

National Tuberculosis Control Programme Bangladesh

# **ANNUAL REPORT 2022**





National Tuberculosis Control Programme Directorate General of Health Services Mohakhali, Dhaka-1212

Copyright 2022 by the National Tuberculosis Control Programme (NTP) Bangladesh

## CONTENTS

ABBREVIATIONS
1. SUMMARY
2. INTRODUCTION: HISTORY OF THE NATIONAL TUBERCULOSIS CONTROL PROGRAM
3. TUBERCULOSIS SCENARIO
3.1 Global TB Scenario
3.2 South-East Asia Regional Scenario
3.3 Bangladesh Scenario
4. NATIONAL TUBERCULOSIS CONTROL PROGRAM (NTP)
4.1 Vision of NTP
4.2 Mission of NTP
4.3 Goal of NTP
4.4 Objectives of NTP
4.5 Programme Implementation
4.6 Major Events /Achievements:
4.7. Major Challenges:
5. PROGRESS IN TB CONTROL
5.1 DOTS Coverage
5.2 Case Notification
5.2.1 Nationwide Case Notification
5.2.2 Division-wise Case Notification; New Pulmonary Bacteriologically Confirmed Cases
5.2.3 District-wise case notification rates CNR15
5.2.4 CNR MAP
5.3 Treatment Outcomes
5.3.1 Nation-wide Treatment Outcomes
5.3.2 Division-wise Treatment Outcomes
5.3.3 District-wise Treatment Outcomes
5.3.4 Treatment outcomes of relapse, new pulmonary clinically diagnosed and extra-pulmonary (new) cases

6. DRUG RESISTANT TB	22
7. LABORATORY ACTIVITIES	25
7.1 Sputum Microscopy and Quality Assurance	25
7.2 National Tuberculosis Reference Laboratory (NTRL)	26
7.3 Regional Tuberculosis Reference Laboratory (RTRL) in Rajshahi, Chittagong and Khulna	26
8. TB/HIV CO-INFECTION	27
9. TRAINING COURSES AND WORKSHOP	28
10. COLLABORATING PARTNERS OF NTP WITH AREA OF COLLABORATION	29
10.1 BRAC	29
10.2 WHO	32
10.3 USAID	
10.4 IRD	

## **ABBREVIATIONS**

ACSM	Advocacy, Communication and Social Mobilization
ADR	Adverse Drug Reaction
AFB	Acid - fast Bacilli
AHI	Assistant Health Inspector
AIDS	Acquired Immune Deficiency Syndrome
BRAC	Bangladesh Rural Advancement Committee
CDC	Chest Disease Clinic
CDR	Case Detection Rate
CNR	Case Detection Rate
CS	Civil Surgeon
CWFD	Concerned Women for Family Development
DGHS	Directorate General of Health Services
DOT	Directly Observed Treatment
DOTS	is an Internationally recommended strategy for TB control
DST	Drug Susceptibility Testing
EQA	External Quality Assessment
ESP	Essential Services Package
FDA	Fluorescent diacetate staining
FDC	Fixed-dose Combination
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GLC	Green Light Committee
HEED	Health, Education and Economic Development
ні	Health Inspector
HIV	Human Immunodeficiency Virus
HNPSP	Health, Nutrition and Population Sector Program
HPSP	Health and Population Sector Program
HPNSDP	Health, Population, Nutrition and Sector Development Program
HRD	Human Resources Development
ICDDR,B	International Centre for Diarrheal Disease Research, Bangladesh
LAMB	Lutheran Aid to Medicine in Bangladesh
LEPRA	(British) Leprosy Relief Association
LPA	Line Probe Assay

MBDC	Mycobacterial Disease Control
MDG	Millennium Development Goal
MDR-TB	Multidrug Resistant Tuberculosis
МО	Medical Officer
MoH&FW	Ministry of Health and Family Welfare
MO (TB/Lep)	Medical Officer (Tuberculosis and Leprosy)
MoU	Memorandum of Understanding
NATAB	National Anti-TB Association Bangladesh
NGO	Nongovernmental Organization
NIDCH	National Institute of Diseases of the Chest and Hospital
NTP	National Tuberculosis Control Program
NTRL	National Tuberculosis Reference Laboratory
РО	Program Organizer
PPM	Public-private or Public-public Mix
RDRS	Rangpur Dinajpur Rural Service
RTRL	Regional Tuberculosis Reference Laboratory
SEARO	WHO Regional Office for South-East Asia (New Delhi)
ТВ	Tuberculosis
TLCA	Tuberculosis & Leprosy Control Assistant
TLMB	The Leprosy Mission, Bangladesh
IUATLD	The Union (International Union Against Tuberculosis and Lung Disease)
UHC	Upazila Health Complex
UH&FPO	Upazila Health and Family Planning Officer
UPHCP	Urban Primary Health Care Project
UPHCSDP	Urban Primary Health Care Service Delivery Project
USAID	United States Agency for International Development
WHO	World Health Organization

### **1. SUMMARY**

Bangladesh, a nation in South Asia, has been classified by the World Bank as a low to medium income country. The country aspires to become a middle-income country by 2021. However, Bangladesh is facing a dual burden of disease, with an increasing incidence of noncommunicable diseases alongside a persistent or even resurging prevalence of communicable diseases. Of these communicable illnesses, tuberculosis (TB) remains the most common cause of morbidity and mortality, and thus represents a significant public health threat in Bangladesh. Under the Mycobacterial Disease Control (MBDC) unit of the Directorate-General of Health Services (DGHS), the National Tuberculosis Control Program (NTP) is working with a mission of eliminating TB from Bangladesh.

To date, NTP policies and strategies have been informed by World Health Organization international standard infectious the directly observed treatment, short course (DOTS) plan adopted in 1993 and the Stop TB Strategy that underpinned the Global Plan to Stop TB 2006-2015. New multisectoral strategic approaches and new international targets for the post-2015 period have been approved by the Sixty-seventh World Health Assembly in May 2014 resulted in the formulation of WHO's End TB Strategy in 2015. Under this strategy, new, ambitious yet feasible global targets are proposed for 2035. These include achieving a 95% decline in deaths due to tuberculosis compared with 2015, and reaching an equivalent 90% reduction in tuberculosis incidence rate from a projected 225 cases/100,000 in 2015 to 10 cases/100,000 or less by 2035.

DOTS has achieved tremendous progress in TB control since its inception in 1993. The program achieved the initial target of 70 % case detection rate of the new smear-positive cases in 2006 and successfully treated 85% of them since 2003, which has been maintained over 90% since 2005. The program has successfully treated 96.49% of bacteriologically confirmed new pulmonary TB cases registered in 2019.

The Case Notification rates per 100,000 population in 2010 were 80 and 135 respectively for bacteriologically confirmed new pulmonary, and all forms (new and relapse) of TB cases.

As of December 2020, countrywide a total of 9,785 (cumulative) MDR TB patients were enrolled for treatment including 975 in 2020. Among the 975 patients in 2020, 101 are under longer regimen and 874 under shorter regimen.

The topics covered in the main chapters of the report are; brief introduction of National Tuberculosis Control Programme, Tuberculosis scenarios of Global, Region and of Bangladesh, Progress in TB Control – activities related to TB control performed in 2021, case finding in 2021 and treatment outcomes of cases registered in 2020, laboratory activities, training, workshops and brief on NTP collaborative activities with description of significant achievements, lessons learned and challenges.

The report's annexes describe; district wise case notification rate 2021, district wise treatment results, new pulmonary bacteriologically confirmed cases registered in 2021, laboratory report of year 2021 etc.

This Annual Report of NTP is a living document for the country to review progress in its TB response and make adjustments to accelerate progress towards ending TB in Bangladesh by 2030 in line with national and global commitments. The Annual Report 2022 representing data, information and progress made by NTP and its implementing partners including technical and development partners from 1<sup>st</sup> January 2021 to 31st December 2021.

1

## 2. INTRODUCTION: HISTORY OF THE NATIONAL TUBERCULOSIS CONTROL PROGRAM

The Government of Bangladesh is committed to provide TB diagnosis and treatment services completely free of cost to all citizens of the country. It strives to make services equally available to all people of Bangladesh irrespective of age, sex, religion, ethnicity, social status or race.

In 1965, tuberculosis services were mainly curative and based in TB clinics and TB hospitals. TB services were expanded to 124 upazila health complexes (UHCs) during the Second Health and Population Plan (1980-86), and were operationally integrated with leprosy during the Third Health and Population Plan (1986-91) under the Mycobacterial Disease Control (MBDC) unit of the Directorate-General of Health Services (DGHS).

The revised NTP adopted the DOTS strategy during the Fourth Population and Health Plan (1992-98) under the project "Further Development of TB and Leprosy Control Services". Now Ministry of Health and Family Welfare (MOHFW) has been implementing the 4th Health, Population and Nutrition Sector Development Program (HPNSDP) for a period of five years from January 2017 to June 2022. In all the sector programs tuberculosis control has been recognized as one of the priority programs. By 2007 the services were available throughout the country.

The overall vision of NTP is to eliminate tuberculosis as a public health problem in Bangladesh. The Government of Bangladesh, together with its many and diverse partners from the public and private sectors, is committed to intensify the TB control activity further intensifying the TB control activity to sustain the achieved success and to reach the TB control targets linked to the WHO End TB Strategy.

The MBDC directorate consists of two wings: National TB Control Program (NTP) and the National Leprosy Elimination Programme (NLEP). Two Deputy Directors, one for each wing to support the Director in administrative and program activities. The Director MBDC is also the Line Director (TB-Leprosy and ASP) and the latter program function is linked to HPNSDP and is non-permanent. One of the two deputy directors who functions as the NTP Manager reports directly to the Line Director (TB-Leprosy). The Director MBDC reports to the Director-General of Health Services. NTP coordinates all activities through the Directorate General of Health Services with the Ministry of Health and Family Welfare. For TB control, along with Deputy Director, positions of one Assistant Director, 6 Medical Officers and other support staff are there. Additionally, 4 functional positions of Deputy Program Managers are there to support the Program. To cope with the extensive program activities after ensuring Global Fund support, NTP recruited some technical and administrative support staff who are working for NTP in national and sub- national level.

The National Tuberculosis Program (NTP) is responsible for managing TB services at the central level. This includes making policies, planning, coordinating, training, supervising, monitoring, and implementing TB services. The NTP plays a significant role in controlling TB and works to improve the quality of services provided to those affected by TB.

The NTP collaborates with approximately fifty national and international health and development agencies to implement the End TB Strategy. To ensure the best use of comparative advantages and to avoid fragmentation and duplication of efforts, regular coordination meetings are held.

To ensure effective implementation of the national strategic plan and monitoring of the TB program, the National Tuberculosis Program (NTP) has established various technical working groups. These groups, such as the TB Technical Committee, Technical Working Group on PSM, Child TB, Laboratory, ACSM, PPM, and TB/HIV, are responsible for coordinating strategies and activities related to TB.

Furthermore, a national MDR-TB management coordination committee has been formed to manage and coordinate efforts related to multidrug-resistant tuberculosis. Additionally, coordination is ensured through the Country Coordination Mechanism, which has been set up for Global Fund collaboration for TB, HIV, and Malaria.

To support the NTP program management and implementation, implementing partners/NGOs staff are stationed in different administrative tiers to assist with TB control activities at both health facilities and community levels.

## **3. TUBERCULOSIS SCENARIO**

#### 3.1 Global TB Scenario<sup>1</sup>

Tuberculosis (TB) is a communicable disease that is a significant cause of ill health and one of the top 10 causes of death worldwide, ranking even higher than HIV/AIDS. In 2019, an estimated 10 million people worldwide fell ill with TB, and the number has been decreasing at a slow pace in recent years. This equates to around 130 cases per 100,000 people, with almost 90% of cases occurring in 30 countries with high TB burden.

Both men and women of all ages are susceptible to TB, but men over the age of 15 bear the highest burden, accounting for 56% (5.6 million) of all cases in 2019. Women accounted for 32% (3.2 million) of cases, and children under the age of 15 accounted for 12% (1.2 million). In addition, 8.2% of all TB cases were among people living with HIV (PLHIV).

In 2019, there were approximately 1.2 million deaths from TB among HIV-negative people, a significant reduction from 1.7 million deaths in 2000. Among HIV-positive people, there were an estimated 208,000 deaths from TB in 2019, a substantial decline from 678,000 deaths in 2000.

#### 3.2 South-East Asia Regional Scenario

In terms of geography, the majority of TB cases in 2021 were concentrated in three regions, namely South-East Asia (44.3%), Africa (23.6%), and the Western Pacific (17.9%) (fig 1). There were smaller percentages of cases in the Eastern Mediterranean (8.1%), the Americas (2.9%), and Europe (2.2%). Among these regions, eight countries, namely India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh, and South Africa, accounted for two-thirds of the global total. These countries, along with 22 others on WHO's list of 30 High TB burden countries, accounted for 87% of the world's TB cases.

The South-East Asia region has the highest burden in terms of new cases (incidence) with nearly half of the global burden, and over 44% of the total burden. In 2021, it was estimated that there were 4.8 million new TB cases and 763,000 TB deaths globally. In the South-East Asia region, an estimated 4.3 million people fell ill with TB and 700,000 people died from it in the same year.



Fig.1 Proportion of estimated incidence of all forms of TB cases by WHO Region; 2021

Source: Global Tuberculosis Report, WHO, 2021

<sup>1 \*</sup> According to "Global Tuberculosis Report, WHO, 2022".

Currently, many regions and countries around the world are not on track to meet the 2021 milestones of the End TB Strategy. The global average rate of decline in TB incidence was only 1.6% per year from 2000 to 2018, with a cumulative reduction of only 6.3% between 2015 and 2018, far from the 20% reduction milestone. The global reduction in TB deaths was only 11% between 2015 and 2018, rather than the targeted 35% reduction by 2020.

From 2015 to 2019, the global reduction in the TB incidence rate was 9%, not meeting the 2020 milestone. Similarly, the global reduction in the number of TB deaths between 2015 and 2019 was 14%, not reaching the milestone. In 2021, 6.7 million TB cases were reported globally, with a success rate of 86% in treating new cases.

#### 3.3 Bangladesh Scenario

In Bangladesh, the estimated incidence rate for all forms of Tuberculosis in 2021 was 221 per 100,000 populations. An estimated 25 per 100,000 people (HIV negative) died of TB in the same year. The estimated incidence rate of HIV positive TB cases decreased from 0.45/100,000 in 2018 to 0.43/100,000 in 2021. The incidence of MDR/RR-TB was 2.7/100,000 population, decreased from 3.7/100000 population in 2018 (Table 1). The total number of notified case was 307,561 which is 82% of total incidence cases.

#### Table 1: Estimated population and TB Burden, Bangladesh- 2021

Population:	169.4 million
Mortality rate (excluding HIV+ve TB):	25 / (17-35) / 100,000 population
Mortality rate (HIV+ve TB only):	0.1 (0.07-0.14) / 100,000 population
Incidence rate (including HIV+ve TB):	221 (161-291)/ 100,000 population
Incidence rate (HIV+ve TB only):	0.43 (0.22-0.71)/ 100,000 population
Incidence of MDR/RR-TB:	2.7 (0.86-4.5)/ 100,000 population

\*Ref: Global Tuberculosis Report, WHO, 2021

#### The End TB Strategy

NTP policies and strategies are aligned with the WHO's End TB Strategy in 2015. Building on the End TB Strategy's Three Pillars

- 1. Integrated, Patient-Centred Care And Prevention
- 2. Bold Policies And Supportive Systems
- 3. Intensified Research And Innovation)

and following the key principles of government stewardship and accountability, strong coalition with civil society organizations and communities, protection and promotion of human rights, ethics and equity, and adaptation of the strategy and targets at country level, the NSP 2021-2025 describes key interventions and activities that will enable the NTP to achieve the End TB Strategy's Milestones for 2025 (75% reduction in tuberculosis deaths and 50% reduction in tuberculosis incidence rate) and targets for 2035 (95% reduction in tuberculosis deaths and 90% reduction in tuberculosis incidence rate). A summary of the End TB Strategy's components is provided in the table below:

#### **END TB STRATEGY FRAMEWORK**

VISION	A world free of tuberculosis – zero deaths, disease and suffering due to tuberculosis
GOAL	End the global tuberculosis epidemic
MILESTONES FOR 2025	<ul> <li>75% reduction in tuberculosis deaths (compared with 2015)</li> <li>50% reduction in tuberculosis incidence rate</li> <li>(less than 55 tuberculosis cases per 100 000 population)</li> <li>No affected families facing catastrophic costs due to tuberculosis</li> </ul>
TARGETS FOR 2035	95% reduction in tuberculosis deaths (compared with 2015) 90% reduction in tuberculosis incidence rate (less than 10 tuberculosis cases per 100 000 population) – No affected families facing catastrophic costs due to tuberculosis

#### PRINCIPLES

- 1. Government stewardship and accountability, with monitoring and evaluation
- 2. Strong coalition with civil society organizations and communities
- 3. Protection and promotion of human rights, ethics and equity
- 4. Adaptation of the strategy and targets at country level, with global collaboration.

#### **PILLARS AND COMPONENTS**

#### **1. INTEGRATED, PATIENT-CENTRED CARE AND PREVENTION**

- A. Early diagnosis of tuberculosis including universal drug-susceptibility testing; and systematic screening of contacts and high-risk groups
- B. Treatment of all people with tuberculosis including drug-resistant tuberculosis; and patient support
- C. Collaborative tuberculosis/HIV activities; and management of comorbidities
- D. Preventive treatment of persons at high risk; and vaccination against tuberculosis

#### 2. BOLD POLICIES AND SUPPORTIVE SYSTEMS

- A. Political commitment with adequate resources for tuberculosis care and prevention
- B. Engagement of communities, civil society organizations, and public and private care providers
- C. Universal health coverage policy, and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control
- D. Social protection, poverty alleviation and actions on other determinants of tuberculosis

#### 3. INTENSIFIED RESEARCH AND INNOVATION

- A. Discovery, development and rapid uptake of new tools, interventions and strategies
- B. Research to optimize implementation and impact, and promote innovations

## 4. NATIONAL TUBERCULOSIS CONTROL PROGRAM (NTP)

#### 4.1 Vision of NTP

TB Free Bangladesh: Zero deaths, disease and suffering due to TB

#### 4.2 Mission of NTP

The National Tuberculosis Program (NTP) has set its goal to enhance TB control efforts by creating effective partnerships, mobilizing essential resources, and ensuring top-notch diagnostic and treatment services in line with the END TB strategy. Moreover, the NTP is dedicated to providing equal access to services for all individuals in Bangladesh, regardless of their age, gender, religion, ethnicity, social status, or race.

#### 4.3 Goal of NTP

Goal (related to End TB Strategy): End the Tuberculosis epidemic aiming to achieve a target of 10 new cases /100,000 /year in 2035. (Projected 2015 baseline 225/100,000)

#### 4.4 Objectives of NTP

The present objective is to achieve universal access to quality TB care for all TB patients in order to achieve the End TB targets.

- Increase annual case detection of all forms of TB to more than 90% of all incident cases by 2022 (from baseline of 57% in 2015) with childhood TB contribution of 8% by 2022 (from baseline of 4% in 2015).
- Maintain a treatment success rate of at least 90% in all forms of detected non-MDR TB cases and ensure qualitycontrolled treatment services at all implementation sites.
- Increase annual case detection of MDR-TB to 4100 cases (from baseline 800 in 2015) and child MDR case detection to 112 cases by 2022 (from baseline on 0 in 2015) and improve management of MDR-TB Cases through countrywide implementation of the shorter MDR-TB treatment regimen.
- Ensure that no TB affected families facing catastrophic costs due to tuberculosis by 2022.
- Ensure that 100% of TB service facilities receive regular supervision and monitoring with appropriate feedback resulting in remedial actions by 2022.
- Ensure the long term availability of 100% of required funding for activities at all program levels through effective planning and partner co-ordination and the continuing increase of GoB contributions to the NTP budget.
- Ensure adequate support for operational research to foster innovation

#### 4.5 Programme Implementation

The TB diagnostic and treatment services are available free of charge all over the country. The common places where freeof-charge diagnostic and treatment services for TB are available are given below:

- All Upazilla Health Complexes
- All Chest Disease Clinics and Chest Disease Hospitals
- District Sadar Hospitals.
- Public and private medical college hospitals
- Specialized Hospitals Urban health centre's in all metropolitan cities (GO and NGOs)

#### 4.6 Major Events /Achievements:

The National Tuberculosis Program (NTP) in Bangladesh has made significant achievements in combating TB:

#### 1. Improved Access to Quality Diagnostic Services:

- The program has focused on expanding access to high-quality diagnostic services, which has played a crucial role in fighting TB in the country.

#### 2. High Treatment Success Rates:

- The NTP has achieved and sustained high treatment success rates for all forms of TB:
- New TB cases: The treatment success rate for the 2020 cohort was 96.82%.
- Re-treatment cases: The treatment success rate for the 2020 cohort was 93.54%.
- Drug-resistant TB patients: The treatment success rate for the 2018 cohort was 82.82%.

#### 3. Expansion of GeneXpert System:

- The GeneXpert system, a rapid diagnostic tool, has been rapidly expanded across the country.
- Currently, there are 429 sites equipped with 470 GeneXpert machines.

#### 4. Paperless Reporting and Digital Tools:

- From 2021, the NTP implemented paperless reporting for drug-resistant TB patients through the eTB manager system.
- The Rajshahi division was also declared paperless during 2021.
- Introduction of the ASPECT (Automated System for Performance Evaluation of GeneXpert Testing) tool for digital reporting at GeneXpert sites.

#### 5. Tuberculosis Preventive Therapy (TPT):

- Tuberculosis Preventive Therapy (TPT) activities began in the second quarter of 2021.
- Additionally, children under the age of five have been provided with isoniazid preventive therapy (IPT).

#### 6. Recognition and Awareness:

- Various events and awards were organized related to the C19RM (COVID-19 Response Mechanism).
- In 2020-21, Bangladesh celebrated the Mujib Year to commemorate Bangabandhu Sheikh Mujibur Rahman's 100th birth anniversary and the Golden Jubilee of Independence. The NTP launched a "TB Campaign" to raise awareness about the higher mortality rate of TB compared to COVID-19 deaths in Bangladesh.
- Nationwide awareness workshops were conducted to address the stigma associated with TB and COVID-19 and to eliminate discrimination.

#### 4.7. Major Challenges:

#### The main challenges of NTP in 2021 are:

- Missing TB Cases: Efforts should be made to find the missing 18% of TB cases, including 6% of child TB cases. This can be achieved through active case finding initiatives, improved diagnostic capabilities, and community-based screening programs.
- Drug-Resistant TB: The emergence of drug-resistant TB strains like MDR-TB and XDR-TB poses a significant challenge. To tackle this, specialized facilities and trained healthcare professionals should be made available nationwide to ensure prompt and effective diagnosis and treatment of drug-resistant TB.

- Treatment Adherence: Enhancing treatment adherence is crucial for successful outcomes. Patient education programs, addressing medication side effects, and considering socioeconomic factors can help improve adherence rates and reduce the risk of treatment failure and drug resistance development.
- Healthcare Workforce: There is a shortage of trained healthcare professionals in Bangladesh, impacting the delivery of quality TB care. Increasing the number of healthcare workers, particularly in rural areas, can alleviate the workload burden and improve the quality of care provided.
- Access to Diagnostics and Medications: Ensuring the availability and affordability of quality-assured TB diagnostics and medications is essential. Strengthening the supply chain, reducing stock-outs, and addressing affordability issues are necessary to provide equitable access to accurate diagnostics and effective treatment.
- Impact of COVID-19: The COVID-19 pandemic has strained the healthcare system, diverting resources and attention from TB programs. Mitigating the impact requires effective management of COVID-19 patients while maintaining TB services, ensuring timely diagnosis, treatment initiation, and follow-up.
- Increased Investment: The Government of Bangladesh needs to prioritize increased investments in the TB program. Advocacy efforts should focus on securing more funding and resources to strengthen the healthcare system, improve access to quality care, and implement evidence-based strategies.
- Cascade of Care: Disruptions caused by the pandemic can result in delays at each step of the TB cascade of care. Efforts should be made to minimize patient delay, improve access to healthcare facilities, and ensure uninterrupted services to prevent delays in diagnosis and treatment initiation.
- Equipment Maintenance: Addressing challenges related to equipment maintenance, including GX module replacement and calibration, is vital to ensure the smooth functioning of TB diagnostic facilities at all levels.

#### **5. PROGRESS IN TB CONTROL**

Since the introduction of DOTS in Bangladesh in 1993, remarkable progress in TB control has been made in terms of DOTS coverage, diagnosis, and treatment of TB cases.

#### 5.1 DOTS Coverage

DOTS coverage, defined as the proportion of population living in administrative areas with access to DOTS services.

Increased steadily from 1995 onwards, almost the entire population of Bangladesh had access to DOTS by the end of 2007 (100 % DOTS Coverage).

DOTS coverage refers to the population living in areas where DOTS services are available. This does not mean that all people have equal access to diagnostic and/or treatment facilities.

#### 5.2 Case Notification

#### **Case Notification Rate:**

Case Notification rate (CNR) is defined as the number of TB cases registered and reported to NTP per one hundred thousand population per year.

Since 2004, the number of TB cases notified in Bangladesh has been on a steady rise. Between 2004 and 2006, there was a rapid increase in bacteriologically confirmed pulmonary TB cases due to enhanced case-finding with the establishment and scale-up of the DOTS program. By 2007, full coverage was achieved in all districts of Bangladesh. From 2007 to 2014, bacteriologically confirmed pulmonary case notification remained relatively constant except for a decline in 2011 due to a gap in GFATM funding. The increase in bacteriological confirmed notifications in recent years may be attributed to the expansion of GeneXpert diagnostics and referral of samples to GeneXpert testing hubs. As of 2021, the notification of all forms of TB cases had increased to reach 178/100,000 population and bacteriologically confirmed new cases had increased to 110/100,000 population.

#### Fig 2. Nationwide case notification rate/100 000 population:



#### NSP/Bact +ve and all forms of TB; 2005-2021

#### Case detection rate (CDR):

Case detection rate is defined as the number of cases detected expressed as a percentage of cases estimated to occur during a period of one year.

Now World Health Organization (WHO) is not providing any estimate for new smear positive cases, rather providing combined estimates for all new and relapse TB cases. According to this estimate the number of all forms (new and relapse) TB cases is \*221/ per 100,000 populations in 2021. The case detection rate increased up to 82% from 64% in 2020 (\*Ref Global TB report 2021). The trend of CDR from 2001- 2021 is shown in Figure 3.

#### Figure 3. TB case detection rate (all forms): 2005-2020



#### 5.2.1 Nationwide Case Notification

A total of 3,07,561 cases were notified in 2021 Among the total 307,561 cases, about 86.02% were reported through the upazilas. Over 61.93% of the cases were new pulmonary bacteriologically confirmed and only 2.49% were relapses. New pulmonary clinically diagnosed and extra-pulmonary cases were 14.73% and 18.20% respectively. Proportions of extra-pulmonary cases reported through metropolitan cities and CDCs were significantly higher than those reported through upazilas (Table 2).

#### Table 2: Case notification by type of reporting unit, 2021

it	Pulmonary Bacteriologically Confirmed			Pulmonary Clinically Diagnosed				Extra-Pulmonary								
eporting un	New/Treatment History Relap Unknown		pses	New/ Treatment History Unknown		Relapses		New/ Treatment History Unknown		Relapses		All Retreatment Except relapses		Total		
Я	#	Row %	#	Row %	#	Row %	#	Row %	#	Row %	#	Row %	#	Row %	#	Column %
Upazila	175,919	66.49	6,160	2.33	40,623	15.35	4,451	1.68	35,365	13.37	1,416	0.54	657	0.25	264,591	86.03
Metro. city	13,419	5.07	1,413	0.53	4,290	1.62	500	0.19	19,529	7.38	786	0.30	185	0.07	40,122	13.05
CDC	1,122	0.42	103	0.04	411	0.16	42	0.02	1,100	0.42	52	0.02	18	0.01	2,848	0.93
Total	190,460	71.98	7,676	2.90	45,324	17.13	4,993	1.89	55,994	21.16	2,254	0.85	860	0.33	307,561	100.00

Over 45.51% of the total 307,561 notified cases were female; (M:F=1.19:1). In case of new pulmonary bacteriologically confirmed and new pulmonary clinically diagnosed cases proportions of female cases were 44.68% and 42.19% respectively, where as in case of new extra pulmonary cases it was 54.25% (Table 3).

#### Table. 3. Case notification by type of cases and sex, 2021

	Ма	le	Fen	nale	Total	
Type of cases	Number	(%)	Number	(%)	lotal	M / F Katio
New Pulmonary Bacteriologically Confirmed	105357	55.32%	85,103	44.68%	190,460	1.24
New Pulmonary Clinically Diagnosed	26,202	57.81%	19,122	42.19%	45,324	1.37
New Extra Pulmonary	25,617	45.75%	30,377	54.25%	55,994	0.84
Relapses	9,486	63.57%	5,437	36.43%	14,923	1.74
Treatment after failure	380	69.98%	163	30.02%	543	2.33
Treatment after loss to follow up	87	76.99%	26	23.01%	113	3.35
Others	145	71.08%	59	28.92%	204	2.46
Total	167,274	54.39%	140,287	45.61%	307,561	1.19

#### Age sex distribution of pulmonary bacteriologically confirmed cases

Among the notified pulmonary bacteriologically confirmed cases the number of male patients are higher in all age groups except 5-14, 15-24, 25-34 and 35-44 where female cases are higher. About 59 percent of the reported cases belong to 15-54 years age group, who are economically most active. This proportion is comparatively higher among females than that among males (50.2% vs 49.8%). Over 24% of new pulmonary bacteriologically confirmed cases belong to age group  $\geq$  65 years and in this age group proportion is higher in males than in females (71% vs 29% among those 24%). The overall male–female ratio in these notified cases is 1.27 and the ratio increases with the age except in age group 45-54. In old people ( $\geq$  65 years), there are about 2.5 times more men notified than women (Fig; 4 & 7).

#### Age sex distribution of Pulmonary Clinically Diagnosed

Figures 5 and 7 shows that the number of notified pulmonary clinically diagnosed cases was almost equal in both sexes up to age 34 years. From 35-44 female cases were slight high but from 45 years and onwards the number of male cases was higher in all age groups and male–female ratio increases with the age to reach 3.08 in the age group  $\geq$  65 years (Figures 5 & 7).

#### Age sex distribution of new extra-pulmonary cases

In the age groups ranging from 05 to 54 years the number of female cases is more than that of male cases. And in all other age groups the number of male cases is also lower than that of female cases. (Fig 6 & 7).

Nationwide case notification trend in absolute number is shown in figure 8.



#### Fig. 4: Notification of pulmonary bacteriologically confirmed TB by age and sex, 2021



Fig. 5 Notification of new pulmonary clinically diagnosed TB by age and sex, 2021

#### Fig. 6 Notification of extra- pulmonary TB by age and sex, 2021





Fig. 7 Male- Female Notification Ratio by age group: pulmonary bacteriologically confirmed, pulmonary clinically diagnosed & extra-pulmonary TB cases, 2021

Fig. 8 Age-Sex wise CNR per 100,000 population of New Pulmonary and Extra Pulmonary TB cases, 2021



13



Fig. 9 Nationwide yearly case notification (all forms); absolute number; 2001-2021

#### 5.2.2 Division-wise Case Notification; New Pulmonary Bacteriologically Confirmed Cases

Out of eight divisions, seven divisions showed new pulmonary bacteriologically confirmed TB case notification rate (CNR) of more than 70 (70.31-187.32) per one hundred thousand population in 2021, while the nationwide CNR was 110/100,000 population. For all forms of TB cases the nationwide CNR is 178/100,000 population. For all forms, Rajshahi having the lowest (135/100,000 population) and Barisal having the highest (243/100,000 population) CNR (Table 4).

			Num	Estimated							
Division	Upazila		Metro		CDC		Total		Projected	All forms	CNR
	New PBC	All forms	New PBC	All forms	New PBC	All forms	New PBC	All forms	population of 2019	CNR /100000 population	/100000 population
Barishal	14308	14639	310	335	12	12	14630	14986	8809476	166.07	243.75
Chattogram	36703	37703	3524	3823	91	101	40318	41627	34785974	115.90	172.12
Dhaka	30172	31665	7373	8280	264	286	37809	40231	45960887	82.26	173.77
Khulna	31812	32246	564	588	194	211	32570	33045	17387225	187.32	228.70
Mymensingh	9622	10439	0	0	123	132	9745	10571	13860540	70.31	136.87
Rajshahi	18756	19433	693	778	332	375	19781	20586	21698840	91.16	134.57
Rangpur	18400	18949	0	0	86	88	18486	19037	18690778	98.90	169.42
Sylhet	16146	17005	955	1028	20	20	17121	18053	12843683	133.30	201.56
Total	175919	182079	13419	14832	1122	1225	190460	198136	172531999	110.39	177.77

## Table 4: Division-wise new pulmonary bacteriologically confirmed (PBC) & all forms of TB cases by type of reporting unit

#### 5.2.3 District-wise case notification rates CNR

The district wise case notification rates of **each division in 2021 are shown in Figure 10** and details of case notification by **district are shown in Annex- 1** 

#### Fig. 10 District-wise CNR of New Pulmonary Bacteriologically Confirmed (PBC) and all forms of TB cases in 2021



















#### **5.2.4 CNR MAP**



#### 5.3 Treatment Outcomes

All diagnosed TB patients are regularly registered for treatment. The treatment continues for six months (new cases) to eight months (re-treatment cases). At the end of the treatment, the patients are evaluated for assessing treatment outcomes. The possible outcomes are: cured, treatment completed, died, treatment failure, lost to follow up and transferred out. "Cured" and "treatment completed" are also grouped as "treatment success" or treatment with favorable outcome while "died", "treatment failure", "lost to follow up" and "transferred out" are considered as unfavorable outcomes. In the same way as case finding, treatment outcomes are also analyzed by the central NTP unit at three levels: national, divisional and district. This report includes the outcomes of the treatments in TB patients registered during 2017 from all sources (upazilas, metropolitan cities and CDCs).

#### **Definitions of treatment outcomes**

**Cured:** A pulmonary TB patient with bacteriologically confirmed TB at the beginning of treatment who was smear- or culture-negative in the last month of treatment and on at least one previous occasion.

**Treatment completed:** A TB patient who completed treatment without evidence of failure BUT with no record to show that sputum smear or culture results in the last month of treatment and on at least one previous occasion were negative, either because tests were not done or because results are unavailable.

Died: A TB patient who dies for any reason before starting or during the course of treatment

**Lost to follow up:** ATB patient who did not start treatment or whose treatment was interrupted for 2 consecutive months or more.

**Treatment failure**: i) A bacteriologically confirmed TB patient whose sputum smear or culture is positive at month 5 or later during treatment. ii) A clinically diagnosed Pulmonary TB patient whose sputum smear becomes positive at month 2/3.

Transfer out: Patient moved to another registration unit and no known treatment outcome.

#### 5.3.1 Nation-wide Treatment Outcomes

Treatment success rates under DOTS have been consistently high from the beginning and crossed the global target of 85% in 2003. After strengthening DOTS and ACSM activities the unfavourable outcomes have been remarkably reduced. The NTP has been maintaining over 91% treatment success rates since 2005 (Figure 11). In fact, the NTP has successfully treated 132,057 (96.85%) out of 136,351 new pulmonary bacteriologically confirmed cases registered in 2020. The lost to follow up rate was 0.41% while 2.21% of the patients have died during treatment (Figure 12).







#### Figure 12: Treatment outcomes of new pulmonary bacteriologically Confirmed cases registered in 2020

The treatment success rate of new pulmonary bacteriologically confirmed TB cases is highest (97.03%) among the cases registered in upazilas followed by among cases registered in metropolitan cities (95.39%) and the lowest is among those registered in CDCs (92.70%); (Table 5). This year the percentage of TB cases died has been reduced compared to the previous year (2.21% vs 2.37%) resulting in improving treatment success rate. The proportion of died, failure, lost to follow up and transferred out cases are higher in CDCs (Figure 13) resulting in lower treatment success rate. In order to further improve the treatment success rate, emphasis is to be given on getting feedback of transferred out cases with special emphasis in urban setting.

Type of registration unit	Number of cases registered	Treated successfully
Upazila	125,133	121,383
		(97.03%)
Metropolitan city	10,218	9,747
		(95.39%)
CDC	1,000	927
		(92.70%)
Total country	136351	132,057
		(96.85%)

#### Table 5: Treatment success by type of registration unit (2020 cohort)



## Figure 13: Unfavorable treatment outcomes of new pulmonary bacteriologically confirmed cases by type of registration unit (2020 cohort)

#### 5.3.2 Division-wise Treatment Outcomes

Table 6 shows that all eight divisions have successfully treated more than 93% of the new pulmonary bacteriologically confirmed cases registered in 2019 with overall treatment success rate of over 96.49%. Division wise unfavorable outcomes are shown in fig 14. The patients died in the divisions during TB treatment varied from 1.53% to 3.87% while the failure rate varied from 0.14% to 1.24%. The lost to follow up rate among those patients varied from 0.08% to 1.91%. Data shown in Figure 14 include also metropolitan cities and CDCs.

Barishal	9019	8,652
		93.93%
Chattogram	28080	27,478
		97.86
Dhaka	26260	25,368
DIIdKa	20300	96.24%
Khulpa	26245	25,698
Khuina	20245	97.92%
Mumancingh	6705	6,340
Mymensingn	6795	93.30%
Daiabahi	12000	12,292
Rajsnani	12808	95.97%
Bangnur	12725	13,338
панури	13733	97.11%
Sulbet	12200	12,891
Symet	13309	96.86%
Total	126251	1,32,057
IOtal	100001	96.85%

#### Table 6: Division-wise treatment success rate of new pulmonary bacteriologically confirmed cases registered in 2019

#### Figure 14: Unfavorable outcomes of new pulmonary bacteriologically confirmed cases by division, 2020 cohort



#### 5.3.3 District-wise Treatment Outcomes

The treatment success rates of new pulmonary bacteriologically confirmed cases in each district registered in 2020 are shown in Figure 15. Almost all the districts are showing over 90% treatment success rates.

















#### 5.3.4 Treatment outcomes of relapse, new pulmonary clinically diagnosed and extra-pulmonary (new) cases

In 2020 a total of 9,726 relapse, 39,966 new pulmonary clinically diagnosed and 42,193 extra-pulmonary TB cases were registered. The treatment success rate of relapse cases was 93.26%, and treatment completion rates of new pulmonary clinically diagnosed and extra-pulmonary cases were 94.51% and 91.65% respectively. During the course of treatment 370 (3.80%) relapse, 1,554 (3.89%) pulmonary clinically diagnosed and 1,530 (3.63%) extra-pulmonary cases had died; over all death rate of these three categories was 3.76%.

#### 6. Drug Resistant TB

Drug-resistant TB threatens global TB care and prevention, and it remains a major public health concern in many countries. The Global number of MDR/RR –TB cases notified in 2021 was 36% of the estimated 450,000 RR/MDR incident (Ref: WHO Global TB report 2022).

Globally in 2021, 69% of people with bacteriologically confirmed TB were tested for rifampicin resistance, up from 51% in 2019. Coverage of testing was 69% for new and 77% for previously treated TB patients. A global total of 167100 people with MDR/RR-TB were detected and notified in 2021.

According to Global TB Report, the proportion of new TB cases with RR/MDR-TB was 1.6% and that of previously treated cases with RR/MDR-TB was 29% upto year 2017. In 2018, that proportion changed to 1.5% and 4.9% for new TB cases and previously treated cases respectively. Finally from DRS survey, the proportion of new TB cases with RR/MDR-TB found 0.7% and that of previously treated cases with RR/MDR-TB found 11%. On these assumptions the estimated total numbers of MDR-TB cases in 2011 to 2021 in the country are shown in Table-7. In 2021 the notified new pulmonary cases were 291,780 and previously treated pulmonary TB cases were 15,782.

Fable 7. Annual estimated	number of MDR-TB	cases in Bangladesh	(2011-2020)
---------------------------	------------------	---------------------	-------------

Year	Among new PTB cases	Among previously treated pulmonary TB cases including relapse	Total
2011	1700	2100	3800
2012	1850	2300	4150
2013	2071	2425	4496
2014	2094	2703	4797
2015	2512	2507	5019
2016	2714	2571	5285
2017	3011	2557	5568
2018	3093	521	3614
2019	1572	1402	2974
2020	1534	1292	2826
2021	2918	758	3676

For diagnosis and management of multidrug resistant TB (MDR-TB), a National TB Reference Laboratory (NTRL) has been established in National Institute of Diseases of Chest and Hospital (NIDCH). The NTRL have been functioning since 27<sup>th</sup> June 2007 for culture and Drug Sensitivity Test (DST). It is linked with supranational reference laboratory (SRL) in Antwerp, Belgium. In August 2008 NIDCH started enrolment of MDR TB patients with GLC approved 24 months regimen and supported by the Global fund. As a part of Programmatic Management of Drug resistant TB (PMDT) plan NTP established one Regional TB Reference Laboratory (RTRL) at chest disease hospital (CDH), Chittagong in 2011 and also managing MDR-TB patients from that year. In 2013 NTP has also started managing MDR-TB in CDH of Pabna and Khulna. In CDH Khulna, an RTRL has been established in 2015. Recently Shyamoli 250 bedded TB hospital has been included in managing MDR-Tb patient which was inaugurated on 21 September 2021.

The MDR TB patients are also managed in the CDH Rajshahi and in three other hospitals of Damien Foundation at Jalchatra under Tangail District, Anantapur under Netrokona District and Shambhuganj under Mymensingh District. A regional TB reference laboratory (RTRL) has been established in the CDH, Rajshahi in May 2008. The programme has been initiating around 900 patients consistently over past 4 years. Following the endorsement of Shorter MDR treatment regimen WHO in May 2016 the NTP Bangladesh initiated shorter regimen and scaled up all over the country by end of 2018.

As of 31 December 2021, countrywide a total of 11,159 MDR TB patients were enrolled for treatment including 1374 in 2021. Among the 1374 in 2021, 80 are under longer regimen and 1294 under shorter regimen.

#### Criteria for Presumptive DR-TB cases:

- Failures of Category I and retreatment
- Non-converters of Category I and retreatment
- All relapses
- All return after loss to follow up
- Close contacts of MDR-TB patient with symptoms.
- All HIV infected patients
- Others: Any Smear Negative or EP TB patients clinically not improving in spite of proper treatment.

The MDR patients diagnosed and enrolled for management are shown in the Table below:

#### Table 8: Summary, MDR TB Enrolment for Treatment

		Long	er regim	en					Short reg	imen							
Year	NIDCH		CDH, CTG	C D H , Pabna	C D H , Khulna	C D H , Sylhet	Total	Under op research til DF and Rajs	erational l 2016 (3 shahi)	NIDCH		CDH, CTG	C D H , Pabna	C D H , Khulna	C D H , Sylhet	Total	Grand Total
2005 May- 2007								(67+69+106) 242	) =							242	242
2008	107						107	129								129	236
2009	179						179	181								181	360
2010	183						183	154								154	337
2011	212		41				253	137								137	390
2012	290		86				376	129								129	505
2013	330		120	31	14		495	191								191	686
2014	447		123	31	61	54	716	230								230	946
2015	430		121	26	43	60	680	200								200	880
2016	461		113	21	60	95	750	168								168	918
2017	145		114	24	62	81	426	211		279					4	494	920
2018	102		67	13	1	4	187	237		489		57	13	71	93	960	1,147
2019	112		104	3	0	4	223	249		478		52	5	106	130	1,020	1,243
2020	94		2	0	0	5	101	202		393		104	8	69	93	874	975
2021	65	2	1	5	0	7	80	326		541	19	144	13	118	133	1294	
Total	3,157	2	892	154	241	310	4,756	2,986		2,180	19	357	39	364	453	6,403	9,785

#### Treatment outcome of MDR-TB patients under GLC approved 24 months regimen:

Diagnosed MDR-TB patients are enrolled for treatment. The treatment continue for 20-24 months. Initially hospital duration was 6-8 months and rest period patients were treated in the community. From 2012 management modality has been modified with initial hospitalization for 1-2 months followed by community management for the rest period. At the end of the treatment, the patients are evaluated to assess treatment outcomes.

The overall trend of treatment success rates of MDR-TB patients is increasing. Table 9 shows the treatment outcomes of the patients enrolled during 2008- 2019 under 24 months regimen.

#### Table 9: Treatment Outcomes MDR TB, 2008 - 2019 Cohorts

		nen			0	utcom	es Abs	#	Outcomes Percentage								
Year	Registered	Shifted from shorter regin	Confirmed MDR	Cured	Treat completed	Failed	Lost to Follow up	Died	No Result/ Still on treatment	Cured	Treat completed	Failed	Lost to follow up	Died	No Result/ Still on treatment	Treatment Success	Evaluation
2008	107		104	61	6	1	28	8	0	58.7	5.8	1.0	26.9	7.7	0.0	64.42	After 36 months
2009	179		167	104	9	3	30	21	0	62.3	5.4	1.8	18.0	12.6	0.0	67.66	After 36 months
2010	183		175	99	24	0	25	27	0	56.6	13.7	0.0	14.3	15.4	0.0	70.29	After 36 months
2011	253		240	153	14	4	34	34	01	63.3	6.3	1.7	14.2	14.2	0.4	69.58	After 30 months
2012	376		372	236	35	3	50	42	5	63.4	9.4	0.8	13.4	11.3	1.3	72.85	After 30 months
2013	495		495	333	27	1	51	59	22	67.3	5.5	0.2	10.3	11.9	4.4	72.73	After 30 months
2014	716		716	233	271	0	73	109	23	32.5	37.8	0	10.2	15.2	3.2	70.39	After 24 months
2015	680		680	324	198	3	56	78	12	47.6	29.1	0.4	8.2	11.5	1.8	76.76	After 24 months
2016	750		750	467	100	19	57	93	5	62.3	13.3	2.5	7.6	12.4	0.7	75.60	After 24 months
2017	426	69	494	288	79	11	45	51	14	58.3	16.0	2.2	9.1	10.3	2.8	74.29	After 24 months
2018	186	34	220	111	42	6	36	21	1	50.45	19.09	2.73	16.36	9.55	0.45	69.55	After 24 months
2019	226	0	226	87	63	6	24	30	7	38.50	27.88	2.65	10.62	13.27	38.50	66.37	After 24 months

#### Treatment outcome of MDR-TB patients 9 months regimen:

Under an operational research NTP in collaboration with DF Bangladesh has been managing MDR-TB Patients with 9 months regimen since 2008 and showing a good results with treatment success rates of 76% for the cohort registered in 2020 (Table 10). NTP already enrolled 1294 MDR TB in shorter regimen during the year 2021. The treatment outcome of the cohort will be known by next year.

		ger	R		Outcomes Abs #							Outco	mes Per	centage			
Year	Registered	Shifted to long regimen	Confirmed MI	Cured	Treat completed	Failed	Lost to Follow up	Died	No Result/ Still on treatment	Cured	Treat completed	Failed	Lost to Follow up	Died	No Result/ Still on treatment	Treatment Success	Evaluation
2008	129		129	103	0	3	12	6	5	79.84	0	2.3	9.3	4.65	3.876	79.84	after 1 year
2009	181		181	138	5	2	16	11	9	76.24	2.76	1.1	8.84	6.08	4.972	79.01	after 1 year
2010	154		154	125	2	2	17	8	0	81.17	1.3	1.3	11	5.19	0	82.47	after 1 year
2011	137		137	102	0	9	22	4	0	74.45	0	6.6	16.1	2.92	0	74.45	after 1 year
2012	129		129	91	2	2	18	16	0	70.54	1.55	1.55	13.95	12.4	0	72.09	after 1 year
2013	191		191	152	1	4	8	23	3	79.59	0.52	2.09	4.19	12.04	1.57	80.1	after 1 year
2014	230		230	195	2	7	16	10	0	84.78	0.87	3.04	6.96	4.35	0	85.65	after 1 year
2015	200		200	165	2	6	13	12	2	82.5	1.0	3.0	6.5	6.0	1.0	83.5	after 1 year
2016	168		168	146	0	1	7	14	0	86.9	0	0.6	4.17	8.33	0	86.9	after 1 year
2017	494	69	425	296	8	28	53	33	7	69.65	1.88	6.59	12.47	7.76	1.65	71.53	after 1 year
2018	960	33	927	622	75	35	100	67	16	67.01	8.09	3.78	10.79	7.23	1.73	75.19	after 1 year
2019	1029	17	1012	524	231	24	117	73	12	49.16	26.07	3.96	1.12	7.14	0.99	75.22	after 1 year
2020	869	31	838	404	223	21	98	81	3	48.21	26.61	2.50	1.16	9.66	0.35	74.82	after 1 year

#### Table 10: Treatment outcome of MDR-TB patients under 9 months regimen

## **7. LABORATORY ACTIVITIES**

#### 7.1 Sputum Microscopy and Quality Assurance

Quality assured smear microscopy services which are essential part of TB control program are available through a large laboratory network in Bangladesh. Under NTP during 2021, sputum microscopy was performed in 1119 laboratories across the country and sputum samples from a total of 19,11,382 presumptive TB cases were tested for AFB, out of which 113,619 cases were sputum smear positive (positivity rate 5.9%). As follow up of treatment a total number of 594,616 sputum slides were tested; out of which 2.5% were found positive. (Detailed lab report for the year 2022 is shown in Annex -3)

In 2021 number of EQA lab remains same as of 2019 i.e., 40. All 1119 laboratories were brought under the quality assurance network of the EQA centers. Assessment reports had been received from these EQA centers (List of EQA centers shown in Annex -4).

Lot quality assurance sampling method was used for quantifying the number of slides to be rechecked. Each month five slides were selected from each laboratory. Slides were blindly rechecked by a first controller. A total of 59,503 slides were rechecked. This sample contained approximately the same distribution as the pool from where they were selected i.e. 2,647 (4.45%) positive, 1,079 (1.81%) scanty and 55,777 (93.73%) negative. For comparison the error rates (%) found in 2016, 2017, 2018 and 2019,2020 are also shown in the same table below (Table: 11).

Type of error	Number (2021)	Rate (2021)	Rate (2020)	Rate (2019)	Rate (2018)	Rate (2017)	Rate (2016)
Total False positive by MCs	23	0.62%	0.77%	0.75%	0.79%	0.94%	0.97%
High false positive	7	0.19%	0.26%	0.33%	0.07%	0.17%	0.33%
Low/scanty false positive	16	0.43%	0.51%	0.43%	0.72%	0.77%	0.64%
Total False negative by MCs	85	0.15%	0.25%	0.22%	0.26%	0.34%	0.39%
High false negative	13	0.02%	0.05%	0.07%	0.06%	0.13%	0.21%
Low/scanty false negative	72	0.13%	0.21%	0.15%	0.20%	0.21%	0.18%
Quantification error (QE) by MCs	89	2.29%	2.53%	2.36%	2.19%	2.44%	2.63%

#### Table 11: Result of blinded rechecking of AFB smears

#### 7.2 National Tuberculosis Reference Laboratory (NTRL)

On 27<sup>th</sup> June 2007 the National Tuberculosis Reference Laboratory (NTRL) formally started functioning. NTRL is the WHO/ The Union recommended TB reference laboratory of NTP. It is the only National level laboratory for GLC-Approved project. Along with previous microscopy (Z-N stain, Fluorescent Stain, and FDA staining), Culture (conventional culture both in solid and liquid media and identification) and DST(conventional DST in solid media, AST in liquid media by proportionate method); new diagnostic techniques such as GeneXpert and LPA (line probe assay) were introduced in 2012. GeneXpert machines are used for detection of MTB and RR TB and this service assist NTP in two ways: (i) diagnosis and follow up of drug resistant forms of TB and (ii) Monitoring drug resistant trends through periodically conducting drug resistant surveys. LPA was introduced through Expand TB project at NTRL under NTP. By December 2014 this project was phased out and related activities were handed over to NTP.

Year	Number of GenXpert Installed (Cumulative)	Presumptive–DR TB Tested	Presumptive–DS TB Tested	RR TB Diagnosed
2012	12	1,733		388 (22.4%)
2013	26	11,852		811 (6.8%)
2014	39	43,360		994 (2.3%)
2015	39	39,176		893 (2.28%)
2016	39	47,141		980 (2.08%)
2017	96	77,560		944 (1.22%)
2018	192	69,329	1,35,695	1,228 (0.60%)
2019	223	78,977	2,14,555	1,373 (0.47%)
2020	265	53,259	2,01,286	1046 (0.41%)
2021	479	63,246	6,89,450	1496 (0.19%)

#### Table: 12. Performance of GeneXpert Machines in detecting DR-TB

#### Table: 13 (B). Performance through LPA in detecting DR-TB

				RESISTANT TB						
YEAR		MTB POSITIVE		1 <sup>ST</sup> LINE		2 <sup>ND</sup> L	INE			
	TESTED		HR	R	Н	PRE-XDR	XDR			
2012	705	220	213	18	32					
2013	869	265	180	43	49					
2014	320	154	48	12	21					
2015	428	403	53	10	30					
2016	105	104	12	1	10					
2017	315	255				56	1			
2018	853	548				108	10			
2019	1248	764				97	8			
2020	736	547				64	5			
2021	1079	693				119	8			

#### 7.3 Regional Tuberculosis Reference Laboratory (RTRL) in Rajshahi, Chittagong , Khulna and Shyamoli 250 bedded TB Hospital

On 10<sup>th</sup> May 2008 Regional Tuberculosis Reference Laboratory was formally inaugurated in Rajshahi Chest Disease Hospital. Damien Foundation is providing technical support for this laboratory. Culture and drug susceptibility Test (DST) for Tuberculosis are done within shortest duration by this laboratory. The RTRL in Chittagong has started its function since October 2010. After completion and renovation and installation of instrument (in 2014), Khulna RTRL has been formally inaugurated on 30 June 2015.RTRL of Shyamoli 250 bedded TB hospital was formally inaugurated on 21 September, 2021

## 8. TB/HIV Co-infection

TB/HIV co- infection denotes two diseases in one body. HIV/AIDS and TB are so closely connected that the term "coepidemic" "dual epidemic" or "twin epidemic" is often used to describe their relationship. The two diseases represent a deadly combination, since they are more destructive together than either disease alone. HIV affects the immune system and increases the likelihood of people acquiring new TB infection. It also promotes both the progression of latent TB infection to active disease and relapse of the disease in previously treated patients. On the other hand presence of TB bacteria in the body of a HIV infected people accelerate the progress of HIV infection to AIDS. TB is one of the leading causes of death in HIV-infected people.

#### **Diagnosis of TB/HIV Co-infection**

The diagnosis of TB means that a patient has symptomatic disease due to lesions caused by M. tuberculosis. The definitive diagnosis of HIV infection rests on a positive HIV test.

#### **Diagnosis of TB in HIV patients**

The diagnosis of tuberculosis is more difficult in HIV-positive people. Even then sputum smear examination for AFB remains the cornerstone of diagnosis to identify infectious patients so that transmission can be stopped by treating with anti-TB drugs. However according to new policy, HIV infected persons with symptoms/signs of TB should be referred for GeneXpert test. Support of X-Ray and other diagnostic methods may also be taken for diagnosis of other types of TB cases.

#### **Practical points**

- TB is harder to diagnose in HIV-positive people.
- TB progresses faster in HIV-infected people.
- TB in HIV-positive people is almost certain to be fatal if undiagnosed or left untreated.
- TB is the leading cause of HIV related morbidity and mortality
- HIV is the most important factor fuelling the TB epidemic.

#### **TB/HIV Activities:**

#### Table:14: HIV among Diagnosed TB Patients in 2015-2021

	2016		2017		2018		2019		2020		2021	
Category of TB Patients	# tested for HIV before or during TB treatment	# found HIV positive before or during TB treatment	# tested for HIV before or during TB treatment	# found HIV positive before or during TB treatment	# tested for HIV before or during TB treatment	# found HIV positive before or during TB treatment	# tested for HIV before or during TB treatment	# found HIV positive before or during TB treatment	# tested for HIV before or during TB treatment	# found HIV positive before or during TB treatment	# tested for HIV before or during TB treatment	# found HIV positive before or during TB treatment
New pulmonary bacteriologically confirmed	1,977	8	2,001	8	1,421	4	5,013	9	4636	4	12754	4
New pulmonary clinically diagnosed	526	3	479	0	306	0	1,403	0	1133	2	2229	5
New Extra-pulmonary	1,245	3	1,123	6	716	4	1,851	4	1743	6	3449	2
All re-treatment	282	0	285	0	276	0	866	1	766	4	1220	4
MDR	117	0	29	0	112	1	439	0	359	0	882	5
Total	651	17	4,147	14	3,917	14	2,831	9	9,572	14	20534	20

#### Table :15 TB among PLWHA in 2016-2020

	# of PLWHA tested for TB			for TB		# of PLWHA diagnosed as TB	Number							
Year 2016	Year 2017	Year 2018 (AAS)	Year 2019	Year 2020	Year 2021	Type of TB	Year 2016	Year 2017	Year 2018 (AAS)	Year 2019	Year 2020	Year 2021		
						New pulmonary bacteriologically confirmed	33	17	9	44	23	44		
						New pulmonary clinically diagnosed	22	28	26	30	21	25		
697	559	295	478	523	1039	New Extra-pulmonary	18	30	16	25	17	22		
						All re-treatment	14	14	13	21	23	15		
						Total	87	89	64	120	84	106		

### 9. TRAINING COURSES AND WORKSHOP

The development of skilled health staff in NTP is a prerequisite for a successful programme. NTP being primary responsible for training, plans all aspects of training and workshop with government and non-government entities to determine training content, develop materials, identify health staff to be trained, ensure training course implementation, and follow up for new hires and maintenance of training. Tables 16 and 17 give an overview of the activities related to training and workshop/ meeting on TB control performed by NTP January to December 2020. Besides these, 77 monitoring meetings in each quarter are organized at 64 districts.

#### Table 16: Tuberculosis training activities-2020

Subject	Duration	Category of participants	Funding So No. of partie	Funding Source & No. of participants	
	(Days)		GFATM	GOB	
2-Day Training on Procurement and Supply Chain Management and Logistics	2	Store Keeper/ TLCA	116	-	
2-Day Training for Mid Level staff on DRTB & IC	2	Senior Staff Nurse	75	-	
Management Training on X-Ray, EP, PMDT, IC, TB/HIV	5	UH&FPO, MO(DC), Junior Consultant (CDC)	95	-	
Train and retrain HIV counselor and other staff to identify and refer presumptive TB cases	1	Medical Assistant/ Senior Staff Nurse	-	-	
2-Day Training on Field-level Ambulatory MDR-TB Patient Management	2	UH&FPO, MO, Junior Consultant (CDC), PO, TLCA, Staff Nurse, NGO Personals	160	-	
Training of Doctors on Diagnosis of Child TB	3	UH&FPO, MO, Junior Consultant (CDC)	109	-	
1-Day Orientation on Sputum Collection and Transportation from Peripheral Laboratory to Gene Xpert Centre (NTRL/RTRL)	1	PO/ Upazila Manager/ TLCA	106	-	
3-Day Training/ Retraining on Programmatic Management of Drug Resistant TB (PMDT)	3	CDH/ CDC/ Upazila/ Urban DOT Centre	-	-	
6- Day refresher Training on LED Fluorescence Microscopy	6	MT/ TA- Lab, TLCA	177	-	
3-Day Training on Gene Xpert Testing	3	MT/ TA- Lab, TCA	318	-	
1-Day Training on TB for CHCP	1	CHCP	-	-	

Subject	Duration	Category of participants	Funding So No. of partic	urce & cipants
	(Days)		GFATM	GOB
Quarterly coordination/ partners meeting including divisional TB Experts	1	GO-NGO personals involved TB control program	97	-
Quarterly M&E working group meeting at central level	1	GO-NGO personals involved TB control program	77	-
Quarterly TB Technical Committee meeting	1	GO-NGO personals involved TB control program	63	-
Child TB working group meeting	1	GO-NGO personals involved TB control program	19	-
Annual monitoring meeting (City corporation)	1	GO-NGO personals involved TB control program	65	-
Bi-annual coordination/ partners meeting at national level (MDR-TB)	1	GO-NGO personals involved TB control program	63	-
Bi-annual TB & HIV NGOs coordination committee meeting	1	GO-NGO personals involved TB control program	48	-

#### Table 17: Workshop and Meeting related to TB Control-2020

### 10. Collaborating Partners of NTP with Area of Collaboration

#### 10.1 BRAC



BRAC is one of the largest development organizations known worldwide for conducting operations at diverse aspects and health is one of them. BRAC started TB Control Program in 1984 as a pilot project and eventually expanded DOTS services nationwide. Along with the Government, BRAC has been the principal recipient (PR) of The Global Fund since 2004. Besides implementing large scale Global Fund grant on its own as a PR, BRAC has also been responsible

for management, supervision, guidance and technical assistance of 23 other partner NGOs (sub-recipients/SRs) to ensure quality of services delivered under the unified umbrella of the NTP.



#### Significant achievements in 2021:

- In BRAC supported areas 220,363 cases were diagnosed (72% of national TB cases) with a case notification rate (CNR) of 190 per 100,000 population.
- Case notification of smear negative, extra-pulmonary and child TB increased, as 26,860 clinically diagnosed cases, 33,158 EP-TB and 6,564 child TB cases were diagnosed in BRAC supported areas.
- In FDMN areas 38,119 presumptive were tested, and 3,274 TB cases were detected, with a case notification rate (CNR) of 350 per 100,000 population. 64 child TB and 01 HIV/TB co-infected cases were diagnosed.
- From January to December 2021, a total of 152,775 presumptive TB cases were examined from 8,401 outreach sputum collection camps in hard-to-reach areas, among key population (e.g., workplaces, slums, brickfield, refugee, mine, pregnant, elderly, under 15, transport workers). Of them, 9,434 smear positive cases were identified.

#### What We Do:

- Community mobilization: Disseminate TB knowledge, screen community members to identify presumptive and refer them to laboratories. The Shasthya Shebikas (SS) play the most vital role here. Currently, 48,051 SS are involved in DOTS.
- Diagnosis using modern tools and technologies: Introduction of a systematic online reporting tool aids in monitoring and surveillance cases. At this moment out of 62 TB diagnostic centers (TDC) are functioning including 09 sites having only X-ray machine. Moreover, 04 Mobile Vans fully equipped with portable digital X-ray and Gene Xpert machines are working in garments, workplaces, slums, prisons, FDMN areas. Mentionable that all the sites are using online X-ray reporting system for time saving and patient compliance.
- DOTS: Community health workers ensure regular administer of medicines, supervise, and complete treatment.
- Multi drug-resistant TB Ensure treatment adherence, observe side-effect, provide necessary counseling under the national guidelines.
- Social support- Provide financial allowance for nutritional support, transportation, and additional examinations along-side free diagnosis and treatment.
- Special intervention is taken for underserved population, hard to reach areas, slum and prison. Introduce community volunteer to identify missing cases and sample transportation.

During the onset of the COVID-19 pandemic in 2020, the TB case notification rates was severely impacted due to interruption to service delivery in the first half of 2020. People avoided health facilities superadded with social stigma and discrimination for COVID 19, restriction on the mobility of field staff and thus reduction in community outreach activities. Staff shortages coupled with overburdened health facilities and laboratories further strained the health system. The combination of these factors resulted in a 22% drop in TB case notifications from 2019 to 2020.

However, a rapid rebound was achieved through strategic prioritization and engaging the private sector which further accelerated the rapid recovery of the TB program. Considering the key contribution of community (54%) and private sector (23%) referrals to the overall notification numbers.

#### Steps to Rebound TB cases Notification:

- Developed an interim guidance for management of essential TB services during COVID-19 pandemic
- Built staff awareness on prevention and infection control measures and distributed the masks, PPE, hand sanitizers etc.
- Restored active case findings activities and ensured sample transportation.
- Introduce Bi-directional test of TB and COVID-19.
- Increase utilization of Xpert by providing dedicated staff.
- Deployment of Community Health Workers.
- Strengthen M& E system and revise TB case targets.
- Coordination and collaboration with all stakeholders

#### **BRAC and Sub-Recipients:**

BRAC in collaboration its Sub Recipient partners, with support from TGF has been working extensively since 2011 to make TB services accessible and efficient, sharing the common goals with National Tuberculosis Control Program to achieve the national target. The partners help to strengthen the presumptive referral, enhance case finding, HIV screening, engaging private practitioners, key population activities and DOT services across the country. Currently, BRAC is working with 23 NGO consortium covering 19 districts and 56,440,976 population pertaining to urban and rural area of Bangladesh. The Damien Foundation, HEED-Bangladesh, Lutheran Aid to Medicine in Bangladesh (LAMB), Rangpur Dinajpur Rural Service (RDRS) The Leprosy Mission International, Bangladesh (TLMI-B) are covering rural geography and NISHKRITI, IMAGE, MAMATA, BAPSA, BAMANEH, BGMEA, BKMEA, CWFD, DAM, Nari Maitree, UTPS, KMSS, PKS Khulna, PIME SISTERS, Tilottama, RIC, Ashar Alo Society are covering urban locations of Dhaka, Chattogram, Rajshahi and Khulna metropolitan cities.

Alongside the program activities, some of the SRs, i,e NATAB who focuses on advocacy, communication, and social mobilization, to disseminate TB messages across 64 districts of Bangladesh, leveraging the knowledge of the communities about the disease, and working with the individuals to exchange information, views, and opinions about TB to reduce the stigma and bring more people presumed with the disease towards seeking care.

	2021					
Name of SRs	Notified Total Cases	CNR				
Damien Foundation	32,191	102				
TLMI	4,235	140				
RDRS	6,676	160				
LAMB	1,720	180				
HEED Bangladesh	19,044	207				
UTPS	922	235				
DAM	766	298				
BAPSA	1,071	329				
BAMANEH	713	532				
Nari Maitree	2,411	339				
CWFD	2,761	311				
BGMEA	2,303	379				
BKMEA	414	321				
AAS	106					
Tilottama	532	363				
RIC	493	309				
MAMATA	1,218	137				
Image	1,599	183				
Nishkriti	1,793	255				
KMSS	3,919	532				
PKS	831	344				
PIME Sister	236	66				

#### **Individual SR-wise Performance:**



Figure Geographic Locations of Implementing Partners



#### 10.2 WHO (World Health Organization) Bangladesh

Tuberculosis (TB) is one of the prime causes of morbidity and mortality worldwide. Despite being treatable and curable, TB is considered to be a global public health threat and the burden of this disease is still high. Although, Bangladesh has made significant progress in the fight against tuberculosis (TB) over the past few decades, continued technical assistance is needed for improved planning and programmatic management to strengthen the country's progress in meeting TB strategy milestones.

In view of further accelerating the country's effort, WHO provides technical assistance to the Government of Bangladesh (GoB) for the implementation of TB activities. WHO focuses on reducing the burden of TB and continuing technical assistance to NTP in the following areas-

#### A. Revise and update "National Guidelines and Operational Manual for Tuberculosis Control"

The existing National Guidelines and Operational Manual for Tuberculosis Control was published in 2014 and by this time, there were several policy changes for the diagnosis and treatment of TB and MDR-TB. The diagnostic algorithm changed prioritizing GeneXpert and X-ray as primary diagnostic tools. Additionally, new interventions like TB preventive therapy were recommended by WHO and were included in the updated National Strategic Plan (NSP) 2021-2025. The finalized guidelines have been printed and disseminated which will help NTP to implement the program in a more definite way.

#### B. Revise and update "National Guidelines for the Management of Tuberculosis in Children"

The current National Guidelines for the Management of Tuberculosis in Children was published in 2017 and the newly adopted diagnostic approaches were not reflected in the guidelines. Moreover, the treatment options, especially for MDR-TB were not in line with the global recommendations. The finalized childhood TB guidelines have been printed and distributed at the field level.

## C. Development of Standard Operating Procedure (SOP) for Active Tuberculosis Drug Safety Monitoring and Management (aDSM)

In recent times, there have been significant changes in clinical and programmatic approaches to combat TB. Newer drugs and regimens for TB prevention and treatment have been incorporated in the new WHO guidelines which need to be implemented countrywide. As newer drugs and regimens are recommended with Active Tuberculosis Drug Safety Monitoring and Management (aDSM) in place, an SOP was necessary to implement the WHO recommendations in the field. A stakeholders' meeting along with workshop for SOP development committee was conducted to develop and update the SOP for aDSM. SEARO also provided support to develop this SOP through Regional Green Light Committee (rGLC) mechanism. This SOP will help the national program to implement TB activities in line with WHO recommendations.

#### D. Proposal development of C19RM

WHO provided technical assistance to develop the C19RM proposal to mitigate the pandemic problem in the TB program. WHO worked on drafting the proposal along with other stakeholders and reviewed whether the proposal was in line with the WHO recommendation as it was a key prerequisite from the Global Fund. The WHO country office and SEARO together reviewed the proposal.

## E. Training of the TB laboratory personnel in 23 high-priority HIV districts on HIV counselling and testing to implement TB/HIV collaborative activities

According to WHO guidelines, all TB patients should be screened for HIV as HIV infection is a major risk factor for developing TB. TB/HIV coinfection also leads to poor treatment outcomes if anti-retroviral (ARV) is not initiated. In Bangladesh, 23 districts were identified as high-priority HIV districts and according to the National strategic plan (NSP) all the TB patients should be screened for HIV in those 23 high-priority HIV districts and only the high-risk population will be tested in the

rest of the districts. In the previous NSP, only 1% of the diagnosed TB patients were screened for HIV whereas in the current NSP the target is 59% to meet the WHO recommendations and guidelines. Eleven batches of a two-day training of the TB laboratory personnel in 23 high-priority HIV districts on HIV counselling and testing to implement TB/HIV collaborative activities. Eleven batches of 2-day trainings were conducted and the 187 Medical Technologist (Lab) working in different DOTS centres were trained on TB/HIV co-infection and was trained on counselling and testing of HIV.

#### F. TB Data and Reporting

WHO is providing technical support to collect, validate and finalize data for the Global TB Report 2021. Additionally, technical support were provided for the preparation and finalization of different donor reports, annual report at national, regional and global levels, fund request application etc. Supported in revising the TB and MDR-TB recording and reporting formats.

#### G. Supporting the Implementation of NTP activities

Attended different technical meetings e.g. Country Coordinating Mechanism (CCM) meeting, TB technical committee, Public-Private Mix (PPM) committee, PMDT committee, Laboratory committee, etc., and provided technical assistance to NTP and implementing partners regarding different areas of TB program, particularly to finding the missing cases based on the recommendation provided in the report of TB prevalence survey. Provided support on the expansion of Xpert MTB/ RIF services up to district and some Upazilla level and scale up of shorter regimen for the management of MDR TB patients. WHO provided technical assistance during the grant negotiation and contributed to TRP responses like TB/HIV, MDR-TB, Community gender and human rights, etc. WHO also developed the action plan for the multi-sectoral accountability framework for TB (MAF-TB) in Bangladesh which is the first document for MAF-TB in Bangladesh.

#### H. Procurement and printing:

WHO provided support to print the TB recording and reporting formats of 37 different types, 10,000 copies of National guidelines, and operational manual for programmatic management of drug-resistant TB (PMDT) and TB-COVID IEC material. These recording and reporting formats helped NTP to record and collect data for the programme. WHO also provided support to procure six laptops, three multimedia projectors, and three conferencing audio systems to smoothly conduct training.

#### I. International Training/Meeting:

Supported NTP personnel to attend below mentioned meeting/training:

- 1. Annual rGLC meeting was organized virtually from 02-04 February 2021 and WHO facilitated the meeting and ensured the participation of NTP programme Manager and MDR-TB focal person. The meeting highlighted on scale-up of all oral shorter regimen and aDSM. The NTP programme manager presented the country scenario, and the expert panel gave country-specific recommendations on that.
- 2. Focus-group discussions for the development of the Framework for collaborative action on TB and co-morbidities was organized by WHO HQ and was conducted on 01 July 2021. WHO provided technical support to prepare the documents and also ensured participation of NTP in the meeting.
- 3. Virtual capacity-building workshop on DST and genome sequencing was organized by SEARO from 03-05 August and three microbiologists of NTRL and RTRLs participated in the training. The training helped the microbiologists to ensure second-line DST in the TB referral laboratories.

#### J. Strengthening TB response in Cox's Bazar

WHO continues its support for forcefully displaced Myanmar nationals (FDMNs) in Cox's Bazar district of Bangladesh. WHO is providing both technical and financial support for the strengthening of responses for TB control together with other health care services in Ukhiya and Teknaf upazilas in Cox's Bazar. WHO facilitated the procurement of two mobile vehicles equipped with X-ray and GeneXpert for the diagnosis of TB patients. Besides this, WHO also recruited one district TB coordinator, two medical technologists (Lab), and one radiographer. The team is delivering TB services in accordance with the NTP's guidance on the management of essential TB services during COVID 19 pandemic.

#### 10.3 USAID



The Ministry of Health and Family Welfare of the Government of Bangladesh and The United States Agency for International Development for Reducing Tuberculosis in Bangladesh signed a partnership agreement to provide technical assistance to strengthen capacity and achieve results of NTP's objectives through USAID activities.

USAID aids the Government of Bangladesh's (GOB) National TB Program (NTP) through various projects such as Alliance for Combating TB in Bangladesh (ACTB), Infectious Diseases Detection and Surveillance (IDDS), Medicine, Technology and Pharmaceutical Services (MTaPS), TIFA, and PQM+.

#### USAID's Alliance for Combating TB in Bangladesh (ACTB)

USAID's Alliance for Combating TB in Bangladesh (ACTB) Activity was awarded to icddr,b to support National Tuberculosis Control Programme (NTP) to accelerate their efforts in ending TB by improving TB case detection through health system strengthening. USAID's ACTB envisions to improving TB service delivery by mobilizing resources to fill in the gaps, bringing in new tools and technology, private sector and civil society engagement. The activity focuses on all forms of TB prevention, detection and treatment in adults and children. Consortium members of this Local Organization Network include Social Marketing Company (SMC), Diabetic Association of Bangladesh (BADAS), and HEED Bangladesh while FHI 360 and Stop TB Partnership serve as technical partners.

To increase childhood TB detection, USAID's ACTB established facility-based Active Case Finding (ACF) in 40 tertiary and secondary healthcare facilities in 22 districts of Rajshahi, Sylhet, Dhaka and Chattogram divisions, through which 693 children were diagnosed with TB. Moreover, USAID's ACTB initiated integrating TB screening and referral to increase TB diagnosis among under-five children through the Integrated Management of Childhood Illness (IMCI) programme. 39 under-5 children were diagnosed with TB through this intervention in 2021. Facility-based ACF was also established for adult TB in ACTB intervention areas. From this intervention, 3,668 persons were diagnosed with TB.

In 2021, through BADAS' countrywide 108 centers, 3,213 people were diagnosed with TB. HEED Bangladesh, diagnosed 2,833 TB cases through screening programs and household visits. SMC trained 2,938 non-formal healthcare providers on TB screening, which facilitated diagnosis of 1,054 TB cases. Moreover, three icddr,b TB Screening and Treatment Centre (TBSTCs), supported by USAID's ACTB, facilitated in diagnosing 1,989 TB cases.

For better TB case management, USAID's ACTB supported NTP through development of job aids on Programmatic Management of DR-TB (PMDT) and TB Preventive Treatment (TPT), Standard Operating Procedure (SOP) on TPT and a policy brief. With NTP's guidance, USAID's ACTB developed the "All Oral Shorter DR-TB Regimen Expansion Plan", scaled-up All Oral Shorter DR-TB regimen (SOTR) in Dhaka, Rajshahi, Mymensingh and Sylhet divisions and trained 1,121 physicians and health workers on SOTR. Total 650 DR-TB patients were enrolled under this regimen. USAID's ACTB deployed 6 medical officers for the improvement of patient care in NIDCH and other PMDT sites. In collaboration with NTP, TPT was introduced for the first time in Bangladesh in 2021 by USAID's ACTB.

As part of health system strengthening initiatives, USAID's ACTB activity deployed 25 Medical Technologists in Xpert sites to work for extended hours for increasing Xpert utilization. Through their efforts, 4,419 TB cases were diagnosed. In addition, USAID's ACTB established a One Stop TB Service Center at the 250 Bedded TB Hospital, Shyamoli, Dhaka. Furthermore, USAID's ACTB supported 119 DOT corners in Sylhet and Rajshahi divisions by providing facility readiness support.

To commemorate World TB Day 2021, USAID's ACTB in association with NTP organized the launch of the year-long TB awareness-raising campaign, which was attended by the Hon'ble Health Minister, prominent Parliamentarians, Health Secretaries, government officials, USAID representatives, TB stakeholders, media personalities, etc. USAID's ACTB developed posters and leaflets on TPT, TB, childhood TB, DR-TB and cough etiquette; collaborated with Ujjiban to develop an audio-visual content on child TB and established child TB centers using popular children's show Sisimpur characters.

#### Infectious Disease Detection and Surveillance (IDDS)

Since 2019, the National TB Control Program (NTP) has been a technical partner of the USAID-funded IDDS project. IDDS aims to improve TB diagnostics by increasing NTRL and RTRL capabilities. Following national TB priorities, IDDS supported NTP in establishing a new Regional TB Reference Laboratory (RTRL) at the Shyamoli 250-bedded TB Hospital in Dhaka in 2021. The laboratory has been upgraded to Biosafety Level II to provide quality-assured Line Probe Assay (LPA) for second-line testing of TB drugs and liquid culture and Drug Susceptibility Testing (DST) essential for diagnosing and treating TB and DR TB patients. On September 21, 2021, Health Minister Zahid Maleque, US Ambassador to Bangladesh Earl R. Miller, USAID Deputy Mission Director Randy Ali, and others opened the state-of-the-art reference laboratory.

The Line Probe Assay (LPA) training occurred at the Shyamoli RTRL from October 4 to 6, 2021. IDDS and NTP worked together to put it on. Diagnostic experts from Hain Life Science, the maker of LPA, and the IDDS regional headquarters remotely joined the local trainers from IDDS and NTP to provide the training. 13 NTRL and 5 RTRL microbiologists attended the training. An expert from Hain Life Science digitally taught LPA technology, workflow, result interpretation, troubleshooting, and contamination avoidance of GenoType MTBDRplus ver. 2, as well as a hands-on practical session at the newly created Shyamoli RTRL laboratory.

IDDS supported NTP's two-day EP-TB and stool sample processing training at Dhaka's Shyamoli RTRL on November 7 and 8. Laboratory workers were trained to analyse and test EP-TB specimens like faeces, cerebrospinal fluid, lymph nodes, urine, pleural fluid, and acetic fluid. IDDS helped create EPTB specimen and stool sample processing and testing SOPs. NTRL and Shyamoli RTRL trained 15 laboratory professionals- 7 microbiologists and eight medical technologists.

#### USAID's Medicines, Technologies, and Pharmaceutical Services (MTaPS)

#### **Procurement and Supply Management (PSM)**

MTaPS assisted the National TB Control Programme (NTP) in evaluating the government's extant tuberculosis (TB) storage facilities and TB commodity flow implementing partners. The assessment findings were shared with key stakeholders, and a transition plan was devised to incorporate non-government TB storage into the government system. The assessment and integration plan will contribute to optimising peripheral storage within government systems, ensuring government leadership in the effective supply management of tuberculosis (TB) commodities with increased availability and sustainable access for the in-need population.

National Tuberculosis Programme (NTP), with assistance from MTaPS, has completed its quantification of first- and secondline TB drugs and placed orders utilising the QuanTB tool. In addition to quantifying TB medications for procurement, the QuanTB instrument assists NTP in maintaining the supply chain's early warning system. NTP can perpetually monitor the supply pipeline and take preventative measures to avert stock depletion or expiration.

#### eTB Manager is an electronic recording and reporting system.

In 2021, MTaPS completed the nationwide deployment of e-TB Manager under the direction of NTP. The system operates in all 867 DS TB and DR TB facilities.

In 2021, MTaPS will be rolled out to the final division (Dhaka division) by training over 700 individuals (Government TLCA, Programme Organiser of CS office, and supervisors and other personnel from the implementing organisation). In addition, 233 trainees from the divisions of Mymensingh and Barisal received refresher training this year.

In 2021, the NTP began paperless reporting for tuberculosis case management from select locations, and only eTB Manager was permitted to report from these sites. DR TB reporting sites were the first to adopt a paperless system. With its 91 DS TB sites, the Rajshahi division pioneered paperless reporting for DS TB at the end of the year. Paperless reporting saves time reduces paper and publishing costs and improves report accuracy and timeliness.

USAID MTaPS and Alliance for Tuberculosis Control (ACTB) collaborated under the leadership and direction of NTP to integrate e-TB Manager with the Janao App. This integration assists the national programme in increasing TB case notification and decreasing the number of unreported cases due to private practitioner visits. Together with WHO, the two programmes implemented aDSM reporting via eTB Manager.

#### Tuberculosis Implementation Framework Agreement (TIFA)

JSI Research & Training Institute, Inc. (JSI) implements the Tuberculosis Implementation Framework Agreement sponsored by the United States Agency for International Development (USAID). The five-year initiative (2019–2024) builds upon USAID's investment in tuberculosis (TB) disease programming. TIFA co-designs TB Commitment Grants (TCGs) that accelerate countries' progress towards national and global TB targets through direct engagement with local administrations and partners.

In Bangladesh, TIFA is collaborating with the National Tuberculosis Control Programme (NTP) to establish an education and training unit within NTP to strengthen NTP's capacity to plan, design, implement, and coordinate national TB training and enhance training standards. TIFA established an education and training unit (ETU) with a specific organogram and a TB Training Working Group (composed of relevant stakeholders) with its terms of reference during FY 2021.

#### Promoting the Quality of Medicines Plus (PQM+)

## USAID's PQM+ Program achievements to sustainably strengthen medical product QA systems and to ensure access to quality-assured TB medicines in Bangladesh.

The Promoting the Quality of Medicines Plus (PQM+) Program is a cooperative agreement between the U.S. Agency for International Development (USAID) and the U.S. Pharmacopeial Convention (USP) to strengthen medical product quality assurance systems in Bangladesh sustainably. PQM+ works to improve medical product quality through cross-sectoral and systems-strengthening approaches and applying international quality assurance (QA) standards across the pharmaceutical system. By sharing scientific expertise and providing technical support and leadership, PQM+ helps to create resilient and sustainable local health systems that ensure access to quality-assured essential medical products for HIV/AIDS, tuberculosis (TB), malaria, neglected tropical diseases (NTD), and other infectious diseases as well as for reproductive, maternal, newborn, and child health.

USAID's PQM+ program started work with the Director General of Drug Administration (DGDA), National Control Laboratory (NCL), National TB Control Program (NTP), local manufacturers and other organization to sustainably strengthen medical product quality assurance systems through providing support under the objectives of regulatory systems strengthening and supply of quality assured medicines. The following progress has been made in 2021.

- In November 2021, NTP included PQM+ as a partner to coordinate activities between DGDA, NTP and DGHS to achieve program objectives of regulatory enforcement and ensuring supply of quality assured medicines. On December 07, 2021, a consultative meeting was organized by PQM+ with NTP, DGHS to discuss PQM+-led TB activities to support NTP towards protecting public health. PQM+ also attended the NTP partners meeting on May 19, 2021, and provided updates on its TB related activities.
- n 2018, PQM+ began working with DGDA's market surveillance and control department to build a risk-based post marketing surveillance (RB-PMS) system to improve post marketing surveillance. PQM+ helped DGDA create nine Minilabs at eight divisional offices and Cox's Bazar district to adopt RB-PMS of medications. PQM+ trained and resourced DGDA and NCL to adopt RB-PMS of TB medication in 2021. PQM+ began working with DGDA and NTP to build a surveillance protocol to monitor first-line anti-TB drugs in NTP distribution outlets nationwide. PQM+ and NTP began a rapid assessment of private sector anti-TB drug trading.
- USAID PQM+ began helping ACI HealthCare Limited manufacture quality-assured first-line, fixed-dose combination anti-TB medications to meet WHO GMP standards in January 2021. ACI and PQM+ inked a subaward agreement to support 4FDC production and bioequivalence (BE) on November 2, 2021. ACI used PQM+ to acquire ingredients, initiate product development, and choose a CRO for bioavailability and bioequivalence studies to achieve WHO

prequalification. A DGHS team led by the director (MBDC) and line director (TB- Lep & ASP) visited ACI HealthCare Limited (AHL) in Sonargaon in August 2021. The visit examined anti-TB fixed-dose combination (FDC) medicines for NTP usage and their development.

In August 2021, PQM+ began a GMP training programme with the government-owned Essential Drug Company Limited (EDCL) for technical professionals to support priority product manufacture, focusing on TB. PQM+ and DGDA held an advanced GMP course on GxP subjects on September 7-8, 2021. Twenty technicians were trained. EDCL personnel learned how to use GMP practices to make vital medicines.

#### 10.4 IRD Bangladesh



01/01/2021 to 31/12/2021

#### 2. Partnership Status:

SR of BRAC for TB Research and – Implemented USAID, Stop TB Partnership, Gates Foundation, and Qiagen-supported projects directly in collaboration with the NTP

#### 3. Geographical Coverage of the TB Program by IRD:

Bangladesh

IRD Bangladesh is supporting the NTP in the areas of DR-TB, Child TB, Integrated TB & COVID-19 Bi-directional Screening, TB preventive treatment, and operational research on TB. IRD Bangladesh implemented TB projects in the following divisions:

- Stop TB Partnership TB REACH Wave 6 scale-up: Mymensingh Division
- Gates Foundation Integrated TB & COVID-19 Bi-directional Screening Dhaka and Mymensingh
- USAID MTaPS TB Storage Assessment 64 districts of Bangladesh
- Stop TB Partnership TB REACH Wave 9: Khulna and Chattogram Divisions
- Qiagen supported LTBI prevalence study among healthcare providers using IGRA test: Dhaka District

#### 4. TB Diagnostic facility:

NA

#### 5. Key activities performed from January 2021 to December 2021:

#### TB Reach Wave 6 scale-up Project

- Implemented child TB-focused ACF activities in high-volume public and private sectors facilities
- Capacity-building of physicians from both the public and private sectors in the Mymensingh division on childhood TB diagnosis and management
- Trained and engaged in fronting government and NGO health workers and youth volunteers for screening, contact investigation, and follow-up activities
- Introduced Continuing Medical Education (CME) Mentorship Program for supportive decision-making for child TB diagnosis and management

#### Integrated TB and COVID-19 bi-directional Screening

- Rolling out TB and COVID-19 bi-directional screening along with COVID-19 Ag-RDT testing in the public and private sectors and community settings in Dhaka and Mymensingh along with integrated contact tracing
- Capacity building of laboratory technologists and health workers from both public, NGO, and private sectors on TB & COVID-19 bi-directional screening and COVID-19 Ag-RDT testing in Dhaka and Mymensingh
- Reducing community transmission by prompt identification and isolation of the COVID-19 cases
- Improving access to bi-directional TB-COVID-19 screening and integrated contact tracing

#### USAID MTaPS - TB Storage Assessment

- Assessing the current TB medicines supply and storage system of NTP across the country covering 64 districts for integration and optimization within the government system
- Evaluating the overall functional status of the TB drugs storage, and key logistics information, and providing baseline information for monitoring progress and making necessary adjustments in the future
- Conducting an inventory of warehouse space, equipment, and human resources
- Identifying strengths and weaknesses and providing recommendations to strengthen TB storage and supply chain systems

#### Prevalence of latent TB infection (LTBI) among health care providers using the IGRA method

IRD Bangladesh in collaboration with NTP and the National Institute of Preventive and Social Medicine (NIPSOM) conducted a pilot project among health care providers (HCPs) providing TB care under the National Tuberculosis Control Program in Dhaka with an aim to assess the latent TB infection (LTBI) prevalence among HCWs using IGRA method -QuantiFERON TB Gold Plus (QFT-Plus) test and initiating TB preventive treatment among the eligible participants.

#### **TB REACH Wave 9 Project**

IRD Bangladesh with support from TB REACH Wave 9 is implementing WHO-recommended new, all-oral treatment regimens to improve access equity and uptake of DR-TB services decentralizing care delivery to uncovered areas in Khulna and Chattogram divisions. All interventions are leveraged to strengthen systems for comprehensive DR-TB care & referrals, providing psychosocial support & improving ADRs monitoring & management.

- Building capacity of providers and scaling up of new all-oral treatment regimens for children and adults in Chattogram and Khulna divisions.
- Supporting NTP to build clinical competency of the health workforce at two Chest Disease Hospitals (CDHs), two Chest Disease clinics (CDCs), and the referral facilities on clinical & programmatic management of DR-TB including child-centered care & on AOTR to provide quality diagnosis & treatment to people with DR-TB.

#### 6. Significant achievement in 2021 in the area of TB Program:

#### TB REACH Wave 6 scale-up Project

- Implemented ACF activities involving 4 Medical College Hospitals, 35 Upazila Health Complexes, and 40 Private Practitioners' Practicing Places in Private Sector and conducted community-based contact investigation and reverse contact investigation
- Developed capacity of 253 physicians from both the public and private sectors in the Mymensingh division on childhood TB diagnosis and management, and 538 fronting government and NGO health workers and 487 youth volunteers were trained and engaged in screening, contact investigation and follow-up activities
- Through ACF intervention, 847,380 children were verbally screened, of all screened 21,431 (3%) children were identified with possible TB, and of them, 2,233 (11.7%) were diagnosed with TB disease and all of them were enrolled for treatment at NTP-linked DOT facilities
- Introduced Continuing Medical Education (CME) Mentorship Program for supportive decision-making for child TB
  diagnosis and management through video consultation and the creation of a digital knowledge hub in collaboration
  with Dhaka Shishu Hospital and linked 253 physicians into that platform
- Identified 3,410 eligible household contacts of bacteriologically positive TB patients with latent TB infection (LTBI) and enrolled them for TB preventive treatment (TPT) using 3HP; of all enrolled 3,314 (97.2%) completed TPT

#### Integrated TB and COVID-19 bi-directional Screening

 Rolled out TB and COVID-19 bi-directional screening along with COVID-19 Ag-RDT testing in the public and private sectors and community settings – implemented in 56 NTP-linked facilities and 30 private settings in Dhaka and Mymensingh along with integrated contact tracing

- 341 Laboratory Technologists and health workers from both public, NGO, and private sectors were trained on TB & COVID-19 bi-directional screening and COVID-19 Ag-RDT testing in Dhaka and Mymensingh
- 30,667 with cough symptoms were screened and underwent bi-directional testing, of all screened 1,405 (4.6%) were diagnosed with TB, and 669 (2.2%) with COVID-19; all of them 39 patients were diagnosed with TB-COVID-19 dual infections.
- Reduced community transmission by prompt identification and isolation of the COVID-19 cases
- Improved access to bi-directional TB-COVID-19 screening and integrated contact tracing

#### USAID MTaPS - TB Storage Assessment

- Conducted a mixed-methods assessment of the current TB medicines supply and storage system of NTP across the country covering 64 districts for integration and optimization within the government system
- Assessed the overall functioning of the TB supply chain system, including the TB drugs storage, and key logistics information, and provided baseline information for monitoring progress and making necessary adjustment in the future
- Conduct an inventory of warehouse space, equipment, and human resources
- Identified strengths and weaknesses and provided recommendations to strengthen TB storage and supply chain systems
- Proposed a transition plan based on the readiness of the sites, so that the NTP could gradually take full control of TB commodities supply management at all levels

#### LTBI prevalence study among HCPs using IGRA test

- Project trained 25 laboratory technologists on performing QuantiFERON TB Gold Plus (QFT-Plus) test.
- Of the 500 HCPs invited to participate, 482 agreed and the IGRA tests were performed on them.
- The prevalence of LTBI among the HCPs was 33.6% (n=162).
- Out of those who were positive, 94.4% initiated TPT with a 3-month once weekly dose isoniazid-rifapentine (3HP) regimen.
- Of those enrolled for TPT, 97% completed the treatment without any serious adverse events.

#### **TB REACH Wave 9 Project**

- The project started the scale-up activities of new all-oral treatment regimens for children and adults in Chattogram and Khulna in December 2021
- Conducted three sensitization workshops on DR TB involving 102 participants
- Assisted to build clinical competency of the health workforce at two Chest Disease Hospitals (CDHs), two Chest Disease clinics (CDCs), and the referral facilities on clinical & programmatic management of DR-TB including child-centered care & AOTR to provide quality diagnosis & treatment to people with DR-TB.
- Trained a total of 200 physicians, nurses, providers from NGO partners, microbiologists, pharmacists, and medical technologists working at Chest Disease Hospitals (CDHs) & referral facilities participants from the Chattogram and Khulna divisions on the management of DR TB and new AOTR for children and adults.

#### 7. Challenges experienced in 2021 in implementing the TB Program:

#### TB REACH 6 scale-up Project:

- Involving the private sector physicians in the program.
- Changing the mindset of the physicians and aligning them with the NTP-approved approach to childhood TB diagnosis.
- Unavailability of all recommended tests like MT, and FNAC at the Upazila health complexes, and there is a scarcity of digital or good quality chest X-rays at sub-district level public facilities.
- Non-functional GXP machine at the largest public tertiary health care facility, MMCH.

#### **IGRA Project**

- Scheduling time from physicians for IGRA testing.
- Transfer of samples for IGRA testing from facilities to NIPSOM lab within 6 hours of blood collection.

#### TB REACH 9 Project:

- TB-related stigma prevails in the community and MDR-TB patients discouraged the project health workers to visit their households for contact investigation as a result of which we had to counsel the patients for a considerable amount of time explaining to them the need to screen their families members and the risks of having the infection among them and to identify the disease at the earliest.
- The RTRL in Khulna district is non-functional for several months and so samples collected for LPA have to be sent to Rajshahi and Dhaka which creates a delay in the overall process from sample collection to receiving the reports.

#### 8. Best practice, Success Story

#### Engaging private providers in the prevention and treatment of childhood TB in Bangladesh

- IRD Bangladesh engaged the public and private sector facilities in the Mymensingh division since December 2018 to increase Childhood Tuberculosis (TB) detection and ensure effective management.
- In addition to engaging private physicians and private laboratories, the IRD team also established a multi-disciplinary medical board comprising senior doctors who reviewed and consulted on difficult clinical decisions, thereby addressing any hesitations physicians had in managing Childhood TB in remote settings.
- Of 2,233 childhood TB cases diagnosed as a result of the project interventions, 38% were from private sector facilities.
- Over a period of 2.5 years (2018-2021), the project has contributed to a 2.65 times rise in Childhood TB notification in the Mymensingh division compared to the baseline data of 2017.
- The promising success of the project demonstrates that a comprehensive package of interventions comprising both facility and community-based active case finding, contact investigation, reverse contact investigation, and TB preventive treatment as well as active engagement of the private sector are the key strategies for improving child TB detection.
- The results also indicate that proven interventions of the project should be adopted and scaled up in other divisions of Bangladesh by the National TB Control Program and other partners.

For more information about the success of the project, please click here

https://www.tbppm.org/page/childhood-tb-detection-in-ird

								-		_							_		_		_								_	_		_		_
		All Forms	1,00,000 pop.	19	226.15	269.39	228.97	242.85	230.91	247.60	243.75	166.29	174.78	183.91	228.41	142.89	157.11	171.66	203.66	114.61	124.03	175.80	172.12	174.81	59.09	149.40	71.88	156.11	68.94	311.89	243.63	214.13	226.65	47.49
		New PBC	1,00,000 pop.	18	191.60	235.53	207.78	200.59	186.29	210.17	209.37	154.32	151.40	159.10	153.30	103.22	135.57	130.65	193.06	91.15	104.64	163.97	132.56	83.37	37.36	110.83	46.02	110.50	44.04	271.52	203.02	146.61	192.53	25.45
		6	Population	17	975,464	2,383,542	1,925,550	697,948	1,676,385	1,159,532	8,809,476	526,181	3,493,459	2,671,955	9,102,536	6,561,605	3,073,642	1,731,325	745,349	2,084,527	3,892,490	726,374	34,785,974	17,727,490	2,162,964	5,973,999	1,225,651	3,394,429	1,232,982	1,567,839	1,677,151	4,170,371	2,713,832	1,202,419
			Total	16	2206	6422	4411	1695	3875	2872	21481	875	6124	4922	20849	9416	4841	2972	1518	2392	4836	1277	60022	31128	1289	8931	888	5334	867	4892	4088	8931	6152	581
		ţuə	mtsərtəA IIA	15	0	-	2	0	4	-	8	0	18	8	58	40	12	0	0	3	8	0	147	138	11	9	7	35	17	2	2	-	-	10
		nonary	səsdeləЯ	14	7	27	13	28	11	10	96	2	16	16	218	57	22	15	1	14	17	4	382	614	12	66	9	57	14	6	27	80	19	15
		Extra-Pulr	New/ Treatment History Unknown	13	151	627	260	168	366	356	1928	46	620	558	5909	2190	507	597	59	352	583	67	11488	14213	368	1874	245	1121	237	427	457	2451	664	203
	otal	ally sed	səsdeləX	12	134	72	69	21	305	48	649	m	31	21	227	124	57	28	5	34	49	6	585	277	34	100	24	188	18	67	78	96	124	22
		Pulmor Clinica Diagno	New/ Treatment History Unknown	11	603	1279	489	197	734	512	3814	37	257	069	1573	1618	269	224	402	272	303	148	5793	2752	262	1392	217	984	224	1006	589	1581	2149	73
		ary gically ied	səsdeləЯ	10	45	81	66	78	66	20	356	12	150	68	483	232	76	70	14	89	106	6	1309	1107	56	231	42	182	38	130	119	189	119	25
		Pulmon Bacteriolo Confirm	New/ Treatment History Unknown	6	1266	4335	3512	1203	2389	1925	14630	775	5032	3561	12381	5155	3898	2038	1037	1628	3770	1043	40318	12027	546	5229	347	2767	319	3251	2816	4533	3076	233
		ţuə	mtsərtəA IIA	∞	0	0	0	0	0	0	0	0	0	0	46	0	0	0	0	0	0	0	46	117	0	0	0	0	0	0	0	0	0	0
		lonary	səsdeləX	7	0	1	0	0	0	0	11	0	0	0	175	0	0	0	0	0	0	0	175	545	0	0	0	0	0	0	0	0	0	0
	n Metro	Extra-Puln	New/ Treatment History Unknown	9	0	259	0	0	0	0	259	0	0	0	4670	0	0	0	0	0	0	0	4670	12760	0	0	0	0	0	0	0	0	0	0
	stered ii	nary ally osed	səsdeləЯ	5	0	13	0	0	0	0	13	0	0	0	177	0	0	0	0	0	0	0	177	258	0	0	0	0	0	0	0	0	0	0
	atient Reg	Pulmo Clinic Diagno	New/ Treatment History Unknown	4	0	165	0	0	0	0	165	0	0	0	1037	0	0	0	0	0	0	0	1037	2408	0	0	0	0	0	0	0	0	0	0
'	Pa	เลry gically าed	səsdeləЯ	3	0	25	0	0	0	0	25	0	0	0	299	0	0	0	0	0	0	0	299	907	0	0	0	0	0	0	0	0	0	0
		Pulmor Bacteriolo Confirm	New/ Treatment History Unknown	2	0	310	0	0	0	0	310	0	0	0	3524	0	0	0	0	0	0	0	3524	7373	0	0	0	0	0	0	0	0	0	0
			District	-	Barguna	Barishal	Bhola	Jhalakati	Patuakhali	Pirojpur	<b>Barishal Div</b>	Bandarban	Brahmanbaria	Chandpur	Chattogram	Cumilla	Coxs Bazar	Feni	Khagrachari	Lakshmipur	Noakhali	Rangamati	Chattogram Div	Dhaka	Faridpur	Gazipur	Gopalganj	Kishoreganj	Madaripur	Manikganj	Munshiganj	Narayanganj	Narsinghdi	Rajbari
			SL.		-	2	3	4	5	9		7	8	6	10	11	12 (	13	14	15 1	16	17		18 1	19	20 (	21 (	22	23	24	25	26	27	28

Annex 1: District wise CNR 2021

41

-			_	_	_	_		_	_	_	_	_	_	_	_	_	_	_		_	_	_		_	_	_	_		_	_	_	_
	All Forms	1,00,000 pop.	19	110.67	136.37	173.77	291.75	205.26	225.67	223.56	233.28	220.37	250.51	182.64	256.96	202.13	228.70	112.84	145.43	117.60	281.22	136.87	172.48	233.29	91.87	107.43	65.56	149.43	117.81	152.76	134.57	169.76
	New PBC	1,00,000 pop.	18	83.30	99.75	112.12	259.16	173.79	208.99	207.46	186.82	198.83	235.26	161.30	236.31	181.91	204.18	77.69	101.58	81.91	224.43	98.37	134.12	197.86	64.99	81.39	35.61	1 20.02	72.70	125.55	101.97	142.95
	٥	Population	17	1,282,153	4,102,153	45,960,887	1,463,582	1,315,383	3,214,053	2,063,001	2,348,234	2,261,224	1,062,632	754,496	774,826	2,195,603	17,387,225	2,591,196	6,038,691	2,594,401	1,498,452	13,860,540	3,990,543	1,024,465	2,935,735	1,989,147	1,979,759	3,040,313	3,059,147	3,697,416	21,698,840	3,513,115
	paraj	Total	16	1436	5620	80137	4271	2702	7261	4613	5487	4984	2663	1379	1996	4440	39796	2968	8890	3085	4222	19165	6927	2390	2719	2147	1301	4550	3637	5663	29334	5967
	ţnə	mtsərtəA IIA	15	17	26	273	-	2	∞	-	6	-	-	-	5	2	31	44	108	34	8	194	44	0	22	10	m	7	33	15	134	m
	onary	səsdeləЯ	14	6	55	1016	15	20	10	5	13	16	9	4	-	5	95	26	107	50	21	204	47	20	27	20	24	26	51	30	245	36
	Extra-Puln	Mew/ Treatment History Unknown	13	276	954	23490	308	240	482	292	973	424	134	150	110	340	3453	635	1821	615	404	3475	1330	283	664	425	484	685	1170	813	5854	757
Total	nary ally osed	səsdeləЯ	12	44	332	1404	98	34	m	9	49	20	m	m	2	23	241	133	281	109	308	831	19	31	26	10	19	23	29	13	170	29
	Pulmo Clinic Diagno	tneatment History Unknown	11	618	1877	13724	585	223	137	531	526	306	29	35	30	529	2931	641	1268	760	1221	3890	386	219	296	117	187	447	314	379	2345	1067
	ary gically ned	səsdeləß	10	22	161	2421	56	120	41	29	56	27	19	4	47	76	475	117	439	152	118	826	135	29	72	63	99	160	130	150	805	120
	Pulmon Bacteriolog Confirm	New/ Treatment History Unknown	6	450	2215	37809	3208	2063	6580	3749	3861	4190	2471	1182	1801	3465	32570	1372	4866	1365	2142	9745	4966	1808	1612	1502	518	3202	1910	4263	19781	3955
	ţuə	mtsərtəA IIA	∞	0	0	117	0	0	0	0	7	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	14	0	14	0
	nonary	səsdeləX	7	0	0	545	0	0	0	0	10	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	27	0	27	0
n Metro	Extra-Puln	New/ Treatment History Unknown	9	0	0	12760	0	0	0	0	694	0	0	0	0	0	694	0	0	0	0	0	0	0	0	0	0	0	579	0	579	0
stered in	nary ally osed	səsqsləЯ	2	0	0	258	0	0	0	0	24	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	17	0	17	0
atient Reg	Pulmo Clinic Diagn	New/ Treatment History Unknown	4	0	0	2408	0	0	0	0	376	0	0	0	0	0	376	0	0	0	0	0	0	0	0	0	0	0	119	0	119	0
Ä	ary gically ned	səsqaləЯ	ñ	0	0	907	0	0	0	0	24	0	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	85	0	85	0
	Pulmor Bacteriolo Confirm	New/ Treatment History Unknown	2	0	0	7373	0	0	0	0	564	0	0	0	0	0	564	0	0	0	0	0	0	0	0	0	0	0	693	0	693	0
		District	-	Shariatpur	Tangail	Dhaka Div	Bagerhat	Chuadanga	Jashore	Jhenaidah	Khulna	Kushtia	Magura	Meherpur	Narail	Satkhira	Khulna Div	Jamalpur	Mymensingh	Netrakona	Sherpur	Mymensingh Div	Bogura	Jaipurhat	Naogaon	Natore	Nawabganj	Pabna	Rajshahi	Sirajganj	Rajshahi Div	Dinajpur
		SL.		29	30		31	32	33	34	35	36	37	38	39	40		41	42	43	44		45	46	47	48	49	50	51	52		53

Annual Report 2022

					_						_			_			
	All Forms	1,00,000 pop.	19	180.09	165.29	173.16	175.09	137.66	175.92	155.51	169.42	240.33	265.38	159.88	174.93	201.56	177.76
	New PBC	1,00,000 pop.	18	146.28	146.19	154.67	152.37	120.64	144.11	135.78	144.09	208.96	232.02	126.46	138.72	167.43	136.66
	٥	Population	17	2,748,069	2,481,643	1,476,085	2,222,854	1,210,224	3,391,900	1,651,953	18,690,778	2,578,525	2,370,899	3,138,608	4,791,117	12,843,683	172,531,999
	Para J	Total	16	4957	4104	2557	3892	1669	5984	2578	31708	6199	6298	5037	8384	25918	307561
	ţnə	mtsərtəA IIA	15	∞	2	1	0	ĸ	17	6	43	2	9	19	3	30	860
	monary	səsdeləЯ	14	20	4	3	8	4	36	6	120	18	6	33	36	96	2254
	Extra-Pu	New/ Treatment History Unknown	13	607	401	234	429	158	682	230	3498	482	475	511	1340	2808	55994
Total	nary ally ssed	səsqaləA	12	91	46	24	12	24	296	43	565	126	132	212	78	548	4993
-	Pulmo Clinica Diagno	New/ Treatment History Unknown	11	557	1561	1229	431	618	2033	949	8445	1113	1463	601	1206	4383	45325
	ıary gically ned	səsqaləA	10	211	23	12	56	20	65	44	551	183	175	293	281	932	7675
	Pulmor Bacteriolo Confirn	New/ Treatment History Unknown	6	3463	2067	1054	2956	842	2855	1294	18486	4275	4038	3368	5440	17121	190460
	ţuə	mtsərtəЯ IIA	8	0	0	0	0	0	0	0	0	0	0	0	1	1	185
	nonary	səsdeləЯ	7	0	0	0	0	0	0	0	0	0	0	0	18	18	786
n Metro	Extra-Pulr	New/ Treatment History Unknown	9	0	0	0	0	0	0	0	0	0	0	0	567	567	19529
istered i	nary :ally osed	səsdeləЯ	2	0	0	0	0	0	0	0	0	0	0	0	11	11	500
tient Reg	Pulmo Clini Diagn	New/ Treatment History UwonynU	4	0	0	0	0	0	0	0	0	0	0	0	185	185	4290
Pa	าลry gically าed	səsqaləЯ	m	0	0	0	0	0	0	0	0	0	0	0	73	73	1413
	Pulmoi Bacteriolo Confirn	New/ Treatment History Nonn	2	0	0	0	0	0	0	0	0	0	0	0	955	955	13419
		District	-	Gaibandha	Kurigram	Lalmonirhat	Nilphamari	Panchagarh	Rangpur	Thakurgaon	Rangpur Div	Habiganj	Moulvibazar	Sunamganj	Sylhet	Sylhet Div	Grand Total :
		SL.		54	55	56	57	58	59	60		61	62	63	64		

ary bacteriologically	
s, new pulmon	
<b>Treatment Results</b>	ered in 2020
nnex 2: District-wise	onfirmed cases regist

SL.	District			Absol	lute Numbe	ir					Percen	tage		
		Res. Case	Treat. Succ.	Died	Fail	Def.	T. Out	Not Eva.	Treat. Succ.	Died	Fail	Def.	T. Out	<b>Not Eva</b>
-	Barguna	607	572	12	2	15	2	4	94.23%	1.98%	0.33%	2.47%	0.33%	0.66%
2	Barishal	2688	2560	57	3	35	5	28	95.24%	2.12%	0.11%	1.30%	0.19%	1.04%
3	Bhola	2169	2102	35	-	16	6	9	96.91%	1.61%	0.05%	0.74%	0.41%	0.28%
4	Jhalakati	778	751	21	0	0	3	3	96.53%	2.70%	0.00%	0.00%	0.39%	0.39%
5	Patuakhali	1160	1096	42	5	9	7	4	94.48%	3.62%	0.43%	0.52%	0.60%	0.34%
9	Pirojpur	1370	1335	28	2	4	0	1	97.45%	2.04%	0.15%	0.29%	0.00%	0.07%
	Barishal Div	8772	8416	195	13	76	26	46	95.94%	2.22%	0.15%	0.87%	0.30%	0.52%
7	Bandarban	456	451	4	-	0	0	0	98.90%	0.88%	0.22%	0.00%	0.00%	0.00%
8	Brahmanbaria	3825	3709	84	12	12	4	4	96.97%	2.20%	0.31%	0.31%	0.10%	0.10%
6	Chandpur	2324	2291	29	с	0	0	-	98.58%	1.25%	0.13%	0.00%	0.00%	0.04%
10	Chattogram	8083	7908	106	38	7	17	7	97.83%	1.31%	0.47%	0.09%	0.21%	0.09%
11	Cumilla	3997	3887	73	34	3	0	0	97.25%	1.83%	0.85%	0.08%	0.00%	0.00%
12	Coxs Bazar	2569	2524	35	9	1	-	2	98.25%	1.36%	0.23%	0.04%	0.04%	0.08%
13	Feni	1305	1288	16	0	0	0	-	98.70%	1.23%	0.00%	0.00%	0.00%	0.08%
14	Khagrachari	835	834	0	0	0	-	0	99.88%	0.00%	0.00%	0.00%	0.12%	0.00%
15	Lakshmipur	939	921	15	с	0	0	0	98.08%	1.60%	0.32%	0.00%	0.00%	0.00%
16	Noakhali	2608	2546	46	2	0	-	13	97.62%	1.76%	0.08%	0.00%	0.04%	0.50%
17	Rangamati	671	664	7	0	0	0	0	98.96%	1.04%	0.00%	0.00%	0.00%	0.00%
	Chattogram Div	27612	27023	415	66	23	24	28	97.87%	1.50%	0.36%	0.08%	0.09%	0.10%
18	Dhaka	7362	7051	158	44	48	33	28	95.78%	2.15%	0.60%	0.65%	0.45%	0.38%
19	Faridpur	403	370	17	11	5	0	0	91.81%	4.22%	2.73%	1.24%	0.00%	0.00%
20	Gazipur	3671	3592	58	9	6	1	5	97.85%	1.58%	0.16%	0.25%	0.03%	0.14%
21	Gopalganj	281	266	10	5	0	0	0	94.66%	3.56%	1.78%	0.00%	0.00%	0.00%
22	Kishoreganj	2139	2026	65	36	7	3	2	94.72%	3.04%	1.68%	0.33%	0.14%	0.09%
23	Madaripur	277	247	15	6	9	0	0	89.17%	5.42%	3.25%	2.17%	0.00%	0.00%
24	Manikganj	2006	1959	41	-	3	0	2	97.66%	2.04%	0.05%	0.15%	0.00%	0.10%
25	Munshiganj	1583	1534	38	2	4	1	4	96.90%	2.40%	0.13%	0.25%	0.06%	0.25%
26	Narayanganj	2930	2912	16	-	1	0	0	99.39%	0.55%	0.03%	0.03%	0.00%	0.00%
27	Narsinghdi	1742	1688	49	2	3	0	0	96.90%	2.81%	0.11%	0.17%	0.00%	0.00%
28	Rajbari	160	145	11	3	1	0	0	90.63%	6.88%	1.88%	0.63%	0.00%	0.00%
29	Shariatpur	433	410	16	9	1	0	0	94.69%	3.70%	1.39%	0.23%	0.00%	0.00%
30	Tangail	1427	1284	77	37	24	3	2	89.98%	5.40%	2.59%	1.68%	0.21%	0.14%
	Dhaka Div	24414	23484	571	163	112	41	43	96.19%	2.34%	0.67%	0.46%	0.17%	0.18%
31	Bagerhat	2533	2486	45	0	1	0	1	98.14%	1.78%	0.00%	0.04%	0.00%	0.04%
32	Chuadanga	1641	1587	34	-	19	0	0	96.71%	2.07%	0.06%	1.16%	0.00%	0.00%
33	Jashore	3703	3636	55	4	2	4	2	98.19%	1.49%	0.11%	0.05%	0.11%	0.05%
34	Jhenaidah	2855	2792	41	0	21	0	1	97.79%	1.44%	0.00%	0.74%	0.00%	0.04%

### Annual Report 2022

SL.	District			Absol	lute Numbe	-					Percen	tage		
		Res. Case	Treat. Succ.	Died	Fail	Def.	T. Out	Not Eva.	Treat. Succ.	Died	Fail	Def.	T. Out	Not Eva
35	Khulna	3313	3246	57	с	2	2	3	97.98%	1.72%	0.09%	0.06%	0.06%	0.09%
36	Kushtia	3363	3277	81	0	3	0	2	97.44%	2.41%	0.00%	0.09%	0.00%	0.06%
37	Magura	1977	1942	28	0	7	0	0	98.23%	1.42%	0.00%	0.35%	0.00%	0.00%
38	Meherpur	984	967	15	2	0	0	0	98.27%	1.52%	0.20%	0.00%	0.00%	0.00%
39	Narail	1635	1583	32	-	11	0	8	96.82%	1.96%	0.06%	0.67%	0.00%	0.49%
40	Satkhira	2727	2682	40	2	2	0	1	98.35%	1.47%	0.07%	0.07%	0.00%	0.04%
	Khulna Div	24731	24198	428	13	68	9	18	97.84%	1.73%	0.05%	0.27%	0.02%	0.07%
41	Jamalpur	958	853	55	20	23	7	0	89.04%	5.74%	2.09%	2.40%	0.73%	0.00%
42	Mymensingh	3470	3245	130	61	20	10	4	93.52%	3.75%	1.76%	0.58%	0.29%	0.12%
43	Netrakona	1112	1029	45	31	7	0	0	92.54%	4.05%	2.79%	0.63%	0.00%	0.00%
44	Sherpur	1287	1240	41	2	0	2	2	96.35%	3.19%	0.16%	0.00%	0.16%	0.16%
	Mymensingh Div	6827	6367	271	114	50	19	9	93.26%	3.97%	1.67%	0.73%	0.28%	0.09%
45	Bogura	3505	3386	96	8	12	1	2	96.60%	2.74%	0.23%	0.34%	0.03%	0.06%
46	Jaipurhat	1055	1017	33	1	3	0	1	96.40%	3.13%	0.09%	0.28%	0.00%	0.09%
47	Naogaon	1234	1139	74	12	6	0	0	92.30%	6.00%	0.97%	0.73%	0.00%	0.00%
48	Natore	871	838	20	10	1	2	0	96.21%	2.30%	1.15%	0.11%	0.23%	0.00%
49	Nawabganj	503	475	20	5	3	0	0	94.43%	3.98%	%66.0	0.60%	0.00%	0.00%
50	Pabna	2040	2004	33	3	0	0	0	98.24%	1.62%	0.15%	0.00%	0.00%	0.00%
51	Rajshahi	1149	1050	46	27	19	3	4	91.38%	4.00%	2.35%	1.65%	0.26%	0.35%
52	Sirajganj	2451	2383	52	15	0	0	1	97.23%	2.12%	0.61%	0.00%	0.00%	0.04%
	Rajshahi Div	12808	12292	374	81	47	9	8	95.97%	2.92%	0.63%	0.37%	0.05%	0.06%
53	Dinajpur	3216	3159	52	4	0	1	0	98.23%	1.62%	0.12%	0.00%	0.03%	0.00%
54	Gaibandha	2389	2334	53	2	0	0	0	97.70%	2.22%	0.08%	0.00%	0.00%	0.00%
55	Kurigram	1252	1199	46	7	0	0	0	95.77%	3.67%	0.56%	0.00%	0.00%	0.00%
56	Lalmonirhat	682	642	31	3	2	0	4	94.13%	4.55%	0.44%	0.29%	0.00%	0.59%
57	Nilphamari	2224	2180	40	2	0	0	2	98.02%	1.80%	0.09%	0.00%	0.00%	0.09%
58	Panchagarh	613	584	23	2	S	0	1	95.27%	3.75%	0.33%	0.49%	0.00%	0.16%
59	Rangpur	2420	2344	65	7	-	2	1	96.86%	2.69%	0.29%	0.04%	0.08%	0.04%
60	Thakurgaon	939	896	31	6	0	1	2	95.42%	3.30%	0.96%	0.00%	0.11%	0.21%
	Rangpur Div	13735	13338	341	36	9	4	10	97.11%	2.48%	0.26%	0.04%	0.03%	0.07%
61	Habiganj	3617	3544	68	2	0	0	3	97.98%	1.88%	0.06%	0.00%	0.00%	0.08%
62	Moulvibazar	3124	3048	65	8	-	0	2	97.57%	2.08%	0.26%	0.03%	0.00%	0.06%
63	Sunamganj	2478	2338	101	11	8	8	12	94.35%	4.08%	0.44%	0.32%	0.32%	0.48%
64	Sylhet	4090	3961	111	10	2	5	1	96.85%	2.71%	0.24%	0.05%	0.12%	0.02%
	Sylhet Div	13309	12891	345	31	11	13	18	96.86%	2.59%	0.23%	0.08%	0.10%	0.14%
	Grand Total :	132208	128009	2940	550	393	139	177	96.82%	2.22%	0.42%	0.30%	0.11%	0.13%

Annex 3: Lab Report 2021

S	Docitivitv	Rate	2.57	2.57	2.38	2.58	2.52
zamination	smears	Scanty	2,569	2,866	2,827	3,173	11,435
Follow-up E	Positive	(1+, 2+ & 3+)	808	829	872	1,057	3,566
	Smearc	tested	131,411	143,989	155,484	163,732	594,616
	smears	Scanty	16,081	15,549	15,660	14,197	61,487
(6	Positive	(1+, 2+ & 3+)	43,389	41,119	40,542	36,947	161,997
(Case Finding	Smearc	tested	923,574	909,034	957,075	1,008,295	3,797,978
is Examinations	Positivity	Rate among presumptive	6.49	6.30	5.94	5.13	5.94
Diagnos	AFB	positive cases	30,160	28,841	28,570	26,048	113,619
	Presumptive	TB tested	464,620	457,855	481,010	507,897	1,911,382
r	ətreu	Ø	1st	2nd	3rd	4th	Total

## Annex 4 : List of EQA Center 2021

Division	EQA ID	Location of EQA 1st Control Centre	Organization	Coverage (district)	# of MCs Coverage
	1	CDC Bogura	BRAC	Bogura	31
	2	CDC Dinajpur	BRAC	Jaipurhat	8
				Natore	11
Raishahi	6	CDC Sirajganj	BRAC	Pabna	16
Rajshan				Sirajganj	16
				Naogaon	12
	7	CDH/DF Rajshahi	DF	Nawabganj	7
				Rajshahi	19
	1	CDC Bogura	BRAC	Gaibandha	20
	2	CDC Dinajpur	BRAC	Dinajpur	28
	3		RRAC	Nilphamari	15
Rangpur		ebenangpar	DIVIC	Rangpur	21
nangpar	4	TI MB Thakurgaon	TIMB	Panchagarh	8
	-		TEMD	Thakurgaon	10
	5	RDRS Lalmonirhat		Kurigram	16
	5		NDN3	Lalmonirhat	7
	Q	CDC lashore	BRAC	Jashore	20
	0		ыле	Narail	7
	36	CDC Bagerhat	BRAC	Bagerhat	17
	9	CDC Khulna	BRAC	Khulna	25
Khulma	40	CDC Satkhira	BRAC	Satkhira	16
Knuina	10		PDAC	Jhenaidah	12
	10	CDC Magura	DRAC	Magura	10
				Chuadanga	10
	11	CDC Meherpur	BRAC	Kushtia	13
				Meherpur	6
	12	CDC Barishal	BRAC	Barishal	25
	38	CDC Bhola	BRAC	Bhola	16
De state al	10		DDAC	Barguna	10
Barishai	13	CDC Patuaknall	BRAC	Patuakhali	16
			DDAG	Jhalakati	9
	14	CDC Pirojpur	BRAC	Pirojpur	12
	1 5		DDAC	Sunamganj	15
	15	CDC Sylnet	BRAC	Sylhet (urban)	10
Sylhet	16	HEED Kamlgonj/Moulvibazar	HEED	Sylhet (rural)	15
	17			Habiganj	12
	17		HEED	Moulvibazar	12

### Annual Report 2022

Division	EQA ID	Location of EQA 1st Control Centre	Organization	Coverage (district)	# of MCs Coverage
	18	BRAC, Dakkinkhan	BRAC	Dhaka (Peri-urban) (Urban)	20 50
	20	CWFD Tejgaon	NHSDP	Dhaka-urban, NHSDP area	7
	21	TB Control & Training Institute	GOB	Dhaka-urban	11
	22	CDC Shyamoli	GOB	Dhaka-urban	11
	23	CDC Munshiganj	BRAC	Munshiganj Narayanganj	11 16
	24	CDC Mymensingh	BRAC	Gazipur	17
Dhaka	24	CDC Mymensingh	BRAC	Manikganj	11
	25	DF Mymensingh	DF	Kishoregarnj	20
				Faridpur	12
				Gopalganj	8
	26	DF Faridpur	DF	Madaripur	6
				Rajbari	5
				Shariatpur	7
	29	CDC Brahmanbaria	BRAC	Narsinghdi	12
	27	DF Tangail	DF	Tangail	20
	27	DF Tangail	DF	Jamalpur	15
	24	CDC Mymensingh	BRAC	Mymensingh (urban)	12
Mymensingh	25	DF Mymensingh	DF	Mymensingh (rural)	15
	28	DF Netrakona	DF	Netrakona	12
	24	CDC Mymensingh	BRAC	Sherpur	10
	29	CDC Brahmanbaria	BRAC	Brahmanbaria	16
	30	CDC Cumilla	BRAC	Cumilla	34
	31	CDC Cox's Bazar	BRAC	Cox's Bazar	18
	39	CS Office Bandarban	BRAC	Bandarban	25
	32	CDC Chandpur	BRAC	Chandpur	17
Chattogram				Chattagram rural	12
	33	CDC Chattogram	BRAC	Chattogram-urban	27
	24	CDC Noakhali	RDAC	Feni	11
	54		DNAC	Noakhali	20
	35	CDC Rangamati	BRAC	Rangamati	42
	37	CDC Khagrachari	BRAC	Khagrachari	28
Total					1119

# Annex 5: TB diagnostic and treatment services affiliated to NTP in metropolitan cities

SL	Ward No.	Agency	Address	Service facility	Remark
Dhaka N	Netropolitan Area				
1.	1 (North)	DAM	Sector No. 4, House No. 241, Jalal Uddin Ahmed Saroni Road, Jamtola, (New Rail Line) Uttara, Dhaka.	Microscopy & DOT	
2.	2 (North)	CWFD	Surjer Hashi Clinic, House# 1, Road# 9, Block D, Section-12, Pallabi, Mobile: 01190-697342	Microscopy & DOT	
3.	4 (North)	BRAC	House 324, Avenue 2, Block-A, Mirpur-13, Dhaka. Mobile: 01764-834751	Microscopy & DOT	
4.	5 (North)	BRAC	House 1, Road 8, Block- A, Nannu Market, Mirpur 11, Dhaka. Mobile: 01737-899661	Microscopy & DOT	
5.	5 (North)	The Salvation Army	Avenue 2, House 35,Section 11, Block A, Mirpur, Dhaka 1221 Mobile:01711591236	Microscopy & DOT	
6.	6 (North)	KMSS	House No. 27, Extended Pallabi G, Sare Egaro Mirpur, Dhaka	Microscopy & DOT	
7.	8 (North)	KMSS	House No. 32, Road No. 6, Mirpur-1, Dhaka	Microscopy & DOT	
8.	9 (North)	BRAC	House # 18, Shotto diabari, ward #-09, Darus salam, Dhaka Mobile No-01921-563881	DOT	
9.	9 (North)	BRAC	6/B/A, 2nd Colony, Majar Road,Sector 1, Mirpur-1, Dhaka. Mobile: 01622-988827	Microscopy & DOT	
10.	10 (North)	UTPS	House No 2/8/A/2 Second Colony Mazar Road, Horirampur Bazar(South Community Centre) Mirpur, Dhaka , Mobile No:- 01646336218	DOT	
11.	11 (North)	UTPS	House No. 490, Dakkhin Paikpara (Near New Bazar), Dhaka. Mobile: 01780-302956	Microscopy & DOT	
12.	12 & 13 (North)	BRAC	House #-186, Poshim Monipur, Mirpur Model Thana, Dhaka Urban, Dhaka, Mobile- 01920-052150	Microscopy & DOT	
13.	14,28 (North)	BRAC	781/3, Pashim Shaorapara, Mirpur Model Thana, Dhaka-1216. Mobile- 01745-087804	Microscopy & DOT	
14.	15 (North)	CWFD	Surjer Hashi Clinic, 640 Manikdi Bazar, Dhaka Cantonment, Mobile:01715-283036	Microscopy & DOT	
15.	15 (North)	BRAC	203/2 Old Kachukhet, Cantonment, Dhaka. Mobile: 01757-274053	Microscopy & DOT	
16.	16 (North)	UTPS	House# 422, Near Nagar Shasthya Kandra, Ibrahimpur, Dhaka, Mobile: 01719-852327	Microscopy & DOT	
17.	17 (North)	DAM	House No-K 147/3 A,Khilkhet, Noyanagar,Dhaka.Mobile No:,01732433573	Microscopy & DOT	
18.	17 & 40 (North)	BRAC	150/2 Kuril Bisho Road, Kazi Bari Mosque Lane, Jagonnathpur, Dhaka. Mobile: 01731-424811	Microscopy & DOT	
19.	18 (North)	CWFD	Surjer Hashi Clinic, Ga-6, Shahjadpur, Gulshan, Dhaka-1212. Mobile: 01719-052262	Microscopy & DOT	
20.	20 (North)	Nari Maitree	House# G-188/3, Mohakhali School Road, (Wireless Gate), Gulsh an, Dhaka-1212	Microscopy & DOT	
21.	21 & 22 (North) Partially	BRAC	House# 5, Road# 1, Merul Badda, Dhaka. Mobile: 01721-537046	Microscopy & DOT	
22.	22 (North) Partially	BRAC	258 DIT WAPDA, Poschim Rampura, Rampura, Dhaka. Mobile: 01646-935456	DOT	
23.	24 (North)	CWFD	23/4F, Abir Manzil, Konipara Happy Homes, Tejgaon, Dhaka-1208	Microscopy & DOT	
24.	25 (North)	BAMANEH	House# 466/1, Shaheenbagh, Nakhalpara, Tejgaon, Dhaka-1215, Mobile: 01745-531778	DOT	
25.	26,27 (North)	BRAC	Pashim Raja Bazar, House # 60/4, Dhaka- 1215, Mobile: 01735-017663	Microscopy & DOT	
26.	29 & 30 (North)	BRAC	House # -01, Roar #-297/E, Baitul Aman Housing Limited, Adabor , Dhaka -1207 Mobile: 01721537046	Microscopy & DOT	
27.	31 (North)	Nari Maitree	House# W/3, Noorjahan Road, (Behind of Mohammadpur Girls' High School), Mohammadpur, Dhaka-1207	Microscopy & DOT	
28.	34 (North)	Nari Maitree	97/5-A, North Jafarabad, Pulpar, Mohammadpur, Dhaka-1207	Microscopy & DOT	
29.	35 (North)	Nari Maitree	House# 177, Noyatola (Opposite site of RAB Camp), Maghbazar, Dhaka-1217	Microscopy & DOT	
30.	21, 40, 41 & 42	BRAC	House # Cha 89/2/1, Hasenuddin Road (Puraton Thana Road), North	Microscopy & DOT	
31.	45 & 46 (North)	BRAC	156/A, Atipara Bazar, Uttarkhan, Dhaka. Mobile: 01924-463628	Microscopy & DOT	

### Annual Report 2022

SL	Ward No.	Agency	Address	Service facility	Remark
32.	47, 48 & 49 (North)	BRAC	Near DakkhinKhan Bazaar, DakkhinKhan, Uttara, Dhaka. Mobile: 01797-909366	Microscopy & DOT	
33.	54 (North)	BRAC	House# 6, Dhour main Road, Kamarpara, Hanif Ali Mor,Batulia, Turag, Uttara, Dhaka. Mobile: 01731-415667	Microscopy & DOT	
34.	1 (South) & 23 (North)	BRAC	House# 331,Road # 13, Tilpapara, Khilgaon, Dhaka-1219. Mobile:01821-935963	Microscopy & DOT	
35.	2 & 3 (South)	BRAC	House No: 400, Dokkin Goran, (Near Taz Pharmachy), Khilgoan, Dhaka-1219. Mobile: 01775-970242	Microscopy & DOT	
36.	4 & 5 (South)	BRAC	House #7, Dakkhin Basabo, (Beside of Belal Masjid), Dhaka-1214, Mobile: 01718-646232	Microscopy & DOT	
37.	6, 71 & 72 (South)	BRAC	House#111/B, Uttar Mugdapara, Mugda, Dhaka-1214. Mobile: 01711-731947	Microscopy & DOT	
38.	7 & 49 (South)	BRAC	House 12, South side of Dholpur Community Centre, Dholpur, Dhaka. Mobile: 01712-407724	Microscopy & DOT	
39.	8 (South)	BRAC	House# 171, Dokhin Kamalapur, Motijhil, Dhaka-1217. Mobile: 01746-067210	DOT	
40.	11 & 13 (South)	BRAC	House# 486/1, North Shahjahanpur, Dhaka-1217. Mobile: 01751-457863	Microscopy & DOT	
41.	14 (South)	CWFD	Surjer Hashi Clinic, 113 Gozmohal, Opposite of Hazaribagh Thana, Rayerbazar. Dhaka-1207. Tel: 8611886, Mobile: 01731-909951	Microscopy & DOT	
42.	14 & 33 (South)	BRAC	68/Kha, Zigatola, Near Baitul Moharam Mosjid, Dhanmondi, Dhaka Mobile: 01719574457.	Microscopy & DOT	
43.	16 & 17 (South)	BRAC	House 183, Green Road, Dhaka-1207. Mobile: 01738814529	Microscopy & DOT	
44.	19 (South)	BRAC	House#72/Kha, Circular Road, Siddeswari, Dhaka. Mobile: 01747-024173	Microscopy & DOT	
45.	20 (South)	BRAC	House# 9, Block# C, Main Road South Banosri, Madartek, Dhaka. Mobile: 01721-095452	Microscopy & DOT	
46.	22 (South)	BRAC	36 Badda Nagar (Near Hazaribagh Park), Bhagolpur, Dhaka. Mobile: 01750955846	Microscopy & DOT	
47.	22 & 23 (South)	BAPSA	House# 48, Nilambar Saha Road (Beside Saleh School), Hazaribagh, Dhaka-1205, Mobile: 01712-147258	Microscopy & DOT	
48.	24 (South)	BAPSA	House# 42/1,KA,R N D Road, Shahidnagor Boubazar, (Killar Moor), Dhaka, Mobile: 01734-860344	Microscopy & DOT	
49.	25 & 26 (South)	CWFD	Surjer Hashi Clinic, 36, Sheikh Shaheb Bazar, Lalbagh Road, Dhaka-1205. Tel: 8618533	Microscopy & DOT	
50.	27, 28 & 29 (South)	BAPSA	House# 38/3b/2 Alierghat (Lal Khan Bari), Islambagh, Dhaka-1211	Microscopy & DOT	
51.	30 (South)	KMSS	47, Nelgola, Immamganj, Nagar Shasthya Kandra, Chalk Bazar, Dhaka	Microscopy	
52.	33 (South)	KMSS	90/1, Aga Sadaque Road, Nazira Bazar, Dhaka.	DOT	Coverage ward# 30, 31, 32, 33 & 34
53.	33 (South)	KMSS	26 No. Majed Sorder Road, Nagar Shasthya Kendra (Old Pakisthan Maath) Aga Sadaque Road, Bongshal, Dhaka.	Microscopy	
54.	35 (South)	KMSS	56, Goal Nagor (Bandar Goli), English Road, Bongshal, Dhaka	DOT	Coverage ward# 35, 36, 37 & 43
55.	38 & 41 (South)	CWFD	Surjer Hashi Clinic, 72, BCC Road, JoyKali Mandir, Wari, Dhaka-1203.	Microscopy & DOT	
56.	39 (South)	BRAC	House# 63/3,B/1, K M Das Lane, Tikatuli, Dhaka-1203, Mobile: 01744-761631	DOT	
57.	40 (South)	CWFD	Surjer Hashi Clinic, 45, Doyagonj More, Doyagonj, Dhaka-1203. Mobile: 01556-305871	Microscopy & DOT	
58.	42 & 44 (South)	CWFD	Surjer Hashi Clinic, 33, Begumgonj Lane, Begumgonj, Dhaka-1203. Mobile: 01913-399545	Microscopy & DOT	
59.	43 (South)	KMSS	Farashganj, Lalkuthi truc stand, Nager Shasthya Kandra, Farashganj, Dhaka	Microscopy	
60.	45 (South)	CWFD	Surjer Hashi Clinic , 114/A, Distillery Road (Dhupkhola Math), Gandaria, Dhaka-1204. Tel: 7448272	Microscopy & DOT	
61.	46 (South)	BRAC	16/D/03, Dino Nath Sen Lane (Near Sadhana Owshadhaloy), Gandaria, Sutrapur, Dhaka. Mobile: 01769-931890	Microscopy & DOT	
62.	48(South	BRAC	69/1/F, Bibir Bagicha, 3 no Gate, North Jatrabari, Dhaka. Mobile:01744-462499	Microscopy & DOT	
63.	49 (South)	FOB	Saidabad Clinic, Saidabad, Ph: 7546402	Microscopy & DOT	
64.	50 & 51 (South)	BRAC	255/B, Abbasuddin Road, South Jatrabari, Dhaka. Mobile: 01746-723395	Microscopy & DOT	

SL	Ward No.	Agency	Address	Service facility	Remark
65.	52 & 54 (South)	BRAC	House#342/5, Jurain Mazar gate, London school goli, Shampur, Dhaka. Mobile: 01734-645728	Microscopy & DOT	
66.	53 (South)	CWFD	Abdul Majid Sarkar Nagar Shasthya Kendra, Commissioner Road (College Road) Muradpur (East Jurain), Dhaka. Tel: 7440293	Microscopy & DOT	
67.	55 & 56 (South)	BRAC	BRAC Office, Khalipa Ghat Kazi bari Goli. Rasulpur, Dhaka. Mobile: 01768734516	Microscopy & DOT	
68.	56 & 57 (South)	BRAC	House # 77, Sangbadik Goli, Ashrafabad (Near thana), Kamrangirchor, Dhaka. Mobile: 01718-908531	Microscopy & DOT	
69.	58 & 61 (South)	BRAC	449 Shohid Zakir Hossain Lane, Muradpur (Near Muradpur Bus Stand), Shampur, Dhaka. Mobile: 01769-931449	Microscopy & DOT	
70.	63,64,65, 66,67&68 (South)	BRAC	Paity Bottala,(BRAC Nursery) Demra Road, Matuail, Dhaka. Mobile: 01728-943216	Microscopy & DOT	
71.	DOTS Corner	BRAC	Shaheed Monsur Ali Medical College Hospital, Sector #11, Road # 10, Uttara,Dhaka (TB DOTS Corner,Room#16,Outdoor), Mobile:01705-616547	Microscopy & DOT	
72.	DOTS Corner	BRAC	Women Medical College and Hospital, Sector-01, Road # 8,9 Plot- 04, Uttara, Dhaka (TB DOTS Corner, Room#132, Gynae Outdoor), Mobile:01687-637225	Microscopy & DOT	
73.	DOTS Corner	BRAC	East West Medical College Hospital, Taltola, Ashulia Road, Turag, Dhaka, (Room# 26, Outdoor), Mobile: 01920-811205	Microscopy & DOT	
74.	DOTS Corner	BRAC	Shaheed Sharowardi Hospital, Dhaka (TB DOTS Corner, Room-20, Block -2, Outdoor), Mobile: 01858-772435	Microscopy & DOT	
75.	DOTS Corner	BRAC	Shishu Hospital, Dhaka, Mobile: 01912-152032	Microscopy & DOT	
76.	DOTS Corner	BRAC	Bangladesh Medical College Hospital, Dhanmondi, Dhaka-1209. (TB DOTS Corner, Room# 118, Outdoor), Mobile: 01947-981273	DOT	
77.	DOTS Corner	BRAC	Dhaka Medical College Hospital, Dhaka (TB DOTS Corner, Room# 10, Outdoor), Mobile: 01724-010220	Microscopy & DOT	
78.	DOTS Corner	BRAC	Bangabandhu Sheikh Mujib Medical University, Shahbagh, Dhaka-1100. (3No Gate, front of cabin Block), Mobile: 01913-797874	Microscopy & DOT	
79.	DOTS Corner	BRAC	BIRDEM Hospital, Shahbagh, Dhaka-1000. (TB DOTS Corner, Near Room# 127, Medicine Outdoor), Mobile: 01790-325499	Microscopy & DOT	
80.	DOTS Corner	BRAC	Sir Salimullah Medical College Hospital, Dhaka. (TB DOTS Corner, Room# 115, Medicine Outdoor), Mobile: 01916-601326	Microscopy & DOT	
81.	DOTS Corner	BRAC	Dhaka National Medical College Hospital, 53/2 Janson Road, Dhaka. (TB DOTS Corner, Room# 133, Outdoor), Mobile: 01725-753257	Microscopy & DOT	
82.	DOTS corner	BRAC	Institute of Child and Maternal Health, (ICMH), Matuail, Dhaka. (TB DOTS Corner, Near Record Room, Outdoor), Mobile: 01675-296547	Microscopy & DOT	
83.	DOTS corner	BRAC	Kurmitola General Hospital, Dhaka Cantonment, Room # 327, 3rd Floor (Out Door), Mobile: 01720-275143	Microscopy & DOT	
84.	DOTS corner	BRAC	Holy Family Red Crescent Medical College Hospital, Mogbazar, Room # 24, 1st Floor (Out Door), Mobile: 01718-109501	DOT	
85.	DOTS corner	BRAC	Uttara Adhunik Medical College Hospital, House # 34, Road # 4, Scetor # 9, Sonargaon Janapath, Uttara Model Town, Uttara, Mobile: 01737-214995	Microscopy & DOT	
86.	DOTS corner	BRAC	Mugda General Hospital, Mugda, Dhaka, Mobile: 01747-238439	Microscopy & DOT	
87.	DOTS corner	BRAC	Sarkari Karmachari Hospital, Fulbaria, Dhaka, Mobile: 01736-718245	Microscopy & DOT	
88.	DOTS Corner	GoB	NIDCH, TB Gate, Mohakhali	Microscopy & DOT	
89.	DOTS Corner	GoB	Shyamoli 250 bed TB Hospital, Shyamoli, Ph9111892	Microscopy & DOT	
90.	DOTS Corner	GoB	Kuwait Bangladesh Friendship Govt. Hospital, Sector # 6, Uttara, Dhaka, (Room # 206 & 217), Mobile: 01818-765930	Microscopy & DOT	
91.	DOTS Corner	GoB	DOTS Corner, Isolation Ward, Medical Unit, Combined Military Hospital, Cantonment	Microscopy & DOT	
92.	DOTS Corner	GoB	Dhaka Central Jail Hospital, Nazimuddin Road	Microscopy & DOT	
93.	DOTS Corner	GoB	DOTS Corner, Police Hospital, Razarbagh Police Line	Microscopy & DOT	
94.	DCC (North)	IOM	House # 13/A, Road # 136, Gulshan-1, Dhaka- 1212, Tel: 55044811-13.	Microscopy & DOT	
95.	DOTS Corner		DOTS Corner, Dhaka Community Hospital, 190/1, Baro Moghbazar, Wireless Rail Gate, Ph9351190-1, 8314887	Microscopy & DOT	
96.	DCC (South)	BGMEA	30/B, Malibagh, Chowdhurypara, Dhaka, Tel: 8311124	Microscopy & DOT	
97.	DCC (North)	BGMEA	Plot # 5, Road # 5, Milkvita Road, Mirpur-7, Dhaka, Mobile: 01712-677667	Microscopy & DOT	
98.	DCC (North)	BGMEA	Road # 6, Block # B, House # 5 (2 <sup>nd</sup> floor), Nabodoy Housing Society, Mohammadpur, Dhaka-1200, Tel: 9120832, Mobile: 01716-159076	Microscopy & DOT	
99.	DCC (North)	BGMEA	Saru Kunja, House # 64, Block # G, Niketan Eastern Housing Ltd., Gulshan-1, Dhaka, Tel: 9858549	Microscopy & DOT	

SL	Ward No.	Agency	Address	Service facility	Remark
100.	DCC (North)	BGMEA	House # 16/A, Road # 16, Sector # 4, Uttara, Dhaka, Tel: 8950208	Microscopy & DOT	
101.	DCC (North)	icddr,b	68 Shaheed Tajuddin Ahmed Sarani, Mohakhali, Dhaka-1212. Mobile: 01779-100100	GeneXpert & DOT	
102.	DCC (South)	icddr,b	House#11/A, Golapbagh Bishwa Road (near to Golgotha baptist church & Golapbagh CNG station), Dhaka-1213. Mobile: 01779-700700	GeneXpert & DOT	
103.	DCC (South)	icddr,b	House# 15, Road# 07, Dhanmondi (near to orchard point centre), Dhaka-1205. Mobile: 01779-600600	GeneXpert & DOT	
104.	DCC (South)	icddr,b	1 no. West Hazipara, Rampura, DIT Road, P.O: Khilgaon, Dhaka-1219 (Opposite to Appex showroom). Mobile: 01766-667628	GeneXpert & DOT	
105.	DCC (North)	icddr,b	House# 31 (1 <sup>st</sup> Floor), Sector# 11, Gareeb-e-Nawaz Avenue, Uttara, Dhaka-1230. (opposite to Milestone College main campus) Mobile: 01766-667629	GeneXpert & DOT	
106.	DCC (North)	icddr,b	House# 03, Main Road, Bloack# A, Road# 11 Pallabi, Mirpur, Dhaka-1216. Mobile: 01766-667617	GeneXpert	
107.	DCC (South)	icddr,b	32 Lalmohon Shah Road, Dholaikhal Mor, Old Dhaka-1203. Mobile: 0176 6-667618	GeneXpert	
108.	DCC (South)	DCC	Dhaka Mohanagar General Hospital, Nayabazar, Dhaka-1100, Tel: 7390860	Microscopy & DOT	
109.	DCC (North)	BRAC	TB Diagnostic Center: House no. 4/B/B, Mazar Road, Daru salam, Mirpur-1, Dhaka. Mobile: 01313-048418	GeneXpert	
110.	DCC (North)	BRAC	TB Diagnostic Center: House no.18/6, Mohammadia housing, Modammadpur, Dhaka. Mobile: 01313-048417	GeneXpert	
111.	DCC (North)	BRAC	TB Diagnostic Center: House no. 2502, Madani Avinue, 100 fit road, Vatra, Gulshan, Dhaka. Mobile: 01313-048407	GeneXpert	
112.	DCC (South)	BRAC	TB Diagnostic Center: Ward no. 9, North Rayerbag, Gas Road, Dania, Jattrabari, Dhaka. Mobile: 01313-048405	GeneXpert	
113.	DCC (South)	BRAC	TB Diagnostic Center: Nazir Shoping mol, 69/R.N.D road, Kella more, Lalbag, Dhaka. Mobile: 01313-048416	GeneXpert	
114.	DCC (South)	BRAC	TB Diagnostic Center: House no.272/1/A, Khilgaon Chourasta (Comilla hotel more), Khilgaon, Dhaka. Mobile: 01313-048406	GeneXpert	
Chittago	ong Metropolitan Area	1			
1	1	Image	Kashem Mansion (1 <sup>st</sup> floor) Hathazari Road, Aman Bazar, South Pahartali, Phone # 031-2581799	DOT	
2	2	Image	16 Baizid Bostami R/A, Jalalabad, Phone # 031-681906, 2581726	Microscopy & DOT	
3	2	GoB	Government Urban Dispensary, Shersha Colony, Jalalabad	DOT	
4	3	CCC	City Corporation dispensary, Panchlaish	DOT	
5	3	GoB	Government Urban Dispensary, Rowfabad, Panchlaish	DOT	
6	4	GoB	Government Urban Dispensary, Gausul Azam, Chandgaon	DOT	
7	4	Image	Marium Vila, Mouluvi Pukur Par, Chandgaon, Phone # 031-672552	Microscopy & DOT	
8	5	BRAC	DOTS Centre, Kalurghat I/A, Hazi Dulamiah Road, Nazumiah Hat, Mohara	DOT	
9	8	BRAC	DOTS Corner, Chittagong Medical College Hospital	Microscopy & DOT	
10	8	NATAB	NATAB Bhaban, 62 Katalganj, Panchlaish	Microscopy & DOT	
11	9	GoB	Government Urban Dispensary, North Pahartoli , Colonelhat	DOT	
12	9	GoB	Government Urban Dispensary, North Pahartoli, Ferozshah	DOT	
13	9	Nishkrity	Rafique Chowdhury Bhaban, New Monsurabad, Pahartoli	Microscopy & DOT	
14	10	BRAC	DOTS Centre, Fouzdarhat I/A	DOT	
15	10	Image	Bashar Champa Bhaban, Hazrat AmanUllah road, North Kattali, Pahartali, Phone # 031-2770943	DOT	
16	11	GoB	Government Urban Dispensary, Halishar, South Kattali	DOT	
17	11	ссс	Chadu chowdhury Primary Health Care Centre, Chadu Chowdhury Road, Custom Academy, South Kattali	DOT	
18	12	CCC	City Corporation dispensary (CCD), Saraipara	DOT	
19	13	MAMATA	380/A, Flora Pass Road, Ambagan, Pahartoli, Chittagong, Mobile: 01711- 903395	DOT	
20	13	Image	Saleh Mansion, 22/A Zakir hossain Road, East Nasirabad, Phone # 031- 615125.	Microscopy & DOT	
21	14	CCC	City Corporation dispensary (CCD), Lalkhan Bazar	DOT	
22	14	AAAATA	Nagar Matree Shadan, Salam Building, 61, Chandmari Road, Lalkhan Bazar,	Microscopy 9 DOT	
22	14	MAMAIA	Chittagong, Phone: 031-625804	wilcroscopy & DOT	
23	14	BRAC	DOTS Corner, Railway Hospital	Microscopy & DOT	
24	15	MAMATA	27 Betari Goli, Bagmoniram, Chittagong, Mobile: 01711-903395	DOT	
25	16	ССС	City Corporation dispensary (CCD), Ward Commissioner's Office, Chawkbazar	DOT	

SL	Ward No.	Agency	Address	Service facility	Remark
26	17	Nishkrity	Rahman Manson, Rahattarpool, West Bakalia	Microscopy & DOT	
27	17	GoB	Government Urban Dispensary, West Bakalia, Panchlaish	DOT	
28	18	ссс	City Corporation dispensary, Ward Commissioner's Office, Kala Meah Bazar, East Bakalia	DOT	
29	19	CCC	City Corporation dispensary, Nurul Islam Maternity Hospital, South Bakalia	DOT	
30	20	CCC	City Corporation dispensary. Ward Commissioner's Office. Dewan Bazar	DOT	
31	21	Nishkrity	129. Jamal Khan by Jane (north side of DC Hill)	Microscopy & DOT	
32	22	MAMATA	Amin Mansion, Plot No-582/605, Batali Road, Enayet Bazar, Chittagong, Mobile: 01817-757039	DOT	
33	23	ССС	City Corporation dispensary, Ward Commissioner's Office, Dewanhat, Uttar	DOT	
34	24	Nishkrity	217. North Agrabad (Mollapara more). Rongipara	DOT	
35	24	MAMATA	Panwala Para, Haddi Companir Moor, North Agrabad, Chittagong, Mobile: 01913-618282	DOT	
36	26	GoB	Government Urban Dispensary, Agrabad (Masjid Colony), North Halishahar	DOT	
37	27	CCC	City Corporation Dispensary, South Agrabad (Doublemooring)	DOT	
38	27	GoB	Skin & V.D. Hospital. South Agrabad	Microscopy & DOT	
39	27	BRAC	DOTS Corner Ma O Shishu General Hospital	Microscopy & DOT	
40	28	BRAC	DOTS Centre Ward Commissioner's Office Pathantoly	DOT	
41	20		City Corporation dispensary Ward Commissioner's Office West Madarbari	Microscopy & DOT	
41	29	MAMATA	81, Mogoltoli By Lane # 1, West Madarbari, Chittagong, Phone # 031-2514481	Microscopy & DOT	
43	30	ссс	City Corporation dispensary, Younus mia, Ward Commissioner's Office, East Madarbari	DOT	
44	31	BRAC	Khelaghor Ashor, Alkaran	DOT	
45	32	GoB	Chest Disease Clinic, Andarkilla	Microscopy & DOT	
46	33	CCC	City Corporation dispensary, Ward Commissioner's Office, Firingee Bazar	DOT	
47	33	Nishkrity	62/63, Poet Kazi Nazrul Islam Road, Firingee Bazar, Kotowali	DOT	
48	34	BRAC	DOTS Centre, Patharghata	DOT	
49	35	BRAC	DOTS Centre, Jail Hospital, Government Urban Dispensary, Baxirhat	Microscopy & DOT	
50	37	Nishkrity	Borapole North Middle Halishahar	DOT	
51	40	RRAC	DOTS Corner, CEPZ Hospital, South Halishahar	Microscopy & DOT	
52	30	BRAC	DOTS Corner, Port Hospital, South Halishahar	Microscopy & DOT	
53	30	GoB	Government Urban Dispensary Seamen Hostel South Halisbahar		
54	39	MAMATA	Mamata Clinic, Baitush Sharaf Bhaban, Taltala, Bandartila, South Halishahar, Chittagong, Phone: 031-740476. Mobile: 01920-470753	Microscopy & DOT	
55	40	Youngone Ltd.	Youngone Ltd. Hospital, CEPZ, North Patenga	Microscopy & DOT	
56		BRAC	DOTS Corner, Chest Disease Hospital, Fauzderhat	Microscopy & DOT	
57		BRAC	DOTS Centre, Karnaphuli I/A	DOT	
58		GoB	DOTS Corner, CMH Cantonment	Microscopy & DOT	
59		GoB	DOTS Corner, CMH BNS Patenga	Microscopy & DOT	
60		GoB	Government urban Dispensary, Marine Academy	DOT	
61		BRAC	DOTS Corner, KEPZ Hospital	Microscopy & DOT	
62		BGMEA	BGMEA Hospital, Saltgola Rail Crossing, Seamens Hostel Gate, South Halishahar, Bandar, Chittagong, Tel: 031-740814, Mobile: 01813-277530	Microscopy & DOT	
63		BRAC	DOTS Corner, Chattagram International Medical College Hospital	Microscopy & DOT	
64		BRAC	DOTS Corner, Bangabandhu Memorial Hospital (USTC)	Microscopy & DOT	
65		icddr,b	1306, OR Nizam Road, Golpahar Mor, P.O: Chittagong Medical College, Chittagong-4203. (opposite to Shwapno super store) Mobile: 01766 667630	GeneXpert & DOT	
66		BRAC	TB Diagnostic Center: Holding no-1161/D/1739, Jahan Tower, Bakulia, Chittagong. Mobile: 01313-048432	GeneXpert	
67		BRAC	TB Diagnostic Center: House no.126, Bismilla Tower, Oxizen more, Chittagong. Mobile: 01313-048435	GeneXpert	
68		BRAC	TB Diagnostic Center: House no. 2950, A.M. Tower, South Halisahar, Bandar, Chittagong. Mobile: 01920-141296	GeneXpert	
Khulna Metropolitan Area					
1	01	PKS	Nagarshasto Kendro , Kalibaribazar, Maheshwarpasha , Khulna	DOT	
2	02	PKS	Nagarshasto Kendro, TB Hospital Road Fulbarigate Mirerdanga, Khulna	DOT	
-		PIME	PIME Sisters DALIT. 37/1, Kedarnath Road, Ralligate, Maheshwarnasha		
3	03	Sisters	Daulatpur. Khulna	DOT	

### Annual Report 2022

SL	Ward No.	Agency	Address	Service facility	Remark
4	04	PKS	Nagarshasto Kendro , Hospital Road, Deyana Purbopara, Daulatpur., Khulna	DOT	
5	05	PIME Sisters	Muhsin Upa Sasthya Kendra. Daulatour Bazar, Daulatour, Khulpa	DOT	
6	06	PKS	125 Pabla Sabuj Sangho Cross Road Daulatpur, Khulna	Microscopy & DOT	
7	12	PKS	103, Central Block, Eidgah road, Khalishpur, Khulna	DOT	
8	7,8,10,11	PIME Sisters	PIME Sisters. Lal Hospital. Khalishpur. Khulna	DOT	
9	7,8,9,10. 11,13,14,15	KMSS, KCC	Fire Service Road, (Near 11 No. Ward Counselor's office), Khalishpur, Khulna Khulna City Corporation, Khulna	Microscopy & DOT	
10	9,14	PIME Sisters	Damien Clinic, PIME Sisters.9/11, Daspara Road, Boyra. Khulna. Tel. # 761782	Microscopy & DOT	
11	13,15	PIME Sisters	PIME Sisters. Missionaries of Charity. Duttapara, Khalishpur, Khulna.	DOT	
12	16	PIME Sisters	DOTS Corner Dibetic Hospital, Khulna.	DOT	
13	17	BRAC	BRAC DOTS Corner. Khulna Medical College Hospital.	Microscopy & DOT	
14	17	GOB	Chest Clinic , Lower Jessore Road, Khulna, le # 1731105	Microscopy & DOT	
15	18,25,26	Sisters	Nazirghat urban clinic, Borobari, Khulna	DOT	Closed
16	19	PKS	Nagarshasto Kendro, Islamabad (Poipara) Community Centre, Near of Eidgah, Khulna	Microscopy & DOT	
17	20	PKS	Nagarshasto Kendro Shaikhpara Bazar, Shaikhpara, Khulna	DOT	
18	21	PIME Sisters	Khulna Prison.	DOT	
19	21,23	PIME Sisters	Sadar Hospital DOT Corner, Khulna	DOT	
20	22	PIME Sisters	Blue Sister DOTS Center, Tootpara zoracall bazar	DOT	
21	24	PKS	Nagarshasto Kendro, Road # 21, Dighirpar, Nirala R/A. , Khulna	DOT	
22	31	PIME Sisters	Khanjahan Ali Datobo Health Center, Lobonchara, Khulna	DOT	
23	22, 29	PKS	47, South Central Road, Khulna.	Microscopy & DOT	
24	30	PIME Sisters	PIME Sisters. Taltola Hospital, Tootpara, Khulna.	DOT	
25	DOTS Corner	BRAC	BRAC DOTS Corner. Ad-din Akij Medical College, Boikali,Dhaka Highway, Khulna	Microscopy & DOT	
26	Pre Urban	BRAC	DOTS Center for Industrial Center. Khulna. (Located at BRAC office at Fulbarigate area)	Microscopy & DOT	
27	27,28	PKS	Nagarshasto Kendro. Islampur road, Tarererpukur, Khulna	Microscopy & DOT	
28		BRAC	TB Diagnostic Center: 18/B, Majid Avenue, (Opposite of Gazi Medical College Hospital), Sonadanga, Khulna. Mobile: 01313-048386	GeneXpert	
Rajshah	i Metropolitan Area				
1	4,5,6,7, 8, 9, 10, 11	Tilottama	Tilottama Bulunpur, Rajpara, Rajshahi	Microscopy & DOT	
2	6	GoB	Rajshahi Chest Disease Hospital, Laxmipur	Microscopy & DOT	
3	7	Damien Foundation	Rajshahi Jail	DOT	
4	9	GoB	Chest Disease Clinic, Hossenigonj	Microscopy & DOT	
5	10	Damien Foundation	DOTS Corner, Rajshahi Medical College Hospital, Laxmipur	Microscopy & DOT	
6	1, 2, 3, 12, 13, 14, 15, 18, 19, 20	RIC, RCC	Jahan Ara Monjil, House No -355, Dorikhorbona, Behind of Barnalir More ( Near passport office), Rajshahi,	Microscopy & DOT	
7	16,17	Tilottama	Tilottama, North Naodapara, Bypass More,Naodapara,Rajshahi, Organization's own building	Microscopy & DOT	
8	21, 22, 23, 24,25, 26, 27,28,29, 30	BRAC	House No: 109/1, Shakopara, (North side of Grave), Baze Kazla,(East side of Shakopara Jame Mosque), Motihar, Rajshahi-6204.	Microscopy & DOT	
		BRAC	TB Diagnostic Center: Holding No: 14, Hetem Khan, Ghoshpara Mor, Rajshahi Medical College Road, Rajshahi. Mobile: 01313-048393	GeneXpert	
Barisal Metropolitan Area					
1	4, 5, 6, 18, 19	GoB	Chest Disease Clinic, Amanatganj	Microscopy & DOT	
2	10,11,12,13,14,15,16,17, 23,24,25,28	BRAC	DOTS Corner, Sher-e-Bangla Medical College Hospital	Microscopy & DOT	
3	9, 20, 21, 22	BRAC	General Hospital	Microscopy & DOT	

SL	Ward No.	Agency	Address	Service facility	Remark
4	1, 2, 3, 26, 27, 29, 30	BRAC	DOTS Centre, BRAC Sadar Office, Kashipur	Microscopy & DOT	
5		BRAC	TB Diagnostic Center: Ruma Nir, Holding No: 205, Torab Ali khan Road, Amtoli Bijoy Bihongo Mor, Near Water Tank, South Alakanda, Barisal. Mobile: 01313-048382	GeneXpert	
Sylhet M	letropolitan Area				
1	1, 3, 9, 10, 11, 16	BRAC	DOTS Corner, M.A.G. Osmani Medical College Hospital, Mobile: 01712-788367	Microscopy & DOT	
2	4, 5, 6, 7, 8, 17	BRAC	DOTS Corner, Jalalabad Ragib Rabeya Medical College Hospital, Pathantula, Mobile: 01742-025151	Microscopy & DOT	
3	25, 26, 27	BRAC	DOTS Corner, North-East Medical College Hospital, Sekhghat, Telihaor, Mobile: 01739-725112	Microscopy & DOT	
4	14	BRAC	DOTS Corner, Sylhet Prison, Mobile: 01722-303890	Microscopy & DOT	
5	18, 19, 20, 21	GoB	Chest Disease Clinic, Baluchar, Sahi Eidgah, Mobile: 01710-712673	Microscopy & DOT	
6	15, 22, 23, 24	BRAC	DOTS Corner, BRAC Urban Office, Shahjalal Upashahar, Mobile: 01728-122283	Microscopy & DOT	
7	2, 12, 13	BRAC	DOTS Corner, Park View Medical College Hospital, Telihaor Road, Mobile: 01779-676523	Microscopy & DOT	
8		IOM	Medi-Aid Heart Centre, South Dorgah Gate (Near Minar), Dorgah Mohalla, Sylhet 3100	Microscopy & DOT	
9		icddr,b	Rikabi bazar point, VIP Road, Sylhet-3100 Mobile: 01766 667621	GeneXpert	
10		BRAC	TB Diagnostic Center: Niamah Tower, Vill-Selam, South Surma, Sylhet. Mobile: 01864-408713	GeneXpert	

## Annex 6: List of the Sub-Recipients (SR)-24

SL No.	Name	SL No.	Name
1	Damien Foundation	13	KMSS
2	TLMI-B	14	BAPSA
3	RDRS Bangladesh	15	Nari Maitree
4	LAMB	16	UTPS
5	HEED Bangladesh	17	Dhaka Ahsania Mission (DAM)
6	PIME Sisters	18	Resource Integration Centre (RIC)
7	CWFD	19	MAMATA
8	BAMANEH	20	Ashar Alo Society (AAS)
9	Tilottama	21	ICDDR,B
10	IMAGE	22	NATAB
11	Nishkriti	23	BGMEA
12	PKS Khulna	24	ВКМЕА



National Tuberculosis Control Programme Bangladesh



National Tuberculosis Control Programme Directorate General of Health Services Mohakhali, Dhaka-1212