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TB CARE I

TB CARE I - Cambodia

Year 3

Annual Report

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List of Abbreviations

ACF	Active case finding
CDC	Centers for Disease Control
CHC	Cambodia Health Committee
C-DOTS	Community based directly observed treatment, short course
CENAT	National Center for Tuberculosis and Leprosy Control
DOTS	Direct Observation TB Treatment, Short course
DST	Drug Susceptibility Testing
DW	DOT Watcher (community volunteer)
EQA	External Quality Assurance
FHI 360	FHI 360 (previously Family Health International or FHI)
GDP	General Department of Prisons
HC	Health Center
HCW	Health Care Workers
HIV	Human Immunodeficiency Virus
HSS	Health System Strengthening
IPT	Isoniazid Preventive Therapy
JATA	Japan Anti-TB Association
KNCV	KNCV Tuberculosis Foundation
MDR-TB	Multi-drug resistant TB
MSH	Management Sciences for Health
NCHADS	National Centre for HIV, AIDS and Dermatology Services
NGO	Non-Governmental Organization
NTP	National TB Programme
OD	Operational District
OR	Operational Research
MoH	Ministry of Health
PMDT	Programmatic Management of drug-resistant TB
PPM	Public Private Mix
QI	Quality Improvement
SMS	Short Messaging Services
SRL	Supra-national Reference Laboratory
TB	Tuberculosis
TB-IC	Tuberculosis- Infection Control
TWG	Technical Working Group
USG	United States Government
USAID	US Agency for International Development
WHO	World Health Organization

Executive Summary

TB CARE I is a 5-year program (2011-2015) awarded by the United States Agency for International Development (USAID) to a consortium led by the KNCV Tuberculosis Foundation (KNCV). In Cambodia, TB CARE I was launched in January 2011 and is implemented by FHI 360, Japan Anti TB Association (JATA), KNCV, Management Sciences for Health (MSH), and the World Health Organization (WHO). The overall goal of TB CARE I in Cambodia is to contribute to the NTP goal of halving TB prevalence and death rates in Cambodia by 2015 (relative to the 1990 baseline), consistent with the Global Plan to STOP TB. Highlights of TB CARE I achievements in 2013 are summarized below.

Childhood TB: In 2012, around 96% of all childhood TB cases were classified as extra-pulmonary TB, mainly clinically diagnosed cervical lymphadenitis. TB CARE I made intensive effort to improve this through capacity building and introduction of new diagnostic algorithms. The proportion of pulmonary TB diagnosed among children in project sites increased from 19% during Jan-Feb 2013, to 21 % in Apr-June 2013, and 22% in Jul-Sept 2013. During the year, 19,335 children (0-14 years) were referred from health centers to referral hospitals for diagnosis in the 27 ODs supported by TB CARE I, 2,889 (15%) of whom were diagnosed with TB and started on treatment.

INH preventive therapy (IPT): This year saw good progress in providing IPT for children ruled out to have TB. In 2012, 220 children were registered for IPT, 213 (96.8%) of whom completed the six months course of treatment, 1 (0.5%) developed TB, and 6 (2.7%) defaulted due to family migration. In 2013, 682 children have so far been enrolled on IPT, 68 children completed six month course of IPT while the remaining 614 are continuing their treatment.

Programmatic Management of drug-resistant TB (PMDT): TB CARE I collaborated with CENAT to conduct intensified screening of multi-drug resistant TB (MDR-TB) suspects through active identification and testing of all registered TB patients meeting the eligibility criteria for MDR-TB. As a result, 117 MDR-TB patients were diagnosed in 2012 - double compared to the 56 MDR cases diagnosed in 2011. 94% (110/117) of the MDR-TB patients diagnosed in 2012 were put on treatment. In addition, on-going supervision is being conducted to cover all 24 provinces and at least six MDR-TB treatment sites every quarter, including visits by supervisors to patients' homes every 15-30 days.

Prisons: TB/HIV services were expanded from 7 to cover 10 prisons in the country. 122 (2.6%) TB cases were diagnosed among the 4,583 prison inmates (2,662/100,000), while treatment success rate of 90% was achieved in the 10 TB CARE I supported prisons. In addition, TB CARE I conducted mass screening of inmates and staff of ten prisons using chest x-ray, sputum examination and Xpert MTB/RIF assay. 108 of 5,669 (1.8%) screened were diagnosed with TB and initiated on treatment.

SMS: The pilot SMS alert system to deliver results of sputum smears was expanded to cover all 38 health centres and TB laboratories in two ODs -Kampong Cham and Chamkar Leu. The average turnaround time from the day the health centre sends the sputum smear to the lab to the day results are returned was 4 days (range: 0-15 days) in 2013 compared to 7 days in 2012. 98% (3330/3387) of the smears registered in the system had complete results sent back to the health centres. 80% (2669/3330) of the sputum smear results in the system were returned in ≤ 5 days in 2013. An improvement introduced in the system now enables HC and lab staff to send SMS out in a package instead of individual text messages. In addition, a new SMS system enabling public health facility staff to provide feedback on patients referred by private providers was introduced.

National Strategic Plan: TB CARE I is supporting development of the next national strategic plan for TB control (2014-2020) based on the joint program review conducted in 2012 and in consultation with all stakeholders. The new plan incorporates new evidences on effective implementation strategies and

will help the country for resource mobilization from all possible funding sources, particularly from the new funding mechanism of the Global Fund.

Knowledge exchange: Eight abstracts, including two oral presentations, submitted by TB CARE I Cambodia staff have been accepted for the 44th Union World Conference on Lung Health to be held in Paris from 30th October to 3rd November 2013.

Introduction

Cambodia has made impressive achievements in relation to TB control, well documented through repeated national TB prevalence surveys in 2002 and 2011 showing a 46% reduction in bacteriologically positive cases over this nine year period.¹ However, given the historically high TB disease burden in Cambodia, the country continues to have one of the highest incidence and prevalence rates in the world. The National Centre for Tuberculosis and Leprosy Control (CENAT), under the Ministry of Health, is coordinating and managing TB activities in the country. Health care is provided through more than 1,200 public health facilities in the 24 provinces and 77 Operational Districts (OD) of the country.

TB CARE I is one of the main mechanisms for implementing the United States Agency for International Development (USAID) TB strategy, awarded to a coalition led by the KNCV Tuberculosis Foundation. It is a 5-year program aimed at building and expanding upon previous programs, particularly the Tuberculosis Control Assistance Program (TB CAP 2005-2010).

The five coalition partners implementing TB CARE I in Cambodia are FHI 360 (previously called FHI), Japan Anti TB Foundation (JATA), KNCV Tuberculosis Foundation (KNCV), Management Sciences for Health (MSH), and the World Health Organization (WHO). Three of the five partners – FHI 360, JATA and WHO - have local offices in Cambodia, and the main TB CARE I office is based at the National Center for TB and Leprosy Control (CENAT). Overall management of the TB CARE I Cambodia project is by the core team from FHI 360, JATA and WHO which are based in Cambodia, with back stopping support from the Project Management Unit/KNCV and respective HQ offices as required. The team, led by the Project Director from FHI 360, is responsible for overall leadership, management and successful implementation of the project in Cambodia.

The overall goal of TB CARE I in Cambodia is to contribute to the NTP goal of halving TB prevalence and death rates in Cambodia by 2015 (relative to the 1990 baseline), consistent with the Global Plan to STOP TB. TB CARE I program in Cambodia was launched in January 2011. Overall guiding principles for implementing TB CARE I in Cambodia are:

- To align with the National Strategic Plan for TB Control 2011-2015 and USAID TB strategy
- Focus on technical assistance (TA) at the national level, and through collaboration with other USAID funded TB partners wherever possible
- Introduce innovations and implement pilots or demonstration projects introducing the new diagnostic technologies and concepts
- Scale up initiatives piloted or introduced through previous TBCAP project

TB CARE I plans to achieve its objectives by focusing on seven key technical areas (TAs):

1. Universal and Early Access
2. Laboratories and improved diagnosis
3. Infection Control
4. Programmatic Management of drug-resistant TB
5. TB/HIV
6. Health Systems Strengthening
7. Monitoring and Evaluation (M&E), Operational Research, and surveillance

Typically, each of the TB CARE I partners implement activities related to their areas of expertise to add value to overall implementation of the project. Geographic coverage differs between activities which are also quite comprehensive, so a large part of the country is covered by one or more activities.

¹ CENAT/NTP: Report of the Second National Tuberculosis Prevalence Survey in Cambodia. 2012

TB CARE I has made substantial investments to improve case finding including by improving access to services for children and prison inmates, engaging private providers through Public-Private Mix project, and conducting active case finding targeted at high risk groups details of which can be found under the section on universal access. Related to MDR-TB, TB CARE I provides technical assistance to the NTP in programmatic management of drug-resistant TB, providing enablers for patients and supporting procurement of second line anti-TB drugs and supplies.

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 Cambodia. Results for 2013 will be reported on next year.

Table 1: TB CARE I core indicator results for Cambodia

Indicators	2010 (Baseline)	2011 (Year 1)	2012 (Year 2)
C1. Number of cases notified (all forms)	41,628	39,670	40,258
C2. Number of cases notified (total new and relapse)	40,460	38,555	39,083
C3. Case Detection Rate (all forms)	65%	64%	66%
C4. Number (and percent) of TB cases among HCWs	NA	NA	NA
C5. Treatment Success Rate of confirmed cases (NSP)	95%	94%	Due 2013
C6. Number of MDR cases diagnosed (confirmed GX or DST)	31	56	117
C7. Number of MDR cases put on treatment (confirmed cases only)	41	83	110

Summary of Project Indicators and Results

Table 2: TB CARE I Cambodia -Year 3 indicators and results

Expected Outcomes	Outcome Indicators & Definition	Baseline or Y2	Target	Result	Comments
			Y3	Y3	
Universal Access					
1.1 Increased demand for and use of high quality TB services and improve satisfaction...	1.1.1 Number of facilities where quality of services is measured	5 (2012)	42	43	Using QUOTE TB light and Quality Improvement (QI)
	1.1.3 TB personnel trained on the Patients' Charter	0 (2012)	250	109	Including NTP staff and village health support groups
1.2 Increased quality of TB services delivered among all care providers (Supply)	1.2.2 TB cases diagnosed by private providers	318 (2012)	350	549	TB CARE I areas (26 ODs)
	1.2.7 Prisons with DOTS	7 (2012)	10	10	TB CARE I areas
	1.2.11 Number of TB cases (all forms) diagnosed in children 0-14 years	3915 (2012)	3000	2889	TB CARE I areas (27 ODs)
1.3 Reduced patient and service delivery delays (Timing)	1.3.3 Provider Delay: Number of days from the time sputum smears are sent by HCs to receipt of lab results	7 days (2012)	<5 days	4 days	TB CARE I SMS pilot sites (38 HCs in 2 ODs)
Laboratories					
2.1 Ensured capacity, availability, & quality of lab testing to support the diagnosis	2.1.3 TB laboratories participating in smear microscopy EQA program performing with over 95% correct results	276/333 (83%) (2012)	>80%	85% (287/337)	Result for project year, TB CARE I areas (87 labs in 9 provinces)
2.2 Ensured availability and quality of technical assistance	2.2.1 Technical assistance visits from a SRL through a formal link of memorandum of agreement (Yes/No)	Yes (2012)	Yes	Yes	Dr Mitarai from RIT, Tokyo
2.3 Ensured optimal use of new approaches for laboratory confirmation....	2.3.1 Diagnostic sites offering advanced technologies for TB or drug-resistant TB	3 GX and 12 LED FM (2012)	3 GX and 22 LED FM	3 GX and 22 LED FM	22 LED FM (12 existing + 10 new)
	2.3.3 Patients diagnosed with GeneXpert out of total tests conducted	541/2303 (2012)	>3000 tests	481/2230 (22%)	Details in Table 1
Infection Control					
3.2 Scaled-up implementation of TB-IC strategies	3.2.1 "FAST" strategy has been adapted and adopted. Indicator value: Score from 0-3	2 (2012)	2	2	Score 2= "FAST strategy" has been piloted
	3.2.2 Facilities implementing TB IC measures with TB CARE I support	44 (2012)	44	47	In 37 HCs and 10 prisons
Programmatic Management of Drug-Resistant TB (PMDT)					
4.1 Improved treatment success of MDR-TB	4.1.2 MDR TB patients who are still on treatment and have a sputum culture conversion 6 months after starting MDR-TB treatment	81% (42/52) (2011)	>70%	U	Unlike previous years, this was not reported in NTP annual report 2012

	4.1.3 MDR TB patients who have completed the full course of MDR TB treatment regimen and have a negative sputum culture	78% (36/46) (2011)	>70%	68% (21/31)	National data for 2012 calendar year Source: NTP annual report
	4.1.4 A functioning National PMDT coordinating body	Yes (2012)	Yes	Yes	
TB/HIV					
5.2 Improved diagnosis of TB/HIV co-infection	5.2.2 TB patients (new and re-treatment) with an HIV test result recorded in the TB register	82% (32594/39670) (2011)	>80%	80% (32359/40258)	National data for 2012 calendar year Source: NTP annual report
Health System Strengthening					
6.2 TB control components form an integral part of national plans, strategies, and service delivery	6.2.2 People trained using TB CARE I funds	618 (2012)	>750	695	Time frame: Oct 2012 to Sep 2013
Monitoring, Evaluation & Surveillance					
7.1 Strengthened TB surveillance	7.1.1 An electronic recording and reporting system for routine surveillance exists at national and/or sub-national levels (e-TB manager)	No (2012)	Yes	Yes	In 9 MDR-TB treatment sites
7.2 Improved capacity of NTPs to analyse and use quality data....	7.2.1 Data quality measured by NTP	Yes (2012)	Yes	Yes	In 2 operational districts
7.3 Improved capacity of NTP to perform OR	7.3.1 OR studies completed Indicator Value: Number (of OR studies)	Not applicable	2 (2012)	0 (2012)	Delayed to end Oct/early Nov 2013

Universal Access

Universal access is a priority technical area for TB CARE I in Cambodia as reflected by the number of activities and partners working in this area (FHI 360, JATA and WHO), and substantial investments in this technical area. Several of these are expansion of activities initiated in the previous year.

Key Results

Implementation of QUOTE TB Light has been completed at 5 health facilities, as planned. In addition, a translated version of the Patient's Charter was discussed and distributed to health center staff and village health support groups with a request to further disseminate the message to the communities. Overall for the 5 facilities, the different aspects of quality of services that were important to patients, in terms of priority, were (i) professional competency of staff (ii) communication and information offered (iii) provider-client interaction and counselling (iv) availability of the provider (v) facility infrastructure (vi) support/compensation for patients (vii) affordability (viii) stigma and (ix) information about TB/HIV. Feedback was given to staff of each health facility, asking them to focus on aspects that are important to patients and that can be more easily improved such as communication, provider-client interaction and availability of providers. Staffs were also asked to discuss with and distribute the Patients' Charter to their clients. During follow-up visits to two hospitals, the team interviewed few randomly selected patients, at least half of which were knowledgeable about their rights and were provided with a copy of the Patient's Charter.

As also planned, implementation of Quality Improvement (QI) approaches was gradually expanded to cover all 38 HCs in Kampong Cham and Chamkar Leu ODs. The overall aim in all QI sites is to improve successful referrals of TB suspects referred by private providers and community volunteers, though the change intervention package applied differed based on specific local issues. Comparing data available from 17 of these HCs for the period January–August, the number of presumptive TB cases referred increased from 2,491 in 2012 to 2,571 in 2013. However, the numbers of TB cases diagnosed among referred patients decreased from 545 in 2012 (22% of those referred) to 472 TB cases in 2013 (18 % of those referred). TB CARE I is following up to address possible reasons for this and has planned for on-the-job training for new HC-TB staff on sputum collection and smear making, and supportive supervision to private providers and community volunteers to identify and refer the right people.

In 2013, TB CARE I expanded coverage of prisons to provide TB and HIV services from 7 to 10 of the total 27 prisons in the country. In the 10 TB CARE I supported prisons, 122 (2.6%) TB cases were diagnosed among 4,583 inmates (2,662/100,000), and a treatment success rate of 90% was achieved. Though the case notification rate is still high, it is a significant decline from the rate of 5,175/100,000 in 2009 in the first three prisons and 2,800/100,000 in 2012. In addition, TB CARE I conducted mass screening of inmates and staff of ten prisons using chest x-ray, sputum examination and Xpert MTB/RIF assay. 108 of 5,669 (1.8%) screened were diagnosed with TB and initiated on treatment.

In the 26 ODs supported by TB CARE I, 1166 private providers collaborated with the NTP to identify and refer TB suspects to DOTS facilities. In 2013, these providers referred 4860 TB suspects, 549 (11%) of whom were diagnosed with TB, an increase compared to the 318 TB cases diagnosed through PPM referrals in the past year in the same sites. In addition, TB CARE I collaborated with CENAT and the Department of Preventive Medicine (PMD) to develop the tools and processes, and train staff for bi-directional screening for TB and diabetes. Four provincial referral hospitals (Kampong Thom, Battambang, Pursat and Kampong Cham) with TB and diabetes clinics have begun implementing TB- Diabetes collaborative activities. It is proposed to continue with the activities and monitor performance in terms of additional TB cases identified through this collaboration in 2014.

TB CARE I is supporting activities to strengthen the management of childhood TB, expanded from 17 to 27 ODs in 2013, particularly to improve access to and quality of TB diagnosis in children. In the past year, around 96% of all childhood TB cases were classified as extra-pulmonary TB, mainly

clinically diagnosed cervical lymphadenitis – a sign that pulmonary TB was drastically underdiagnosed. TB CARE I made intensive effort to improve this through capacity building and introduction of new diagnostic algorithms. The proportion of pulmonary TB diagnosed among children in project sites increased from 19% during Jan-Feb 2013, to 21 % in Apr-June 2013, and 22% in Jul-Sept 2013. During the year, 19,335 children were referred from health centers to referral hospitals for diagnosis, 2,889 (15%) of whom were diagnosed with TB and started on treatment in the 27 ODs supported by TB CARE.

INH preventive therapy (IPT): This year saw good progress in providing IPT for children ruled out to have active TB. 220 children were registered for IPT in 2012, 213 (96.8%) of whom completed the six months course of treatment, 1 (0.5%) developed TB, and 6 (2.7%) defaulted due to family migration. In 2013, 682 children are so far enrolled on IPT; 68 children completed six month course of IPT while the remaining 614 are continuing their treatment.

TB CARE I is supporting activities to improve capacity for TB diagnosis in 11 provinces, in particular to improve proficiency of clinicians in reading chest x-ray which remains the main stay for diagnosis of smear negative TB. CENAT and TB CARE I team perform quarterly supervisory visits to all sites to perform EQA for chest x-rays and provide on the job training. Proficiency in x-ray reading was maintained – the agreement rate between expert cross-readers and hospital physicians in chest x-ray reading in 2013 was 83.5%.

TB CARE I is piloting an internet based SMS alert system for delivering sputum smear test results to health centre (HC) staff and community TB volunteers. The system also serves as a live database allowing supervisors to monitor and follow-up with TB labs in case of delays <http://tblab.cenat.gov.kh>. In 2013, the project was expanded to cover all 38 HC and laboratories in the two ODs – Kampong Cham and Chamkar Leu. During this expansion, earlier achievements to reduce delays were sustained - the turnaround time from the day sputum smears are sent by HCs to receipt of lab results was 4 days (range: 0-15 days) in 2013 against the target of less than 5 days (see figure 2). 98% (3330/3387) of the smears registered in the system had complete results sent back to the health centres. 80% (2669/3330) of the sputum smear results in the system were returned in ≤ 5 days in 2013. Since there is no longer a need to wait for the weekly trips by the HC staff to collect results from the laboratories, it makes it possible for patients to receive the results and be initiated on treatment earlier. An improvement introduced in the system now enables HC and lab staff to send SMS out in a package instead of individual text messages. In addition, a new SMS system enabling public health facility staff to provide feedback on patients referred by private providers was introduced in 2013.



Figure 1: Supervisors provide on- the-job training to field staff on x-ray reading skills in Cambodia. Photo by JATA Cambodia

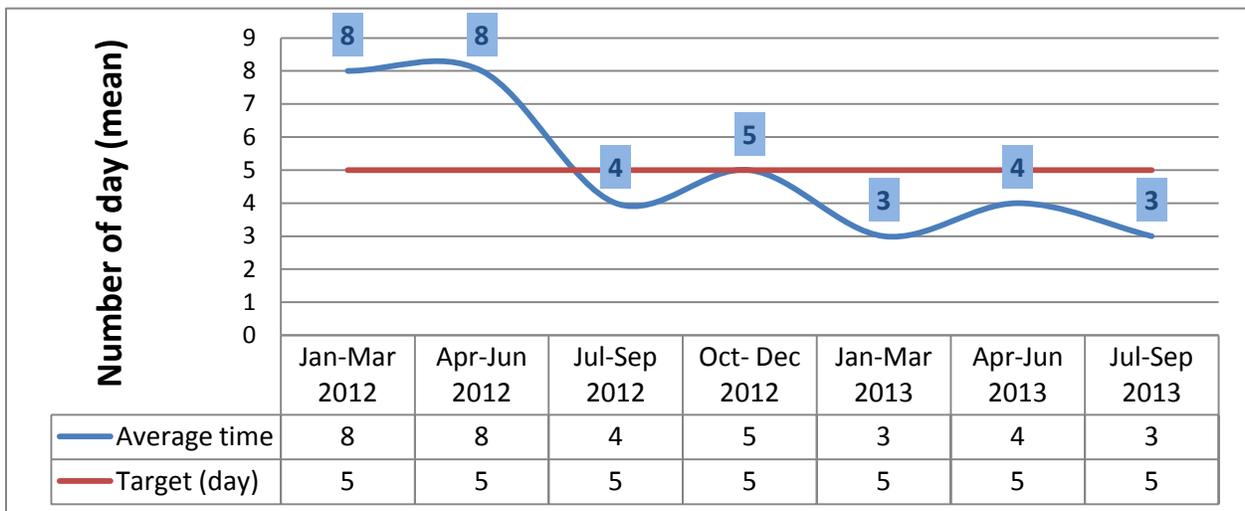


Figure 2: SMS alert system: Turnaround times for sputum smear test results in 38 health centers in Kampong Cham, Cambodia

Laboratories

This technical area is largely implemented by JATA. TB CARE is supporting the External Quality Assurance (EQA) program for smear microscopy in 87 TB microscopy centers in nine provinces, building capacity for lab services through on-going training, supervision and technical assistance from the supra-national reference laboratory. The program has successfully introduced new diagnostics such as Fluorescence Microscopes (FM) and GeneXpert.

Key Results

In 2013, 83% (276/333) of the TB laboratories supported by TB CARE I achieved satisfactory performance in the smear microscopy EQA program, comparable to 83% in the past year and achieving the annual target (>80%). Regular EQA workshops and on-site visits are conducted to identify problems and provide on-the-job training/support to lab technicians. The most frequent problems identified are false negative results because technicians are not spending adequate time to examine the required number of fields under the microscope, poor quality of smears prepared by health center (non-lab) staff, turnover of staff, and in some situations due to poor eyesight.

The supranational reference lab (SRL) for Cambodia is the Research Institute of Tuberculosis (RIT) in Tokyo. Through a MoU between RIT and CENAT, the SRL provides support to the national reference lab including for regular proficiency testing for drug susceptibility testing (DST). With funding through TB CARE I, Dr Satoshi Mitarai from JATA/RIT Tokyo visited Cambodia from 1-5 Sept 2013 to assess LED fluorescent microscopy (FM) and GeneXpert MTB/Rif (Xpert) performance in TB CARE project sites. Main observations include that LED FM shows comparable sensitivity with conventional Z-N smear; however it reduced workload of lab technicians significantly. Cost for ready-made reagent is relatively high and it could be a potential obstacle for quick expansion of FM. Several discrepant results were observed between Xpert and conventional DST and it was recommended to observe the clinical outcome of these cases carefully.

Altogether, 11 GeneXpert units from various funding sources (TB REACH, TB CARE I, CDC, CHC, and MSF) are in use for active case finding among risk groups, diagnosis of TB in people living with HIV and MDR-TB suspects, and for a research study. Ten more are expected to arrive in the country through UNITAID support. The three GeneXpert units procured through TB CARE I are in routine use at the national reference lab (CENAT) and Battambang referral hospital.

In 2013, TB CARE I procured 10 additional Fluorescence Microscopes for high volume labs. Along with those procured by other partners and by TB CARE I in previous years, almost all the high volume labs across the 24 provinces are now using Fluorescence Microscopes.

In the past year, 2,302 Xpert tests were performed in TB CARE I supported sites - 541 (24%) of the tests were MTB positive, and 13% (70/541) of MTB positive were also shown to be resistant to RIF. Results of the tests performed in 2013 are summarized in Table 1.

Table 1: Summary of performed tests in 2013

GeneXpert tests conducted in TB CARE I supported sites	
Number as of September 30th, 2013	2230
Patients diagnosed with GeneXpert in TB CARE I supported sites	
Presumptive new TB	
Total successful tests	1375
Number of MTB+ cases diagnosed using Xpert	201
Number of Rif+ (and MTB+) diagnosed	20
TB positivity rate	16%
Rif resistance rate	9%
Presumptive MDR-TB	
Total successful tests	781
Number of MTB+ cases diagnosed using Xpert	280
Number of Rif+ (and MTB+) diagnosed	43
TB positivity rate	41%
Rif resistance rate	13%

Infection Control

This technical area is implemented by FHI 360, mostly in two operational districts of Kampong Cham (Chamkar Leu and Kampong Cham), and in ten of the 27 prisons in the country.

Key Results

"FAST" strategy for TB infection control– **F**ind cases **A**ctively, **S**eparate safely, and **T**reat effectively. NTP and its partners, including TB CARE I, are implementing activities related to intensified and active case finding among high risk groups (prisons, contacts, migrants etc.), some health facilities are practising "triage" of patients and maintain separate wards for infectious patients, MDR-TB sites have isolation rooms, and initiatives such as the SMS project and use of rapid tests (Xpert) are enabling earlier treatment.

TB CARE I has focused its TB-IC related activities at the Health Centre (HC) and community level in the context of C-DOTS implementation in Kampong Cham and Chamkar Leu OD. In 2012, staff of all health centers in these two ODS received modular trainings on IC, minor renovation and basic TB-IC supplies were made available, and a branded TB-IC communication strategy "SAKSIT" was implemented.

Ms Stella Kirkendale from FHI/HQ visited Cambodia to provide technical assistance and facilitate two pilot training of trainers (TOTs) on adaptation, use and scale-up of the Simplified Checklist for TB Infection Control at community level in December 2012. DOTS watchers use this to remind themselves of the precautions they need to take when interacting with TB patients, to observe practices of TB patients and to give feedback/ suggestion to the patients and their families. A similar checklist for use at health facilities was also developed which is used during supervisory visits to observe and score the performance of health centers.

During this year, TB-IC checklists were used to monitor the TB infection control practice at 30 health centers and their overall performance was scored. Using achievement of 80% score as acceptable, 86% HCs performed well (nine HCs got 100% score, 14 HCs got 85%, three HCs got 80% score, and four less than 80%). HC staffs were provided feedback on their performance and an action plan to implement recommended improvements were agreed upon. It is planned to continue with monitoring of TB-IC practices at the facility and community level.

No progress was made related to annual screening of health care workers for TB. A protocol was developed and select health facilities representing various levels were identified to conduct TB screening for health care workers. Managers were concerned that they may be blamed for not providing a safe working environment if a lot of staff was to be diagnosed with TB, and some could even ask for compensation. TB CARE I will continue to advocate with the NTP on the benefits of TB screening among health care workers.

Programmatic Management of Drug Resistant TB (PMDT)

This is another technical area prioritized by TB CARE I and where substantial investment has been made. Activities are implemented through WHO and Cambodia Health Committee (CHC), a local NGO as a sub-recipient, in close collaboration with CENAT. TB CARE I is supporting efforts of the national TB program (NTP) to improve MDR-TB case finding, building capacity of staff through trainings and supportive supervision, providing enablers for MDR-TB patients, and on-going local technical assistance to the 11 MDR-TB treatment sites in the country.

Key Results

Between Jan-Dec 2012, 117 confirmed MDR-TB cases were diagnosed and 110 cases enrolled on treatment. During the project year period (Oct 2012-Sep 2013), 112 confirmed MDR cases were diagnosed and 103 started on treatment with second line drugs.

During the year, TB CARE I facilitated intensified screening of MDR-TB suspects through active identification and testing of all registered TB patients meeting the eligibility criteria for MDR-TB focusing on provinces with high re-treatment cases but with low screening rate. As a result, 117 MDR-TB patients were diagnosed in 2012 - double compared to the 56 MDR cases diagnosed in 2011. 94% (110/117) of the MDR-TB patients diagnosed in 2012 were put on treatment.

One factor contributing to the recent progress in PMDT is the national technical working group for PMDT that brings together all partners involved in MDR-TB programs to review progress regularly every month, and chaired by the NTP manager himself.

While progress has been made in MDR-TB case finding in 2012, there is a need to further increase case finding considering the estimate of 490 MDR-TB among notified pulmonary TB cases in the country. TB CARE I will continue to support efforts to improve screening rates of MDR-TB suspects, through active case finding, supporting transportation and referral system for MDR-TB diagnosis, and engaging with NGOs implementing community DOTS (C-DOTS) to promote active identification and referrals of MDR-TB suspects.

Unlike in previous years, NTP report for 2012 did not include interim treatment outcomes for MDR-TB patients who are still on treatment. However, among the cohort of 31 patients registered in 2010 and whose final treatment outcomes were available in 2012, 21 (68%) were successfully treated.

TB/HIV

Aspects of TB/HIV concerning the Three I's are being addressed by other partners allied to the HIV Program – Intensified case finding among people living with HIV, and Isoniazid Preventive Therapy (IPT) as part of US-CDC and PEPFAR supported activities, and Infection Control at hospitals as part of USAID supported project to University Research Co. (URC). TB CARE I support concerns HIV testing of TB patients in 21 of the total 77 operational districts (ODs) where there is no funding for this from the Global Fund grant or through C-DOTS implementing partners. Through CENAT, TB CARE I supports the cost of transportation/referrals for registered TB patients to be tested for HIV infection.

Key Results

Target of >80% achieved. In the past calendar year, 80.4% (32359/40258) of TB patients notified to the NTP in 2012 were tested for HIV, compared to 82% in 2011. TB CARE I supports HIV testing of TB patients in 21 (27%) of the total 77 ODs in the country.

For the past few years, the uptake of HIV testing among TB patients has remained stable possibly tied to implementation of community-DOTS (C-DOTS) program through which this activity is funded. The C-DOTS program as well as the support for this activity through TB CARE has remained steady in the past 3-4 years.

Health System Strengthening (HSS)

TB CARE I investments in this technical area is mainly to facilitate and participate in regular meetings of the various technical working groups of the NTP, and to assist in resource mobilization particularly by remaining engaged and supporting Global Fund related activities in the country. TB CARE I partners based in the country – FHI 360, JATA and WHO- are involved in activities related to this technical area.

Key Results

A total of 695 people were trained using TB CARE I funds in 2013 (571 males and 124 females). The much lower proportion of females trained reflects the sex-distribution in the general NTP workforce. Majority of the trainings were related to activities under universal access, followed by TB-IC, laboratories and M&E including OR.

TB CARE I team assisted CENAT to coordinate and participate in regular meetings of the NTP technical working groups (TWG), particularly for technical areas related to the project such as MDR-TB, lab and Childhood TB. TWG meetings were held regularly, with participation of concerned NTP partners, and provided a valuable forum to develop NTP documents such as the diagnostic algorithms for childhood TB, development of the new national strategic plan, and sharing experiences with project implementation.

NTP is heavily reliant on grants from the Global Fund, the source for 55% of funding for TB control in 2012. The current Round 7 TB grant will end in March 2014. Cambodia has been identified as an interim applicant and will be eligible to receive 3 million indicative funding for the remaining period of 2014. Thereafter, the country will apply as a standard applicant with full expression of needs. NTP partners including TB CARE I will continue to support efforts to mobilise resources from additional sources of funding including through increased Govt. contribution.

TB CARE I is supporting development of the next national strategic plan for TB control (2014-2020) based on the joint program review conducted in 2012 and in consultation with all stakeholders. The new plan incorporates new evidences on effective implementation strategies and will help the country for resource mobilization from all possible funding sources, particularly from the new funding mechanism of the Global Fund. The draft plan was submitted it to the CENAT Director, who plans to finalize it by December 2013.

In addition, WHO/TB CARE I is assisting partners to draft and submit proposals for funding from TB REACH Wave 4 (WHO/ CIDA) for innovative case finding. In the past, TB REACH has provided over USD 1 million per year and contributed to about 7% of the case finding per year, most of them in difficult-to-reach populations. This year, so far about six partners have shown some interest to submit proposals.

Currently, TB CARE I is helping fill the gap for some activities that could not be supported through the Global Fund grant because of inadequate funds – such as procurement of second line drugs (for 50 patients), PPD and X-ray supplies; support for performing EQA for sputum microscopy, and HIV testing of TB patients. TB CARE I will continue to advocate with the NTP to include these and other recurrent costs when applying for the new funding mechanism of the Global Fund as a standard applicant.

Monitoring & Evaluation, Surveillance and OR

This technical area is implemented through MSH, KNCV and FHI 360. KNCV activities are performed through technical assistance visits and off site mentoring from its office in The Hague. MSH has one local consultant based in Cambodia who is supported by short-term technical assistance missions by MSH experts.

Key Results

E-TB Manager: During the year, preparation activities for e-TB manager was accelerated such that 9 of the 11 MDR-TB treatment sites are now using e-TB manager for recording and reporting of MDR-TB. The remaining two sites are not functional at the moment- in one case staffs prefer to refer patients to CENAT as it is close by, while the second site has not yet registered any MDR-TB patients. Main activities completed during the year included:

- Procurement and installation of computers and accessories were completed for 9 MDR-TB pilot implementation sites and 3 culture laboratories
- E-TB manager web space is being validated through entering of real data for all DR-TB cases registered since 2011 and DR-TB suspects notified since January 2013 into the system for both English and Khmer version
- Dr Samuel Kinyanjui, MSH advisor visited Cambodia in May and August 2013 to support e-TB manager implementation through trainings and on-the job mentorship for local staff to use and trouble shoot the e-TB manager web space; and conduct preliminary system evaluation
- Monthly supervision to e-TB Manager implementation sites is being conducted regularly to support health staff at PMDT sites in data entry and provide on the job training
- E-TB manager is now expected to be fully implemented and handed over to be managed by the local country teams by June 2014

Data quality: Continuing from last year, peer-reviews were conducted by a team from CENAT and TB CARE I as a means to verify data reported by the ODs to the NTP. Two randomly selected ODs were visited by the team in early 2012 after which this activity was discontinued. CENAT plans to continue with this activity on their own as a part of their ongoing supervisory visits.

Operations Research: Dr Jacques v.d. Broek and Dr Edine Tiemersma from KNCV, assisted by four local mentors, conducted a protocol development workshop on 18-24 February at Siem Reap attended by 12 participants (2 females). Three OR protocols were developed during the workshop: (i) reasons for higher than expected conversion rate of sputum smear positive patients, (ii) effectiveness of voice messaging via mobile phone in improving IPT adherence in children, and (iii) factors associated with low identification and referral of TB suspects.

Two OR studies initiated in Y2 and planned for completion this year got delayed. These are (i) assessment of the SMS alert system for TB lab results. (ii) enhanced referral strategy targeting high risk groups. Data collection has been completed while data analysis and report writing are expected to be completed by end of October or early November 2013.

However, eight abstracts, including two oral presentations submitted by TB CARE I Cambodia staff have been accepted for the 44th Union World Conference on Lung Health. Three TB CARE I staff (one each from JATA, FHI 360, WHO) and one from the NTP plan to participate in the conference to be held in Paris from 30 Oct-3 Nov 2013.