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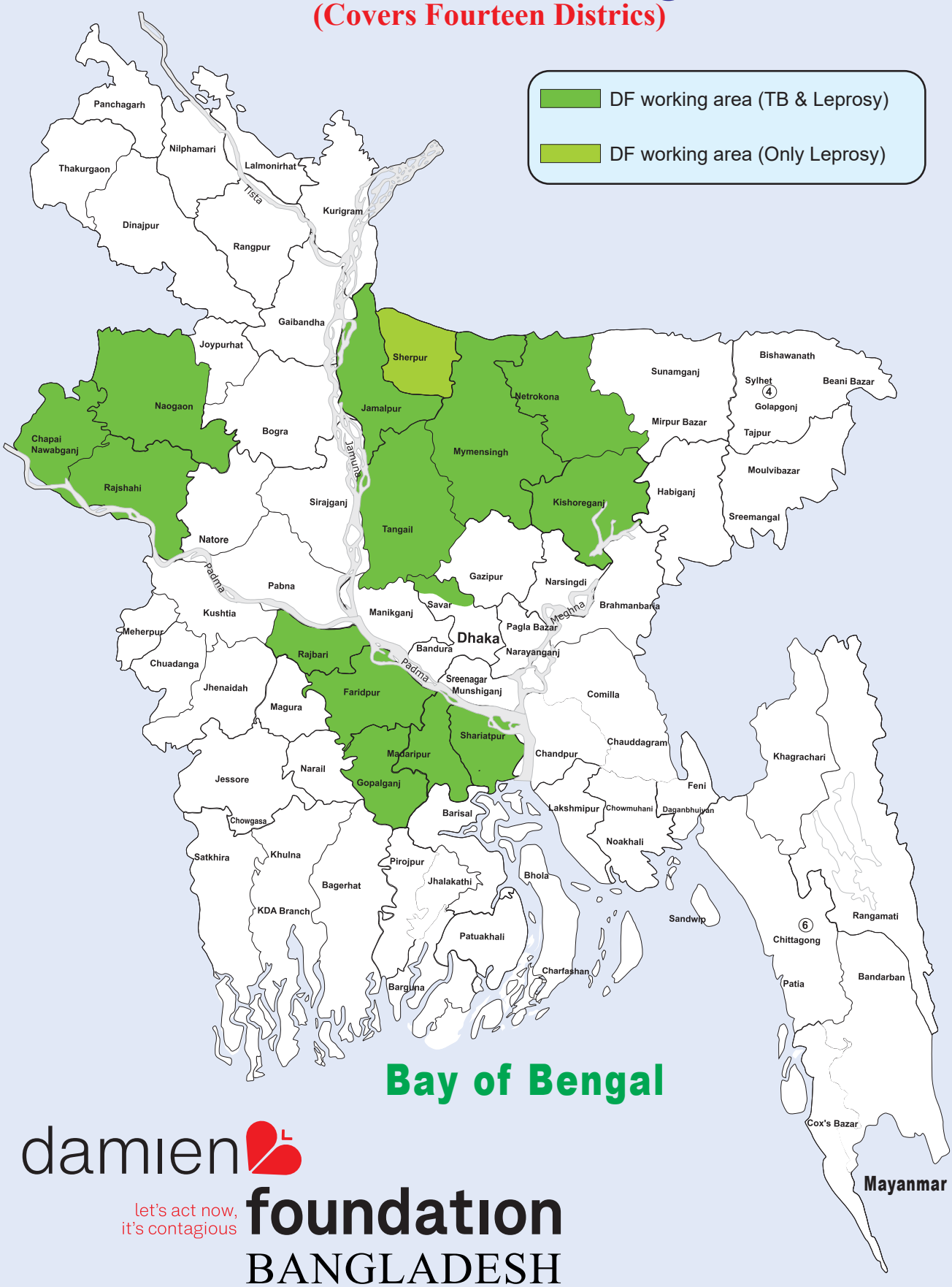
foundation
BANGLADESH

ANNUAL REPORT 2021

Damien Foundation - Bangladesh

(Covers Fourteen Districts)



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Preface

Everybody in the Damien Foundation Bangladesh tried their best to recover the gaps in 2021 following the disruptions caused by COVID-19 in 2020. This annual activity report 2021 presents the achievements made during the year despite the ongoing COVID-19 pandemic. The achievements were only possible through contributions from all those involved in every step of our services during the year.

Our efforts were further strengthened in reaching as many TB (including MDR TB) and leprosy patients as possible despite the difficulties during the ongoing pandemic situation maintaining the best protective measures and maximum quality of care and services possible despite constraints as the quality of health care remains our core value. We always look at possibilities and opportunities through realistic analysis of the situation followed by their execution and as a result, we could reach a higher number of our beneficiaries despite the ongoing pandemic situation during the year. During the year 2021, a total of 32,525 TB cases were detected which is a 33% increase from 2020 detection. Similarly, a 58% increase (328 RR TB detected and registered in 2021 which was 207 in 2020) in RR TB was observed during the same year. A total of 434,611 TB presumptive cases (36% increase from 2020) provided sputum samples for examination using microscopy and Xpert technology during 2021 and among them, 18,160 bacteriologically confirmed cases were detected. The results obviously reflect the efforts made by the staff members through their commitment, motivation, and dedication. We also appreciate the support received from national and local level health authorities and from other partners which also facilitated us in achieving these excellent results.

The organization expresses gratitude to Bangladesh NTP and technical partner icddrb for providing support in adopting the all-oral shorter treatment regimen (SOTR, which has been modified from the originally Bangladesh regimen developed by Damien Foundation) for MDR/RR TB patients in Bangladesh which was successfully launched in Damien Foundation hospitals in 2021.

Involvement of all care providers in the identification of presumptive (TB and leprosy) patients, ensuring their referral to the right place and utilization of all available diagnostic tools in their diagnosis followed by correct treatment contributed to achieving good results in the project area. The increasing trend in the involvement of government field staff in identifying presumptive TB cases indicates that field-level integration of the TB Program is being strengthened further.

The organization expresses gratefulness for the continuous support of its partners, staff, and collaborators in achieving excellent results during this difficult period.

Sincerely,

Dr. Aung Kya Jai Maug
Country Director
Damien Foundation Bangladesh

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Projects: FTLCP, MTLCP, NTLCP, RTLCP, TTLCP, DFCO together

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List of Abbreviations

ACSM	Advocacy, Communication & Social Mobilization
AFB	Acid - Fast Bacilli
AIDS	Acquired Immunodeficiency Syndrome
ALERT	All Africa Leprosy, Tuberculosis and Rehabilitation Training Centre
AO	Accounts Officer
BDQ	Bedaquiline
BRAC	Bangladesh Rural Advancement Committee
CCM	Country Coordinating Mechanism
CDC	Chest Disease Clinic / Communicable Disease Control
CDH	Chest Disease hospital
CDR	Case Detection Rate
CS	Civil Surgeon / Culture and Sensitivity
CT	Complete Treatment
CTB	Challenge TB
DBLM	Danish Bangladesh Leprosy Mission (The Leprosy Mission Bangladesh)
DEPZ	Dhaka Export Processing Zone
DF	Damien Foundation
DFB	Damien Foundation Belgium
DFBD	Damien Foundation Bangladesh
DFCO	Damien Foundation Coordinating Office
DGDC	Directorate General of Development Cooperation
DGHS	Directorate General of Health Services
DPM	Deputy Program Manager
DOT	Directly Observed Treatment
DOTS	Directly Observed Treatment, Short-course
DST	Drug Susceptibility Testing
EP	Extra-Pulmonary
EQA	External Quality Assurance
FC	Field Coordinator
FDA	Fluorescein Diacetate
FDP	Fixed DOT Provider
FHI	Family Health International
FTLCP	Faridpur TB & Leprosy Control Project
FWA	Family Welfare Assistant
FWC	Family Welfare Center
GF	The Global Fund
GFATM	Global Fund to Fight AIDS, Tuberculosis & Malaria
GLC	Green Light Committee
GNP	Gross National Product
GoB	Government of Bangladesh
GP	General Practitioner
HE	Health Education
HIV	Human Immunodeficiency Virus
HNPSP	Health, Nutrition and Population Sector Program
HR	Human Resource
ICDDR,B	International Center for Diarrheal Diseases Research, Bangladesh
IDU	Injecting Drug User
IEC	Information Education and Communication
ITM	Institute of Tropical Medicine
IUATLD	International Union against Tuberculosis & Lung Diseases
JMM	Joint Monitoring Mission
KNCV	Koninklijke Nederlandse Centrale Vereniging tot bestrijding der Tuberculose (Dutch Tuberculosis Foundation)
LCA	Leprosy Control Assistant
LED-FM	Light Emitting Diode – Florescent Microscope
LEPRA	Leprosy Relief Association (UK)
LFA	Local Fund Agent
LPA	Line Probe Assay
L-J	Lowenstein Jensen
LTCC	Leprosy & TB Coordinating Committee
MB	Multi- Bacillary
MBDC	Mycobacterial Disease Control
MCR	Micro Cellular Rubber
MDG	Millennium Development Goal
MDR-TB	Multi-Drug Resistant TB
MDT	Multiple Drug Therapy
M&EO	Monitoring & Evaluation Officer
MO	Medical Officer
MoH&FW	Ministry of Health & Family Welfare
MoU	Memorandum of Understanding
MSH	Management Science for Health
MTB	Mycobacterium Tuberculosis
MTLCP	Mymensingh TB & Leprosy Control Project
NGO	Non-Governmental Organization
NLP	National Leprosy Program
NTP	National Tuberculosis Control Program
NTLP	National TB Control & Leprosy Program
NTLCP	Netrakona TB & Leprosy Control Project
NTM	Non-Tubercular Mycobacterium
NTRL	National Tuberculosis Reference Laboratory
OPD	Out Patient Department
PAL	Practical Approach to Lung Health / People Affected by Leprosy
PB	Pauci-Bacillary
PBC	Pulmonary Bacteriologically Confirmed
PCD	Pulmonary Clinically Diagnosed
PD	Project Director
PM	Program Manager
POD	Prevention of Disabilities
PPM	Public Private Mix
PR	Principal Recipient
PRSP	Poverty Reduction Strategic Paper
PT	Physio-Technician
PTB	Pulmonary Tuberculosis
QA	Quality Assurance
QMT	Quick Muscle Tests
RTLCP	Rajshahi TB & Leprosy Control Project
RTRL	Regional Tuberculosis Reference Laboratory
SDG	Sustainable Development Goal
SR	Sub-Recipient
SRL	Supranational Reference Laboratory
ST	Sensory Tests
TB	Tuberculosis
TLCA	TB & Leprosy Control Assistant
TLCO	TB & Leprosy Control Officer
TLMIB	The Leprosy Mission International Bangladesh
TTLCP	Tangail TB & Leprosy Control Project
UHC	Upazila Health Complex
UH&FPO	Upazila Health & Family Planning Officer
USAID	United States Agency for International Development
UT	Under Treatment
VD	Village Doctor
WHO	World Health Organization
XDR	Extensively Drug Resistant (TB)
ZN	Ziel Neelsen

1. Damien Foundation: Background Information

Damien Foundation (DF), a Belgian non-denominational and pluralistic NGO founded in 1964, is dedicated to the fight against Leprosy and Tuberculosis until these are no longer a threat to public health. The foundation is active in 14 countries of **Asia** (Bangladesh, India & Nepal), **Africa** (DR of Congo, Burundi, Nigeria, Niger, Guinea, Comoros & Senegal), **America** (Nicaragua, Guatemala & Bolivia) and **Europe** (Belgium).

The Foundation takes its name from Father Damien, a Belgian missionary who worked in the Hawaiian archipelago in the second half of the nineteenth century. He sacrificed his life caring for leprosy affected people abandoned on the island of Molokai.

The Foundation is a member of the International Federation of Anti-Leprosy Associations (ILEP) which coordinates the activities of organizations active in the field of leprosy control and care worldwide. Damien Foundation also conducts operational and epidemiological research projects, the scientific publications generated from these research projects contribute in national and international policy recommendations in leprosy and TB.

The Damien Foundation started its journey to serve leprosy patients in 6 districts of Bangladesh in 1972 and thus it has been almost five decades since the start of its journey in reaching the people affected by Leprosy in Bangladesh. In the beginning, DF fully concentrated on the elimination of Leprosy, and later on, since 1991 Tuberculosis (TB) Control has been included as the other major component considering the size of TB burden in Bangladesh. The organization is now involved in the control of Tuberculosis and further management of Leprosy in close collaboration with the National TB Control Program (NTP) & National Leprosy Program (NLP), Ministry of Health & Family Welfare (MoH&FW), Government of the People's Republic of Bangladesh. This collaboration is based on the Memorandum of Understanding (MoU) signed between National TB Control Program on behalf of the Government of Bangladesh (GoB) and LTCC (Leprosy & Tuberculosis Coordinating Committee). LTCC is a consortium of 10 Non-Governmental Organizations or NGOs (Damien Foundation, The Leprosy Mission International, LEPRA Bangladesh, HEED Bangladesh, RDRS, LAMB, Salvation Army, Dhanjuri Leprosy Center, PIME Sister and the Christian Leprosy Centre, Chandraghona).

As per MoU, each NGO partners are allocated to implement the Program in defined geographical areas in order to avoid duplication of services and GoB agreed to ensure supply of essential drugs, equipment (e.g. microscopes), laboratory reagents, other consumables, recording and reporting forms, registers etc. Besides 6 existing districts, 3 new districts from Rajshahi division were included in this collaborative agreement and daily centres from sub-district level were started gradually since 1995. Full geographical coverage from each upazila was achieved by mid-1998 in these 9 districts. Expansion to a new area consisting of 5 districts (27 sub-districts) in greater Faridpur region was started in October 2001 upon request of the government and full geographical coverage in this new area was achieved by mid–2003. Thus, the organization now covers 14 districts (113 sub-districts) and serves about 33 million people (20% of total country population). The organization operates through five projects, namely Tangail, Mymensingh, Netrakona, Rajshahi & Faridpur projects. The Damien Foundation Bangladesh works as a non–political organization duly registered with NGO Affairs Bureau, Govt. of Bangladesh, under the Foreign Donations (Voluntary Activities) Regulations Ordinance 1978.

A total of 150 daily combined (TB & Leprosy) clinics including in 7 medical college hospitals and one workplace-Dhaka Export Processing Zone and 11 leprosy (9 intermittent and 2 daily) clinics are functional in 113 upazilas (sub-districts). Additional second microscopy centers were established in 2005-2006 in larger upazilas or in upazilas with higher population to ensure better geographical coverage and to improve access.

The project has also established a network of patient friendly directly observed treatment (DOT) services at the community level through voluntary involvement of village doctors, cured patients, religious leaders, school teachers etc. At present around 10,000 Fixed DOT Providers (FDPs) are involved in providing DOT in the area covered by DF.

The Damien Foundation program is providing specialized hospital care for complicated TB & Leprosy patients including MDR and XDR-TB patients by its own three referral hospitals with a total of 255 beds situated in Tangail Jalchatra hospital-95 beds, Mymensingh hospital-100 beds & Netrakona hospital-60 beds.

Shortening the duration of treatment regimen for MDR TB was a dream. The Damien Foundation developed 9-month shorter regimen for MDR-TB treatment was finally endorsed by the WHO in May 2016 observing the excellent results of this regimen from different countries. Many countries, including Bangladesh, started implementing this shorter regimen. Based on this concept and example, different shorter regimens are now being tried by different research organizations. The latest WHO recommended Shorter Oral Treatment Regimen (SOTR) for MDR-TB treatment is also based on the DF developed shorter regimen where only the injectable drug has been replaced by the new drug bedaquiline.

Funding sources

The Damien Foundation-……. Tuberculosis and Malaria (GFATM).

In 2021, a total amount of Taka 119,608,306.00 (Euro 1,210,350.00) was received as grant from Damien Foundation Belgium to cover the expenses of DGD supported projects. And a total fund received from GFATM in local currency was Taka 98,052,522.00 (equivalent to 992,518.82 Euro).

In addition, a considerable contribution was received from the Government of Bangladesh equivalent to Taka 368,872,111.00 which was realized in kind as TB drugs, MDR TB drugs, lab Equipment, Lab materials, logistic supplies, and so on. Besides, an estimated clinic-rent for 161 clinics was Taka 4,250,400.00. So, in total the government contribution was Taka 373,122,511.00 (equivalent to 3,776,864.74 Euro) in 2021.

2. Tuberculosis (TB)

Tuberculosis (TB) is a major public health problem in Bangladesh where about 360,000 people fell ill with TB in 2021. Bangladesh belongs to the list of top 20 high TB and MDR-TB burden countries in the world. There were 218 new patients (all forms of TB) per 100,000 population[1] in Bangladesh according to WHO Global Report 2021, and the estimated mortality rate was 27 per 100,000 population . The overall TB burden in Bangladesh was identified through a national prevalence survey in 2015-16 but geographical variation of prevalence is not yet known. So, the implementing organizations have to follow the national target for all geographical areas. As a result, achievement of case finding varies in different geographical areas. The first national TB prevalence survey which was conducted from October 2007 to March 2009 showed an overall adjusted prevalence of smear positive TB 79.4 per 100,000 adult population aged above 14 years[2], The survey found that 51.9% of sputum smear positive patients did not have any symptoms which are likely to be missed by health workers. Assuming a sensitivity of 75%, the authors estimated that the true smear positive TB rate might had been 105 per 100,000 adult population during the survey period. The most recent survey done in 2015–2016 of 98,710 participants following the latest WHO guidelines shows that the prevalence of pulmonary bacteriologically confirmed (PBC) patients among adult population (aged 15 years and above) is 278 per 100,000 adult population. This survey used the modern technology like GeneXpert, LED FM microscopy, digital chest X-Ray and culture in the diagnosis of pulmonary TB and used redefined screening questionnaire along with the digital X-Ray as screening tools. This prevalence survey also showed that only about 19% of the total Pulmonary Bacteriologically Confirmed (PBC) patients (52 out of 278) were detected through Microscopy among symptomatic (by symptom screening) and around 20% (56 out of 278) PBC patients were from symptom negative participants (screened through chest X-Ray and subsequently diagnosed by GeneXpert). It also showed that about 90% (251 out of 278) of the total PBC patients were X-Ray positive.

The country adopted the WHO recommended DOTS strategy in 1993. The country achieved expansion of DOTS strategy throughout the country by 1998. With the financial support from GFATM, since August 2004, the NTP and its partner NGOs expanded and strengthened the overall TB control Program in the country. The service has been expanded to prisons, garments industries/ work places, medical teaching institutes, Army hospitals etc. As a result, the national TB case notification (all forms) increased to 174 per 100,000 population in 2019[3] from 58/100,000 population in 2000. DOTS services and active case finding were strengthened through financial support from GFATM and USAID (through projects like TBCAP, TBCARE II & Challenge TB) and through involving new partners in urban areas and also through introducing new technologies (i.e. LED FM system, GeneXpert, Digital X-Ray). NTP continued expansion of new GeneXpert sites during 2021 and a total of 470 GeneXpert machines were installed by the end of the year.

The NTP national strategic plan covering the period 2021–2026 contains strategies and interventions based on the principles outlined in the WHO's "End TB Strategy" that would 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) compared with 2015.

2.1 Progress towards case detection and treatment outcome targets:

A total of 32,527 TB patients were registered during 2021 which is about 33% more than 2020 and 9% more than 2019. Out of this total TB cases, 50% were pulmonary bacteriologically confirmed TB patients, 26% pulmonary clinically diagnosed TB and 24% Extra-Pulmonary TB patients. The table below presents the numbers of the different forms of TB that were diagnosed annually during the period 2001-2021 in all project areas combined.

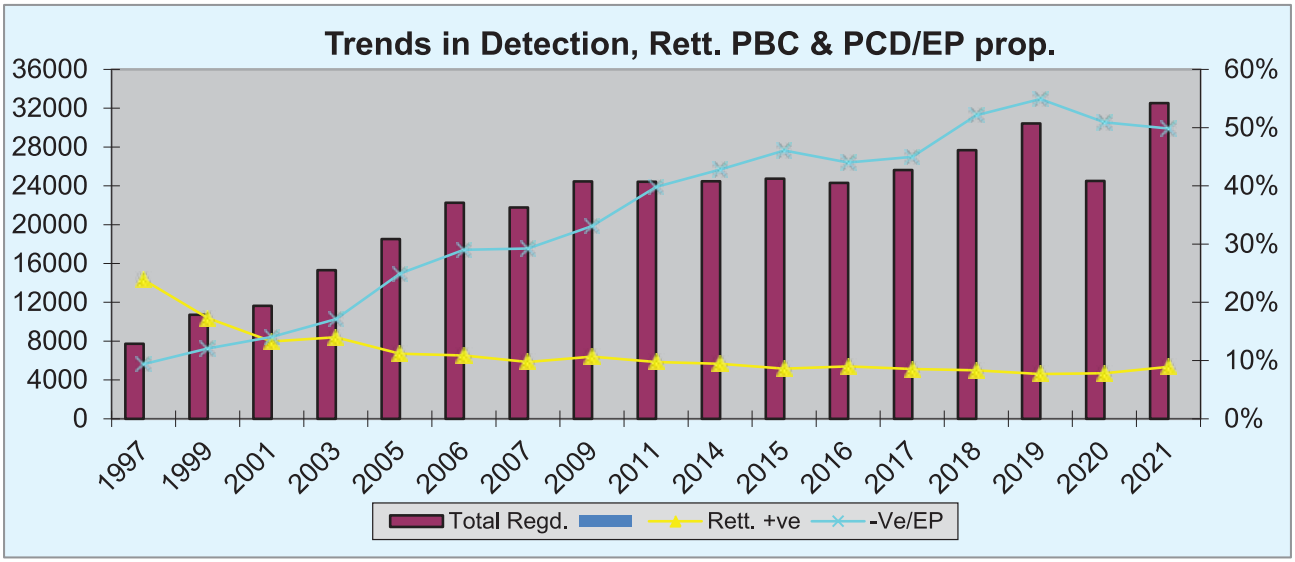
[1] GlobalTuberculosis Report 2021-WHO: (https://www.who.int/publications/i/item/9789240037021)
[2] Health and Science Bulletin vol. 8 No. 4 December 2010; available online at http://dspace.icddrb.org/jspui/handle/123456789/4872
[3] Tuberculosis Control in Bangladesh: Annual report 2020, National TB Control Program: https://www.ntp.gov.bd/wp-content/uploads/2021/09/Annual-Report-2020.pdf

Table 1: Tuberculosis patients (different types) registered since 2001

Year	New smear positive / PBC	Re-treatment	Smear-neg. / PCD & EP	Total
2001	8677	1327	1637	11641
2002	9895	1607	2078	13580
2003	10912	1744	2619	15275
2004	11298	1714	3772	16784
2005	12350	1552	4616	18518
2006	14084	1717	6455	22256
2007	13899	1501	6366	21791
2008	14150	1475	6752	22377
2009	14611	1746	8096	24453
2010	13805	1566	9233	24604
2011	13268	1435	9722	24425
2012	13966	1418	9348	24732
2013	13115	1314	10145	24574
2014	12683	1321	10476	24480
2015	12194	1148	11396	24738
2016	12328	1185	10787	24300
2017	12900	1204	11529	25633
2018	12149	1102	14424	27675
2019	12665	1055	16715	30435
2020	11094	942	12479	24515
2021	14858	1452	16217	32527

Registration of TB patients (all forms) has increased over time mainly due to increase in all the forms but mainly clinically diagnosed and extra-pulmonary cases. However, due to some special efforts, like identifying scope of increasing the clinically diagnosed patients according to recent prevalence survey and micro planning to find out missing patients, 8012 more TB patients were identified in 2021 than in 2020 and 2092 more patients than in 2019 although 5920 cases less detected in 2020 than 2019 due to impact of COVID-19 pandemic. The proportion of re-treatment patients among the positive patients remained at 9%, as shown in graph-1. The increase in numbers of all forms, mainly pulmonary clinically diagnosed (PCD) and extra-pulmonary (EP) patients, has contributed to the overall increase in TB case detection. This increase (shown above in table-1) is mainly due to the focus given to enhance the diagnosis and treatment of all forms of TB by active case finding process and through establishing collaboration with Chest Diseases Clinics, medical colleges and specialists and by conducting training for doctors on x-ray reading. Besides training of the doctors, support to poor patients was also provided for diagnostic examinations e.g. X-Ray and biopsy costs utilizing GFATM fund. All these efforts have been contributing to the increase detection of TB patients since 2017 except in 2020 which was due to the serious negative impact of COVID-19 pandemic in 2020. As a consequence, 5920 cases were less detected in 2020 compare to 2019 and case notification rate (CNR) of all forms sharply dropped to 82 in 2020 compared to 103 in 2019. However, case finding increased significantly in 2021 due to recover plan and more active case finding effort by maintaining preventive & protective measures for COVID-19 (Graph 1).

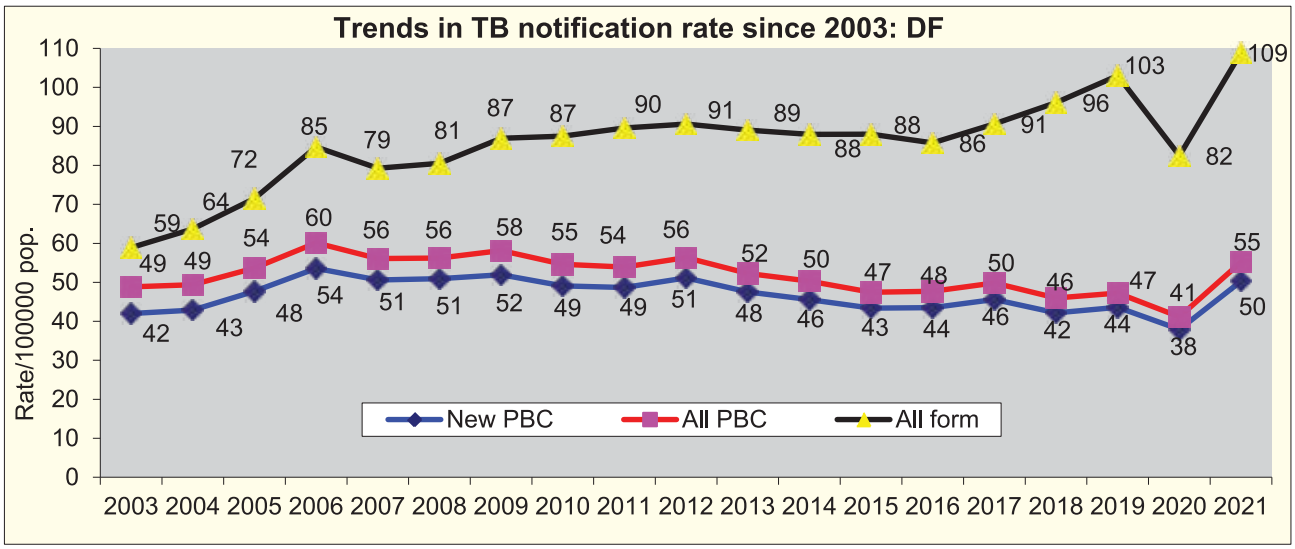
Graph 1: Trends in TB case registration, Retreatment PBC and Sm-ve (PCD/EP) proportion



The decreasing trend of re-treatment patients could be explained as a good indicator of Program performances. At start of the project, during the year 1995 most of the re-treatment patients registered by the project were treated previously outside the NTP by the private providers, as such the proportion of re-treatment patients among all smear positives (PBC) at that time was 29%. Over the years this proportion has come down to and remained at around 8-9% which explains the good referral linkage with the private sectors and better accessibility & acceptability of NTP services. Almost all of them are from NTP regimen's failures, relapses and returns after lost to follow up who returned back for re-treatment.

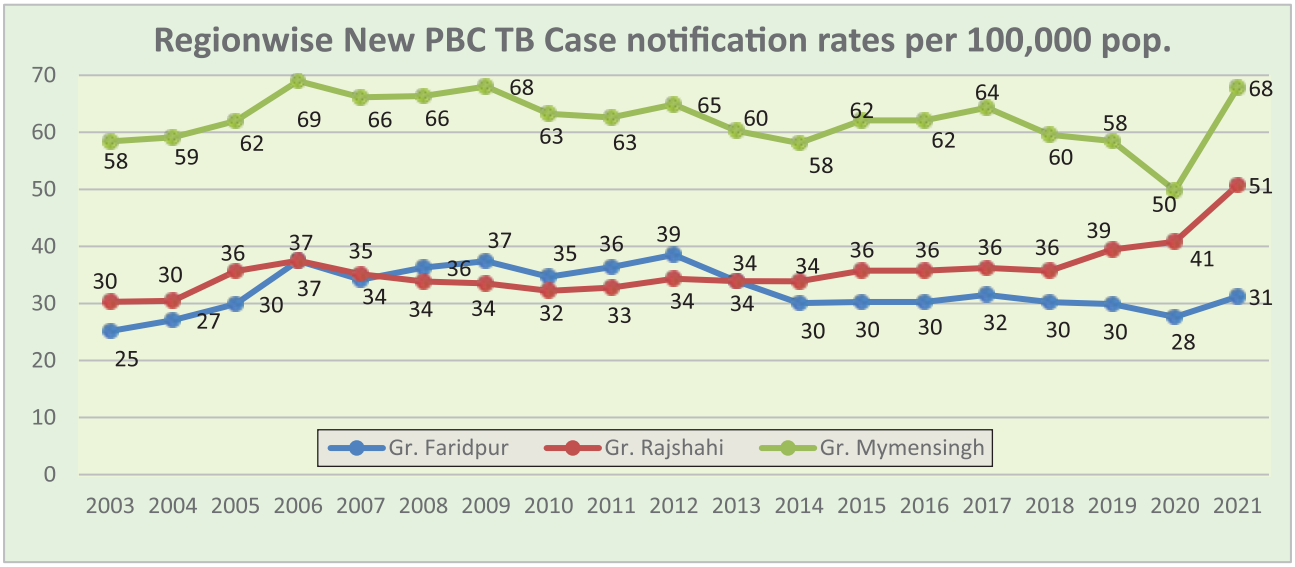
Although there was an increase in trend of all forms notification rate from 90 per 100,000 population in 2017 to 109 per 100,000 in 2021 but there was almost no change in CNR of Bacteriologically Confirmed TB Patients till 2020 and there is slight increase in 2021. Therefore, the overall trend of increase is not significant enough to conclude on the reflection of real current epidemiological situation in the project area.

Graph 2: Trends in TB notification rate per 100,000 population in DF working area



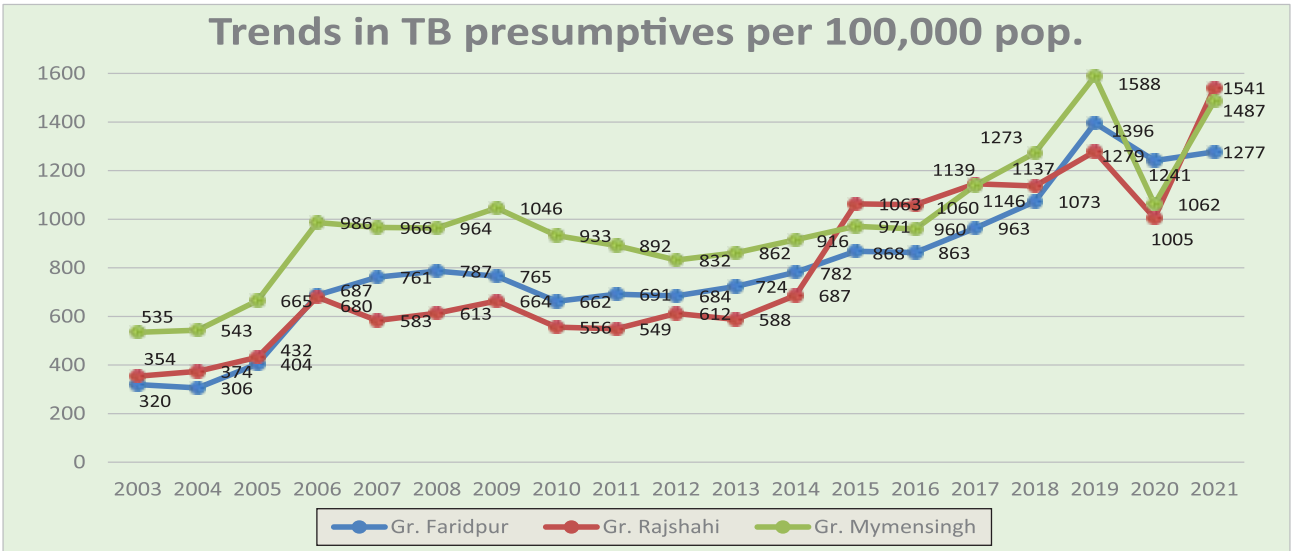
New Pulmonary Bacteriologically Confirmed (PBC) TB case notification varies significantly among the different regions. In the Northern region (greater Mymensingh) the notification rate of new PBC patients has always been higher (68 per 100,000 population) than in the other two (greater Rajshahi around 51 and greater Faridpur around 31 per 100,000 pop) regions. The same variation in notification rates for pulmonary clinically diagnosed and extra-pulmonary TB patients has been observed between these regions which might indicate low level TB prevalence in these (greater Rajshahi & Faridpur) regions.

Graph 3: DF region wise new sm+ve (PBC) TB notification rate per 100,000 populations

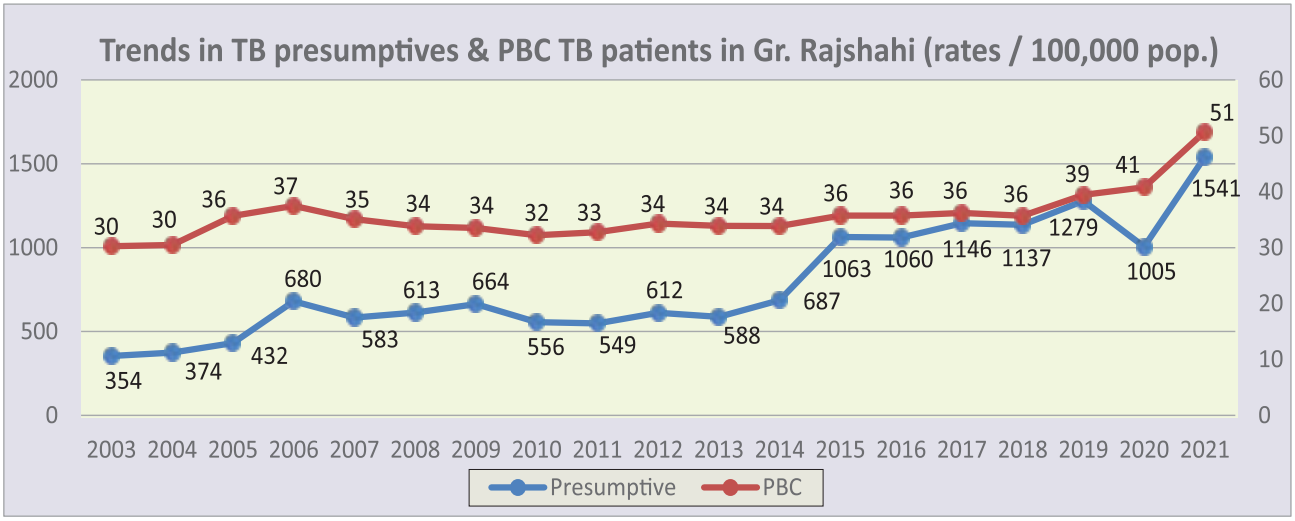


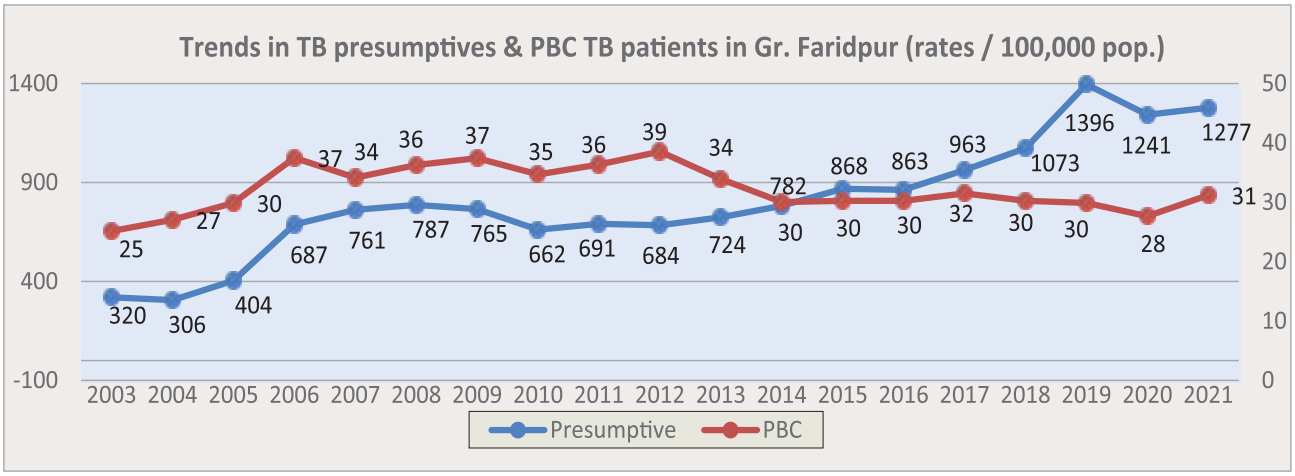
Analysis of data also shows that despite significant increase in presumptive TB patients in all the 3 regions with significant efforts, the PBC case notification did not increase much as shown in graphs 4 and 5-7.

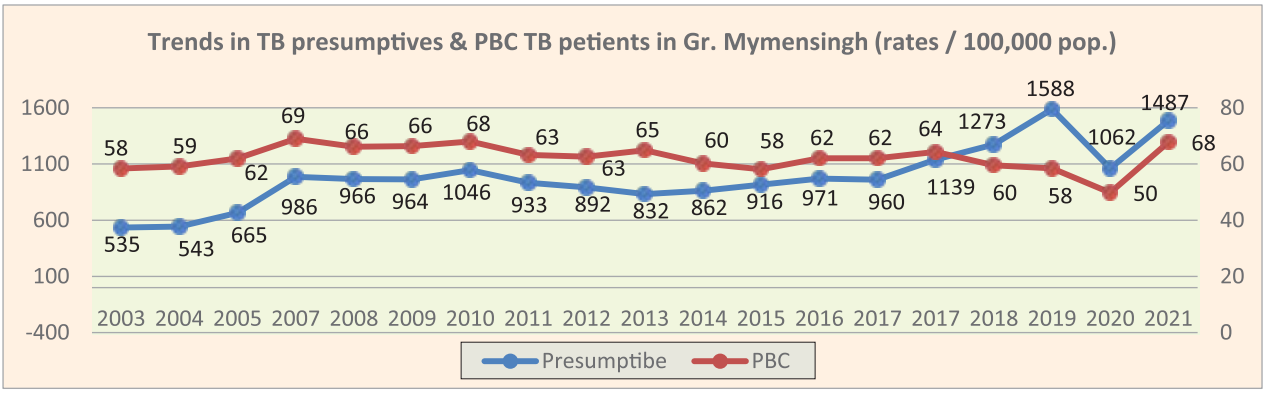
Graph 4: DF region wise trends in TB presumptive per 100,000 populations



Graph 5 - 7: Trends in presumptive and new PBC TB patients per 100,000 populations in 3 different DF working regions





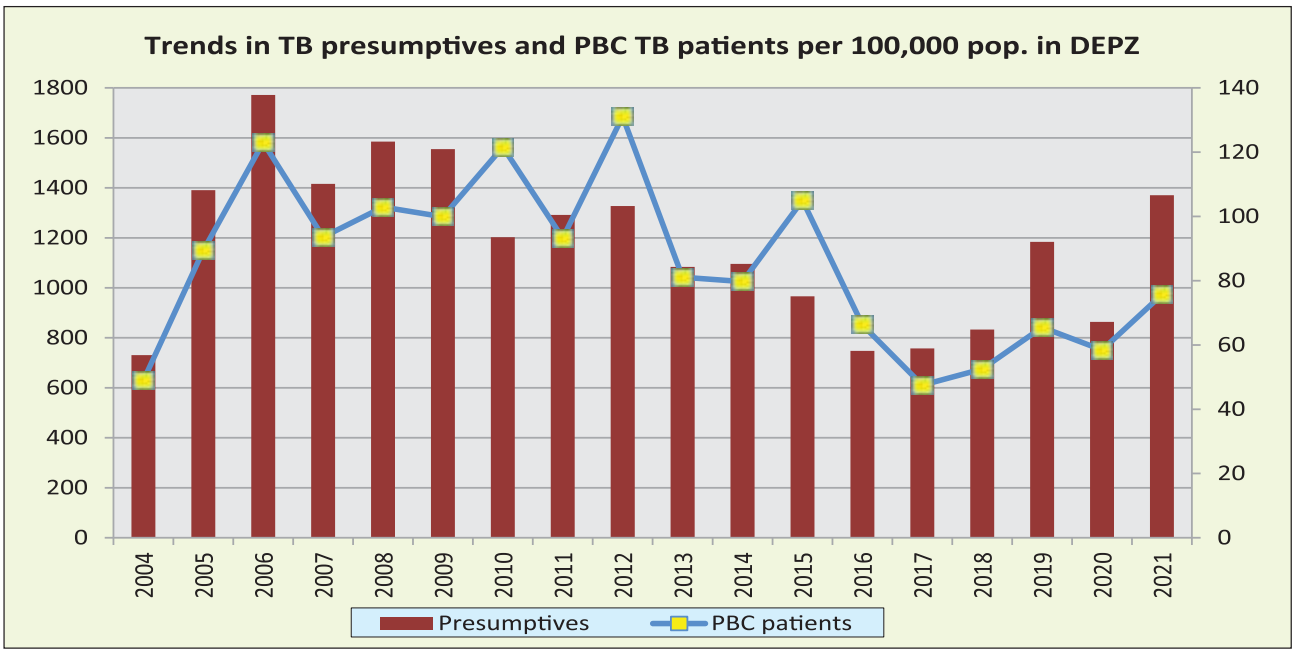


Taking into account the good quality of microscopy services along with expansion of GeneXpert machines up to upazila levels in the project area and standardized screening system of presumptive, it could be concluded that TB is not equally distributed all over the country. The WHO thus recommends use of notification trends to assess performances of TB control Programs and does no longer recommend using national estimates for the sub-national level.

2.2 TB control activities in workplace (Dhaka Export Processing Zone)

There has been a rapid urbanization trend in Bangladesh leading to the development of several factories in urban and peri urban areas both in organized and non-organized ways. Poor people from rural areas migrate to work in those factories where the working condition is often unhealthy with overcrowding and poor ventilation. These poor workers are often paid low and several workers also share a small room for their living. Such living and working conditions are the most favourable environment for easy transmission of highly communicable tuberculosis disease. Considering the situation DF started TB control activities in 2004 in Dhaka Export Processing Zone (DEPZ), a government-controlled workplace, located near Dhaka where more than 100,000 workers are engaged in processing export goods and most of them are young female workers. Since the start of the Program in DEPZ, DF has observed a higher TB incidence among the workers compared to the general population. The female ratio among detected TB patients in this workplace is almost three times compared to the general population. The graphs below show the trends in presumptive and TB patients per 100,000 workers:

Graph 8: Trends in presumptive TB patients and new PBC TB patients per 100,000 population in DEPZ

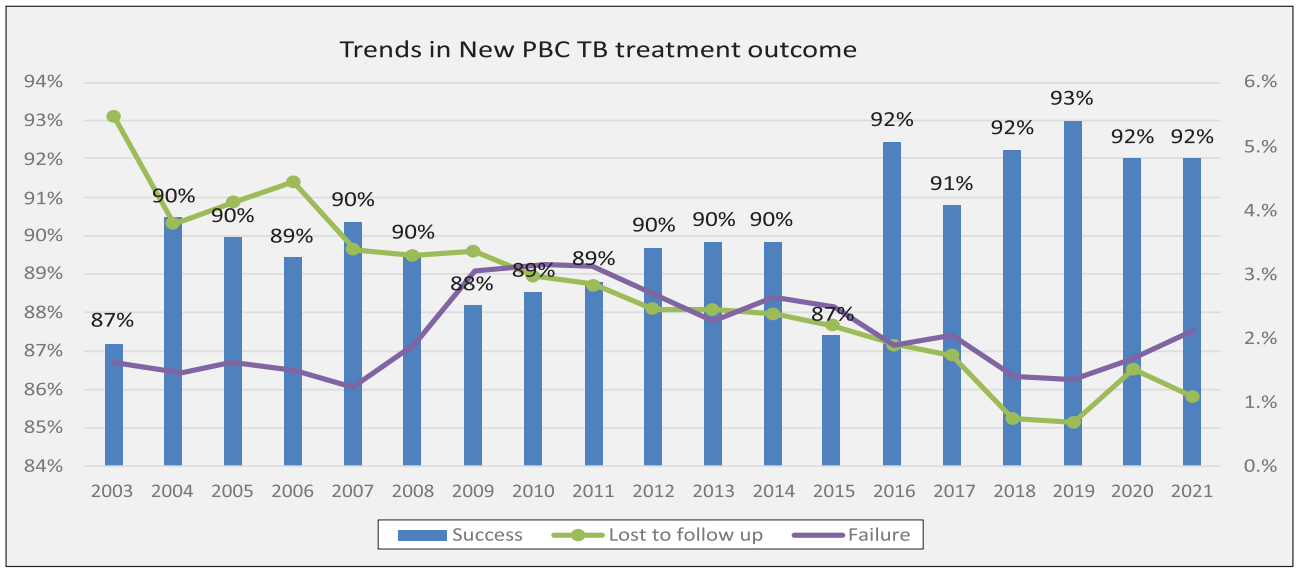


Considering the growing expansion of industrial factories, DF planned to strengthen TB activities in newly industrialized DF border districts involving the private sector. Situation analysis involving the workers who got admitted in DF hospitals indicated their unawareness about the availability of TB services near their workplaces. As a result, they first seek care from private pharmacies and return home when they do not improve. In order to increase

awareness on TB among factory workers and the factory owners and managers, DF organized orientation and advocacy sessions for them. Moreover, DF also organized outreach sputum collection centres near the factories and improved the record keeping & reporting at existing TB clinics in industrial areas for the factory workers. As a result, in 2021 a total of 1036 TB patients were diagnosed among workers of different factories in DF area and put them on treatment. It has been observed that the notification rates are higher among these worker populations compared to the general population.

The TB treatment success rate has been maintained above 85% since 1995 and 90% or above since 2003 with a low rate in unfavorable outcomes (death at around 4% or less, lost to follow up at around 1%). Treatment success rate for PBC cases reported in 2021 (registered in 2020) was 92% and for all cases it was 91%. The graph below shows the trends in TB treatment success, lost to follow up and failure rates for PBC TB cases since 2003.

Graph 9: Treatment outcome in new PBC patients since 2003



2.3 Tuberculosis in children:

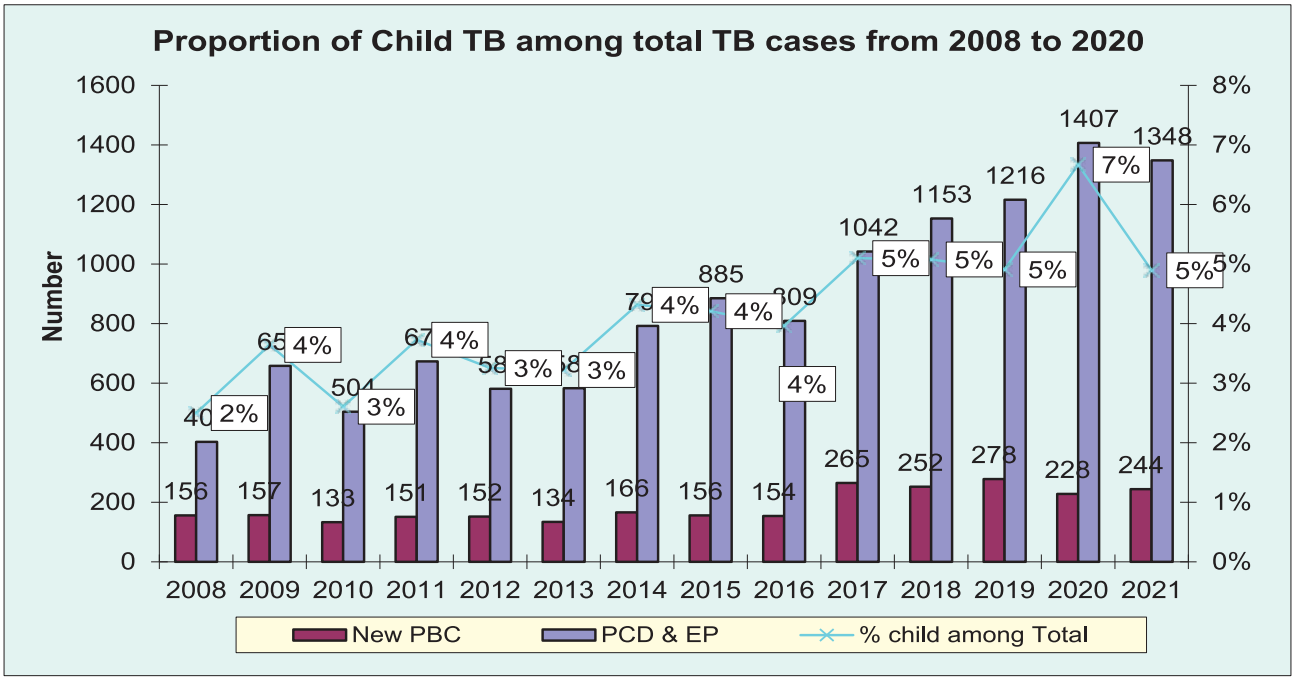
Child TB diagnosis is a global concern given the continued under-detection of TB among the child population. Children remain the most vulnerable in contracting TB from adults. Diagnosis of TB in children remains very challenging, especially in Bangladesh where there are inadequate diagnostic facilities and specialists for detecting Child TB patients. Presentation of symptoms of childhood TB is different compared to adult TB. Young children cannot produce good sputum. Microscopy of sputum smear often cannot detect the bacilli as the number of bacilli is few in the sputum of children.

Estimating the incidence of TB among children is difficult and the published estimates vary[4/5]. The study conducted in one DF upazila during 2009 in collaboration with ICDDR, B showed a child TB prevalence of 52 per 100,000 children. This study seems to have provided important evidence on under-detection of child TB patients in Bangladesh which helped the NTP Bangladesh to adopt strategies to increase child TB patients throughout the country. In order to improve child TB case detection, the Damien Foundation in collaboration with the Centre for Women and Child Health (CWCH) conducted a study to evaluate the effectiveness of algorithm for detection of child TB and effectiveness of community awareness in enhancing diagnosis of child TB which also support the above findings[6]. An increase in child TB detection in the study clinics was also observed.

Efforts at improving diagnosis of TB among children were continued in 2021 through coordinating with government doctors on diagnosis of childhood TB. A total of 99 doctors were oriented through 05 sessions in 2021. The proportion of child TB detection has been remaining more in DF area for the last few years compare to national average. In 2021 around 5% of the total TB cases in DF area were children, this is highest in Bangladesh but this is lower than last year (7%). The reason may be people were more concerned about the diseases of their children than in adults the during COVID-19 pandemic situation where access to general treatment services were limited, so, there were more child TB cases in 2020. However, overall increasing trend in absolute number of child TB cases has been observed since 2008. The graph below shows the year wise proportion of child TB patients diagnosed in the DF project area since 2008.

[4] Epidemiology and disease burden of tuberculosis in children: a global perspective. Infect Drug Resist, 7:153–65, null 2014.
[5] World Health Organization. Global tuberculosis report 2014. World Health Organization, Geneva; 2014. (WHO/HTM/TB/2014.08).
[6] Intervention to increase detection of childhood tuberculosis in Bangladesh; INT J TUBERC LUNG DIS 16(1):70–75

Graph 10: Child TB detection from 2008 to 2020 in DF working areas



Chemoprophylaxis using Isoniazid tablet (initially 5 mg per kg body weight, later on changed to 10 mg per kg body weight) for 6 months is being recommended for children aged below 5 years not suffering from TB who are close contacts of a Pulmonary Bacteriologically Confirmed (PBC) TB patient. The Isoniazid Preventive Therapy (IPT) prevents two severe forms of TB in children, namely milliary TB and TB meningitis. A total of 50,088 children received chemoprophylaxis during the last 11 years, of which 5502 in 2021. Enrollment rate of children under chemoprophylaxis was around 93% in 2021 among those eligible for IPT while completion rate among children enrolled during 2020 was around 90%.

2.4 TB in prisoners and other vulnerable groups

It was found from several surveys that the prevalence of TB is higher in prison compared to the general population. The reason of this higher prevalence is due to the fast spread of TB in poorly ventilated, densely crowded living conditions in the prisons. Prisoners often have limited access to the health care services and the health care service providers also have limited access to the prisons as the prisons are restricted places. For this reason, very little is known about the severity of TB in the prisons of Bangladesh. The foundation in collaboration with the NTP Bangladesh organized a survey in the 4 jails of Rajshahi, Naogaon, Nawabganj and Tangail districts in 2003. The findings were that the TB prevalence in the surveyed jails is 152/100,000 population compared to 79.4/100,000 population among the general population. Since then, DF has established a referral linkage with the local jail authorities and health personnel. DF staffs are informed if TB presumptive are identified among the prisoners and sputum samples are collected by prison health staff. DF staffs regularly visit the prisons to collect sputum samples. During 2021, out of total 12 prisons in DF working area only 03 reported 25 TB patients where 24 pulmonary bacteriologically confirmed and 01 pulmonary clinically diagnosed TB patients were detected and treated. The prison health staffs are engaged in providing DOT inside the prison and DF staff is informed when a prisoner is released for further arrangement of treatment engaging a DOT provider from the resident upazila. It is to be mentioned here that there were restrictions in most of the prisons due to COVID-19 situation and the DF TB staff did not have access to those prisons. However, TB services continued through referral of presumptive or transportation of sputum sample to respective DF clinics by prison staff.

2.5 TB HIV co-infection

TB remains the most common opportunistic infection among HIV-infected people in high TB burden countries like Bangladesh. TB-HIV co-infection leads to rapid progression to TB disease and earlier deaths. Fortunately, HIV prevalence among the Bangladeshi adult population and TB patients is still low (<0.1%) but there are risk factors existing in the society for which HIV can spread and increase at any time. The prevalence is higher in high-risk groups such as intravenous drug users located in some hot spots (in 23 districts). Up to 2021, HIV testing services were limited to those district spots only and DF has been referring TB patients with high-risk behavior (if any) to the available nearest HIV Counseling and testing centres. In 2021, it was decided to cover other areas also but till the end of 2021 testing was not possible to start which, hopefully, will be started from the beginning of 2022.

2.6 MDR/RR – TB

Since 1997 DF started to treat MDR-TB patients using a succession of standardized regimens under operational research conditions, which led to the identification of a highly effective, safe, short and relatively cheap regimen initially resulting in close to 90% cure with minimal bacteriological failure or relapse, and without amplification of second-line drug resistance. Treatment success has been maintained at above 85% during recent years because of earlier detection of fluoroquinolones resistance through slide DST and enrolling them on appropriate treatment though the potent fluoroquinolone (gatifloxacin) had to be replaced by a weaker one (levofloxacin) because of its unavailability in the market.

DF has developed locally appropriate, low-cost, simple and safe laboratory screening and drug susceptibility testing methods (FDA vital staining; slide DST) which has led to an increasingly early screening, diagnosis and treatment of such patients. Currently, GeneXpert technology is used in detecting RR TB cases and slide DST for detecting levofloxacin resistance among RR TB cases.

This "Bangladesh MDR regimen" was tested by The Union through a clinical trial named STREAM (Standardized Treatment Regimen of anti-Tuberculosis Drugs for patients with MDR TB), a randomized controlled clinical trial, in South Africa, Vietnam, Mongolia and Ethiopia. This regimen was also formally evaluated in two trials, one in 9 francophone African countries. In the Union STREAM stage 2, two new regimens were included with stage 1: one of them is a 40-week regimen with bedaquiline, clofazimine, ethambutol, levofloxacin & pyrazinamide supplemented by isoniazid and prothionamide for the first 16 weeks and the other is 28-week regimen with bedaquiline, clofazimine, levofloxacin & pyrazinamide supplemented by isoniazid & kanamycin for the first 8 weeks[7]. Following an expert review of available observational study findings on shorter regimens, the WHO updated it's guideline[8] in 2019 including the shorter regimen for use under certain programmatic conditions.

Observing the excellent results obtained by DF Bangladesh and following the WHO endorsement, several countries including NTP Bangladesh adopted and expanded this short course regimen. NTP Bangladesh adopted and started expansion of this regimen throughout the country in 2018 using moxifloxacin as the core drug and continued strengthening the services for MDR TB patients. In the meantime, WHO recommended an oral shorter regimen which is basically similar to that of DF innovated 9-month shorter regimen where injectable has been replaced by the new oral drug "bedaquiline". In 2021, NTP started the expansion of the Shorter Oral treatment Regimen (SOTR) in Bangladesh. Following the NTP guideline, DF enrolled 328 MDR/DR TB patients in 2021.

2.7 Infection Control (IC) for tuberculosis

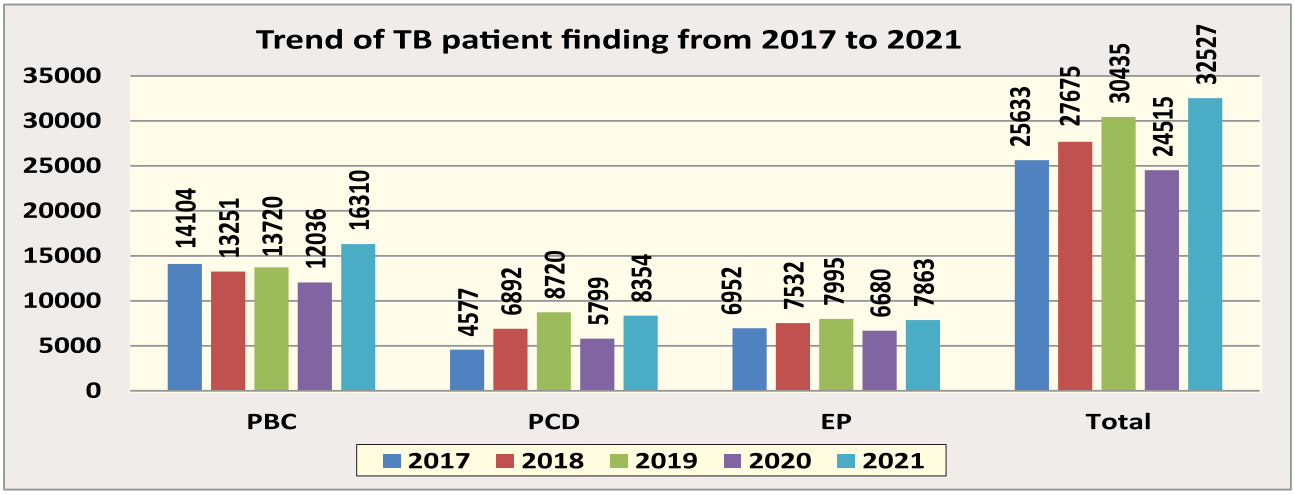
Infection Control (IC) aiming at protecting healthy people from the sick remains an important step in the TB control Program especially when M/XDR TB is posing threat to the achievements made so far in this disease Program. Moreover, strengthening the IPC has become more important due to the COVID-19 pandemic situation, not only protecting the healthy people and staff but also TB patients from COVID-19. Infection control measures were established in DF hospitals since its inception through ensuring separate rooms for MDR TB patients from non-MDR TB patients, smear positives from smear negatives and Extra-pulmonary TB patients. Adequate ventilation and fresh air circulation in hospital ward rooms (removing the TB droplet containing air) have been ensured in all the DF hospitals through keeping the doors and windows open and installing adequate ceiling fans. Health education among hospitalized patients on safe sputum collection (in 2-5% phenol solution containing buckets), cough hygiene and cough etiquette are being continued routinely. Surgical masks are routinely supplied to all hospitalized patients in DF and Rajshahi Chest disease hospitals and their regular use and cleaning have been ensured by the nurses. In the clinics, the infection control measures have been ensured through arranging the different assets (cupboard, tables, chairs etc.) and through modifying the sitting arrangements taking the airflow into account. Due to the COVID-19 pandemic situation in 2020, the infection control measures have been further strengthened by developing specific guidelines; orienting all staff on infection control; changing sitting arrangements for staff, presumptive and patient for maintaining social distancing; providing more protective materials like masks, sanitizer, gloves, protective googles, gown, soap etc. for each clinic and hospital. Also modified the arrangement of TB-leprosy community level activities by maintaining preventive and protective measures and social distancing. Practice of ensuring infection control measures have already been incorporated in routine supervision visit checklist, however, virtual monitoring system was also added during the COVID-19 pandemic to strengthen the monitoring of infection control status. Moreover, sample survey was conducted among staff and patients of each clinic during monitoring visit of project supervisors to assess their knowledge level on infection control. The result of 2021 survey shows that around 93% of staff and 92% of patients are aware of infection control, meaning that they have satisfactory level of knowledge on the subject according to their practical needs of prevention and protection from infection.

[7] Accessed online at: http://www.newtbdrugs.org/pipeline/trials/stream-trial-stage-2
[8] Available at: https://www.who.int/tb/publications/2019/consolidated-guidelines-drug-resistant-TB-treatment/en/

2.8 Continuing special efforts for finding missing TB patients:

The latest Global TB Report 2020 (WHO)[9] shows that there are about 19% missing TB patients in Bangladesh although there is no clear picture about volume of local/district level missing patients as the prevalence survey did not show any local level prevalence. In 2020, although during the 2nd quarter case finding was seriously affected by COVID-19 pandemic, Damien Foundation Bangladesh continued to finding missing TB patients actively in DF area in subsequent quarters through micro planning and strengthening contact tracing and emphasizing house to house visit to avoid gathering. The Micro-planning initiative was first designed and implemented in last two quarters of 2017 by analyzing the information of recent TB prevalence survey 2015-2016 in Bangladesh. The prevalence survey indicates that more use Gene Xpert and digital X-Ray technology can be helpful for finding out missing TB patients. Accordingly, all projects of DF Bangladesh prepared their own plan up to upazila & union level to find out the missing presumptive TB patients, bring them to microscopy, GeneXpert, X-Ray and other tests with the help of GFATM supported social/diagnostic support activities. Due to continuation of this special effort detection TB patients increased for three years from 2017 to 2019 and then there is sudden fall in 2020 due to COVID-19 pandemic but again increased in 2021. There has been overall increasing trend during the aforementioned period. From 2017 to 2019 the increase of TB cases was mainly due to increase of pulmonary clinically diagnosed (PCD) and Extra-Pulmonary (EP) cases while Pulmonary Bacteriologically Confirmed (PBC) TB cases were more or less static but in 2021, Pulmonary Bacteriologically Confirmed (PBC) TB cases were also increased which was mainly due to expansion of Gene Xpert machines. The following graph shows the comparison of TB case finding from 2017 to 2021

Graph 11: The following graph shows the trend of TB case finding from 2017 to 2021



3. Leprosy

Following the achievement of the elimination status[10] in 1998 at national level, leprosy has no longer been considered as a major public health problem in Bangladesh. Since then, the interest in leprosy by health care providers decreased significantly resulting in a sharp decline in leprosy case detection in the country, e.g. a decrease of about 72% in 2021 (2746 patients) compared to 2002 (9844 patients). It is to be mentioned here that there was less leprosy case finding in 2020 and 2021 compared to previous year because of COVID-19 pandemic situation.

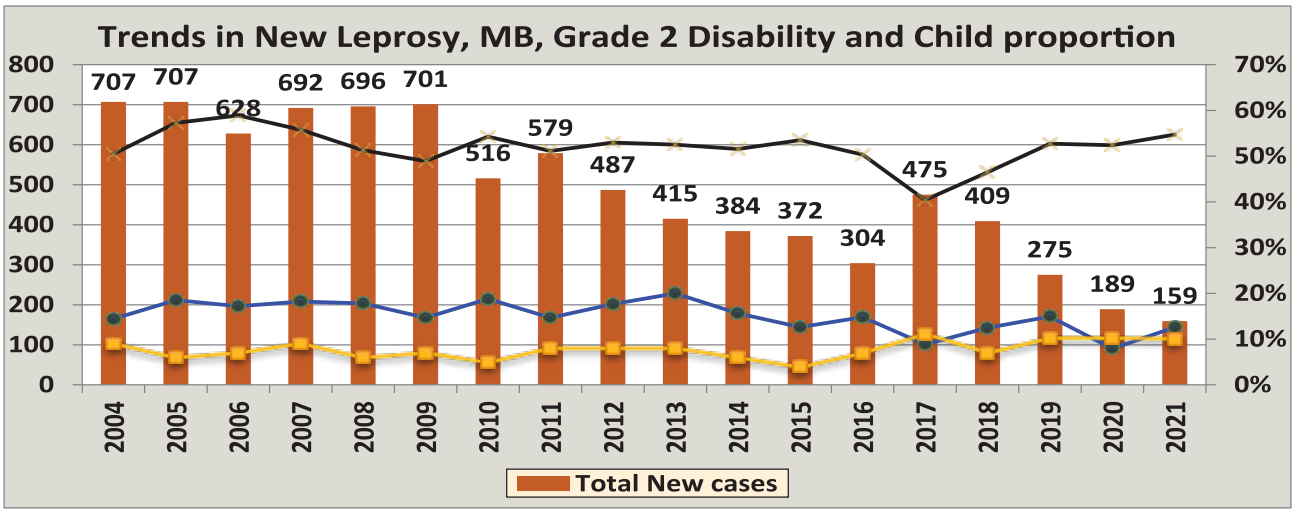
Despite the elimination status, Bangladesh remains one of the countries worldwide detecting >2500 new leprosy patients annually. About 40% of the geographical area in Bangladesh is covered by leprosy NGOs whereas the government provides services for the remaining 60%. It has been observed that among the total new patients detected in Bangladesh more than 70% patients are detected in the NGO-covered area. It thus seems that there is a serious under-detection in the area covered by the government.

A total of 159 new leprosy patients were detected in 2021 in the DF area, out of which around 55% were MB leprosy and 22% of MB patients were skin smear positive. There is little increase of proportion of MB cases with skin smear positive in 2021 compared to 2020 (19%) indicating that COVID-19 pandemic situation might cause delay in leprosy case finding. The proportion of children among new patients was 10% in 2021 which is same as 2019 & 2020. Among all new leprosy patients 66 (42%) were female.

Overall disability G2D rate in 2021 in DF area was around 12.58%. This rate of G2D is higher than 2020 (8%) but lower than 2019 (15%), however, it might not reflect the actual situation, because, due to COVID-19 situation movement of disabled people were less than others, therefore, less number of disabled people might have attended the clinic.

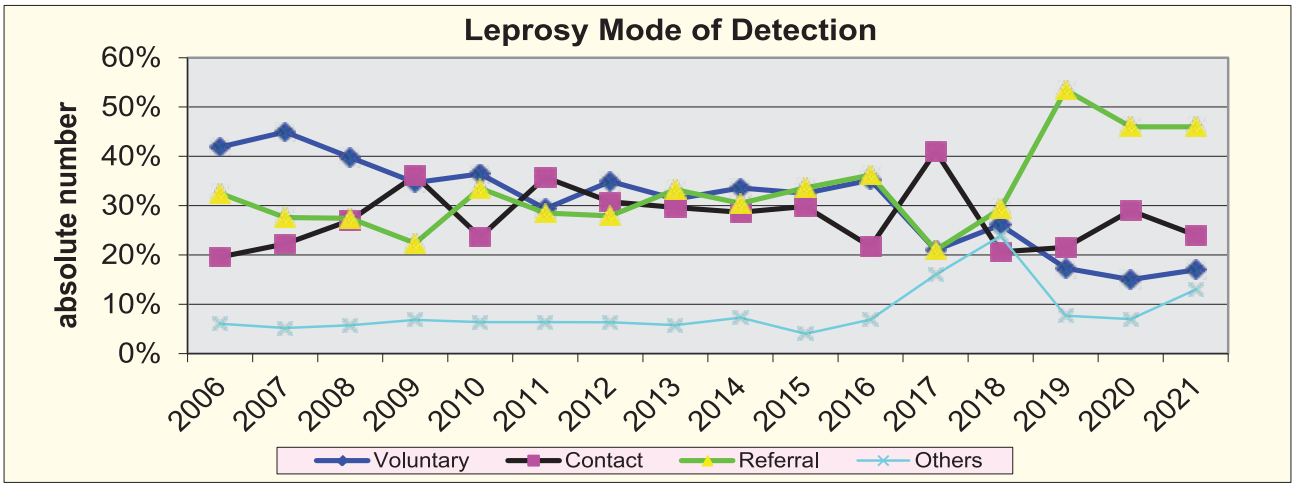
[9]Global TB Report 2020_WHO: TB profile (shinyapps.io);
[10]Defined as <1 prevalent case per 10.000 population.

Graph 12: New Leprosy Detection, Proportion of MB & disability grade 2 in DF Bangladesh, 2004 – 2021



COVID-19 pandemic had a negative impact on leprosy case finding, both on active and passive case finding. Due to rarity of the disease and low number of cases, contact checking (active case finding) remains an important part in sustaining leprosy case detection in situations where the leprosy endemicity is low. Sustaining the level of community awareness (indicating voluntary reporting) is also a difficult task in such low endemic situation. The graph below shows the trends in leprosy case reporting indicating the sources.

Graph 13: Trends in leprosy mode of case detection in DF Bangladesh projects



High treatment completion rate >90% has been maintained for both PB and MB leprosy patients in DF Bangladesh project during the last several years. This rate for PB was 97% who registered in 2020 and for MB also 97% who registered in 2019.

However, the high proportion (55%) of multi-bacillary infectious patients among the newly detected Leprosy patients, higher (10%) child proportion and high (12.58%) grade-2 disability indicates the late diagnosis and continued spread of diseases in the community. This situation along with the need of lifelong care for deformed leprosy patients indicates the importance for the DF project of continuous and intensified support and care for the leprosy component.

3.1 Care of Leprosy patients (Prevention of Disabilities - POD)

Leprosy, being a disabling neurological disease, leaves affected persons with permanent disabilities if not detected early and treated properly. Disabilities and deformities require lifelong care to prevent further deformities and disabilities. Hence prevention and care of deformities and disabilities are the most important aspects of leprosy management. This could be achieved by early diagnosis and judicious treatment both of the disease and of any reaction/neuritis that occurs. Every step is taken to prevent further development of new disabilities through routine follow-up, early diagnosis and prompt management of nerve-function-impairment (NFI), supply of protective foot-wears, teaching on self-care etc.

The main objective of POD activities is: minimum additional disability apart from that which was present at diagnosis through teaching patients with disabilities on self-care and through providing protective foot-wears & ulcer cares. Since the

beginning (1972), DF has been providing passive care to limit further disability and deformity by asking them to report voluntarily for any problem after completion of MDT. Additionally, from the year 2008 to 2017, DF took the special initiative for prevention of disability and deformity by active surveillance of all patients whether new or completed MDT by means of observing 'POD DAY' in every clinic once a year. The main objectives of POD DAY were to promote self-care by the patients and to optimize the skills of all field staff to limit the disability due to leprosy. To organize a successful POD Day, all clinic staffs were informed for their presence in the clinic about the Pre-POD visit by the physio-technician (PT), visit by PT one month prior to the POD Day. This POD Days has now been transformed into regular POD visits by Physio Technicians and MOs. For POD visit to a clinic, the clinic staff including the TLCO are informed so that they can make a good planning arranging effective POD activities including the listing of patients under care and to inform them, checking the stock of POD materials, prepare list of patients for reconstructive surgery and other supports needed. TLCAs also gain more confidence and improve their skill on patient management through this POD activity.

General counseling on self-care to limit further disability through Peer Education by the selective patient is performed on the POD Day. Individuals are taught on self-care, ulcer care and active & passive exercises. Protective footwear is distributed based on needs of patients. Since 2017, the POD Day has been integrated in the regular field visit program of the physio-technician, where leprosy patients are informed to attend the clinic on the day of physio-technician's visit to the clinic. The clinic staff and physio-technician jointly provide necessary support services to the patients who attend the clinic. For the care of patients having anesthetic feet, a total of 1321 pairs of MCR shoes were supplied during 2021.

During the year 2021, a total of 226 leprosy patients were hospitalized for the management of different types of complications in the three DF hospitals, 73% of them were hospitalized for ulcer management and for special type of shoes. Around 16% of the admitted leprosy patients had reaction/neuritis and 11% other complications.

4. DF Reference laboratory and Quality Control of laboratories

The Damien Foundation culture laboratory located at Netrakona started L-J culture in 2002 under close supervision of the mycobacteriology laboratory of Institute of Tropical Medicine (ITM), Antwerp, Belgium. As a rapid tool, FDA staining was used as the screening tool for identification of MDR TB presumptive patients and slide culture DST (which gives results in 2 weeks) for detection of MDR TB. This laboratory procedure (slide DST) requires very minimal equipment and infra-structure which was also established in other project laboratories afterwards. Later on, since 2012, the game changer revolutionary technology, Gene Xpert machine was made available in all DF hospital-based laboratories. This technology can detect the presence of MTB in sputum specimen and the presence of rifampicin resistance only in about 2 hours. Since then, GeneXpert has been used as a screening tool for detection of rifampicin resistance and FDA staining was phased out. Slide DST has been used for GeneXpert RR samples to detect SLD resistance. L-J culture DST has been performed if X-pert MTB/RIF test shows RR and for routine monitoring of MDR TB treatment and other extensive DST for diagnosis of pre/XDR TB in DF area. This Netrakona lab (NKLab) has been serving at the central role for laboratory aspects of all researches in Damien Foundation in Bangladesh.

DF DST Lab at Netrakona

Netrakona laboratory provides technical supports to the DF project laboratories located at the project offices and the project laboratories provide support to all field laboratories located at the district, sub-district and below levels. Sputum samples from all previously treated (for at least 1 month) cases including non-converters and failure cases and contacts of DR TB cases are first tested using GeneXpert technology to detect rifampicin resistant (RR) cases. RR cases detected through GeneXpert are then referred to DF hospitals for slide DST for 2nd line drugs (mainly levofloxacin) and for enrollment on DR TB regimen. Slide DST (mainly for levofloxacin) is routinely performed besides L-J culture DST for all sputum samples collected from all RR TB patients at start of treatment and the initial strains are also routinely sent to the Antwerp lab for first- and second- line DST through Netrakona lab. All follow up sputum samples during treatment of DR TB are also sent to NKLab for solid culture and DST if found culture positive.

Quality Assurance (QA) system for all other laboratories of DFBD has been developed through a regular monitoring mechanism by this DF- Reference lab at Netrakona, which is working with the full technical support of SRL, Antwerp, Belgium. Netrakona lab is also providing full assistance for DF clinical and lab related researches, e.g currently supporting the lab aspects of MDR TB management. Different trainings on (LED) microscopy as well as on slide-DST and Liquid-DST (LJ-DST) are performed in Netrakona.

Primary culture on LJ medium and conventional phenotypic LJ-DST is done in Netrakona lab. Strains isolated on LJ culture at Netrakona culture lab are regularly sent to Antwerp supra-national reference lab (SRL) for quality control of culture and DST of this lab.

For 2021, Reference laboratory processed 2096 primary culture and 135 LJ-DST, 26 slide DST and 955 Xpert test. Netrakona lab also sent one strain for each MDR patients before the treatment start of MDR/Pre-XDR and also NTM strains those are asked by ITM. LJ- DST in Netrakona is done only for Rifampicin, kanamycin and Levofloxacin that is rewarding for the DF projects to find out Pre-XDR and XDR TB cases earlier.

DF Netrakona Lab. has been participating in the quality assurance programme for DST of MTB in the network of supra-national laboratories (SRL) since long (rounds of proficiency testing) and has successfully demonstrated acceptable performance. During the last round (round 25) of proficiency testing, this lab demonstrated acceptable proficiency for rifampicin genotypic, rifampicin, isoniazid and amikacin phenotypic DST.

Netrakona lab has also been serving as the external quality assessment site of skin smears from leprosy patients examined at the DF project laboratories. All the DF project laboratories serve as the first control of all DF field laboratories for EQA of sputum smears. The Netrakona lab served as second control for EQA of sputum smears for several years and later on the 2nd control has been shifted to Tangail project lab as a step of decentralization with capacity development.

5. HOSPITAL ACTIVITIES

Besides 160 field clinics, DF also runs three hospitals with a bed capacity of 255 to take care of complicated leprosy and TB including MDR TB patients for about 33 million population in DF area in Bangladesh. These hospitals are situated in Jalchatra - Madhupur, Raghurampur – Shambhuganj and Anantapur (Baluakanda) under Tangail, Mymensingh and Netrakona districts respectively. During the year 2021 a total of 1101 patients (TB 872, Leprosy 226 and General 3) received care from DF hospitals. As the complicated patients and patients with very poor general conditions are normally referred to hospitals for intensive care, the death rate among hospitalized patients is likely to be higher than the patients treated ambulatory from the field clinics. But the death rate among hospitalized TB patients was lower (3.54%) compared to the overall death rate among all TB patients including those treated in the field (around 6% including all types) which indicates the high-quality services provided by DF hospitals or the timely referral. Overall bed occupancy in Jalchatra, Mymensingh and Netrakona hospitals was 35%, 23% and 28% respectively during 2021. The average bed occupancy rates per disease category and duration of stay in different DF hospitals are shown in the table below:

Table 2: Bed Occupancy and duration of stay

	TTLCP			MTLCP		NTLCP	
	Leprosy	TB	General	Leprosy	TB	Leprosy	TB
Subtotal	26%	38%	1%	28%	20%	22%	29%
Total	33%			23%		28%	
Duration of stay in days							
Average	35	26	6	32	31	24	20

Graph 14: Trends in hospital bed occupation

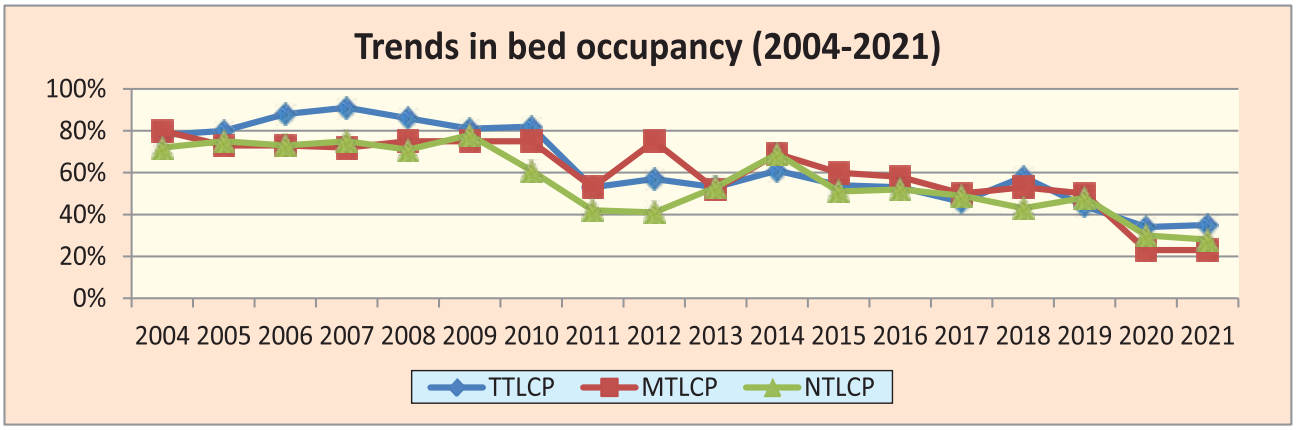


Table 3: Reasons of TB admission – 2021

Hospital	Complication	Poor general health	Drug reaction	MDR	Other	Total patient
TTLCP	103 (27%)	154 (40%)	64 (17%)	51 (13%)	13 (3%)	385
MTLCP	1 (1%)	35 (22%)	4 (2%)	115 (71%)	6 (4%)	161
NTLCP	102 (31%)	135 (41%)	62 (19%)	27 (8%)	0 (0%)	326
Total	206 (24%)	324 (37%)	130 (15%)	193 (22%)	19 (2%)	872

Table 4: Reasons of Leprosy Admission- 2021

Hospital	Reaction & neuritis	Ulcer	Eye complication	Reconstructive Surgery	Other	Total patient
TTLCP	14 (27%)	33 (65%)	0 (0%)	0 (0%)	4 (8%)	51
MTLCP	19 (16%)	86 (70%)	2 (2%)	0 (0%)	15 (12%)	122
NTLCP	4 (7%)	45 (85%)	2 (4%)	0 (0%)	2 (4%)	53
Total	37 (16%)	164 (73%)	4 (2%)	0 (0%)	21 (9%)	226

The organization runs an OPD for general patients from Jalchatra hospital (TTLCP) to serve the local community and ensures twenty-four hours emergency service for the general patients. During the year 2021, a total of 21,374 general patients came for consultations at the OPD and a total of 419 patients received emergency care, out of which 175 (42%) were out of office hour.

6. Advocacy Communication & Social Mobilization (ACSM)

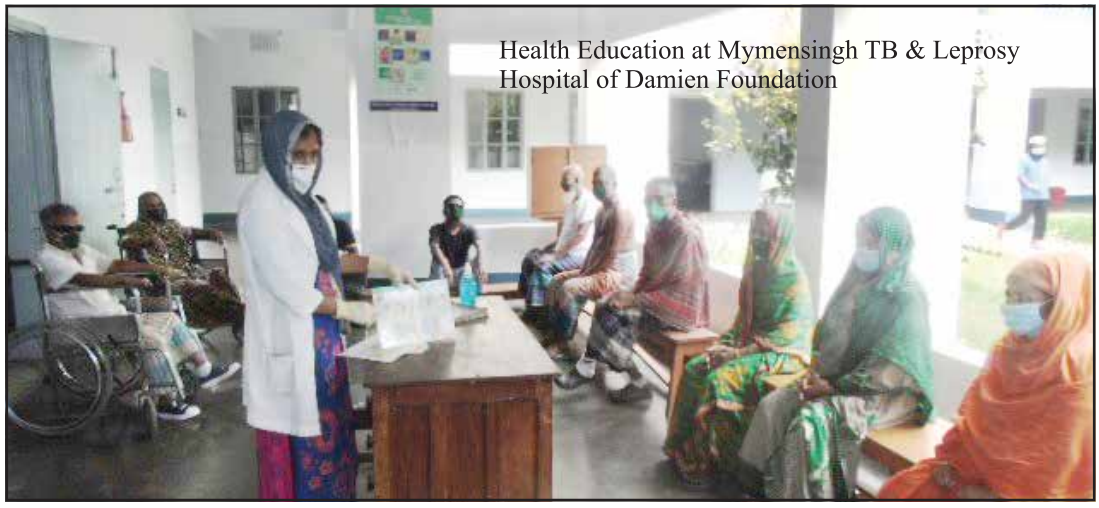
ACSM has been continuing from the period of MDG and Stop TB strategy to the SDG of End TB Strategy (up to 2035) as an important component of the TB control Program to address four key challenges like, improving case detection and treatment adherence, combating stigma and discrimination, empowering people affected by TB and mobilizing political commitment and resources for TB.

The objectives of ACSM are to increase awareness, bring about behavioral change, influence social norms, and expand community support in TB control Program those are important for sustaining community level support for TB activities. In line with the Global and National strategy the Damien Foundation Bangladesh (DF) is actively involved in disseminating TB & Leprosy related health messages through a variety of communication channels to improve and sustain

TB & Leprosy related safe behavior among the individual and community. These are as follows:

- Community & OPD health education
- Orientation of village doctors
- Meeting with cured TB patients/elites of the community (TB club meeting)
- Orientation of MO/GP
- Meeting/orientation with different NGO staff/Govt. health service providers
- Health Education in out-patient and indoor department of health service providing institutes
- Mobilization through miking at community/market places for and mobilization through house-to-house visits
- Patient to patient education for self-care
- Observance of World TB & Leprosy Day
- Dissemination of TB message through cable TV network
- Training and refresher course for own staff

Community-based health education



Health education at DF hospital

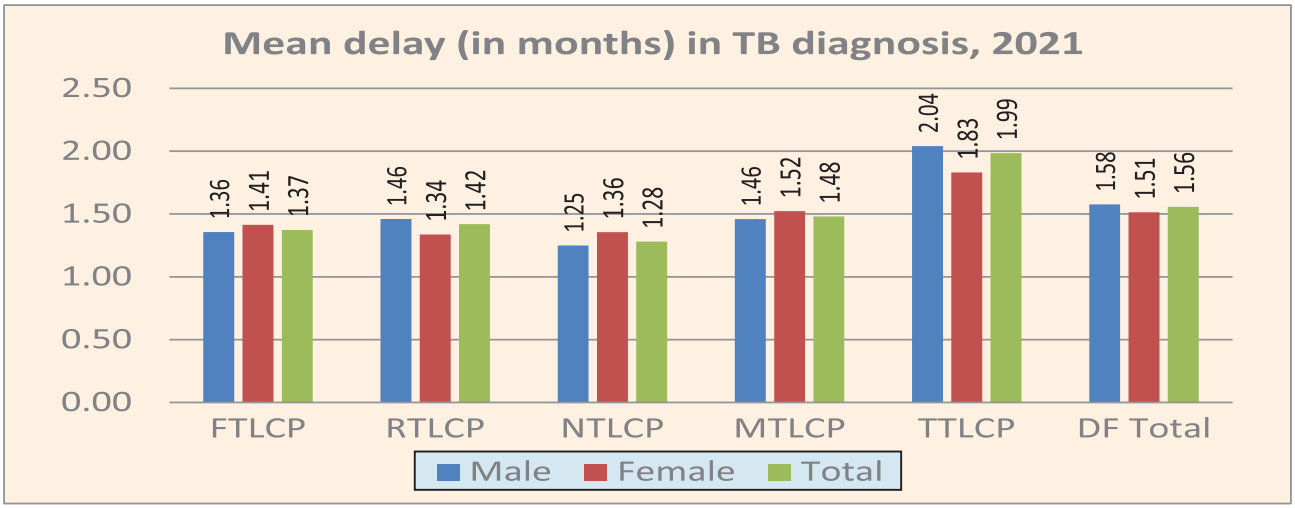
Table below shows ACSM activities in 2021 at a glance-

Training/Orientation and other ACSM activities conducted in 2021		
Activities	**Session Conducted**	**Participant Attended**
Training/Orientation/Refresher		
Training for Village Doctors, Pharmacy Holders (1 day)	20	500
Orientation for Medical Doctors (Public-Private)	05	99
Other ACSM Events		
Health Education session at community level	326037	1641970
Health Education in Out Patient Department (OPD) of Upazila Health Complex, Sadar Hospital, Medical College, Sub Center, Community Clinic	103043	1410841
Health Education session in Indoor of Upazila Health Complex, Sadar Hospital, Medical College	21312	305170
Health Education session in Damien Foundation clinic/treatment center	188011	639563
World TB and Leprosy Day celebration	Celebrated at National and local level: total 107 events in DF working area	

World TB Day and World Leprosy Day of this reporting year have been observed on 31 January 2021 and 24 March 2021 respectively. The days were observed in collaboration with local govt. health authorities. Due to 2nd wave of COVID-19 observance of these days were limited to standing rally, short meetings and display of banners at the Upazila Health Complexes.

The impact of several ACSM activities and dense network of services ultimately plays an important role in the promotion of TB service facilities in the community, which leads to early diagnosis. As a result, the main duration of diagnostic delay (patient delay plus health service delay) for TB is decreasing. The overall delay is continued at less than 2 months in all DF projects till 2021. The delay in case of females to total patients is almost similar as the delay for males.

Graph 15: Diagnosis delay in 2021 - project and gender wise



7. Engaging all care providers and community

7.1 Public-public and public-private mix approaches

Engaging all care providers through public-private mix (PPM) approaches is an important core component of TB Control Program. The engagement of all relevant healthcare providers is essential to meet the TB-related Sustainable Development Goals (SDGs) and reach the targets for TB Control Program.

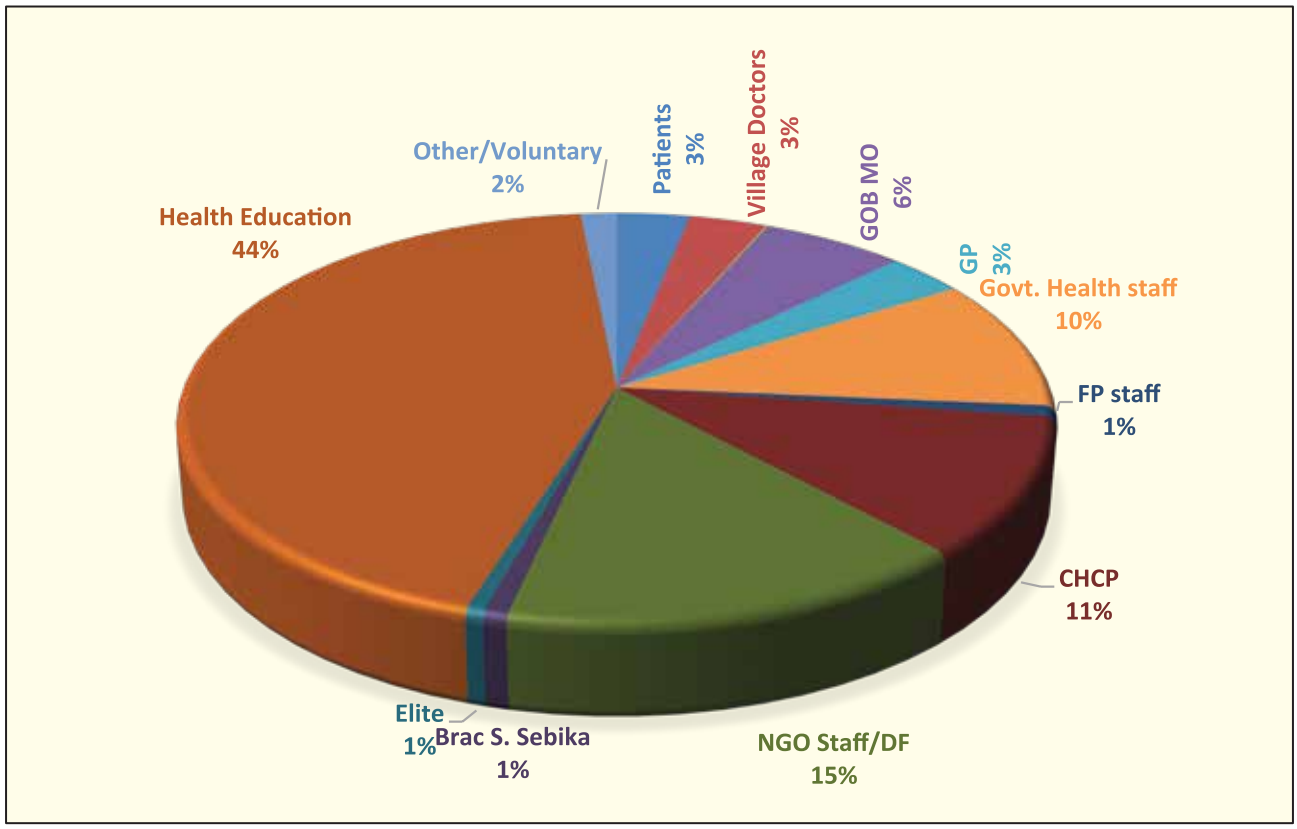
In the project area, Damien Foundation successfully involved all health institutions belonging to public sector health care networks, such as public hospitals, health care providing facilities at rural levels, medical college hospitals, prison health facilities and workplaces.

Besides, a large number of non-graduate private practitioners (village doctors), cured TB patients, graduate private medical practitioners, private hospitals and NGO health facilities were involved in referral of presumptive patients and providing DOT.

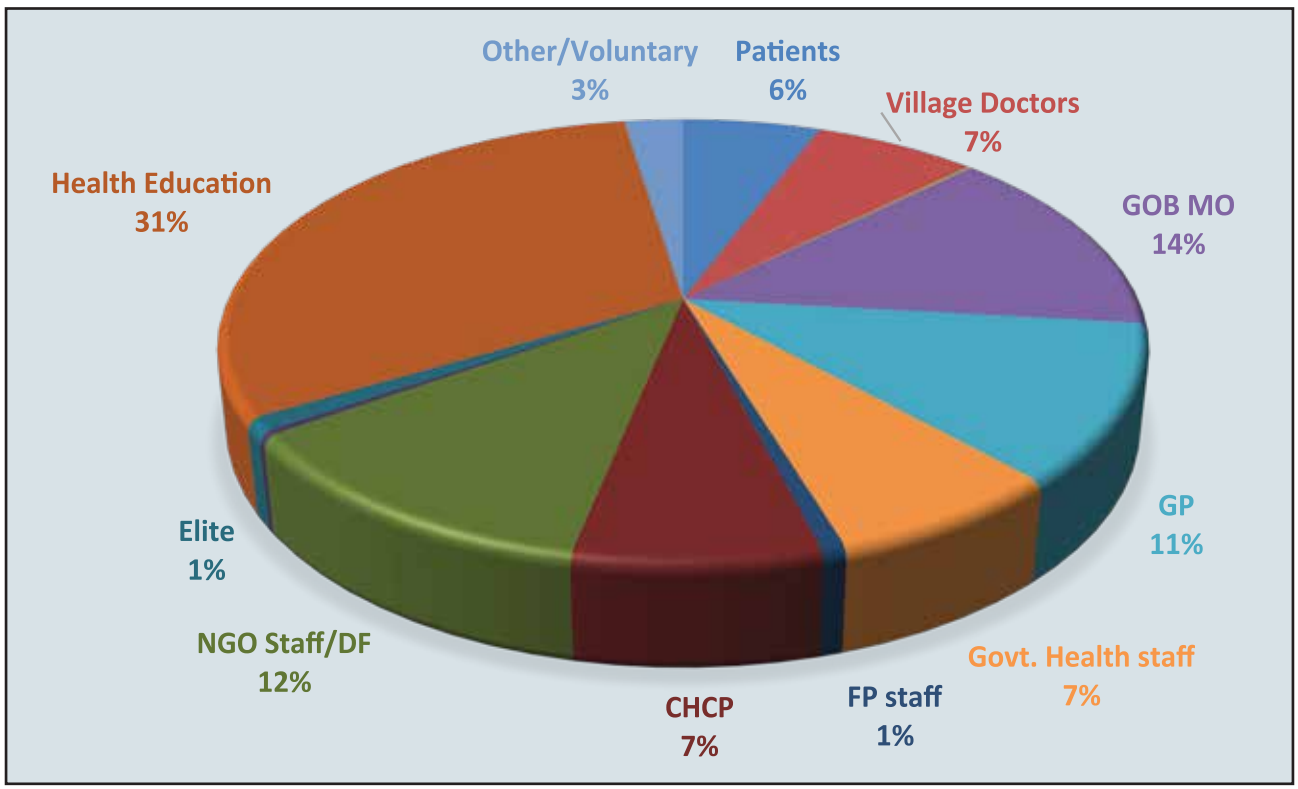
Medical Officer (MO) & General Practitioners' (GP) orientation at Mymensingh (above) and Faridpur (below)

Non-Graduate Private Practitioners' (Village Doctors) orientation in Rajshahi project (above) and in Faridpur project (below)

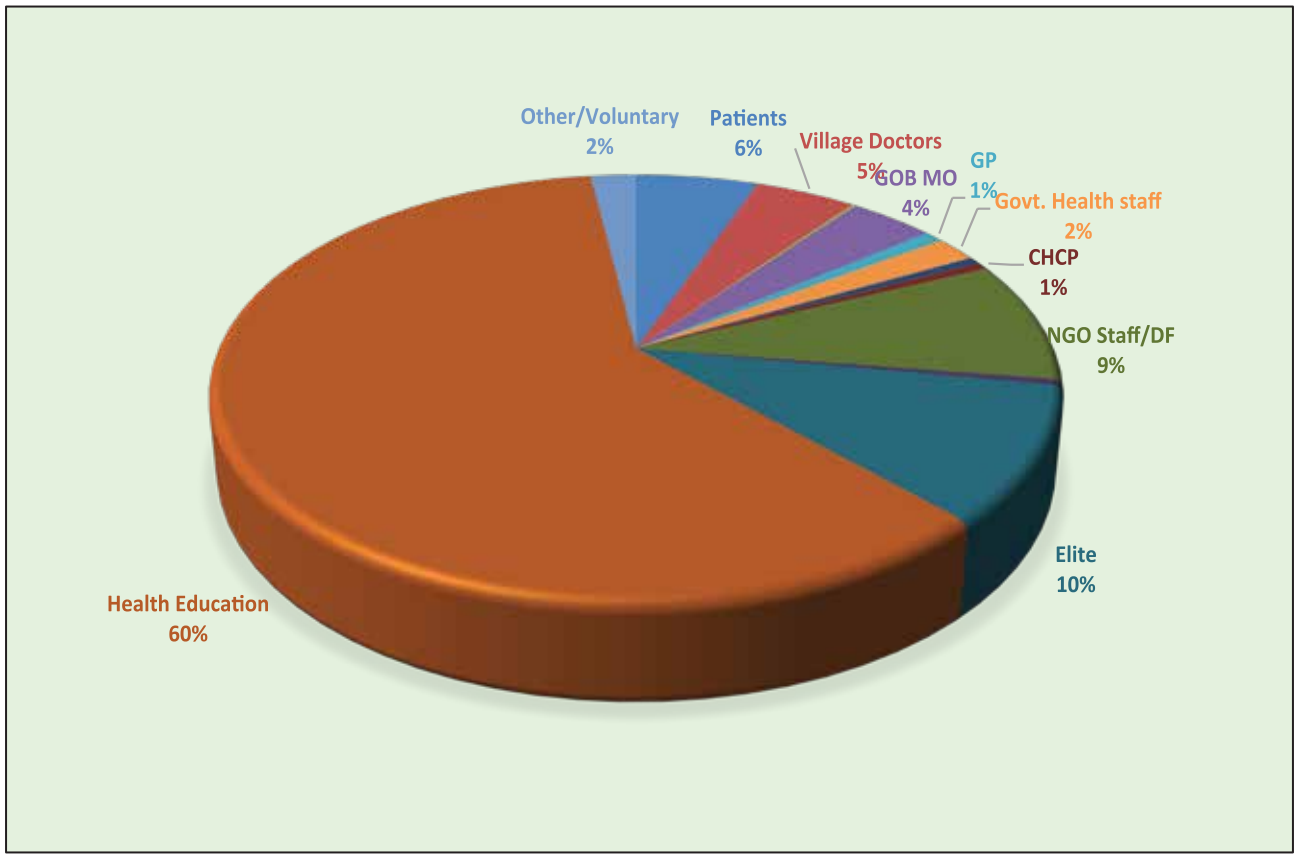
Graph 16: The graph below shows contribution to referral of presumptive and case detection by different providers and sources.



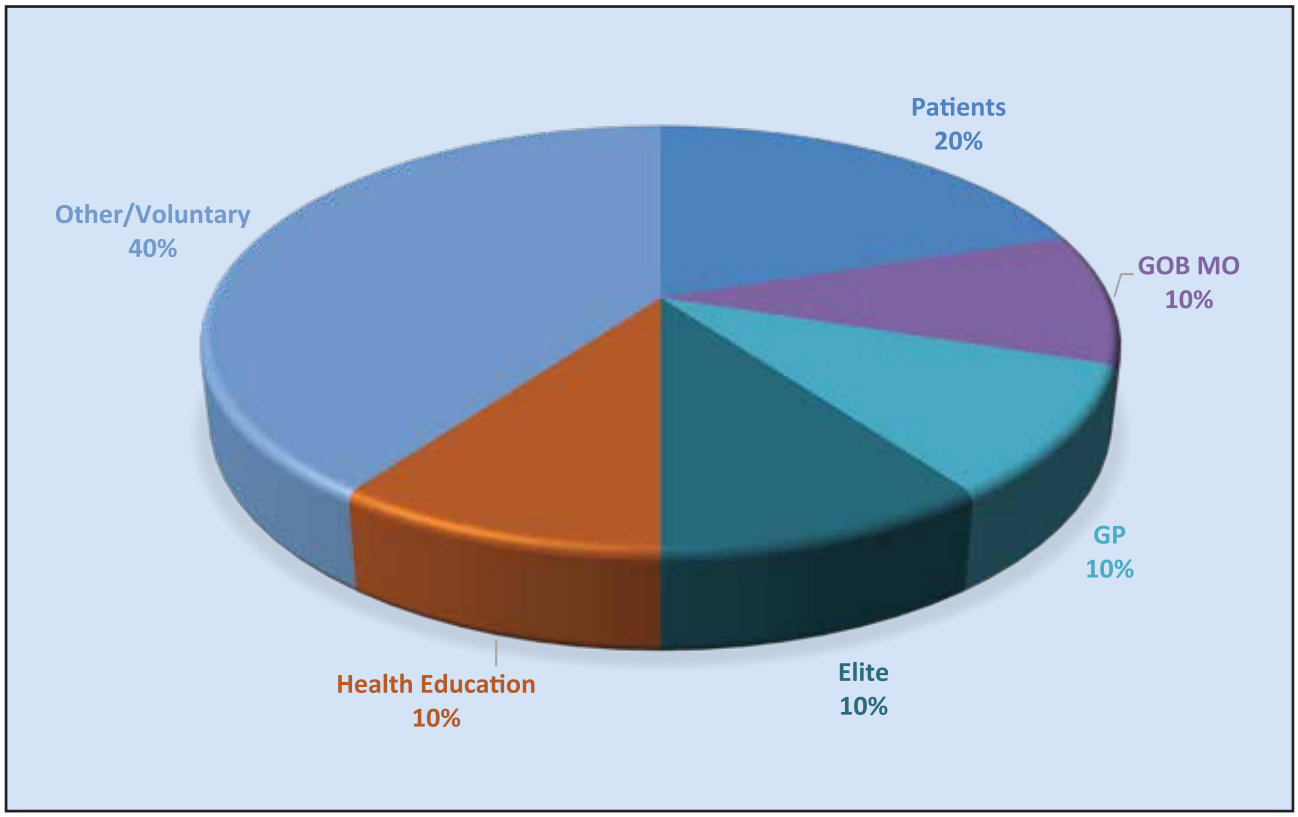
Graph 17: The graph below shows contribution to TB case detection by different providers and sources.



Graph 18: Mode of Leprosy Presumptive Referral in 2021



Graph 19: Mode of Leprosy Patients Detection in 2021



7.2 Partnership with the Village Doctors

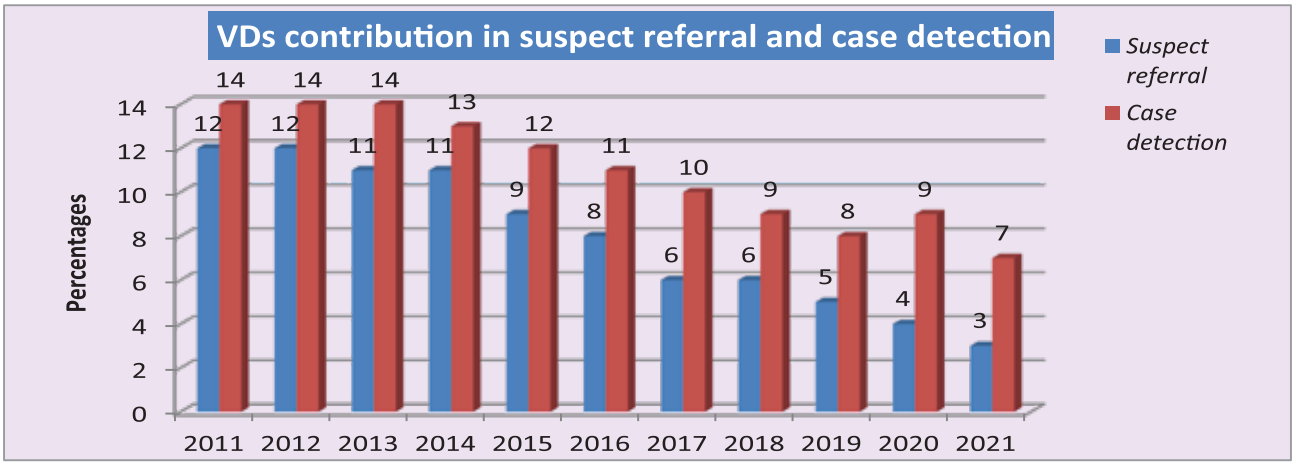
Over the period, the Damien Foundation partnership with the Village Doctors (VD) has been proven as one of the most effective and sustainable approaches; thus, the partnership with the VD was continued in 2021. The Village Doctors continued their important role in contributing to case detection by referring Presumptive and providing DOT services to the community as in previous years.

Village Doctors' (VD) Orientation

Village Doctors in 2021

DF Efforts in 2021 with VDs			Contribution by Village Doctors		
	Session	Participants		Presumptive	Patients
Training (1 day)	20	500	TB (Number)	14,310	1,146
			% among total	3%	7%
In addition to the referral, the Village Doctors were involved as DOT providers for 14,639 TB patients, 51% of the total TB patients.					

Graph-20: Contributions of village doctors in TB case detection



7.3 Working with the Government Health & Family Planning staff and General Physicians

DF partnership with the Government Health Personnel is another cost-effective approach for case finding and case holding. During last year, this partnership approach has been strengthened.

Govt. Medical Doctors and General Practitioners in 2021

DF Efforts in 2021 with Medical Doctors (GoB MOs & GPs)			Contribution by Medical Doctors		
	Session	Participants		Presumptive	Patients
Orientation for Medical Doctors (1 day)	05	99	TB (Number)	39,835	4173
			% among total	10%	25%
			Leprosy (Nr.)	167	13
			% among total	5%	23%
In the project area, the Govt. Medical Doctors continue their support in diagnosing and managing complicated patients (both TB & Leprosy) at the early stages and facilitating different courses/orientation for other stakeholders.					

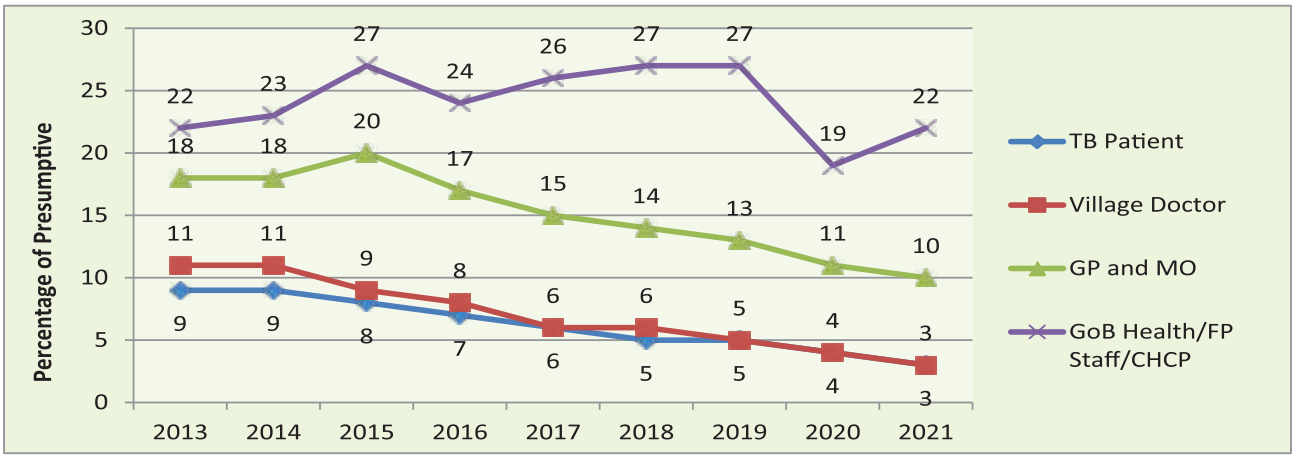
Govt. Health & Family Planning staff in 2021

Support of the Government Primary Health Care Field Staff in referring presumptive patients to the clinic and monitoring of DOT in the community has been continued as in previous years.

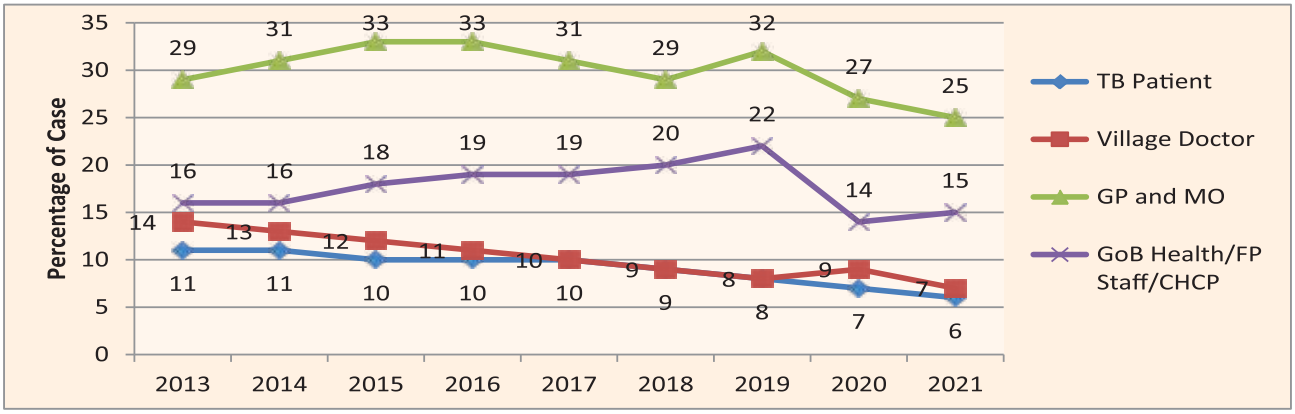
DF Efforts in 2021 with Govt. Health & Family Planning staff			Contribution by Govt. Health & Family Planning staff		
	Session	Participants		Presumptive	Patients
Review meeting/ Orientation (1 day)	832	4160	TB (Number)	92,734	2471
			% among total	22%	15%
			Leprosy (Nr.)	106	2
			% among total	3%	4%
Besides referral, Govt. Health & FP staff play an important role in providing DOT. A total of 3,127 TB patients received DOT under their supervision in 2021, which is 11% contribution to the total DOT for patient at the community level. Their involvement increased the DOT expansion in the community, which is very much important to improve patient friendly access to the services and enabling community participation in TB control for enhancing sustainability.					

Report of last eight years shows that there is a slow decreasing trend in referral of TB presumptive by Govt. MO and GP. Around 1-2% decrease per year. But there is a slight increasing trend of referral of presumptive by govt. health care. This increasing trend of involvement of field health staff also seems a positive sign for sustainability. Following graphs shows the trend of TB presumptive and case detection in last seven years (2013 to 2021) -

Graph 21: Comparison of trend of TB presumptive referral from Cured TB Patients, VD, GoB Staff and GP-MO



Graph 22: Comparison among trend of contribution from VD, GoB Staff and GP-MO for TB patient detection



7.4 Empowering patients and communities

Considering the pivotal role of Advocacy, Communication and Social Mobilization (ACSM) in the field of TB control and Leprosy elimination the ACSM activities have been continued in collaboration with the Government (NTP & NLEP), with the financial support from the Belgian Government through Damien Foundation and GFATM.

The effect of several ACSM activities and dense network of services has been revealed through sustaining the referral of presumptive patients and increasing trend among certain group of people as well. The clinic staffs were involved with several ACSM activities besides routine activities on diagnosis, treatment and follow-up.

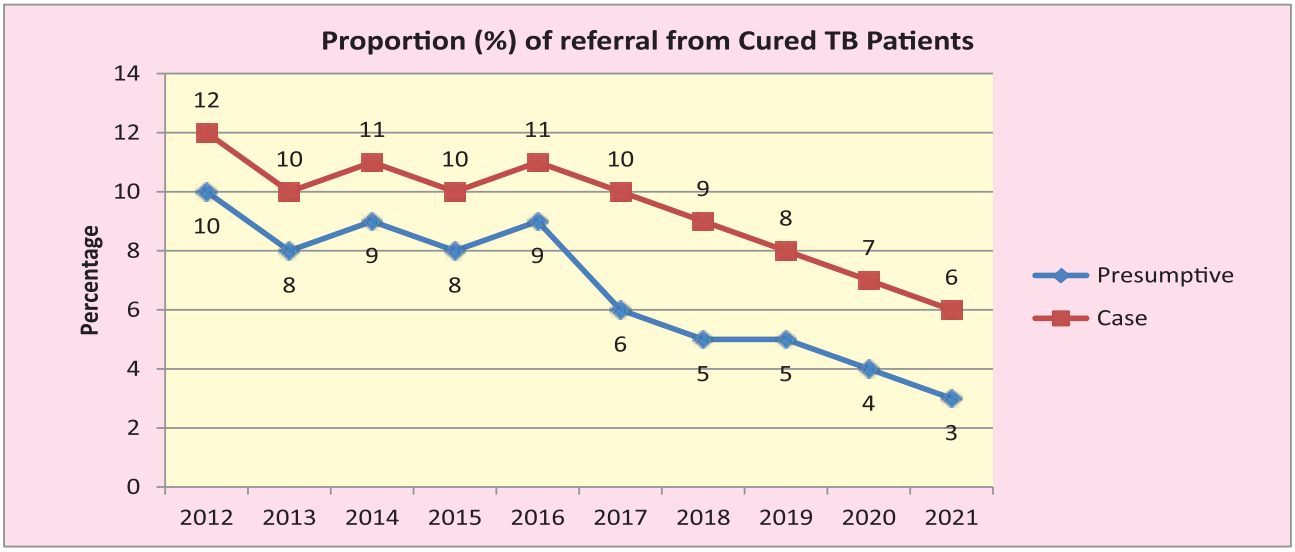
7.4.1 Working with the Former patients and Elites (TB Club Meeting)

The objective is to involve cured patients from the community to increase the case finding and to encourage them to refer presumptive TB patients and for early detection of new case and relapse. Since 2000, DF has emphasized involving former patients in the identification of presumptive TB patients from the community and for referring them to health centers. This involvement was extended to organizing "TB clubs" of former patients at the union level (a union is a small administrative unit with a population of about 20,000). The vast majority of the cured TB patients are from the poorest segment of the society, but their role in TB & Leprosy control activities has given them an identity as the best advocate to the community in terms of referral of presumptive TB & Leprosy patients.

TB Club (cured TB patients) Orientation in Netrakona project

Contribution of cured TB Patients and Local Elites		
	Presumptive	Patients
TB (Number)	13,082	945
% among all	3%	6%
Leprosy (Nr.)	196	4
% among all	6%	7%

Graph 23: Contribution of former TB patients in referring presumptive TB patients and smear positive case detection during last seven years (2012-2021)



7.4.2 Health Education Activities in Community and Govt. Health Facilities:

Health education events do create greater social commitment and support behavioral change in order to ensure access to treatment and care for all, particularly the poor, vulnerable and hard-to- reach populations. The activities include disseminating accurate information on the diseases and dispelling myths about TB/Leprosy, educating and encouraging people with their family members to be more actively involved.

Several events of health education were conducted in the year 2021.

Details are in following table:

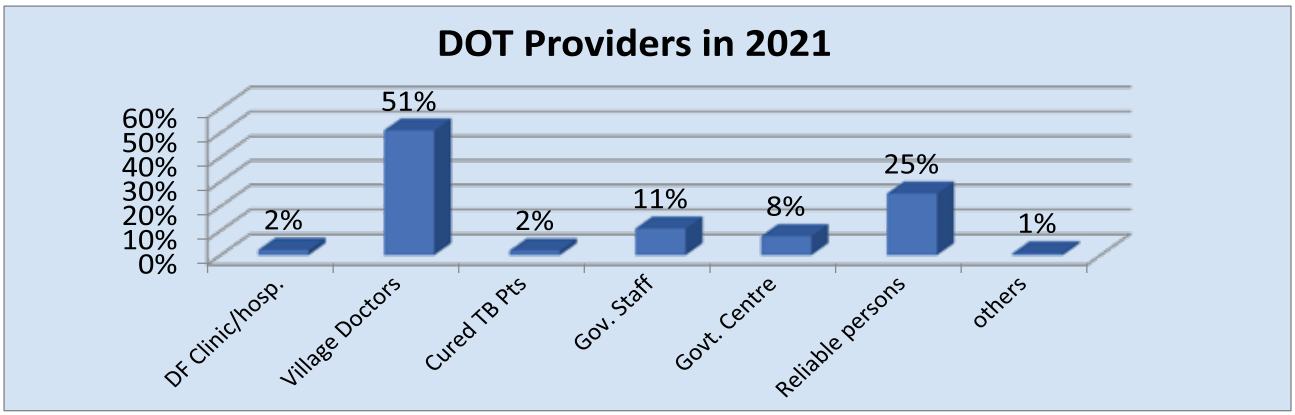
Health Education Activities in 2021			**Contribution from Health Educational Activities**		
	Session	**Participants**		**Presumptive**	**Patients**
Health education session in community	326037	1641970	TB (Number)	144,110	5,081
HE session in OPD (UHC, SH, MC, FWC, SC, CC)	103043	1410841	% among total	46%	31%
HE session in INDOOR (UHC, SH, MC)	21312	305170			
HE session in DF clinic	188011	639563	Leprosy (Nr.)	2103	27
			% among total	60%	48%
Total	638403	3997544			
Health education activities help to enhance community participation which leads to increased awareness, promotes health-seeking behavior, inspires dialogue, and heightens community concern and action for TB/Leprosy control.					

Community health education

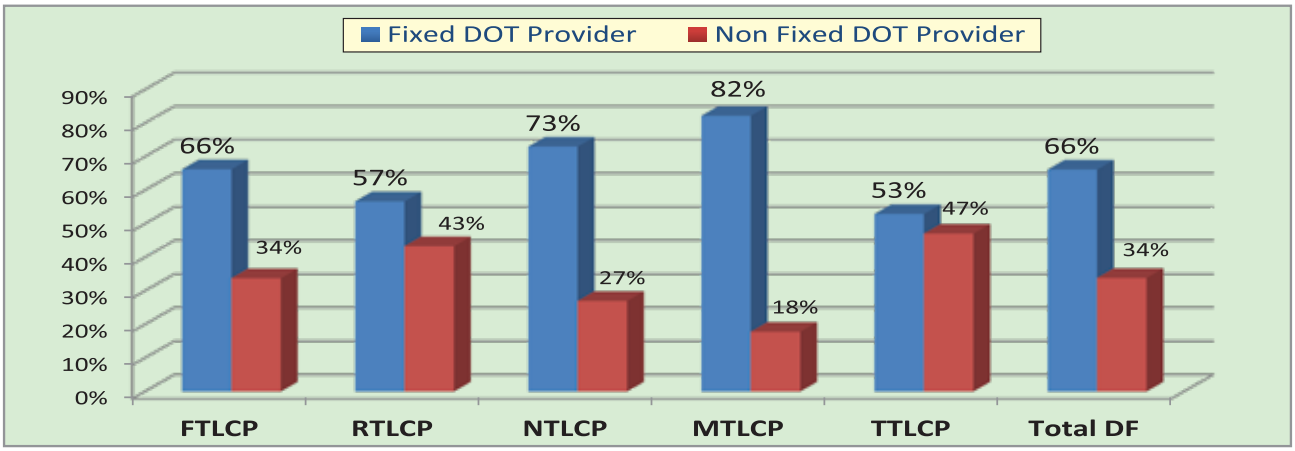
7.4.3 Community participation in DOT expansion

In compliance with the global strategy of maintaining high-quality DOTS, Damien Foundation Bangladesh, since initiation of the TB control Program, has decentralized DOT to the community level to make it more patient-friendly by involving VDs, GOB Health and Family planning staffs, other NGO staffs, cured patients, school teachers, religious leaders and local elite. In each Union, there are 5 to 6 Fixed DOT Providers (FDP) to provide DOT to the patients, this next to other Non-Fixed DOT Providers. The graph bellow shows the involvement different categories of DOT providers in TB Control Program, where about 51% of them are Village Doctors in DF project areas.

Graph 24: DOT Providers in 2021



Graph 25: Fixed and Non-Fixed DOT Provider in DF project areas in 2021



8. Operational Research in Damien Foundation Bangladesh

Damien Foundation Bangladesh conducted several operational researches next to its routine activities aiming at defining/establishing cost-effective means of diagnosis & treatment, documenting/validating different research findings/publications from other countries and to provide input to the national and international Health Agencies to develop/recommend new tools and strategies for different NTPs based on study results obtained in DF Bangladesh.

8.1 Assessing the Effectiveness of Intensified Extended Contact Survey (IECS) to Routine Contact Survey (RCS) in Bangladesh

In 2020, Damien Foundation started the implementation of this study project with funding support from Leprosy Research Institute (LRI) and in collaboration with ITM, Antwerp, Belgium; MSF, Belgium; Erasmus MC, University Medical Centre Rotterdam. Although the agreement with the donor was signed in 2019 but due to process delay in getting approval from different authorities the project was actually started in March 2020. As per the agreement this project is supposed to be ended in August 2023, but the implementation of the project was seriously affected due to the COVID-19 situation in 2020 the donor agreed to extend the project period for one more year.

Realising the fact and experiences from different countries that leprosy often clusters not just within households but also within neighbourhoods. Apart from screening household contacts it would therefore be equally important to screen neighbourhood contacts. Therefore, a new approach of contact screening based on door-to-door screening of a wide circle of neighbourhood contacts of new leprosy patients will be tested through this operational research project. Areas to be screened will be determined based on geographical coordinates of the affected households, ensuring a targeted area that is wide enough to avoid identification of the index case households. With this 'Intensified Extended Contact Survey' approach, hereafter called the 'IECS Strategy', and through this strategy it is expected to achieve early case detection, reflected in a reduced prevalence of G2D among new patients.

Main objective of this operational study project is to assess the impact of the IECS strategy in reducing the proportion of patients with G2D at diagnosis. Moreover, reducing the delay in diagnosis and cost effectiveness of the project are also important aspects of the project to assess feasibility of this strategy to run in future in the programmatic condition. This is a cluster randomized intervention trial where, out of total 14 DF districts, 7 districts have been selected as intervention area and 7 as control area. A total of 658 patients (328 in each of intervention and control arm) will be enrolled under this project. GPS trackers are used for collecting coordinate (longitude & latitude) of the patients' house which is used to draw line around the patient house (covering about 75 meter radius) through QGIS software and create a GPX file. This GPX file is used to locate the patients house and the area (about 75 meter radius around patient house) to be screened (in intervention area) with the help of android mobile set.

In intervention districts consenting incident leprosy patients are provided with a GPS tracker for a period of one week. The GPS tracker records a GPS point every three minutes. This allows to identify on a satellite image such as Google Earth the exact location of the home of the patient. Then either a complete hamlet is outlined or a circle of 75 meters around the index case household is drawn. This is the area for door-to-door screening. Data on all individuals screened plus geographic coordinates of households are recorded in an Android app. If secondary leprosy cases are found, the area to be screened is expanded accordingly.

So far till December 2021, a total of 235 leprosy patients were enrolled – 134 in control area and 101 in intervention area. The figure shows that the intervention area, the mainly IECS activity, was affected more by COVID-19 than the control area both in 2020 and 2021. As a result, a smaller number of IECS was possible to conduct than it was expected. Preliminary result with limited data, obtained till end of 2021, shows that there is increasing trend of leprosy case finding in intervention area after COVID-19 pandemic but till now no change in disability grade-2 or delay in diagnosis is observed.

8.2 Diagnosis and Management of MDR/RR–TB

Damien Foundation received intensive support from the Mycobacteriology laboratory of the Institute of Tropical Medicine (ITM) in establishing a culture and DST laboratory and including all other technical supports for the development of a standardized regimen for MDR TB in Bangladesh.

Since the introduction of GeneXpert MTB/RIF for diagnosis of RR-TB and the WHO endorsement of DF-invented shorter treatment regimen for MDR/RR-TB, DF has been using the GeneXpert technology for the detection of RR-TB and the NTP adopted regimen under the programmatic conditions. However, DF continues to use slide DST to detect

levofloxacin resistance among RR-TB patients besides sputum sample transportation to the LPA lab at NTRL. DF will receive support in establishing a liquid culture DST lab along with GeneXpert MTB/XDR in 2022.

In 2021 enrolment of MDR TB patients on Shorter Oral treatment Regimen (SOTR) was initiated. A total of 2,651 MDR TB patients have been enrolled under 9-month shorter regimen up to 2020 since 2005 and the enrollment during 2021 on SOTR was 328. Among them, 174 (53%) from greater Dhaka division (that include Greater Mymensingh and Faridpur region of DF) and 154 (47%) from Rajshahi division (including DF Rajshahi project area). Male and female proportion among total MDR TB patients was 72% and 28% respectively. Treatment success rate has been more than 80% for about two decades but this rate was 79% for the patients who were enrolled in 2020 from DF working area resulting from higher rates of loss to follow-up due to the impact of COVID-19.

Graph 26: Enrollment of MDR TB patients since 2006

8.3 Drug resistance monitoring

The Damien Foundation monitored TB drug resistance in DF Bangladesh projects since the end of 1995, mainly through systematic referral of sputum from a return after loss to follow-up, relapse and failure patients, besides the random surveys done in 1995 and 2001. From May 2002 onwards, most primary cultures were handed over by Antwerp to the reference lab in Bangladesh (Netrakona). Netrakona lab started LJ DST in 2008 and since 2010 this lab is performing LJ DST independently under the direct supervision and control of Antwerp lab (coordinating laboratory for supra-national TB reference laboratories). Selective strains are sent for quality control to Antwerp lab besides the routine participation in proficiency testing. The total number of inoculated cultures has risen considerably over the years. Annually more than 3,000 sputum samples are processed in the Netrakona lab, most of which belong to follow-up samples of MDR TB patients. Since 2004 following the introduction of rifampicin throughout intermittent regimen in the country, an increase in the MDR TB rate was observed. The analysis of trends in RMP and Ofloxacin resistance incidence for all DF districts expressed per 1000 smear-positive patients (new+Rett.), show at least that there is no increase in rifampicin resistance over the last several years. Considering only RIF-resistant isolates, fluoroquinolone resistance has reached 20%, and the trend seems to be increasing slowly. Apart from MDR follow-up specimens, XDR and 2nd-line injectable resistance are virtually absent. Shipment of infectious samples including primary TB culture strains to the Antwerp lab has been very difficult. As such, only the ethanol-deactivated samples belonging to the MDR/RR-TB sputum samples have been sent to the Antwerp lab for drug resistance monitoring among MDR/RR-TB patients since 2000 (COVID-19 pandemic situation).

8.4 FDA staining and slide DST

DF used Fluorescein Di-Acetate (FDA) staining in detecting live AFB among routine microscopy-positive follow-up sputum samples presumptive of DR TB. FDA positive sputum samples were then processed for slide culture DST which took about 14 days to know MDR/RR-TB status. This simple, cheap technology was used in DF project laboratories for early detection of MDR/RR-TB cases. Since the introduction of GeneXpert MT/RIF in 2012, DF has been using Xpert technology in detecting RR-TB cases. Slide DST has been performed to detect levofloxacin resistance among RR-TB cases as obtaining SL LPA result (for levofloxacin) from NTRL through sputum sample transportation often takes longer time.

Slide DST is thus currently performed to detect 2nd line drug resistance on all newly enrolled RR-TB patients' sputum samples.

9. Human Resource Management & Development

9.1 Overview

To provide high quality healthcare service to the community and to ensure smooth functioning of 160 DF field clinics and 3 hospitals, a total of 673 local staff are involved. Out of this, 502 staffs (Medical Technologists/TLCA and Field Level Staffs) are directly involved in carrying out the field activities under the supervision of 35 Supervisors (TLCOs, Sr. TLCO, Monitoring & Evaluation Officers) and 7 Medical Doctors. Among the total staff 220 Field Level Staff are involved in community level active case finding activities. These Field Level Workers have been trained in identifying TB & Leprosy presumptive and in preparing smears. The male-female staff ratio of Damien Foundation Bangladesh is 2:1 in 2021.

9.2 Workshop/Training/course organized by Damien Foundation throughout the year 2021

To develop skills in different key staff, the DF Bangladesh organized several training/workshops in the year of 2021. A detailed schedule of the workshop/training is given below:

Name of Training Course/Orientation	Participants	Duration, place & organized by
Capacity building training on Monitoring and Supervision workshop	Total 25 participants: 09 MO/doctor s, 05 M&E Officers and 11 TLCOs from DF projects.	Workshop was for 03 days from 18-20 September 2022, organized by DFCO at Jalchatra Hospital training venue of Damien Foundation.
Refreshers Training on TB for Field Staff	13 RTLCP Staff (11 lab Technicians & 02 Field level workers)	A three-days refreshers course was organized by DF RTLCP project at Rajshahi in 2021.
Basic training on laboratory	03 MT labs of NTLCP	A 3-days training was organized for newly recruited MT labs by DF-NTLCP at Netrakona hospital laboratory.
LRI-IECS project implementation	Total 25 Participants including 09 Leprosy Field Organizers of LRI-IECS project.	A 3-days training workshop organized by DFCO in September 2021 at Jalchatra hospital venue.
Training on HIV screening test for DF MT labs and TLCAs	156 DF clinic staff (MT lab/TLCA) participated	In 2021, DF organized 01-day practical training sessions at the clinic levels and project offices for its clinic staff (at lease one from each clinic) through previously trained Senior MT labs (trained by NTP).
LED Microscopy training	Total 5 staff (3 Lab technician & 2 Field level staff) participated	DF-FTLCP project organized a three-days practical training through its EQA Lab technician in 2021

Quarterly staff meeting at Netrakona

Quarterly monitoring meeting at Mymensingh (above) & Jamalpur (below)

9.3 Participation in different in-country training courses in 2021

To develop skills in different fields, DF staff members attended different in-country training courses in 2021, organized by NTP/BRAC/ICCDDR,B. A detailed schedule of the training courses & participants is given below:

Name of Training Course/Orientation/Workshop	Participants	Duration & Organized by
e-TB Manager training	Total 110 participants from DF 05 projects attended: 84 Clinic staff, 12 Field level staff, 8 TLCOs and 6 Management level staff.	In 2021, NTP organized 3-days training courses at different places for staff of NGO partners
Training on Laboratory Technologist for COVID-19 Antigen test	Total 39 staff of DF participated: 09 MT lab, 15 TLCA/Lab technician and 15 Field level staff.	One-day training course organized by BRAC & ICDDR,B in 2021 in different places
Training on HIV Screening test	02 MT-Labs from Mymensingh project of DF participated in this training course	Three-days training course was organized by NTP in 2021 for TB laboratory staff
Training on GeneXpert Testing	Total 19 participants from different projects of DF attended	NTP organized 3-days training at different places in 2021
Training on all oral STR for the management of MDR patients	A total of 27 DF staff (4 doctors, 6 TLCOs and 17 clinic staff) participated in the training course	NTP with ICDDR,B organized 3-days training courses in in 2021different places
Sputum collection & Transportation from peripheral laboratory to GeneXpert centre	Total 10 staff from DF participated in the training course (02 TLCO, 07 Lab technician and 01 FLS)	NTP organized a one-day orientation course at NTRL in Dhaka in 2021.
eTB Janao app Training	08 Staff (Clinic/field) from DF Rajshahi project participated in the training course	NTP with ICDDR,B organized training course in Rajshahi in 2021

9.4 Participation in International training courses/meetings/conferences including webinar:

With a view to update knowledge and to share experience, DF Bangladesh staff members participate in different international training courses, meetings, conferences, workshops, seminars and also provided technical support by DF staff around the world. In 2021, the following DF staff attended conferences, meetings, training courses and provided technical support as focal person as per schedule below:

Conference/ Meeting /Training	**Participants/focal person**	**Place, Duration & Organized by**
Virtual Union conference on TB & Lung health	Dr. Aung Kya Jai Maug, Country Director, Dr. Dipak Kumar Biswas, Medical Coordinator	Participated online which was organized by the UNION and held from October 19 to October 22, 2021

10. Program Management and Coordination

At the project level, overall implementation management of program is done through a team approach by the Management Team (MT). The Management Team is headed by the Project Director with the Hospital/Field Director, Medical Officer/consultant, M&E Officers/Field Coordinators/Senior TLCOs as MT members. The MT discusses the day-to-day management issues on weekly basis and decides on the major issues, including issues referred from TLCO meetings, on quarterly basis. They can also organize the MT meeting at any time to deal with urgent issues.

An important process of Program Management and Coordination is the regular monthly TLCO meeting, where all TLCOs, FCs, M&E Officers/Medical Officers, Hospital/Field Directors and Project Director attend. The TLCOs, in fact, serve as the main bridge between the project office and the field clinics besides the project-based supervisors (doctors and M&E officer).

In depth analysis of monthly progress reports including performance, achievements, challenges and problems are done through active participation of the participants present, and decisions are taken, recommendations are made or action plans are adapted to improve the situation. Dissemination of information and instruction from national level, exchange of information between field clinic and project/DFCO, monthly clinic wise planning, settlement of bills and collection of monthly running / different costs of the clinics take place in these monthly meetings.

In order to assess case detection and results of health education activities, a manual geographic information system is maintained in each Upazila. This information helps to identify areas with low case finding and enables the staff to identify the barriers for that specific area and to act accordingly.

Information / instruction flow takes place mostly through emails between national level office and the project offices on a regular basis. Besides, mobile phone communications are used for urgent matters between national & project levels, and field clinics. In this way, the national office is kept updated on what is happening at any point at field level.

For facilitating better coordination representative/s from Damien Foundation Coordination Office at Dhaka also participated in some project level meetings of Management Teams and TLCO meetings and guided them.

11. Monitoring, Supervision & Evaluation

11.1 Internal monitoring, supervision & Evaluation

Damien Foundation is maintaining its monitoring, supervision and evaluation according to its a Monitoring and Evaluation. Monitoring of case detection, sputum conversion, results of treatment and quality control of smear microscopy are routinely done and evaluated quarterly. In addition, drug resistance surveillance is continued through routine sputum culture and DST of failure and relapse patients. Monitoring MDR TB treatment through regular updating of MDR files are routinely done by DFCO. The quarterly collected data from the projects are being used to monitor the performances. Cross checking between different datasets allows assessing the quality of the data and feedback is given to the projects in order to improve the performances. Reports are cross-checked with registers and cards by supervisors during their supervision visits and feedback is given on the spot to the field staffs.

Monitoring of activities and supportive supervision of staff is done through field visits by different levels of staff. At the field level, TB & Leprosy Control Officers (TLCOs) are the first line staff for monitoring of the project activities in 3-4 upazilas (Sub-districts) each. They supervise the first line field staff, Medical Technologists (MT) laboratory, TB & Leprosy Control Assistants (TLCAs) / paramedics, Assistant TB & Leprosy Control Assistant (ATLCA) and Field Level Staff (FLS). TLCOs monitor all the activities implemented at the field level, provide need-based support and build/strengthen the capacity of the field staff for better implementation or improvement.

A TLCO regularly visits each TB clinic/lab/UHC under his/her mandate to monitor and supervise at least once a week and check/cross-check the clinic documents including registers, reports, treatment cards and other records. S/he monitors case detection, sputum conversion, treatment results, quality control of sputum microscopy, and drug resistant and failure and relapse patients. S/he also pays need-based visits to the community and discusses with patients, DOT providers and other stakeholders to cross check status of DOT implementation, patient follow up, social mobilization and presumptive referral activities. Monitoring and follow-up of project performances is carried out through analyzing the achievements realized, compared to the planned activities and results. Quarterly and annual reports are used to monitor the project performances.

M&E Officer (M&EO)/Field Coordinator (FC) and Medical Officer (MO) pay monitoring visits to a TB clinic/lab/UHC at least once in 3 months (quarterly) as well as additional visits based on the needs of the program/project. During the monitoring visits they supervise the activities of TLCO and other field staff, guide them, provide technical supports and build or strengthen their capacities through on-the-job training.

The Project Director, who is the overall responsible person of a project, and the Hospital Director/ Field Director are the management staff at the project level of DF, and they also monitor field activities on a sample basis as well as according to the needs.

From the Damien Foundation Coordinating Office (DFCO), the Medical Coordinator & other staff visit the field especially for programmatic monitoring to provide professional and technical support. Finance Director (FD) and Finance Manager visit the field for need based monitoring purposes. The Country Director of DF also pays visits based on the needs of project management and to discuss strategic issues (program/project).

11.2 Supervision & monitoring from NTP & other Govt. Officials:

Besides internal monitoring DF projects were also visited by the different health authorities from Government and NGO programs including BCCM (Bangladesh Country Coordinating Mechanism of the Global Fund), NTP officials and Civil Surgeons.

Visit of Civil Surgeon to DF Mymensingh project

12. Midterm Evaluation of DGD Five Years Project 2017-2021

Midterm evaluation of the DGD supported Five Years project 2017-2021 was held in March-April 2021. The purpose of this evaluation is to assess the implementation progress and the level of achievement of the mid-term results in order to identify strengths, weaknesses, probable bottlenecks and propose possible corrective measures. Specific objectives were to - assess the coherence between specific objective and results, identify main forces of the project for the attainment of specific objective, identify main constraints for achievement the specific objective of the project and to propose measures to be taken to improve or adapt interventions to achieve the objectives of the current programme and to develop the next programme 2022-2026.

A four-member independent team of consultants (two international and two national) was formed for this evaluation. The international consultant (one for TB and another for leprosy) worked virtually and the local consultants (one for TB and one for leprosy) worked physically including visiting fields from 06 March 2021 to 17 march 2021. They interviewed beneficiaries, staff and other GO-NGO stakeholders and also verified records/reports at the visited clinics/centres. At the end of the evaluation the team submitted a report to Damien Foundation which was forwarded to DGD with a management response.

13. Development of next five years' plan for DGD 2022-2026.

The year 2021 is the end of current five years programme (2017-2021) supported by DGD. Therefore, we took initiative to develop next five years plan from 2022 to 2026. The aim of the TB and Leprosy Control program of Damien Foundation Bangladesh is "Early case finding and correct management of TB (including DR-TB) and leprosy and preventive therapy for latent infection is ensured by 2026 maintaining preventive and protective environment for COVID-19." Early diagnosis and prompt treatment of the disease as well as latent infection are two important areas to reduce the burden of both TB and leprosy diseases in order to have an expected contribution to the related SDGs. Good area and population coverage, including vulnerable and at-risk population, women and children, are important to ensure 'to leave no one behind'. Optimum use of efficient modern diagnostic tools like GeneXpert is essential to ensure early diagnosis of both drug sensitive (DS)- and drug resistant (DR)-TB cases to ensure early treatment. Preventive and protective measures against the emerging pandemic disease COVID-19 have become part and parcel of the TB and Leprosy Program for ensuring a continuum of TB/leprosy care.

For reaching this aim, main foreseen interventions are:

a. Awareness creation – through health education activities both at the community & health facility levels. Orientation of village doctors, pharmacists, factory workers, cured patients and local elites.

b. Active case finding and management: (i) Identification of presumptive through contact examination, outreach smearing centres and Campaign. Staff screening for TB. (ii) Diagnosis of cases using efficient tools (GeneXpert, Microscopy, Digital X-Ray and Histopathology).

c. Treatment of TB (including DR TB) & leprosy cases.

d. TB preventive treatment for all adult & child contacts of Bacteriologically Confirmed TB cases not having active TB.

e. Capacity building - for DF and government health staff, village doctors, graduate doctors, cured TB patients through training (residential & on the job), orientation and mentoring for quality assured diagnosis, treatment, and care.

14. Results from COVID-19 impact mitigation strategies

COVID-19 seriously affected TB and leprosy programme in Bangladesh, especially in 2020. Leprosy programme including LRI supported leprosy operational research programme of DF was more affected than TB programme. TB and leprosy case finding reduced to minimum level (20% compared to previous year) as contact tracing and continuing community level activities was not possible during COVID-19 pandemic. Moreover, health care providers including the doctors also became scared at the initial stage and entry to the upazila health complexes for people having cough were restricted, private chambers were closed. People also stopped going to health complexes to seek care as these places were considered as the potential places to contract coronavirus because these places were used to collect samples for corona testing.

However, the situation was improving with the lifting of restrictions and increase of field activities including contact survey. This was possible due to special efforts and strategies for mitigating the challenges to cope with the situation. As mitigation strategy DF Bangladesh took initiative to make the clinic staff aware on protective and preventive measures, arranged frequent counselling of affected staff, rearranged TB-leprosy clinic physical setup for protecting staff and patients from the COVID-19 situation, supplied protective materials to clinics, gradually started contact tracing maintaining protective and preventive measures and gradually started training, orientation sessions and other activities maintaining protective and preventive measures. Frequent follow up and monitoring was maintained mainly virtually. As a result of these initiatives, clinic staff regained their confidence for continuing regular activities, there was gradual increasing trend of TB & leprosy case finding and implementation of almost all activities came to normal level in last quarter of 2020. But the programme activities again affected during 2nd wave of COVID-19 in Bangladesh. The case finding was slightly reduced especially in the 2nd quarter of 2021 but not like 2020. Because, this time DF staff and projects have better cope up and mitigation capacities due to increased awareness, vaccination of staff and their learning of how to continue activities including contact tracing with protective and preventive measures against COVID-19. As a result, overall TB case finding was more in 2021 compared to 2020.

Physiotherapy of Leprosy Patient at DF Mymensingh hospital

DF staff continuing work in the clinics for drug supply of patients during flood in Netrakona project in 2021

Intensive Extended Contact Survey (IECS) in Netrakona under LRI supported project

World Leprosy Day Rally at Naogaon of DF Rajshahi project

World Leprosy Day meeting at Naogaon of DF Rajshahi project

Field visit by consultant of DGD Midterm Evaluation

Government Health Infrastructure in DF-areas

Annex Table-1

District / Project	Square km	Population	Hospitals	Upazila Health Complexes	Health Centers	TB Clinics	Leprosy Control Assistants	TB beds	Lep. beds
Tangail Project	**6,810**	**8,182,191**	**3**	**24**	**1,124**	**2**	**24**	**0**	**0**
Tangail	3,414	4,102,153	1	12	569	1	12	0	0
Jamalpur	2,032	2,591,196	1	7	346	1	7	0	0
Sherpur	1,364	1,488,842	1	5	209	0	5	0	0
Mymensingh Project.	**7,052**	**9,190,562**	**4**	**24**	**958**	**2**	**15**	**48**	**0**
Mymensingh	4,363	5,888,116	2	12	593	1	6	48	0
Kishoreganj	2,689	3,302,446	2	12	365	1	9	0	0
Netrakona Project.	**2,810**	**2,496,382**	**1**	**9**	**350**	**0**	**7**	**0**	**0**
Netrakona	2,810	2,496,382	1	9	350	0	7	0	0
Rajshahi Project	**7,546**	**6,793,316**	**14**	**25**	**1,106**	**2**	**24**	**150**	**0**
Rajshahi	2,407	2,316,397	9	9	389	1	8	150	0
Naogaon	3,436	2,765,632	4	11	489	0	11	0	0
Nawabganj	1,703	1,711,287	1	5	228	1	5	0	0
Faridpur Project	**7,008**	**6,806,473**	**7**	**24**	**1,116**	**3**	**26**	**24**	**0**
Faridpur	2,073	2,073,827	3	8	269	1	11	24	0
Gopalganj	1,490	1,193,857	1	4	263	1	6	0	0
Madaripur	1,145	1,192,795	1	3	202	1	3	0	0
Rajbari	1,119	1,144,217	1	4	180	0	4	0	0
Shariatpur	1,181	1,240,798	1	5	202	0	2	0	0
Total DF	**31,226**	**33,604,759**	**29**	**106**	**3,487**	**9**	**96**	**222**	**0**

Supportive activities over 2021
Hospitals, physiotherapy, shoemaking and health education

Annex Table-2

Project	no. of beds on		Hospitalizations: no. of bed-days for			Average bed occupation	no. of Lep. patients admitted		TB admissions for		OPD consultations
	01/01/2021	31/12/2021	Leprosy	TB	General		surgery / ulcer	Reaction / other	Retreatments	Others	
TTLCP	95	95	1,879	9,448	3	**33%**	33	14	99	286	21,374
MTLCP	100	100	4,058	4,405	0	**23%**	86	36	107	54	0
NTLCP	60	60	866	5,164	0	**28%**	45	8	27	318	0
RTLCP	No hospital, not applicable										
FTLCP	No hospital, not applicable										
Total projects	**255**	**255**	**6,803**	**19,017**	**3**	**28%**	**164**	**58**	**233**	**658**	**21,374**

Project	Shoes made (pairs)		Plastic / Spring shoes supplied	HE activities: no. of sessions				Training / Orientation / ref. / seminar: no. of sessions for						Skinsmears		Physiotherapy sessions
	MCR	Plastazote		Miking	Folk song	Community *1	Schools	GP / MO	GoB H & FP staff	VD / FDP *2	TB club	Seminar / workshops *3	Opinion leader/ scout / NGO *4	Total done	Positives	
TTLCP	484	5	12	9	0	18,111	0	1	0	4	0	20	7	228	20	527
MTLCP *5	1,617	4	1	12	0	39,982	218	1	0	4	0	0	47	169	16	717
NTLCP	102	1	0	0	0	21,314	202	1	0	4	0	0	4	73	15	0
RTLCP	0	0	0	18	0	99,919	0	1	0	4	0	0	9	318	16	0
FTLCP	0	0	0	0	0	146,711	509	1	0	4	0	0	10	14	1	0
Total projects	**2,203**	**10**	**13**	**39**	**0**	**326,037**	**929**	**5**	**0**	**20**	**0**	**20**	**77**	**802**	**68**	**1244**

*1 Community HE : in the villages, OPD HE, UHC indoor HE and organisation (microcredit or other groups), informal group HE during field visit, HE with the patient's attendants etc.

*2 Village Doctors, Fixed DOT provider and Pharmacy hoders training.

*3 Seminar in Medical college, sadar hospital

*4 Opinion leader, scout and girls guide, NGO workers, review workshop at Upazilla level and DOT committee meeting.

*5 MTLCP made shoe for NTLCP, FTLCP and RTLCP.

Personnel and infrastructure over 2021
Numbers of personnel, transport, equipment

Annex Table-3

Department: Administrative + Hospital

Project	Personnel					Transport			Operation Theatre (OT)	X-Ray Units	Microscopes in use	Shoe workshops
	Doctors	Paramedical	Administrative	Support/Techn.	Others	Cars	Motorcycles	Bicycles				
TTLCP	2	19	4	19	0	1	1	2	1 sterile	1	2	1
MTLCP	1	14	3	17	0	1	1	0	1 septic	1	2	1
NTLCP	**1**	**12**	**1**	**13**	**1**	**0**	**2**	**2**	**1 septic**	**0**	**4**	**0**
RTLCP	0	0	10	0	0	0	8	40	not applicable, no hospital		33	0
FTLCP	0	2	2	6	2	0	13	39	not applicable, no hospital		0	0
DFCO	2	0	4	7	0	2	0	0	not applicable, no hospital		0	0
Total projects	**6**	**47**	**24**	**62**	**3**	**4**	**25**	**83**	**3**	**2**	**41**	**2**

Department: Field

Project	Personnel						Transport			Microscopes in use	Combined TB/Lep clinic	Leprosy clinic
	Doctors	TLCO/FC	TLCA/LFO/MT lab	Assis. TLCA	Field Workers	Clinic Assis.	Cars	Motorcycles	Bicycles			
TTLCP	1	7	59	0	43	0	1	11	70	34	34	5
MTLCP	1	8	42	16	37	0	1	10	0	34	34	6
NTLCP	**0**	**2**	**14**	**2**	**24**	**0**	**1**	**3**	**12**	**12**	**12**	**0**
RTLCP	1	8	52	0	46	0	2	19	42	32	32	0
FTLCP	1	9	55	0	50	0	2	9	65	38	38	0
DFCO	0	0	0	0	0	0	0	0	0	0	0	0
Total projects	**4**	**34**	**222**	**18**	**200**	**0**	**7**	**52**	**189**	**150**	**150**	**11**

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Annex Table-4

Evolution of casefinding and caseload

Year	Project	Districts & population	NUMBERS						RATES				
			New cases			New	Disabled	On treatment	New Lepr. /	Lep. preval. /	Proportion	Prop. new	Prop. new
			PB	MB	Total	children	new cases	at end (Year)	100.0000 pop.	10.000 pop.	MB new Lep.	children L.	disabled L.
2014	TTLCP	TG+JM+SP 7,452,350	29	48	77	3	12	66	1.03	0.09	62%	4%	16%
	MTLCP	MM + KS 8,328,458	41	43	84	8	16	62	1.01	0.07	51%	10%	19%
	NTLCP	Netrakona 2,306,900	7	11	18	1	4	13	0.78	0.06	61%	6%	22%
	RTLCP	RA + NG + NW 7,080,143	85	72	157	8	24	124	2.22	0.18	46%	5%	15%
	FTLCP	FP+GP+MP+RJ+SR 6,573,679	24	24	48	3	4	40	0.73	0.06	50%	6%	8%
	TOTAL	31,741,530	186	198	384	23	60	305	1.21	0.10	52%	6%	16%
2015	TTLCP	TG+JM+SP 7,519,262	36	39	75	2	10	59	1.00	0.08	52%	3%	13%
	MTLCP	MM + KS 8,433,791	41	38	79	7	9	68	0.94	0.08	48%	9%	11%
	NTLCP	Netrakona 2,333,286	3	10	13	1	4	11	0.56	0.05	77%	8%	31%
	RTLCP	RA + NG + NW 7,161,268	76	89	165	4	22	135	2.30	0.19	54%	2%	13%
	FTLCP	FP+GP+MP+RJ+SR 6,613,354	17	23	40	2	2	37	0.60	0.06	58%	5%	5%
	TOTAL	32,060,961	173	199	372	16	47	310	1.16	0.10	53%	4%	13%
2016	TTLCP	TG+JM+SP 7,586,936	16	31	47	1	6	39	0.62	0.05	66%	2%	13%
	MTLCP	MM + KS 8,540,798	34	39	73	7	14	62	0.85	0.07	53%	10%	19%
	NTLCP	Netrakona 2,359,995	4	9	13	0	3	9	0.55	0.04	69%	0%	23%
	RTLCP	RA + NG + NW 7,188,760	86	64	150	13	18	140	2.09	0.19	43%	9%	12%
	FTLCP	FP+GP+MP+RJ+SR 6,653,417	11	10	21	1	4	18	0.32	0.03	48%	5%	19%
	TOTAL	32,329,907	151	153	304	22	45	268	0.94	0.08	50%	7%	15%
2017	TTLCP	TG+JM+SP 7,649,200	31	36	67	3	6	51	0.88	0.07	54%	4%	9%
	MTLCP	MM + KS 8,645,801	34	29	63	4	8	51	0.73	0.06	46%	6%	13%
	NTLCP	Netrakona 2,386,663	13	13	26	1	9	25	1.09	0.10	50%	4%	35%
	RTLCP	RA + NG + NW 7,270,597	202	101	303	46	16	220	4.17	0.30	33%	15%	5%
	FTLCP	FP+GP+MP+RJ+SR 6,691,233	3	13	16	0	3	8	0.24	0.01	81%	0%	19%
	TOTAL	32,643,494	283	192	475	54	42	355	1.46	0.11	40%	11%	9%
2018	TTLCP	TG+JM+SP 7,711,985	36	44	80	8	25	65	1.04	0.08	55%	10%	31%
	MTLCP	MM + KS 8,752,099	35	31	66	1	16	57	0.75	0.07	47%	2%	24%
	NTLCP	Netrakona 2,413,632	11	22	33	1	16	28	1.37	0.12	67%	3%	48%
	RTLCP	RA + NG + NW 7,353,411	130	84	214	18	40	165	2.91	0.22	39%	8%	19%
	FTLCP	FP+GP+MP+RJ+SR 6,729,346	7	9	16	2	9	12	0.24	0.02	56%	13%	56%
	TOTAL	32,960,473	219	190	409	30	51	327	1.24	0.10	46%	7%	26%
2019	TTLCP	TG+JM+SP 7,775,296	19	25	44	7	5	40	0.57	0.05	57%	16%	11%
	MTLCP	MM + KS 8,859,707	30	33	63	3	9	44	0.71	0.05	52%	5%	14%
	NTLCP	Netrakona 2,440,906	5	11	16	0	6	10	0.66	0.04	69%	0%	38%
	RTLCP	RA + NG + NW 7,437,214	71	67	138	18	18	92	1.86	0.12	49%	13%	13%
	FTLCP	FP+GP+MP+RJ+SR 6,767,759	5	9	14	0	3	10	0.21	0.01	64%	0%	21%
	TOTAL	33,280,882	130	145	275	28	41	196	0.83	0.06	53%	10%	15%
2020	TTLCP	TG+JM+SP 7,839,136	4	19	23	3	3	21	0.29	0.03	83%	13%	13%
	MTLCP	MM + KS 8,968,642	22	25	47	7	5	34	0.52	0.04	53%	15%	11%
	NTLCP	Netrakona 2,468,488	8	9	17	1	1	13	0.69	0.05	53%	6%	6%
	RTLCP	RA + NG + NW 7,522,018	48	41	89	7	4	74	1.18	0.10	46%	8%	4%
	FTLCP	FP+GP+MP+RJ+SR 6,806,474	8	5	13	1	1	10	0.19	0.01	38%	8%	8%
	TOTAL	33,604,759	90	99	189	19	14	152	0.56	0.05	52%	10%	7%
2021	TTLCP	TG+JM+SP 7,903,511	12	20	32	2	7	27	0.40	0.03	63%	6%	22%
	MTLCP	MM + KS 9,078,921	23	21	44	1	5	39	0.48	0.04	48%	2%	11%
	NTLCP	Netrakona 2,496,382	5	8	13	0	5	12	0.52	0.05	62%	0%	38%
	RTLCP	RA + NG + NW 7,607,836	25	34	59	12	2	55	0.78	0.07	58%	20%	3%
	FTLCP	FP+GP+MP+RJ+SR 6,845,495	7	4	11	1	1	8	0.16	0.01	36%	9%	9%
	TOTAL	33,932,145	72	87	159	16	20	141	0.47	0.04	55%	10%	13%

CONSOLIDATED REPORT, LEPROSY 2021
Caseloading and results of treatment, workload

Annex Table - 5

Project	District	PB/MB	On treatment on 31/12/2021	Completed MDT	For care on 31/12/2021	MDT Relapse over 2021	Outcome of treatment(cohort: PB 2020 & MB 2019 in %)	
							completed	defaulted
TTLCP	Tangail	PB	0	0	4	0	0%	0%
		MB	4	6	96	0	100%	0%
	Jamalpur	PB	1	2	11	0	100%	0%
		MB	12	9	124	0	92%	0%
	Sherpur	PB	5	6	31	0	100%	0%
		MB	5	6	182	0	80%	20%
	TOTAL	PB	6	8	46	0	100%	0%
	PROJECT	MB	21	21	402	0	91%	4%
		TOTAL	27	29	448	0	93%	4%
MTLCP	Mymensingh	PB	12	21	51	0	90%	10%
		MB	20	17	227	2	100%	0%
	Kishoreganj	PB	1	2	47	0	100%	0%
		MB	6	2	134	0	100%	0%
	TOTAL	PB	13	23	98	0	91%	9%
	PROJECT	MB	26	19	361	2	100%	0%
		TOTAL	39	42	459	2	96%	4%
NTLCP	Netrakona	PB	3	5	18	0	100%	0%
		MB	9	9	100	0	91%	0%
		TOTAL	12	14	118	0	95%	0%
RTLCP	Naogaon	PB	5	19	10	0	100%	0%
		MB	21	12	81	0	96%	4%
	Nawabganj	PB	2	4	2	0	100%	0%
		MB	10	12	69	0	100%	0%
	Rajshahi	PB	9	15	9	0	95%	0%
		MB	8	15	72	1	95%	5%
	TOTAL	PB	16	38	21	0	98%	0%
	PROJECT	MB	39	39	222	1	97%	3%
		TOTAL	55	77	243	1	97%	2%
FTLCP	Faridpur	PB	0	0	0	0	0%	0%
		MB	0	0	42	0	0%	0%
	Gopalganj	PB	0	0	0	0	0%	0%
		MB	0	1	30	0	0%	0%
	Madaripur	PB	1	1	3	0	0%	0%
		MB	0	1	33	0	100%	0%
	Rajbari	PB	0	1	8	0	0%	0%
		MB	1	0	19	0	0%	0%
	Sariatpur	PB	3	7	14	0	100%	0%
		MB	3	2	45	0	100%	0%
	TOTAL	PB	4	9	25	0	100%	0%
	PROJECT	MB	4	4	169	0	100%	0%
		TOTAL	8	13	194	0	92%	0%
ALL PROJECTS		PB	42	83	208	0	97%	2%
		MB	99	92	1254	3	97%	2%
		TOTAL	141	175	1462	3	97%	2%

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Evolution of casefinding and caseload

Annex Table-6

Project	Districts & population	NUMBERS									RATES					
		New cases			New child	New SLPB	New Women	New Gr. 2 Disab.	SSS+ve MB	UT at end	New per 100,000 pop.	Preval. per 10,000 pop.	New (%) MB	(%) SSS+ve among MB	New (%) Child.	New Gr. 2 (%) Disab.
		PB	MB	Total												
TTLCP	Tangail 3,932,223	1	4	5	0	0	3	2	2	4	0.1	0.0	80.0	50.0	0.0	40.0
	Jamalpur 2,472,401	2	11	13	0	0	5	2	0	13	0.5	0.1	84.6	0.0	0.0	15.4
	Sherpur 1,434,513	9	5	14	2	0	6	3	2	10	1.0	0.1	35.7	40.0	14.3	21.4
	Total project 7,839,136	**12**	**20**	**32**	**2**	**0**	**14**	**7**	**4**	**27**	**0.4**	**0.0**	**62.5**	**20.0**	**6.3**	**21.9**
MTLCP	Mymensingh 5,740,224	20	15	35	1	0	17	4	7	32	0.6	0.1	42.9	46.7	2.9	11.4
	Kishoregonj 3,228,419	3	6	9	0	0	5	1	1	7	0.3	0.0	66.7	16.7	0.0	11.1
	Total project 8,968,642	**23**	**21**	**44**	**1**	**0**	**22**	**5**	**8**	**39**	**0.5**	**0.0**	**47.7**	**38.1**	**2.3**	**11.4**
NTLCP	**Netrakona 2,468,488**	**5**	**8**	13	**0**	**0**	**5**	**5**	**3**	**12**	**0.5**	**0.0**	**61.5**	**37.5**	**0.0**	**38.5**
RTLCP	Naogaon 2,801,756	11	19	30	6	0	12	1	0	26	1.1	0.1	63.3	0.0	20.0	3.3
	Nawabganj 1,873,638	4	7	11	2	0	4	1	2	12	0.6	0.1	63.6	28.6	18.2	9.1
	Rajshahi 2,846,624	10	8	18	4	0	5	0	2	17	0.6	0.1	44.4	25.0	22.2	0.0
	Total project 7,522,018	**25**	**34**	**59**	**12**	**0**	**21**	**2**	**4**	**55**	**0.8**	**0.1**	**57.6**	**11.8**	**20.3**	**3.4**
FTLCP	Faridpur 2,056,553	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
	Gopalgonj 1,193,142	0	1	1	0	0	1	1	0	0	0.1	0.0	0.0	0.0	0.0	0.0
	Madaripur 1,190,771	1	0	1	0	0	0	0	0	1	0.1	0.0	0.0	#DIV/0!	0.0	0.0
	Rajbari 1,133,223	1	1	2	0	0	1	0	0	1	0.2	0.0	0.0	0.0	0.0	0.0
	Sariatpur 1,232,785	5	2	7	1	0	2	0	0	6	0.6	0.0	28.6	0.0	14.3	0.0
	Total project 6,806,474	**7**	**4**	**11**	**1**	**0**	**4**	**1**	**0**	**8**	**0.2**	**0.0**	**36.4**	**0.0**	**9.1**	**9.1**
All project	**Total population 33,604,759**	**72**	**87**	**159**	**16**	**0**	**66**	**20**	**19**	**141**	**0.5**	**0.0**	**54.7**	**21.8**	**10.1**	**12.6**

TUBERCULOSIS: Evolution of case findings and caseload

Annex Table-7

Year	Project	Districts & population	All TB patients	PBC	No smear done PTB	PCD & EP	Proportion PBC / total
2014	TTLCP	TG + JM + DEPZ 6,118,537	6,030	3,700	0	2,330	61%
	MTLCP	MM + KS 6,037,824	6,995	4,044	0	2,951	58%
	NTLCP	Netrakona 2,306,900	2,765	1,587	0	1,178	57%
	RTLCP	RA + NG + NW 6,801,430	4,488	2,530	0	1,958	56%
	FTLCP	FP+GP+MP+RJ+SR 6,573,679	4,202	2,143	0	2,059	51%
	TOTAL	27,838,370	24,480	14,004	0	10,476	57%
2015	TTLCP	TG + JM + DEPZ 6,176,815	6,044	3,501	0	2,543	58%
	MTLCP	MM + KS 6,112,926	7,098	3,898	0	3,200	55%
	NTLCP	Netrakona 2,333,286	2,734	1,540	0	1,194	56%
	RTLCP	RA + NG + NW 6,875,746	4,658	2,358	0	2,300	51%
	FTLCP	FP+GP+MP+RJ+SR 6,613,354	4,204	2,045	0	2,159	49%
	TOTAL	28,112,127	24,738	13,342	0	11,396	54%
2016	TTLCP	TG+JM+DEPZ 6,235,784	5,766	3,353	0	2,413	58%
	MTLCP	MM + KS 6,189,302	7,451	4,243	0	3,208	57%
	NTLCP	Netrakona 2,359,995	2,585	1,569	0	1,016	61%
	RTLCP	RA + NG + NW 6,896,330	4,393	2,292	0	2,101	52%
	FTLCP	FP+GP+MP+RJ+SR 6,653,417	4,105	2,056	0	2,049	50%
	TOTAL	28,334,828	24,300	13,513	0	10,787	56%
2017	TTLCP	TG+JM+DEPZ 6,239,782	5,906	3,391	0	2,515	57%
	MTLCP	MM + KS 6,254,078	7,905	4,403	0	3,502	56%
	NTLCP	Netrakona 2,386,663	2,724	1,716	0	1,008	63%
	RTLCP	RA + NG + NW 6,781,245	4,812	2,498	0	2,314	52%
	FTLCP	FP+GP+MP+RJ+SR 6,691,233	4,286	2,096	0	2,190	49%
	TOTAL	28,353,001	25,633	14,104	0	11,529	55%
2018	TTLCP	TG+JM+DEPZ 6,294,251	6,531	3,114	0	3,417	48%
	MTLCP	MM + KS 6,329,761	7,974	4,073	0	3,901	51%
	NTLCP	Netrakona 2,413,632	3,094	1,589	0	1,505	51%
	RTLCP	RA + NG + NW 6,857,942	5,302	2,463	0	2,839	46%
	FTLCP	FP+GP+MP+RJ+SR 6,729,346	4,774	2,012	0	2,762	42%
	TOTAL	28,624,932	27,675	13,251	0	14,424	48%
2019	TTLCP	TG+JM+DEPZ 6,419,197	7,221	3,353	0	3,868	46%
	MTLCP	MM + KS 6,406,364	8,361	4,115	0	4,246	49%
	NTLCP	Netrakona 2,440,906	3,308	1,474	0	1,834	45%
	RTLCP	RA + NG + NW 6,985,551	6,060	2,756	0	3,304	45%
	FTLCP	FP+GP+MP+RJ+SR 6,767,759	5,485	2,022	0	3,463	37%
	TOTAL	29,019,777	30,435	13,720	0	16,715	45%
2020	TTLCP	TG+JM+DEPZ 6,474,624	5,703	2,635	0	3,068	46%
	MTLCP	MM + KS 6,483,896	7,365	3,825	0	3,540	52%
	NTLCP	Netrakona 2,468,488	2,516	1,183	0	1,333	47%
	RTLCP	RA + NG + NW 7,064,085	5,048	2,657	0	2,391	53%
	FTLCP	FP+GP+MP+RJ+SR 6,806,474	3,883	1,736	0	2,147	45%
	TOTAL	29,297,567	24,515	12,036	0	12,479	49%
2021	TTLCP	TG+JM+DEPZ 6,530,534	8,723	3,987	0	4,736	46%
	MTLCP	MM + KS 6,562,370	9,411	5,037	0	4,374	54%
	NTLCP	Netrakona 2,496,382	3,085	1,548	0	1,537	50%
	RTLCP	RA + NG + NW 7,143,553	6,247	3,605	0	2,642	58%
	FTLCP	FP+GP+MP+RJ+SR 6,845,495	5,061	2,135	0	2,926	42%
	TOTAL	29,578,335	32,527	16,312	0	16,215	50%

TB case notification, 2021

Annex Table-8

District	Population covered	Pulmonary Bacteriologically Confirmed (PBC) TB Patients					Pulmonary Clinically Diagnosed (PCD)	Extra-pulmonary (EP) New	PCD & EP not New	Total registration	% of new PBC patients	Notification rate/100,000 pop. new PBC	Notification rate/100,000 pop. all forms of TB
		New cases	Relapses	Failures	RALTFU	Other							
Faridpur	2,073,828	546	56	6	1	4	262	368	46	1289	42%	26	62
Rajbari	1,144,216	233	25	6	0	3	73	203	38	581	40%	20	51
Madaripur	1,192,796	319	38	5	1	9	224	237	34	867	37%	27	73
Gopalganj	1,193,858	347	42	3	0	3	217	245	31	888	39%	29	74
Shariatpur	1,240,798	450	22	3	0	13	618	276	54	1436	31%	36	116
FTLCP	**6,845,495**	**1895**	**183**	**23**	**2**	**32**	**1394**	**1329**	**203**	**5061**	37%	28	74
Naogaon	2,825,010	1612	72	14	1	2	296	664	58	2719	59%	57	96
Nawabganj	1,900,619	518	66	2	0	1	187	484	43	1301	40%	27	68
Rajshahi	2,367,924	1210	45	15	3	0	191	570	50	2084	58%	51	88
RMCH	50,000	28	8	5	0	3	4	93	2	143	20%	56	286
RTLCP	**7,143,553**	**3368**	**191**	**36**	**4**	**6**	**678**	**1811**	**153**	**6247**	54%	47	87
Tangail	3,967,613	2215	161	20	1	2	1,875	954	392	5620	39%	56	142
Jamalpur	2,492,922	1372	117	28	7	3	641	635	165	2968	46%	55	119
DEPZ	70,000	56	5	0	0	0	6	59	9	135	41%	80	193
TTLCP	**6,530,534**	**3643**	**283**	**48**	**8**	**5**	**2522**	**1648**	**566**	**8723**	42%	56	134
NTLCP	**2,496,382**	**1365**	**152**	**25**	**3**	**3**	**760**	**615**	**162**	**3085**	44%	55	124
Mymensingh	3,297,148	1819	175	50	3	10	808	918	294	4077	45%	55	124
Kishoreganj	3,265,223	2767	182	24	4	3	984	1121	249	5334	52%	85	163
MTLCP	**6,562,370**	**4,586**	**357**	**74**	**7**	**13**	**1,792**	**2,039**	**543**	**9,411**	49%	70	143
DF Bangladesh	**29,578,335**	**14,857**	**1,166**	**206**	**24**	**59**	**7,146**	**7,442**	**1,627**	**32,527**	46%	50	110

Note: RL = Relapses, FL = Failures, RALTU = Retrun after loss to follow-up

Treatment outcomes for new smear positive cases, 2020 cohort

Annex Table-9

		Treatment outcomes (%)						
Districts	Registered	Cured + Completed	Died	Failed	Lost to follow up	Transferred out / Not. Evaluated	Not evaluated	Treatment success (%)
NETRAKONA	1080	93%	4%	3%	0%	0%	0%	93%
TANGAIL	1427	90%	5%	3%	2%	0%	0%	90%
DEPZ	42	95%	0%	2%	0%	2%	0%	95%
JAMALPUR	958	89%	6%	2%	2%	1%	0%	89%
MYMENSINGH	1396	90%	5%	3%	1%	1%	0%	90%
KISHOREGANJ	2139	95%	3%	2%	0%	0%	0%	95%
NAOGAON	1234	92%	6%	1%	1%	0%	0%	92%
NAWABGANJ	503	94%	4%	1%	1%	0%	0%	94%
RAJSHAHI	749	90%	5%	3%	3%	0%	0%	90%
FARIDPUR	403	92%	4%	3%	1%	0%	0%	92%
GOPALGANJ	281	95%	4%	2%	0%	0%	0%	95%
MADARIPUR	277	89%	5%	3%	2%	0%	0%	89%
RAJBARI	160	91%	7%	2%	1%	0%	0%	91%
SARIATPUR	433	95%	4%	1%	0%	0%	0%	95%
TOTAL DF	**11082**	**92.0%**	**4.5%**	**2.1%**	**1.1%**	**0.2%**	**0.1%**	**92.0%**

Treatment outcomes for re-treatment smear positive cases, 2020 cohort

Annex Table -10

		Treatment outcomes (%)						
Districts	Registered	cured	died	failed	Lost to follow up	transferred	not evaluated	treatment success (%)
NETRAKONA	103	83%	11%	5%	2%	0%	0%	83%
TANGAIL	113	86%	12%	2%	1%	0%	0%	86%
DEPZ	4	75%	25%	0%	0%	0%	0%	75%
JAMALPUR	92	80%	15%	0%	4%	0%	0%	80%
MYMENSINGH	148	84%	4%	4%	5%	2%	1%	84%
KISHOREGANJ	142	93%	5%	1%	0%	1%	1%	93%
NAOGAON	59	93%	5%	0%	2%	0%	0%	93%
NAWABGANJ	45	93%	7%	0%	0%	0%	0%	93%
RAJSHAHI	55	78%	5%	5%	11%	0%	0%	78%
FARIDPUR	47	89%	6%	0%	4%	0%	0%	89%
GOPALGANJ	35	94%	3%	3%	0%	0%	0%	94%
MADARIPUR	43	84%	9%	2%	5%	0%	0%	84%
RAJBARI	23	100%	0%	0%	0%	0%	0%	100%
SARIATPUR	34	91%	6%	0%	3%	0%	0%	91%
TOTAL DF	**943**	**87.0%**	**7.5%**	**2.0%**	**2.9%**	**0.4%**	**0.2%**	**87.0%**

Table: Summary resutls of External Quality Assurance by project 2021

Annex Table 11

		Routine smears examined (nos.)			Smears rechecked by EQA (nos.)			EQA rechecking results					
PROJECTS	Nr. Of Microscopy centres	Total	% positive	% scanty	Pos.	Scanty	Neg.	Nr. HFP slides	Nr. HFN slides	Nr. Of centres with at least 1 HFP	Nr. Of centres with at least 1 HFN	HFP%	HFN%
FTLCP	38	147,097	1.1%	0.5%	105	65	2039	1	0	1	0	0.59%	0.00%
MTLCP	35	175,906	3.0%	1.1%	161	52	1879	2	1	2	1	0.94%	0.05%
NTLCP	12	68,745	1.8%	0.9%	56	24	635	0	0	0	0	0.00%	0.00%
RTLCP	32	123,341	1.8%	1.8%	163	45	1713	3	2	2	2	1.44%	0.12%
TTLCP	35	117,428	2.5%	1.4%	53	15	1851	0	0	0	0	0.00%	0.00%
DF Total	**152**	**632,517**	**2.09%**	**1.13%**	**538**	**201**	**8117**	**6**	**3**	**5**	**3**	**1.12%**	**0.04%**

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Quality Control of Skinsmears: 2021

Annex Table 12

Project	Total smears checked in QC			Rates of false results						Proportions registered results			Neg.(amo ng all smears)
	Pos.		Neg.	False positives		False negatives		Quantification		Among all positives			
	+1	+2 to +6		+1	+2 to +6	+1	+2 to +6	1 log	>1 log	+1/+2	+3/+4	+5/+6	
TTLCP	0	3	27	0%	0%	0%	0%	0%	100%	21%	47%	32%	92%
MTLCP	0	12	42	0%	0%	0%	0%	33%	0%	20%	49%	32%	92%
NTLCP	3	3	20	0%	0%	0%	0%	0%	0%	67%	33%	0%	79%
RTLCP	1	4	108	100%	25%	1%	6%	0%	0%	50%	28%	22%	95%
FTLCP	0	3	21	0%	0%	0%	0%	0%	0%	33%	67%	0%	93%
DF TOTAL	**4**	**25**	**218**	**25%**	**4%**	**0%**	**3%**	**14%**	**10%**	**33%**	**43%**	**24%**	**92%**

Pictures of few activities

DFCO participation in national level rally in Dhaka on the occasion of World TB day 2021

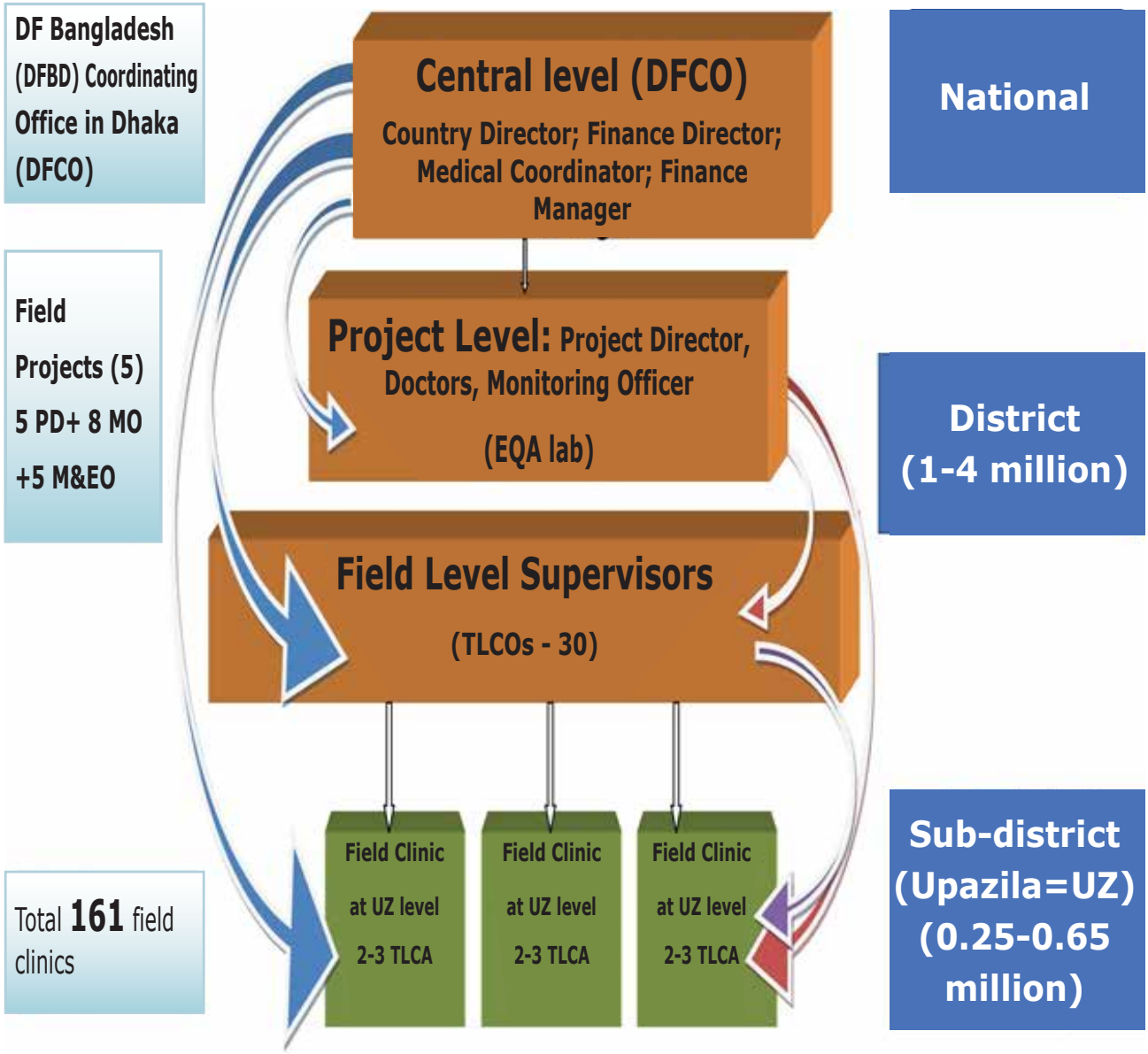
Health Education conducting intensive extended contact survey (IECS)

Orientation of village doctors in Faridpur Project

Opinion Leaders Orientation in Faridpur Project

Damien Foundation Bangladesh

Monitoring and Supervision Structure



PD = Project Director, MO = Medical Officer, M&EO = Monitoring & Evaluation Officer, UZ = Upazila (Sub-district),

DF Jalchatra Hospita

DF Mymensingh Hospital

DF Netrakona Hospital

ANNUAL REPORT 2021

damien foundation BANGLADESH

let's act now, it's contagious

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