



# Greater Mekong Sub-region Multidrug Resistant Tuberculosis Prevention and Management ("CAP-TB") Project

## Annual Progress Report

October 2011 – September 2012

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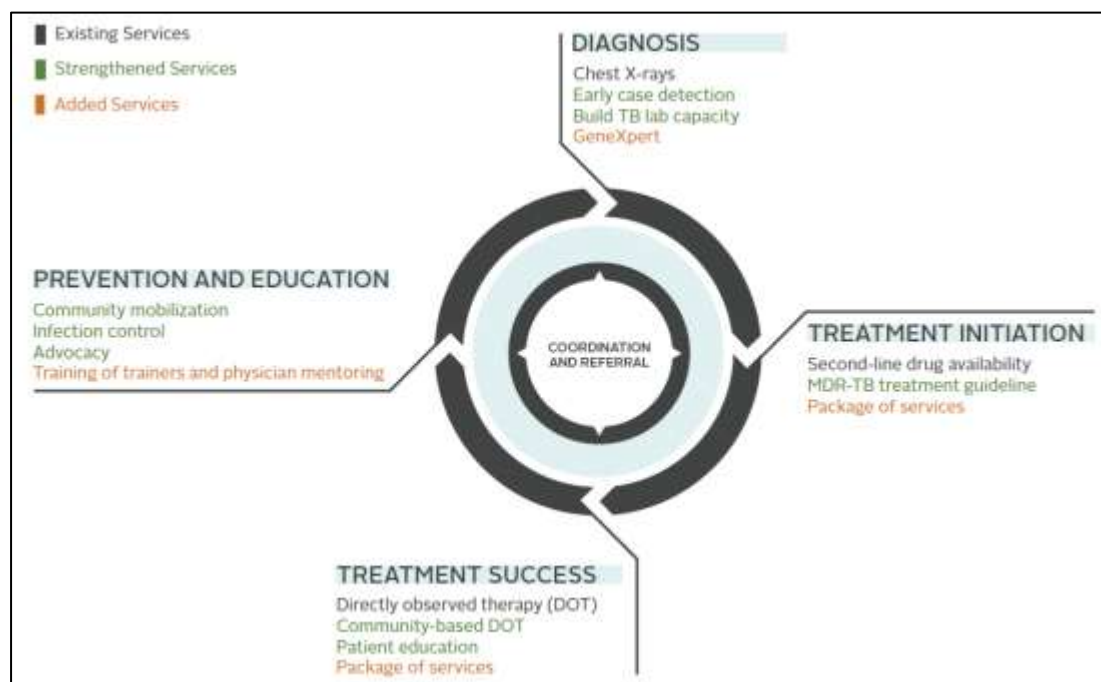
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## Narrative I: Executive Summary

The USAID RDMA-funded “Greater Mekong Sub-region Multidrug Resistant Tuberculosis Prevention and Management Project” aims to decrease the incidence and mortality of multi-drug resistant tuberculosis (MDR-TB) in Burma, China, and Thailand. This project, the “Control and Prevention-Tuberculosis” (CAP-TB) project, is funded from October 2011 through October 2016, with FHI 360 as the prime cooperating agency partnered with The International Union Against Tuberculosis and Lung Disease, the World Health Organization, national or provincial tuberculosis programs, and local governmental and nongovernmental organizations in the Greater Mekong Sub-region.

The cornerstone of CAP-TB is the development, implementation, and evaluation of a model for the programmatic management of MDR-TB. The goal of this model, “Comprehensive Prevention to Care” model for MDR TB (Figure 1), is to identify focused interventions to strengthen national/provincial MDR-TB strategies. The management of MDR-TB must always center on existing government-controlled and coordinated TB programs. Thus, CAP-TB’s overarching goal to decrease the incidence and mortality of MDR-TB is based on strengthening the existing health system for the early diagnosis, treatment initiation, treatment success, and prevention of MDR-TB.



**Figure 1:** CoPC Model: Comprehensive Prevention to Care model for MDR-TB

CAP-TB’s geographic region covering Burma, China, and Thailand will enable implementation and evaluation of the CoPC model in three countries with contrasting economic development and health system capacity. This significantly strengthens the model’s potential to highlight interventions that are scalable and cost-effective, as implemented in three different tiers of capacity. Existing services (Figure 1) may be very strong and comprehensive in a middle-income country such as Thailand when compared to other

countries. Thus the proportion of strengthened and added services compared to existing services will differ depending on the baseline capacity within a specific country. Evaluation of the cost-effectiveness and scalability of this model in CAP-TB's three implementation countries will therefore be based largely upon the proportion of existing, strengthened, and additional services that are required by a national TB program for successful MDR-TB control and prevention. Of note, even in a highly advanced middle-income country such as Thailand, there will be gaps in capacity among certain at-risk groups, for example, cross-border migrants with poor access to the Thai health system. The goal of CAP-TB is to facilitate identification of such gaps within the framework of the CoPC model, implemented in a range of countries from low-income to middle-income capacity.

One of the primary goals for this first year of CAP-TB project implementation was to clarify the CoPC model in order to frame the project's implementation plan and activities. Each country's annual narrative will reference the model to provide a clear framework for CAP-TB's strategy and goals.

# FHI 360 Burma

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## Acronyms

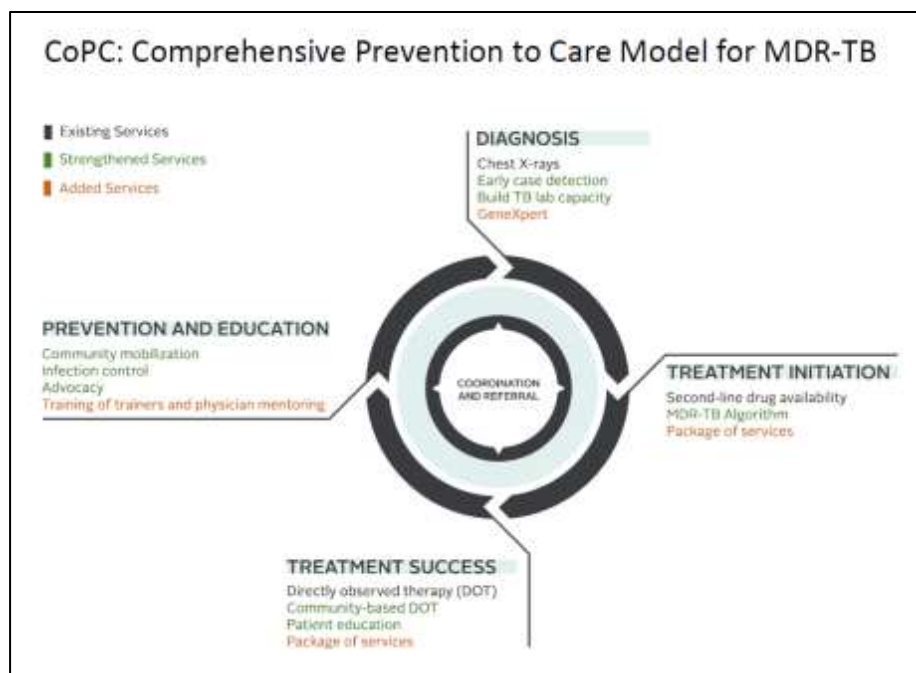
CAP-TB	Control and Prevention of Tuberculosis (Greater Mekong Sub-region Multidrug Resistant Tuberculosis Prevention and Management Project)
FHI 360	Family Health International
FY	Fiscal year
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
IEC	Information, education and communication
IR	Intermediate Result
MDR-TB	Multidrug resistant tuberculosis
MMA	Myanmar Medical Association
NTP	National TB Control Program
PM	Program manager
PMP	Performance management plan
PSI	Population Services International
TA	Technical assistance
TB	Tuberculosis
USAID	United States Agency for International Development
WHO	World Health Organization



## Narrative I: Executive Summary

There are estimated to be as many as 200,000 cases of tuberculosis (TB) infection in Burma, placing it among the world's high-prevalence TB countries. Additionally, a National Drug Resistance Survey conducted in 2007/08 revealed the prevalence of multidrug resistant TB (MDR-TB) prevalence to be 4.2 percent among new TB cases and 10 percent among previously treated cases. A recent review and analysis of access to MDR-TB diagnosis and treatment indicated that as many as 80 percent of MDR-TB cases in Burma may occur in newly infected patients as a result of ongoing MDR-TB transmission, indicating a serious need for strengthened infection control.

The Greater Mekong Subregion Multidrug Resistant Tuberculosis Prevention and Management Project (CAP-TB), funded by USAID, is a five-year project implemented by FHI 360 to reduce incidence of and mortality related to MDR-TB in China, Burma and Thailand. The cornerstone of the project is the development of a comprehensive prevention to care model for MDR-TB, with the goal of delivering focused interventions for each of the components seen in the model below:



During FY12, FHI 360 collaborated with one CAP-TB project partner in Burma, the International Union Against TB and Lung Disease, which was charged with technical assistance (TA) and managerial support to local implementing agencies and NTP; project monitoring and coordination. The focus of activities was on project design and start-up, including staff recruitment and pre-award financial reviews of project partners, and key technical training leveraging existing resources to strengthen provision of MDR-TB clinical services.

Specific activities and outputs for FY12 are described under Narrative III (below), organized by appropriate Intermediate Results (IR) as defined under the USAID contract.

## **Narrative II: Challenges encountered during reporting period**

Communication with the National TB Control Program (NTP) at the central level needs to be improved, although regional and local communication and coordination are well collaborated.

There were challenges around the use of newer diagnostic tools for TB and MDR-TB case detection, including for instance reluctance among laboratory technicians to use LED fluorescent microscopes. Staff reluctance to use these tools has been largely overcome through training (provided by FHI 360 under CAP-TB as well as through other partnerships) and regular monitoring. However, as the techniques and technologies introduced are totally new for the country, guidelines and standard operating procedures are in some cases (use of GeneXpert, use of culture in smear sample negative TB cases, etc.) are not yet in place. NTP will need to develop guidelines for the public sector in the use of these new tools and approaches.

Loss of sputum smear negative patients to follow up remains a constraint. Efforts to remedy this situation have included recording detailed addresses for patients with suspected cases of TB infection, and aggressive tracing of sputum smear negative patients if they are lost to follow-up.

Irrational and inappropriate use of anti-TB drugs and other antibiotics by general practitioners and pharmacies is also a challenge. During this reporting period, the Union paid advocacy visits to the GPs and pharmacies and gave information about TB, MDR-TB and services provided by the NTP and the partners.

A key barrier to the timely identification and treatment of MDR-TB patients has been the long wait time for a definitive diagnosis under conventional diagnostic methods which call for solid culture and drug sensitivity testing. The constraint is being overcome with support from the CAP-TB project, which has provided training for laboratory technicians on the use of a GeneXpert machine for rapid MDR-TB testing.

Finally, while it is now possible to identify MDR-TB patients much more quickly, MDR-TB treatment availability remains seriously limited with a large gap between need and supply.

## **Narrative III: Program Performance during reporting period**

The focus of the CAP-TB project in FY12 has been on project planning and start-up.

**Country Assessment:** The Burma CAP-TB Country Assessment was conducted in Yangon and Mandalay, Burma from March 12-17, 2012 by representatives from FHI 360 and the Union. The Team met with representatives from Mandalay and Yangon NTP, Myanmar Medical Association (MMA), WHO and PSI to introduce the CAP-TB Project and assess site capacity, gaps and needs. A final assessment report was produced and used to revise the FY12 work plan.

**Staff Recruitment:** Some CAP-TB project staff from partner organizations predate the start of this project; however, during the 3<sup>rd</sup> and 4<sup>th</sup> quarters one program manager (PM) and four TB field supervisors were recruited. At the end of FY12, there were a total of 18 project staff:

- one PM,
- two TB Medical Coordinators,
- twelve TB Field supervisors,
- two Data Operators
- one finance/admin assistant

**Financial Review:** The Union finance manager conducted pre-award financial reviews for two local partners in June and July. Later FHI 360 took over the responsibility of conducting contract and grant orientation of local partners.

**Coordination:** The CAP-TB program manager and medical coordinators conducted regular monitoring in 7 townships in Mandalay and held local-level coordination meetings with the TB regional officer. A supervision visit from FHI 360 was conducted in August to monitor program activities. During this visit, FHI 360 was also oriented on the activities of a TB volunteer network being implemented by the Union, with other funding, to determine how CAP-TB supported interventions could be collaborate with existing programs.

**Work planning:** Meetings were held between FHI 360, the Union, and the NTP in June and August to discuss the FY12 and FY13 work plans. FHI 360 and the Union also conducted assessments in 11 townships in Yangon that are being considered as potential intervention sites in future fiscal years.

### *IR1: Strengthened MDR-TB prevention*

A key goal of the CAP-TB project is prevention of new cases of primary MDR-TB infection through early identification and referral of suspected TB cases and monitoring of treatment adherence and infection control measures. During this reporting period, FHI 360 supported strengthened MDR-TB prevention interventions by funding the reprinting of existing IEC materials (with the CAP-TB logo) for distribution by teams of TB volunteers:

- 85,781 pamphlets
- 1,047 posters
- 50,816 fans
- 847 stickers

### *IR2 Strengthened MDR-TB management*

The initial Burma country assessment supported by FHI 360 indicated that TB detection, diagnosis, and treatment services in Burma are free of charge through public township health centers and urban and rural health centers. However, accessing public health centers, particularly in rural areas, is difficult for many and some public facilities in high throughput areas are understaffed and patients may experience long wait times. A major goal of the CAP-TB project in Burma is therefore the strengthening of clinical services, including improved and faster MDR-TB diagnosis so that clients are not lost to follow-up.

**GeneXpert training:** Use of the GeneXpert machine can reduce the wait time for an MDR-TB diagnosis from months to hours; however, laboratory staff in CAP-TB project sites lacked the technical expertise to use this machine. Janet Robinson, Director of Research and Lab Sciences at FHI 360's Asia Pacific Regional Office trained 15 lab technicians [USAID PMP Indicator 14] in TB diagnosis, including operation of the GeneXpert machine – participants came from the TB Outpatient Department of Mandalay General Hospital, Mandalay Teaching Hospital, TB Specialist Hospital, and Upper Myanmar TB Center, as well as health centers in 11 townships around Mandalay.

**LED fluorescence microscopy training:** FHI 360 also supported the training of 18 laboratory technicians [USAID PMP Indicator 14] from Mandalay and surrounding townships in standard operating procedures, staining and reading specimens, and maintenance of the LED fluorescent microscope. The three-day course was conducted by consultants Dr. Sang Jae Kim (Director Emeritus, Korea Institute of TB) and Dr. Chang Ki Kim (Head of the Korean National TB Reference in Kit). The Upper Myanmar TB Officer and Upper Myanmar TB Microbiologist facilitated the training. There was a practical exam at the end of the training to evaluate outputs.

## Narrative IV: Success stories



### Rapid test strengthens TB control for Burmese family

#### USAID-supported lab training helps local men access testing, treatment



*Photo:*  
Participants at an MDR-TB diagnosis training conducted by FHI 360 staff.

Ko Kyaw Kyaw (his nick name) is a 35-year-old tuberculosis patient **from Chan Aye Tharzan township, in Burma. Ko Kyaw began suffering** a chronic cough and prolonged fever in March 2012, which lasted for three weeks.

Ko Kyaw's worksites are usually far from town, and like many people in Burma he cannot afford the time to make multiple trips to a clinic and wait for laboratory testing results. In addition to his own deteriorating health, Ko Kyaw, a manual laborer, is the breadwinner in his home, so his whole family's socio-economic condition suffered.

FHI 360 is implementing the USAD-funded Control and Prevention of MDR-TB (CAP-TB) project in Burma to help make sure people like Ko Kyaw get the services they need, when they need them. Healthcare providers in Ko Kyaw's area had access to a GeneXpert machine for rapid diagnosis of multi-drug resistant TB (MDR-TB), but they lacked the expertise to use it. In FY12, FHI 360 staff under the CAP-TB project provided GeneXpert training for 15 lab technicians from Mandalay and surrounding areas. The training leveraged existing resources to cut the time to deliver an MDR-TB diagnosis from months to hours.

Because of the training from FHI 360, a rapid service was available to Ko Kyaw. Instead of waiting months for a result, or turning to a private pharmacy as many in Burma do, Ko Kyaw was quickly diagnosed with MDR-TB. He began treatment in July and his health has greatly improved.

In addition to alleviating patient suffering, a key advantage of rapid TB diagnosis is that the longer a patient is not receiving treatment, the more likely they are to spread their infection to other people in their home or community. It is therefore encouraging that Ko Kyaw's close friends have been interviewed for possible symptoms of infection, and family members were given sputum smear and GeneXpert testing. No new cases of infection were detected, and Ko Kyaw and his family have been educated on measures (like using a face mask and ensuring proper home ventilation) to help ensure that the infection does not spread any further.

*Annex I: Method used to estimate total number of individuals served  
(Narrative)*

No estimations were done to calculate the total number of individuals served in FY12. Numbers reported are direct number of individuals trained during the reporting period.

*Annex II: Adjustment factor to calculate for potential overlap between  
USAID partners and other USG (Narrative)*

No specific service delivery was funded as of the writing of this report; there is, therefore, no overlap in programming between USG partners working under the CAP-TB in Burma and other USG-funded programming.

# FHI 360 China

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## Acronyms

CAP-TB	Control and Prevention of Tuberculosis (Greater Mekong Sub-region Multidrug Resistant Tuberculosis Prevention and Management Project)
CBO	Community based organization
CDC	Center for Disease Control and Prevention (China)
COPC-TB	Comprehensive Prevention to Care for Multidrug Resistant Tuberculosis
FY	Fiscal year
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HCT	HIV counseling and testing
HIV	Human Immunodeficiency Virus
IR	Intermediate Result
MDR-TB	Multidrug resistant tuberculosis
PLHIV	Person (People) living with HIV/AIDS
PMP	Performance management plan
PSI	Population Services International
SBC	Strategic Behavioral Communications
TB	Tuberculosis
USAID	United States Agency for International Development
USAID RDMA	United States Agency for International Development Regional Development Mission - Asia

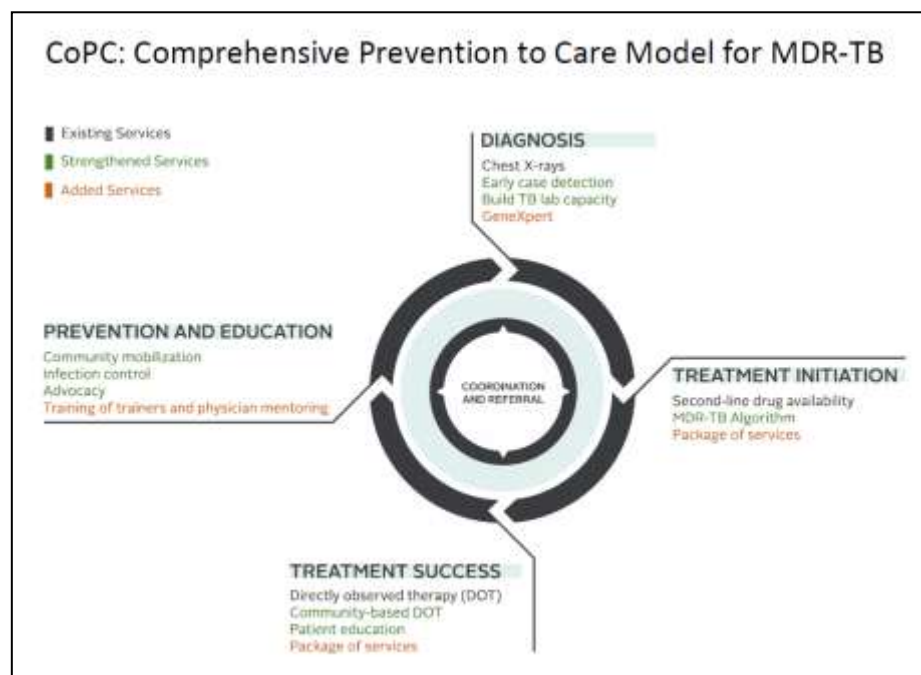


## Narrative I: Executive summary

The People's Republic of China is estimated to have the world's second-largest number of multidrug resistant tuberculosis (MDR-TB) cases; however, in 2007 less than 5% of the estimated new MDR-TB cases nationwide were reported and of those relatively few received appropriate treatment. A lack of effective infection control leads to relatively high levels of primary transmission, while a lack of resources and capacity at the local level hampers efforts at both early identification of new cases and effective community-based care and treatment.

The Greater Mekong Subregion Multidrug Resistant Tuberculosis Prevention and Management Project (CAP-TB), funded by USAID, is a five-year project implemented by FHI 360 to reduce incidence of and mortality related to MDR-TB in China, Burma and Thailand. The cornerstone of the project is the development of a comprehensive prevention to care model for MDR-TB, with CAP-TB's goal to identify focused interventions for each of the foundational components in the model as shown below:

Components of this model include:



- **Prevention and training:** Prevention education and training of trainers with curricula developed for each level of expertise
- **Early diagnosis:** TB screening and rapid MDR-TB diagnosis provided by the China district- and provincial-level CDCs; early detection and referral of suspected TB cases through private healthcare providers (clinics and pharmacies) as well as government-run community health centers in two communities in Xishan district
- **Treatment initiation:** Programmatic management of drug resistant tuberculosis conducted at the Yunnan TB Clinic Center; advocacy with other partners (e.g., the Global Fund to Fight AIDS, Tuberculosis and Malaria [GFATM]) who provide second-line drugs to ensure access of treatment to all patients with MDR-TB
- **Treatment success:** Community-based DOT treatment and adherence monitoring through outreach workers based in the community health centers
- **Coordination:** Monthly meetings of an MDR-TB working group chaired by the

## Yunnan Anti-Tuberculosis Association

In order to reduce MDR-TB incidence and mortality, FHI 360 is: (1) supporting improved referral to TB screening and strengthened TB screening and diagnosis services; (2) facilitating the identification of potential resistant TB cases for referral to rapid GeneXpert MDR-TB diagnosis; and (3) strengthening appropriate TB treatment, adherence support and infection control so that non-resistant TB cases do not develop into MDR-TB, and existing infections do not spread.

CAP-TB partners include the following, with the following portfolios [USAID PMP Indicator 19]:

1. Yunnan Anti-Tuberculosis Association: project management and coordination between local partners)
2. Yunnan CDC: for laboratory testing
3. Yunnan Provincial TB Clinic Center: for treatment initiation and success
4. Xishan District CDC and two community health centers located in residential communities of Xishan District (for education, referral and adherence monitoring
5. Private health clinics and pharmacies in Xishan District: to order to strengthen referral to testing and treatment, the CAP-TB project is also partnering with.

The focus of activities for FY12 was on project design and on securing the necessary support and approvals from various levels of the Chinese government. This has included successfully obtaining the support of the Bureau of Health and the National Center for TB Control and Prevention, drafting an initial project plan in collaboration with CAP-TB regional partners, and conducting a field assessment which took place in April 2012.

The final regional CAP-TB project plan and budget were approved by FHI 360 in May-June, while the final China sub agreement was signed in July and an official project launch held in Kunming City. The China CAP-TB country office was successful despite the relatively limited period of project implementation in FY12, as with key successes listed below:

- forming a working group to coordinate CAP-TB activities;
- recruiting and training key project staff;
- purchase of key equipment including a GeneXpert machine to dramatically reduce the time for an MDR-TB diagnosis; and
- capacity building around the diagnosis and treatment of MDR-TB

Now that the project has launched, FHI 360 is supporting referral of suspected TB/MDR-TB cases between four different health care facilities (community health centers, Xishan District CDC, Yunnan TB Clinic Care Center) [USAID PMP Indicator 16]. even MDR-TB cases were diagnosed during the reporting period [USAID PMP Indicator 7], three of which came from areas not covered by CAP-TB. As of the writing of this report, four of these cases are receiving treatment and care under the CAP-TB project [USAID PMP Indicator 10], with treatment funded by GFATM.

## **Narrative II: Challenges encountered during reporting period**

Coordination and communication among CAP-TB project partners regarding specific roles and responsibilities continue to be a challenge for the project. This is largely due to the number of partners at different levels with sometimes overlapping responsibilities. In order

to address this challenge, an MDR-TB Working Group has been formed and includes representatives from each of the agencies involved in the project, and the members have begun the process of clarifying roles and responsibilities. A briefing document is also being prepared, with input from all parties, which will spell out in more detail specific service-delivery components and areas of responsibility under the project.

Additionally, there is a lack of clinical experience in managing MDR-TB and experience in community-based approaches to TB prevention and treatment, although the local government partners have a comparatively sophisticated health-care system for addressing screening and treatment of non-resistant TB. This will require a great deal more technical assistance on the part of FHI 360, including assistance with:

- clinical training for doctors and other health care workers,
- strengthening of laboratory capacity,
- development of an advisory group (consortia) to manage patients,
- hiring and support for additional staff at the facility and community level who can assist with program management and patient follow-up, and
- further training in drug management.

Strengthening the link between HIV counseling and testing (HCT) and TB services is a goal of the CAP-TB project, as there is a disconnect in Yunnan Province between TB/MDR-TB testing and treatment services and HCT services. In Kunming City, around 80% of TB patients are tested for HIV – while this is an improvement over the national average of 16%, it is still below the Chinese government target of successfully referring 100% of TB patients for HIV screening. This is largely due to the need for sensitization and increasing awareness among TB staff members about the referral and counseling mechanisms for HIV screening among patients accessing TB-specific services. Within HIV services, only about 70% of the PLHIV registered in Kunming have received some form of TB screening. Barriers to increased screening uptake include that transportation for many PLHIV is a barrier, and that many HIV clinic workers lack a medical background making the screening process inadequate. Chief responsibility and resources for achieving coordination between TB and HIV rests with PSI under the USAID CAP-3D project, thus CAP-TB's role is to complement CAP-3D's activities as there is still a significant gap in capacity in TB/HIV coordination.

There are also challenges implementing service-strengthening recommendations delivered by The International Union Against TB and Lung Disease (hereafter The Union), FHI 360's regional partner on CAP-TB. Clinical doctors in Yunnan Province have limited experience in programmatic management of drug-resistant TB cases and remain unfamiliar with the national treatment guidelines for MDR-TB, which are based on WHO recommendations. Treatment in some instances seems to be guided primarily by individual clinical experience rather than evidence-based recommendations, and in some cases identified by a Union consultant this practice may be leading to a significant risk for increased drug resistance and/or other iatrogenic effects. To address these issues, follow-up trainings for TB clinical care providers are scheduled for FY13, with case review, conducted by the consultant from The Union and the CAP-TB regional team.

The Union consultant additionally identified a number of issues with the physical set-up of the Yunnan TB Clinic Center, the primary agency responsible for treatment of MDR-TB patients, which lead to significant risk of nosocomial TB transmission. These included insufficient air flow in patient areas of the medical ward and a lack of separation between doctor and patient areas. The consultant has delivered recommendations for addressing these issues – these include installing electric fans in the windows of each patient room,

replacing a metal door with one which will allow air flow, and renovating the medical ward to create physically separate areas for staff and patients. The Clinic Center has prepared renovation plan based on the consultant's recommendations and have applied for local government funding for this activity; it is not currently known when (or whether) this budget will be approved, so it is not known for how long planned service improvements might disrupt care and treatment services and when adequate infection control measures will be in place. However, the commitment of the Clinic Center to prepare a renovation plan and to apply for government funding (without depending upon external funding from donors) can be seen as a significant success of CAP-TB for FY12.

## **Narrative III: Program performance during reporting period**

The focus in FY12 has been on project planning and coordination and in securing buy-in and collaboration from all local partners and key government stakeholders. In the last quarter, a number of key activities have taken place, including initial training of key project staff and the purchase of project equipment. Individual project activities for FY12 are described below, organized by appropriate Intermediate Results (IR) as defined under the USAID contract.

### *IR1: Strengthened MDR-TB prevention*

A key goal of the COPC-TB model is prevention of new cases of primary MDR-TB infection through early identification and referral of suspected TB cases and monitoring of treatment adherence and infection control measures. FHI 360 is supporting outreach workers and health center staff in two communities of Xishan District (Fuhai Residential Community and Zongshuying Residential Community) to provide directly observed treatment and conduct TB education, including providing information on TB transmission and symptoms, treatment and prevention/infection control measures, and information and assistance with referral for TB screening. The project is also partnering with private healthcare providers in those communities to increase referral of suspected TB patients for free screening.

#### *Activity 1: Carry out community-based outreach education on TB and MDR-TB in Xishan District, Kunming City*

FHI 360 has recruited a team of four paid female outreach workers to be based in the community health centers in Xishan District (2 per center) and to conduct regular outreach and educational activities within communities. From August 1-3, 2012, the Xishan District CDC provided a basic training on outreach skills, including basic knowledge of TB/MDR-TB, communication and relationship-building skills, and counseling techniques including case finding [USAID PMP Indicator 17]. Outreach workers will receive regular refresher trainings over the life of the project.

**Daily educational activities:** the outreach workers began carrying out daily educational activities at the end of July in their respective communities. Outreach primarily targets areas where members of high-risk groups (including migrant workers and the elderly) are known to congregate – outreach venues thus include fresh markets, tea houses and mahjong parlors. The outreach workers are additionally targeting privately-owned clinics and pharmacies. Outreach activities include participatory activities and group discussion to disseminate basic TB information. During this reporting period, outreach workers have

reached 1,234 individuals (including 472 men and 762 women) [USAID PMP Indicator 9].

**Patient support for initial screening:** where outreach workers encounter community members with TB symptoms, the workers can also escort them to the community health centers for an initial screening – during this reporting period, outreach workers successfully referred 80 clients for TB screening, though only 1 screened positive for TB and, as yet, no new cases of MDR-TB have been detected through community-based referral.

**TB and MDR-TB treatment monitoring:** the outreach workers also play a key role in monitoring TB/MDR-TB treatment, to ensure that resistant TB does not develop among TB patients and to assure proper treatment adherence among both TB and MDR-TB patients. Under the supervision of community health centers, the outreach workers regularly visit each patient at home to ensure they are adhering to treatment as prescribed. During FY12, outreach workers were actively following up 21 TB/MDR-TB patients (9 men, 12 women) [USAID PMP Indicator 8].

**Community health center meetings:** the community health centers themselves are an important base for disseminating information on TB/MDR-TB transmission, symptoms, treatment and prevention, as well as detecting potential new infections. During this reporting period, outreach workers arranged two group meetings (one for community residents, one for patients and their families) held at the health centers, to further discuss the importance of TB/MDR-TB screening and infection control measures. The Xishan District CDC has additionally begun integrating TB education and free chest x-ray screening into existing elderly check-up service drives, which are conducted through the community health centers. In FY12, more than 720 elderly community members [USAID PMP Indicator 9] have participated in these check-up drives, and all of them received a free TB screening. Eighteen (18) of those are TB suspects and have been referred for diagnosis. China's CDC plans to expand this service to include community based women's health screening drives.

In order to support the work of the outreach workers and community health centers, during FY 12 TB control staff from the Kunming CDC completed a one-week training course in Strategic Behavioral Communications (SBC) conducted by FHI 360 China staff, and are in the process of producing several TB/MDR-TB materials. These include referral cards and referral record books to facilitate successful referral and tracking of suspected TB patients, and posters to help clients: (1) identify potential signs of TB infection, and (2) know where to go for testing and treatment. Draft versions of these materials have been produced and are currently being pre-tested.

***Activity 2: Conduct a launch meeting for the CAP-TB project in Yunnan Province***

FHI 360 Yunnan Anti-TB Association and the Xishan District CDC hosted a launch meeting for the CAP-TB Project in Yunnan Province on July 13, 2012. More than 30 individuals attended the launch, which included leadership from the Yunnan Provincial Bureau of Health, the Yunnan CDC, the Yunnan Anti-TB Association, and the Kunming CDC. Also on hand were representatives of the Xishan District CDC and the Private Medical Association, and the two community health centers which will be implementing the project. A representative from USAID RDMA spoke at the meeting and noted that the CAP-TB project was "evidence of the commitment on the part of the US government toward supporting global efforts to control tuberculosis." Following the launch, participants toured the Yunnan provincial TB testing laboratory and the treatment center for MDR-TB patients.

***Activity 3: Strengthen basic TB/MDR-TB knowledge among private healthcare providers in Xishan District, Kunming City***

Private healthcare providers (including private clinics and neighborhood pharmacies) are the first point of care for many potential TB/MDR-TB patients in China. The COPC-TB model aims to increase uptake of TB screening, and thus early case detection, by working with these providers to encourage referral to testing among clients with clear TB symptoms. In September 2012 the Xishan District CDC conducted three separate information sessions for a total of 169 (64 male and 105 female) private clinic doctors and 100 private pharmacy staff in the project catchment area [USAID PMP Indicators 17 & 24]. These information sessions were intended to strengthen knowledge of basic TB symptoms and the seriousness of MDR-TB; familiarize providers with referral procedures; and introduce the referral incentives scheme under which private providers receive 5 RMB (US\$0.79) for each successful referral, and an additional 10 RMB (US\$1.58) for each referred client who tests positive. These information sessions will be carried out periodically over the life of the project, and project outreach workers will regularly follow-up with private service providers to assure they are following referral mechanisms put into place.

In the current reporting period, private providers have already successfully referred 80 clients with suspected TB infection for screening. Successful referrals are being tracked through use of referral cards with a unique identifying code, which were produced and distributed to private providers by the Kunming CDC.

***Activity 4: Provide capacity building for community health center staff***

As described above, the community health centers in Fuhai Residential Community and Zongshuying Residential Community play a key role in disseminating information about TB/MDR-TB symptoms, transmission, treatment and prevention and offer free chest x-rays to detect potential infection; however, a preliminary assessment conducted by FHI 360 and our project partners concluded that technical capacity at the community level required strengthening. In July 2012, the Xishan District CDC provided a one-day training session for 28 (10 male and 18 female) doctors [USAID PMP Indicator 17] from the two community health centers to strengthen capacity for conducting chest x-ray examination, identifying potential TB symptoms, and providing basic information and counseling for TB patients. Additional priority areas for capacity strengthening at the community level in the next reporting period will be around: (1) follow-up of MDR-TB patients after discharge from the hospital, given the lack of community-level experience in managing SLDs, side effects, long-term patient care, and home-based infection control; and (2) management of community-based outreach workers.

***Activity 5: Strengthen community-based infection control***

An estimated 6% of MDR-TB cases in China are new infections, indicating significant ongoing transmission attributable in part to poor infection control. A major goal of the COPC-TB model in China is therefore to strengthen community-based infection control. During FY12 the Yunnan TB Clinic Center conducted two monthly training sessions for 8 (4 men and 4 women) family members of MDR-TB inpatients. These trainings have focused on providing home-based care and support for MDR-TB patients while reducing the risk of infection through, for instance, ensuring adequate home ventilation, appropriate use of masks, and covering one's mouth when sneezing. Patients and their families have expressed great appreciation for these training sessions, as they give more opportunity to interact with clinical staff and ask questions.

***IR2: Strengthened MDR-TB management***

Survey data from China indicates that, while relatively few cases of MDR-TB are identified, of those who do test positive, fewer than half are put on treatment. In Yunnan, FHI 360 has partnered with the Xishan District CDC to provide sputum culture screening for TB infection, and the Yunnan Provincial CDC to speed diagnosis of MDR-TB patients. FHI 360 is also partnering with the Yunnan TB Clinic Center to provide clinical care for MDR-TB patients. This partnership is strategic as the TB Clinic Center has an existing GFATM project to provide free MDR-TB treatment for patients who agree to participate in the program and who are deemed capable by a medical review board of adhering to the treatment regimen. A separate healthcare provider, the Kunming Infectious Disease Hospital, also provides treatment for TB patients in Yunnan Province; though this facility is not a partner under the COPC-TB model they have been included in trainings to strengthen provision of clinical care.

***Activity 1: Strengthen laboratory capacity for TB/MDR-TB diagnosis and treatment monitoring***

All county laboratories in Yunnan province are equipped with safe culture laboratory facilities; however, due to low patient loads many laboratory personnel have insufficient expertise in routine TB sputum culture. The Yunnan CDC therefore held a 3-day training in September for 25 (17 men and 8 women) laboratory personnel [USAID PMP Indicator 14] from the municipal level as well as all 14 counties in Kunming City. The training focused on sputum culture.

Additionally, diagnosis of MDR-TB previously required three months using drug sensitivity testing; a major goal of CAP-TB has been to reduce this wait time. The project has purchased a GeneXpert machine which can accurately diagnose MDR-TB infection in about two hours. The machine was delivered to the Yunnan CDC in September 2012, and training was conducted by the equipment manufacturer for 5 (4 male and 1 female) Yunnan CDC laboratory personnel [USAID PMP Indicator 14].

***Activity 2: Strengthen Human Resource capacity for management of MDR-TB***

Clinical care providers have only recently begun programmatic management of drug-resistant TB in Yunnan Province, and the initial field assessment indicated that there is a lack of technical expertise in clinical treatment of MDR-TB. Therefore, in August, FHI 360 supported one female doctor from the Yunnan Anti-TB Association and one female doctor from the Guangxi #4 Infectious Disease Hospital to attend a week-long training on MDR-TB management held in Xi'an City by the National Center for TB Control and Prevention, The Union, and the WHO.

Also in August, FHI 360 supported a one-day training for 40 doctors (14 men and 26 women) [USAID PMP Indicator 18] from health care facilities in and around Kunming City and including two doctors from Guangxi Province. The training, conducted by a Union consultant, focused on current guidelines and advances in clinical management of MDR-TB using second-line drugs, and control of nosocomial TB transmission. A case review was also conducted. Participants in this training were expected to conduct training for their own colleagues upon returning to their individual institutions. To date, doctors who attended the training have trained an additional 44 (16 male and 28 female) clinicians [USAID PMP Indicator 18]. FHI 360 and The Union also plan quarterly follow-up and refresher trainings.

During his training trip, the Union consultant additionally visited the outpatient department and medical ward of the Yunnan TB Clinic Center and gave a number of recommendations for reducing the risk of nosocomial transmission of MDR-TB. These recommendations included separating staff and patient areas in the medical ward and installing mechanical

fans in each patient room to facilitate air exchange and to direct air outdoors. The Center is still discussing the best way to act upon these recommendations.

### *IR3: Improved strategic information for MDR-TB*

#### ***Activity 1: Strengthen capacity of TB program to collect, analyze and use data from project management***

In July, FHI 360 and local partners worked to form an MDR-TB Working Group, which will coordinate between the different agencies working under the COPC-TB model. At present, this working group is comprised of existing FHI 360 implementing agencies (IAs) under the CAP-TB project; however, it is envisioned that membership will grow to include non-IA participants in the COPC-TB model. The MDR-TB Working Group held their first meeting on July 26, where the members discussed the outcomes of the project launch meeting, distribution of responsibility for project activities at different levels, the activity budget, and implementation needs.

In addition, FHI 360 supported one member of the Yunnan Anti-TB Association to attend a week-long TB program management training conducted in August in Shenyang City by the International Union against TB and Lung Disease [USAID PMP Indicator 20].

Finally, CAP-TB partners at the provincial and municipal levels have begun regular monitoring and evaluation of project activities. This has included oversight and site visits to the Xishan District CDC conducted over three days in September, and twice quarterly visits by the District CDC to conduct supervision at the two community health center sites.

### *IR4: Strengthened enabling environment for MDR-TB*

During the initial field assessment for the CAP-TB project, it was noted that, while systems for TB prevention and control in China are relatively well-developed, there is a need for higher-level commitment towards TB control among healthcare professionals, and better coordination of referrals among all providers of TB diagnosis and care. A key focus for FHI 360 during FY12 has therefore been on working to improve support from, and collaboration with, a wider network of service providers to improve targeted referrals for TB testing and treatment. FHI 360 has also worked to help build project sustainability in the long-term, by encouraging the development of organizational capacity at the community level.

#### ***Activity 1: Strengthen partnerships for quality TB care, including the private sector***

As noted above, the collaboration of community-based, privately owned health care facilities as first point of care service providers is key to the early detection of TB/MDR-TB. In order to strengthen this collaboration, in September the Xishan District CDC held a one-day coordination meeting with representatives from 21 private clinics, pharmacies and the Xishan District Private Medical Association. Participants included 10 men and 11 women. The meeting was held to address questions regarding how to effectively refer to services under the CAP-TB project. Follow-up meetings are planned quarterly.

#### ***Activity 2: Strengthen organizational capacity of local community-based workers to build project sustainability***

FHI 360 identified a local consultant who conducted a 1.5 day workshop on organizational capacity development for 10 (2 men and 8 women) participants including CAP-TB project outreach workers, community health center staff, and CDC representatives. The workshop focused on building an understanding of community-based approaches, strengthening local



capacity for organizational capacity analysis, and creating a short-term plan for development of a community-based organization (CBO). The long-term goal is that over the life of the project, a local CBO will be strengthened and be able to responsibility for TB/MDR-TB prevention education beyond the end of the CAP-TB project.

## Narrative IV: Success stories



### Chinese pledge additional funding for CAP-TB

#### 100,000 RMB to support capacity building for MDR-TB treatment



*Photo:  
Representatives of the US and Chinese government s gathered in Kunming for the CAP-TB project launch.*

Despite a recent decline in TB prevalence and incidence, China is still combating the world's second largest TB epidemic, with 1.3 million new cases each year, an estimated 6% of which are MDR-TB. While the country has a relatively sophisticated system for TB control and treatment, human resources and capacity for MDR-TB services remain weak, particularly at the district and local levels.

USAID and FHI 360 are strengthening this capacity under the CAP-TB project which launched in Kunming City this July with a surprise announcement of 100,000 RMB (US\$15,873) in additional, unsolicited funding from the Yunnan Bureau of Health. The funding will support enhancing community-based education and referral to testing, introduction of rapid MDR-TB diagnosis to shorten wait times for treatment, and strengthening clinical capacity for MDR-TB treatment and adherence monitoring.

A Chinese government representative, speaking at the project launch, said that he hoped the government's contribution would help to "establish a strong foundation for implementation of CAP-TB, build community models for addressing drug-resistant TB, and carry out the government anti-TB measures."

The government has already delivered 40,000 RMB of the promised funds to the Yunnan Anti-TB Association, which is charged with implementing CAP-TB. Some of those funds are supporting additional local- and district-level clinical care providers to participate in training activities including an MDR-TB management training in Xi'an City and a three-day training in Kunming on the use of second-line drugs and management of adverse drug reactions.

The remaining 60,000 RMB in government funding is expected to be disbursed in the next calendar year, and the government has indicated additional funds may be available in the future. No final decision has been made on how those funds will be used, though one strong possibility is to help support clinical improvements to address risks for secondary MDR-TB infection which were identified under the CAP-TB project.

*Annex I: Method used to estimate total number of individuals served  
(Narrative)*

No estimations were done to calculate the total number of individuals served in FY12. Numbers reported are direct number of individuals trained and reached during the reporting period.

*Annex II: Adjustment factor to calculate for potential overlap between  
USAID partners and other USG (Narrative)*

As of the writing of this report, there is no overlap in programming between USG partners working on TB in the areas covered under CAP-TB in China, therefore no adjustment factors have been used to calculate for potential overlap. As noted above, PSI will carry out limited TB/HIV work under the USAID CAP-3D project in Yunnan Province; however, their activity plan has only recently been drafted and implementation will not begin until December 2012.

# FHI 360 Thailand

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## Acronyms

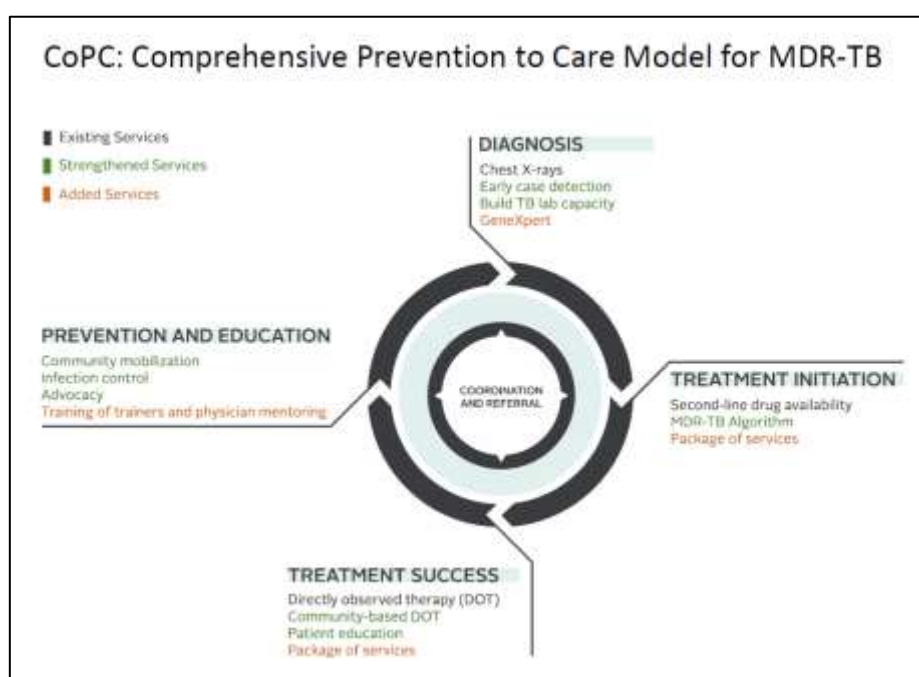
APRO	Asia Pacific Regional Office
ATAT	Anti-TB Association of Thailand
BTB	Bureau of Tuberculosis
CAP-TB	Control and Prevention of Tuberculosis (Greater Mekong Sub-region Multidrug Resistant Tuberculosis Prevention and Management Project)
COPC-TB	Comprehensive Prevention to Care for Multidrug Resistant Tuberculosis
DOT	Directly observed therapy
DOTS	Directly observed therapy-short course
FHI 360	Family Health International
FY	Fiscal year
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
HV	Health volunteer
IC	Infection control
IR	Intermediate Result
MDR-TB	Multidrug resistant tuberculosis
MOA	Memorandum of Agreement
NCCM	National Catholic Commission on Migration
NTP	National TB Control Program
PCU	Primary Care Unit
PHO	Provincial Health Office
PMP	Performance management plan
RDMA	Regional Development Mission - Asia
TB	Tuberculosis
USAID	United States Agency for International Development
US CDC	United States Center for Disease Control and Prevention
WHO	World Health Organization

## Narrative I: Executive Summary

After remaining relatively flat since 1990, tuberculosis (TB) prevalence in Thailand has been rising in recent years; as of 2012, Thailand ranked 18<sup>th</sup> among the high TB burden countries. Multidrug resistant tuberculosis (MDR-TB) in particular is a growing public health challenge. While MDR-TB among new TB cases remains relatively low (1.65% in 2006), among retreatment cases the prevalence reached 34.5%, far outstripping the Southeast Asia regional average of 17%. There have also been reports of MDR-TB outbreaks among populations of migrants, refugees and other people living along the Thai-Burma border.

In response to this situation, FHI 360 is implementing the five-year Greater Mekong Sub region Multidrug Resistant Tuberculosis Prevention and Management (CAP-TB) Project. CAP-TB is funded by the United States Agency for International Development (USAID) Regional Development Mission - Asia (RDMA), to reduce incidence of and mortality related to MDR-TB in China, Burma and Thailand. In Thailand, the project is being implemented in Rayong Province, an industrial zone with many migrant workers from neighboring countries living and working in close quarters. This is a highly conducive environment for the spread of TB, and the TB incidence rate and prevalence in Rayong are higher than the national average. While no new MDR-TB cases were reported in 2011, 28.95% of retreatment cases were MDR-TB.

The cornerstone of the CAP-TB project is the development of a comprehensive prevention to care model for MDR-TB, with the goal to implement focused interventions for each of the model components below:



- **Prevention and training:** Education and referral by health volunteers (HVs) who identify suspected cases of tuberculosis infection and refer clients to their local Primary Care Unit (PCU)
- **Early diagnosis:** TB screening and rapid MDR-TB diagnosis provided by district hospitals and the provincial-level Rayong Hospital
- **Treatment initiation:** Programmatic management of drug resistant tuberculosis (PMDT) conducted at Rayong Hospital; advocacy with other partners such as the

National Health Security Office and Global Fund to Fight AIDS, TB and Malaria (GFATM), who provide second-line drugs to ensure access of treatment to all patients with MDR-TB

- **Treatment success:** Community-based treatment and adherence monitoring through HVs supported by the National Catholic Commission on Migration (NCCM)
- **Coordination:** Referral and patient tracking by a dedicated Call Center based at Rayong Hospital

CAP-TB partners include the following, with the following portfolio:

6. Rayong Provincial Health Office (PHO): project management, monitoring and evaluation
7. Rayong Hospital: treatment initiation and success
8. NCCM: outreach education and treatment adherence monitoring

During the first year of the project (Oct 2011-Sep 2012), the Thailand CAP-TB team has focused on project design and start-up and on building the capacity of key partners to carry out project interventions. Specific activities included:

- Site assessment and desk review
- Finalization of sub agreements between FHI 360, NCCM and Rayong PHO
- Start-up activities including recruitment and training of project staff, orientation and coordination meetings, and identification of project consultants
- Establishment of a working group to implement the CAP-TB project
- Purchase of a GeneXpert machine with training for TB laboratory technicians
- Meetings to draft infection control guidelines for homes and communities

The project has also already started activities to strengthen linkages between health facilities for referrals of suspected TB cases, community participation in MDR-TB prevention and treatment as well as human resources for TB/MDR-TB service delivery and management. A supportive “comprehensive package of services” for MDR-TB patients was also launched in September.

## **Narrative II: Challenges encountered during reporting period**

The sub agreements with CAP-TB partners, NCCM and the Rayong PHO, were executed soon after the work plan was approved by USAID in June (July 1 for NCCM and July 20 for Rayong PHO). There was a slow start-up for the implementation of the sub agreement activities especially by Rayong PHO due to government review and clearance processes.

## **Narrative III: Program Performance during reporting period**

FHI 360 is supporting development of a Comprehensive Prevention to Care for MDR-TB (CoPC-TB) model to strengthen collaboration and coordination between communities and health facilities; to improve referral systems for TB/MDR-TB diagnosis, treatment and care for MDR-TB cases; and to prevent transmission of TB/MDR-TB both in communities and health care facilities.

During this reporting period, FHI 360 conducted field assessments in Rayong and Tak provinces; held meetings to coordinate and share findings with partner agencies; finalized sub agreements with local partners and recruited project staff and consultants; and organized a project orientation and training on MDR-TB management.

In addition to these preparatory activities Thailand CAP-TB team members collaborated with national partners. This included:

- reviewing and helping to finalize Thailand's national five-year MDR-TB strategic plan in June 2012 [USAID PMP Indicator 23];
- attending the STOP TB Partnership Meeting in March, where the CAP-TB Senior Tuberculosis Medical Advisor moderated poster presentations and shared information about the CAP-TB project;
- distributing IEC materials at a World TB Day event hosted by the Bureau of Tuberculosis (BTB) and Ministry of Public Health in Bangkok.

Individual project activities for FY12 are described below, organized by appropriate Intermediate Results (IR) as defined under the USAID contract.

### *IR1: Strengthened MDR-TB prevention*

#### ***Activity 1.1: Strengthen community-based DOT services***

FHI 360 developed guidelines for TB prevention and management in community settings. FHI 360 and NCCM used these guidelines to train 192 participants (including health volunteers and healthcare staff from four communities) on TB screening, community-based DOT, and TB IC in households [USAID PMP Indicator 17].

DOT services are currently covering 4 communities in three districts. During this reporting period, DOT was provided for two MDR-TB cases (one male and one female).

#### ***Activity 1.2: Strengthen linkages between health facilities for referrals of suspected TB cases***

FHI 360 facilitated discussions with all partners to strengthen referral linkages for suspected TB cases between community health centers, sub-district health promotion hospitals, district hospitals, and Rayong Hospital. To ensure effective referral, Rayong Hospital hired one full-time staff for the referral center to work with the TB clinic nurse, health officers and NCCM [USAID PMP Indicator 16]. This person is responsible for:

- referring patients to/from other health facilities,
- following up MDR-TB cases,
- recording and reporting MDR-TB data, and
- organizing multidisciplinary team meetings involving staff from Rayong Hospital, district hospitals, PCU, health centers and NCCM.

During this reporting period, fourteen (14) MDR-TB suspects (12 males and 2 females) were referred from community and district hospitals to Rayong Hospital.



### *Activity 1.3 Strengthen community participation in MDR-TB prevention and treatment*

**Creating a Memorandum of Agreement (MOA):** NCCM conducted assessments in four communities in order to better understand partners' overall coordination and referral needs. A draft Memorandum of Agreement (MOA) was created and reviewed by key stakeholders in the Phe community, defining agreed-upon roles and scope of work for each organization. The MOA will be launched in early October 2012.

**Disseminating Knowledge:** NCCM also promoted TB/MDR-TB knowledge and awareness among the general public about TB and MDR-TB to 2,742 community members in Phe Community (1,085 men and 1,657 women) [USAID PMP Indicator 9].

### *Activity 1.4 Strengthen infection control (IC) in health facility and household/community:*

**Hospital-based Infection Control:** CAP-TB team members worked towards strengthening quality infection control standards and practices in different health facilities including Rayong Hospital. FHI 360 staff visited health facilities and delivered recommendations for strengthening infection control, for instance by improving ventilation and strengthening other environmental controls, and mandating use of personal protection equipment such as N95 face masks.

**Home-based Infection Control:** The CAP-TB team organized a meeting with partners in Rayong Province, including health personnel from Rayong health facilities and NCCM, to develop practical guidelines for TB-IC in households and community settings like prisons, schools and factories. These guidelines will include targeted administrative plans for TB control, recommendations for environmental improvements such as open windows and doors, and encouragement that TB-positive patients wear masks etc. The first draft of TB IC practical guide will be completed and reviewed by the CAP-TB, Rayong team, BTB, and US CDC in October.

## *IR2 Strengthening MDR-TB management*

### *Activity 2.1 Provide support for introduction of GeneXpert*

A key barrier to timely treatment initiation for MDR-TB patients has been that a laboratory diagnosis using traditional techniques requires a minimum of four months. During this time, patients may be lost to follow-up, or may further spread infection. Under the CAP-TB project, FHI 360 purchased a GeneXpert machine which was installed in Rayong Hospital's laboratory [USAID PMP Indicator 15] on August 10 and which reduces wait time to about two hours.

**Technical Assistance on GeneXpert:** A training workshop was conducted for seven TB laboratory technicians from Rayong Hospital and one FHI 360 lab specialist [USAID PMP Indicator 14]. In addition, CAP-TB supported one Medical Technologist from Rayong Hospital to attend a GeneXpert diagnosis techniques training conducted by the National TB Reference Laboratory in Bangkok.

The CAP-TB team also drafted an algorithm and standard operating procedures for performing GeneXpert testing. The Rayong team reviewed these documents in September; the algorithm will be reviewed again with partners including BTB and the US CDC in October.

Using the GeneXpert machine, during this reporting period Rayong laboratory staff tested 44 suspected MDR-TB cases and found five (5) cases of rifampicin resistance (RIF-R) among three males and two females. The five new MDR-TB patients have already started their treatment at Rayong Hospital [USAID PMP Indicator 10].

**Scaling up Early Case Detection:** Activities to promote early case detection are already ongoing in one community under the CAP-TB project, and will be scaled up to an additional three communities in FY13. Early case detection will target patients at high risk for MDR-TB, including:

- patients who have yet to start treatment (migrants, prisoners, and HIV positive persons),
- patients who are currently on treatment with sputum smear positive in the third and fifth month of TB treatment, and
- patients who are retreatment cases (relapse, treatment after failure, and treatment after default).

**Activity 2.2 Strengthen human resources for TB/MDR-TB service delivery and management Project Staff-up:** In July, Rayong PHO appointed project consultants and established a working group to oversee the implementation and M&E of CAP-TB activities. The project recruited one full-time CAP-TB staff for Rayong PHO, two staff for Rayong hospital and three staff for NCCM. These project staff are providing coordination at the provincial, district and health facility levels for TB/MDR-TB activities.

**Capacity-building trainings:** FHI 360 also organized trainings for 172 health volunteers (66 public sector males and 92 public sector females; as well as 8 private sector males and 6 private sector females) and 20 healthcare personnel (3 males and 17 females) from district hospitals and health centers in four communities. Training topics included TB screening (case finding), community-based DOT, and TB IC [USAID PMP Indicator 17].

**Activity 2.3 Provide support for a package of services for MDR-TB patients**

The MDR-TB comprehensive package of services includes:

- Transportation for healthcare workers doing home visits and patients returning for regular hospital follow-up;
- Adherence support activities;
- Fees for regular laboratory tests not covered under the national health insurance scheme for non-Thai citizens such as migrant workers;
- Environmental improvements such as ventilation windows for infection control in households.

This package of services is available for patients registered from August 2012 onwards. However, a similar service package is currently being provided for MDR-TB cases at Rayong Hospital with support from the GFATM. Because not all services in the USAID package are covered by GFATM, project funds are in some cases being used to supplement the GFATM package. The USAID-supported service package will be available for all eligible patients after the phase out of GFATM support in July 2013.

## Narrative IV: Success stories



### CAP-TB Reduces Wait Time for MDR-TB Diagnosis



*Photo:  
Official delivery of a GeneXpert  
machine from USAID and FHI 360 to  
Rayong Hospital in August.*

Treatment of MDR-TB in Thailand has typically been constrained by a testing algorithm that required almost half a year for diagnosis, but in a significant advance in the ability to control and treat infection, USAID and FHI 360 have worked in one pilot site to cut that time down to less than a day.

The five-year CAP-TB project in Thailand aims to control the spread of MDR-TB through early case detection, strengthening of clinical management, and enhanced adherence monitoring in Rayong Province. However, case detection is hindered because an MDR-TB diagnosis requires a 4-5 month wait. A significant achievement and contribution of CAP-TB has been the purchase of a GeneXpert machine for Rayong Hospital, and training for seven staff who can now use the technology to detect *Mycobacterium tuberculosis* and rifampicin resistance, which is a proxy for MDR-TB. GeneXpert has reduced the time for a diagnosis from 4-5 months to two hours, meaning patients can start treatment much more quickly.

Since its installation in August, the GeneXpert machine has detected five cases of rifampicin resistance, and scale-up of early case detection is ongoing among high-risk patients. The five newly detected MDR-TB patients have already started their treatment at Rayong Hospital. The sooner patients begin to receive appropriate treatment, including adherence monitoring and education on infection control measures, the less likely the patients are to spread MDR-TB infection to caregivers, family members or other members of their home communities.

Of course, for this new GeneXpert machine to be put to most effective use, key MDR-TB partners must coordinate to ensure the timely referral of suspected TB patients from initial screening, through diagnosis and treatment, and ultimately to community-based adherence monitoring, without loss to follow-up. This is why the CAP-TB Project Team has been building strong partnerships with key MDR-TB partners at the national and provincial levels as well as within local implementation sites. The project has been well received by all parties. These partnerships are critical for moving forward over the next four years.

Telling Our Story  
U.S. Agency for International Development  
Washington, DC 20523-1000  
<http://stories.usaid.gov>

*Annex I: Method used to estimate total number of individuals served  
(Narrative)*

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*Annex II: Adjustment factor to calculate for potential overlap between  
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There is no overlap in programming between USG partners working on TB in the areas covered under CAP-TB in Thailand therefore no adjustment factors have been used to calculate for potential overlap.