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NATION RELIGION KING

MINISTRY OF HEALTH

TUBERCULOSIS REPORT 2020

Prepared by

National Center for Tuberculosis and Leprosy Control

អត្ថបទជាភាសាអង់គ្លេស
ENGLIS VERSION

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ABBREVIATION

ART	Antiretroviral therapy
CATA	Cambodia Anti-Tuberculosis Association
CENAT	National Center for Tuberculosis and Leprosy Control
CHC	Cambodian Health Committee
COMMIT	Community Mobilization Initiatives to End Tuberculosis
DOT	Directly Observed Therapy
C-DOTS	Community Directly Observed Therapy
DR-TB	Drug-Resistant Tuberculosis
FHI 360	*formerly* Family Health International
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
HC	Health Center
HP+	Health Policy Plus
HSD	Center for Health and Social Development
IPT	Isoniazid Preventive Therapy
JATA	Japan Anti-Tuberculosis Association
KHANA	Khmer HIV/AIDS NGO Alliance
MDG	Millennium Development Goal
MDR-TB	Multi-drug-resistant tuberculosis
NTP	The National Tuberculosis Program (Cambodia)
OD	Operational District
Op ASHA	Operation ASHA
PMDT	Programmatic management for drug resistant TB
PPM	Public-Private Mix
Pre-XDR-TB	Pre-Extensively Drug-Resistant Tuberculosis
RH	Referral Hospital
SDG	Sustainable Development Goal
TB	Tuberculosis
TB MIS	TB Management Information System
TPT	Tuberculosis Preventive Therapy
USAID	United States Agency for International Development
US CDC	United States Centers for Disease Control and Prevention
VHSG	Village Health Support Group
WHO	World Health Organization
XDR-TB	Extensively Drug-Resistant Tuberculosis

FOREWORD

Cambodia is among the 30 high TB burden countries. Based on the 2020 WHO Global TB report, Cambodia had a TB incidence of 287 per 100,000 population, while the mortality rate was 17 per 100,000 population in 2019. Since 2015, TB case notifications have gradually declined. In 2019, the Joint Program Review (JPR) declared that Cambodia is on track to meet the national commitments towards the End TB Strategy, TB-related targets of the Sustainable Development Goals (SDG), and actions agreed in the first United Nations High Level Meeting (UNHLM) on TB.

This year, 2020, was a challenging year for the National Tuberculosis Program (NTP) of Cambodia to smoothly implement activities due to the impacts of COVID-19. Despite these impacts, the NTP made efforts to conduct activities and achieved the following key results:

- Coverage of TB service has been maintained at 100% in all provincial and district referral hospitals (RHs) and health centers (HCs) nationwide.
- Community DOTS (C-DOTS) has been expanded from 644 HCs in 2018 to 1,000 HCs in 76 operational districts (ODs) in 2020.
- A total of 29,136 TB cases were detected, of which 10,243 were bacteriologically confirmed new TB cases, 7,054 were clinically diagnosed TB and 11,071 were extrapulmonary TB.
- The Treatment success rate of TB has been maintained at over 90% during the last 22 years and in 2020, NTP has achieved 94% of the treatment success rate in 2019 which surpassed the target of only 90%.
- TB mortality rate per 100,000/pop. dropped from 42 in 2000 to 17 in 2019, which equal to 60% reduction.
- TB incidence per 100,000 population has also fallen from 579 in 2000 to 287 in 2019, which is equal to a 50% reduction.

The year 2020 was also the last year to implement the National Strategic Plan (NSP) 2014 – 2020. With support from partners, such as WHO, USAID and other stakeholders, the NSP to End TB 2021-2030 has been developed with the directions and key initiatives that the NTP and partners will undertake during the planned period to work towards achieving the goal of ending TB by 2035 in Cambodia. In addition, the NTP, with technical support from partners, has submitted funding request to GFATM for a new TB grant in 2021-2023, which the NTP was successfully awarded. This is crucial for the NTP to continue its key activities toward ending TB by 2035 in Cambodia.

Finally, in the context of the COVID-19 pandemic, the NTP with all relevant stakeholders need to stand in solidarity. I believe that, together, we can save lives of our people and make a difference. **It's time to take action to End TB !**

Director of CENAT

Dr. Huot Chan Yuda

1 - INTRODUCTION

The Ministry of Health of Cambodia has given high priority to tuberculosis (TB) control. With the support and encouragement from the Royal Government of the Kingdom of Cambodia led by the Prime Minister, **Samdech Akka Moha Sena Padei Techo Hun Sen**, as the Honorable Chairman of the National Anti-Tuberculosis Committee, as well as the involvement from all partners, TB control in Cambodia has achieved remarkable results in the last recent years. This achievement has been recognized by the World Health Organization (WHO) and other key partners.

In 2015, WHO reclassified the countries with a high burden of TB from 22 high TB burden countries in the previous list to 30 countries in the new list. By the end of 2015, Cambodia was one of the 9 countries among the 22 TB high burden countries that have successfully achieved Millennium Development Goal (MDG). Despite this great achievement, based on the new classification, Cambodia is still one of the 30 countries with a high burden of TB in the world. However, Cambodia is no longer a country with high burden of TB/HIV or multi-drug-resistant TB (MDR-TB).

According to the 2020 WHO Global TB Report, Cambodia had a TB incidence rate of 287 per 100,000 population, while the mortality rate was 17 per 100,000 population in 2019.

The followings are the main achievements on TB control in 2020 and direction/targets for 2021 and the years beyond.

2 - TB SITUATION IN THE WORLD

An estimated 10 million people worldwide fell ill with TB in 2019, of which only 7.1 million new cases were detected and reported to the WHO. In the same year, there were an estimated 1.2 million TB deaths among HIV-negative people and an additional 208,000 deaths among HIV-positive people. This makes TB the leading cause of death from a single infectious agent (ranking above HIV/AIDS).

3 - MAIN ACHIEVEMENTS

3.1 - Service Coverage

The coverage of TB services has been maintaining at 100% in all RHs and HCs nationwide. C-DOTS has been expanded from 506 HCs in 2008 to 644 HCs in 2018 and to 1,000 HCs in 76 ODs by 2020. TB/HIV collaborative activity has been implemented in all ODs in 2020 (compared to only 57 ODs in 2008) while childhood TB activities were implemented in 76 ODs. The NTP has 11 MDR-TB treatment sites in 2020.

3.2. Case Detection

In 2020, the NTP has detected a total of 29,136 TB cases, of which 10,243 were bacteriologically confirmed new TB cases.

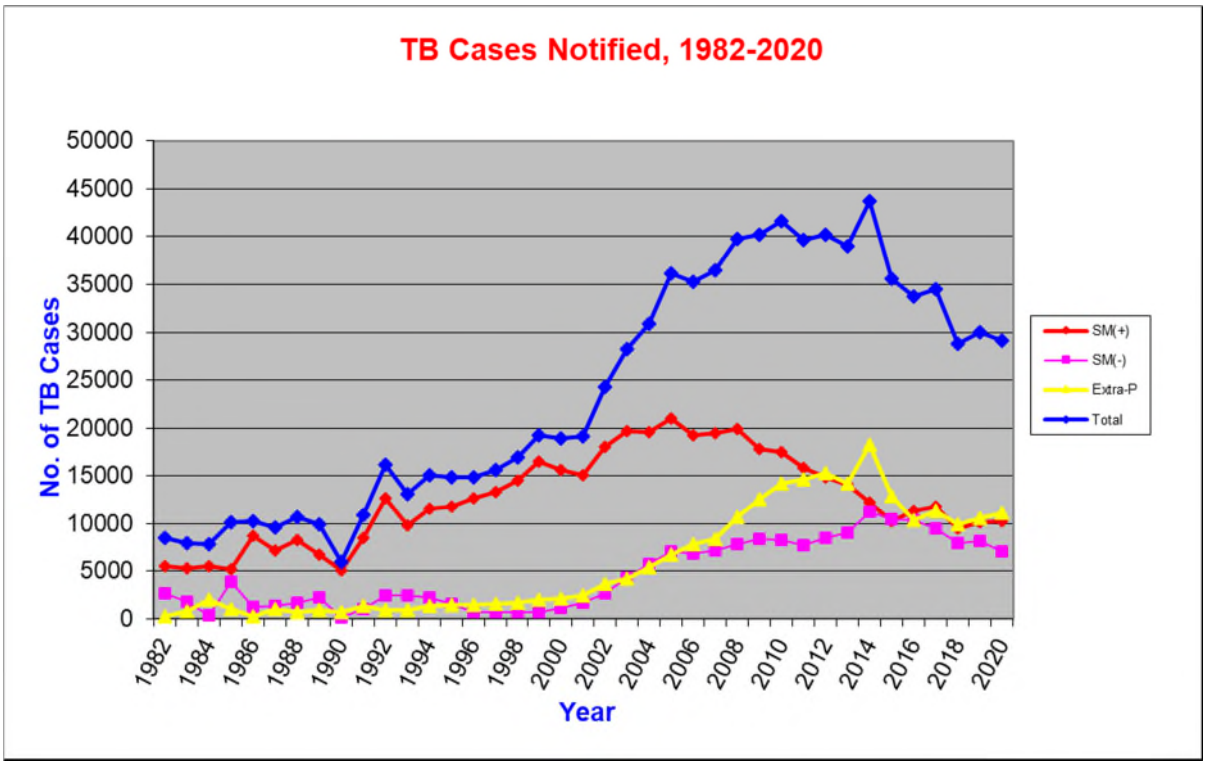

Figure 1: TB case notified from 1982 – 2020

3.3 - Treatment

The treatment success rate of TB has been maintained over 90% during the last 22 years. For instance, national TB program has achieved 94% of the treatment success rate in 2019 which surpassed the target of only 90%.

3.4 - Mortality and Incidence of TB

In recent years, Cambodia has achieved remarkable results in TB control. The 2020 WHO Global TB Report showed the TB mortality rate dropped from 42 per 100,000 population in 2000 to 17 per 100,000 population in 2019, which is equal to a 60% reduction. Meanwhile, the incidence has also fallen from 579 per 100,000 population in 2000 to 287 per 100,000 population in 2019, which is equal to 50% reduction.

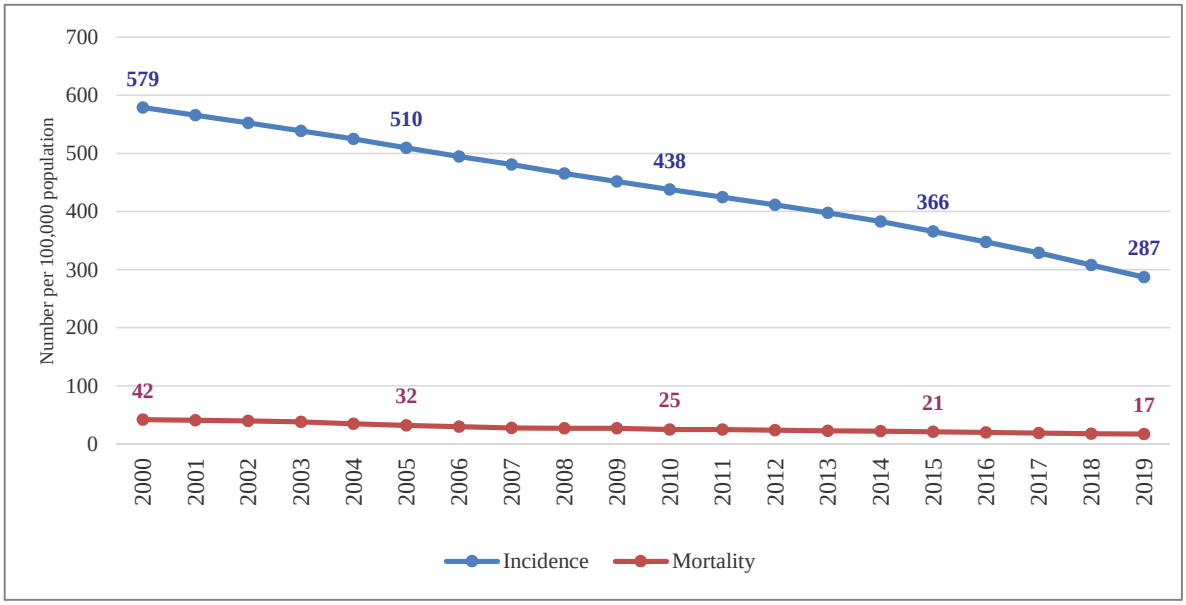

Figure 2: Trend of TB mortality and incidence from 2000 to 2019

Ministry of Health's NTP has already achieved MDG targets (1990 - 2015) in reversing incidence and reducing the prevalence and death rates of TB by 50% since 2011, which is four years ahead of schedule.

4 - MAIN INTERVENTIONS

In addition to the key achievements mentioned above, the NTP also achieved significant results relating to the interventions against TB, as follows:

4.1 - Drug Resistance TB

The NTP began implementing programmatic management for drug-resistant TB (PMDT) in 2006 in collaboration with partners including WHO, Cambodian Health Committee (CHC), Médecins Sans Frontières-France (MSF-F), Médecins Sans Frontières-Belgium (MSF-B), United States Centers for Disease Control and Prevention (US CDC), and United States Agency for International Development (USAID). The second National Drug-Resistant Survey (NDRS) conducted in 2006-2007 showed that the proportion of MDR-TB was 1.4% and 10.5% among new and previously treated TB cases, respectively. The third National Drug Resistant Survey conducted in 2017 shows that the estimated prevalence of RR-TB cases among the captured BC cases is 0.9% for new cases and 9.4% for previously treated cases. Cambodia has 11 MDR-TB treatment sites at CENAT, Khmer-Soviet Friendship hospital, Kandal RH, Kampong Chan RH, Svay Rieng RH, Takeo RH, Kampong Chhnang RH, Battambang RH, Banteay Meanchey RH, Siem Reap RH and Koh Kong RH, with a total of 57 isolation rooms by the end of 2020.

4.1.1 - MDR-TB Suspect Screening, Diagnosis, and Treatment

In 2020, there were 1,650 DR-TB suspects tested by Xpert MT/RIF. Of those, 121 MDR/RR-TB cases were detected and treated which was 86.4% compared to the target (121/140) and 3 other DR-TB cases. The figure below shows drug-resistant TB suspects that were tested by Xpert (Figure 3) and drug-resistant TB cases treated from 2007-2020.

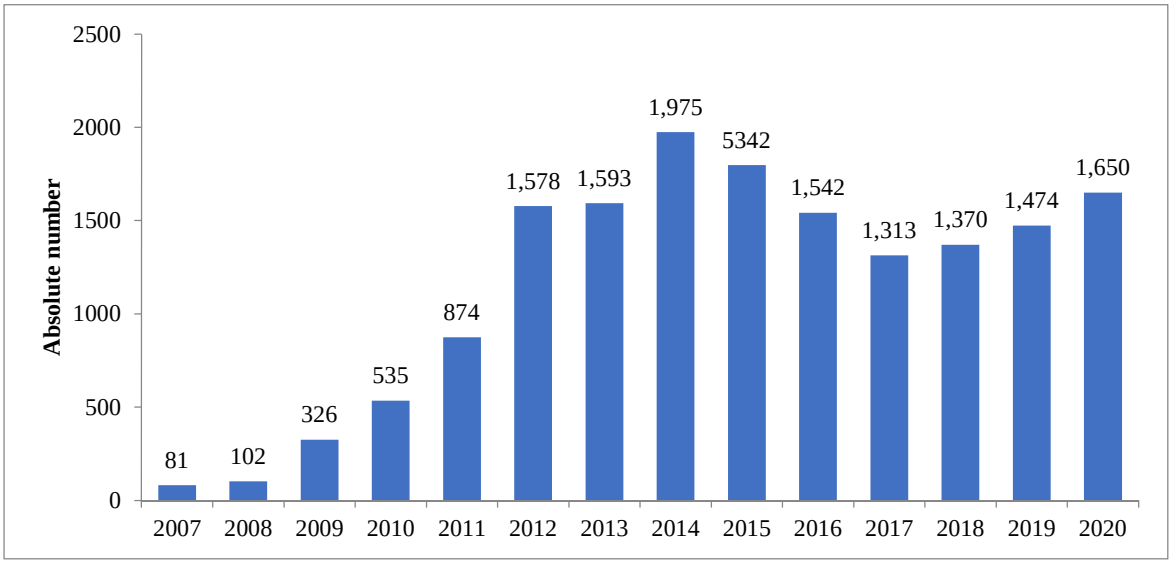

Figure 3: Number of DR-TB suspects tested by Xpert from 2007 to 2020

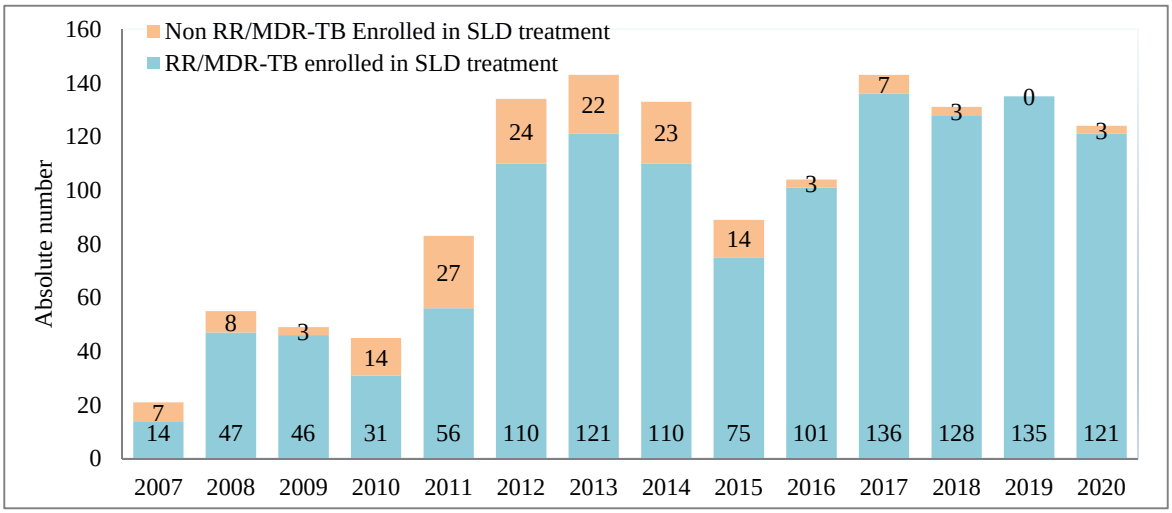

Figure 4: Number of DR-TB cases treated with second-line drugs from 2007 to 2020

4.1.2 - MDR-TB Treatment Outcome

The treatment success rate among MDR/RR-TB patients initiated on MDR-TB treatment (longer duration regimen) in Cambodia was higher than the global level average of 54%. The treatment success rate has varied from year to year, from 71% in 2017 to 80.4%

in 2018. Similarly, the death rate also varies from year (Figure 5). In the cohort of 2018 (n=128), 98 cases were received shorter treatment regimen (9-11 months) and 30 cases were on longer treatment regimen (18-20 months).

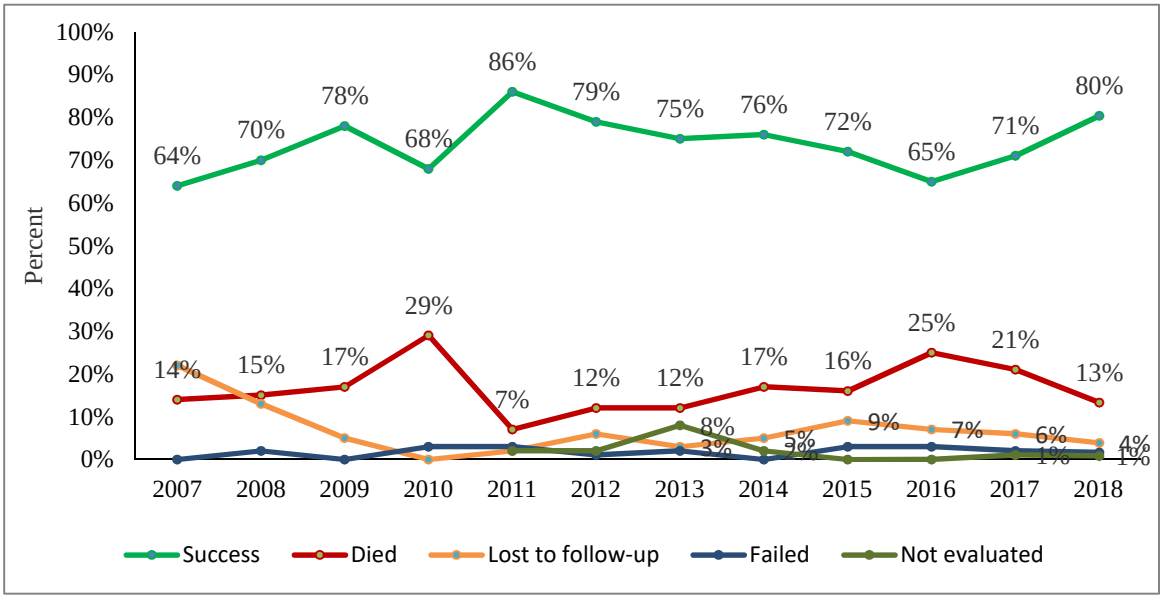

Figure 5: MDR/RR-TB treatment outcome cohort from 2007 to 2018

4.1.3 - Other activities and MDR research

In response to the new WHO consolidated guidelines on DR-TB treatment in 2019, the NTP has revised the country guidelines for PMDT to align with the latest global recommendations. The main changes in the documentation included a revised case-finding algorithm for presumptive DR-TB, which is more comprehensive and tailored to the epidemiology and program reference for Cambodia. The new recommendations signal an important departure from the previous approach to MDR/RR-TB treatment. Injectable agents are no longer among the most effective medications to consider when designing longer treatment regimens. As such, shorter, all-oral regimens have been prioritized and are the preferred options of most patients. Patients who still prefer the standardized, shorter regimen with an injectable are eligible for the 9-11 months regimen, but Kanamycin was systematically replaced by Amikacin based on the latest WHO recommendation.

During 2020, among 121 MDR/RR-TB patients enrolled for treatment, 98 cases (81%) received shorter treatment regimens and 23 longer treatment regimens. In this reporting period, 14 cases were confirmed for pre-extensively drug-resistant tuberculosis **(**Pre-XDR-TB) using line probe assay tests to detect second line drugs such as fluoroquinolones and second line injectable drugs. A total of 71 cases received new drug Bedaquiline, and/or Delamanid in their treatment regimens in 2020.

Regarding the PMDT transition plan 2019-2021, the National Center for Tuberculosis and Leprosy Control (CENAT) will allocate a proportion of MDR/RR-TB patients on all-oral shorter regimen for 9 months which is part of an operational research to

align with WHO recommendation and phase out the use of the injectable-containing shorter regimen in the future. Hence, with technical support from WHO/TDR, we have developed a protocol on a short, all-oral regimen which was approved by the National Ethics Committee for Health Research (NECHR) and started enrolling patients in mid-April 2020. The main objectives of the study are to estimate the treatment effectiveness (assessed by a composite outcome ("favorable outcome", defined as "cured" or "treatment completed" without recurrence 12 months after the end of treatment)) and safety (defined as the occurrence of serious adverse events) of shorter, all-oral MDR/RR-TB regimens under programmatic conditions in Cambodia and to contribute to the evidence base and inform treatment guidelines on MDR/RR-TB.

As a result, a total of 127 participants were enrolled in the study. The enrolled participants were classified into 3 main groups as follows:

- Participants enrolled in the retrospective cohort (control group) who received the standard shorter MDR/RR-TB regimen: Total 58 cases were enrolled.
- Participants enrolled in the prospective cohort (control group) receiving the standard shorter MDR/RR-TB regimen: Total 18 cases were enrolled.
- Participants enrolled in the prospective cohort (intervention group) receiving the all-oral shorter MDR/RR-TB regimen: Total 51 cases were enrolled.

So far, the NTP, in collaboration with relevant partners, has trained health workers, doctors, nurses, and practitioners in 11 DR-TB clinics. In addition, the training on the new TB instruction program guidelines has been provided to provincial TB administrators from 25 provinces and cities to build their capacity to manage performance related to the diagnosis and treatment using new formula including monitoring report by active drug safety monitoring and management (aDSM).

Yet, we still have challenges in strengthening and improving the quality of care specifically for MDR-TB patients with special situations and those presenting with resistance to second-line drugs such as Extensively Drug-Resistant Tuberculosis (XDR-TB) or Pre-XDR-TB cases. In the future, we hope to improve the quality of care for MDR-TB patients by focusing on the appropriate use of aDSM and regular patient monitoring to assess regimen effectiveness including patient-centered care and support as well.

4.2 - Collaborative TB/HIV activities

4.2.1 - Training

Year 2020 was a challenging year with COVID-19 pandemic. There was no collaborative TB/HIV activity training being conducted as we need to follow health preventive measures issued by the Ministry of Health against to COVID-19.

4.2.2 - Supervision

The main objective of supervision is to monitor and follow-up the performance of collaborative TB/HIV activities and provide job coaching at the site levels if there is a mistake or misunderstanding during the implementation.

The challenges found and addressed in the field included (1) difficulty to collect sputum from PLHIV who have dry cough; (2) transportation of specimen of PLHIV to Xpert machine; (3) high workload for the staff at the field.

4.2.3 - TB/HIV Data:

HIV / AIDS among TB Patients 2020									
Quarter	Number of TB cases registered for treatment (including HIV+)	Number of TB Cases Registered for treatment (excluding HIV+)	Number of Known HIV+ before TB treatment	Number of TB Cases Referred to VCCT for HIV testing	Number of TB Cases tested for HIV at VCT	**HIV+**	**HIV-**	**CPT**	**ARV**
1	7,661	7,459	152	7,348	6,774	17	6,757	136	132
2	6,470	6,369	101	6,288	5,750	22	5,728	114	116
3	8,074	7,932	142	7,723	6,835	23	6,812	182	183
4	6,981	6,824	157	6,866	6,253	34	6,219	142	139
Total	**29,136**	**28,584**	**552**	**28,225**	**25,612**	**96**	**25,516**	**574**	**570**

Table 1: HIV/AIDS among TB patients in 2020

The percentage of registered TB patients with unknown HIV status who were referred and tested for HIV (mostly at health centers where the activity has been implemented since the middle of 2014) increased gradually from 47.0% in 2007 to 82.0% in 2011. These proportions fluctuated between 80.4% in 2012 and 86.6% in 2017 and increased to 94.2% in 2019 and decreased to 89.8% in 2020.

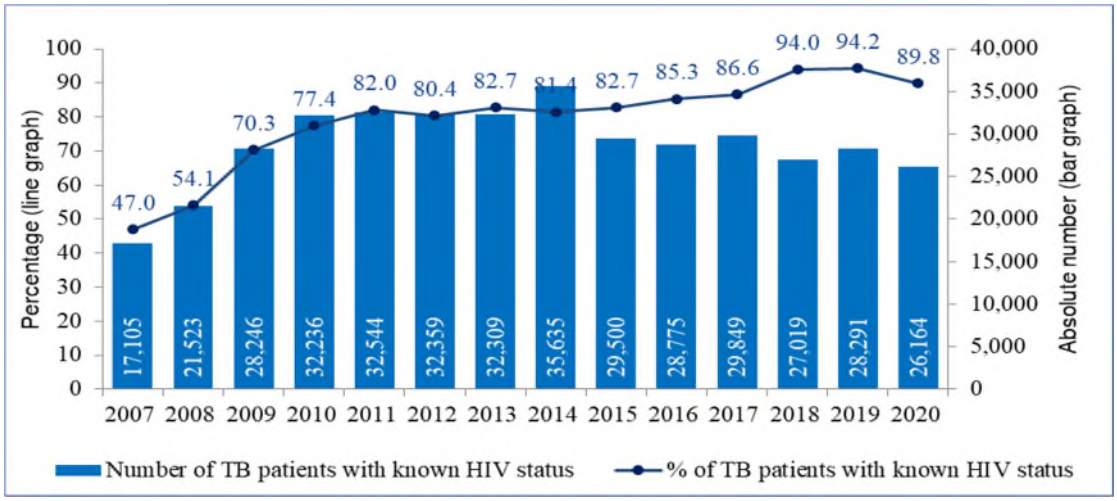

Figure 6: Percentage of Registered TB patients tested for HIV from 2007 to 2020

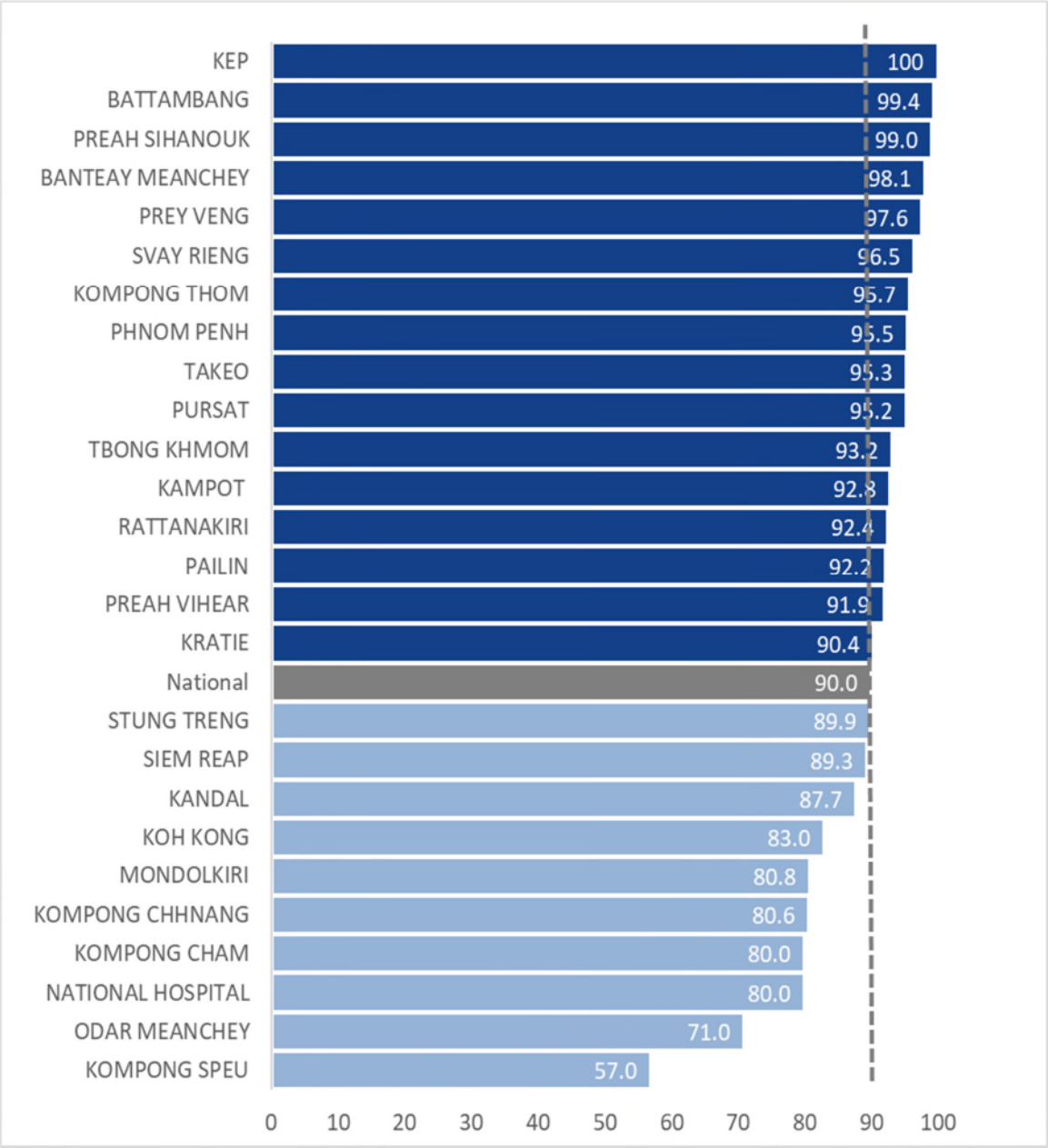

Figure 7: Proportion of HIV testing among registered TB patients by province, 2020

HIV-positive TB patients who received Cotrimoxazole Preventive Therapy (CPT) increased from 65.5% in 2010 to 92.2% in 2015, to 98.2% in 2016, to 95.3% in 2017, to 88.4% in 2018, to 98.0% in 2019 and to 88.6% in 2020. Anti-Retroviral Treatment (ART) among TB/HIV patients also increased from 44.7% in 2010 to 91.9% in 2015, to 98.2% in 2016, to 93.3% in 2017, to 91.2% in 2018, to 98.0% in 2019 and to 88.0% in 2020.

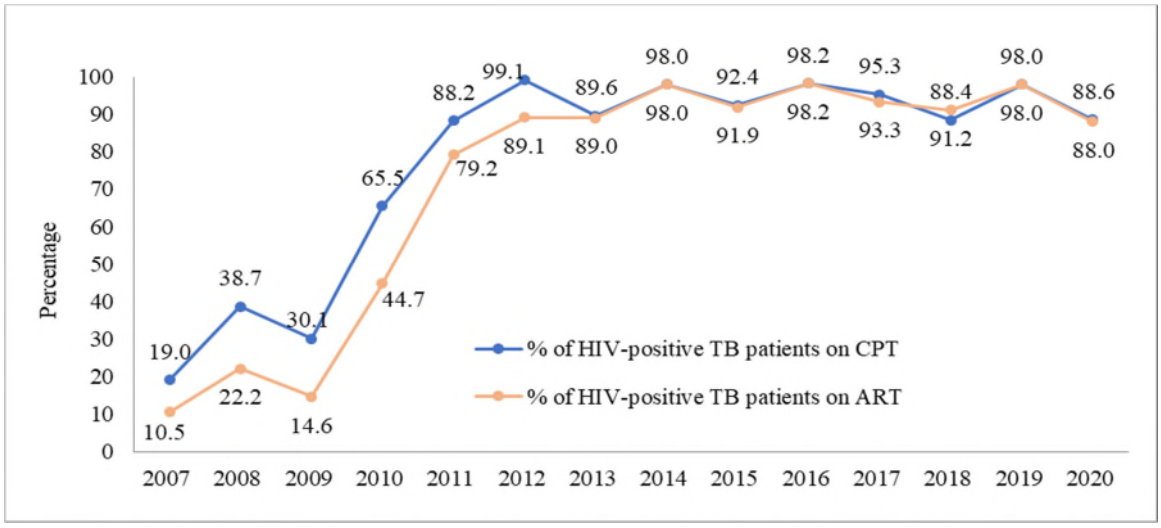

Figure 8: Proportion of HIV+ TB patient received CTP and ART from 2007 to 2020

Isoniazid Preventive Therapy (IPT) for people living with HIV/AIDS who are not likely to have TB disease is increasing from 172 in 2010 to 1,043 in 2011. Since the middle of 2014, we started introducing IPT for all PLHIV (new and ART clients) the number of PLHIV who are unlikely to have TB disease is steadily increasing from 767 in 2014 to a total of 8,611 in 2020.

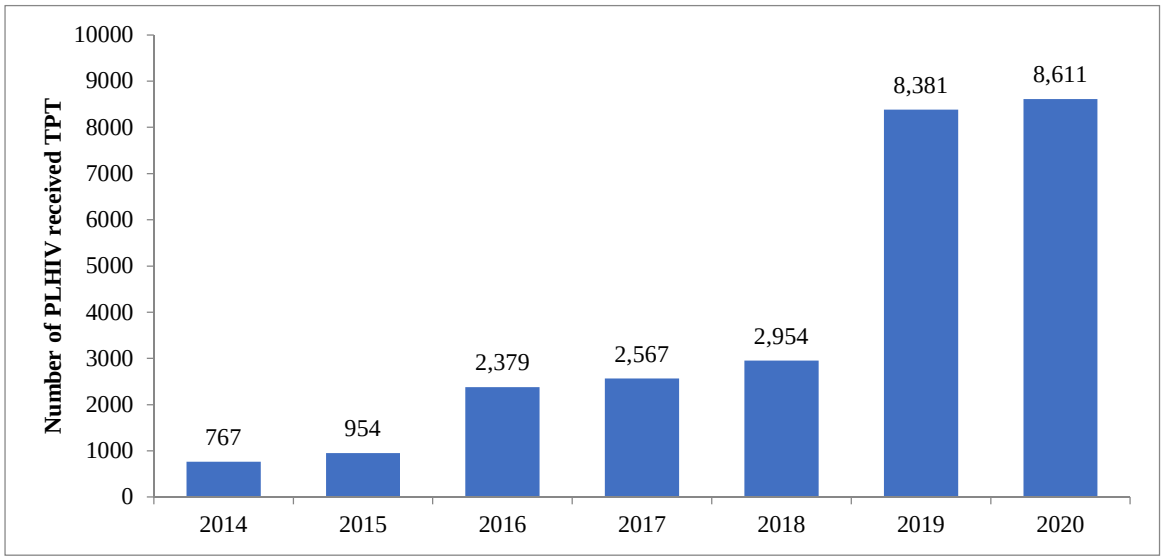

Figure 9: TPT enrollment for PLHIV from 2014 to 2020

4.3 - Diagnosis by Bacteriological Examination

4.3.1 - Diagnosis by Smear Microscopy

The total number of slides that the NTP used for TB smear examination in 2020 was 261,133 slides (detection and follow up), of which 241,258 slides were for detection. The positivity rate among smear examination for case detection was 3.8%.

To strengthen the quality of sputum examination, the NTP conducted crosschecking activities by re-examining the read slides. This is one of the laboratory quality assurance activities. Results showed that agreement rate was 98.8% with false positive and false negative rates of 0.3% and 0.9%, respectively, for the 3rd Quarter of year 2020.

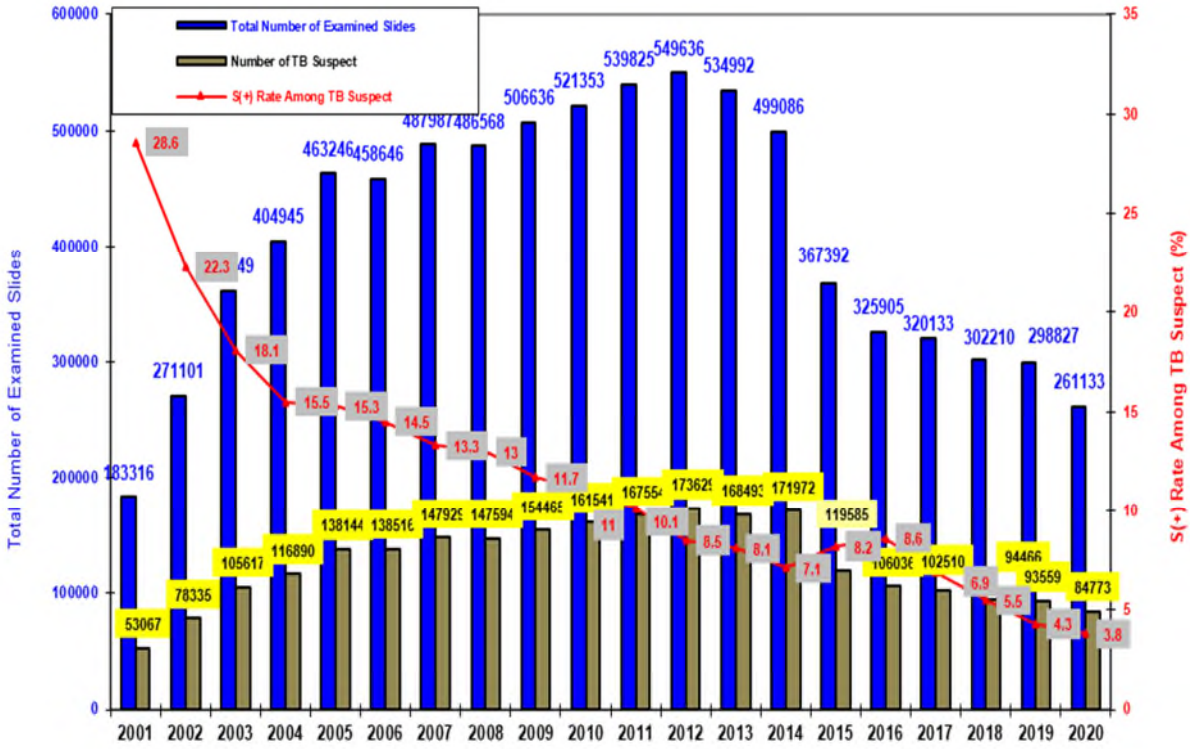

Figure 10: Smear microscopy report from 2001 to 2020

4.3.2 - Diagnosis by GeneXpert, Xpert MTB/RIF

The diagnostic tool GeneXpert machine, which has tests called Xpert® MTB/RIF, was implemented in the country in 2011 after an official authorization from WHO in late 2010. Currently, there are 78 sets in use. Among these 78 sets, 69 sets (at 64 sites) are used for routine activities.

The utilization of tests varied from year to year. For example, in 2020, national program used 86,296 tests with the results as follows: Rate of MTB detected and Rifampicin-resistant detected (RR) 0.19%, MTB detected and Rifampicin not detected (T) 10.62%, MTB detected and Rifampicin resistant indeterminate (TI) 0.82% and test error (I) 4.19%.

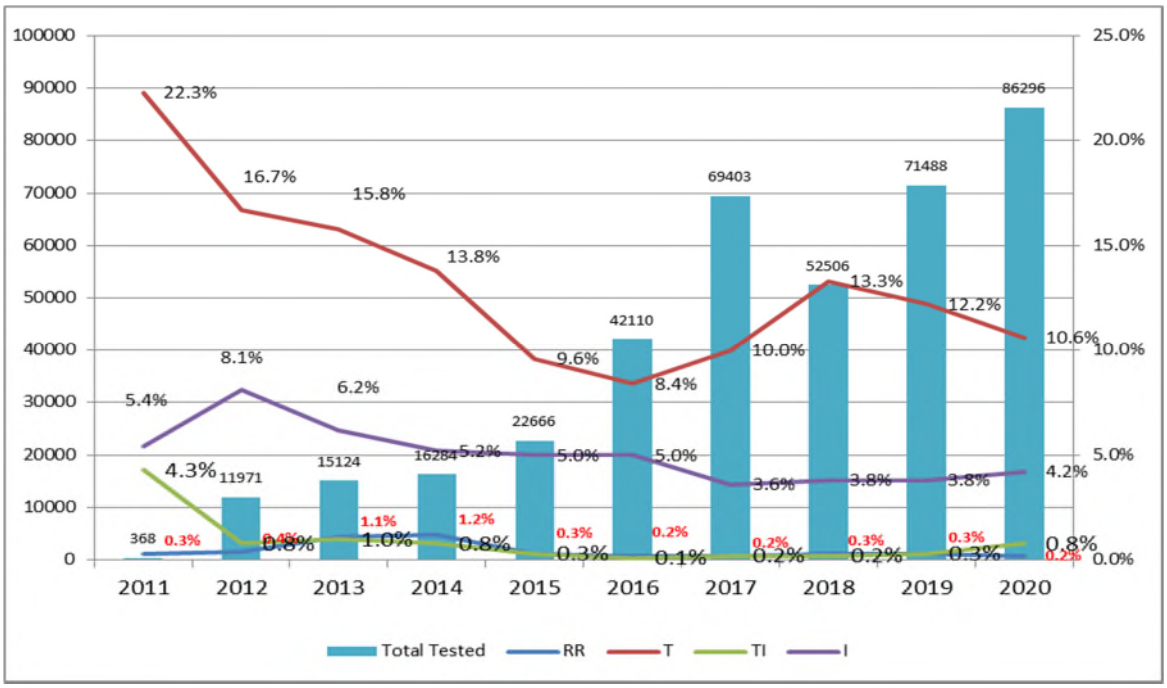

Figure 11: Test by Xpert MTB/Rif report from 2011 to 2020

4.3.3 - TB Culture and Drug Susceptibility Testing

In late 1999, the NTP with technical assistance from JICA introduced TB culture with solid medium. Step-by-step, the capacity to culture on liquid medium (MGIT) and rapid methods for identification of MTB started in 2011 at CENAT National Referral Lab (NRL), Battambang TB Laboratory and 2014 at Kampong Cham TB Laboratory. The first-line Drug Susceptibility Testing by using liquid medium (MGIT) was evaluated and introduced at CENAT NRL and later at Kampong Cham TB Laboratory (2014). The second-line Drug Susceptibility Testing by using liquid medium (MGIT) was evaluated by the supranational TB reference laboratory from the Research Institute of Tuberculosis of Japan (RIT) and has been in service since 2014.

In 2020, three culture center laboratories (CENAT NRL, Battambang and Kampong Cham) received 3,712 specimens for TB culture with positive rate of 8.67%.

4.3.4 - Training

In 2020, most of training or refresher trainings were cancelled due to COVID-19 pandemic. Nonetheless, National TB Laboratory was able to conduct one training course on smear microscopy with 30 participants. In addition, National TB Laboratory has also conducted other 2 workshops on External Quality Assurance with 50 participants in total. These courses were supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM).

4.4 - Childhood TB

Childhood TB remains as one of the priorities of the NTP. There were 6,557 childhood TB cases nationwide (all ODs) notified and treated in 2020 (see the figure below). Since August 2017, the NTP has been using the new pediatric drug formulation for childhood cases, which is child-friendly, more effective and better than the old one.

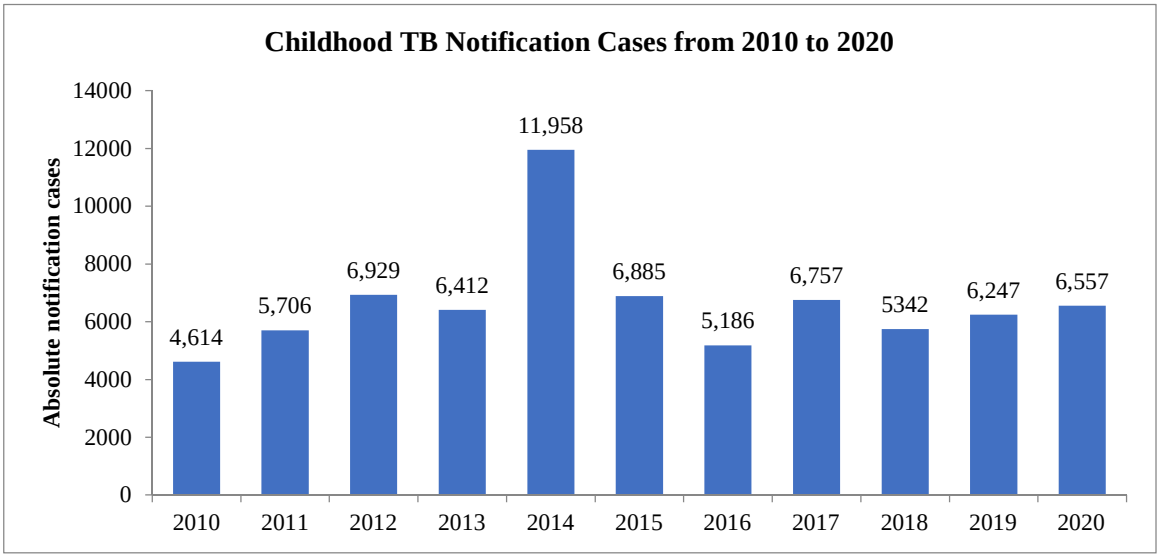

Figure 12: Childhood TB Notification cases from 2010 to 2020

After Japan Anti-Tuberculosis Association (JATA) ended its USAID/TBCARE I project implemented in 27 ODs in 2014, the NTP has maintained and strengthened childhood TB activities in 25 ODs, supported by USAID, most of whom were former ODs implementing childhood TB previously covered by JATA. By 2017, childhood TB activities supported by USAID were implemented by FHI 360 under the Challenge TB project which collaborated with the Empowering Communities for Health (ECH) project of Reproductive and Child Health Alliance (RACHA). The childhood TB activities in 25 ODs of the 10 provinces namely Battambang, Pursat, Kampong Chhnang, Kampong Thom, Kampong Speu, Prey Veng, Svay Rieng, Kampot, Kampong Cham, and Tbong Khmum ended by the end of first quarter of 2018.

After that, childhood TB was becoming a routine activity in community and health facilities (HC/RH) through contact investigation activities to identify TB suspected children and refer them to RH for TB diagnosis. By the end of 2020, this activity has been implemented in 76 ODs by five NGO partners with the fund support from the GFATM. The number of children received TPT was 7,553 cases and half (3,778 cases) of them aged less than five years old (Figure 13).

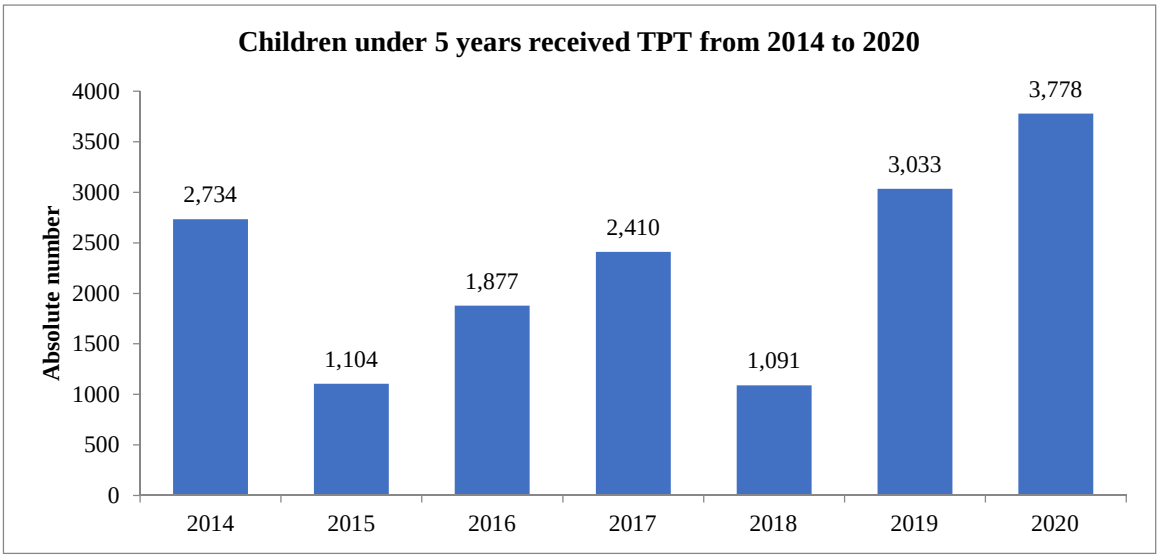

Figure 13: Children under 5 years old received IPT from 2014 to 2020

4.5 - Financing

The NTP has clearly identified a 7-year National Strategic Plan (2014-2020) by a thorough consultation with all concern partners, and a financial gap was clearly shown. On average, the need of the NTP is about US$ 20 million per year. The budget plan for 2020 was developed based on this National Strategic Plan. The NTP is trying to negotiate with all potential partners for program financing.

From April 2009 to the end of 2014, CENAT was a principal recipient (PR) for the Global Fund to Fight with AIDS, Tuberculosis and Malaria (GFATM) for TB grant round 7 and managed the financing of 11 sub-recipients (SRs). From 2015 to 2017, CENAT still continued as a PR for The GFATM under New Funding Model (NFM) with the total funding amount about US$ 15.6 million and managed the financing of 5 Sub-Recipients (SRs).

In late 2017, Ministry of Economy and Finance that became the new PR from GFATM has been signed for the three-year GFATM project cover from January 2018 to December 2020. In this project, the GFATM initially supported the TB program with an approximate total amount of US$ 13.7 million with an additional US$ 2.7 million was provided in September 2019. In total, the fund that was committed to support by GF was about US$ 16.4 million for the years of 2018-2020. This grant fund was implemented by CENAT itself and as the sub-implementer (SI) for TB program, CENAT also manages grant implementation of all Provincial Health Departments and five sub-sub-implementers (SSIs) namely: CHC, CRS, HPA, Op ASHA and RHAC.

In late 2020, GFATM agreed to support CENAT with a total amount of US$ 19.7 million for a three-year period 2021 – 2023. This new grant will be implemented by CENAT and as SI for TB program. CENAT also manages grant implementation of all Provincial Health Departments and three SSIs namely: CHC, CRS and Op ASHA.

Also, in 2020, four major donors USAID, US CDC, ADB and TB REACH supported the NTP. In addition, under the support from USAID through TB Local Organization

Network Project (TB LON), the NTP collaborated with Khmer HIV/AIDS NGO Alliance **(**KHANA), CHC, CATA and Center for Health and Social Development (HSD) to start a 5-year project called Community Mobilization Initiatives to End Tuberculosis (COMMIT).

In addition to these grants from development partners, the Royal Government of Cambodia is increasing fund allocation from the National Budget to the TB program including a 100% contribution for purchasing adult TB drugs in 2020, salaries and incentive support to all staff who manage and implement GF project at CENAT.

In summary, the NTP received funding support in 2020 from seven main sources: National Budget, the GFATM, USAID, US CDC, ADB, CHAI, TB REACH and WHO. However, the NTP could face budget shortage over the coming years to meet the new direction of aggressive TB control.

4.6 - Drug and laboratory supplies

Proving highly important in TB Control, TB Drug Management is deemed the core element of the DOTS program. An uninterrupted supply of anti-TB drugs, reagents, and consumables is necessary for the sustained provision of quality TB diagnostic and treatment services through DOTS in all service delivery facilities nationwide. Ensuring uninterrupted of TB drugs, reagents, and consumables leads to better treatment success and reduces TB deaths.

The NTP closely collaborates with Ministry of Health's (MoH) Department of Drug and Food (DDF) and Central Medical Store (CMS) and TB partners to thoroughly monitor stock situation, distribution, and utilization of anti-TB drugs. This is accomplished through the NTP quarterly report, CMS monthly report and system management of drugs of DDF to ensure the uninterrupted supply and proper management of good quality of anti-TB drugs, reagents and consumables to TB networks.

In 2020, the NTP received 12 shipments of first-line drugs (FLD) for treating adult and childhood TB patients and preventive treatment from: national budget (NB) 03 shipment, under the GFATM New Funding Model (GF-NFM) grant 02 shipments, USAID 02 shipments, WHO 05 shipment and UNITAID through CHAI 01 shipment.

Table 2: First Line Drugs received in 2020

Product and Formulation		Source					Total Quantity (Tablet, Capsule)
		NB	GF	USAID	WHO	CHAI/ UNITAID	
Adult formulation							
RHZE	Rifampicin/Isoniazid/ Pyrazinamide/Ethambutol 150/75/400/275 mg	5,571,552		1,921,920			7,493,472
RHZE	Rifampicin/Isoniazid 150/75mg	7,843,584		3,829,056			11,672,640
E	Ethambultol 400mg	34,272					34,272
Z	Pyrazinamide 400mg	34,272					34,272
H	Isoniazid 300mg	415,296		278,208	101,472	158,400	953,376
H	Isoniazid 100mg					97,700	97,700
Rpt	Rifapentine 150mg				44,472	344,520	388,992
Pyr	Pyridoxine 50mg				11,200		11,200
Vit. B6	Vitamine B6 25mg					52,800	52,800
Paediatric formulation							
RHZ	Rifampicin/lsoniazid/ Pyrazinamid 75/50/150 mg		847,476				847,476
RHZ	Rifampicin/Isoniazid 75/50 mg		1,528,632				1,528,632
E	Ethambutol 100 mg		15,600				15,600

In addition, in 2020, the NTP received second line drugs (SLD) for drug resistant TB treatment under the GFATM New Funding Model (GF-NFM) grant 01 shipments and Global Drug Facility (GDF) 01 shipments.

Table 3: Second Line Drugs received in 2020

Product and Formulation		Source		Total Quantity (Tablet, Capsule)
		GF	GDF Grant	
Adult formulation				
Cfz	Clofazimine 100mg	21,700		21,700
Dlm	Delamanid 50mg	3,360		3,360
Eto	Ethionamide 250mg	1,400		1,400
Lfx	Levofloxacine 250mg	100,700		100,700
Lzd	Linezolid 100mg	20,200		20,200
Paediatric formulation				
Cs	Cycloserine 125mg		2,300	2,300
E	Ethambutol 100mg		2,600	2,600
Eto	Ethionamide 125mg		1,100	1,100
Lfx	Levofloxacin 100mg		3,100	3,100
Mfx	Moxifloxacin 100mg		2,000	2,000
Z	Pyrazinamide 150mg		2,600	2,600

The NTP always sends its officers to attend regular drug management meetings organized by relevant departments of Ministry of Health to report TB drug management activities of the national program and obtain information on the current national drug management update.

4.7 - TB Infection Control

In 2020, CENAT updated the training manual on TB infection control (TBIC), based on TBIC Standard Operation Procedure 2019 which has been printed and distributed to some healthcare providers. Due to limited financial resource and community outbreak of COVID-19, trainings on TBIC to healthcare providers were not completed as planned. However, the NTP closely collaborated with partners including GFATM, FHI 360, HSD, Op ASHA, KHANA and CATA to successfully implement some key activities to re-assess the status of infection control with a positive result. Some hospitals had established and reactivated dormant infection control committees and set up action plans for TBIC in the hospitals. Moreover, the screenings for presumptive TB and for TB patients were done in a timely manner at in-patient (IPD) and outpatient (OPD) departments and separated systematically. Most of the TB care areas in OPDs and IPDs keep doors and windows opened for natural ventilation and air flow with well-displayed posters on infection control in waiting areas. The hospitals have built sputum collection booths with their local budget.

In upcoming years, the NTP will intensify its plans to strengthen resource mobilization to overcome the limitations in the available funds and to further strengthen the TBIC activities in the country.

4.8 - Community DOTS (C-DOTS)

The main purpose of C-DOTS implementation is to improve case finding through referral of TB suspects and to ensure daily DOTS for TB treatment at the community level. Strengthening and scaling up of C-DOTS is one of the NTP's priorities. Specifically, to bring DOTS service closer to the community to achieve greater case detection and treatment outcome which will contribute to speeding up the progress towards the goal of ending the TB epidemic by 2030. As shown in the figure below, the number of health facilities implementing C-DOTS varies from year to year according to the support from NGO TB partners and donors. After Challenge TB project of FHI 360 under the USAID support has phased out from the second quarter of 2018, the C-DOTS remained only in areas supported by the GFATM in 644 HCs in 46 ODs in 2018. In late 2019, we expanded to other 356 HCs in 30 ODs. From late 2019 to the end of 2020, C-DOTS was implemented in 76 ODs (1,000 HCs) by the five sub-sub-implementers, namely CHC, CRS, HPA, Op ASHA and RHAC. In 2020, as a result of C-DOTS implementation, we detected 12,989 TB cases which equal to 43% of total TB cases in the country.

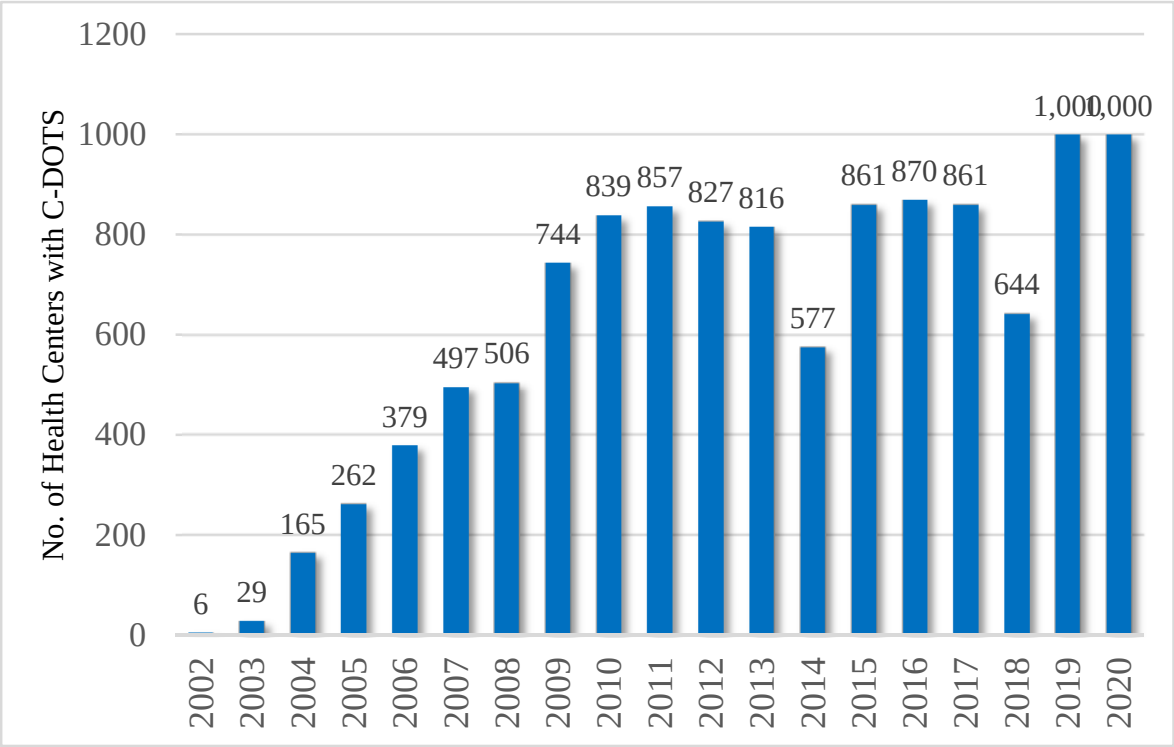

Figure 14: Health Centers Implementing C-DOTS from 2002 to 2020

Some constraints and obstacles that remain in the implementation of C-DOTS include insufficient funding support which limits the C-DOTS implementation at all levels. The insufficient resources cause limited capacity of frontline TB health workers, especially in funding for TB case detection at households or at communities. We have limited resources to support Village Health Support Group (VHSG) / DOT watchers, as well as TB supervisors and health center staff. This issue is still a concern for the future as we have more work to be done with fewer human resources. In addition, we also facing other challenges, such as, turn-over of trained TB staff, limited capacity of TB health workers at health facility (HF), and seasonal migration of VHSGs and/or DOT watchers for employment seeking. These challenges need to be solved in a timely manner in order to make C-DOTS sustainable.

4.9 - Public-Private Mix DOTS

The provision of TB service through Public-Private Mix DOTS (PPM-DOTS) is the collaboration between the NTP and public and private healthcare providers to promote DOTS service. This approach aims to strengthen the referral of TB suspects from the private sector (including pharmacy, consultation room, private clinics etc.) to public health facilities for appropriate TB diagnosis and treatment. In collaboration with many NGOs and international partners, the NTP has intensified the implementation of PPM-DOTS since its start in 2005 up to 2014. This activity had been stopped since 2015 till 2020 due to lack of funding support. In late 2019 and early 2020, with support from USAID, the NTP invited a consultant, specialized in PPM-DOTS, to support the NTP in reviewing and developing a

comprehensive PPM-DOTS strategy to incorporate into the 2021 - 2030 NSP and GF's FRA application. These are the efforts of the NTP to revitalize PPM-DOTS in the country.

On the other hand, other activities have been strengthened, particularly the band of import first-line TB drugs and TB test in the markets.

4.10 - TB in Congregational Settings

In last recent years, the NTP has been focusing on TB control activities in congregational settings such as prisons and factories where TB transmission may be high.

4.10.1 - Prisons

With strong support from the Ministry of Health and the Ministry of the Interior, and in close collaboration with the Prison Department and other partners, great progress has been made in TB control activities in prison. The activities include TB health education for prisoners, referral of TB suspects to public health facilities diagnosis and subsequent treatment at prison health posts with a DOTS approach. The below table depicts the increasing TB control activities in prisons in the recent years. The number of prisons implementing TB control activities increased from 8 in 2009 to 26 in 2015. In 2019, there were two partners performing TB control activities in prison, including GFATM-supported 10 prisons and CARITAS-supported 8 prisons. Through passive and active case finding, 56 TB cases were detected.

Table 4: TB Control Activities in Prisons from 2009 to 2020

Year of Implementation	Number of Prisons	TB Cases Detected	TB/HIV Cases Detected
2009	8	203	26
2010	11	315	26
2011	19	342	19
2012	19	368	8
2013	22	299	7
2014	26	229	12
2015	26	191	4
2016	17	139	2
2017	17	117	1
2018	19	120	10
2019	19	107	2
2020	18	56	0

4.10.2 - Factories and Enterprises

Factory and enterprises are ideal settings for TB transmission as employees work together in close proximity and have high interaction with others. The NTP in collaboration with Occupational Health Department of Ministry of Labor and Vocational Training, and

with the support from partners especially from CATA, has been implementing DOTS pilot project in 6 factories and enterprises since 2007. The main activities include strengthening the capacity of health staff who are working at the infirmary of factories and enterprises, referring TB suspects to HCs for diagnosis, conducting supportive supervision, and conducting a quarterly meeting that aims to motivate staff and to prepare plan for the coming quarters. In 2020, 9 factories and enterprises were providing TB-DOTS services at their workplaces. This activity decreased in 3 factories compared to 2017.

TB control activities in factories and enterprises (2007-2020) are shown in table below. The table shows that the number of workers covered by the activities fluctuate from year to year. In recent years, the number of TB suspects referred were between of 100 -150 cases and TB cases detected were from 15 to 24 cases.

Table 5: TB Control Activities in Factories and Enterprises from 2007 to 2020

Year of implementation	Number of workers	TB suspects referred	TB cases detected	Yield per population (per 100,000)	Yield per referral (%)
	(a)	(b)	(c)	(c) /(a)	(c) /(b)
2007	10,900	44	6	55	13.6%
2008	22,701	149	22	97	14.8%
2009	15,740	102	10	64	9.8%
2010	21,077	99	24	114	24.2%
2011	25,171	107	15	60	14.0%
2012	25,881	127	16	62	12.6%
2013	22,575	145	17	75	11.7%
2014	19,402	139	11	57	7.9%
2015	20,402	144	14	69	9.7%
2016	18,443	68	10	54	14.7%
2017	18,443	293	13	70.48	4.4%
2018	16,843	321	5	30	1.6%
2019	14,926	303	7	47	2.3%
2020	8,720	90	4	46	4.4%

4.11 - Summary of Active Case Finding Project

In 2019, the NTP has implemented Active Case Finding in:

- Two ODs, Phnom Sruoch OD of Kampong Speu province and Ponhealeu OD of Kandal province. Through this activity, a total of 1,843 people were screened for TB. Of those screened, 96 TB cases were identified, 45 of which are bacteriologically confirmed TB.
- Two prisons (in Kampot and Koh Kong provinces). Of the 1,313 people screened, 16 TB cases were identified and, 5 of which are bacteriologically confirmed TB.

In addition, CATA implemented active case finding under a grant funded by TB REACH Wave 5 scale-up and National University of Singapore. This project was implemented among elderly aged 55 and over and high-risk populations in community. This ACF intervention was implemented in 4 provinces/city (Kampong Cham, Tbaung Khmom, Kandal and Phnom Penh) with a total of 10 ODs (Stung Trang, Kangmeas, Suong, O Raing Ov, Sen Sok, Por Sen Chey, Sa Ang, Lvea Em, Muk Kampuol and Leuk Dek). As a result, a total of 17,393 persons were screened by chest X-ray (69% elderly) and sputum examination by Xpert were 3,721 (78% elderly). A total of 1,035 of all form of TB cases were identified (elderly 73%), 258 of which are bacteriologically confirmed TB (69% elderly) and 1 case was detected with Rifampicin resistance.

International Organization for Immigrant (IOM) also implemented active case finding among migrants at the Cambodia-Thai border, Banteay Meanchey province. Below were the key achievements in 2020.

Key Indicators	Achievements in year 2020
Number of migrants screened for TB symptoms	11,207
Number of migrants with presumptive TB	499
Number of migrants received CXR examination	499
Number of migrants tested with GeneXpert	26
Number of migrants with TB cases (all form) notified through ACF activity	18

Table 6: Key achievement on TB ACF amongst migrants in 2020

Some key challenges were also faced by the project such as impact of COVID-19, insufficient time to provide health education at point of entry and limited capacity of GeneXpert testing.

4.12 - Collaboration with KHANA

In 2020, KHANA and partners continued to contribute to the TB response by implementing the COMMIT project, which is a five-year project from 2019 to 2024 and funded by USAID. This project aims to improve access to high-quality, person-centered TB, drug-resistant TB, and TB/HIV services, to strengthen TB service delivery platforms, to reduce TB transmission and disease progression, and to accelerate TB research and innovations with improved impact on program implementation. COMMIT's strategies align with the National TB Program/National Strategic Plan, WHO End TB Strategy, and USAID's Country Development Cooperation and Global TB Strategies in reducing TB burden in Cambodia.

COMMIT project focuses on finding undiagnosed TB patients and ensuring quality diagnosis and treatment in the project's targeted areas in 10 ODs, covering 86 HCs and 93 communes. All project activities are carried out in the community and in health facilities to

help community have easier access to services and information that can increase the search for TB cases and provide treatment for every patient who needs services.

In 2020, KHANA and partners contributed to National TB Program in diagnosing 2,676 TB cases (all-forms), in which 884 patients were bacteriologically confirmed TB (33%).

For the achievement of the COMMIT project, we screened 86,364 people in both the community and the hospital. Among them, 26,686 people (31%) were identified as presumptive TB, and 26,196 (98%) were transferred to be tested and diagnosed for TB. As a result, the COMMIT project found 2,120 people (8.1%) who were diagnosed with all forms of TB, and of those, 687 (32%) were bacteriologically confirmed TB. The contact investigation coverage rate was 73% (499 of bacteriological confirmed who has been evaluated for TB). Moreover, KHANA and partners also investigated 3,378 close-contacts of bacteriological TB patients which identified and referred 1,431 latent-TB cases to receive TPT.

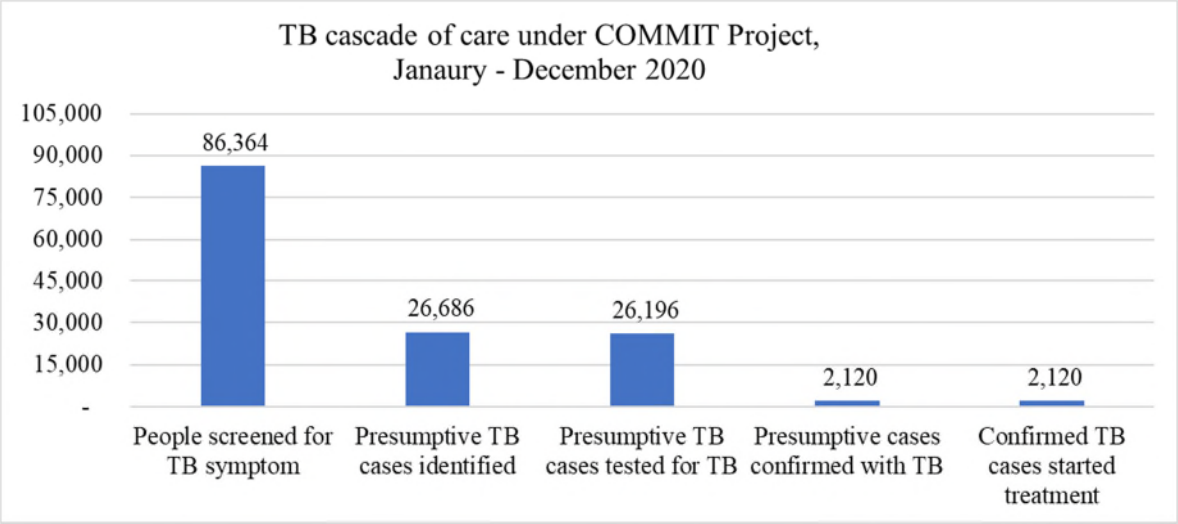

Figure 15: TB cascade of care by COMMIT project in 2020

In addition to the COMMIT project, KHANA also partnered with the National University of Singapore to implement a project on an active case finding strategy with a seed-and-recruit model and other various approaches to learn about the results, effectiveness, and costs to assist national programs use to contribute to end the TB epidemic by 2030. The project collaborates with CENAT on TB active case finding using mobile clinical TB screening (CXR) and TB diagnosis (GeneXpert). It focuses on high-risk populations who are close contacts of bacteriological confirmed patients in two ODs: Phnom Sruoch OD of Kampong Speu Province and Ponhea Leu OD of Kandal Province. In collaboration with CATA, the TB active case finding utilizes mobile means to provide clinical TB screening (CXR) and TB diagnosis (GeneXpert) focusing on those over 55 years old in the communities of Boribo OD in Kampong Chhnang Province and Dambae OD of Tboung Khmum Province. For this project, the KHANA community field staff also actively seek out TB cases, using the seed-and-recruit model in communities in Cheung Prey OD of Kampong Cham Province and Kanhchriech OD of Prey Veng Province. The seeds are

people living with or diagnosed with TB, and utilizing TB case management methods, starts from case finding until treatment is completed and/or cured in general high-risk groups. As a result of this project, 556 people were identified as all forms of TB, and 197 were bacteriologically confirmed. All of them registered and started TB treatment at all 46 local health centers in 6 ODs.

Moreover, in 2020, KHANA also assisted in creation and facilitation of 43 peer-support groups (PSGs) in the community among people living with TB in 10 ODs. KHANA continues to provide technical support to the District Network of People Living with/affected with TB in Siem Reap OD to assist them continuing to advocate on the contribution of TB victims in TB response programs locally and at a national level.

4.13 - Collaborative DM-TB Services

The rising trend of TB and diabetes is a public health concern in many developing countries, including Cambodia, where resources for the health sector are limited. Epidemiological evidence has shown a significant increase in both TB and diabetes. People with diabetes have three times greater risk of developing TB than those without diabetes. Furthermore, diabetes is a risk factors for poor TB treatment outcomes. Similarly, the risk of developing diabetes in people with TB is about three times higher than in people without TB, and TB is associated with increased (or uncontrolled) glucose levels.

It is currently estimated that the global prevalence of diabetes will increase from 382 million in 2013 to about 592 million by 2030. In 2013, about 80% of diabetics lived in developing countries where resources for health care were limited. More importantly, about half of all diabetics are undiagnosed.

As the number of diabetics increases, so will the incidence of TB-DM co-morbidity. This will hinder the WHO’s goal of ending TB, which is to reduce the global TB incidence rate by 90% or to less than 10 cases per 100,000 population by 2035. It will continue to hinder the world's long-term vision of eliminating TB, a major public health concern, by reducing the incidence of TB to less than one case per million people by 2050.

As a result, as part of COMMIT, HSD achievements for this collaboration in 2020were as below:

- TB-DM management training to a total of 130 health providers.
- The project provided 34 glucose testing machines to 34 target health centers.
- Supported 126 on-site supervision and coaching sessions to health centers and referral hospitals staff.
- Collected baseline data for TB-DM part from 10 hospitals and 30 health centers in the coverage area.
- Supported and coordinated the celebration of World TB Day.
- Supported the cost of printing and distributed of 1,100 TB closed contact register and TPT treatment registers to all health centers and 10 district referral hospitals of COMMIT project.

- Organized and coordinated monthly meetings in collaboration works to improve the TB-DM services.
- Diabetes screening for elderly at 4 pagodas 4 times to a total of 292 people found 63 people with diabetes and sent to screen for TB.
- Diabetes screening for 614 TB patients in health facilities, of which 91 were diagnosed with diabetes and refer to RH for treatment
- TB screening of 669 diabetic patients at health facilities, of which 60 were diagnosed with TB.

The project also faced some challenges, such as meetings were not held regularly, there was insufficient blood sugar tests and diabetes drugs, frequent staff turnover, referred patients without referral slips, irregular patients' follow up and DM-TB bi-directional screening was not prioritized.

4.14 - Advocacy, Communication and Social Mobilization

Advocacy, Communication and Social Mobilization (ACSM) is an integral part of the TB control program. In 2019, the activities of the NTP always ensured that various ACSM approaches were included in the contents of refresher trainings, workshops and health education to the general population at Health Centre, Communities: Buddhist, School, Patient home etc.

Due to financial resource constraints in 2019, a very limited number of IEC materials were produced in 2019. However, the NTP has been working hard with relevant partners including GFATM, USAID, FHI 360, HSD, Op ASHA, KHANA, PSI, CATA in producing IEC materials such as posters, educational leaflets on general TB awareness for adults and children, MDR-TB, Prevention Infection Control, and TB-DM.

In 2019, PSI partnered with the NTP and conducted a research in Pailin and Battambang (Thmor Koul OD) provinces titled "Why are people aged 55 years or older giving up more than adults".

In the meantime, for advocacy and for improving knowledge among general population, the NTP has raised awareness of TB on the World TB Day at all levels throughout the country.

To overcome the limitations in available funding and to further strengthen the ACSM activities in the country, the NTP will intensify its plans.

4.15 - Research

Along with global direction to end TB by 2035, the NTP of Cambodia is committed to strengthen TB research in the country which is the 3rd pillar of the global strategy. This commitment is also aligned with recommendations by the Join Program Review (JPR) to pursue innovation and research. In December 2019, the NTP organized a 2-day national workshop supported by WHO to deliberate on the national research priorities. Below are key achievements in relation to TB research in 2020.

4.15.1 - Establishment of Cambodia Committee for TB Research (CCTBR)

The Cambodia committee for TB research (CCTBR) was endorsed by the director of CENAT in late 2020 to strengthen TB research. The members of this research committee include the National Institute of Public Health, the University of Health Sciences, the WHO, the US Centers for Disease Control and Prevention (USCDC), USAID, the Institute Pasteur of Cambodia (IPC), and the National University of Singapore and some other national and international organizations.

4.15.2 - Research on "barriers to childhood TB case detection and preventive therapy in Cambodia: a mixed-method study"

A research on "barriers to childhood TB case detection and preventive therapy in Cambodia: a mixed-method study" was started in October 2020 and expected to be finished by the end of March 2021. This study was initiated by the NTP with technical support from some key partners and supported by USAID through WHO. By the end of 2020, data collection was complete. The results of this study will be obtained in 2021. The results of this research will help the National TB Control Program as well as relevant partners to understand the various factors, especially the barriers to the daily work of providers in finding TB cases and providing TPT to children in Cambodia. We hope that the results of this research will help national programs and stakeholders to sharpen action plans to increase TB detection and TPT provision among Cambodian children.

4.15.3 - Third national drug resistance survey

Drug resistant survey is one of the NTP's priorities. The NTP initiated and implemented this third national drug resistant survey with support from some key partners. The survey was started from May to December 2017. This survey is supported by different sources, mainly by GFATM, FHI-360/Challenge TB project, and US-CDC. In 2018, samples were collected and analyzed in laboratory. In late 2019, the primarily result of the 3rd DR survey shows that estimated prevalence of RR-TB cases among the captured BC cases is 0.9% for new cases and 9.4% for previously treated cases. This result indicates that between 2007 – 2017 the prevalence of DR-TB remains stable. These results reflected a great success of MDR-TB control in Cambodia. NTP is working on the final report and expected the results will be released soon.

4.15.4 - Cambodia Patient Pathway Analysis

In 2020, the NTP in collaboration with WHO and relevant stakeholders initiated a research on "Cambodia Patient Pathway Analysis". In late 2020, the protocol was approved by the National Ethic Committee for Health Research (NECHR) and the implementation of the research is expected to be conducted in 2021.

4.15.5 - Research on "All-oral shorter treatment regimens for multidrug- and rifampicin-resistant tuberculosis (MDR/RR-TB) (ShORRT_Cambodia)

With technical and financial support from the World Health Organization (WHO / TDR), the NTP implemented a research project on short-term oral therapy in 2020. The main purpose of the study is to examine the effectiveness of short-term oral therapy for multidrug-resistant TB in the program framework in Cambodia and to contribute to the provision of basic evidence in the development of guidelines or procedures for the treatment of DR-TB.

As a result, a total of 127 participants were enrolled in the study. These were classified into 3 main groups, as follows:

- The total number of participants enrolled in the retrospective cohort (control group) who received the standard shorter MDR/RR-TB regimen was 58 cases.
- The total number of participants enrolled in the prospective cohort (control group) receiving the standard shorter MDR/RR-TB regimen was 18 cases
- The total number of participants enrolled in the prospective cohort (intervention group) receiving the all-oral shorter MDR/RR-TB regimen was 51 cases.

4.15.6 - TB Research project to strengthen pediatric TB services

In 2020, the NTP and Institute Pasteur of Cambodia under TB-Speed project has continued the implementation of the research project to strengthen paediatric TB services for enhanced early case detection, which is supported by the UNITAID and INITIATIVE 5%. This research will be complete in 2021.

Besides TB-Speed, the NTP has been discussing and preparing a study on TB preventive therapy using 3HP involving multi-countries project in collaboration with CHAI. This project entitled "Evaluating the scale up of short course TB preventive therapy (3HP) among people living with HIV (PLHIV) and child household contacts of TB patients at sentinel sites in Cambodia (IMPAACT4TB)".

4.16 - Electronic TB Management Information System

The TB management information system (TB MIS) is a web-based tool that enables decision-makers to monitor the status of TB treatment by integrating data across key aspects of TB control. It was developed and managed by CENAT with technical assistance from the USAID-funded COMMIT project since November 2020. TB MIS was customized by local programmers using the existing core application eTB Manager to fit the context of case management flow of Cambodia's TB program. The electronic-based system captures the treatment data of drug susceptible and drug resistant TB cases of all health facilities from the paper-based recording forms. Prior to this, between January to September 2020, USAID-awarded project team of Health Policy Plus (HP+) has provided direct technical assistance and support on the overall management of TB MIS.

Data entry for DS-TB cases is done by all 103 OD TB supervisors for all health centers in the coverage OD and by TB ward staff of all 114 hospitals throughout the country. The progress monitoring and day-to-day technical support is done by provincial TB supervisors and team of National TB Program with the technical support of COMMIT implemented by KHANA. Moreover, with the direct coaching of OD TB supervisors, about 184 health centers in 17 operational districts of 10 provinces have voluntarily entered the DS-TB cases into the system by TB responsible staff at those health centers. This enables a shift in the responsibility of OD TB supervisor to monitor the entry uptake and data quality check. The entry of DR-TB cases is done by all ten treatment sites throughout the country.

Province	Operational District	Total Number of HCs	Number of HCs using TB MIS
Kampong Cham	Batheay	10	9
	Prey Chhor	11	11
Kampong Speu	Kong Pisey	23	10
Kampong Thom	Baray-Santuk	22	22
	Kampong Thom	22	21
	Stong	11	10
Kratie	Kratie	20	13
	Snuol	6	1
Preah Vihear	Tbeng Meanchey	30	13
Prey Veng	Mesang	9	1
Pursat	Bakan	11	11
	Sampov Meas	12	12
Svay Rieng	Svay Rieng	14	14
	Svay Teap	10	10
Takeo	Prey Kabass	15	1
Tbong Khmum	Kroch Chhmar	11	11
	Memut	14	14
10	**17**	**251**	**184**

Table 6: Total number of health centers using TB MIS

With the latest revision on the development package, TPT module customization, HP+ has supported the NTP to implement phased introduction of the TPT module into the system and provided training on how to register TPT cases into the system. With a joint effort of USAID-funded projects, HP+ and WHO, totally, 84 participants (including hospital staff, OD TB supervisors, and provincial TB supervisors) were trained between April to November 2020. This training covered 6 provinces - Battambang, Banteay Meanchey, Kampong Cham, Kampot, Kandal, Siem Reap and Tbong Khmum for a total of 38 operational districts. The new TPT module package allows the registration of the contacts with index cases (bacteriological confirmed TB cases) into the system and provides detailed information of the contacts whether they have active TB or not, eligible to TPT or not and

if eligible, which TPT regiments (3HP, 3RH and 6H) they are initiated. Even though the formal training on TPT case registration has not covered all operational districts yet, there are 40 out of 103 operational districts in 13 provinces that have gradually entered data into the system with the remote technical support of the system helpdesk. Given the dataset in the system, 3,781 close contacts of 876 index cases of 2020 were undergone investigation, and 3,151 were initiated on TPT.

For day-to-day operation, the NTP and COMMIT project have maintained the helpdesk team to provide remote technical assistance support. All users of the system are encouraged to directly communicate with the helpdesk team via phone call and/or submit their feedback in the Telegram Group 'Cambodia TB MIS' either in audio or written format. Feedback is summarized as (1) the technicality around case registration and report, (2) assistance around how to verify cases in the system against the paper-based form, (3) facilitate and resolve the outstanding cases of transfer-in, case duplicate, treatment overdue without outcome, and (4) a common issue of forgetting password. With the technical support from the national and provincial level, the OD TB supervisors and TB staff of hospital are able to generate the quarterly standard report for official report submission to NTP.

5 - OTHER KEY ACTIVITIES

5.1 - Supervision

Supervision is one of the important activities of the NTP. Supervisions were done by three major levels, from the central level, the provincial level and OD level. TB supervisors at each level monitored TB-related activities under its coverage areas including at provincial, OD, HF and community levels. This work is done regularly, based on the frequencies for each level. The key objective of the supervisions is to enhance the quality of the program's implementation through improving staff knowledge, improving technical skills, improving performance, motivating of service providers as well as providing feedbacks to OD and provincial TB supervisors on the findings. Face-to-face communication between supervisors and staff working at the local level is very important, as it lets the supervisors know all aspects of the actual work, progress, and assists in motivating staff who have performed the tasks. It is not to blame or punish even if mistakes are found.

The funding that has supported supervision was from a variety of sources, including the national budget and funding from development partners.

In 2020, supervision was not done smoothly due to the outbreak and spread of COVID-19. A majority of supervisions have been suspended, especially from the central level. In 2020, 126 supervisions from the central level were completed with funding support from development partners, of which 84 trips were supported by Global Fund and 42 trips were supported by Asian Development Bank. The NTP encouraged TB supervisors at provincial and OD levels to strengthen supervisory visits to health facilities under their jurisdiction in order to strengthen the TB program.

5.2 - Training

Training plays an important role in strengthening the capacity of staff, as well as strengthening the TB program as a whole. In 2020, many trainings were not able to be held due to the spread of COVID-19. Despite all of this, the NTP provided training to some healthcare providers with funding support by GF, such as training on basic knowledge of TB for new TB officials, training on MDR-TB to clinicians and nurses, training on TB grant management, and, with funding support from ADB, refresher training on basic knowledge of TB and semi-active case finding was done.

5.3 - Workshops and meetings

In 2020, several meetings and workshops were also interrupted, especially during the first and second quarters. Meetings and workshops held in 2020 with funding support by GF included the quarterly national cross checker workshop for EQA, the workshop for assessors on EQA, the national workshop on TB and diabetes and the national quarterly workshop. Moreover, a workshop on semi-active case finding was also held with financial support from the ADB. In addition, the National TB Control Program also organized other several meetings.

6 - TARGETS FOR 2021

NTP has recently set the targets in line with the End TB Strategy as well as SDG targets by 2030, in which we aim to reduce incidence of 80% and mortality rate of 90% in 2030, compared to 2015 figures.

For 2021, Cambodia NTP has the main targets as below:

- Maintain the treatment cure rate of over 85% and success rate of at least 90 %.
- Detect all forms of TB: 32,000 cases
- Detect bacteriologically confirmed TB: 12,000 cases
- Detect Childhood TB: 6,200 cases
- Detect MDR-TB cases: 181 cases
- Promote intensified case detection through active and semi-active case finding activities.

7 - ACKNOWLEDGEMENT

With the support from the government and Ministry of Health, the NTP has achieved tremendous results. The Royal Government of Cambodia and Ministry of Health of Cambodia has given high priority to TB Control. The above achievements are also contributed by active participation from all healthcare workers across the country with the support and collaboration from various partners. These partners include local authority, community, volunteer, technical and financial support from non-governmental and international organizations.

NTP would like to express our sincere thanks to:

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