

RESPONDING TO COVID-19

TB PROGRAM'S PREPAREDNESS, RESPONSE AND LESSON LEARNED

AUGUST 2021



Government of Nepal
Ministry of Health and Population
Department of Health Services
National Tuberculosis Control Center

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MESSAGE FROM DIRECTOR

COVID-19 has been one of the biggest viral threat humankind has had to face. The pandemic has not only caused immense damage to human life but also put the world economy on a standstill, pushing millions further into poverty. When the first-ever case surfaced in Wuhan, China, on December 31, 2019, it took less than a week for the virus to reach Nepal, with the first case being detected on January 23, 2020. Its impact on health in Nepal was no different from any other country. On the other hand, TB has been a major public health program in Nepal, with a recent survey showing higher burden estimates of TB, nearly 68,000 New cases estimated in 2018-19. TB program in Nepal is a priority program, with nearly 3% annual decline in incidence projected each year, was gearing toward Global END TB target of reducing the incidence by 90% by 2035 compared to 2015 baseline.

With both TB and COVID infecting primarily the lungs, with similar vulnerable populations and transmission chains, there was a risk of losing the hard-earned gains of the TB program due to COVID co-infection. The NTP program responded quickly with varying public health interventions to continue TB diagnosis and management even during and post COVID situation. Through the formation of Rapid response teams, timely development and dissemination of Intermediate guidelines, facilities assessments, and capacity building, and with rigorous health system and partners collaboration, NTCC was able to keep the TB services functioning through these periods, all of which has been described in this document.

I would like to thank all the volunteers, health staff at all diagnostic and treatment facilities, program focal persons and managers at health facilities, local level, district, and provincial levels, Sub-recipient partners SRs, and other partners (NGOs/INGOs) including the private sector and academia.

My special thank goes to WHO country office Nepal, Save the children/Global Fund programs for their continued technical and financial support to the TB program and also for their contribution in developing this report, and the team at NTCC whose continued efforts has been vital to TB program.

Kind Regards


Dr. Anuj Bhattachan
Director

ACRONYMS & ABBREVIATIONS

TB	tuberculosis
WHO	World Health Organization
COVID-19	Coronavirus disease of 2019
RCC	rapid response committee
DR-TB	drug-resistance tuberculosis
HEOC	Health Emergency Operation Center
DOTS	directly observed treatment, Short-course.
DST	drug susceptibility testing
LPA	line probe assay
ACF	active case finding
NTCC	National Tuberculosis Control Center
NTP	national TB program
IPC	infection, prevention and control
WASH	water, sanitation and hygiene
NATA	Nepal Anti Tuberculosis Association
HCWM	health care waste management
CME	continuing medical education
SEARO	South-East Asia Regional Office
MnE	Monitoring and Evaluation
SCI	Save the Children International
PCR	polymerase chain reaction
LL	local level
PR	principal recipient
CCM	country coordinating mechanism
C19RM	COVID-19 response mechanism
ECG	electrocardiogram
BSL	bio-safety level
AI	artificial intelligence

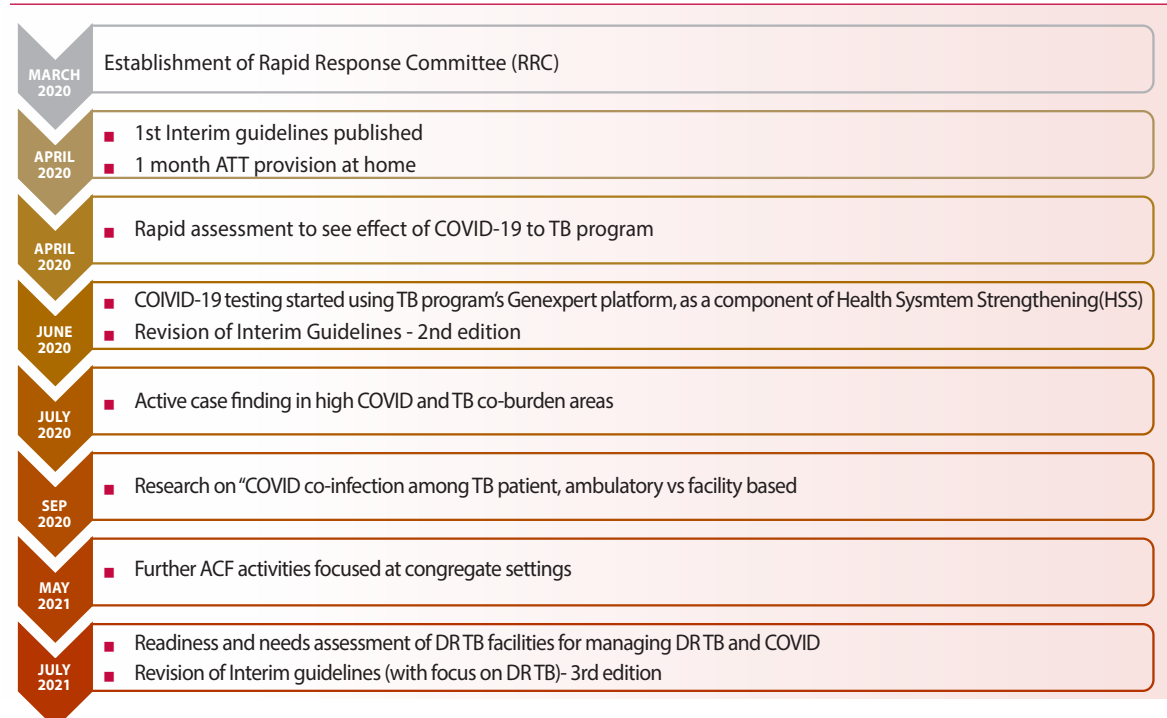
1. SITUATION

Tuberculosis (TB) remains the leading cause of respiratory communicable disease and a public health challenge in Nepal. Meanwhile, the World Health Organisation (WHO) declared that the Coronavirus has been posing as a pandemic based on the alarming levels of spread and severity and the stages of infection. Both the disease have the same nature and similar symptoms and effects to the lungs.

Different modeling analysis suggests that additional 6.3 million cases of TB and an additional 1.4 million TB deaths attributable to the COVID-19 pandemic between 2020 and 2025 globally. Global TB incidence and deaths in 2021 would increase to 2013 and 2016 levels respectively a setback of 5-8 years in the fight against TB. COVID-19 has affected the whole cascade of care and prevention for TB in the world.

Since Late January 2020, when the first COVID-19 case was identified in Nepal followed by nationwide lockdown in late March 2020, the TB program was also on high alert. Both diseases had common presentations, similar modes of transmission, and affected primarily lungs hence there was a higher probability of a poor clinical outcome. To address and minimize the impact of this dual burden National TB Control center were proactive and took various early steps throughout the COVID-19 period (Figure 1) to manage TB and continuation of different TB activities explained below in different chapter in this document. The following efforts were made to continue TB services in the pandemic situation in Nepal.

FIGURE 1: TIMELINES OF ACTIONS TAKEN BY TB PROGRAM IN MANAGE IMPACT OF COVID-19 ON TB PROGRAM



1.1 PREPARING FOR EMERGENCY (RAPID RESPONSE COMMITTEE AND INTERIM GUIDELINE)

For efficient management of TB, NTP formed a Rapid Response Committee (RRC) in March 2020, which was led by NTCC and supported by a different partner. The main function of RRC was to support in the following areas:

- To coordinate with HEOC and partners at line ministry
- To coordinate at provincial, district, and local levels.
- Ensure availability of essential logistics from federal till health facility level
- Support data management
- Provide support on Technical and clinical management
- Interact with media for media monitoring, media briefing

1.2 INTERIM GUIDELINE FOR TB MANAGEMENT DURING COVID-19

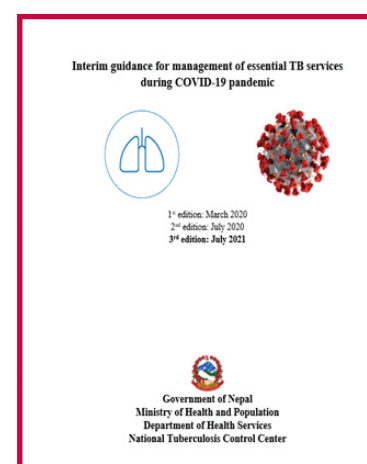
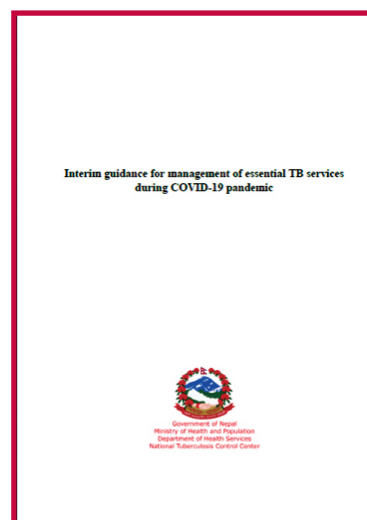
This was followed by the publication of *Interim guidelines- 1st edition* "Interim guidance for management of essential TB services during COVID-19 pandemic¹" on 23rd March 2020 with key highlights

- Provision on a longer 1-month regimen to be provided to a patient who is willing to manage daily DOT under the supervision of family at home.
- Different measures of IPC and PPE use at health care facilities during COVID-19 with regards to TB services.

As the COVID-19 cases were increasing significantly during the period, an *Interim guideline-2nd edition* was endorsed on July 2020, with a focus on the management of TB and the continuation of services based on different stages of the COVID-19 surge.

In July 2021, during the second surge, *Interim guideline-3rd edition* version has now been proposed for the endorsement process, with key highlights as to address DR TB management during COVID-19 which was not focused on in the previous two editions. In particular:

- Continuation of 1-month treatment provision at home for both Drug sensitive as well as for Drug-resistant patients.
- Strengthening of IPC especially in DR TB longer-term inpatient facilities like DR TB hostels, homes, referral centers
- Management of TB COVID-19 co-infection including screening, referral, diagnosis, and treatment.



1. <http://nepalntp.gov.np/wp-content/uploads/2020/03/Interim-guidance-for-management-of-essential-TB-services-during-COVID-19-pandemic.pdf>

2 LABORATORY CAPACITY

TB program through its regular communication since the start of 1st surge in March 2020, has put all efforts to continue the TB diagnostic services. In the early period, because of the surge, redirection of Human resources for COVID-19 management, the diagnostic capacity significantly decreased, but slowly picked up to normal after the end of 1st surge and has been continuing as the same since then. The utilization of GeneXpert was down to 6% during 1st surge and it has increased to 38% after the end of 1st surge. The expansion of 8 new GeneXpert sites was interrupted due to 1st and 2nd surge. For the capacity building at the province level; all the GeneXpert sites were trained for operation, maintenance, and quality management on GeneXpert testing.

TB program also as a component of health system strengthening, aspired to support COVID-19 testing using its currently available GeneXpert platforms. Nearly 25,000 Xpert Xpress SARS COV-2 cartridges were bought into the country at various stages and 7 sites throughout the country provided the services, where the results for COVID-19 testing on a real-time PCR basis were available within 45 mins of testing time. The details of the operation guidelines are accessible at <http://nepalntp.gov.np/wp-content/uploads/2020/08/Operational-plan-for-Xpert-Xpress-SARSCOV-2.pdf>

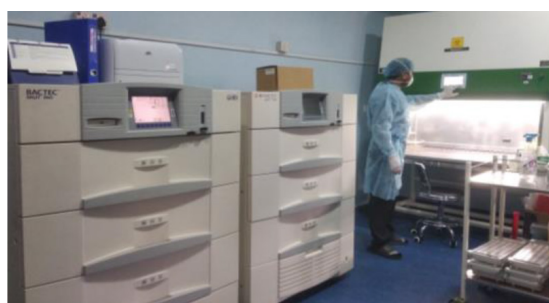
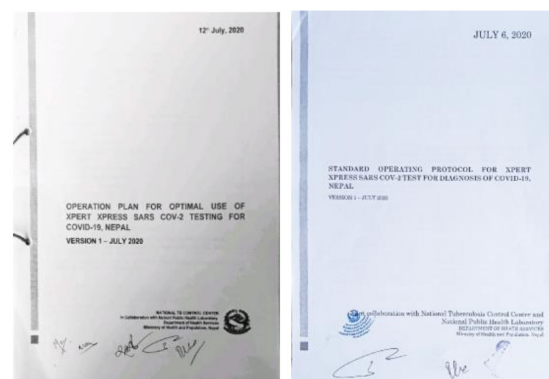


Photo feature: Lab staff at NTCC continued TB



PROVINCE	SITES FOR XPERT XPRESS SARS COV-2 TEST
PROVINCE 1	B. P. Koirala Institute of Health Sciences, Dharan
PROVINCE 2	Narayani Hospital, Birjung
GANDAKI	Provincial TB Center, Pokhara
PROVINCE 5	Bheri Hospital, Nepaljung Lumbini Provincial Hospital, Butwal
KARNALI	Karnali Provincial Hospital, Surkhet
SUDUR-PASCHIM	Dadeldhura Hospital

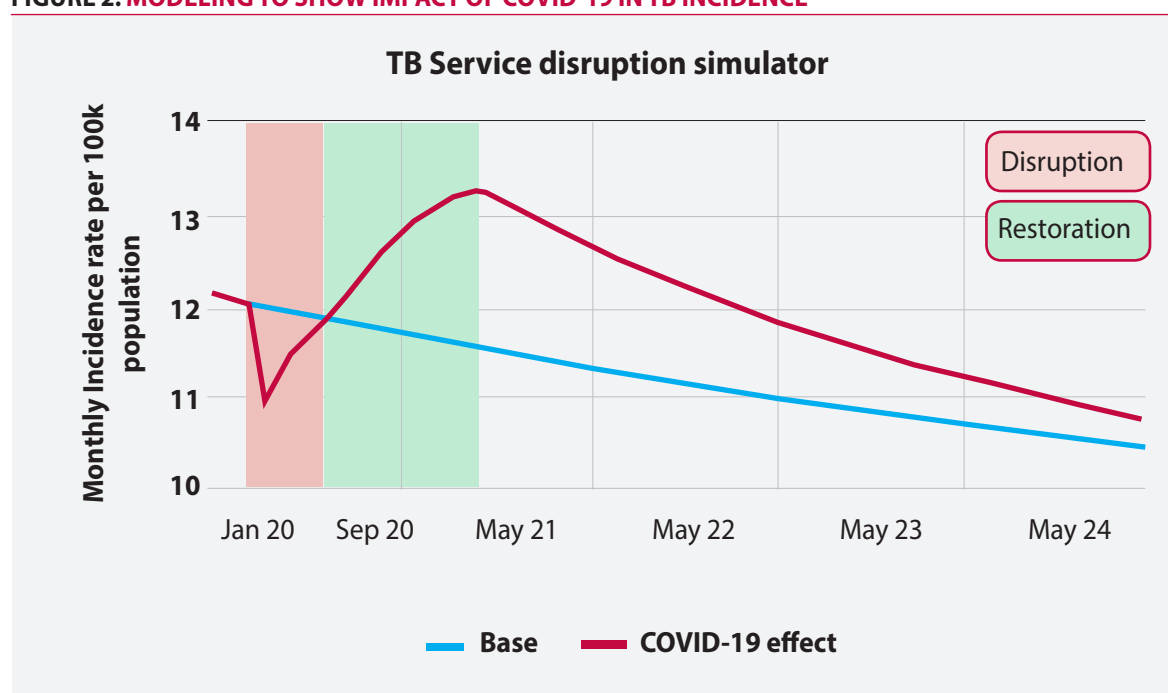
As a system strengthening component, One 16 module capacity GeneXpert machine was also provided to NPHL on 21st Feb 2021.

3.

EPIDEMIOLOGICAL AND RESPONSE TRAJECTORY

Experience from the First surge of COVID-19 during March 2020 showed its significant impact on the TB program. The case notification despite best efforts then were significantly reduced. Using this information, the modeling was carried out with the support of WHO, which also showed a significant increase in estimated incidence particularly during the restoration phase following the lockdown with a longer-term impact on TB epidemiology. Now, with the second surge ongoing, a similar or even greater impact can be expected to the TB program. (Figure 2)

FIGURE 2: MODELING TO SHOW IMPACT OF COVID-19 IN TB INCIDENCE



3.1 HEALTH SERVICES AND CLINICAL MANAGEMENT AND ESSENTIAL SERVICE CONTINUITY

Despite the impact of COVID-19, essential TB services were functional. NTP has managed to ensure TB drugs are at all treatment sites. There was no report of stock out of any medicines. TB services in the year 2020 were continued through the integration of a decentralized health service delivery system through 4955 DOTS centers and 765 microscopic centers. Specialized services were provided from 22 DR TB treatment centers, 81 DR TB treatment sub-centers, 6 DR TB hostels, and 1 DR TB home. Diagnosis services were further provided through 72 Genexpert sites, 2 Culture labs with DST and LPA services. Despite this, case notification

4.

KEY INTERVENTION TO CATCH UP ON MISSED TB CASES

4.1 ACTIVE CASE FINDINGS(ACF) AT COMMUNITY LEVEL

Different ACF activities as a part of catch-up activities were done to find the missing cases in the community. During the 1st surge of COVID-19, based on the burden estimates of COVID-19 as well as of TB then, possible hotspot areas were identified, and nearly Active case findings activities were carried out in 117 such sites in around 39 districts in the country. Besides case finding being the main objective, the initiation also helps disseminate TB knowledge and spreads awareness among communities. Most of the screening was based on questionnaires and testing with GeneXpert (rapid molecular diagnostic method)

During the second wave, recently on May 2021, further ACF activities were carried out in the elderly home, Jail, and school hostel with the coordination and support of provincial and local level teams. This time, better screening tools like chest X-rays using mobile vans were used for screening. No cases were identified from elderly homes and prisons, however, among 90 screened in a school hostel, 10 Pulmonary TB cases were bacteriologically confirmed where as 11 cases were treated for TB based on symptoms and X-ray reading by physicians. NTP also initiated TB preventive therapy among 20 children in the population.



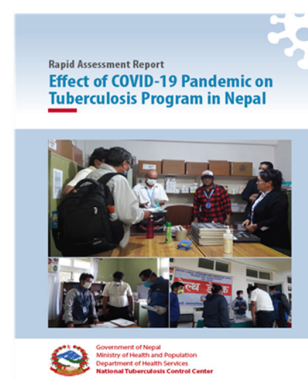
Photo Feature: A group of children <15 years of age, lined up to be screened for TB (in a school hostel). NTCC team conducting active case finding for TB among these congregate population using X-ray for screening and Genexpert for bacteriological confirmation.

RESEARCH AND ASSESSMENTS

Various assessments and research were conducted by NTCC with regards to TB and COVID-19, at various stages of this pandemic.

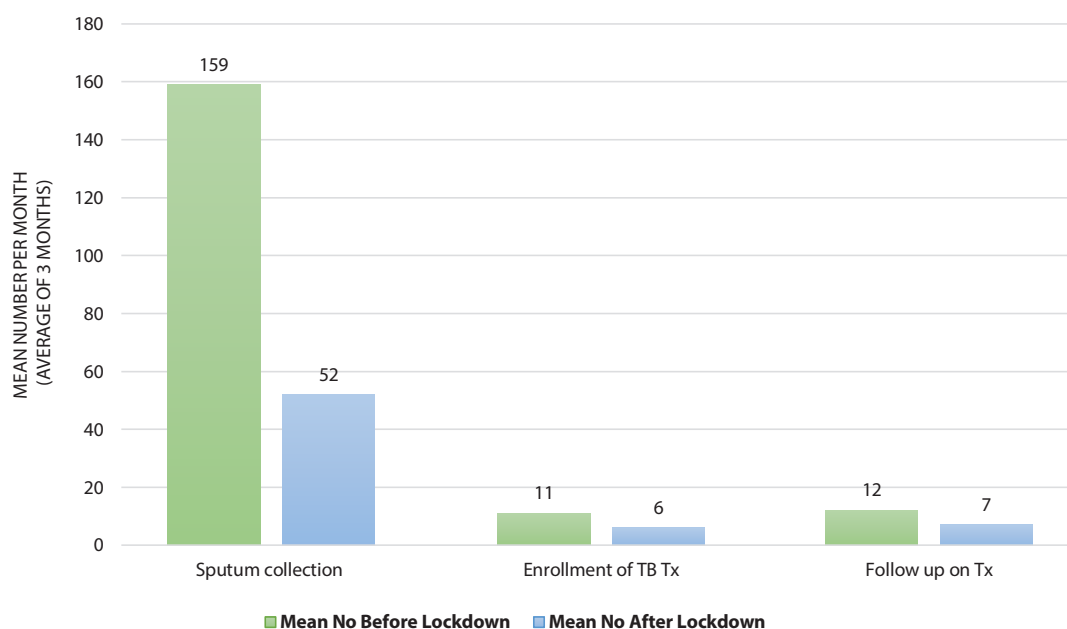
5.1 EFFECT OF COVID-19 PANDEMIC ON TUBERCULOSIS PROGRAM IN NEPAL- RAPID ASSESSMENT

In May-June 2020, NTP conducted a rapid assessment of the TB program, which showed that COVID-19 did have an early impact on TB diagnosis, sputum courier, and follow up (67.3%, 45.5%, and 41.7% decline in the mean number of sputum courier, enrollment, and follow-up of TB patients, Figure 3). However, TB drug stock and supply were maintained. Patients took TB drugs at home (as per interim guidelines) and few developed minimal side effects that were locally managed. About 93.0% of patients had heard about the COVID-19 with correct knowledge. With the result, it could be concluded that there has been a significant effect of COVID-19 on the TB program with regards to diagnosis, treatment, and follow-up. However, interim guidelines for longer provisions of the ATT drugs to be taken at home are important for the continuation of TB treatment in these situations.



The details report on the rapid assessment can be accessed through <https://nepalntp.gov.np/wp-content/uploads/2021/02/Rapid-Assessment-Report-Feb2021.pdf>

FIGURE 3: SUMMARY OF KEY FINDINGS OF THE RAPID ASSESSMENT FOLLOWING 1ST SURGE ON JUNE 2020



5.2 COVID-19 CO-INFECTION AMONG TB PATIENTS IN NEPAL

In Nov-Dec 2020, following the assessment, NTP realized that COVID-19 did have a significant impact on the TB program. There was still global, and the country needs to understand the association of these two diseases in more detail. For this, NTCC conducted another research "COVID-19 co-infection among TB patients in Nepal", where nearly 494 respondents from two high burden sites² in each province were studied. The result showed nearly 12% Drugs sensitive TB patients and nearly 40% of Drug resistant TB patients residing in the Hostel³ were co-infected. (Figure 4)

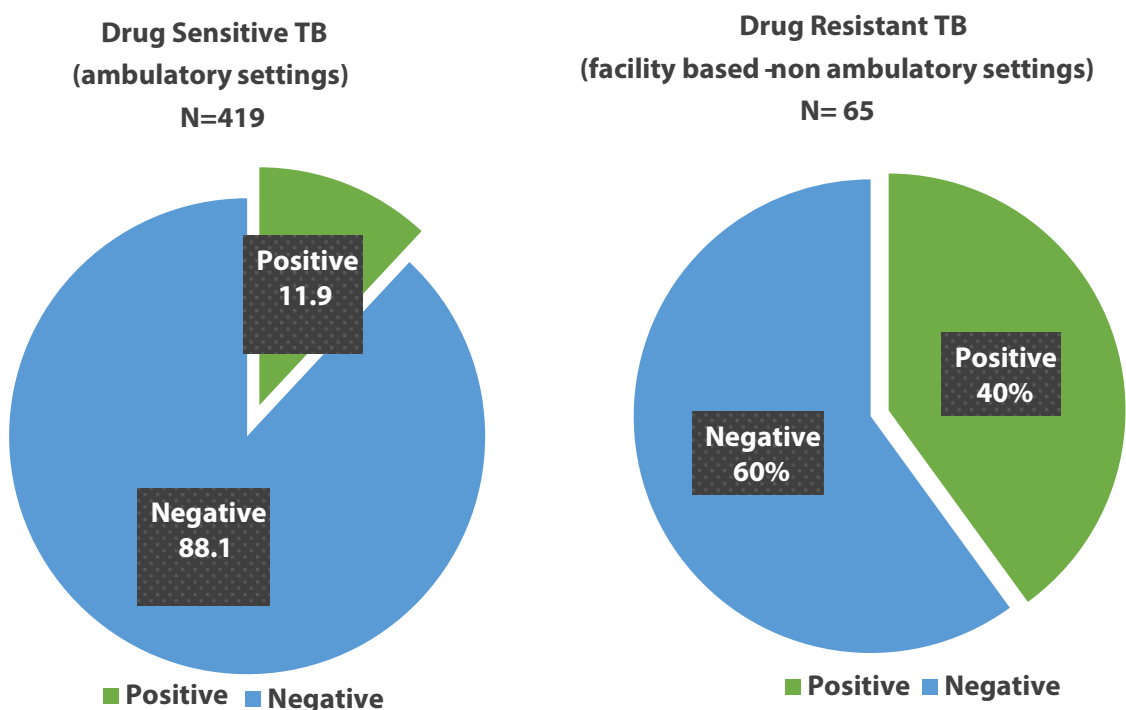


Photo Feature: Dr. Naveen Kumar Shah, Chief of Clinical section at NTCC, sharing the preliminary findings of rapid assessment and researches to the directors of different divisions and centers of DoHS at DG's office

The result was useful in informing policy to strengthen infection prevention at health facilities, address clinical and programmatic management of DR TB and TB among with possible COVID-19 / definitive COVID-19 comorbidity, need to incorporate bidirectional screening, and possibly prioritizing TB patients for COVID-19 vaccination. All these led to the revision of interim guidelines mentioned below in detail mentioned above.

Globally TB has been prioritized for Vaccination in many countries based on the vulnerability status. In Nepal, as vaccination is rolled out, prioritizing TB patients for COVID-19 vaccination is yet to be officially prioritized as of July 2021.

FIGURE 4: COVID-COINFECTION AMONG DS AND DR TB PATIENTS



2. High burden sites: Treatment centers (2 from each provinces) with highest TB case load purposively.
3. Facilities, where DR TB patients are provided long term in-patient services for continuation of their treatment, in situation where the patients are not able to reach out to DR TB sub-center/centers at community for daily DOT. There are 8 such facilities through out the country.

5.3 RAPID ASSESSMENT OF THE STATUS OF DR TB FACILITIES WITH LONGER-TERM IN-PATIENT SERVICES:

Also based on the research findings and start of the 2nd surge, in May 2021, NTCC again conducted a rapid assessment of the status of DR TB facilities with longer-term in-patient services using standard checklists among 9 such facilities. 100 DR TB patients were being managed at such facilities and 29 also had COVID-19. Out of nine such sites, four sites had started managing TB-COVID 19 coinfecting patients by developing a makeshift isolation site, whereas further three sites were planning to establish isolation centers (if support were provided). Only two centers had provision of managing testing for COVID-19 at the same facility. (Table 1) Of those who were diagnosed as COVID-19, 2 had died whereas others were being managed by isolating at the center itself. Most centers had no dedicated focal person for IPC, WASH, or HCWM and had no capacity or clinical expertise to support COVID-19 patients requiring any form of oxygen.

Based on it, NTCC immediately arranges for the supply of needed PPE for these centers along with capacity building (virtual training) with regards to ICP, HCWM, WASH including clinical and programmatic management of TB with COVID-19 as detailed below.

TABLE 1: STATUS OF DR TB PATIENTS, TB-COVID-19 PATIENTS, AND FACILITY READINESS FOR MANAGEMENT OF TB-COVI-19 CO-MORBIDITY

Name of DR Hostel	Capacity	Patient	TB with COVID	Presence of Isolation center	plan for developing an isolation ward	Lab for COVID testing
DR Hostel, Nata Morang	20	14	1	Yes (capacity of 5)	N/A	No, referral needed
DR Hostel Janakpur	6	5	0	No	No (needs referral)	No, referral needed
DR hostel, Genetup, Kathmandu (Referral center)	15	13	0	No	Yes	No, referral needed
DR home, Bandipur	15	3	0	No	N/A	No, referral needed
Madhya Bindu district hospital, Nawalpur	20	5	0	Yes (capacity of 8)	N/A	Yes, same facility
DR hostel, Butwal	15	5	0	No	Yes (needs budget support)	No, referral needed
TB Nepal, Nepalgunj (Referral Center)	45	45	25	Yes	N/A	No, referral needed
Laxmi Narayan hospital (Referral Center/Hostel), Dhangadhi	19	5	0	yes (capacity for 3)	N/A	No , referral needed
Dadeldhura Hospital	8	5	3	No	Yes (Covid19 beds 25/ICU beds 5) but, for TB COVID needs to be decided	Yes, same facility
Total	163	100	29	4 out of 9 centers	3 of out 9 centers	2 out fo 9 centers

6. CAPACITY BUILDING

Based on the rapid assessments, consultative TB meetings, demand, and as need, different capacity-building programs were provided in the forms of virtual CME and workshops.

23RD SEP 2020

- Modeling demo is for COVID impact on TB incidence, mortality rate and notification rates till 2024 for Nepal, facilitated by WHO SEARO.

28TH OCTOBER 2020

- Status NTP Data (Pre, During and Post Lockdown), facilitated by MnE section, NTCC

30TH APRIL 2021

- Virtual CME to discuss draft of interim guidance for the management of TB services during COVID 19 Pandemic by Clinical section of NTCC

MAY 2021

- Virtual Training on Infection prevention and control and waste management to focal points of DR TB hostel, referral centers, treatment centers
- IPC – Experts from NTCC, SCI and WHO
- WASH and Health care waste management – WHO

7. FINANCES

For COVID-19 response, apart from the budget through redbook, the TB program was able to direct nearly USD 1.27 Million in budget from Global Fund Grant. The majority of the investments were on the procurement of health products, equipment & commodities inclusive of PPE items, reagents, consumables, SARS COV 2 kit, GeneXpert COVID-19 PCR tests equipment & other health equipment & commodities. The budget was allocated for community-based TB case finding in hotspot areas of Local Level (LL), Research on “SARS-CoV-2 co-infection among TB patients in Nepal” and Broadcasting of TB messages on media. Recently in July 2021, NTC , WHO and PR (save the children) supported through CCM has secured USD 2.9 million budget for the TB program through Global Fund COVID-19 Response Mechanism (C19RM) for the period of 1 July 2021- 31 Dec 2023. The proposed budget was allocated under different interventions covering Case management, clinical operations, and therapeutics, COVID-19 Diagnostics and testing, Health products and waste management systems, Infection prevention and control, and protection of the health workforce & Mitigation for TB programs. Major activities budgeted under C19RM are as follows.

1. Procurement of consumables, items, and equipment for diagnosis, monitoring, and management of patients (Biological Safety Cabinet BSL II & Autoclave, GeneXpert machine, Sequencing analyzers & its reagent. pulse monitor, oxygen concentrator & ECG digital monitor and PPE items)
2. Intensified case detection (eg. Community-based Case finding, detection using Artificial Intelligence (AI) in CXR), strengthen TB care and support (eg. Nutritional support to TB patients) and TB service strengthening through IPC activities focused at DR-TB Hostel and Provincial DR Centers.
3. Digital follow-up Monitoring and adherence support at DR Sites, Messaging TB and COVID-19 message through television and FM radio, Development of Web/based smartphones platform TB applications, development of software/app, testing, finalizing, and also annual maintenance including cybersecurity of the application and data.



LESSON LEARNED, CHALLENGES, AND WAY FORWARD

Lesson learned and challenges learned and faced while responding to COVID-19 were important. In particular

- Need of continuous communication, proactive coordination, the proper and timely development, and dissemination of needed guidelines bringing accountability to respond from all levels.
- It is equally important to do all efforts to keep the logistics available and supplied both for diagnosis and continuation of treatment for TB.
- Mitigation efforts learned from COVID-19 management, such as social distancing, hand hygiene, proper isolation, and patient support need to continue for as long as possible to avert future outbreaks and beyond.
- Also, the key learning is the need to establish a robust Infection, prevention, and control system including HCWM and WASH at all levels especially where there is a higher risk of transmissions like DR-TB hostel, home, and referral centers.
- Pandemic leads to lots of limitations to access the TB services and activities to reach out to the community should be strengthened.
- These learning and experiences have also made us realize that preparedness is key to any disaster management and need to develop a comprehensive preparedness plan.
- The importance of investing in research and apply its findings into policy action and advocating for decision-makers, innovative thinking, systems to enhance laboratory and treatment capacity, and patients support mechanisms. Along with this, it is also realized that developing a workforce, which is fundamental for a quick and effective response to the current COVID-19 pandemic and future health emergencies is key at the national, provincial, and local level and engaging different partners and communities into this pool.
- Furthermore, it has also taught us the importance of digital community-based methods of patient monitoring, integrated data, and reporting systems to create uniformity in data reporting and its use.

The way forward is to build back better the existing TB services through an overall health system strengthening approach. The gains of the TB program have been estimated to be pushed back by 8-10 years at the global level and are the same in Nepal based on various models. To reach the END TB targets, the direction forward is

- Develop a robust catch-up plan intending to improve preventive measures through intensified IPC and scaling up Preventive therapy for TB.
- Improve diagnostic through intensified sputum collection methods at the community level and availing rapid diagnostics testing throughout the country.
- Improve treatment through different patient-friendly adherence methods (e.g. Community based, home-based DOT) and monitoring methods.
- Finding the missing cases in the Community is a key moving forward, which calls for intensified active case finding efforts with proper identification of hotspots area and vulnerable population for screening and using best available methods like X-ray and Genexpert.
- The pandemic's future course will depend greatly on the arrival of a vaccine and having the TB population vaccinated is a key step moving forward.

All these are only possible through engagement and accountability at local levels supported by provincial and federal levels, which NTP aims to achieve through the initiative of TB-free initiative and microplanning.

TECHNICAL SUPPORT BY:

