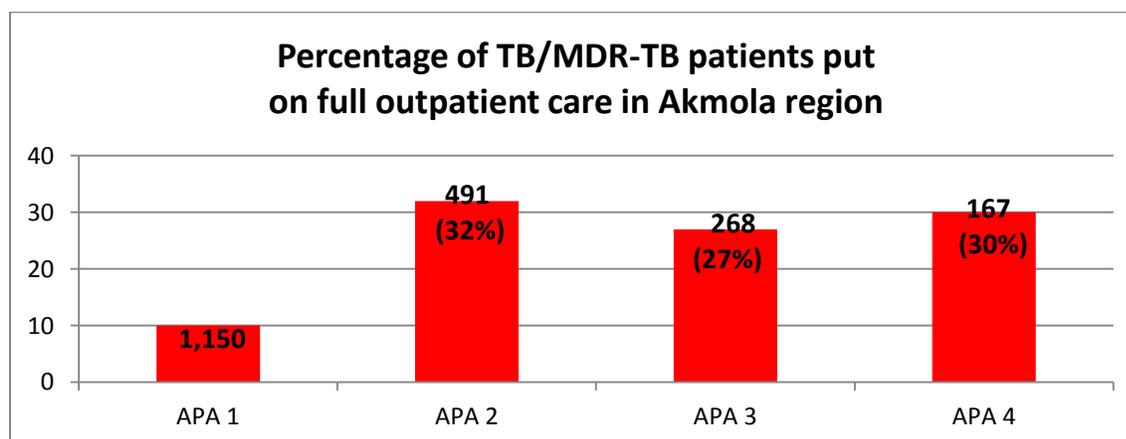
The increased use of home-based care and the introduction of outpatient clinic services have been appreciated by TB patients and their families, an initial indication that these approaches are positively affecting the health and well-being of TB patients. Implementation of the approach has reduced the percent of TB patients lost to follow up from 2% in 2011 down to 0.3% in 2012 and 0% in 2013. In general, the successful rate of treatment among new cases increased from 72.6% in 2011 up to 79.3% in 2012 and in 2013 up to 87.5%

Provisional estimates indicate at least a three-fold decrease in the costs associated with outpatient care for both regular TB and MDR-TB patients, when compared to hospital-based care.

Strengthening human capacities, TB CARE I established Akmola regional training center and educational materials and support were provided. In Akmola, 81 specialists (64 females and 17 males) from TB and PHC service and SES were trained in outpatient care and psychosocial patient support.

Results of piloting full outpatient care in Akmola region were discussed at national level through a three-day workshop in Astana (November 20-22, 2013) with key specialists from the Ministry of Health responsible for TB, the National TB Program, chief doctors in all regional TB dispensaries in the country and representatives of Akmola region.

The outpatient care pilot in Akmola region was recognized as a major success by local, regional and national authorities. As a result, the MoH and NTP adopted it as a model for scale-up nationwide. It was included in the Kazakhstan National Complex Plan for 2014–2020. Key portions of the full outpatient care model were incorporated into the newly revised policy regulations that have been sent to the MoH for approval and for rollout across the country.



## Major Successes

- A protocol on the administration of outpatient care and psychosocial patient support was developed and implemented in practice throughout Akmola region
- Reduced numbers of in-patient TB beds and established different types of outpatient care settings
- Reduced duration of in-patient TB treatment (0-1 month for TB, 2 – 3 months for MDR-TB)
- With TB CARE I's technical support, 32% (491) of the 1,534 registered TB/MDR-TB patients (including children) in Akmola Oblast were enrolled in outpatient care in 2012, 27% (268/983) in 2013, and 30% (167/548) in the first two quarters of 2014 compared to only 10% in 2011 (Akmola Regional TB program, 2011-2014). Because national policy on outpatient care was not yet approved in 2013, outpatients were selected on a case-by-case basis, resulting in a slight decrease in outpatient coverage for that year
- "Zero percent" lost to follow up among patients on full outpatient care. Implementation of the approach has reduced the percent of TB patients lost to follow up from 2% in 2011 down to 0.3% in 2012 and 0% in 2013. In general, the successful rate of treatment among new cases increased from 72.6% in 2011 up to 79.3% in 2012 and in 2013 up to 87.5%
- Established and institutionalized a sustainable comprehensive psychosocial support system for TB patients (psychologists, social workers and lawyer included in the staffing list)
- Strong advocacy from the project has leveraged increased local government funds for the social support of TB patients (from 200,000 USD in 2011 to 340,000 USD in 2013).
- Organized education at home for children with TB.
- Ministry of Health and National TB Program took Akmola pilot on full outpatient care and psychosocial patient support as a model for scale up in the country and included in the Kazakhstan National Complex Plan for 2014 – 2020 (approved on May 27, 2014).

## Pictures

### Training on full outpatient care and patient support, Oskemen, March 17-20, 2014



**Pic 1.** Small group work, March 17



**Pic 2.** Presentation of small group work, March 19 - 20 (from left to right - Bayan Asimkhanova, Chief Specialist, SES Service of Oskemen City, and Valery Krokhin, District General Practitioner, Central Hospital of Katon-Karagaysky District)



**Pic 3.** Small group work, March 19-20



**Pic 4.** Small group work, training in Akmola oblast TB dispensary, March 13-14, 2014



**Pic 5.** Presentation and discussion of case studies on TB-IC measures at outpatient care settings

**Pic 6.** Training for convoy staff in Astana, March 4-5, 2014

### Key Challenges

The problems of ambulatory phase of treatment are primarily related to inadequate financing. The existing TB financing is based on hospital bed occupancy rather than the therapy course of a TB patient. As a result, 50.4% of funding allocated per MDR TB patient is used at hospital phase of treatment. In addition, ambulatory treatment financing covers only maintenance and utility bills of DOT rooms and salary of health employees.

## Laboratories

### Summary of activities (Year 1-4)

Under this technical area, TB CARE I project focused on introduction of the new diagnostic tool –Xpert MTB/RIF - that was endorsed by WHO in December 2010. There was no clear understanding of the Xpert technology, how it worked in real world settings, practical issues related to use, programmatic and clinical issues related to implementation and use of tests' results for clinical decision making. In some of the countries in the region partners already introduced Xpert but they had different objectives depending on the project. Without good understanding of Xpert technology and lack of the national strategy for Xpert use, there was a high risk for improper implementation.

Therefore, the project's approach for implementation of Xpert in Kazakhstan was to start from introduction through practical implementation followed by evaluation. Thus, all activities related to Xpert were implemented in four phases: 1) introduction; 2) preparation; 3) implementation; 4) evaluation.

#### *1) Introduction phase*

In order to introduce Xpert technology and discuss practical, programmatic and ethical issues related to its implementation, TB CARE I project started with a regional workshop for the NTPs and technical partners, facilitated by the international experts and consultants (WHO, USAID, PMU TB CARE I/KNCV, FIND, GF), which was then followed by country-specific workshops.

In Kazakhstan, with support of TB CARE I several partners meetings were conducted with key specialists from the NTP (laboratory, MDR TB department, monitoring/recording/reporting, drug procurement and supply) to discuss in more details GeneXpert technology and come into agreement on the objectives and implementation process. As a result, Xpert coordination group was set up.

#### *2) Preparation phase*

TB CARE I project supported technical assistance for development of National Gene Xpert implementation strategy for Kazakhstan. Several meetings of Xpert coordination group have been conducted to discuss and develop the national Xpert strategy and implementation plan for Kazakhstan. After approval of the national strategy and implementation plan, TB CARE I conducted an assessment of the situation in selected sites to estimate number of Xpert tests needed, to assess conditions for placement of Xpert equipment and check HR availability. TB CARE I regional laboratory consultant visited all sites to help them with preparation for installation. The three TB CARE I sites (Almaty city TB dispensary, Akmola and East Kazakhstan oblasts) were selected based on the availability of HAIN testing and the high MDR TB rate in those areas. The National TB Center was selected to increase their capacity.

ased on the estimation of workload for Gene Xpert, TB CARE I developed a procurement plan and procured four four-module Xpert machines and a first batch of cartridges.

In parallel, TB CARE I regional consultants facilitated work on revision of existing TB policies to ensure transportation of samples for Xpert MTB/RIF testing, registration of Xpert MTB/RIF results and their use for clinical decision.

In order to monitor implementation and collect data for further evaluation, TB CARE I consultants and M&E officer facilitated development of Xpert M&E plan, recording tool and reporting forms.

Training program for training of trainers for laboratory and clinicians have been developed.

#### *3) Implementation phase*

TB CARE I conducted the national training of trainers (ToT) for laboratory specialists and clinicians from four project sites. After the ToT, TB CARE I conducted practical trainings on use of Xpert in the sites.

TB CARE I consultants conducted regular monitoring visits to each Xpert site. Additional trainings on clinical aspects of Xpert MTB/RIF testing for clinicians from TB and PHC services were conducted between monitoring visits.

The Project supported the development of maintenance system for Gene Xpert equipment at the National TB Center and in other three Xpert sites through development of maintenance plan, maintenance forms and maintenance workshop for laboratory specialists. In order to develop capacity of laboratory specialists in forecasting of Xpert needs, TB CARE I consultants conducted workshop on Xpert planning and budgeting.

#### 4) Evaluation phase

In order to evaluate Gene Xpert implementation in TB CARE I sites, consultants developed the M&E tool used for data collection in the Xpert pilots. The TB CARE I consultants analyzed Xpert data collected in four Xpert pilots during the period August 2012 to May 2013. The results of analysis were used by the NTP for planning of Xpert scale up.

**Table 2. Results of Xpert MTB/RIF testing conducted in APA3 and APA4**

	APA3		APA4	
	Number	%	Number	%
Total # of tests	7573		6435	
Successful tests	6892	91%	6091	95%
Unsuccessful tests	700	9%	237	3,7%
Xpert MTB+	2936	42,6%	2082	34,2%
Xpert MTB+ Rif+	1357	46,22%	965	46,35%

**Table 3. Rapid tests conducted and TB patients (including Rifampicin resistant (Rif+) cases) diagnosed with Xpert**



#### Major Successes

- The major success of Xpert MTB/RIF implementation was reduction of time to diagnosis of MDR TB from 76 days to 8.5 days. TB doctors accepted Xpert results and take clinical decision. As a result, now doctors start SLD treatment in 7 days maximum. For this, TB CARE I facilitated and supported modification of clinical & treatment protocols and trained clinicians.
- All MDR TB patients detected with Xpert MTB/RIF were enrolled on SLDs treatment. In the beginning of Xpert implementation there was a short waiting list for SLD treatment but after one month the problem was solved. TB CARE I project signed an agreement with the NTP

according to which the NTP took responsibility for provision of SLDs for MDR TB patients detected with Xpert MTB/RIF.

- The national policy on Xpert implementation developed with technical support of TB CARE I consultants was approved by the NTP and used for scale up of Gene Xpert in the country. National Gene Xpert strategy was included in the revised national TB guideline and Xpert maintenance plan was included in the national laboratory guideline. The Xpert diagnostic algorithm was incorporated in the national diagnostic algorithm for diagnosis of (MDR)-TB. National guideline was approved by the MoH in 2014.
- TB CARE I contributed to development of local capacity in practical use of Xpert MTB/RIF including maintenance at both National and regional levels. The Project also assisted the NTP with Xpert trainings in nine new Xpert sites supported by Global Fund.

## Pictures

### Workshop on maintenance and troubleshooting, planning and budgeting for Xpert MTB/RIF, Almaty, April 9 – 10, 2014

**Picture 1. Archiving Xpert data (practical exercise)**



**Picture 2. Cleaning Gene Xpert (practical exercise)**



**Picture 3. Replacement G-Xpert module (practical exercise)**



## Key Challenges

Despite clear description of risk groups eligible for Xpert MTB/RIF testing and risk assessment procedure, the quality of patients' selection is still questionable particularly at the district level

because clinicians do not fully understand the basis of Xpert MTB/RIF test. As a result, the MTB positivity rate was lower than it was planned. More workshops for PHC clinicians are needed because of high number of clinicians.

The number of Xpert tests decreased from 7,573 in APA3 to 6,435 in APA4 since Xpert tests were not conducted for 1.5 months in Akmola oblast TB dispensary due to the issues with equipment and in Almaty city TB dispensary where only 3 modules out of 4 worked. Also additional Xpert machines were installed in Semey (EKO region) and Talgar (Almaty oblast), supplied by GF.

## Infection Control

### Summary of activities (Year 1-4)

The first TB CARE I mission with the TB-IC risk assessments in Kazakhstan was conducted in May-July 2011. TB-IC objectives of that mission were the following: 1. Provide risk assessment of TB transmission in TB facilities of four pilot oblasts; 2. Assess needs in TB-IC trainings; 3. Assess needs in TB-IC equipment for measurements; 4. Give recommendations on TB-IC planning at the National level.

Observations of the mission showed:

- For managerial controls: absence of special TB-IC coordinating bodies, necessity in updating of normative and regulative TB-IC policy, absence of hierarchical structure in TB-IC planning, and lack of the budget for TB-IC activities. Also many TB-IC indicators were not applied in practice. New buildings met TB-IC requirements but the majority of TB facilities were allocated in old buildings (sputum collection rooms did not meet TB-IC requirements almost in all buildings).
- For administrative controls: Limited application of rapid diagnostic methods, insufficient provision of SLD, insufficient sorting and isolation of patients (overloaded wards), absence of instructions on patients' separation, insufficient trainings of health care workers on TB-IC at international courses.
- In regards to environmental and individual controls: absence of mechanical ventilation in old buildings and budget for its exploitation, underestimation of natural horizontal ventilation, necessity in highly qualified technical specialists and engineers for biosafety and mechanical ventilation, lack of regulated screened UVGI fixtures in high risk zones of TB facilities, lack of adherence to wearing respirators among health care workers.

The TB-IC component in the framework (2011 - 2014) of the TB CARE I project supported consultations on National TB-IC Guideline development and technical assistance to the TWG and full scale implementation of TB-IC activities in two pilot regions – Akmola and East Kazakhstan oblasts.

Full scale implementation of TB-IC activities included establishment of the TB-IC coordination bodies in the piloted TB facilities, development and approval of TB-IC activity plans, introduction of HCWs' screening on TB symptoms, implementation of risk assessments of nosocomial TB transmission, procurement and delivery of the TB-IC equipment, TB-IC trainings for trainers and HCWs from the TB Service of civil and penitentiary sectors and SES, development and introduction of the TB-IC monitoring indicators and instructions on patients' separation, etc.

### Major Successes

- The TB-IC TWG developed National TB-IC guidelines with technical assistance from TB CARE I, which will be approved by the MoH in the beginning of 2015.
- TB CARE I facilitated the revision of regulatory documents through a technical working group to bring sanitary and epidemiology national regulatory TB-IC documents in compliance with the new guidelines.
- Eight TB facilities of EKO and six TB facilities of Akmola oblast developed and introduced TB-IC budgeted activity plans.
- TB CARE I project staff trained 61 staff specialists (23 male, 38 female) from the TB service of civilian and penitentiary sectors and SES including 13 national trainers in TB transmission risk assessment and TB-IC measurement. A team of TB-IC national trainers based at project sites was developed and now they act as trainers for their sites.
- Regional TB-IC officer provided follow up on-the-job trainings on TB transmission risk assessment and TB-IC measurements in piloted TB facilities during the supervision and monitoring missions.
- TB CARE I project procured and distributed TB-IC measurement equipment among TB facilities in Almaty, Akmola and EKO oblasts (vaneometers - 20; UVC meters - 10; thermo-anemometers - 10; smoke tube kits - 54; particle counters - 4; fit test apparatus- 10; door closers - 200).
- TB facilities developed and introduced instructions on sorting, separation and isolation of TB patients.

**Supportive Visits on TB-IC Plan Development to TB facilities in East Kazakhstan and Akmola oblasts, Kazakhstan  
May 18 – June 14, 2014**

**Picture 1.** On-the-job training on UVGI measurements in the Akmola oblast TB sanatorium



**Picture 2.** Re-organization of the nurse station in the “clean” area of the Akmola OTBD MDR-TB department with distance monitoring system



**Key Challenges**

- Unreasonably frequent and lengthy hospitalization of patients who do not need constant medical care increases the risk of nosocomial transmission of TB. Over use of in-patient services also takes away hospital space and resources from very sick TB patients who truly need hospital care.
- In the course of transfer of prisoners and persons on trial, TB and M/XDR-TB patients are not separated from healthy ones. They are transferred in overcrowded wagons for long periods of time, increasing the risk of TB infection.
- The absence of prompt prescription of ART for hospitalized TB/HIV aggravates prognosis for the patient. At the same time, mandating hospitalization for all TB/HIV patients increases the risk of nosocomial TB transmission.

## **Programmatic Management of Drug Resistant TB (PMDT)**

### **Summary of activities (Year 1-4)**

At regional level, the Regional Workshop with participation of the representatives of the Central Asian NTPs and main partners working in the respective countries had broad participation and served as a starting point for developing respective national responses to the Consolidated Action Plan to Prevent and Combat M/XDR-TB in WHO European Region. During the workshop the strategic directions of the Consolidated Action Plans were made and discussed by each country with the support of TB CARE I. The CAR countries identified priority activities necessary to scale up management of M/XDR-TB in each country based on the latest evidence on development of effective TB (M/XDR TB) control policies.

At the national level, TB CARE I provided technical assistance to the NTP in preparation of updated policies focusing on all aspects of TB and programmatic management of drug resistance TB. TB CARE I provided support to pilot sites (East Kazakhstan, North Kazakhstan and Akmola oblasts) through the introduction of the new MDR TB guidelines and revised MOH order # 218 as it concerns PMDT.

In contrast to a previous approach on the development of training based on a specific technical area (such as MDR TB, IC, clinical aspects of GeneXpert), TB CARE I supported development a training module with cross cutting content to ensure a comprehensive and cohesive understanding of effective PMDT management and its various applications. This module has been used for an advanced TOT.

As the following step, the key managerial and clinical staff from the NTP and pilot oblasts were trained at an advanced TOT training on the comprehensive programmatic approach and clinical management of drug resistant TB to ensure the ongoing trainings nationwide.

In May 2014, the representatives from pilot oblasts and NTP were invited on a study tour to Central Asian countries (Tajikistan, Kazakhstan and Kyrgyzstan), to learn best practices in PMDT implementation. The findings of the regional mission have been shared in a joint regional workshop; participants considered the best approaches for further use in local programs.

A protocol on management of TB in children was developed and adopted in 2013. The newly developed standard approaches on childhood TB management were introduced during the national workshop for TB pediatricians (30) from all provinces of Kazakhstan in September 2013.

TB CARE I implemented all the planned PMDT activities in close collaboration with NTP, to ensure its further interventions are demand driven and have integral ownership by NTP and other government stakeholders.

### **Major Successes**

- Regular support in utilization of new MDR policy regulations has been provided at the national level and in pilot sites in Akmola and EKO.
- TB CARE I organized regional and national level capacity building trainings and workshops on the comprehensive programmatic approach and clinical management of TB, childhood TB and drug resistant TB to improve the quality of TB-related care provided at all levels of the health care system.
- As a result of TB CARE I support, continuous interventions (supporting supervisions, on-the-job trainings, regional workshops and PMDT coordination meetings) in 2014, the total patients covered with appropriate course of MDR TB treatment regimen in TB CARE pilot sites was 100% (987 of 987 patients) in comparison with the previous years; in 2012 – there were the following data: Akmola oblast - 324 (62,3%), EKO - 473 (64,8%) NKO - 285 (58%).

## Pictures

### Cross visit on experience exchange, Tajikistan, Kazakhstan, Kyrgyzstan May 13-30, 2014

**Picture 1.**



**CAR participants visiting MDR TB department in Dushanbe, May 15**

**Picture 2.**



**Meetings with jamoats in Tajikobod, May 14**

## Key Challenges

The existing regulatory system through MOH orders is cumbersome as new clinical recommendations take months, if not years, to become official policies. Local practitioners are well informed about the latest evidence, but often times they are not part of the official regulatory framework unless adopted into an MOH order.

In parallel to increased coverage of MDR TB patients with second-line TB drugs some problems occur related to adherence to DOT. In Kazakhstan, there are no unified programs of social motivation of TB patients and health professionals to ambulatory treatment. Social support is usually one-time, while frequency and volume of support vary across oblasts (for instance, on a monthly base in Almaty, quarterly in Akmola and North-Kazakhstan Oblasts and only once a year in South-Kazakhstan Oblasts). The unified mechanism of social support to TB patients is not available, while volume of budget allocations to social support varies across oblasts.

Health care professionals are still not trained to provide palliative care to this category of patients. In Kazakhstan, there are no manuals or guidelines on palliative care to TB patients and therefore there are no training courses on this theme either.

## **Health System Strengthening (HSS)**

### **Summary of capacity building activities (Year 1-4)**

TB CARE I sent two epidemiologists from Akmola and East Kazakhstan oblasts (1-male and 1-female) to an IC training course in Vladimir on March 1-5, 2013. Four specialists from general and prisons TB services from Akmola and East Kazakhstan oblasts (females-3, male-1) have been trained at the international TB course in Tartu, Estonia on August 14-22, 2013. TB CARE I sponsored participation of NTP Director Tleaukhan Abildayev at the 44<sup>th</sup> Union World Conference on Lung Health in Paris for the period of October 30-November 3, 2013 to discuss the need to improve or preserve the quality of the air we breathe for both healthy and vulnerable persons alike.

TB CARE I Regional Technical Officer Gulnara Kaliakbarova was appointed as a symposium speaker on "Psychosocial patient support as essential element for management of DR-TB cases" (Symposium "Community-driven psychosocial support: don't forget medication counseling") at the 45th Union World Conference on Lung Health in Barcelona in early November 2014. TB CARE I sponsored participation of the Deputy Director of the National TB Center at the 45th Union World Conference on Lung Health in Barcelona in early November 2014 who presented on the "Transition from hospital based care to ambulatory care for MDR TB patients based on Kazakhstan experience." Four participants from Kazakhstan participated in the MDR TB advanced training course in Riga from August 28- September 4, 2014.

### **Support for Global Fund Implementation**

In Kazakhstan, the primary recipient of Global Fund is the MOH/NTP. Currently, the NTP enjoys a performance rating of B1. The budget under KAZ-809-G04-T grant is \$50,068,827. Affiliation with the NTP allows Global Fund to plan and implement joint activities in close, daily collaboration ensuring strong and structured coordination with the NTP. Global Fund provides extensive support to the NTP in TB policy development, procurement of diagnostic tools, second line drugs, monitoring and evaluation. It is noteworthy to mention that the NTP is gradually picking up some the costs that were originally covered by Global Fund, particularly for second line drugs.

TB CARE I enjoys good collaboration with Global Fund in Kazakhstan, in the areas of PMDT, GeneXpert and M&E in particular. There is a regular exchange of information between the two projects, including joint participation in events. The main contributions of TB CARE to Global Fund funded activities are primarily to provide technical expertise in the development of policy regulations or training support by utilizing in country or external technical consultants.

In February of 2013, Global Fund announced the launch of the new funding model. Kazakhstan was selected as an eligible early applicant for this grant for approximately USD 34 million program for 2014-2016. TB CARE I provided on demand support to NTP in the development of the concept note for the current application. The new application calls for a strong focus on expansion of outpatient care nationwide, which will be introduced utilizing the experience of TB CARE I pilot in Akmola oblast.

## Monitoring & Evaluation, Surveillance and OR

### Summary of activities (Year 1-4)

Kazakhstan is the only country in the region where routine surveillance data is collected through an electronic surveillance system. However, electronic surveillance of TB in the general (civilian) and penitentiary sectors were organized vertically and was not synchronized. TB CARE I provided regular technical support to the national online surveillance database.

Through the general TB service system, electronic surveillance data is being collected regularly and accurately. At this stage, with reliable data in place, it is critical that relevant specialist and policy makers can interpret and manage these data for monitoring and evaluation purposes. To support this objective, TB CARE I conducted a regional training on the basics of monitoring and evaluation and analysis in April of 2013. Through APA3, TB CARE I supported the development of a national monitoring and evaluation plan as a follow up to the regional training.

Following the introduction of a updated electronic surveillance system in civilian sector in APA3, TB CARE I introduced newly on-line electronic system in the prison sector in APA 4. TB CARE I provided technical assistance for all national (including pilot sites) TB facilities to utilize the indicators prescribed in the national M&E Plan. Through the APA4, TB CARE I supported the development of indicators of a national monitoring and evaluation plan in an e-surveillance online database, conducted a national workshop for measuring performance and developing action plans to address remaining gaps based on the measured performance.

In the prison TB service, e-surveillance had issues with quality of data, and double registration of a single patient in particular (this happens when a patient is being transferred from one facility to another and is registered in both). TB CARE I supported pilot sites in the proper registration of these types of patients in APA2 and 3, and continued to extend this support in APA4 nationwide.. Building on this progress, TB CARE I supported the integration of the surveillance systems in the general and prison TB services to enable synchronization and exchange of data.

Since April 2014 a new electronic surveillance database has been installed in the penitentiary system. For specialists from institutions responsible for TB data collection and entry, including pre-trial detention centers, TB colonies and the central prison system (CPS), were offered training and technical assistance on the penitentiary system TB surveillance tool. Afterwards on the job trainings were conducted for the regions where large TB prisons are located: Akmola, South Kazakhstan and East Kazakhstan regions.

Under operational research TB CARE I supported 3 research projects: on measuring the effectiveness of patient support system in EKO; the to focus on effectiveness of GeneXpert for (MDR)TB diagnosis in defined TB suspect groups in four pilot sites and on evaluation the effectiveness ambulatory care model in Akmola.

OR study results were published in five manuscripts in peer reviewed journals and 3 abstracts has accept to IUATLD conferences in 2013 and 2014 (see Annex II for more details).

### Major Successes

With the support of TB CARE I:

- A new electronic surveillance database has been installed in the penitentiary system. The national centralized TB online database allows for the exchange of data on TB patients between departments; allow staff to receive single summary tables, and increase sensitivity, completeness, reliability and surveillance of TB in the country.
- The electronic surveillance database has been revised and updated including a set of indicators from National Monitoring and evaluation Plan.

## Pictures

### Training “Data collection for Information System for TB in the Penitentiary System”



Pic 1. Practical exercise of data entry



Pic 2. NTP specialists discuss data exchange with prison M&E specialists

## Key Challenges

NCPT did not accept new definitions and recording and reporting forms recommended by WHO, 2013 so currently surveillance database requires careful revision to align with case definitions.

## The Way Forward

Based on TB CARE I results and the US Government TB strategy and the Post-2015 Global TB Strategy, there are many lessons to learn from TB CARE I and new approaches to prioritize going forward. Lessons learned from the project and analyses of strategic priorities for the country are summarized below, which can be helpful for the future work and investments in the country.

### Universal Access

Expand ambulatory treatment of TB patients in PHC settings by training PHC physicians on TB treatment and management, monitoring of quality of ambulatory treatment, and introducing differentiated remuneration of PHC health professionals according to volume and quality of works.

### Laboratories

Supply G-Xpert to rayon and inter-rayon TB dispensaries to improve timely MDR-TB diagnosis, regular supply of reagents and consumables for all bacteriological and molecular TB and M/XDR-TB diagnostic methods through local budgets, including needs of the penitentiary system.

### Infection Control

The national TB IC guideline has been developed and finalized within APA 4. Legalization of developed TB IC guideline has taken a lot of time to date. In light of further implementation of the newly developed IC guideline, the further activities should be mainly concentrated on administrative measures such as for TB prevention, TB screening and case detection, and work with risk group populations.

### PMDT

Develop palliative care hospital regulations and clinical guidelines on palliative care. Develop skills of health professionals from such hospitals.

### HSS

Taking into account the limited efforts to provide community education to most at-risk populations and virtually no efforts to engage civil society organizations who work with these populations **in TB control** this issue should be supported in future.

### M&E, OR, and Surveillance

Some of the errors in the national TB e-register can be solved by using the latest WHO guidelines on definitions and reporting (Definitions and reporting framework for tuberculosis – 2013 revision, [http://apps.who.int/iris/bitstream/10665/79199/1/9789241505345\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/79199/1/9789241505345_eng.pdf)).

## **Kyrgyzstan**

### **Introduction**

The USAID funded TB CARE I project has been implemented by KNCV in Kyrgyzstan since 2011. Over this period the project worked on the establishment of outpatient TB care, coordination between prison and civilian TB services, improvement of PDMT and the decentralization of the treatment councils, Childhood TB and palliative care, nationwide policy for the use of Xpert testing, TB Infection Control, Nationwide planning for TB control and stakeholder involvement, recording and reporting, M&E and operational research. This project was a comprehensive program with a focus on the continuum of care from detection to treatment options to palliative care.

TB CARE I was implemented in key geographic areas, including the capital of the country (Bishkek) and Issyk-Kul oblast. Collaborating partners are government bodies (national TB programs, Ministries of Health and the State System for Execution of Punishments), international organizations (USAID Dialogue TB/HIV, Quality Health Care, Gauting Supranational Laboratory, MSF, ICRC, AFEW) and other donors such as GFATM, World Bank, KFW.

## Core Indicators

TB CARE I has seven core indicators that the program as a whole is working to improve across all countries. Table 1 summarizes the core indicator results across the life of the project for TB CARE I- <Kyrgyzstan>, as well as the Tuberculosis Control Assistance Program (TB CAP), the precursor to TB CARE I, which our coalition also led.

**Table 1: TB CARE I core indicator results for <Kyrgyzstan>**

		<b>C1.</b> Number of cases notified (all forms)	<b>C2.</b> Number of cases notified (new confirmed)	<b>C3.</b> Case Detection Rate (all forms)	<b>C4.</b> Number (and percent) of TB cases among healthcare workers	<b>C5.</b> Treatment Success Rate of confirmed cases	<b>C6.</b> Number of MDR cases diagnosed	<b>C7.</b> Number of MDR cases put on treatment
T B C A R E I	2011*	5980	1537	79%	42	78,4	679	497
	2012	6159	1594	81%	42	78,9	958	775
	2013	7209	1667	91%	24	82,6	1160	1123

\*Baseline

TB CARE I developed new guidelines and regulations such as MDR TB guidelines and national laboratory plan with Xpert implementation strategy for proper utilization of new rapid tests. The introduction of these approaches may have contributed to the following results:

- Increased case detection from 79% in 2011 to 91% in 2013 and the number of MDR TB cases diagnosed from 679 in 2011 to 1,160 in 2013.
- Improved treatment success rate from 78.4% in 2011 till 82.6% in 2013.

## Universal Access

### Summary of activities (Year 1-4)

TB CARE I started implementation of outpatient care of TB patients with psychosocial support in two FMC's of Bishkek city in 2013 year. TB CARE I trained local PHC and SES specialists on newly adopted guidelines on outpatient care of TB patients, and supported study visits of Heads of FMC's in Akmolayon rayon of Kazakhstan, where TB CARE I implemented outpatient care treatment of TB patients. TB CARE I provided assistance in pilot implementation of outpatient care treatment of TB patients in FMC's #9 and #14, conducted regular monitoring and supportive supervision visits with on-the-job trainings and consultations. As result of implementing the full outpatient care model for TB patients in FMC #9 and #14 in 2013-2014 years, city health department approved the expansion of the full outpatient care model to four additional FMC's (#4, #5, #8 and #10) starting in May 2014.

### Major Successes

Six FMC's of Bishkek city implemented full outpatient care treatment of TB patients with psychosocial support for all sensitive smear negative TB cases. The outpatient approach helped to prevent nosocomial transmission of TB and improved treatment adherence of TB patients. Percentage of TB patients put on outpatient care treatment increased from 18.5% (191/1031) in 2012 to 26.3% (181/688) for eight months in 2014 and treatment success rate in Bishkek city remained steady at 85.4% in 2012 and 85.5% in 2013.



Picture 1: Training on outpatient care of TB patients provided by CA Regional TB consultant Gulnara Kaliakbarova

Universal access	
At the start of TB CARE I in 2011	By 2014
Nearly all TB patients were hospitalized for at least 4 months	Several pilots are ongoing for ambulatory TB treatment for SS negative patients and for selected other patients from the start of treatment. The MoH has adopted ambulatory treatment nationally as the way forward.
Out dated regulation on TB Coordination Council	New regulation on TB Coordination Council adopted by MoH
No regulation for coordination of prison and general TB services	Joint collaboration plan adopted by MoH and Prison system
No data about patient satisfaction on TB treatment	Review and analysis of patient satisfaction on receiving care

### Key Challenges

- Heads and health care workers of TB and PHC facilities were hesitant of outpatient care treatment of TB patients.
- The financial system of TB service does not give the possibilities to relocate funds from TB facilities to PHC for outpatient care of TB patients, thus funds are not connected with the patients and do not follow the patients.

## Laboratories

### Summary of activities (Year 1-4)

TB CARE I supported the development of regulations and policy documents for the National Reference Laboratory and TB laboratory system. TB CARE I conducted trainings for laboratory heads on laboratory management, and developed a monitoring tool for review of implementation progress. Project also assisted in the implementation of new technologies such as Xpert and supported the development of guidelines on the maintenance of laboratory equipment.

### Major Successes

- In August 2014 MoH adopted the National Laboratory plan, which included an Xpert implementation strategy, diagnostic algorithm, Xpert data collection tool and laboratory equipment maintenance plan. All of these documents were developed with TB CARE I support.
- TB CARE I assisted in the relocation, installation and proper utilization of two Xpert machines. One in Talas oblast relocated from the NRL (after the closing TB REACH project) and another one in Batken oblast (supplied by expand TB). Nationwide, Xpert machines were implemented in accordance with the Xpert implementation strategy in eight sites.



*Pic 2. International consultant on laboratory maintenance, Franco Ramoso, demonstrates to the laboratory specialists the quality of work biodiversity box*



*Pic 3 TB CARE I Regional Laboratory Officer Bela Kim demonstrates Xpert result analysis (November 27-30, 2013)*

<b>Laboratory</b>	
<b>At the start of TB CARE I in 2011</b>	<b>By 2014</b>
No laboratory plan for TB service	Laboratory plan developed and adopted
No Xpert implementation strategy	Xpert implementation strategy developed and adopted
No diagnostic algorithm for Xpert	Diagnostic algorithm for Xpert developed and adopted
No equipment for testing biosafety cabinets	Equipment for testing biosafety cabinets supplied

### Key Challenges

- The National Reference Laboratory in the National TB Center and Interregional Reference Laboratory in Osh oblast TB Center are extremely overloaded. Collaboration between laboratory specialists and clinicians is not sufficient; the reporting system of laboratory is also not sufficient, with clinicians waiting for DST results from HAIN and MGIT for 2-3 weeks. At the same time clinicians send samples for DST for all tests - MGIT, HAIN and culture.
- Staff turnover in the National reference laboratory and TB laboratory system.
- The large TB laboratory network of 122 microscopy laboratories is not efficient. Some of the microscopy laboratories process only 2-3 samples per day. The network needs to be optimized.

## Infection Control

### Summary of activities (Year 1-4)

TB CARE I supported the development of guidelines and instructions on TB IC. After MoH approval in 2012 TB CARE I started implementation of TB IC measures in seven pilot TB facilities in 2013. Based on the good practices in seven pilot sites, MoH expanded implementation at the national level. In 2014 TB CARE I supported the development of TB IC instructions, a universal checklist for monitoring all TB facilities, and a monitoring and evaluation plan for SES. The Project also trained and involved responsible specialists from SES in regular monitoring of TB facilities. TB CARE I equipped the NRL with a particle counter for biosafety cabinet testing.

### Major Successes

- Since the beginning of 2014, on a quarterly basis, MoH collects data on TB IC measures implemented in the country and reports findings to government.
- Based on TB CARE I guidance and training support, all seven oblast level TB facilities (National TB Center, Bishkek city TB hospital and TB center, Bishkek city TB hospital for children #2, MDR TB hospital in Karabalta and Rehabilitation TB center Jetyoguz) have TB IC implementation plans and TB IC specialists responsible for implementing administrative, management and individual TB IC measures.
- SES specialists were trained on risk assessment equipped by 3 UV meters and 3 Fit tests; these specialists provide regular monitoring visits to TB and PHC facilities.



Pic 4 TB CARE I consultant Ieva Leimane providing a fit test



Pic 5 TB CARE I supported participation of Maaripatkhan Moidunova, Director of Bishkek City TB Center, in the 18th International Training on TB Control, Tartu, Estonia, on August 14-21, 201

TB Infection Control	
At the start of TB CARE I in 2011	By 2014
No specific guidelines and instructions on TB IC available. IC measures in TB hospitals followed general hygiene concepts	Specific TB IC guidelines developed in line with international recommendations and adopted by MoH.
TB facilities provided mix hospitalization	With TB CARE I support, two TB facilities were restructured in accordance with TB IC measures - Karabalta TB hospital was specialized as an MDR-TB center and Jety-Oguz as a rehabilitation center.
No TB IC applied in TB facilities	TB IC measures implemented in the Nation TB center, City TB hospital and all seven oblast level TB facilities.
SES specialists not trained on TB IC and do not have equipment for risk assessment	Key SES specialists responsible for TB trained, equipped and involved in the regular TB monitoring
NTP provided just internal monitoring of TB activities	SES specialists involved in regular TB monitoring

**Key Challenges**

- Lack of knowledge of local experts in TB, PHC and SES on TB infection control
- Lack of budget for implementation of TB IC measures in TB facilities

## Programmatic Management of Drug Resistant TB (PMDT)

### Summary of activities (Year 1-4)

TB CARE I provided support in the development of training modules based on MoH guidelines on DR TB management, TB management in children and palliative care of TB patients. TB CARE I also conducted a ToT for NTP, Post graduate medical institute and Kyrgyz state medical academy specialists with follow up trainings of clinicians. TB CARE I also provided assistance with supportive supervision visits for on-the-job trainings and monitoring of implementation.

Cross-monitoring missions between Kazakhstan, Kyrgyzstan and Tajikistan with participation of key responsible specialists on MDR-TB from general and prison TB services and responsible specialists from SES were conducted at the end of the project. During the mission participants exchanged best practices and lessons learnt on MDR-TB case detection and treatment.

### Major Successes

- TB CARE I supported the development of the regulations on MDR consiliums, which led to the decentralization of the MDR consiliums. Consiliums make a decision to put patients on treatment, to stop the treatment or to adjust the second line drugs treatment regimen. TB CARE I introduced the regional facilities with newly developed regulations and trained doctors in accordance with newly developed guidelines on management of DR TB patients. Now MDR patients can start treatment in the regions. Eleven MDR consiliums are available in the country: central – NTP, GSIN, Bishkek, Chui oblast, Karabalta, Osh, Jalalabad, Talas, Naryn, Yssyk-Kul and Batken. MDR TB patients no longer have to from the regions to the central MDR consiliums for second line drug treatment initiation.
- TB CARE I improved communication between consiliums through the supply and installation of communication equipment for nine MDR consiliums. In general six additional MDR consiliums in Talas, Naryn, Chui, Karabalta, Yssyk-Kul and Batken were established with TB CARE I support.
- Key DR TB responsible specialists from NTP and SES in CAR countries exchanged best practices and lessons learnt between Kazakhstan, Kyrgyzstan and Tajikistan. As a result of this mission, recommendations, plans and next steps were developed by experts for each country.
- TB CARE I supported the development of regulations for establishing a new hospital for palliative care of TB patients. All staff were trained on the newly developed TB CARE I guidelines on palliative care of TB patients.



*Pic 6 Tatyana Toichkina train doctors from the regional consiliums on PMDT training February, 2013*



*Pic 7 Health care workers and volunteers trained on palliative care of TB Patients November, 2013*

<b>Programmatic management of (drug resistant) TB</b>	
<b>At the start of TB CARE I in 2011</b>	<b>By 2014</b>
No guidelines on DR TB Management, Management TB in children	Guidelines on DR TB Management, Management TB in children adopted by MoH
No guidelines an regulations on palliative care of TB patients	Guidelines and regulations on palliative care of TB patients adopted by MoH
Palliative care not available for TB patients	Palliative care of TB patients established in Kemin TB hospital
TB facilities staff not trained on new guidelines	TB specialists and nurses trained on newly adopted guidelines and protocols
No regulations on MDR consiliums	Regulations on MDR consiliums adopted by MoH
MDR consiliums available only in four sites	MDR consiliums decentralized, eleven MDR consiliums available in all regions of country
Lack of communication between four MDR consiliums	Eleven MDR consiliums equipped by communication equipment for regular communications

### **Key Challenges**

- Delays in the start of appropriate MDR/XDR treatment.
- Lack of appropriate drugs for treatment of MDR and pre-XDR (MDR with additional resistance for fluoroquinolones or a second line injectable) and XDR TB.

## Health System Strengthening (HSS)

### Summary of activities (Year 1-4)

TB CARE I provided assistance in the development of the National Program Tuberculosis-IV (2013-2016) and updated MoH regulations and guidelines on TB. The Project also supported the implementation of these newly approved guidelines and regulations.

TB CARE I increased knowledge of local experts on TB. Total in the last three years trained 809 specialists from NTP, PHC, Prisons, SES and local NGOs in the following areas: Outpatient care - 105, Laboratory - 84, TB IC - 64, PMDT - 320, M&E and OR - 128. In addition, 28 key NTP specialists were trained internationally on TB management.

### Major Successes

TB CARE I contributed to the following successes:

- Support the development of the National program “Tuberculosis IV” (2013-2016) adopted by government in June 2013.
- Develop the National laboratory strategic plan, which was adopted by MoH in August 2014.
- Develop the National M&E plan what was adopted by MoH in October 2014.
- The guidelines, protocols, regulations and instructions on DR TB management, TB in children, TB IC and palliative care of TB patients were developed with TB CARE I support. These documents have been adopted by MoH and implemented nationwide with TB CARE I support.

### Support for Global Fund (GF) Implementation

TB CARE I has collaborated with UNDP, the first Principal Recipient of GF in Kyrgyzstan, in term of implementing TB IC measures: in providing review of TB facilities on IC, in conducting fit tests for new respirators, and in the instillation of UV lamps.

TB CARE I has collaborated with Project HOPE, second Principal Recipient of GF in Kyrgyzstan, in finalization of recording and reporting forms in accordance with the latest WHO recommendations and included those in the developed electronic data base system. TB CARE I participated in the development of the NSP technical areas such as TB IC, TB HIV, palliative care of TB patients and HSS. TB CARE I supported the development of the TB Concept Note for NF support by facilitating TWG meetings, drafting protocols and advising on the general development process.



*Pic 8 TB CARE I facilitate the World TB day celebration on the Victory square, Bishkek, 24 March, 2012*

<b>Systems strengthening</b>	
<b>At the start of TB CARE I in 2011</b>	<b>By 2014</b>
Absence of the National Tuberculosis program on 2013-2016 years	National program Tuberculosis IV adopted by government in June 2013.
No strategy and plan for TB laboratory system	National plan for the development of the TB laboratory system adopted in August 2014.
No M&E plan for TB program	National M&E plan adopted by MoH in October 2014.
TB specialists follow old regulations and guidelines	New guidelines and regulations introduced and implemented nationwide
No NTP web site	NCPH web site is created: www.NCPh.kg (TB CARE I supported the website development, training of support staff and the technical support of the website for the first three months)

### **Key Challenges**

- Limited capacity and knowledge of local experts. Just two specialists in the TB system know English and have access to the last developments and recommendations; around 30% of TB specialist have access and can use the internet.
- Lack of funding for developments in TB service such as optimization of TB service implementation of outpatient care, reducing number of beds and allocation of saved budget for drug supply.
- Absence of COB DOTS in Kyrgyzstan

### **Monitoring & Evaluation, Surveillance and OR**

#### **Summary of activities (Year 1-4)**

TB CARE I work in this area in last two years and supported the development of the National Monitoring and evaluation plan facilitated updating of Recording and reporting forms in accordance with the revised case definitions released by WHO in 2013.

TB CARE I trained key SES specialists on TB, M&E and data analysis. TB CARE I also supported the development of an M&E plan for SES specialists, and provided involvement of SES specialists in regular quarterly TB CARE I monitoring visits on TB IC. The Project collaborated with partners such as the NTP and Project HOPE/GF implementer to include SES specialists in regular TB monitoring.

TB CARE I assisted in the development of TB operational research plan. Work on growing capacity of local researches and provide support in implementation of three OR:

- Study risk factors of lost to follow-up of DR-TB patients on second-line treatment
- Risk factors for late TB diagnostics (patient delay)
- Risk factors for delay in start of TB treatment (health systems delay)

Results of the three OR studies were disseminated at the partners meeting on 14 November, 2014 and shared with NTP for the next interventions (see Annex II for more information).

Select participants were supported to attend the international SORT-IT course on TB operational research (organized by WHO/EURO, KNCV, UNION and MSF) in Astana.

#### **Major Successes**

- National M&E plan and Recording and reporting forms adopted by MOH in October 2014
- SES specialists included in regular TB monitoring visits
- Operational research plan developed and included in the National Strategic Plan.
- Three operational research studies were finalized (see Annex II)



Pic 9 Participants in the "Planning, Monitoring and Evaluation of the TB Program for TB Specialists" training discuss WHO guidelines on "New Definitions and Standards and Benchmarks" on June 17-21, 2013

<b>Recording and reporting, supportive supervision and Operational research</b>	
<b>At the start of TB CARE I in 2011</b>	<b>By 2014</b>
Outdated Recording and Reporting (R&R) forms	R&R forms updated and adopted by the MoH
No M&E plan	M&E plan developed and adopted by MoH
SES not involved in monitoring of TB activities	SES involved in regular TB monitoring
No regular operational research on TB	Three local studies on site effects of treatment and patients delay and one regional Xpert cost effectiveness study were conducted.

### **Key Challenges**

- National TB program is starting to implement an electronic data base system that was developed locally. This database system needs to be improved or replaced with one of the global database systems such as e-TB manager.
- Limited capacity of the national partners and lack of funds allocated by donors and government for OR.
- Limited time for operational research.

## **The Way Forward**

Reflecting on TB CARE I results through the lenses of the US Government TB strategy and the Post-2015 Global TB Strategy, there are many lessons to learn from TB CARE I and new approaches to prioritize going forward. Lessons learned from the project and an analysis of strategic priorities for the country are summarized below, which can inform future work and investment in the country.

### **Universal Access**

- Scale up implementation of outpatient care treatment with patient centered approach and psychosocial support to increase access of valuable groups such as: migrants, homeless, drug users and others.
- Increase inter-sector collaboration on TB (between TB facilities, PHC, SES, prison TB service, Ministry of Social Affairs and NGO's) to improve access of all people to: knowledge, prevention, diagnostics and treatment.

### **TB in Children**

- Provide outpatient care treatment for all children on IPT and children who do not need hospitalization
- Introduce a sputum collection system for children
- Provide access to pediatric dosages of TB drugs: first, second and third line drugs

### **Laboratories**

- URGENTLY enable Xpert testing for the 3 remaining oblasts (and enable collaboration with neighboring oblasts as an interim solution)
- Consider omitting the culture based FL and SL DST for non-Rif resistant TB patients (as identified by Hain MTBDRplus 2.0 or GeneXpert), in parallel with the introduction of these molecular test for all people with symptoms compatible with TB (as the current risk groups are complicated and cover already the majority of suspects and patients)
- Introducing Hain MTBDRsl testing (second line Hain) for all MDR patients a for FQ, SL injectables and E resistance in SS+ and after primary culture for SS-, while at the same time doing phenotypic DST for H, E, Am, Cm, Mx, Ofx – at or before start of MDR treatment
- Omit the performance of SL DST for drugs for which no reliable, reproducible testing is available and or for which the clinical relevance of testing is limited (Eto, Z, PAS, Cs, Clarithromycin)
- Organize a TWG meeting on the laboratory reporting system, ensuring a logic solution to the problem of missing laboratory results, inefficient reporting and double testing.

### **Infection Control**

- Establish coordination mechanism on the national level - platform to discuss TB IC issues through TWG
- Develop IC implementation plan as part of the new NSP
- Review curriculum of Kyrgyz medical institute on education and retraining ensure TB IC course in accordance with Kyrgyz TB IC guidelines (in line with international guidelines)
- Medical curriculum college of nurses to be updated in accordance with TB IC guidelines
- TB IC to be applied in all health facilities and other congregate settings
- Scale up implementation of TB IC measures in TB and PHC facilities
- Provide regular assessment of TB and PHC facilities by external controller SES

### **PMDT**

- One of the priorities for future is country wide introduction of new TB drugs and new regimens.

### **MDR treatment**

- Ensure early diagnosis of pre-XDR by testing all MDR patients for SL resistance as above. In parallel changes could be made to the treatment regimens as follows:
- As soon as the above is realized Cat II treatment should be abandoned
- MDR patients with any form of SLD resistance should get an individualized regimen, based on the resistance pattern as well as the history of previous SL drug use, also considering the use of new drugs (BQ or delamanid) and other effective group 5 drugs, especially linezolid, under appropriate medical and psycho socio-economic support conditions

#### XDR TB:

- Revise the guidance for the treatment of pre-XDR and XDR TB making optimal use of the more effective group 5 drugs and the new drugs in line with the new WHO “companion guide” on drug resistant TB.
- Start a pilot for XDR treatment, using the more effective group 5 drugs and the new drugs

#### Palliative care

- Implement palliative care of TB patients on PHC and TB facilities country wide

#### **HSS**

- Support the development of financial mechanism for refunding saved budget from restructuring TB system to service with patient centered approach and TB drugs supply
- Continue support participation of key local experts on the international TB management trainings
- Support in development the next National TB program for 2016-2020 years

#### **M&E, OR, and Surveillance**

- Implementation of sufficient electronic data base system country wide
- Include quarterly interim cohort analysis in the quarterly monitoring routine, to get quick overview of patient progress, early diagnose service delivery and system problems and to assure data quality.
- Scale-up of regular external monitoring of TB activities in TB and PHC facilities by SES country wide.
- Consider capacity building for OR into the NSP by:
  - Establishing a TWG on OR with a focal point at National Center of Phthiology (NCPH)
  - Include in the TWG representatives of the relevant academic institutions
  - Mobilize support and funding for NCPH OR
  - Based on results of three OR develop plans, develop strategies for making decisions to reduce TB patients delay and strengthening adherence to treatment.

## Tajikistan

### Introduction

In Tajikistan, TB CARE I is implemented from the middle of 2012 by KNCV in the framework of the Agreement with the Ministry of Health, dated March 18, 2013. Activities focused on interventions at the national and district levels (four districts of Khatlon oblast (Dangara, Temurmalik, Baljuvan and Farhor) and five districts of Rasht area (Rasht, Nurobod, Tojikobod, Jirgital and Tavildara), covering of 651 100 people, that is 9% of total country population.

Generally, \$2,850,000 was obligated to support the TB CARE I program in.

TB CARE I program worked in six technical areas: Universal Access, Laboratory, TB-IC, PMDT, HSS and M&E. Project interventions included the implementation of pilot PMDT programs, support for the effective implementation of GeneXpert technology countrywide, strengthening TB-IC at the facility level, facilitating the shift from hospital based to outpatient care, improvement of human resources capacities in main components of TB Program and conducting of operational researches.

Activities, implemented in frame of the TB CARE I Project, are in the line of National Strategic Plan, which reflects the overall goal of TB control in the country and has aims to decrease the burden of tuberculosis in Tajikistan and to ensure universal access to timely and quality diagnosis and treatment of all forms of TB and prevent further development of drug resistance.

TB CARE I implemented its activities in close collaboration with MoH, NTP, PIU UNDP GFATM (R8), Project HOPE RCC (R3), USAID Quality Health Care Project, Caritas Luxembourg, MSF and some local partners working in TB control in Tajikistan.

TB CARE I worked in the following technical areas:

#### Universal Access:

In Universal Access, TB CARE I focused on vulnerable groups such as children with TB by increasing knowledge of district pediatricians, family doctors and PHC providers on Childhood TB issues. Moreover, within this component, TB CARE I also provided on-demand technical support to program implementers to facilitate a shift to ambulatory care in all TB CARE I project pilot sites by development and stage-by-stage pilot implementation of the ambulatory care model through introduction of the Protocol on Strengthening TB/MDR-TB Patients' Outpatient Care and Provision of Psychosocial Support of Patients in TB CARE I Project Sites. The crucial point of outpatient care implementation in TB CARE I pilots was the systematic advocacy and communications with local municipal authorities (Khukumats and Jamoats), community activists and religious leaders for improvement of patients' adherence to the treatment.

#### Laboratory:

In Laboratory, TB CARE I provided the lead technical assistance to the introduction of GeneXpert technology in the country. TB CARE I focused on improving laboratory and clinical management procedures to ensure efficient and effective use of Gene XpertMTB/RIF technology in TB CARE I project sites. Based on the developed by TB CARE I strategy, which was approved by NTP, TB CARE I facilitated the development of a Protocol for Sample Transportation in all Project pilot sites, training personnel from TB and PHC facilities and conducting supervisory monitoring visits to GeneXpert sites.

#### Infection Control:

In Infection Control, TB CARE I supported NTP in the development of IC plans for TB facilities in 9 pilot districts (district TB Centers), as well as for Khatlon Oblast TB Hospital, Temurmalik district TB Hospital and TB departments in pilot district Central Hospitals. Health providers responsible for IC in the national, regional and facility levels were trained on implementation of the National TB-IC Plan and Guideline, as well as in the use of TB-IC measurement equipment. Moreover, with support of TB CARE I Project, all pilot districts, Republican TB Center, central and regional SES, "National Center on TB, lung diseases and chest surgery (Machiton)" were provided with TB IC measurement equipment.

#### PMDT:

In PMDT, TB CARE I supported the implementation of PMDT program in nine TB CARE I pilots that included trainings and regular workshops for TB/PHC clinicians, nurses and managers, quarterly supervisory visits to provide mentoring, on-the-job trainings and review progress made in the implementation of the program. TB CARE I also provided technical support on the development and implementation of clinical algorithms for the treatment of side effects for second line anti-TB drugs and providing trainings on these algorithms for TB clinicians of the National, regional and district levels.

HSS:

In HSS, TB CARE I supported training of community activists, religious leaders and volunteers from project pilot sites with a focus on preparedness to help TB and PHC staff provide TB care and treatment in ambulatory care settings. Within the Project, TB CARE I sponsored participation of MoH, NTP, SES, Medical University specialists in international trainings, courses and workshops.

Operational Research:

TB CARE I Project supported strengthening of NTP professionals' capacities to conduct operational research. As a result, the operational research was conducted to assess risk factors associated with loss to follow up on the national level, including 18 districts. Results of this research and main recommendations were presented to the MoH, NTP and partner organizations for development of strategies and mechanisms on reduction of lost to follow up cases.

M&E:

In M&E, the significant contribution of the TB CARE I Project was technical assistance in revision TB case definitions and reporting framework in accordance with WHO requirements. All definitions/reporting and recording forms were revised and instruction developed for use in TB service facilities, that was approved by the Order of the Ministry of Health No. 64 dated 8 February 2014. Starting from the beginning of 2014, the reporting and recording on TB are implemented using these revised definitions and R&R forms.

## Core Indicators

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

**Table 1: TB CARE I core indicator results for Tajikistan**

		<b>C1.</b> Number of cases notified (all forms)	<b>C2.</b> Number of cases notified (new confirmed)	<b>C3.</b> Case Detection Rate (all forms)	<b>C4.</b> Number (and percent) of TB cases among healthcare workers	<b>C5.</b> Treatment Success Rate of confirmed cases	<b>C6.</b> Number of MDR cases diagnosed	<b>C7.</b> Number of MDR cases put on treatment
	2005	4675	3292	n/a	3 (0,09%)	90,0	0	0
T B C A P	2006	5917	4204	n/a	6 (0,1%)	89,4	0	0
	2007	7689	5686	n/a	3 (0,05%)	88,5	0	0
	2008	7961	6080	n/a	4 (0,06%)	88,5	0	0
	2009	7482	5864	n/a	5 (0,08%)	88,1	141	52
	2010	7691	5959	n/a	4 (0,06%)	85,8	333	245
	T B C A R E I	2011	7609	5935	44	5 (0,08%)	86,6	598
2012		6929	5484	47	6 (0,1%)	85,1	780	536
2013		6494	5306	68	4 (0,07%)	n/a	1065	666

Implementation of DOTS was started in the country in 2003; and in 2007, all districts were covered at 100%. Since 2010, a decreasing trend of notified TB cases is observed; it was connected with the start of MDR TB diagnosis, the treatment of which became possible thanks to GF financial support. Improvement of accessibility to the rapid methods of laboratory diagnosis (Xpert, HAIN and etc.), caused the increase of number of diagnosed MDR TB cases, however due to the lack of SLD not all MDR diagnosed cases were enrolled on treatment.

## Universal Access

### Summary of activities (Year 1-4)

In Universal Access, TB CARE I focused on vulnerable groups such as children with TB. Within this technical area, introduction and application of recent guidelines on TB childhood and development of childhood TB protocol was implemented in accordance with the latest WHO recommendations (Rapid Advice, Treatment of TB in Children, WHO, 2010). Taking into account the developed MSF Protocol on Childhood TB in the National Guideline on Childhood TB, TB CARE I facilitated training of TB clinicians, pediatricians and family physicians from national and oblast levels in the revised Guideline on Childhood TB based on the latest WHO recommendations.

Within this technical area, TB CARE I also provided on-demand technical support to program implementers to facilitate a shift to ambulatory care in all TB CARE I project pilot sites. This process included:

- The involvement and commitment of local municipal authorities and communities in the provision of social support. This support included allocation of land plots to TB/MDR TB patients to establish vegetable gardens or orchards, construction of dwelling houses, exemption from property taxes and utility payments, and and/or the provision of food packages. This approach had not been tried before and gave positive results as well as contributing to the sustainability of patient support system. Altogether 192 TB and MDR TB patients received different types of social support from Khukumats and local business leaders. Out of 76 MDR TB patients enrolled on treatment in TB CARE pilots, 16 patients have completed treatment to date, including 13 successfully treated (75%).
- The elaboration and implementation of orders of local government about improvement of ambulatory treatment and social support of TB patients.
- The use of standard criteria for the selection and implementation of psycho-social support.
- The use of community groups to help select patients who need support and for managing the PSE support program.
- The coordination of psycho-social support from local government (municipalities and districts), and close collaboration between medical workers from the PHC facilities (physicians, nurses, responsible specialists for DOTs and sputum collection), TB specialists, and community activists and religious leaders.
- The development and implementation of protocols on strengthening of ambulatory treatment and psycho-social support of TB patients in all TB CARE pilots.
- Involvement of religious leaders and community activists into support of TB patients by providing the regular mini-sessions on TB prevention and adherence to the treatment for public community in the pilots. This approach was applied due to the fact that psychologists are not available in the country.

Joint NTP and TB CARE I monitoring visits and supervisions are conducted regularly during which treatment outcomes for all registered patients in the pilots are analyzed.

### Major Successes

#### Childhood TB

- Training curriculum on childhood TB was developed based on the latest WHO recommendations and latest National Guideline on Childhood TB.
- TB CARE I provided several trainings on childhood TB for specialists from national and oblast levels (TB doctors, pediatricians and family physicians).
- Three NTP TB specialists were trained on childhood TB at the international advanced course in Riga, Latvia (September 28-October 3, 2013).

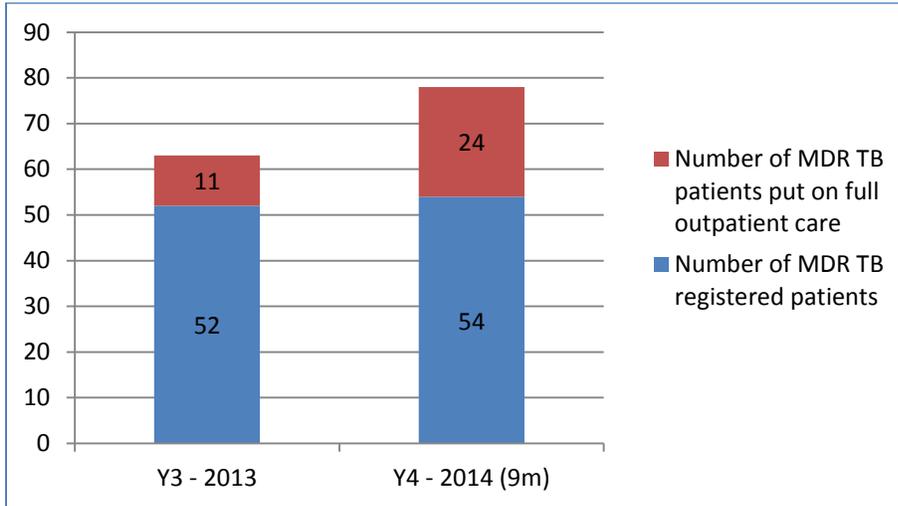
#### Outpatient Care

- TB CARE I provided technical support in the development and adoption of the "Protocol on Strengthening Outpatient Care and Provision of Psychosocial Support of Patients in TB CARE I Project Sites" to enhance outpatient treatment and psychosocial support of TB patients in TB CARE

I pilot districts. The protocol was developed jointly with TWG members, representatives of the local municipal authorities as well as TB patients from TB CARE I pilot sites. The protocol is based on current national guidelines for TB control in Tajikistan, and outlines the approaches for the administration of outpatient treatment of TB patients based on the capacities of district TB facilities, primary health care and local government. The protocol was developed jointly with the NTP TWG and approved by the NTP (Order #12, July 15, 2013). In addition to the protocol, the monitoring tool for the patient support system as well as TB patient psycho-social profile card were developed to be used for monitoring PSS support during the visits in TB CARE I pilots.

- TB CARE I project provided technical assistance on implementation of outpatient TB/MDR-TB care and establishing psychosocial support of the patients in all TB CARE I pilot areas by conducting a series of trainings on pilot implementation of outpatient care, interpersonal communication skills, DOT provision and stigma reduction for health providers, volunteers, community activists and religious leaders.
- With TB CARE I support, the patient support team (PST) was established at the NTP level. In 2014 team members started providing effective psychological support to TB/MDR-TB patients in TB CARE I pilots during supportive supervision visits and conducting on-the-job training for TB/PHC providers on implementation of ambulatory care model.
- The subgroup on outpatient care and psychosocial support was established at the national level under the MDR-TB TWG with participation of key NTP specialists, decision-making authorities and specialists from project sites. Currently, subgroup members are actively involved to the implementation of the protocol on outpatient care and PSS in the TB CARE I pilot sites by advocating for social support at the national and regional levels and involving local municipal authorities (Khukumats, Jamoats, and Village committees) as well as community leaders.
- TB CARE I supported regular supervision visits, conducting working meetings with local government and village authorities, TB and PHC services to discuss creating a sustainable patient support model as part of the outpatient model of care. As a result, the Khukumats of all TB CARE I pilots issued a resolution on providing a quarterly social package to TB /MDR-TB patients at the level of Jamoats as well as developed a detailed plan on implementation of the outpatient care in the pilot districts.
- Thanks to the efforts of the TB CARE I Project on implementation of the outpatient care in the pilots in the year 2014, 310 (58%) out of 536 registered TB patients were put on outpatient care in TB CARE I pilots. As for MDR TB patients, during nine months of 2014 the number of MDR TB patients (n=24, 44,4%), who started treatment in ambulatory doubled in comparison with 2013 (n=11, 21,1%).
- As a result of Project activities on improvement of patients' treatment adherence, the number of TB patients with missed doses decreased from 29 to 11 and MDR TB patients from 7 to 2. The number of lost to follow-up TB patients decreased from 17 to 12; the number of TB patients that refused treatment decreased from 3 to 1 and for MDR TB patients from 3 to 2 (comparing the 2014 cohort to the 2012 cohort).
- At the end of 2014, sixteen MDR TB patients completed the treatment, from which 12 successfully treated, 1 default, and 3 patients died.
- Successful implementation of outpatient model in TB CARE I pilots is also stipulated by the fact that three TB Center doctors from three pilot districts (Dangara, Temurmalik and Rasht) were trained on Study Tour "Patient support system" (supported by TB CARE I) in Kazakhstan. This advanced experience was used as a basis for initial steps of introduction of ambulatory care model in pilots.

**Graph 1. TB (MDR) patients put on full outpatient care in 9 TB CARE I pilot sites**



### Key Challenges

The main challenge was the shortage (and in majority cases the lack) of qualified psychologists and social workers in TB CARE I pilots and the fact that the treatment of only about 50-60% of TB patients is directly observed by medical workers.



**Photo 1.** Supportive supervision visits on psychosocial patient support (meeting with community leaders), Temurmalik, August 26, 2013



**Photo 2.** Meeting with the head of the municipal authority (Khukumat), Dangara, August 01, 2013



**Photo 3.** Training on outpatient care and PSS protocol, Rasht, June 16-17, 2014.



**Photo 4.** Distribution of food and hygienic parcels to MDR TB patients in Dangara district

## Laboratories

### Summary of activities (Year 1-4)

TB CARE I project provides technical assistance for the introduction of GeneXpert technology in Tajikistan and development of the National Strategy for the implementation of GeneXpert MTB/RIF in the country. Since 2011, five projects (PIU GFATM/UNDP, RCC GFATM/Project HOPE, EXPAND TB, MSF and TB CARE I) are involved in Gene Xpert implementation in Tajikistan. In total, 12 GeneXpert machines are used in the country.

Within this technical area, TB CARE I project is focused on building local capacity for strong coordination and management of the GeneXpert implementation in the country. This process included:

- Development of the National Strategy on Implementation of GeneXpert MTB/RIF which outlines programmatic approach at the initial stage of introducing the GeneXpert technology, diagnostic algorithms and plan of GeneXpert adoption in Tajikistan;
- Development of sample transportation protocol for TB CARE I pilots and support of sample transportation system to assure the uninterrupted access to the testing with use of rapid methods of TB diagnosis;
- Strengthening of the technical components of use and maintenance of GeneXpert systems and standard approach to implementation of GeneXpert MTB/RIF through development of basic SOPs for Xpert MTB/RIF laboratories, M&E plan and guidelines on maintenance and troubleshooting;
- Installation and operation of GeneXpert MTB/RIF machine in the project pilot site (Rasht district) that was crucial for detecting MDR-TB cases in the Rasht area and scaling up MDR-TB treatment in the pilots;
- Training of laboratory specialists and TB clinicians to be a trainers on practical use of Xpert MTB/RIF for using by other projects for Xpert trainings in their Xpert sites;
- Training of TB clinicians, PHC providers and laboratory specialists on practical use of Xpert.

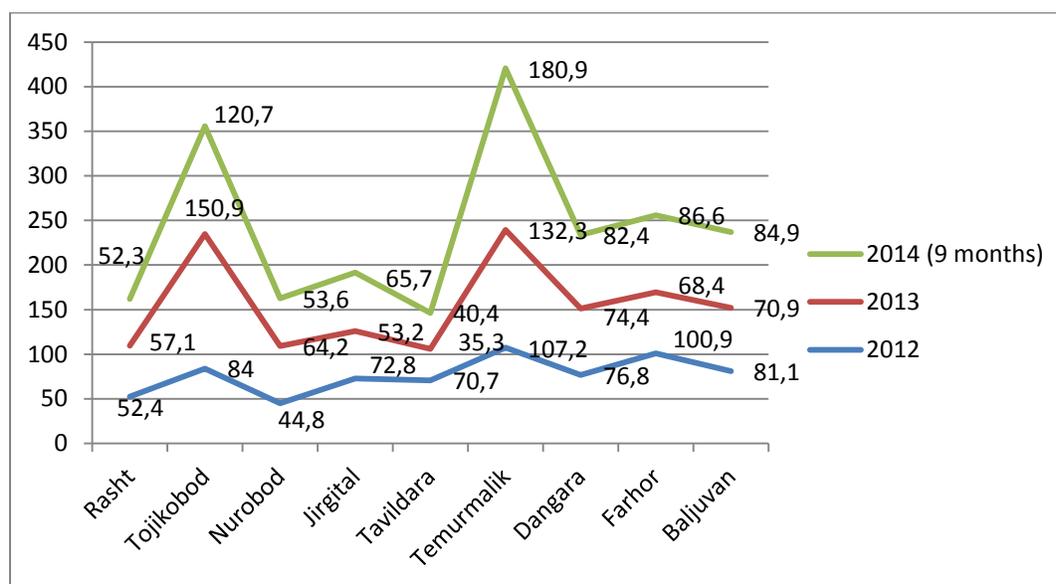
### Major Successes

- Significant increase of case detection of TB and MDR TB in TB CARE I pilots because of introduction of Xpert testing and strengthening of the sample transportation system. In 2013, case detection of all TB cases in some TB CARE I districts increased by 92% (Tajikabad), by 35% (Temurmaliq), and by 11% (Rasht and Nurabad) in comparison with 2012. Overall, detection of MDR TB cases increased by more than two times (Table 1). It was achieved because of introduction of Xpert testing in Rasht area, strengthening of the sample transportation system, training of TB and PHC providers on rapid diagnostic technology and sample transportation protocol. All detected TB and MDR TB patients were enrolled into treatment with FLDs and SLDs.
- Developed by the TWG and TB CARE I, the National Strategy on Implementation of GeneXpert MTB/RIF was approved by NTP (Order #14, dated February 20, 2013).
- The TB CARE I Project introduced GeneXpert MTB/RIF testing in Rasht area in February, 2013. Installed GeneXpert machine supports 5 pilot sites in Rasht area (Rasht, Nurabad, Jirgital, Tajikabad and Tavildara). The site started testing of patients from February 26, 2013.
- In 2013, among 250 presumptive TB cases tested with Xpert MTB/RIF, the MTB positivity rate was 14% (36/250) and Rifampicin resistance rate - 22.2% (8/36) (Graph 3). In 37 presumptive MDR-TB cases tested with XpertMTB/RIF, the MTB positivity rate was 35% (13/37) and Rifampicin resistance rate - 69% (9/13). In 2014 (9 months) among 1250 presumptive TB cases tested with Xpert MTB/RIF, the MTB positivity rate was 6% (80/1250) and Rifampicin resistance rate - 14% (11/80). In 18 presumptive MDR-TB cases tested with XpertMTB/RIF, the MTB positivity rate was 22% (4/18) and Rifampicin resistance rate - 75% (3/4).
- TB CARE I facilitated a TOT on use of GeneXpert MTB/RIF. As a result, a pool of trainers (18 specialists) on GeneXpert MTB/RIF was established at the national level.
- To ensure a sufficient workload for GeneXpert machines, as well as to improve access to GeneXpert MTB/RIF testing, the project developed a sample transportation protocol for all TB

CARE I pilot districts. The developed protocol includes the responsibilities of district TB centers and PHCs on sample transportation, the delivery schedule and sample storage conditions in each point of the sample transportation chain. This protocol also contains a detailed plan of transportation activities for each of the seven pilot districts.

- To ensure appropriate sample storage conditions, refrigerators and air-conditioners were procured by TB CARE I and distributed to 9 TB centers and 49 primary health care facilities of project pilots where sputum collection points were organized.
- Regular supportive supervision and monitoring visits were conducted with on-job trainings. The majority of recommendations, made during the visits, were implemented.
- Additionally, TB CARE I supported development and printing of 2 types of posters “Rapid TB diagnosis methods” (for health providers and population).

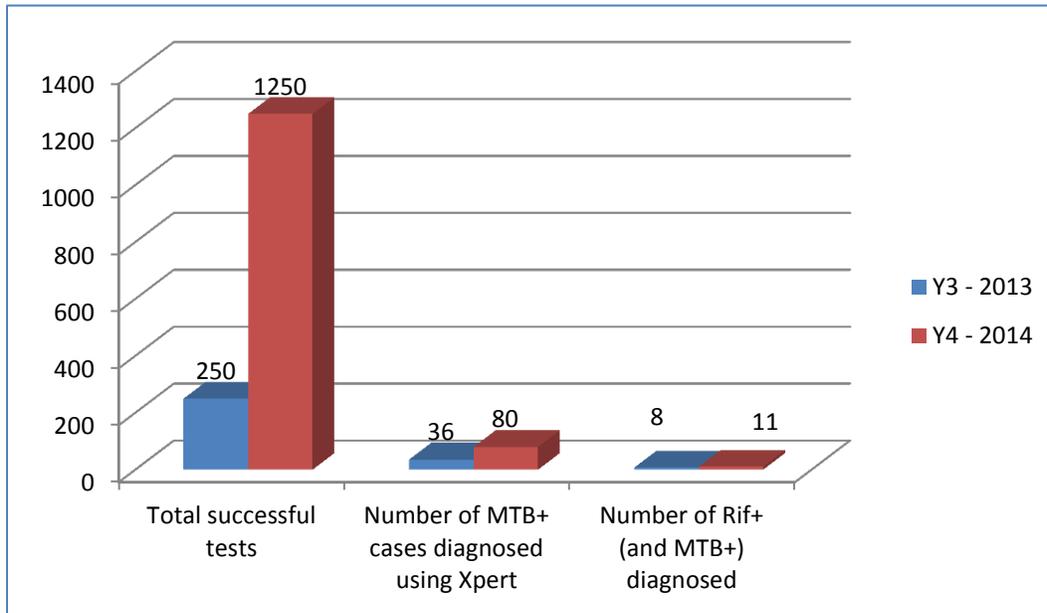
**Graph 2. Morbidity rate (all forms of TB) per 100 000 population**



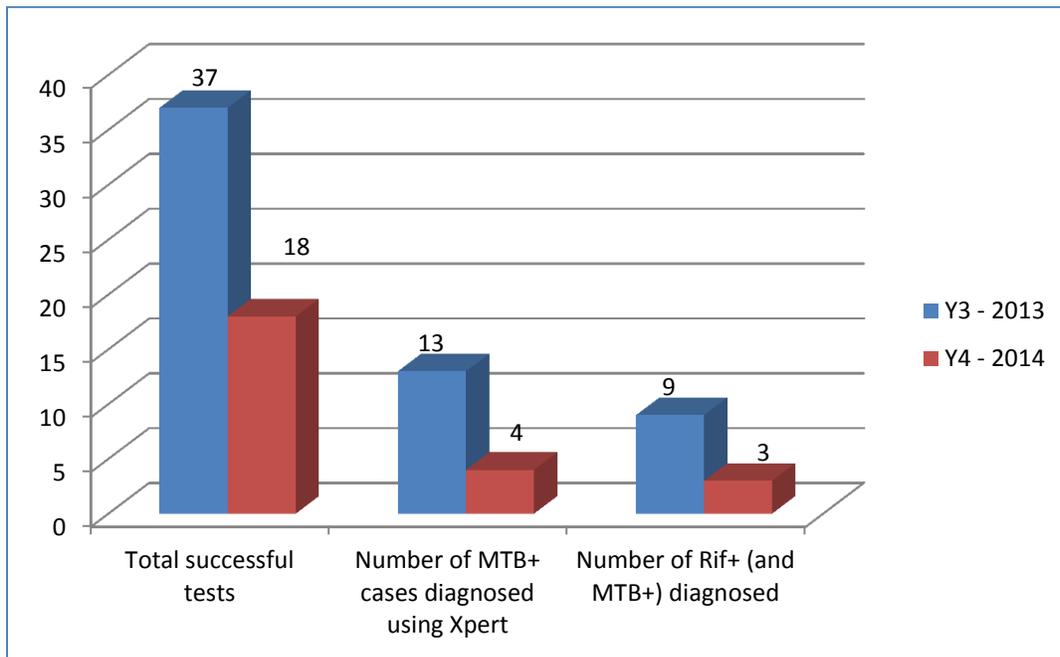
**Table 1. Case notification of TB and MDR-TB in TB CARE I pilots**

TB CARE I Pilot Sites	Notification of TB Cases (All Forms)			Notification of MDR-TB Cases		
	TB cases registered in 2012	TB cases registered in 2013	TB cases registered in 2014 (9 months)	MDR-TB cases registered in 2012	MDR-TB cases registered in 2013	MDR-TB cases registered in 2014 (9m)
Rasht	72	80	55	1	10	2
Tojikobod	36	69	46	0	6	1
Nurobod	45	50	36	0	4	5
Jirgital	47	35	37	0	6	4
Tavildara	15	9	8	0	0	0
Dangara	113	102	103	10	12	9
Temurmalik	77	104	108	5	7	9
Farhor	160	121	121	0	4	22
Baljuvan	24	24	22	0	3	2
<b>Total</b>	<b>589</b>	<b>594</b>	<b>536</b>	<b>16</b>	<b>52</b>	<b>54</b>

**Graph 3. Patients diagnosed with GeneXpert (Presumptive new TB) in Rasht area, 2013-2014 (January-September)**



**Graph 4. Patients diagnosed with GeneXpert (Presumptive MDR TB) in Rasht area, 2013-2014 (January-September)**



## Key Challenges

- Turnover of the laboratory specialists. Due to the regulations of Anti-Corruption Agency, enacted from last year, medical personnel were not allowed to work over nominal monthly hour rate, which resulted in the decrease of salaries for medical staff (nurses, laboratory personnel) prompting many professionals to leave their jobs. TB CARE I raised this issue in the meeting with NTP manager, who promised to take this issue up with relevant agencies and MOH.
- Insufficient coordination at the NTP level. Different organizations were involved with different donor regulations, and this fact led to complications in transportation of samples and use of cartridges. It might lead also to the delay of test results.



**Photo 5.** Installation of GeneXpert MTB/RIF machine; Rasht district, February 28, 2013



**Photo 6.** TOT on GeneXpert, Laboratory training; December 11-14, 2012



**Photo 7.** Training on MIS on Xpert MTB/RIF, Dushanbe, April 22-23, 2014



**Photo 8.** Storage of collected sputum for its further delivery to the Xpert laboratory, Nurobod district



**Photo 9.** Training on SOP for Xpert MTB/RIF, Dushanbe, December 19-20, 2013



**Photo 10.** Training on Xpert MTB/RIF troubleshooting and maintenance, Dushanbe, December 17-18, 2013

**Усули муосири тахиси бемории сил**

**Қадамҳои тадқиқот:**

- Супфӣ бо зорҷуғуми бағам дар муддати 2 дақиқа, бемадорӣ, қаммавонӣ ва ҳаҷмро, баъд аз ин қарордиҳӣ баъд.
- Муротибӣ ҳаҷми ба табиғӣ баъд аз ин қарордиҳӣ.
- Супордиҳӣ намуна баъд аз ин қарордиҳӣ бо усули GeneXpert MTB/RIF.
- Гузаронидани таҷриба бо усули GeneXpert MTB/RIF дар озмоишгоҳи муддати 2 соат.
- Наҷиҳати таҷриба бо усули GeneXpert MTB/RIF.
- Таҷриба беморӣ ба табиғӣ баъд аз ин қарордиҳӣ баъд аз ин қарордиҳӣ.

Усули Gene Xpert MTB/RIF - фаврӣ, роғон, самаранок ва дақиқи бемории сил

**Photo 11.** Gene Xpert materials developed by TB CARE I: Placard on rapid laboratory TB diagnosis tools – GeneXpert testing (for general population)

**Современные методы диагностики туберкулеза**

**Хpert MTB/RIF тест**  
Определение туберкулеза и устойчивости к рифампицину в течение 2 часов

**Высокая чувствительность и специфичность**

**Быстрое определение устойчивости к рифампицину**

**ТБ специалисты используют метод GeneXpert MTB/RIF для выявления ТБ и определения устойчивости к рифампицину**

**GeneXpert MTB/RIF – быстрый, бесслезный, эффективный и точный метод диагностики туберкулеза**

**Photo 12.** Gene Xpert materials developed by TB CARE I: Placard on rapid laboratory TB diagnosis tools – GeneXpert testing (for medical providers)

## Infection Control

### Summary of activities (Year 1-4)

In Infection Control, TB CARE I focused on revising of current TB-IC policy and strengthening of the capacities of local specialists at the national, oblast and TB CARE I pilot districts levels by conducting training on TB IC and supervision monitoring visits to TB CARE I pilots with on-the-job trainings. TB CARE I also supported the training of infection control professionals from general TB services (national and oblast levels) and SES to appropriate use of IC measurement tools and equipment.

### Major Successes

- TB CARE I supported NTP in reviewing of existing national TB IC normative documents. A report was prepared, submitted to NTP and the results from the review of the TB IC regulations were presented at the TWG meeting.
- The team of TB IC national trainers was established during TOT training facilitated by TB CARE I. This team will act as trainers in their job settings.
- Facility level TB IC plans for nine TB Centers, nine PHC facilities in TB CARE I pilots, 3 district TB hospitals (Temurmaliq, Rasht, Farhor) and TB department of the District central hospital (Dangara) were developed and monitored regularly. Personnel, responsible for TB IC activities in all abovementioned health facilities, were appointed and trained.
- TB-IC measurement equipment was procured and distributed to Republican TB Center, Republican Clinical TB Hospital in Machedon, TB health facilities in TB CARE I pilots and SES. The personnel were trained on use of the equipment.
- Assessments on TB IC risk transmission was conducted in TB facilities (including laboratories) of Khatlon, Soghd regions and Rasht area. As a result of the assessments, recommendations for each visited TB health facility were developed and discussed with pilot district TB staff.
- 269 TB managers, PHC health care workers, laboratory specialists and SES representatives from national, oblast, district levels, including TB CARE I districts were trained on implementation of the national TB IC plan and IC guideline and using of TB IC equipment.
- Three types of IC booklets/posters were developed jointly with TWG members, including "Cough hygiene" (for general population), "Proper use of respirators" (for medical and laboratory staff) and "Using TB IC measurement equipment in health facilities" (for medical staff).
- Additionally, TB CARE I supported development and printing of copies of targeted training materials for specific groups of health care workers involved in providing of TB services (TB/PHC physicians, nurses, laboratory specialists).
- With TB CARE I support, three SOPs on use of TB IC measurement equipment (SOP for fit test; SOP for TB IC measurement of UVGI; natural ventilation; and SOP for using respirators) and two SOPs to improve TB IC in PHC facilities and patient triage and separation (SOP on triage/separation of patients in TB facilities in the Republic of Tajikistan; SOP on TB infection control measures in out-patient facilities of the Republic of Tajikistan) were developed, printed and distributed among specialists.

### Key Challenges

- In spite of the fact that SES representatives were trained by the Project, their involvement in use of TB IC monitoring tools, TB IC assessment and monitoring activities is not active and regular enough.



**Photo 13.** Training on the implementation of the national TB IC plan and guidelines; Dushanbe, April 10-12, 2013



**Photo 14.** Supportive supervision visit; TB center, Dangara district, June 17, 2013



**Photo 15.** Cascade TB IC trainings for PHC physicians from 5 districts of Rasht area, February 17-18, 2014



**Photo 16.** Training on development of TB IC plans for TB health facilities in Rasht area and new pilot districts, Dushanbe, December 11-13, 2013



## Programmatic Management of Drug Resistant TB (PMDT)

### Summary of activities (Year 1-4)

In PMDT, TB CARE I supported the implementation of the PMDT program in all TB CARE I pilots (four districts of Khatlon region and five districts of Rasht area), including trainings and regular workshops for TB/PHC clinicians, nurses and managers, quarterly supervisory visits to provide mentoring, on-the-job trainings and review of the progress made in the implementation of the program. TB CARE I also provided technical support on the development and implementation of clinical algorithms for the treatment of side effects for second line anti-TB drugs and provide trainings on these algorithms for TB clinicians at the national, regional and district levels.

### Major Successes

- Programmatic management of the drug resistant TB program was introduced in nine TB CARE I pilot districts (Dangara and Temurmalik from July 2012; 5 districts of Rasht area from November 2012; Farhor and Baljuvan from October 2013).
- In 2013, 28 MDR-TB patients from Rasht area were identified by the GeneXpert MTB/RIF testing (in 2012 no one MDR-TB patient was detected in this area). Out of all detected patients, 22 have been enrolled in treatment with SLDs procured by USAID (before January 2014, these anti-TB drugs were used only for treatment of MDR TB patients, detected in Rasht area). In 2014, 54 MDR-TB patients were detected in 9 TB CARE I pilots, all of them were enrolled into treatment with SLDs.
- Quality care of MDR TB patients was ensured in all TB CARE I pilots by training of medical providers (TB specialists, PHC doctors, managers and DOT nurses of TB and PHC services) involved in the treatment of DR TB and regular monitoring and supervision visits.
- PMDT module for different target groups, involved in providing TB services (TB doctors, PHC physicians, TB and PHC nurses, TB and PHC managers), was developed in frame of the project, and used as training module for PMDT trainings.
- With TB CARE support, the Instruction on clinical algorithms for the management of side effects of SLDs was developed by the international consultant Kai Blondal and discussed with TWG members. The finalized instruction was approved by the Order No 64 of Ministry of Health dated February 08, 2014. TB clinicians of national (Republican TB Center and Republican TB Hospital in Machedon), regional (Oblast TB Centers and TB hospitals in Khatlon, Soghd, GBAO), city and district levels were trained on management of SLDs side effects.
- The national monitoring system was improved by support of NTP group in the preparation of the TB/MDR-TB monitoring and supervision tool for the NTP team at the periphery level. The tool has been developed and designed, taking into account the requirements of National Guideline for the Programmatic Management of Drug-Resistant Tuberculosis, as well as the latest WHO recommendations.
- Under the TB CARE I project, technical assistance on introduction of palliative care to the cases with difficult-to-treat TB, was provided to NTP of Tajikistan. Presently, the country is under the process of palliative care establishment and, in this connection, capacity strengthening of key NTP specialists is very important.
- With TB CARE I support cross-monitoring missions to TB CARE I countries were conducted with the aim to exchange the knowledge and skills in the tuberculosis management, focusing on response measures to the prevalence of drug-resistant tuberculosis. Participants from Tajikistan visited TB and PHC facilities in Kazakhstan and Kyrgyzstan, met with leaders and practitioners at the national and regional levels and overviewed the best practices in each country. They learned more in palliative care, TB management in penitentiary system and organization of ambulatory care model in both above mentioned countries.
- In 2012, 16 MDR TB cases were registered in pilot districts; from this number 12 patients – 75% completed their treatment successfully, 3 patients died and 1 patient did not successfully complete treatment. Treatment Success Rate for MDR TB patients in the pilots of TB CARE I is better than the national TSR (65.8%).

## Key Challenges

From the beginning of the implementation of PMDT in the pilots till the moment being, two XDR TB cases were registered. Due to lack of anti-TB drugs for XDR TB, the treatment of 1 patient was unsuccessful (the patient died), the second patient is in the waiting list.



**Photo 19.** Training on TB and MDR-TB M&E; Dushanbe, July 11-13, 2013



**Photo 20.** Trainings on SLD management for nurses of Baljuvan district, June 17-18, 2014



**Photo 21.** Advanced TOT training on comprehensive programmatic management of DR TB, Dushanbe, December 09-13, 2013



**Photo 22.** Supportive supervision and monitoring visits (home visits to TB patients), Dangara, February 13, 2014

## Health System Strengthening (HSS)

### Summary of activities (Year 1-4)

In HSS, TB CARE I supported training of community activists, religious leaders and volunteers from project pilot sites, with a focus on their preparedness to help TB and PHC staff in providing of TB care and treatment in ambulatory care settings. Within this component, TB CARE I sponsored participation of NTP specialists in international trainings, courses and workshops. At the national level, TB CARE I promoted experience and knowledge exchange on GeneXpert MTB/RIF, PMDT and outpatient support through thematic working meetings, national workshops involving key ministries, donors, WHO and national and international NGOs (QHCP and Project HOPE) and other partners involved in TB control activity.

### Major Successes

- According to the activity plans for Y2, Y3 and 4, TB CARE I planned to train 1,934 medical workers (Y1-100; Y2-1,010 and Y3-824). A total of 1,991 healthcare workers at all levels were trained using TB CARE funds, slightly exceeding the target (see Table 2).
- TB CARE I supported supportive supervision and monitoring visits in such technical areas as Laboratory (GeneXpert MTB/RIF), TB IC, PMDT, Outpatient Care and Psychosocial Support.
- TB CARE I sponsored participation of four NTP specialists in trainings on MDR-TB, two clinicians in training on Childhood TB and 2 TB managers from Regional TB Centers in training course "Role of Palliative Care in M/XDR TB management", conducted by the WHO Collaborating Centre for Research and Training in Management in Riga, Latvia. With TB CARE I support, four NTP specialists also participated in a training course on tuberculosis control, organized by FILHA in Tartu, Estonia.
- With TB CARE I support, six representatives of the MOH, National and Regional SES, Medical University, as well as engineer from the Republican TB Hospital were trained on TB IC in advanced international training courses ("Nosocomial TB Transmission Risk Reduction" and "Engineering Aspects of Nosocomial TB Transmission Risk Reduction").
- Six NTP clinicians received support from TB CARE I to take a three-month MDR-TB online course facilitated by the National TB Institute of the Russian Academy of Sciences.
- Five MOH/NTP specialists participated in the Regional Workshop on Monitoring and Evaluation in Almaty, Kazakhstan.
- Six NTP specialists, members of established patient support team, participated in the advance training course organized by Khakassia Republican Department of Russian Social Organization "Russian Red Cross." Participants received the theoretical knowledge and practical skills on rendering of psychological and social support to TB patients. During this training, participants visited the club of patients' support, participated in the work of PSS groups and had the meetings with TB patients. The knowledge received will be translated into practical use by the subgroup on outpatient care and PSS under the MDR TB TWG.
- TB CARE I supported participation of 1 participant from NTP in the CAR Regional SORT-IT OR course, which was held in Astana, Kazakhstan.

**Table 2. People trained using TB CARE funds**

Technical Area	Y2			Y3			Y4			Total
	Males	Females	Total	Males	Females	Total	Males	Females	Total	
Universal Access	1	1	2	132	83	215	141	25	166	383
Laboratory	7	13	20	143	54	197	105	96	201	418
TB-IC	0	0	0	55	9	64	156	49	205	269
PMDT	33	13	46	188	66	254	114	42	156	456
HSS	0	0	0	172	69	241	2	1	3	244
M&E	0	0	0	16	21	37	125	59	184	221
Total	41	27	68	706	302	1008	643	272	915	1991

### Support for Global Fund Implementation

Since December 2013, the Country Dialogue on discussion of NFM commenced. The international consultant was hired by the WHO Country Office for development of the National Strategic Plan on TB and the Concept Note for Global Fund New Funding Mechanism (NFM). The National Strategic Plan on TB was developed and approved by Ministry of Health. International partners and projects such as WHO, Project HOPE, TB CARE I, UNDP, Project Quality USAID and MSF were actively involved in the process of finalization of the National Strategic Plan on TB.

The NTP and Project HOPE were nominated by CCM as Primary Recipients for NFM.

Currently, there are two active Global Fund programs on TB control in Tajikistan: RCC3 (Rolling Continuation Channel of Round 3) and Transitional Funding Mechanism (TFM). These two GF projects are being successfully implemented.

The primary recipient of RCC3, Grant Number: TAJ-304-G02-T is Project Hope. The current rating of the project since December 2012 is B 2. Total agreement amount is \$12,398,456. Presently, this project supports DOTS in 37 districts. From mid-2013, the project started implementation of PMDT in seven districts (six districts in Soghd Oblast and one district in Khatlon Oblast). The major share of this grant is allocated for procurement of FLDs for country, as well as SLDs for 300 patients (from 2013 to 2015), and provision of laboratory reagents and commodities for microscopy laboratories.

From October 2013, UNDP is managing the TFM Project (TAJ-809-G09-T), which has two objectives ("Ensure High-Quality Diagnosis" and "Address TB/HIV, MDR TB and Other Challenges"). The period of project implementation in framework of this grant is from October 2013 to November 2015.

The GF project is focused on supporting laboratory systems, management of MDR TB cases, improvement of TB management among risk groups, including children, and improvement of quality of care and nosocomial infection control. Under this grant, the number of trainings is limited and focused on MDR TB treatment and quality control in microscopy and culture investigations. Under this grant, it was planned to procure second line drugs for 1,600 patients over two years (800 treatment courses in 2014 and 2015 respectively).

Currently, in framework of this grant, in the beginning of 2014, injectable second line drug (Cm) for 814 treatment courses and the rest SLD (Lfx, Mfx, PAS, Cs, Pto) for 407 MDR TB patients were procured and delivered to the country.

### **TB CARE I and Global Fund - TB CARE I involvement in GF support/implementation and effect of GF on the TB CARE I workplan**

From the introduction of TB CARE I in the country, effective collaboration was established with both projects of Global Fund in Tajikistan, particularly in the areas of GeneXpert implementation, PMDT and M&E. There is a regular update and exchange of information among projects, including joint participation in TWG meetings.

## Monitoring & Evaluation, Surveillance and OR

### Summary of activities (Year 1-4)

In M&E, TB CARE I supported revision of definitions and recording and reporting forms following the surveillance assessment, as well as provided technical assistance on strengthening capacities of NTP professionals to conduct operational research.

### Major Successes

- Evaluation of the reporting and recording (R&R) data forms, including the current TB register and existing electronic surveillance system, was done during the assessment of the TB surveillance system in general and prison TB services by TB CARE I consultants. Technical needs for upgrading to ensure effective information management was identified and presented during the briefing with the NTP and partner organizations.
- TB CARE I supported the process of revising TB case definitions and reporting framework in accordance with WHO requirements. All definitions/reporting and recording forms were revised and instruction developed for use in TB service facilities, that was approved by the Order of the Ministry of Health No. 64 dated 8 February 2014. In accordance with this Order, the reporting and recording on TB will be implemented using revised definitions and R&R forms. For this purpose, TB CARE I supported the printing of instructions and revised R&R forms for use in TB and PHC facilities countrywide.
- National, regional and district TB coordinators were trained with TB CARE I support on revised R&R forms and instruction on data collection. Starting from January of 2014 all TB facilities started using the revised TB case definitions and Reporting & Recording forms.
- TB CARE I supported the process of conducting Operational Research on the "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan". The OR aimed to assess risk factors associated with loss to follow up and compared their occurrence with successfully treated patients. The results and main recommendations of the OR were presented to NTP and partners' organizations during Dissemination Workshop in August 29, 2014 (see Annex II for more details).



**Photo 23.** National Workshop on Operational Research Agenda; Dushanbe, August 11-12, 2013



**Photo 24.** Data collection within the OR on reasons of treatment default, Konibodom, May 05, 2014



**Photo 25.** Training on revised R&R forms for oblast and district TB coordinators, Kurgan-Tube, February 12-14, 2014



**Photo 26.** Cohort Analysis Workshop, Rasht district, August 28, 2014

## **The Way Forward**

Reflecting on TB CARE I results through the lenses of the US Government TB strategy and the Post-2015 Global TB Strategy, there are many lessons to learn from TB CARE I and new approaches to prioritize going forward. Lessons learned from the project and the analysis of strategic priorities for the country are summarized below, which can inform future work and investment in the country.

### **Universal Access**

In framework of the TB CARE I Project, the significant results were achieved through the involvement of local municipal authorities and communities in the provision of support to TB patients on ambulatory treatment. Such an approach had not been tried before, and is of a great importance for the future sustainability in ambulatory care of TB and MDR TB control. This practice should be expanded country-wide.

Due to the lack of social workers and psychologists in the country, the involvement of the community including village activists and religious leaders is crucial; their involvement to the process of ambulatory treatment should be encouraged from the side of PHC and TB medical providers. Close collaboration between all health workers (physician, nurses and laboratory personnel), representatives of local governments, community and religious leaders, should be established for assurance of qualitative medical services and improving patients adherence.

### **Laboratories**

The experience of Gene Xpert introduction in the TB CARE I pilot districts showed that the results of Gene Xpert testing should be analyzed regularly for making of appropriate decisions related to Gene Xpert testing and clinical algorithms. Moreover, the capacity of the country should be taken into consideration for Gene Xpert cartridges procurement and maintenance. The sample transportation system, established by TB CARE I, plays a key role in early case detection, so it is necessary to assure the sustainability of this system by the funding from the state budget.

### **Infection Control**

The experience of TB CARE I in introduction of TB IC measures at the TB and PHC facility level should be expanded country-wide. To assure the qualitative implementation and sustainability of TB IC measures in health facilities, it is necessary to increase financing from the state budget for maintenance of the TB IC system and to conduct regular training of all involved medical personnel with active involvement of Sanitary Epidemiological Service's specialists.

### **PMDT**

The important result achieved by TB CARE I, which should be noted, is the fact that all detected MDR TB patients in TB CARE I pilots, were started on SLD treatment without any delay. Treatment of patients with TB is the responsibility of not only the TB service, but also the PHC health providers and the community as a whole. That is why close collaboration between all health workers (physician, nurses and laboratory personnel), representatives of local governments, Sanitary Epidemiological Service, community and religious leaders should be assured.

### **HSS**

A great number of medical and community workers was trained as a result of the TB CARE I project. In spite of the high rate of medical personnel turnover, it is crucial to keep all trained specialists in their local working places by means of improvement of working conditions and other kinds of encouragements.

### **M&E, OR, and Surveillance**

Since 2014, as a result of TB CARE I technical support, Tajikistan started using revised case definitions and Reporting-and-Recording Forms, based on the latest WHO recommendations. In the future, the surveillance should be strengthened by introducing an electronic system country-wide. It is necessary to conduct regular operational research to assess and inform NTP implementation and strategies.

## Uzbekistan

### Introduction

TB CARE I was led and managed by WHO Country Office in Tashkent in collaboration with the TB Unit of the WHO Regional Office for Europe, and KNCV as a coalition partner. As part of the regional TB CARE I program, TB CARE I in Uzbekistan was managed and supported by the TB CARE I regional office. Between 2012-2014, TB CARE I was implemented in the following technical areas: Health system strengthening PMDT, infection control, outpatient care, psychosocial support and implementation of Xpert MTB /RIF.

While employing a regional approach, TB CARE I adjusted the focus of these strategies making sure they were demand driven, technically sound and sustainable in nature. Utilizing its pool of available consultants from WHO, TB CARE I CAR Regional Office, KNCV headquarters and other external sources, TB CARE I provided state-of-the-art technical assistance based on the most recent evidence and international recommendations.

The project implementation made it possible to improve the quality of TB care services provided at all health care levels by way of capacity building of the TB services and primary health care in the area of TB prevention, treatment and care, including TB diagnosis using molecular diagnostic rapid tests in line with the international standards.

Key achievements from the Project implementation are summarized below:

#### *Outpatient care*

- Admission criteria for outpatient treatment developed jointly by NTP, WHO, KNCV consultants and partner organizations in the framework of TB CARE I, have been included into consolidated order on TB control approved by MOH in Oct 2014. This will reduce time of hospital stay for most patients and allow treatment of eligible patients including SS+ patients in their homes, provided appropriate TB-IC measures are implemented.

#### *Laboratories*

- The national Xpert MTB/RIF algorithm and implementation strategy was approved by the MOH. NTP upgraded status of the national Xpert MTB/RIF strategy and included it into the consolidated order on TB control endorsed by MOH in Oct 2014.
- Access to TB diagnosis using Xpert has improved in four regions of Uzbekistan reaching about 24% of the country population (7.4 million people). This makes it possible to detect TB cases and start adequate treatment at the same time while also reducing the spread of the disease.

#### *Infection control*

- The national guidelines on "Infection control in TB facilities" were approved by the MoH in January 2013, and were used as the methodological basis for whole project impact in this technical area. National guidelines on TB IC were also translated and published in Russian and Uzbek languages.
- NTP and staff of ten seven regions were trained on IC measurements and 11 facilities were equipped with modern TB IC measurement equipment not available before even in SES service. Now both TB IC implementing (TB service) and supervising (SES) parties are ready to reach a consensus by keeping effective measurable infection control rules.
- National TB-IC human resources were improved by training of 184 TB, PHC, SES and prison service representatives. They have been trained in TB-IC risk assessment and facility IC plan development;

#### *PMDT*

- Comprehensive Plan of Action for the Prevention and Control of M/XDR Tuberculosis for 2012-2015 was approved in January 2013. The plan was revised and approved in Sep 2013, to address all issues and bottlenecks according to improvements in PMDT (MDR TB treatment coverage was achieved 6000 patients by mid of 2014).
- Need for unified, standard approach to training PMDT (current trainings tend to focus on separate components of PMDT) was addressed through development of training modules on comprehensive, programmatic management of DR-TB utilizing cross cutting content. Modules include clinical

management of MDR TB, IC, Xpert MTB /RIF using, provision of care in outpatient setting, TB /HIV and side effects.

#### *M&E*

- WHO's "Definitions and reporting framework for tuberculosis – 2013 revision" was introduced during training of national M&E experts to ensure compliance of National M&E system with the global TB data collection system.
- Regular supervisory visits and on-the-job training on all aspects of TB control were organized jointly with WHO-USAID "Partnership project for TB control" to provide technical support to pilot sites to ensure quality of TB services in pilot regions. Four rounds of M&E visits were conducted.

#### *HSS:*

- TB CARE I and the Ministry of Health of the Republic of Uzbekistan have developed a number of important strategic and methodological documents in the area of TB control – the National Plan on M/XDR TB prevention and control for 2012-2015, Guidelines on TB infection control, National strategy on Xpert MTB/RIF use, Guidelines on psychosocial support to TB patients and a training module on clinical management of MDR TB cases, etc.
- TB CARE I supported NTP to improve its technical capacity on various aspects of TB control - TB IC, outpatient care, rapid TB diagnosis, M&E, transitional TB care for ex-prisoners etc. - by training of 1,257 specialist (F=645) from all levels of TB service – from central to district level.

## Core Indicators

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

**Table 1: TB CARE I core indicator results for Uzbekistan**

		<b>C1.</b> Number of cases notified (all forms)	<b>C2.</b> Number of cases notified (new confirmed)	<b>C3.</b> Case Detection Rate (all forms)	<b>C4.</b> Number (and percent) of TB cases among healthcare workers	<b>C5.</b> Treatment Success Rate of confirmed cases	<b>C6.</b> Number of MDR cases diagnosed	<b>C7.</b> Number of MDR cases put on treatment
TB CARE I	2011*	15,913	13,995	52%	n/a	81%	1,385	855
	2012	16,810	14,132	66%	n/a	78%	1,728	1,489
	2013	25,168	16,555	89%	n/a	84%	5,754	2,647

\*Baseline

TB CARE I developed new guidelines, training modules and regulations such as national laboratory strategy for Xpert implementation for proper utilization of new rapid tests as well as introduced this technology in 4 regions of Uzbekistan. As result of implementation of introduced approaches in TB diagnosis and management, TB CARE I, jointly with National TB programme and partners on TB control, contributed to the following national indicators:

- Increased number of detected TB cases from 15,913 in 2011 till 25,168 in 2013 and MDR TB cases from 855 in 2011 till 2,647 in 2013
- Treatment success have been kept on satisfactory level of 78-84% despite significant increases in the number of cases notified.

## Universal Access

### Summary of activities (Year 1-4)

In Universal Access, TB CARE I provided on demand technical support to program implementers to facilitate a shift to ambulatory care starting from the first day of treatment.

In an effort to address excessive hospitalization of TB/MDR TB patients, the WHO country office in Uzbekistan in collaboration with KNCV brought together the NTP, local government and health departments along with TB practitioners and other players, to design a protocol for an outpatient TB care model and took responsibility to facilitate the shift to ambulatory care in Tashkent and Samarkand regions, further enabling the primary health care network (PHC) to achieve better treatment outcomes, reduce costs and improve patient satisfaction. The protocol on full ambulatory care starting from the first day of treatment was included in a consolidated order on TB control, approved in October 2014. Psychologists as an essential part of services for TB patient, were included on a list of the services to be delivered to TB patients during TB treatment.

Since psychosocial support for TB patients should be an essential part of outpatient TB (MDR-TB) care, WHO provided atechanical assistance to develop a national Psycho-social patient support (PSS) guideline - the first ever in Central Asian region - and implement a PSS model in pilot sites. Special attention to each region's specific characteristics, available local resources, and capacities was given, to ensure the appropriateness of the developed model. In support of introduction of new PSS model , a series of trainings for PHC and TB service providers on the administration of outpatient care, DOT, patient counseling, treatment adherence were conducted.

### Major Successes

#### Outpatient care

- National Technical Working Group (TWG) on the implementation of ambulatory TB care was established in January 2013. It is a first official MOH's mechanism to update and improve current practices on ambulatory TB treatment.
- Achieved consensus with the Ministry of Health, National TB Program, international partners and national health professionals to work on programmatic approach of outpatient model of care and Psycho-social patient support model for TB patients.
- Developed and agreed on a draft model for outpatient care and Psycho-social patient support.
- Admission criteria for outpatient treatment developed jointly by NTP, WHO, KNCV consultants and partner organizations in the framework of TB CARE I, have been included into consolidated order on TB control approved by MOH in Oct 2014. This will reduce time of hospital stay for most patients and allow treatment of eligible patients including SS+ patients in their homes, provided appropriate TB-IC measures are implemented.
- A study tour of two rounds to Kazakhstan was organized on the patient support system for MOH high officials and PSS TWG members in April 2013 and Sep 2014. The results of the study tour was a brief concept note on the establishment of psycho-social services for TB patients submitted to the MOH within the consolidated order on TB control. The findings of this study tour will be used by Uzbek health officials for development of a new National Strategic Plan on TB Control in Uzbekistan for 2016-2020 and other relevant TB policy level documents. In addition, the Chief Ministry of Health TB Specialist Dr. Nargiza Parpieva presented the findings of the study tour at the meeting of Uzbekistan's Multi-Expert Council (MEC) which includes representatives of ministries of health, labor and social protection, education, justice, civil society and parastatal organizations.

**Table. Before and after: Universal access.**

<b>Universal access</b>	
<b>At the start of TB CARE I project in 2011</b>	<b>By 2014</b>
Patients were not allowed to start treatment in outpatient settings. Nearly all TB patients were hospitalized for at least 4 months.	Ambulatory TB treatment starting from Day 1 is allowed in new consolidated order on TB control (according to eligibility criteria).
No national policies and guidelines on Psychosocial support (PSS) for TB patients.	First guideline on Psychosocial support (PSS) for TB and HIV patients was developed jointly with "Partnership project for TB control" and submitted to MOH for approval. The document is fully based on the chapter on PSS in latest WHO manual on M/XDR TB, and includes experience and practices from Partners in Health on Sputnik in Russia, global practices on PSS and other relevant experience.

**Photo1.** Study tour to Kazakhstan, Oct 2014. High level officials are visiting Akmola region of Kazakhstan to learn about USAID-funded outpatient TB treatment model and patient support system.



**Photo 2** The National TWG on the implementation of ambulatory treatment is taking the responsibility to facilitate a shift to ambulatory TB care, Feb 2013, Tashkent



**Photo.** Training for PHC on outpatient TB treatment model and patient support system, Samarkand, Nov 2014



**Photo.** Training for TB doctors and nurses on psychological aspects of TB care, Samarkand, May 2014



### Prisons

- TB CARE I initiated development of a mid-term plan on collaboration of prison and general TB health care systems. This plan is for 2012-2015 and includes participation of health care institutions at various levels.
- Brochure on TB for prisoners and ex-prisoners, "TB: manual for patients", was developed, approved by the NTP and submitted for printing in September 2013. 1000 copies will be distributed in APA4 in the framework of related TB CARE I activities.

### **Key Challenges**

- The main challenges yet to be addressed in the near future have to do with the current regulations and funding mechanisms that are focused on hospital, in-patient care, and excessive screening, which make almost the entire population eligible for TB screening. Long hospitalization practices need to be revised and rationalized with the focus on considering the ambulatory treatment from the very beginning of treatment.
- Targeted social support of TB patients is not established yet. Program of continuity of care for prisoners after release should be improved.
- There is no specialized psychological service available for TB patients, which could ensure strong patient adherence, specifically during long MDR-TB treatment.
- New consolidated order on TB control allowing infectious patients to stay at their homes if TB IC measures are kept needs to be introduced and implemented.  
There is a resistance expected from of doctors who follow the outdated practices and are against outpatient TB care. Currently this issue is being solved through technical assistance on updating SES TB IC regulations organized by WHO for SES central unit in line with WHO-USAID Partnership project for TB control.
- New consolidated order on TB control should be endorsed by the prison sector health service, to align civil and prison services on TB control.
- Using ambulatory treatment from the beginning in settings without PMDT experience could be risky in ensuring correct program implementation, patient management, and drug side effects management. It requires a more gradual transition.

## Laboratories

### Summary of activities (Year 1-4)

In Laboratories, WHO country office through TB CARE I project provides lead technical assistance for the introduction of Xpert MTB/RIF technology in Uzbekistan and, in collaboration with KNCV/TB CARE I experts, developed the national strategy for its implementation in the country. Since 2011, four players (PIU GFATM, EXPAND TB/FIND, MSF and TB CARE I) are involved in Xpert MTB/Rif implementation in Uzbekistan. TB CARE I project was focused on building local capacity for strong coordination and supervision roles of the NTP to effectively implement Xpert MTB/Rif technology in Uzbekistan. Also, TB CARE I has made substantial investments to improve case finding by improving principles of Xpert MTB/RIF using targeted at high risk groups. Also TB CARE I has improved access to TB diagnosis using Xpert MTB/RIF rapid test in four regions of Uzbekistan, reaching about 24% of the country population (7.4 million people). 908 TB cases (17%) were found in four TB CARE I regions out of 5353 TB cases detected nationwide. The cost of the TB CARE I procured equipment and diagnostic cartridges totals \$271,000 US dollars. Rapid testing in these regions cuts diagnosis time from 3 months to a week. In total, 22 Xpert MTB/Rif machines are used in the country as of Nov 2014.

### Major Successes

- With TB CARE I support, the national Xpert MTB/RIF algorithm and implementation strategy was developed and approved by the MOH. NTP upgraded status of the national Xpert MTB/RIF strategy and included it into the consolidated order on TB control endorsed by MOH in Oct 2014.
- To build technical capacity and ensure NTP ownership, TB CARE I supported a training of trainers on the practical use of Xpert MTB/Rif for laboratory specialists, managers and clinicians of TB and PHC services. Event covered 32 laboratory and clinical specialists and managers (F=21).
- Access to TB diagnosis using Xpert MTB/RIF rapid test has improved in four regions of Uzbekistan reaching about 24% of the country population (7.4 million people). This makes possible to detect TB cases and start adequate treatment at the same time, as well as to prevent the spread of the disease. Currently NTP is developing a new National strategic plan on TB control, where remaining four regions of Uzbekistan without Xpert MTB/RIF labs will be equipped with rapid TB diagnostic tools.
- A series of trainings for ten sites where Xpert MTB/Rif machines are placed (Bukhara, Tashkent, Khorezm, Kashkadarya, Navoi and Samarkand regions and prisons) covered 240 specialists (management, TB specialists and general practitioners) from pilot regions and 120 specialists were trained on the introduction of rapid diagnostic methods for tuberculosis, including Xpert MTB/Rif.
- Technical assistance provided within APA2-APA4 improved the effective use of Xpert cartridges. The number of lost cartridges due to initial incorrect testing procedures dropped from approximately 10% in the beginning of APA3 (Oct-Dec 2012) to roughly 3.4% by the end of the project.

### Key Challenges

- Low access to rapid (MDR) TB diagnosis in regions of Uzbekistan. In light of recent significant MDR-TB treatment scale-up, low diagnostic lab capacity is a major bottleneck in PMDT expansion nationwide.
- NTP's and NRL's managerial capacity in planning, budgeting, monitoring and maintenance of Xpert MTB /RIF machines needs to be strengthened.
- Selection of patients eligible for Xpert testing were not properly made in the beginning of APA3, therefore the MTB positivity rate and RIF resistance rate in NRL nationwide were low. But by the end the project, the MTB positivity rate improved by 14% (from 16% in the end of 2012 to 29% in Nov 2014) in TB CARE I pilot regions (Tashkent and Samarkand). The RIF resistance rate improved by 31% (from 40% to 71%) in those sites.
- Machines were launched in September 2012, and in initial stage a lot of cartridges were lost due to unstable electricity and lack of experience on choosing a priority groups for testing.

**Photo 5. Training of Trainers on the Practical Use of Xpert MTB/RIF.** NTP manager is explaining his expectations on Xpert MTB/RIF implementation, Dec 2012, Tashkent



**Photo 6. Series of trainings for Xpert MTB/Rif sites,** Feb 2013, Tashkent



**Photo .** Series of trainings for Xpert MTB/Rif sites, Jul 2014, Urgench, Khorezm



**Photo .** Handover of four Xpert MTB/RIF rapid tuberculosis (TB) testing machines to the Ministry of Health, July 2014, Tashkent.



**Photo** Training on the practical use of Xpert MTB/Rif for laboratory specialists, Bukhara, July 2014



**Photo:** Installed equipment in Khorezm regions, July 2014



## Infection Control

### Summary of activities (Year 1-4)

In 2011, the Government of Uzbekistan embarked on a large-scale TB hospital construction program. In Infection Control, TB CARE I focused on activities to strengthen the capacities of local specialists at the national, oblast and TB CARE I pilot districts levels by conducting training on TB-IC and supervision monitoring visits to TB CARE I pilots with on-the-job trainings. Also NTP's capacity in TB IC was strengthened by introduction of new TB IC guidelines and establishment of TB IC measurement teams trained and equipped in APA3. Construction design of four TB facilities were adjusted and redrawn to fit modern requirements on TB IC.

### Major Successes

- The national guidelines on "Infection control in TB facilities" were approved by the MoH in January 2013, and were used as the methodological basis for overall project impact in this technical area. National guidelines on TB IC were also translated and published in Russian and Uzbek languages.
- TB CARE I jointly with "Partnership for TB control" project introduced an updated SES regulation on TB IC for TB facilities nationwide.
- TB CARE I provided infection control technical assistance for 11 TB hospitals in seven regions serving population of 15 million people.
- National TB-IC human resources were improved by training of 184 TB, PHC, SES and prison service representatives. They have been trained in TB-IC risk assessment and facility IC plan development;
- The "Comprehensive TB-IC Training" course for specialists from the TB Service and the Sanitary Epidemiologic Services (SES) was conducted with TB CARE I support. At this event, improved collaboration on TB IC was achieved between the TB Service and SES, as representatives from both services worked together to update their knowledge and skills.
- A team of TB-IC national trainers in ten project sites was established and act as trainers in their job settings.
- NTP and staff from ten regions were trained on IC measurements and 11 facilities were equipped with modern TB IC measurement equipment not available before even in SES service. Now both TB IC implementing (TB service) and supervising (SES) parties are ready to reach a consensus by keeping effective measurable infection control rules.

### Key Challenges

- Comprehensive TB IC demands very strong financial investments. Due to facilities' budget limits, NTP agreed that a more cost-effective way to implement TB IC measures is to be focused on administrative measures and individual protection.
- TB-IC activities plans with budgets should become an essential part of the national and facility level approach on further improvement of TB IC program in all TB facilities in Uzbekistan.
- National TB-IC guidelines and SES regulatory documents need to be introduced in TB facilities in remaining regions of Uzbekistan.
- Ongoing supervision visits and on-the-job trainings in TB-IC needed to be continued in support of the implementation of modern IC standards.

**Photo** Training for SES doctors on TB IC implementation (Feb 2014)



**Photo** Cover of National TB IC guideline



**Photo** On-job training on administrative TB-IC measures planning in Navoi region



Discussion on how to implement modern TB-IC measures in hospital buildings during renovation, Navoi Regional TB dispensary



**Photo.** TB IC assessment mission, visit to laboratory. Dec 2012, Samarkand



**Photo** TB IC mission to Kitab TB hospital, March 2014



**Photo**  
ToT on TB IC, Jan 2013, Tashkent



**Photo** Revision of developed TB IC plans in Samarkand Regional TB dispensary



## Programmatic Management of Drug Resistant TB (PMDT)

### Summary of activities (Year 1-4)

In PMDT, TB CARE I supported NTP/MOH in the approval and updating of the national Comprehensive Plan of Action for the Prevention and Control of M/XDR Tuberculosis for 2012- 2015. Since 2012 MDR-TB diagnosis and treatment is being scaled up rapidly across the country with new oblasts in 2012 and an ambitious goal to cover the whole country with enrolment of 5,995 patients by the end of 2013 (4 times more than in 2012), which was achieved. Currently more than 6,000 patients cumulatively are being treated by MDR TB treatment nationwide. With intensive support of WHO, The Global Fund and partners, the National M/XDR TB action plan was updated according to latest developments with GF supported MDR TB treatment expansion, to address all bottlenecks in growing PMDT program.

Also, NTP with TB CARE I's support agreed to use of Xpert MTB/Rif results as direct indication for MDR TB treatment, and provided ongoing support and supervision to the PMDT program in Tashkent.

### Major Successes

- Comprehensive Plan of Action for the Prevention and Control of M/XDR Tuberculosis for 2012- 2015 was approved in January 2013. The plan was revised and approved in Sep 2013, to address all issues and bottlenecks according to improvements in PMDT (MDR TB treatment coverage was achieved with 6000 patients by mid of 2014).
- National PMDT Workshop for key stakeholders involved in MDR TB program implementation from TB services, PIU GF, DOTS Center and partners (34 participants) organized in July 2013. Gap analysis and recommendations were done for the National M/XDR TB plan for further implementation in Uzbekistan. It was agreed that a detailed operational plan of activities for the next two years (2014-2015) would be prepared based on the agreed recommendations. One of discussed challenges was that NTP should enroll on MDR-TB treatment 5,995 patients in 2013 (4 times more than in 2012). National and international partners agreed to joint efforts to ensure universal access to TB/MDR TB diagnosis and treatment and to organize a qualitative clinical management of those patients by the end of 2013. TB CARE I adjusted implementation plan accordingly, to follow workshop recommendations and decisions.
- Need for unified, standard approach to training PMDT (current trainings tend to focus on separate components of PMDT) was addressed through development of training modules on comprehensive, programmatic management of DR-TB utilizing cross cutting content. Modules include clinical management of MDR TB, IC, Xpert MTB /RIF using, provision of care in outpatient setting, TB /HIV and side effects.
- Policy on using Xpert MTB/Rif results for starting MDR treatment was put under united order on TB control. Document was approved in Oct 2014.
- 194 TB doctors were trained within TB CARE I on comprehensive programmatic management of DR-TB for new TB CARE I pilot regions (tentatively Bukhara, Navoi, Kashkadarya and Khorezm regions).

### Key Challenges

- The NTP started rapid extension of a program in the new oblasts in late 2012 with an ambitious goal to cover the whole country with SLD treatment for 5,995 patients by the end of 2013. It represents a fivefold increase compared to 2012. Currently 6,000 patients cumulatively are being treated under MDR TB treatment. This situation is a challenge for the NTP since the program should increase its effectiveness in proper case management of those patients, including outpatient stage of treatment.
- Expansion of PMDT countrywide should be ensured to achieve full country coverage (all 14 regions of Uzbekistan instead of 4 current MDR treatment sites) and equal access to treatment and follow up. Training, workshops, regular quarterly supportive supervision on treatment, case management, and drug management should be part of it, according to WHO recommendations
- In settings without PMDT experience MDR-TB treatment should be started in specialized hospitals with adequate case management and drug side effects management. Gradual transition to ambulatory treatment as soon as patients improve or are stable can be used.
- Ensure early diagnosis of pre-XDR by testing all MDR patients for SL resistance.
- Revise the guidance for the treatment of pre-XDR and XDR TB making optimal use of the more effective group 5 drugs and the new drugs in line with the new WHO "companion guide" on drug resistant TB. Implement palliative care of TB patients on PHC and TB facilities country wide.

**Photo .** Series of trainings on MDR TB clinical management, July 2014, Karshi



**Photo:** Stakeholders meeting on development of Concept note to GF for next round of funding, Nov 2014



**Photo:** PMDT assessment visit to Bukhara region, De 2013



## Health System Strengthening (HSS)

### Summary of activities (Year 1-4)

In HSS, TB CARE I/WHO provided on-demand technical support to program implementers to facilitate a shift to ambulatory care in Tashkent region, while keeping in focus PHC preparedness to provide TB care and treatment, patient satisfaction, treatment outcomes and financial implications.

Under the TB CARE I project in 2012-2014, WHO and the Ministry of Health of the Republic of Uzbekistan have developed a number of important strategic and methodological documents in the area of TB control – the National Plan on M/XDR TB prevention and control for 2012-2015, Guidelines on TB infection control, National strategy on Xpert MTB/RIF use, Guidelines on psychosocial support to TB patients; Training module on clinical management of MDR TB cases, etc.

Additionally, TB CARE I supported NTP in improvement of its technical capacity on various aspects of TB control - TB IC, outpatient care, rapid TB diagnosis, M&E, transitional TB care for ex-prisoners etc - by training of 1,257 specialist (F=645) from all levels of TB service – from central to district level.

**Table. People trained using TB CARE I funds**

Technical Area	Y2			Y3			Y4			Total
	Males	Females	Total	Males	Females	Total	Males	Females	Total	
Universal Access	10	7	<b>17</b>	33	33	<b>66</b>	42	136	<b>178</b>	261
Laboratory	16	21	<b>37</b>	83	70	<b>153</b>	38	86	<b>124</b>	314
TB-IC	14	12	<b>26</b>	40	36	<b>76</b>	71	27	<b>98</b>	200
PMDT	15	6	<b>21</b>	29	25	<b>54</b>	67	52	<b>119</b>	194
HSS	8	7	<b>15</b>	50	54	<b>104</b>	39	48	<b>87</b>	206
M&E	0	0	<b>0</b>	24	13	<b>31</b>	33	12	<b>45</b>	82
<b>Total</b>	<b>63</b>	<b>53</b>	<b>116</b>	<b>259</b>	<b>231</b>	<b>490</b>	<b>290</b>	<b>361</b>	<b>651</b>	<b>1.257</b>

TB CARE I collaborated with the WHO-USAID “Partnership project for TB control” to assist the Ministry of Health to apply for TB funding from the Global Fund within next grant round for 2016-2017. Support was provided for the development of a National strategic plan for 2016-2020 and a concept note for a proposal, due to the Global Fund by January 30, 2015. Uzbekistan’s country proposal could receive up to \$12 million from the Global Fund to support the NTP for the years 2016-2017.

TB CARE I also addressed the role of local community groups and NGOs in TB control, including prevention, patient support and stigma reduction and to improve the capacity of the national health system in ensuring continuum of care for released prisoners with TB.

### Major Successes

- WHO country office, in the framework of TB CARE I and the WHO-USAID “Partnership project for TB control” assisted the Ministry of Health in developing a new overarching policy that will better regulate the entire TB system. The policy, or prikaz, consolidates international best practices from USAID, the World Health Organization (WHO) and the international TB community - including the recently adopted Infection Control guidelines. The planned prikaz abolishes outdated Soviet-era policies, some of which date from 1972. The new consolidated policy will lay the foundation for better TB services that save more lives. Further, the prikaz will help the government to shift away from an expensive hospital-based model to a more efficient outpatient model, will increased access to quality TB diagnosis, treatment and social support for vulnerable Uzbek populations.
- Principles of registration of TB patients is updated, new WHO definitions have been endorsed, dispensary supervision period of recovered TB patients is reduced, seasonal chemoprophylaxis of TB is canceled as an ineffective measure, number of dispensary groups of patients now shortened: now only two groups – for new and retreatment cases. Role of primary health care in TB control has been expanded.
- Project collaborated with the WHO-USAID “Partnership project for TB control” to assist the Ministry of Health to apply for TB funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria within next grant round for 2016-2017 by supporting development of National strategic plan for 2016-2020 and a concept note for a proposal, due to the Global Fund by January 30, 2015.

Uzbekistan's country proposal could receive up to \$12 million from the Global Fund to support the National TB Program for the years 2016-2017.

- In total 1257 TB, SES and PHC specialist from central to district levels of TB service were covered with TB CARE I activities in Uzbekistan.
- Comprehensive training module in line with new MDR-TB guidelines that integrate most recent WHO recommendations, including utilization of rapid diagnostic tools, new clinical aspects of DR-TB case management (dosages & schemes & length of treatment) as well as management of TB in children and TB IC was developed.
- PSS program for TB patients will be strengthened by further introduction of new PSS guideline.

#### **Key Challenges**

- Capacity and knowledge of local experts should be continuously improved
- Additional funding for developments on TB should be attracted : to improve financial mechanisms of TB service, drug supply
- National strategic plan for delivering PSS for TB patients should be approved, its implementation should be started to ensure good treatment outcomes for all categories of patients. Social workers as a member of multidisciplinary teams in delivering social and psychological support should be included into staff list of TB facilities. Those persons need to be trained on modern approaches of PSS.
- Partnership and decision-making process should be established based on wide discussions with governmental, non-governmental and inter-sector organizations.

**Photo .** Working meeting on development of consolidated order on TB control, July 2013, Tashkent region.



## Support for Global Fund Implementation

Global Fund PIU plans and implements activities in close collaboration with MOH, but coordination with the National TB Center (the lead organization in TB control) needs to be improved to ensure compliance of national and international efforts on TB control.

Global Fund provides extensive support to the country in procurement of diagnostic tools, first- and second-line drugs, as well as monitoring and evaluation. As of November 2014, the Global Fund signed for National TB Program in Uzbekistan US\$ 76,830,860. GF Round 8 ended on November 30, 2013. TFM grant UZB-809-Go5-T for \$29.2 million covered period January 1, 2014 - November 2015. It is important to highlight, however, that the government should gradually start assuming a portion of the drug costs. A first step in this direction was MOH's approval of the National Action Plan to fight TB/MDR-TB for 2012-2015, where financial institutions of the government have been asked to develop a plan on slowly increasing financing of the M/XDR-TB program. The plan was updated in September 2013. Also, MOH expressed readiness to start procurement of FLD for the whole country starting from 2016.

That said, GLC/Europe supports the scale-up and the annual enrolment of 4,000 new MDR-TB patients, beginning in 2014, taking into consideration current NTP's TB diagnostic and clinical capacity.

### **TB CARE I & Global Fund - TB CARE I Involvement in GF Support/Implementation and Effect of GF on the TB CARE I Workplan**

WHO country office, under the TB CARE I project, plans and implements its activities in close collaboration with the Global Fund. The WHO CO and GF PIU exchange information about ongoing activities during regular partner meetings.

The key area for cooperation is PMDT, where TB CARE I complemented Global Fund support in the procurement of second line drugs and the introduction of current PMDT guidelines in its pilot regions, to ensure utilization of drugs in compliance with current WHO recommendations.

The main contributions of TB CARE I to the Global Fund-funded TB and MDR-TB treatment program includes technical expertise in the development of policy regulations through technical working groups, support provided by external technical consultants and improvement of MDR-TB detection by introducing Xpert MTB/RIF technology in four pilot regions.

As mentioned previously, starting from Oct 2014, TB CARE I and "Partnership project for TB control" projects assisted the Ministry of Health to apply for TB funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria within next grant round for 2016-2017 by supporting development of National strategic plan for 2016-2020 and a concept note for a proposal, due to the Global Fund by January 30, 2015.

**Photo.** Technical assistance to the Ministry of Health on development of a concept note for Uzbekistan's country proposal to access Global Fund TB funding for 2016-2017. Visit of PMDT expert Dr. Agnes Gebhard, Nov 2014, Tashkent.



## Monitoring & Evaluation, Surveillance and OR

### Summary of activities (Year 1-4)

In recent years, the country has made significant progress in the implementation of recording and reporting according to WHO recommendations. A unified electronic and paper-based system for monitoring and evaluation of TB activities is in place, covering all TB facilities and starting with primary health care units in institutions at the national level. Additionally, NTP established a new M&E department which appointed to coordinate TB M&E nationwide and ensure quality data flow.

WHO country office (WHO CO) in Uzbekistan supports NTP on M&E in order to increase capacity of monitoring and evaluation units of NTP in systematic data analysis and using it for operational management on routine basis.

### Major Successes

- NTP's capacity to analyze and use quality data for the management of the TB program was improved in the following ways:
  - TB CARE I conducted a regional training on the basics of monitoring and evaluation for CAR NTPs in April of 2013.
  - Comprehensive training on M&E fundamentals, data processing and analysis was organized for M&E central unit of NTP in September 2013.  
It is expected that knowledge and practice received during a 5-day event improved feedback provided by NTP regularly from central to intermediate level.  
Comprehensive report on recently finished nationwide 2013 Q3 monitoring of TB service, organized by WHO-USAID PARTNERSHIP project, was prepared according to international standards.
- New WHO's "Definitions and reporting framework for tuberculosis – 2013 revision" were introduced during training of national M&E experts to ensure compliance of National M&E system with the global TB data collection system
- Regular supervisory visits and on-the-job training on all aspects of TB control was organized jointly with WHO-USAID "Partnership project for TB control" To provide technical support to pilot sites to ensure quality of TB services in pilot regions. Four rounds of M&E visits were conducted.

### Key Challenges

- Starting from 2015 NTP and Prison medical service will swift to the new platform of M&E reporting, according to the new WHO's "Definitions and reporting framework for tuberculosis – 2013 revision". New WHO definitions should be properly implemented into routine surveillance data management nationwide.
- 

**Photo.** M&E Training for M&E central unit in NTP, Sep 2013, Tashkent



**Photo.** Regional TB CARE I training on M&E: Uzbek participants exchange National M&E Plan specifics with colleagues from Kazakhstan prisons. Almaty, Apr 2013



## **The Way Forward**

Reflecting on TB CARE I results through the lenses of the US Government TB strategy and the Post-2015 Global TB Strategy, there are many lessons to learn from TB CARE I and new approaches to prioritize going forward. Lessons learned from the project and an analysis of strategic priorities for the country are summarized below, which can inform future work and investment in the country.

### **Universal Access**

Main challenges yet to be addressed in the near future have to do with current regulations and funding mechanisms that are focused on hospital, in-patient care, and excessive screening, which make almost the entire population eligible for TB screening. Long hospitalization practices need to be revised and rationalized with the focus on considering the ambulatory treatment from the very beginning of treatment.

Using ambulatory treatment from the beginning in settings without PMDT experience could be risky in correct program implementation, patient management, and drug side effects management. It requires for more gradual transition. Also, there is no specialized psychological service available for TB patients, which could ensure strong patient adherence, specifically during long MDR-TB treatment.

New consolidated order on TB control allowing infectious patients to stay at their homes if TB IC measures are kept needs to be introduced and implemented. There is some resistance from doctors who follow the outdated practices and are against outpatient TB care. Currently this issue is being solved through technical assistance on updating SES TB IC regulations organized by WHO for SES central unit in line with WHO-USAID Partnership project for TB control.

### **Laboratories**

A central TB laboratory network management unit should be established under the NTP with the main tasks to implement and further develop the components of the TB laboratory quality management handbook in the entire network, to organize and standardize procurement procedures, to manage the maintenance of laboratory equipment, to collect, computerize and analyze laboratory data from the network. In light of recent significant MDR-TB treatment scale-up, low diagnostic lab capacity is a major bottleneck in PMDT expansion nationwide.

All Oblast level TB dispensaries and hospitals should be equipped with rapid tests for diagnostics of TB and RR/MDR-TB. Yearly maintenance of all medical and laboratory equipment should be ensured by experienced, comprehensively trained and certified engineers. Respective maintenance capacities in the country should be built. Uninterrupted provision of supplies should be also ensured.

### **Infection Control**

Comprehensive TB IC demands very strong financial investments. Due to facilities' budget limits, NTP agreed that a more cost-effective way to be focused on administrative measures and individual protection is needed.

TB-IC activities plans with budgets should become an essential part of the national and facility level approach on further improvement of TB IC program in all TB facilities in Uzbekistan.

National TB-IC guidelines and SES regulatory documents need to be introduced in TB facilities in remaining regions of Uzbekistan.

Ongoing supervision visits and on-the-job trainings in TB-IC needed to be continued in support the implementation of modern IC standards.

### **PMDT**

Implementation of the national algorithm for TB and M/XDR-TB case finding and diagnosis should be further intensified by training clinicians and laboratory specialists with technical assistance from international partners wherever recommended or needed.

In settings without PMDT experience MDR-TB treatment should be started in specialized hospitals with adequate patient, and drug side effects management. Gradual transition to ambulatory treatment as soon as patients improve is recommended.

Early diagnosis of pre-XDR by testing all MDR patients for SL resistance should be ensured. Implement palliative care of TB patients on PHC and TB facilities country wide.

### **HSS**

Capacity and knowledge of local experts should be continuously improved. Additional funding for developments on TB should be attracted: to improve financial mechanisms for TB service and drug supply.

National strategic plan for delivering PSS for TB patients should be approved, its implementation should be started to ensure good treatment outcomes for all categories of patients.

Social workers as a member of multidisciplinary teams in delivering social and psychological support should be included into staff list of TB facilities. Those persons need to be trained on modern approaches of PSS.

Partnership and decision-making process should be established based on wide discussions with governmental, non-governmental and inter-sector organizations.

Potential HR gaps for TB control should be assessed, and a national HR plan should be developed with short, medium and long term interventions including a financial statement which takes into account the further shift from in- to outpatient treatment.

### **M&E, OR, and Surveillance**

Starting from 2015 NTP and Prison medical service will swift to the new platform of M&E reporting, according to new WHO's "Definitions and reporting framework for tuberculosis – 2013 revision". New WHO definitions should be properly implemented into routine surveillance data management nationwide.

Countrywide a real-time electronic TB-database should introduced covering all integral data, such as clinical data, demographic information, laboratory findings, drug regimens used etc.

## Regional Lessons Learned and Recommendations

- Lengthy MDR-TB diagnostic processes at rayon and inter-rayon level result from a number of factors such as lack of rapid diagnostic methods and challenges in transporting sputum to the bacteriological laboratory of the Oblast TB dispensary (due to deficit of vehicles and large distances); TB suspects must have access to faster diagnostic options through rapid diagnostic methods (Xpert), especially at the rayon level and in PHC settings.
- Since there is no mechanism to transfer the saved resources (from bed reduction) to strengthening of ambulatory treatment the financing automatically dropped too. Long hospitalization practices need to be revised and rationalized with the focus on considering ambulatory treatment from the very beginning of treatment. Expand ambulatory treatment of TB patients in PHC settings by training PHC physicians on TB treatment and management, monitoring of quality of ambulatory treatment, and introducing differentiated remuneration of PHC health professionals according to volume and quality of works.
- At present, patients with chronic incurable TB who do not take TB drugs are recorded in dispensary files and isolated in hospital units for symptomatic treatment of such patients. But the hospital units are absolutely inadequate in terms of infection control. Given the unsatisfactory environment in these hospitals, patients subject to palliative care strongly object to hospitalization until they develop severe complications; this continues the spread of M/XDR-TB. Personnel of these hospitals are not protected from TB infection either and do not get compensation for the high risk of TB and MDR-TB infection nor the psychological and emotional burden. Individual IC plans, palliative care hospital regulations and clinical guidelines on palliative care must be developed. The skills of health professionals from such hospitals also need to be improved.
- Close collaboration between all health workers (TB, PHC, HIV, prison physician, nurses and laboratory personnel), representatives of local governments, community and NGOs, should be established for assurance of qualitative medical services and improving patients adherence to treatment.
- In spite of the high rate of medical personnel turnover, it is crucial to keep all trained specialists in their local working places by means of improvement of working conditions and other kinds of encouragements.

## ANNEXES

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## Annex II: Bibliography of project studies and analyses

### Kazakhstan

#### **Evaluation Of A Psychological And Social Support Model For MDR-TB Patients In East Kazakhstan** (Operational research)

Main aims of the research were:

1. *What are the effects of individualized psychosocial patient support (PSS) are on treatment adherence and treatment outcomes in the region covered by the two PSS groups in 2012, and*
2. *How is the program is appreciated by patients, health care staff and community leaders / local governments in order to assess how it can be improved further.*

Methodology: Data from 2012 collected and analyzed per quarter, divided by patient treatment category (I, II, IV) and Interviews with patients, their families' members and health care staff to obtain insight in satisfaction with and bottlenecks for implementation of the PSS model. A cohort of TB patients registered in 2012 was included in the evaluation. Data were collected prospectively. The study population consisted of all adult TB ( ≥18 years) patients put on anti-TB treatment, registered in 2012, who were inhabitants of the study area within EKO:

Summary of results: Provision of TB treatment regardless good program is still challenge due to intra- / inter- and external factors affecting patients' adherence to prescribed treatment regimen. PSS has been developed as support tool for medical treatment as main reasons for patients to discontinue their treatment is intrapersonal factors like disbelieve and low motivation to continue treatment, interpersonal factors, like miscommunication with HCW and family members and external factors- like money for family needs. Many patients were reported to have social risk factors endangering treatment completion, such as alcohol abuse and drug use. The proportion of patients with these risk factors was higher among MDR-TB patients, hereby explaining the higher proportion in need for support. The results from the PSSG assessment form also show that TB knowledge and motivation to complete treatment needed improvement. Preliminary results from Semei showed that most patients had excellent treatment adherence, but that among patients who interrupted treatment, half of them had interrupted more than once. During the in-patient treatment phase, more patients had missed anti-TB drug doses than among patients treated as out-patient. Both patient and health care worker interviews provided information on satisfaction with and opinions related to the PSS support model and TB care in general. They provided lessons learnt to be used for further general and setting-specific improvements (*full report is available upon request*).

#### **Evaluation of outpatient care in Akmola** (Operational research)

Main aim was to document implementation of the outpatient care model in Akmola through documenting the change in number and proportion of TB patients treated under the full outpatient care (i.e. outpatient care from the beginning or after a short hospitalization period), number and proportion of TB patients who receive social support during outpatient care and also documenting whether implementation of the outpatient care model (outpatient care with social support) leads to changes in treatment adherence and treatment outcomes

Methodology: Data from 2012-2013 collected and analyzed per quarter, divided by patient treatment category (I, II, IV) and Interviews with patients, their families' members and health care staff in the first half of 2014 to obtain insight in satisfaction with and bottlenecks for implementation of the outpatient care model.

Summary of results: The final report will be available at the end of December 2014

## Kyrgyzstan

1. TB patient's satisfaction poll on outpatient care treatment
2. Field test of guidelines on TB among Health care workers
3. Xpert coast effectiveness study
4. Study of risk factors of lost to follow-up of DR-TB patients on second-line treatment
5. Risk factors for late TB diagnostics (patient delay)
6. Risk factors for delay in start of TB treatment (health systems delay)

## Tajikistan

The Operational research "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" conducted in Tajikistan had 2 objectives:

1. To assess risk factors for TB patients loss to follow-up (LTFU) in comparison with patients successfully treated, with a case control design, using paper based existing records.
2. To assess what happens to TB patients loss to follow-up for treatment (alive or death/clinical status) by interviewing those who were lost to follow-up recently.

**Aim of the Operational research** "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" under Objective 1:

The study aimed to assess risk factors associated with loss to follow-up and compare their occurrence with successfully treated (ST) patients. It focused on factors noted in the registers. Therefore, along with a few health facilities related factors, predominantly patient related factors were assessed.

**Methodology of the Operational research** "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" under Objective 1:

A case control design was chosen for the project due to feasibility. The participants were drawn from the registers at all facilities in 20 districts in 4 regions. The sample includes 317 LTFU patients registered in 2011 and 2012 as cases and 628 ST patients as controls. Two controls were chosen for each case. The data was collected from the TB 03/03U and TB 01/01U registers as well as from the patient cards at the facilities. All locations of TB as well as all drug-resistant (DR) and drug-sensitive (DS) cases were included. Multi-drug-resistant (MDR) TB patients were only included for 2011 because MDR TB patients who started treatment in 2012 may still be on it as the treatment course in Tajikistan is 24 month. The Information from the records was directly entered into an electronic datasheet using Epi Data. After completion of data collection the dataset was transferred into IBM SPSS for statistical analysis. The analysis used was Binary Logistic Regression.

**The main findings of the Operational research** "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" under Objective 1:

The majority of patients in the sample were male, between 19 and 40 years and living in rural areas. The majority of patients were sputum smear positive at baseline. The number of MDR TB patients lost to follow-up (n =19) were too small to be separately analyzed.

The Univariate analysis showed an association with lower risk for LTFU for having EPTB (OR 0.51, CI (95%) 0.36 – 0.73), all age groups when compared to the most prevalent age group of 19-40 (0-18 years: OR 0.33, CI (95%) 0.2 – 0.56; 41 – 60 years: OR 0.61, CI (95%) 0.46 – 0.93; >60 years: OR 0.54, CI (95%) 0.32 – 0.93) and Still studying (OR 0.43, CI (95%) 0.22 – 0.84). Positive association was found for having side effects (OR 2.42, CI (95%) 1.48 – 3.96), drug abuse (OR 4.34, CI (95%) 1.08 – 17.5). The multivariate analysis showed a significantly positive association with LTFU for the factors migration to another country (OR 9.1, CI (95%) 6.18 – 13.18), moving within country (OR: 9.02, CI (95%) 3.9 – 20.83) and male sex (OR 1.8, CI(95%) 1.37 – 2.41). Further no sputum smear results at baseline (OR: 0.61, CI (95%) 0.4-0.9) was associated with a lower risk for LTFU.

**Conclusions of the Operational research** "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" under Objective 1:

Migration and Moving within country were the predictors most prevalent with around 50% of patients LTFU migrating out or moving. Therefore implementation of measures to complete treatment may lower numbers of patients LTFU dramatically. Strengthening communication between health facilities within Tajikistan and increase information for patients moving from one region to another about

possibilities to continue treatment are crucial measures in order to support this group of patients in treatment completion. For patient migrating out of country it is important to expand international measures such as the package for TB control and care.

**Methodology of the Operational research** "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" under Objective 2:

This study had an explorative quantitative design. The purposeful convenient sampling was chosen in line with the sampling methods of the first study on LTFU (report 1) to increase comparability and efficiency. The study population consisted of patients LTFU registered for treatment in the included regions in 2013. The expected numbers of patients to be found were estimated based on the numbers of LTFU in 2012 due to lack of treatment outcome data from 2013 at the time of design of the study. The expected number of patients in the registers was 168. Among those roughly 30% (50) were expected to be available for interview. Pre-LTFU information on these patients was taken from the registers. The information on the status of patients after LTFU was obtained by questionnaire based interviews. The patients were interviewed by telephone or visited at addresses noted in the registers and in case of presence and consent interviewed on their situation. Data was entered in SPSS and analyzed by using descriptive statistics.

**The main findings of the Operational research** "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" under Objective 2:

Among the expected 168 patients expected to be LTFU according to national data only 82 (49%) were found in the registers. Among these, according to medical staff, 55% were LTFU due to migration and those were likely to be alive. Twenty interviews with patients or their family members could be conducted. This low number indicates results should be interpreted in a qualitative rather than quantitative way. Nine of those interviewed still had symptoms of whom 5 longer than two weeks and three of those were not on retreatment yet. In total 7 patients started retreatment. Therefore at least 10 patients (50% of those interviewed) still had TB. The socio- economic status of the majority was low with 50% just able to pay for food and 15% not having sufficient food. The knowledge on causes of TB was rather poor, with none of the patients interviewed being aware of bacteria as causing TB. Important reasons mentioned for treatment interruption were perceived treatment to be completed (30%) and stigma (15%).

**Conclusions of the Operational research** "Risk factors associated with loss to follow-up from tuberculosis treatment in 4 regions of Tajikistan" under Objective 2:

The results show that migration to another country, perceived treatment completion and stigma were the major reason for loss to follow-up. At least half the patients LTFU who could be interviewed still have TB. Health staff should be supported to find LTFU patients and assist them to restart treatment. It is also recommended to increase cross border cooperation in TB treatment and control. Further improved health education and social support should be provided to increase treatment adherence. Stigma reduction activities should be developed.

### **Annex III: Bibliography of project tools**

Below is a list of tools that were developed with support from TB CARE I projects in the CAR region from 2010-2014. Please contact the project staff for copies of or links to any of the listed documents.

#### **Kazakhstan**

1. Protocol on organization of full outpatient care and psychosocial support to TB/MDR-TB patients in Akmola oblast
2. National Xpert strategy with algorithm and protocol
3. National Plan for GeneXpert Maintenance and Troubleshooting
4. PMDT training module
5. TB IC training module
6. MDR TB guideline, including 10 PMDT protocols
7. TB IC guideline

#### **Kyrgyzstan**

1. National program Tuberculosis IV on 2013-2016 years
2. National M&E plan
3. National plan of development TB laboratory service with Xpert implementation strategy and Guidelines on Maintenance of laboratory equipment
4. National TB program website: ntp.kg
5. Guidelines and protocol on management of DR TB
6. Guidelines and protocol on management TB in children
7. Guidelines on palliative care of TB patients
8. Guidelines and instructions on TB IC with check list for external monitoring by SES
9. Order on implementation of outpatient care of TB patients in Bishkek city

#### **Tajikistan**

1. Protocol on improvement of ambulatory care and psycho-social support of TB patients in pilot districts of TB CARE I Project (Dangara, Temurmalik) developed for medical providers of district TB Centers in Tajik, English and Russian languages
2. SOP/instruction "Right respirators applications" developed for TB and PHC medical providers in Tajik and Russian languages
3. SOP/instruction "Fit test conducting" developed for TB and PHC medical providers in Tajik and Russian languages
4. SOP/instruction "Use of TB IC measurement equipment" developed for TB and PHC medical providers in Tajik and Russian languages
5. SOP/instruction on TB IC: "Triage of patients in TB facilities of the Republic of Tajikistan" developed for TB and PHC medical providers in Tajik and Russian languages
6. SOP/instruction on TB IC: "Standard Operation Protocol on TB IC measures in ambulatory facilities of the Republic of Tajikistan" developed for TB and PHC medical providers in Tajik and Russian languages
7. Instruction "GeneXpert MTB/RIF introduction in the Republic of Tajikistan" developed for TB and PHC providers in 3 languages (Tajik, English and Russian)
8. Protocol "Organization of collection and transportation of pathological materials for laboratory testing in frame of TB Program of the Republic of Tajikistan (Districts: Dangara, Temurmalik, Rasht, Nurobod, Tojikobod, Jirgital, Tavildara, Baljuvan and Farhor) developed for specialists of TB centers in 3 languages (Tajik, English and Russian)
9. Instruction "Revised definitions and order of filling in of the Reporting-and-Recording TB Forms accordingly to the last WHO recommendations in framework of National TB Program of the Republic of Tajikistan for 2010-2015" developed for TB specialists in 3 languages (Tajik, English and Russian)
10. "National Manual on management of MDR TB patients" was revised, printed in 2 languages (Tajik and Russian)

11. SOPs on Gene Xpert MTB/RIF developed for laboratory specialists in Russian language
12. Manual on palliative care for TB patients developed for TB specialists in 3 languages (Tajik, English and Russian)
13. "Sanitary norms and rules for TB facilities" developed in 3 languages (Tajik, English and Russian).

#### **Uzbekistan**

1. National Consolidated Action plan for 2011-2015, 2012
2. Update to National Consolidated Action plan for 2011-2015, 2013
3. National strategy on Xpert MTB/RIF implementation
4. Protocol on improvement of ambulatory care and psycho-social support of TB patients
5. Guidelines on TB Infection control
6. Guidelines on psychosocial support of TB patients (in collaboration with Partnership for TB control)
7. Consolidated order on TB control (in collaboration with Partnership for TB control)

## **Annex IV: Bibliography of project educational materials**

Below is a list of educational materials that were developed with support from TB CARE I projects in the CAR region from 2010-2014. Please contact the project staff for copies of or links to any of the listed documents.

### **Kazakhstan**

1. PMDT training module
2. TB IC training module

### **Kyrgyzstan**

Training modules on:

1. Program management of DR TB for doctor and nurses
2. Management TB in children
3. Infection control
4. Palliative care of TB patients
5. Guidelines on TB country wide for doctors and nurses. It is implemented in postgraduate medical institute.

### **Tajikistan**

1. Poster on improvement of ambulatory care in pilot districts, developed in Tajik, English and Russian languages
2. Poster on GeneXpert implementation in pilot districts, developed in Tajik, English and Russian languages
3. Poster on PMDT implementation in TB CARE I pilot sites, developed in Tajik and Russian languages
4. Placard "Hygiene of cough", developed for general population in Tajik and Russian languages
5. Placard "Right use of respirators", developed for TB and PHC providers in Tajik and Russian languages
6. Placard "TB IC measurement equipment", developed for TB and PHC medical providers in Tajik and Russian languages
7. Twelve training modules on TB IC for target medical workers: PHC and TB specialists, laboratory assistants, paramedical staff of TB and PHC facilities in Tajik and Russian languages
8. Training materials for trainings on GeneXpert MTB/RIF, developed for TB and PHC medical providers in Russian language
9. Training module for Trainers "Management of MDR TB patients" developed for TB specialists in Russian language
10. Placard "Rapid laboratory TB diagnosis tools – GeneXpert testing" developed for general population in Tajik and Russian languages
11. Placard "Rapid laboratory TB diagnosis tools – GeneXpert testing" developed for medical providers in Tajik and Russian languages.

### **Uzbekistan**

1. Training modules on:
  - Programmatic management of DR TB
  - psychosocial support of TB patients
2. Training materials for trainings on Xpert MTB/RIF, developed for TB and PHC medical providers
3. Training materials for trainings on TB infection control, for TB medical providers
4. Brochure "TB is curable", developed for TB patients , including prisons

## Annex V: Performance Monitoring Plans

Below is a list of performance monitoring plans (and results) per country and year that accompany this report.

### Kazakhstan

	Outcome Indicators	Year 1		Year 2		Year 3		Year 4		Comments
		Target	Result	Target	Result	Target	Result	Target	Result	
<b>Universal Access</b>	Percent of (MDR) TB patients put on full outpatient care in Akmola and East Kazakhstan regions	10%	25%	27%	491/1,534 (32%)	30%	268/983 (27%)	30%	167/548(30%)	Outpatient model of the Akmola oblast started from developed disciplinary group and developed the protocol on the outpatient model of care for Akmola in 2012. Thanks to this, TB CARE I met the target – 30% of MDR TB patients were put on full outpatient care in APA4
	National policy document on outpatient care introduced at national level							No	Yes	Ministry of Health and National TB Program took Akmola pilot as a model for scale up in the country and included in the Kazakhstan National Strategic Plan for 2014 – 2020 (approved in May 2014)
	Percent of MDR TB patients in prisons put on SLD treatment	30%	30%	45%	45%	60%	60%	85%	85%	
<b>Laboratories</b>	Ensured optimal use of new approaches for laboratory confirmation of TB and incorporation of these approaches in national strategic laboratory plans			4 GeneXpert machines and 2,880 cartridges were procured for pilot sites: Almaty city TBD, NRL, Akmola and East Kazakhstan						
	Rapid tests conducted			5,900	5,906 (100%)	6500	7573 (116%)	5500	6435 (117%)	The number of Xpert tests decreased from 7,573 in APA3 to 6,435 in APA4 since Xpert testing was not conducted for 1.5 months in Akmola oblast TB dispensary due to the issues with equipment and in Almaty city TB dispensary – only 3 modules out of 4 worked. Also additional Xpert machines were

									installed in Semey (EKO region) and Talgar (Almaty oblast), supplied by GF.
	Patients diagnosed with GeneXpert		TB 38% RIF res 48	TB 2,302 (39%) RIF res 46,9%	TB - 42% RIF res -50%	TB - 2,936 (42%) RIF res - 50%	TB - 44% RIF res 48%	TB - 2,082 (44%) RIF resistance 965 (46%)	The MTB positivity rate was lower than it was planned, because these: Despite clear description of risk groups eligible for Xpert MTB/RIF testing and risk assessment procedure, the quality of patients' selection is still questionable particularly at the district level because clinicians do not fully understand the basis of Xpert MTB/RIF test.
<b>Infection Control</b>	TB-IC measures included in the overall national IPC policy						no	Yes	SES regulatory documents (such as SanPin, government order# 309) have been revised, and is still awaiting MoH approval
	"FAST" strategy has been adapted and adopted						NO	Yes	Two TB facilities in EKO and four TB facilities in Akmola (50%) are implementing FAST strategy
	Facilities implementing TB IC measures with TB CARE support				18 in EKO and 23 HCWs in Akmola	18 HCWs in EKO and 23 HCWs in Akmola oblast from TB service and SES were trained in TB IC risk assessment and facility IC plan development	12	12 TB facilities of Akmola and EKO implementing IC measures	
	National TB-IC guidelines that are in accordance with the WHO TB-IC policy have been approved				No	No	No	No	National TB IC guidelines introduced in all TB facilities of Akmola and EKO oblasts but not still approved by the MoH

<b>PMDT</b>	XDR TB protocol on diagnostic, treatment and care developed		No	Yes				
	Training module on M/XDR TB care developed		No	Yes				
	MDR TB guidelines revised and adapted <i>MDR TB patients put on SLD treatment</i>		No	Yes				
					Akmola oblast - 90% EKO - 90%	Akmola oblast - 90% (396/440) EKO - 90% (702/780)		
<b>HSS</b>	People trained using TB CARE I funds		8	6 (male 2, female 4) (100%)	182	182 (100%) (male 59, female 123)	536	539 (male 136, female 403) (101%)
<b>M&amp;E, OR, and Surveillance</b>	Development of the national M&E plan				No	Yes		
	<i>The percentage of penitentiary institutions with validated electronic data in a quarter</i>						85%	29/35 (100%)
	<i>The percentage of oblast TB facilities using the national electronic M&amp;E system for implementation of the National Strategic Plan.</i>						17	100% (17/17)
	OR study results disseminated				1	1 (100%)	2	2 (100%)

Kyrgyzstan.

TB CARE I Monitoring and evaluation indicators: APA1 (6 month)-APA4

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline	Target	Result	Baseline/ Y1	Target	Result	Baseline/ Y2	Target	Result	Baseline/ Y3	Target	Result
				Y1	Y1		Y2	Y2		Y3	Y3		Y4	Y4
<b>Universal Access</b>														
Increased quality of TB services, delivered among all care providers (Supply)	Prison with DOTS	Coverage of prisons providing DOTS #				2/3 (66%) (2011)	1 (100%)	1(100%)						
	Outpatient care model approved and implemented	Protocol on outpatient model of care (approved). Value: Yes/No				no (2011)	yes	no						
	Transition from prison to civil sector to continue TB treatment	Hand- over of ex-prisoners to civil sector represent.: MoH, Social protection ministry, MIA, local and municipal governments and NGOs								0 (2012)	10	10		
	Implementation of outpatient care	Status of the ambulatory care model. Value: 0,1,2,3								1 = The country has piloted at least one outpatient care interventions (2012)	2 = The country has a outpatient care model	2 = The country has a outpatient care model		
	<i>Outpatient care model implemented in new project sites (Bishkek)</i>	# of PHC facilities in Bishkek city with implemented outpatient care model.										2(10%)	8 FMC/10 (in two rayons; 53% from 19 in total)	6 FMC/8 Family Medicine Centers (75%)

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline	Target	Result	Baseline/ Y1	Target	Result	Baseline/ Y2	Target	Result	Baseline/ Y3	Target	Result
				Y1	Y1		Y2	Y2		Y3	Y3		Y4	Y4
		Value: # sites												
<b>Laboratories</b>														
	Ensured quality of laboratory testing to support the diagnosis and monitoring of TB patients	A national strategic plan developed and implemented for providing the TB laboratory services							0 (2012)	2= LAB annual implementation plan and budget is available for the current year	2	2	2	2
	Ensured optimal use of new approaches for laboratory confirmation of TB. plans	Xpert strategy developed and included into the National Laboratory plan				No (2011)	yes	yes						
		Diagnostic sites offering advanced technologies for TB or drug-resistant TB							3 (2012)	7	7	0	0	2 (additional Xpert sites)

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline	Target	Result	Baseline/ Y1	Target	Result	Baseline/ Y2	Target	Result	Baseline/ Y3	Target	Result
				Y1	Y1		Y2	Y2		Y3	Y3		Y4	Y4
<b>Infection Control</b>														
	Increased TB IC Political Commitment	National TB-IC guidelines that are in accordance with the WHO TB-IC policy have been approved				no	yes	no	no (2012)	yes	yes			
		TB-IC measures included in the overall national IPC policy										no	yes	yes
	Scaled-up implementation of TB-IC strategies	Facilities implementing TB IC measures							0 (2012)	7/28	7/28 (100%)	7	13/21	13/21 (100%) total implementation in 20 TB facilities out of 28
		"FAST" strategy has been adapted and adopted										2 = "FAST strategy" has been piloted (13 facilities)	2	2
	Strengthened TB IC Monitoring & Evaluation	Training on TB IC M&E conducted	0	12	16 (<100%)									

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline	Target	Result	Baseline/ Y1	Target	Result	Baseline/ Y2	Target	Result	Baseline/ Y3	Target	Result
				Y1	Y1		Y2	Y2		Y3	Y3		Y4	Y4
		M&E and skilled in use of IC equipment												
Improved TB-IC human resources	Training of trainers on TB IC conducted	A team of trained trainers in TB IC is available. Value: # of people				0	yes	Yes (16)						
<b>Programmatic Management of Drug-Resistant TB (PMDT)</b>														
Improved treatment success of MDR TB	MDR TB patients who have completed the full course of MDR TB treatment.	MDR TB patients who have completed the full course of MDR TB treatment regimen and have ss-							42.2 (545/230) 2009	50 2010	51.5 (441/227) 2010			
	A functioning National PMDT coordinating body	National PMDT coordinating body has been established, recognized by the MoH. Value: # of bodies							Yes (1 National PMDT coordination body, 2012)	Yes (decentralization)	Yes (4 PMDT bodies)	Yes (4 PMDT bodies)	Yes (decentralization)	Yes (11 PMDT bodies)
Improved X/MDR TB management in children	Guidelines on TB in children are being developed	Value: yes/no				no	yes	yes (approved by MoH)						
<b>Health System Strengthening</b>														
TB control components (UA,LAB, TB IC, PMDT, M&E,OR)	Health care workers at all levels trained	Health care workers at all levels trained. Value: # of people				5 (2011)	62	50 (80%)	50 (2012)	342	283 (82%)	238	337	471 (140%)

Expected Outcomes	Outcome Indicators	Indicator Definition	Baseline	Target	Result	Baseline/ e/ Y1	Target	Result	Baseline/ Y2	Target	Result	Baseline/ Y3	Target	Result
				Y1	Y1		Y2	Y2		Y3	Y3		Y4	Y4
<b>Monitoring, Evaluation &amp; Surveillance</b>														
	Improved capacity of NTPs to analyze and use quality data for the management of the TB program	NTP provides regular feedback from central to intermediate level							No (2012)	yes	yes			
		OR study results disseminated										0	3	4 (130%)

## Tajikistan

TA	Outcome Indicators	Year 1		Year 2		Year 3		Year 4		Comments
		Target	Result	Target	Result	Target	Result	Target	Result	
<b>Universal Access</b>	Coordination mechanism between civil and prison TB services exist			Yes	No					The draft Interagency Plan on TB control program coordination between general and prison TB services was developed and submitted to Thematic Working Group for further consideration.
	Development of the Protocol of outpatient model of care including patient support system Indicator			Yes	No					In APA2, the analysis of site capacities and needs for piloting outpatient model of care was performed for pilots sites (Dangara, Temurmalik). Given the late start of the program, it was only possible to conduct an initial review of outpatient care in APA2.
	Analysis of legal basis on access to TB service for migrants									All activities scheduled on APA 2 related to TB in migrants were cancelled at the request of NTP and MOH, which do not consider it a priority for TB CARE, citing involvement of other partners, including IOM.
	Childhood TB approach implemented					3	3			In APA3 it was planned to develop childhood TB protocol and train pediatricians, TB and PHC doctors on developed protocol. However, this activity was canceled due to the fact that the childhood TB protocol was recently developed by MSF, and NTP made a decision to incorporate this protocol into NTP Childhood TB Guideline. TB CARE I facilitated childhood TB trainings for TB clinicians and family physicians from national and oblast levels.
	Protocol on Outpatient Care developed and implemented in pilots					Yes	Yes			TB CARE I supported development of the "Protocol on Strengthening TB/MDR-TB Patients' Outpatient Care and Provision of Psychosocial Support of Patients in TB CARE I Project Sites". The protocol was developed and approved by NTP (Order #12, July 15, 2013)

	Number of TB/MDR-TB patients put on outpatient care in TB CARE pilots					320 (66%)	274 (58% out of 472 TB and MDR-TB patients registered in TB CARE I pilots in APA3)			Temurmalik – 47 (47 TB/0 MDR-TB), Dangara – 79 (72 TB/7 MDR-TB), Rasht – 35 (35 TB/0 MDR-TB), Nurobod – 20 (20 TB/0 MDR-TB), Tavildara – 9 (9 TB/0 MDR-TB), Tojikobod -56 (54 TB/2 MDR-TB) and Jirgital -28 (28 TB/0 MDR-TB). Due to the fact that implementation of outpatient care started at the end of July 2013 (after approval of Protocol on Outpatient Care and PSS by NTP) the target was not reached. Implementation activities will be done in APA4.
	Number of TB cases (all forms) diagnosed in children 0-4						20 (estimated number of diagnosed children (0-4) in 9 TB CARE I pilots districts)	35		Measured annually: 35 is the number of TB cases (all forms) diagnosed in children 0-14
	Percent of (MDR) TB patients put on full outpatient care in TB CARE I pilots						Dangara – 50% MDR TB patients put on full outpatient care, Temurmalik – 45% MDR TB patients put on full outpatient care Rasht area – 30% MDR TB patients put on full outpatient care 2 new TBD – 30% MDR TB patients put on full outpatient care	Percent of MDR TB patients put on full outpatient care in 9 TB CARE I pilots in APA4: Dangara – 45% (4/9); Temurmalik – 33% (3/9); Rasht area (5 districts) – 58.3% (7/12): (Rasht – 100% (2/2); Tojikobod – 100% (1/1); Nurobod – 20% (1/5); Jirgital – 75%(3/4); Tavildara – 0%); 2 new TB CARE I pilots in Khatlon	44,4 % (24/54) of MDR TB patients put on full outpatient care in 9 TB CARE I pilots in APA4	

									Region: Farhor – 36.3% (8/22); Baljuvan – 100% (2/2) <b>Total: 44,4%</b> (24/54)	
	Percent of (MDR) TB patients receiving patient support (TB CARE I supported)							100% (100 MDR TB patients from TB CARE I pilot sites)	100% (100 MDR TB patients from TB CARE I pilot sites)	
<b>Laboratories</b>	Set up a system for Xpert MTB/Rif implementation in the country			Yes	No					Strategy for Xpert MTB/Rif implementation in Tajikistan is close to being finalized and will be submitted to NTP in October 2012
	Diagnostic sites offering advanced technologies for TB or drug-resistant TB					5	5			1 site (Rasht district) has 1 functional Xpert machine, installed with TB CARE I support. This machine supports 5 pilot sites (Rasht, Tojikobod, Nurobod, Tavildara and Jirgital) in Rasht area.
	Rapid tests conducted							Xpert MTB/RIF in Rasht – 2,000 tests	Number of rapid tests conducted in APA4 is 1268 (1250 for presumptive New TB and 18 for presumptive MDR TB)	Xpert MTB/RIF tests conducted by one Xpert MTB/RIF machine installed in TB CARE I pilot site (Rasht)
	Patients diagnosed with GeneXpert							Patients detected with Xpert MTB/RIF in Rasht area:  TB - 80 RIF resist - 32	Number of patients detected with Xpert MTB/RIF in Rasht area in APA4: For presumptive New TB cases: TB - 80 RIF resist – 11 For presumptive MDR TB cases: TB – 4 MDR TB - 3	
<b>Infection Control</b>	Revised National TB-IC plan and addressed TB-IC			Yes	No					The National TB-IC plan has been developed recently (end of 2011) by NTP and PIU UNDP. Therefore,

	activities in prisons									the revision of the National TB-IC Plan was cancelled
	A team of trained trainers in TB IC is available			Yes	No					Due to the delay in starting TB CARE in Tajikistan some activities, including the training of trainers on TB IC, were not completed and had to be carried over to APA3
	Revision of Normative documents on TB-IC					2	1			TB CARE I supported NTP in reviewing the existing national TB-IC normative documents. A report was prepared and the results from the review were presented in a TWG meeting. In spite of this fact, NTP did not initiate the process of the revision of the existing TB-IC normative documents.
	Facilities implementing TB-IC measures with TB CARE support					7	7			
	Regular monitoring visits from central level conducted					15	12 (80% of target)			To ensure consistent quality of TB CARE I technical assistance the numbers of health facilities to be visited in APA3 were reduced to 12. The rest TB health facilities will be visited within APA4.
	Number of medical specialists trained on TB-IC in pilots based on new Guideline on TB-IC					60	64 (55 males/9 females)			
	Facilities implementing TB-IC measures with TB CARE support							9	9	
	Strengthened TB-IC Monitoring & Measurement							13 (100%)	13 (100%)	
<b>PMDT</b>	PMDT in civil TB service and prisons has been assessed			Yes	Yes					
	Number of medical specialists trained on PMDT in pilots					228	254 (188 males/66 females)			
	Number of facilities in which regularly PMDT monitoring					12	12			

	visits conducted					73	n/a				In TB CARE I pilots Dangara and Temurmalik, enrollment of MDR-TB patients in treatment was started in July 2012. In five districts of Rasht area, this process became possible in August 2013 after arrival of SLDs in July 2013. Now all enrolled patients are still under the treatment and have not completed the full course of MDR-TB treatment.
	MDR-TB patients who have completed the full course of MDR-TB treatment regimen and have a negative sputum culture										
	Number of MDR cases diagnosed							60	70		Number of MDR TB cases diagnosed in 9 TB CARE I pilots in APA4 is 75
	Number of MDR cases put on treatment							Dangara, Temurmalik – 35 (80)% in 2013 Rasht area (Rasht, Nurabad, Tojikobod, Tavildara, Jirgital) -15 (100)% in 2013 2 new district (TBD)-0% - 2013	Dangara, Temurmalik – 100%, Rasht area (Rasht, Nurabad, Tojikobod, Tavildara, Jirgital) – 100%, 2 new district (Farhor, Baljuvan) – 100%		Total number of MDR TB cases put on treatment in APA 4: Dangara - 14 (100%), Temurmalik – 12 (100%), Farhor 26 (100%), Baljuvan – 5 (100%), Rasht – 2 (100%), Nurabad – 8(100%), Tojikobod – 3 (100%), Tavildara - 0, Jirgital – 5 (100%)
	MDR TB patients who have completed the full course of MDR TB treatment regimen and have a negative sputum culture							70%	75% (12/16)		
<b>TB/HIV</b>	TB/HIV care in civil and prison sectors has been assessed in the last year			Yes	Yes						
<b>HSS</b>	Supervisory visits conducted according to country supervisory standards			100% (2 out of 2 planned )	0%						Supervisory visits on TB control in prisons were cancelled due to fact that many other agencies are involved in prisons, and MoH recommended that TB CARE I focus more on other component of TB

										control.
	People trained using TB CARE funds People trained using TB CARE funds			68	68 health professionals (47 females and 21 males) were trained					
	TB CARE-supported supervisory visits conducted					54	28 (52% of target)			Some visits were combined (visits on PMDT with Xpert, monitoring on outpatient care with visits on psychosocial support). Monitoring visits on outpatient care and psychosocial support were postponed due to late approval of the protocol.
	TB CARE-supported supervisory visits conducted							90 (10 visits to 9 sites)	78	
	People trained using TB CARE funds							885	915	
<b>M&amp;E, OR, and Surveillance</b>	An electronic recording and reporting system for routine surveillance exists at national and/or sub-national levels			Yes	No					In APA 2 Due to the delayed start of TB CARE in Tajikistan, the activities under this technical area were not completed and had to be carried over to APA3.
	Recording and reporting system (paper-based) for routine surveillance exists at national, oblast and district levels, revised according to latest WHO recommendations and approved by MoH					3	3			In order to follow up the request from NTP to facilitate the process of revision of definitions and R&R forms in accordance with WHO recommendations, TB CARE I conducted four TWG meetings in August-September 2013. The draft of the instruction on data collection based on revised R&R forms will be finalized and submitted to NTP in November, 2013
	Number of NTP staff trained on conducting operational research					15	15 (3 males/12 females)			

	Data quality measured by NTP							80%	80%	
	R&R forms revised according to latest WHO recommendations							Yes	Yes	

Uzbekistan

**TB CARE I Monitoring and evaluation indicators: APA2 (6 month)-APA4**

TA	Outcome Indicators	Year 1		Year 2		Year 3		Year 4		Comments
		Target	Result	Target	Result	Target	Result	Target	Result	
Universal Access	Coordination mechanism between prison and civil TB services			Yes	Yes					
	Medium term plan for implementation of integrated framework for TB control in prisons			Yes	Yes					
	Transitional care mechanism			Yes	Yes					
	Pilot regional model for outpatient care			Yes	Yes					
	Percent of (MDR) TB patients enrolled in outpatient care under TB CARE I model.					10%	0%			In APA3 TB CARE I supported development of outpatient treatment protocol with psycho-social patient support model. Developed protocol was included into MOH's consolidated order on TB control submitted for approval in September 2013 Enrollment of TB patients in outpatient care under TB CARE I model will be started after approval of the consolidated order (expected in November 2013).
	National policy document on outpatient care introduced at national level							Yes	Yes	
	Percent of TB and MDR-TB patients enrolled in outpatient care under TB CARE I model in Samarkand region.							20% TB (406/2032) MDR TB (120/600)	0% (APA4)	Developed protocol was included into MOH's consolidated order on TB control approved in Nov Oct 2014 Enrollment of TB patients in outpatient care under TB CARE I model is being started from 1 Dec 2014
Laboratories	A system for Xpert MTB/Rif implementation in the country has been developed			Yes	Yes					
	Number of diagnostic sites, in which GeneXpert MTB/RIF, HAIN MTBDRplus or liquid culture/DST are implemented and routinely used for diagnosis, stratified by					5 GeneXpert	5 GeneXpert			

	testing type.									
	Number of rapid tests conducted using GeneXpert					5000	9000	20000	23808	NTP conducted more rapid tests than expected than when indicator targets for APA3 were developed (August 2013)
	Patients diagnosed with GeneXpert					80% (4000 of 5000) Rif-R 25% (1000 of 4000)	Roughly MTB+ estimated rate: 22% ,Rif-R estimated rate 40%	35% (2800 out of 8000) RIF res-40% (1120 out of 2800)	30.1% (908 out of 3011) RIF res-38.2% (347 out of 908)	In the summer 2012 when the APA3 proposal was submitted, the positivity rate among those tested by Xpert MTB/RIF GeneXpert was overestimate since there was no real experience on Xpert MTB/RIF. Machines were launched in September 2012, and in initial stage a lot of cartridges were lost due to unstable electricity and lack of experience on choosing a priority group for testing etc.
	Diagnostic sites offering advanced technologies for TB or drug-resistant TB							Ten Xpert sites offering advances technologies for TB / DR-TB	21 Xpert sites offering advances technologies for TB / DR-TB	
<b>Infection Control</b>	National TB IC guidelines have been approved and disseminated in accordance with the WHO TB IC policy							Yes	Yes	
	Facilities implementing TB IC measures with TB CARE support					6	6	4	4	
	Personnel trained on TB IC					70	76			
<b>PMDT</b>	An improvement plan for PMDT including prisons has been developed and approved.			Yes	Yes					
	A functioning National PMDT coordinating body					Yes	Yes			
	Number of MDR cases diagnosed							4,000	5,754	
	Number of MDR cases put on treatment							3,800	2,647	
<b>HSS</b>	Supervisory visits conducted according to country supervisory standards			100% (2 out of 2 planned)	% (0 out of 2 planned)					Due to the late signing of the MoU between WHO and MOI (signed in September 2012), the activity was not implemented.
	People trained using TB CARE funds			122	122	434	464	506	651	

<b>M&amp;E, OR, and Surveillance</b>	The surveillance and M&E system in prisons has been assessed and results have been disseminated			Yes	Yes						
	NTP provides regular feedback from central to intermediate level					Yes	Yes				
	The M&E definitions adopted in nationwide (in accordance with the latest recommendations of the WHO							100% (15 out of 15 regional facilities)	100% (15 out of 15 regional facilities)		

## **Annex VI: List of electronic datasets collected using TB CARE I funds**

### **Kazakhstan**

APA 1-APA4 workplans including all technical interventions  
Assessments/Studies, Tools  
Quarterly and annual reports  
Success stories  
Photos

### **Kyrgyzstan**

APA 1-APA4 workplans including all technical interventions  
Assessments/Studies, Tools  
Quarterly and annual reports  
Success stories  
Photos

### **Tajikistan**

APA 1-APA4 workplans including all technical interventions  
Assessments/Studies, Tools  
Quarterly and annual reports  
Success stories  
Photos

### **Uzbekistan**

APA 1-APA4 workplans including all technical interventions  
Assessments/Studies, Tools  
Quarterly and annual reports  
Success stories  
Photos

## Annex VII: List of project success stories & communication materials

### Kazakhstan

1. First person "USAID helps TB patients to be successfully treated"
2. First person "Xpert machines allow for Life-Saving Rapid Diagnosis of MDR TB"
3. Case study "Improved Conditions Reduce TB among Prisoners"
4. USAID's pilot of TB diagnostic test results in Country-Wide Scale Up
5. Case Study "New Patient Centered Model Successfully Expands Outpatient Tuberculosis Care in the Akmola Region"
6. Kazakhstan National MDR TB Guidelines Championed by TB CARE I

### Kyrgyzstan

1. Outpatient Tuberculosis Treatment Makes Recovery Easier
2. First Person "Treatment of a MDR-TB patient supported by a new approach"
3. Before and After "Introducing Tuberculosis Infection Control Saves Lives"
4. Improved Infection Control Practices Lead to Safer Hospital Environments for Patients and Health Care Workers

### Tajikistan

1. Case study "Hope raised in Rasht", USAID improves access to multi drug resistant tuberculosis treatment in remote areas, 2013
2. First person, "Fighting stigma and saving lives", USAID helps to reduce stigma in remote communities by raising awareness on proper and timely treatment of tuberculosis, 2013
3. Success story "Community Engagement Improves Tuberculosis Treatment Adherence", Social services offer incentive for patients to follow care regimen, 2014
4. Success story "Successes achieved in the ambulatory treatment of patients with drug resistant TB".

### Uzbekistan

1. Success story "USAID Reduces Hospital-Based Transmissions of Tuberculosis (TB)".
2. Success story "USAID supports Uzbek Ministry of Health Learning Exchange to Kazakhstan"
3. Success story «USAID Employs Innovative Technology to Fight Tuberculosis in Uzbekistan»
4. Success story «USAID-Developed Guidelines on Treating Multi-Drug Resistant Tuberculosis Adopted»
5. Success story «USAID Reduces Hospital-Based Transmissions of Tuberculosis (TB)»
6. Success story «USAID Assists the Ministry of Health Adopt National Tuberculosis Infection Control Guidelines»