

NATIONAL TUBERCULOSIS INSTITUTE BENGALURU



Government of India
NATIONAL TUBERCULOSIS INSTITUTE
Ministry of Health and Family Welfare
'Avalon', No.8, Ballari Road, Bengaluru-560 003
INDIA

ANNUAL REPORT

2019-2020

**WHO Collaborating Centre
For
Tuberculosis Research and Training**

**ANNUAL REPORT
2019-20**



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Ministry of Health and Family Welfare
'Avalon', No.8, Ballari Road, Bengaluru-560 003
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LIST OF ABBREVIATIONS

ACSM	Advocacy Communication & Social Mobilization
ATT	Anti-Tuberculosis Treatment
BSc(N)	BSc in Nursing
CBNAAT	Cartridge Based Nucleic Acid Amplification Test
CIE	Central Internal Evaluation
CLTRI	Central Leprosy Training & Research Institute
CMO	Chief Medical Officer
CPWD	Central Public Works Department
CTD	Central Tuberculosis Division
DRTB	Drug Resistance Tuberculosis
DST	Drug Susceptibility Testing
DTC	District Tuberculosis Centre
DTO	District Tuberculosis Officer
ECHO	Extension for Community Healthcare Outcomes
EQA	External Quality Assurance
FIND	Foundation for Innovative New Diagnostics
FMR	Foundation for Medical Research
GCP	Good Clinical Practices
HRD	Human Resource Development
IEC	Institutional Ethics Committee
ICELT	International Centre of Excellence for Laboratory Training
ICMR	Indian Council of Medical Research
IRL	Intermediate Reference Laboratory
JALMA	Japanese Leprosy Mission for Asia
LIMS	Laboratory Information Management System
LPA	Line Probe Assay
LT	Laboratory Technician
MGIT	Mycobacteria Growth Indicator Tube

MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
NABL	National Accreditation Board of Laboratories
NATBPS	National TB Prevalence Survey
NIRT	National Institute for Research in Tuberculosis
NITRD	National Institute of TB and Respiratory Diseases
NRL	National Reference Laboratory
NTEG	National Technical Expert Group
NTEP	National Tuberculosis Elimination Programme
NTI	National Tuberculosis Institute
OR	Operational Research
OSE	On-Site Evaluation
PMDT	Programmatic Management of Drug Resistant Tuberculosis
POD	Prevention of Disease
PPM	Public Private Mix
PPs	Private Practitioners
RDC	Research Documentation Cell
RNTCP	Revised National Tuberculosis Control Programme
STDC	State Tuberculosis Demonstration and Training Center
STLS	Senior Tuberculosis Laboratory Supervisor
STO	State Tuberculosis Officer
STS	Senior Tuberculosis Supervisor
TAI	Tuberculosis Association of India
TB	Tuberculosis
TCC	Technical Co-ordination Committee
ToT	Training of Trainer
TU	Tuberculosis Unit
TWG	Technical Working Group
WHO	World Health Organization
ZTF	Zonal Task Force

FOREWORD

It gives me immense pleasure to present the Annual report for the year 2019- 2020. This report highlights the major activities undertaken by the Institute during the year and has a blend of both administrative and technical activities.

The Institute has been functioning as the technical arm of the Central TB Division and also designated as WHO collaborating center. NTI is in the forefront in training large number of health personnel involved in TB Control Programme. The Technical Activities carried out at NTI include building the capacity of human resources for effective implementation of NTEP, and to undertake Operational Research to strengthen the roll out services under NTEP. The laboratory at NTI has been designated as one of the National Reference Laboratories, which assess the quality of the sputum smear microscopy, molecular diagnostics and drug susceptibility/resistance testing services in the laboratory network under NTEP. A National Database on Tuberculosis research, an Open Access Repository of abstracts of published scientific papers from all major national institutes is functional under the TB Net project . NTI provides support to CTD in conduct of Central Internal Evaluation of different states. Director NTI is the member of most National Advisory Committees and TWG on NTEP.

The core activity of the Institute is to support human resource development and strengthen the capacity of programme managers through skill development activities relevant to NTEP. The training courses are organized in close consultation with Central TB Division, New Delhi. The Institute shoulders the responsibility of training medical and paramedical personnel from various states in several facets of Tuberculosis control. *Modular Training for Programme Managers & Medical Officers in NTEP, PMDT Training, National TOT on using Delamanid in age group 6-17 Years, Training on Procurement & Drug Logistics Management, National Capacity Building Workshop on Advocacy Communication and Social Mobilization (ACSM), RNTCP Operational Research (OR) Workshop, Karnataka and several laboratory based training programmes* were some of the important courses held at NTI during the year. The ICELT at NTI imparts trainings on WHO endorsed Newer Diagnostic Techniques for TB. The Institute also provides one-day sensitization on TB Control Programme to medical and para-medical students and students pursuing life sciences.

Operational research is one of the prime functions of the institute. The studies undertaken/initiated during the period under report were, *“Implementation of the New Integrated Algorithm for diagnosis of Drug Resistant Tuberculosis in Karnataka State, India: how well are we doing?”*; *“Expenditure incurred for diagnosis among new TB patients notified by RNTCP in Bangalore City”*; *“Diagnosis and treatment practices among the treating physicians for the management of Extra Pulmonary TB (EP-TB) in selected tertiary care health facilities in Bangalore city—an evaluation based on mixed method”* and *“A phase III randomized, double blind, placebo controlled trial to evaluate the efficacy and safety of VPM1002 and Immuvac (Mw) vaccines in preventing tuberculosis in healthy household contacts of newly diagnosed sputum positive pulmonary TB patients”*. NTI was involved in the *National TB Prevalence Survey (NATBPS)* as the Nodal Institute for Karnataka.

The NRL of NTI supervises and monitors the quality of sputum smear microscopy network across three states-Karnataka, Maharashtra and Rajasthan. The NRL is responsible for imparting training to laboratory personnel and capacity building of IRLs for the management of Drug Resistant TB. The NRL plays an important role in accreditation of the state level Intermediate Reference Laboratories (IRLs), Medical colleges and other private laboratories for the culture and Drug Sensitivity testing to detect Drug Resistant Tuberculosis (DR-TB). The NRL is also mentoring the two new NRLs at Bhopal Memorial hospital & Research Centre, Bhopal and Regional Medical Research Centre, Bhubaneswar.

Participation of faculty and Technical staff in various Meetings, Training Programmes, Seminars, Internal Evaluation Visits, Joint Monitoring Mission, Conferences, Workshops And Continuing Medical Education have been highlighted in this report.

A fleeting reference has been made on the organizational set up of the institute and the staff position of the institute. The role of Administrative division in ensuring the efficient execution of technical activities cannot be overemphasized and their contribution finds a mention in the report. The five units under this Division are - Establishment, Accounts, Hostel, Stores and Transport.

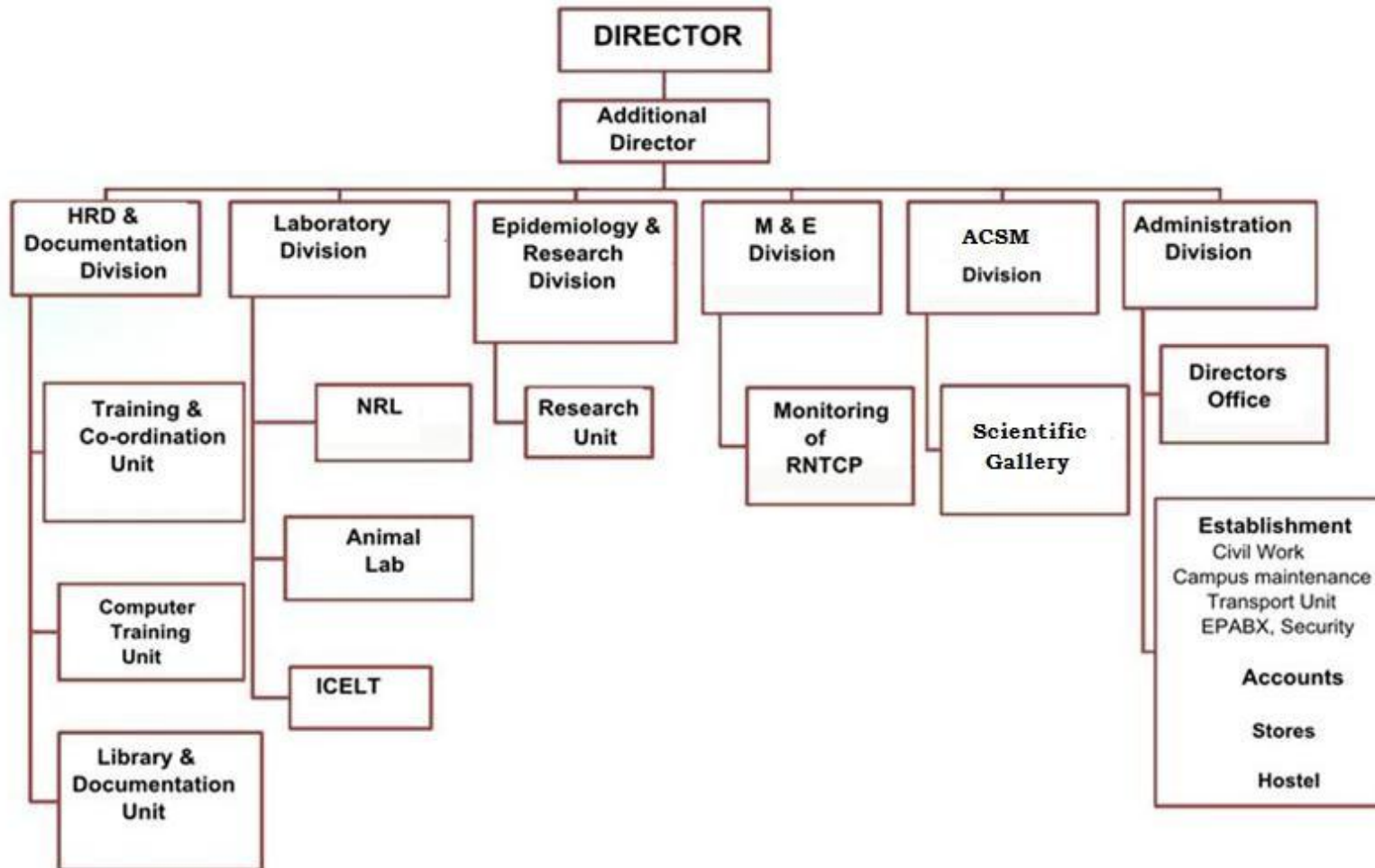
I acknowledge the co-operation, hard work and diligence of all the members of the NTI family and I solicit the same degree of motivation and dedication from all in times to come.

I also express my gratitude to the Ministry of Health and Family Welfare, Government of India and the Central TB Division for their continuous guidance, support and encouragement.

Dr. N. Somashekar

Director

ORGANOGRAM



1. Human Resource Development & Documentation Division

One of the salient functions of the Institute is to support human resource development and strengthen the capacity of programme managers through skill development activities relevant to National TB Elimination Programme (NTEP – earlier known as RNTCP). The three units of the Division are:

- a) Training and Coordination Unit
- b) Computer Training Unit
- c) Library & Documentation Unit.

A. Training and Coordination Unit

The objective of the NTEP training programme is to ensure that the programme managers, teachers of medical colleges, medical officers and paramedical staff are equipped with the skill and knowledge required to implement TB control activities which includes quality assured diagnosis of TB, management of drug sensitive and drug resistant TB, data management and forging partnerships with all sectors involved in TB control activities.

Training activities at NTI pertaining to NTEP are coordinated with the HRD unit at Central Tuberculosis Division (CTD). The tentative plan of training activities to be held at NTI is prepared for the ensuing year and sent to CTD, which in turn communicates the same to all State TB Officers. This ensures a staggered nomination of eligible candidates in appropriate batch sizes and allows for suitable time to ensure relieving of participants from their offices for attending the training programme.

The Training Unit works synchronously with the computer training unit, Hostel, Stores and Transport Units of the Institute to ensure smooth organization of training activities. Training courses and workshops with respect to many aspects of TB control were conducted last year to accommodate the ever-increasing requirement of trained personnel. The details of the training programmes conducted during the year of the reporting are appended below:

1. NTEP Modular Training for Programme Managers & Medical Officers

Sl. No.	Category of personnel	Period	No. of Participants
1.	STOs, DTOs, Assistant Professors from different states	22 nd April – 4 th May 2019	43
2.		10 th – 22 nd June 2019	31
3.		22 nd July – 3 rd August 2019	19
4.		19 th – 31 st August 2019	30
5.		16 th - 28 th September 2019	29
6.		14 th – 26 th October 2019	23
7.		20 th Jan – 1 st Feb 2020	33
8.		24 th Feb – 7 th Mar 2020	18

2. RNTCP PMDT Guidelines Training

Sl.No.	Category of personnel	Period	No. of Participants
1.	Medical Officers from Bengaluru Urban & Bengaluru Rural districts	21 st – 24 th May 2019	53
2.		2 nd – 05 th July 2019	41
3.		9 th – 12 th Oct 2019	42
4.		5 th - 08 th Nov 2019	24

3. Training For Lab Technicians In Sample Collection, Packaging, Transportation And NIKSHAY Entry

Sl. No.	Category of personnel	Period	No. of Participants
1.	Lab Technicians of Bangalore Urban district	16 th – 19 th Dec 2019	07

4. National Training on Procurement and Supply Chain Management & NI-KSHAY Aushadhi

Sl.No.	Category of personnel	Period	No. of Participants
1.	CMOs, Medical Officers, WHO-RNTCP Medical Consultants, Sr. Treatment Supervisors, District P.P.M. coordinators, PMDT, TB-HIV Coordinators, Data Entry Operators, State Pharmacists, Store Keepers, District Programme Co-ordinators, District TB Officers from south zone (Zonal Task Force)	29 th -31 st May 2019	27
2.		12 th – 14 th June 2019	12
3.		26 th – 28 th June 2019	29
4.		8 th – 11 th July 2019	21
5.		16 th – 19 th July 2019	19

5. National ToT on using Delamanid in Age Group 6-17 Years

Sl No.	Category of personnel	Period	No. of Participants
1.	District TB Control Officers, WHO RNTCP Consultants, Sr. Medical Officers, Nodal DR-TB Center, State DR-TB Coordinators, Sr. Medical Officers, Medical Officers, WHO-RNTCP Consultants, Professors and Head of the Departments, Associate Professors, State TB Officers, Epidemiologists / APOs, Nodal Officers DRTB, Pediatric Consultants, Sr. Specialists, Associate Professors and Sr. Medical Officers.	8 th – 10 th April 2019	52

6. National Capacity Building Workshop on Advocacy Communication and Social Mobilization (ACSM)

Sl. No.	Category of personnel	Period	No. of Participants
1	ACSM Officers, STOs, Consultants	6 th – 8 th June 2019	32

7. RNTCP Operational Research (OR) Workshop, Karnataka

Sl. No.	Category of personnel	Period	No. of Participants
1.	Participants from various Medical Colleges of Karnataka	3 rd – 6 th February 2020	11

The following laboratory related trainings were conducted in coordination with NTI laboratory facilitators:

1. Comprehensive Training Course for Laboratory Personnel (Solid Culture, Liquid Culture, LED-FM, LPA, CBNAAT)

Sl. No.	Category of personnel	Period	No. of Participants
1.	Sr. Lab Technicians, Microbiologists, Medical college Professors	22 nd April – 4 th May 2019	12
2.		20 th May – 1 st June 2019	08
3.		19 th – 31 st Aug 2019	11
4.		25 th Nov – 7 th Dec 2019	19
5.		24 th Feb - 7 th March 2020	07

2. Training in External Quality Assessment (EQA)

Sl. No.	Category of personnel	Period	No. of Participants
1	DTOs, Medical Officers Microbiologists, STLSs and LTs	1 st – 5 th April 2019	11
2		15 th – 19 th July 2019	16
3		21 st – 25 th Oct 2019	14
4		6 th – 10 th Jan 2020	19

3. Training in Liquid Culture MGIT (First line and Second line DST)

Sl. No.	Category of personnel	Period	No. of Participants
1	Sr. Lab Technicians, Laboratory Technicians, Microbiologists and Technical Officers	16 th – 21 st Sept 2019	11
2		16 th – 20 th Mar 2020	06

4. Training in Molecular Based Detection of First Line and Second Line Drug Resistance in TB by Line Probe Assay

Sl. No.	Category of personnel	Period	No. of Participants
1.	Jr. Bacteriologists, Microbiologists, Sr. Laboratory Technicians, and Laboratory Technicians	17 th – 21 st June 2019	06
2.		26 th -30 th Aug 2019	02
3.		18 th – 22 nd Nov. 2019	12
4.		27 th -31 st Jan 2020	10

5. Training in Preventive Maintenance & Minor Repairs of Binocular Microscopes

Sl. No.	Category of personnel	Period	No. of Participants
1.	Sr. TB Lab Supervisors, Laboratory Technicians, STLSs, Sr. Lab Technicians and Jr. Lab Technologists	24 th – 28 th June 2019	20

6. Training on DST to Pyrazinamide

Sl.No.	Category of personnel	Period	No. of participants
1.	Assistant Professors, Consultants Microbiologists, Sr. Lab Technicians, Lab Technicians	3 rd -04 th Oct. 2019	16
2.		30 th – 31 st Oct. 2019	14
3.		16 th – 17 th Dec. 2019	19

7. Training For Lab Technicians in Sample Collection, Packaging, Transportation and NI-KSHAY Entry

Sl.No.	Category of personnel	Period	No. of Participants
1.	Lab Technicians of Bangalore Urban district	16 th – 19 th Dec 2019	07

International Center of Excellence for Laboratory Training (ICELT)

The following activities were held in ICELT during April 2019 to March 2020:

- 1.E-Training Video Shoot: March 2019 – April 2019.
- 2.Review of Video training materials : April to June 2019
- 3.Development of E-Training modules: Jan-June 2019
- 4.NABL Document Preparation and conducted mentoring workshops
- 5.Phase 4-CBNAAT EQA panel preparation: Oct 2019- Dec 2019
- 6.CBNAAT EQA sensitization workshop: Feb-Mar 2020.

List of training programmes held or participated by ICELT faculty during the period of 1st April, 2019 – 31 March 2020 are given below:

Sl. No	Activity Details	Dates	No of Participants
1.	TB Laboratory accreditation mentoring program	24 th -29 th April 2019	30
2.	Regional Biomedical engineers sensitization workshop on TB laboratory diagnosis	1 st -5 th May, 2019	15
3.	Review of beta version E training Materials	7 th -17 th May 2019	NA
4.	CTD technical review meeting on E training material	20 th – 24 th May 2019	25
5.	Review of Type A, B & C laboratory training material – E training contents	1 st to 5 th June 2019	NA
6.	Global Fund project review meeting	6 th -7 th June 2019	NA
7	Final review of E training content material	20 th -22 nd June 2019	NA

8	Assessment of TB lab equipment and TB containment facility at Vijayawada medical college	15 th -17 th Aug 2019	NA
10	On site LIMS training at ICMR CDST lab – Jabalpur	19 th -21 st Aug 2019	15
11	On site LIMS training at BMHRC Bhopal	22 nd – 24 th Aug 2019	12
12	CIE visit to Madhya Pradesh	25 th -31 st Aug 2019	NA
13	TB lab Accreditation training programme	12 th -15 th Sep 2019	30
14	On site LIMS training at NIRT Chennai	29 th -30 th Sep 2019	15
15	On site LIMS training at Madurai Medical college	16 th -19 th Oct 2019	10
16	On site LIMS training at Kozhikode medial college – Kerala	20 th -22 nd Oct 2019	10
17	On site LIMS training at STDC/IRL Kerala	23 rd -25 th Oct 2019	10
18	UNION conference – at Hyderabad	1 st -3 rd Nov 2019	NA
19 20	External Assessor to assess the medical facilities in Sri Lanka	5 th -15 th Nov 2019	NA
		25 th Nov-5 th Dec 2019	
21	Aliquot preparation of DTS (Dry Tube Specimen) for EQA panels	11 th -22 nd Nov 2020	NA
22	TB lab accreditation programme	18 th -20 th Dec 2019	24
23	10% verification of EQA panels	9 th -28 th Jan 2020	NA
24	Regional Biomedical engineer's sensitization workshop on TB laboratory diagnosis	21 st -24 th Jan 2020	12

B. Computer Training Unit

The Computer Training Unit of HRD Division supported the following major activities:

- Facilitated in organizing need based training with relevance to programme and customized application related trainings
- Information and Communication Technology (ICT) Initiatives in the context of the Programme.
- Data Management and Statistical Analysis of research studies and other MIS.
- Catered the maintenance of website / upkeep / up-gradation of IT infrastructure of the Institute.
- The unit provided assistance for 41 Video Conferencing related activities (both hosting & joining the VC).

NTI website support services:

- Application server configuration and maintenance for the following websites:
 - www.ntiindia.org.in
 - www.tbresearch.ntiindia.org.in
- Domain renewal of NTI Websites.
- Periodic uploading of content to NTI Website as per requirements.
- Maintaining and updating Department-wise Telephone directory on the NTI Website.
- Uploading Notifications for recruitments happening at NTI and calling of tenders in the NTI Website.

Other IT Support Services:

- Configuration of Broadband internet with the help of Internet service providers.
- Periodic licensing server configuration such as Email Server, Proxy Server, Firewall, Anti-Virus protection etc and maintenance of softwares
- Maintenance of access to subscribed Journals.
- Periodic maintenance of IT Equipment of the Institute.
- Renewal of Rainmail Server services. The service reports and log details are collected every day and modifications are done to the network as and when required.

- Periodic maintenance of Aadhaar Enabled Biometric Attendance System (AEBAS)
- Coordinated with MTNL Cloud Attack intelligence network to blacklist and block suspicious IP addresses.
- Handling matters pertaining to AMC of computers / UPS and issues pertaining to server configuration / Internet services / mailing services.

Other Support Services:

- Coordinated with FIND and KPMG to facilitate maintenance of LIMS.
- Interaction with developer team to update the features of LIMS.

C. Library and Documentation Unit

- Collection and Maintenance of Core periodicals on TB & respiratory diseases, documents on TB research, reports, proceedings, souvenirs, WHO unpublished documents, selected papers
- Coordinating with CTU in digitization of important research studies and hosting the same on the internet/intranet.
- Library provides the requisite information for the faculty members, staff of the Institute, besides Medical and Para-medical trainees and delegates/visitors from medical fraternity.
- Coordinated in periodic updating of the NTI website, both internet and intranet.
- Archiving of Research Protocol including work instructions endorsed by the Director.

Renewal for supply of the following journals and periodicals was done for the year 2019-20

- International Journal of TB & Lung Diseases.
- Clinics in Chest Medicine.
- Medical Clinics of North America.
- Swamy's News
- Swamy's Handbook 2019-20
- Digit
- PC Quest

The printing section took up printing of various research forms/schedules and forms required for HRD, Establishment, laboratory division, Hostel and Accounts, Transport.

2. LABORATORY DIVISION

The laboratory at NTI has been designated as one of the National Reference Laboratories, which assess the quality of the sputum smear microscopy, molecular diagnostics, Culture and drug susceptibility/resistance testing services by phenotypic and genotypic methods in the laboratory network under RNTCP/NTEP. As an NRL, NTI supervises and monitors the quality of sputum smear Microscopy in the network of laboratories in the three states allocated viz. Karnataka, Maharashtra and Rajasthan and of molecular diagnostics in all state of India. The NRL trains laboratory personnel and is responsible for certifying State Level laboratories i.e., the IRLs, Medical Colleges and other private laboratories for Culture and Drug Susceptibility Testing for detection of Drug Resistant Tuberculosis (DR-TB).

The NRL is also mentoring two new NRLs:

1. NRL at Bhopal Memorial hospital & Research Centre, Bhopal
2. NRL at Regional Medical Research Centre, Bhubaneswar

The National Reference Laboratory is quality tested by WHO Supra National Reference Laboratory (SNRL) Prince Leopold Institute of Tropical Medicine Antwerp, Belgium.

Specimens processed at NTI during Apr 2019- Mar 2020

S. No.	Particulars	Total No.
1.	Specimens registered (Sputum + XDR Culture +PMDT+NTM and OP)	9452
2.	Number of specimens registered for universal DST	8185
3.	Number of XDR suspect culture samples registered for diagnosis	114
4.	Number of out-patients Specimens registered at NTI	47
5.	Number of samples registered for NTM diagnosis	166
6.	Number of specimens put up for primary culture from 3 Districts of Karnataka	8826
7.	Number of Line Probe Assay performed (1 st line)	6774
8.	Number of Line Probe Assay performed (2 nd line)	914

9.	Number of specimens subjected to Gene-Xpert	843
10.	Number of specimens put up for primary inoculation	4242
11.	Number of Specimens subjected for identification test (Immuno- Chromatographic Test)	2179
12.	Number of samples put up for DST by Liquid Culture	122

A. Training Activities

The laboratory division facilitated the laboratory related trainings viz. Comprehensive Training Course for Laboratory Personnel (Solid Culture, Liquid Culture, LED-FM, LPA, CBNAAT), Preventive Maintenance & Minor Repairs of Binocular Microscopes, EQA, Liquid Culture (MGIT), Molecular Based Training on detection of MDR TB by LPA , DST to Pyrazinamide and Training For Lab Technicians in Sample Collection, Packaging, Transportation and NI-KSHAY Entry. The details of these trainings are given in HRD Division report.

B. NABL Accreditation Activities

1. Series of workshops and meetings towards preparation for NABL Accreditation of NTI Laboratory was organised
 - 3 TBSLMTA Mentoring Workshops for NABL preparation by FIND at NTI from 24th – 27th Apr, 2019; 12th -15th Sep 2019 and 18th - 20th Dec 2019.
 - 5 mentoring visits for NABL preparatory activities at NTI with Dr Sujatha Chandra Shekhar as Mentor for NTI Lab on 7th & 8th May 2019; 26th -27th Jun 2019; 10th & 11th Aug 2019; 3rd & 4th Sep 2019 and 22nd & 23rd Oct 2019
2. Mid Term assessment of NTI Laboratory as per TBSLMTA CHECKLIST by FIND on 12th &13th Nov 2019
3. Internal Audit of laboratory as per NABL 15189: 2012 on 21st Dec 2019 by external auditor

3. EPIDEMIOLOGY AND RESEARCH DIVISION

Research in TB control and related areas is one of the primary functions of the Institute. The Institute has put in place the mechanism of Technical Coordination Committee (TCC) for thorough technical discussion and exchange of information before finalization of the research protocols. The projects are also screened by the Institutional Ethics Committee for addressing the ethical issues. The progress of the projects is monitored by the TCC at periodic intervals. The findings of the research studies are also discussed in the TCC before they are either presented in technical conferences or published in leading journals. The key findings are also shared with the stakeholders and the programme managers either for strengthening the programme or for policy changes.

Major functions of Epidemiology & Research Division are as under:

- To conduct community as well as facility based epidemiological, operational and implementation research in TB including preparing generic protocols, planning, organizing, implementing, monitoring & supervising, data collection, data management, analysis and report writing.
- Provide Technical and Operational support to other Organizations/Institutions in the country in conducting TB Epidemiology and operational research studies.
- Provide mentorship and training in operational research, epidemiology and different aspects of TB control. This is either CTD sponsored, Union sponsored or the State sponsored activity.
- Mathematical modeling for assessing the burden of TB and also to forecast the requirement of ongoing and newer RNTCP services required to achieve the targets set globally as well as in India to End TB.
- Engage in other RNTCP related activities including development of training modules & guidelines; provide technical inputs towards policy development, monitoring & supervision and providing support for the modular trainings and sensitization held by HR division of NTI.
- Since 2019, the Epidemiology and Research Division of NTI has been involved in conducting regulatory phase III clinical trials. One such clinical trial is “A Phase III randomized, double blind, three arm placebo-controlled

trial to evaluate the efficacy and safety of two vaccines VPM1002 and Immuvac (Mw) in preventing Tuberculosis (TB) in healthy household contacts of newly diagnosed sputum positive pulmonary TB patients” in association with ICMR, New Delhi.

- Research Dissemination

The activities carried out by ERD during 2019-20 are as under:

A. Research Studies – Ongoing

i) Implementation of the New Integrated Algorithm for diagnosis of Drug Resistant Tuberculosis in Karnataka State, India: how well are we doing?

Objectives:

1. Among all TB patients diagnosed using Xpert® MTB/RIF assay in Karnataka state between July and September 2018, to determine the:
 - Number and proportion of eligible patients completing FL- LPA and its results
 - Number and proportion of eligible patients completing SL- LPA and its results
 - Number and proportion of eligible patients completing liquid culture and DST and its results
 - Number and proportion of patients completing the integrated DR-TB diagnostic algorithm
2. Among the above, to determine the median time duration between
 - Date of specimen collection and date of specimen receipt at the laboratory
 - Date of specimen receipt and date of reporting of results
3. To assess the health system resources (human resource, equipment, consumables, sample collection site and specimen transport mechanisms) against the prescribed norms at Xpert® laboratories and the reference laboratories performing LPA and culture-based DST.
4. To understand the facilitators and barriers in the implementation of DR-TB diagnostic algorithm and possible solutions from the perspective of healthcare providers.

Methodology:

For Quantitative Phase:

For objective 1 and 2, all the TB patients diagnosed using Xpert® MTB/RIF assay in Karnataka state between July and September 2018 constituted the study population. Approximately 10,000 patients were estimated to be diagnosed with TB in this period and all were included in the study. For objective 3, all the laboratories where Xpert® MTB/RIF assays were performed and the reference laboratories were included.

The data collection was done between Jan 2019 and Feb 2019

For Qualitative Phase:

Healthcare providers involved in implementation and supervision of the DR-TB diagnostic algorithm constitutes the study population. A purposive sampling method was used so that all the cadres of staff (laboratory technicians of the Xpert® and the reference laboratories, microbiologists at the reference laboratories, district and state programme managers and RNTCP consultants) are represented. The state programme manager and the consultant microbiologist of National TB Institute were also the key informants as we believe they are likely to provide key insights into the implementation challenges.

The key informants at district level were selected from one good performing and one poor performing district (identified after analysis of quantitative data based on the proportion of the TB patients completing the diagnostic algorithm) covered by each of the four reference laboratories. The qualitative component were implemented after analysis of the quantitative component. The data collection was done in March - April 2019.

Current Status:

Study is completed, paper under publication.

ii) Expenditure incurred for diagnosis among new TB patient notified by RNTCP in Bangalore City.

Objectives:

1. To compare mean delay from onset of symptoms till initiation of anti-TB treatment among TB patients notified by public sector in 2017 with the mean delay among TB patients notified by public sector in 2005.
2. To estimate expenditure incurred by TB patients towards diagnosis of TB.

Methodology:

Study was carried out among new adult TB patients initiated on ATT by public providers in BBMP, RNTCP reporting Unit, Bangalore. An estimated 228 new adult TB patients initiated on ATT by public sector were recruited into the study, using systematic sampling. TU wise, list of PHIs were obtained from STO's Office. The data collection was carried out from Sep 2017 – Feb 2018.

PHIs to be visited for enrolment of study participants were purposively selected each month while ensuring:

- Total number of patients enrolled during the course of the study from hospitals and PHIs are in the ratio of total number notified by these two groups of PHIs.
- Enrolled patients were uniformly spread all over the BBMP limits, depending on the number initiated on ATT in the month. In any selected PHIs, either all patients were enrolled or a systematic sampling was performed.

Data was collected by personally interviewing each patient at a place and time convenient to them using a semi-structured pre-tested interview schedule.

Expected outcome: The study will provide information on :

- Change in diagnostic delay and treatment initiation among patients in public sector from the previous study conducted in 2005.
- The findings will be useful to identify the extent of avoidable out of pocket expenditures towards diagnosis and design appropriate interventions for the same.

Current Status:

Data Collection completed

iii) Diagnosis and treatment practices among the treating physicians for the management of Extra Pulmonary TB (EP-TB) in selected tertiary care health facilities in Bangalore city—an evaluation based on mixed methods

Objectives:

1. To find out proportions of EPTB patients diagnosed and / or treated in selected tertiary health facilities in Bangalore City as per current RNTCP guidelines during 2017.
2. To find out provider constraints in adherence to these guidelines.

Methodology:

Record review of all EPTB patients diagnosed / treated in selected hospitals during Jan - Dec 2017 were undertaken to find out adherence to RNTCP guidelines. The following records as per availability were examined and data collated and compiled for each patient into a pre-designed data extraction form:

- Outpatient records (If available in the health facility)
- In-patient records (paper-based/MRD/HMIS records)
- Hospital based/external Lab records & reports
- Referral for treatment register
- DOTS register
- TB Notification registers
- RNTCP treatment cards
- DMC/CBNAAT lab or C & DST registers
- Record of Anti-TB drug sales based on Schedule H1 registers
- NIKSHAY Database of Notified TB patients

Expected Outcome:

Based on study results, appropriate recommendations wherever needed will be given to the Health care providers of the tertiary health facilities towards effective implementation of EPTB Guidelines and the findings will help in strengthening Linkages and appropriate utilization of RNTCP services for early and accurate diagnosis of EPTB.

Findings will be useful for formulating appropriate targeted interventions in the form of training, skill development of Practitioners and advocacy for additional resource mobilization.

Current Status:

Analysis and Report writing is under progress.

B. Study undertaken by NTI under India TB Research Consortium

- i. A phase III randomized, double blind, placebo controlled trial to evaluate the efficacy and safety of VPM1002 and Immuvac (Mw) vaccines in preventing tuberculosis in healthy household contacts of newly diagnosed sputum positive pulmonary TB patients.**

Objectives:

a. Primary:

1. To evaluate the efficacy of VPM1002 and Immuvac by comparing the reduction in incidence of TB over 3-year period among Indian healthy household contacts of newly diagnosed sputum positive PTB patients vaccinated with VPM1002 and Immuvac in comparison to placebo

b. Secondary

1. To evaluate the efficacy of VPM1002 and Immuvac in prevention of LTBI in healthy household contacts of newly diagnosed sputum positive PTB patients in comparison to placebo [in a sub- set of population at Sites – Delhi (NCR), Hyderabad and Chennai].
2. To evaluate the safety of VPM1002 and Immuvac in Indian healthy household contacts.
3. To evaluate the Immunogenicity of VPM1002 and Immuvac in healthy household contacts as compared to placebo against tuberculosis. (in a sub-set of population at Sites – Delhi (NCR), Pune and Chennai).

Methodology:

NTI is one of the trial sites for the multi-centric vaccine trial. The study was approved by DCGI vide their letter File No: BIO/Form44/FF/2018/9536 dated 20-Dec-2018. The trial was cleared by the Institutional Ethics Committee for the respective trial sub – sites, namely General Hospital, Jayanagar (JGH) and K.C. General Hospital (KCGH), Malleswaram.

For recruitment of study participants, the details of the sputum positive PTB cases presenting to the DOTS Centre/clinic/OPD of PHIs under the jurisdiction of respective TB Units in the last 4 weeks will be obtained. The index case will be contacted and visited to explain about the study. All relevant details of the index case such as name, age, gender, address (corresponding and permanent), contact number, date of diagnosis and initiation of anti-tuberculosis treatment (ATT), sputum smear grade and drug sensitivity pattern will be recorded in site records. A list of household contacts will be obtained from the index case by the health staff. Household contacts who are eligible and willing to be screened will be registered for the study. The study procedures will include three phases: screening phase, enrollment phase and follow-up phase. All eligibles on screening will be vaccinated with the two doses of Investigational Product administered one month apart.

Current Status: under progress

- NTI officials visited JGH and KCGH, Malleswaram for assessing the capacity of these hospitals for conducting vaccine trial and enrollment of Index cases and screening of household contacts.
- Contractual doctors and NTI officials involved in the study attended GCP, GCLP project specific hands-on sessions at ICMR, New Delhi.
- Translation of study forms from English to Kannada and Kannada to English was undertaken and the final forms were sent for certification to Feenix language services in the prescribed ICMR format. And the same was received from Feenix language services.
- Vaccine trial management plan, SOPs and participant information chart and templates were prepared in the month of June and field tested subsequently.

- Sensitization programme for the major stakeholders was held at NTI in the month of July. The Govt. of Karnataka - Medical Superintendents, STOs, DTOs, Partner – Lab and others attended the same.
- Memorandum of Understanding (MOU) was signed with KCGH, JGH. One more MOU was signed with R V Metropolis for laboratory investigations in the month of July.
- On-line GCP training was conducted for the vaccine trial staff in the month of August & September 2019.
- Division head, contractual Doctors and field staff of vaccine trial visited NITRD vaccine trial site from 30th September 2019 to 1st October 2019 in order to understand the process of vaccination and they were sensitized and trained to facilitate early initiation of the vaccine trial at the NTI site.
- Investigators Site File was compiled and updated periodically.
- Vaccine trial staff underwent Electronic data capturing training (E-VELOS software), conducted by Mr. Murari, Data manager, ICMR through Zoom meeting on 11th and 14th October 2019.
- Data collection & Line listing of index cases were undertaken for **Jayanagar sub sites**: Banashankari referral Hospital, Yarabnagar DMC, Aduodi DMC, Vidyapitha DMC & NR colony. For **KCGH**: Geleyara Balaga, Dasappa maternity home, Victoria hospital & Hosahalli referral hospital.
- Zoom meeting with ICMR regarding safety procedures was conducted on 18th Nov 2019.
- Sensitization of NTEP staff: STS, STLS and TB-HVs on 21st Nov 2019.
- Temperature monitoring system with data logger were installed at the NTI site and two sub-sites.
- Protocol overview and mock training was conducted for all the vaccine trial staff from 25th-27th Nov 2019.
- ICMR and CDSA monitors visited for inspection and trial initiation from 29th Nov to 3rd Dec 2019.

- Household contacts were contacted and sensitized regarding vaccine trial.
- Sub- sites (JGH and KCGH) were approved for vaccine trial initiation on 30th Nov 2019.
- First Vaccination was administered on 3rd December 2019 at JGH and on 4th December 2019 at KCGH.
- Zoom meeting was conducted with ICMR Delhi regarding the progress of vaccine trial on 3rd Jan, 22nd Jan & 28th Feb 2020.

Progress of the study at KCGH from 4th Dec 2019 to 31st Mar 2020				
Months	Total Screened in the month (V1)	Total Enrolled in the month for vaccination (V2)	Total (V4) completed	Total V6
Dec 2019	31	20	-	-
Jan 2020	47	34	24	01
Feb 2020	43	35	26	18
Mar 2020	33	30	23	09
Total : -	154	119	73	28

Progress of the study JGH from 3rd Dec 2019 to 31st Mar 2020				
Months	Total Screened in the month (V1)	Total Enrolled in the month for vaccination (V2)	Total (V4) completed	Total V6
Dec 2019	51	26	02	00
Jan 2020	60	49	20	02
Feb 2020	44	40	45	22
Mar 2020	49	43	21	17
Total : -	204	158	88	41

V1=screening; V2=enrollment & vaccination, V4= second dose vaccination & V6=first critical follow-up visit

Total target:

Initial target for NTI and its sub-sites was fixed as 2000 participants. NTI was supposed to have 4 sub-sites as per the Protocol No. ICMR/ITRC/VAC/001/2018, Version 1.5 to achieve the target of 2000 enrolments, however following the inspection by CDSA it was communicated

that only 2 out of 4 state government hospitals were eligible to undertake clinical trials as per the CDSCO norms and hence the target was reduced to 1000.

The enrollment of the new participants was drastically reduced since 11th March 2020, the date on which the Government of Karnataka invoked the provisions of the Karnataka Epidemic Diseases, COVID-19 regulations 2020 and imposed stringent restrictions for public at large and restricted unnecessary entry of healthy participants into any hospitals. Unfortunately, no new enrollments were possible w.e.f. 20th March 2020, as both the sub-sites were designated as COVID-19 isolation and management centers. The majority of NTI-IEC members also advised NTI to suspend the vaccine trial. Though new enrolments were suspended, follow-up of those participants who were vaccinated was continued in NTI & KCGH.

ii. National TB Prevalence Survey (NATBPS)

National survey for State-wise Prevalence of Microbiologically Confirmed Pulmonary Tuberculosis in India. The ambitious national survey was initiated with National Tuberculosis Institute being the Nodal Institute for Karnataka in conjunction with Indian Council of Medical Research - New Delhi, National Institute for Research in Tuberculosis - Chennai, Central TB Division- Ministry of Health and Family Welfare Division, Government of India, World Health Organization - India Office, New Delhi and State Tuberculosis Cell, Karnataka with funding from Ministry of Health and Family Welfare Division, Government of India, New Delhi, Department of Health Research and Indian Council of Medical Research, Global Fund and USAID India through WHO India.

The Primary objectives of the survey are to:

- i. To estimate the point prevalence of microbiologically confirmed pulmonary TB among persons aged ≥ 15 years in India at National level
- ii. To estimate the point prevalence of microbiologically confirmed pulmonary TB among persons aged ≥ 15 years individually for 20 states / state groups.

The Secondary objectives of the survey were to:

- i. To explore health seeking behavior of survey participants who are:
 - Symptomatic
 - Currently on TB treatment
- ii. To estimate the prevalence of TB infection among the surveyed.
- iii. To find out the source of treatment, [whether RNTCP or non-RNTCP] among persons having history of ATT (previous / current) in last one year and the proportion not notified under routine surveillance system.
- iv. To determine the proportion of those currently on TB treatment who were notified to the RNTCP surveillance system.
- v. To estimate the expenditure incurred by survey participants who are currently on TB treatment.
- vi. To profile socio-demographic & associated risk factors of survey participants including nutrition, anemia, diabetes and smoking.

The NATBPS team initiated the survey activities in December 2019 in Karnataka. The total number of clusters identified for the conduct of the survey activities were 31 for the state of Karnataka inclusive of 03 clusters for IGRA (Interferon Gamma Release Assay). During the period December 2019 to March 2020, the survey team was trained at NTI by ICMR, the pilot testing of a cluster was undertaken in Bengaluru urban, following which 04 Cluster activities have been completed.

C. List of publications (with NTI faculty as Main Author/Co-authors)

1. Bhalla BB, Chadha VK et al. Knowledge of private practitioners of Bangalore city in diagnosis, treatment of pulmonary tuberculosis and compliance with case notification. Indian J Tuberc. 2018; 65 (2):124-129.
2. Madan C, Chopra KK, Satyanarayana S, et al. Developing a model to predict unfavourable treatment outcomes in patients with tuberculosis and human immunodeficiency virus co-infection in Delhi, India. PLoS One. 2018;13(10):e0204982.
3. Karuna D Sagili, Srinath Satyanarayana, Sarabjit S Chadha, Nevin C Wilson, Ajay M V Kumar, Patrick K Moonan, John E Oeltmann, Vineet K

- Chadha, et.al.. “Operational Research within a Global Fund Supported Tuberculosis Project in India: Why, How and Its Contribution towards Change in Policy and Practice.” *Global Health Action*. 2018; 11(1): 1445467.
4. Moonan PK, Nair SA, Agarwal R, Chadha VK et al. Tuberculosis preventive treatment: the next chapter of tuberculosis elimination in India. *BMJ Glob Health*. 2018; 3(5):e001135.
 5. Subbaraman R, Nathavitharana RR, Mayer KH, Satyanarayana S, Chadha VK, Arinaminpathy N, et al. (2019) Constructing care cascades for active tuberculosis: A strategy for program monitoring and identifying gaps in quality of care. *PLoS Med* 16(2): e1002754. <https://doi.org/10.1371/journal.pmed.1002754>

4. MONITORING AND EVALUATION DIVISION

The Monitoring & Evaluation Division of the Institute plays an essential role and forms a supportive unit for the research activities. At present, the monitoring activity for NTEP is being carried out by the Central TB Division under Ministry of Health and Family welfare. The Monitoring and Evaluation Division of NTI provides support to CTD in conduct of Central Internal Evaluation of different states. It also provides support for statistical needs of all the research activities carried out by the Institution.

The Division has Statistical Subordinate Service (SSS) Officers (Junior Statistical Officers) to maintain the standards of the statistical support for the research activities, supervised by officers belonging to Indian Statistical Service (ISS) Cadre. JSO's functioning under M&E Division are providing technical support to various research studies and monitoring related work undertaken by ERD, Laboratory Division, and HRD.

During the period of report, the Central Internal Evaluations for the following states were undertaken:

Sl.No	State	Date
1.	Maharashtra	6 th -10 th May 2019
2.	Bihar	1 st - 3 rd Jul 2019
3.	West Bengal	8 th - 13 th Dec 2019
4	Jharkhand	2 nd -7 th Mar 2020

The details of the NTI faculty members who participated in the Central Internal Evaluations are given in chapter 7 of this report.

5. ADVOCACY, COMMUNICATION AND SOCIAL MOBILIZATION DIVISION

Scientific Gallery

The Scientific Gallery has been established to disseminate the general information on TB, the evolution of the programme, research conducted by NTI and achievements of the Institute since its inception. Considering the needs of the diverse categories of visitors like Officials/staff of health and other departments, doctors, Para-medical personnel from government and private sector including the various categories of health-sector trainees. We have two modes for dissemination of information viz., display units (Photo Displays & health education panels) and Interactive Information Kiosk, in addition to the regular sensitization programmes that are undertaken by the division.

Visit of students

Para-medical personnel and Para-medical students undergo regular sensitization programme conducted by the ACSM division of NTI. The total number of such students who have been sensitized regarding TB control during the period April 2019 to March 2020 are as follows:

Sl. No	Date	Category of Students	No. of Students	Organization
01	08-04-2019	B.Sc (Microbiology)	47	Indian Academy Degree College Dayanand Sagar College of nursing, Bengaluru
02	30-04-2019	B.Sc (N)	53	St.Martha's Hosp. College of Nursing, Bengaluru
03	24-04-2019	B.Sc (N)	30	Koshys College of Nursing, Bengaluru
04	29-05-2019	B.Sc (N)	50	St.John's College of Nursing, Bengaluru
05	30-05-2019	B.Sc (N)	48	St.John's College of Nursing, Bengaluru
06	12-06-2019	B.Sc (N)	45	Dayananda College of nursing, Bengaluru

07	09-07-2019	M.Sc (N)	04	Govt college of Nursing, Bengaluru
08	10-07-2019	B.Sc (N)	17	Chinmaya Nursing College
09	24-07-2019	B.Sc (N)	47	Devraj Urs College of Nursing
10	25-07-2019	B.Sc (N)	53	Devraj Urs College of Nursing
11	26-07-2019	B.Sc (N)	35	SEH College of Nursing
12	20-08-2019	B.Sc (N)	45	Saptagiri Nursing College
13	30-08-2019	B.Sc (N)	39	SSSIHMS
14	26-09-2019	Resident Doctors	13	AFMC Pune
15	14-11-2019	M.Sc. Microbiology	31	Ramaiah College of Arts Science and Commerce
16	10-12-2019	M.Sc. Microbiology	20	Maharani science college
17	28-01-2020	B.Sc (MIT)	43	Acharya college of Health science
18	07-02-2020	B.Sc Nursing	27	Adarsha Nursing college
19	12-02-2020	DGNM	40	Adarsha Nursing college

- Total no. of students – 687, Total no. of batches - 19

6. ADMINISTRATION DIVISION

The Administration Division of NTI caters to all the administrative requirements of the Institute. The major activities of the units for the financial year April 2019 to March 2020 are briefly furnished below.

Establishment

The unit caters to the administrative matters, general upkeep of campus through CPWD, provision of contractual manpower to various divisions and service matters pertaining to the staff viz., Framing of Recruitment Rules in respect of all Group 'B' & 'C' posts as per the recommendation of VII CPC and its onward transmission to the CTD for its notification, holding of DPC for considering cases of promotion, confirmation, grant of MACP, processing of legal issues pertaining to service matters coming under the purview of Central Administrative Tribunals and Honorable High Court of Karnataka & SLP in the Supreme Court. The details of staff position are as under:

Sl.No.	Category	Sanctioned	In Position	Vacant
1.	Group 'A'	14	12	02
2.	Group 'B'	02	01	01
	- Gazetted	26	22	04
3.	Group 'C'	82	77	05
Total:		124	112	12

Court Cases:

S No.	Name of the Court	Total No. of Cases
1.	Honorable High Court of Karnataka	1
2.	Supreme Court	1

Interviews Conducted for Recruitment:

S No.	Name of the Project	Date of Interview	Total Posts
1.	Phase III POD Vaccine Trial (TB) and NRL EQA DRS	16-03-2020	05

MACP:

S No.	Total No. of MACP processed
1.	15

CGHS:

S No.	Total No. of Permission Granted
1.	107

Pay Fixation:

S No.	Total No. of Pay Fixation
1.	10

Other Activities during the year:

1. Independence Day was celebrated at the Institute on 15th Aug 2019.
2. Cadre Review Draft was prepared for the Group B & C staff of the Institute by the Cadre Review Committee of the Institute.
3. Hindi Rajbasha Samithi meeting was held on 12th Sep 2019
4. NTI Foundation Day was observed on 16th Sep 2019
5. Hindi Divas was celebrated on 16th Sep 2019, Hindi week was held from 17th to 23rd Sep 2019
6. Smt. R. Shantha Kumari, Stenographer Gr.III was promoted to the post of Stenographer Gr.II on 9th Oct 2019
7. Rashtriya Ekta Divas (Unity Day) was observed on 31st Oct 2019 to commemorate the birth anniversary of Sardar Vallabhbhai Patel. All the staff of the institute have taken pledge on 31st Oct 2019.
8. Vigilance Awareness Week observed in the institute from 28th Oct to 2nd Nov 2019. All the staff of the institute have taken pledge on 1st Nov 2019 at 11.00 AM.
9. Celebration of Constitution Day on 26th Nov 2019 and subsequent activities culminating in Dr. Ambedkar Jayanthi on 14th Apr 2020. Dr. I. Maruthi, Professor and Former Head, Agricultural Development & Rural

Transformation was invited to deliver a talk on Fundamental of Constitution of India on 28th Jan 2020. All the staff members attended.

10. Dr A. Krishnamurthy, Additional Director, on his transfer to CGHS, Bengaluru, was relieved from his duties w.e.f 03.02.2020 (FN).
11. Dr N. Udanasha, CMO (SAG) reported for the duty in this Institute on the forenoon of 03.02.2020
12. “National Science Day” was celebrated on 28th Feb 2020 to commemorate Indian scientist Sir CV Raman winning the Noble Prize in Physics in 1930

CPWD, CIVIL, HORTICULTURAL & ELECTRICAL WORKS AND MAINTENCE

The civil, Horticultural and Electrical works of the Institute are being executed through the Central Public Works Department (CPWD), under the Ministry of Urban Development and Poverty Alleviation, Government of India, out of the budget sanctioned to NTI during each financial year.

A budget of Rs.80,00,000/- Under the head of account PLAN CAPITAL – MAJOR WORKS and Rs.10,00,000/- Under Machinery & Equipment was allocated to the Institute during the financial year 2019-20 for carrying out maintains and new works. The following Civil, Horticultural and Electrical works were executed during the period under report, in additional to other routine repair & maintenance work.

CPWD, Civil & Horticultural Works

1. Day to day maintenance works of Residential buildings at NTI campus.
2. Special Repairs, Maintenance and external painting of office and Laboratory building at NTI Campus.
3. Drilling of one Bore Well at NTI Campus.

CPWD, Electrical Works

1. Running and Maintenance 2 numbers of 125 KVA DG Set and 1 Number of Passenger Lift at NTI Campus
2. Replacement of Conventional electrical fittings by energy saving and LED fittings at various building at NTI Campus

Additional Works

Prepared Existing Laboratory Block Ground Floor and First Floor AutoCAD Drawing toward NABL Accreditation.

Transport Unit

The Institute has fleet of 7 vehicles and the unit is responsible for the upkeep of the vehicles including in-house repair of vehicles, if feasible. The unit also maintains all documents pertaining to registration, insurance and condemnation of vehicles.

1. The Number of vehicles available in running condition with total number of kilometers run by each vehicle as on 14.09.2020 are as under:

- Mahindra Armada	KA. 04 Z 2427	-	200882 Kms
- Mahindra Bolero	KA.04 Z 6872	-	161218 Kms
- Mahindra Bolero	KA. 04 MA 1360	-	173824 Kms
- Mahindra Bolero	KA. 04 MA 1361	-	197640 Kms

2. Number vehicle for condemnation:

- Eicher - KA. 04 P 1714
- Eicher - KA. 04 P 1720

Documents of both the above vehicles have been surrendered to regional RTO Bangalore and the process of Condemnation is in process. Vehicle Number KA 04 P 474 Mahindra Armada has been stationed in the Workshop as it needs major engine overhauling work.

Administrative and Financial approval has been received by the Institute for the procurement of 5 vehicles. It is proposed to procure two more vehicles for the Institute. The process of procurement is in process.

3. Vehicles are regularly going for field work as and when needed.
4. Maintenance and repairs are carried out periodically

Accounts Unit

The unit caters to the financial matters of the Institute. Details of Budget received under Non Plan and Plan Expenditure upto end of March 2020 (From April 2019 to March 2020) is as follows:

Plan	Budget received (Rs.)	Expenditure (Rs.)
Revenue	14,35,00,000	13,73,97,314
Capital	90,00,000	90,00,000

Stores

Stores unit cater to the logistic needs of various Units/Divisions of the Institute. It is responsible for procurement and supply of stores items for smooth functioning of the Institute. This involves extensive procedures viz., receipt of indents from individual Units and their compilation, calling for quotations/ tenders, arrangements for opening the tenders, preparation of comparative statements and submission of the same to the Purchase Committee for its recommendations for further necessary action. The other functions of the Unit include:

- i. Maintenance of stores /stock ledger.
- ii. Arrangement for Annual Maintenance of equipments held by different Units/Divisions.
- iii. Arrangement for Annual Stock verification.
- iv. Arrangement for condemnation and disposal of unserviceable items as per Government laid down procedure.
- v. All major procurements are made through GEM

Details of purchases and other activities performed during 2019-20:

1. Items purchased against Annual Indent 2019-20 as decided and approved by the director and issued to various Units.
2. Stationery Items and General Stores Items purchased Through GeM& issued to various Units.
3. Laboratory chemicals, consumables etc., purchased and issued to Laboratory Unit.
4. Hostel items like steel utensils, teakwood cot etc., purchased and issued to Hostel Unit.
5. Stationery & General stores items purchased for Training unit and issued for their various Training activities.

6. Computer chairs and visitors' chairs were repaired.
7. Trilingual boards for officers, Units and Divisions were fabricated and fixed.
8. Annual Maintenance Contract for computers, printers etc., renewed
9. Annual Maintenance Contract for online UPSs renewed.
10. Annual Maintenance Contract for laboratory Instruments/Equipment's were renewed.
11. Servicing and refilling of Fire extinguishers held by this institute is initiated.
12. Repair and servicing of Air Conditioners held by Laboratory Unit.
13. Binocular Microscopes issued to STO Bhubaneshwar, Odisha
14. LED Fluorescence Microscopes issued to STO Kerala, STO Andhra Pradesh, FIND New Delhi, STO Himachal Pradesh & STO Puducherry.
15. Monthly statements for Binocular Microscopes & LED Fluorescence Microscopes are prepared and dispatched to DGHS.
16. Issued Wall Calendars, Diary (CCS-8 & CCS-10) 2019 to all the Units.
17. Towels & Glass Tumblers purchased and issued to all the officers and staff.
18. Vehicle Spares purchased and issued to Transport Unit.

7. PARTICIPATION IN MEETINGS / PROGRAMMES/ SEMINARS / CONFERENCES / WORKSHOPS / CME ETC.

The Director, faculty and technical staff of NTI participated as facilitators, resource person / delegate in Conference / workshops / training programmes conducted in both at NTI and outside. The details are furnished below:

Sl No.	Particulars	Date	Participant(s)
1.	North Zone PMDT review meeting at Chandigarh	1 st -3 rd Apr 2019	Mrs. H. G. Mamatha
2.	IRL Goa lab visit for LPA lab layout finalization	8 th - 9 th Apr 2019	Dr. Reena.K
3.	Training programme regarding Administrative matters at Chengalpattu, Kanchipuram District, Tamilnadu.	11 th & 12 th Apr 2019	Dr. Sanat Kumar Tripathi, Shri. Rony Jose Kokkad, Dr.Chethana Rangaraju, Shri.Ravi, Shri. Shivashankar
4.	Training/workshop for GCP, GCLP project specific hands-on session at ICMR, New Delhi on POD Vaccine trial	11 th -13 th Apr 2019	Dr S. Uma Shankar
5.	Committee meeting on the finalization of procurement under RNTCP at Nirman Bhawan , Delhi	26 th Apr 2019	Dr. Reena.K
6.	Meeting on the NTEG-D at New Delhi	29 th Apr 2019	Dr. Reena.K
7.	Central Internal Evaluation : Maharashtra State	6 th -10 th May 2019	Dr. N. Somashekar Dr. Chethana Rangaraju
8.	Engagement of Patient Provider Support Agency (PPSA) for Workshop held at State Institute of Health and Family Welfare Training Centre (SIHW), Leprosy Hospital Premises, Magadi Road, Bengaluru	14 th - 15 th May 2019	Dr. C. Ravichandra
9.	Review e-training videos and other page content developed by FIND Team & Empower team in Delhi at NDTBC	20 th -22 nd May 2019	Dr. Reena.K Mr. H. D. Surendra
10.	On- site LC-DST training at IRL Goa	20 th -24 th May 2019	Mr Somashekharayya. H

11.	NRL Finance Management meeting at New Delhi	29 th May 2019	Dr. Reena.K Mr. Saravanan
12.	NGS Hand holding training by foundation for medical research	3 rd - 6 th Jun 2019	Dr. Sarika Jain Agrawal Dr George, Dr. Reena, Dr. R. Lakshmi Mrs. H. G. Mamatha
13.	Lab site assessment visit at Ranchi for IRL lab relocation	14 th Jun 2019	Mrs. H. G. Mamatha
14.	Lab assessment visit to AIIMS Raipur, Chattisgarh	19 th Jun 2019	Dr. Reena.K
15.	Hand holding of IRL Pune on LPA and LC-DST activities	17 th – 21 st Jun 2019	Mr. Somashekharayya. H Mr. K. Jayaganesh
16.	Meeting with Dr. Sharath, ESI Hospital regarding revision of EQA for smear microscopy	20 th Jun 2019 (FN)	Dr. Reena.K Dr. R. Lakshmi Mrs.H. G. Mamatha
17.	Presentation on Diagnosis of TB in CME on Tuberculosis at SDS-RGICD, Bangalore	20 th Jun 2019	Dr. Sarika Jain Agrawal
18.	NRL Coordination committee meeting	24 th & 25 th Jun 2019	Dr Sarika Jain Agrawal Dr George, Dr Reena.K Dr. R. Lakshmi Mrs.H. G. Mamatha
19.	Visited CBNAAT centres of Raichur & Hubballi districts for conducting qualitative in-depth interview of DTO, Microbiologists, STLS & CBNAAT Lab Technicians in connection with the study titled, “Implementation of the new integrated algorithm for diagnosis of drug resistant tuberculosis in Karnataka State, India”, How well are we doing?	25 th – 30 th Jun 2019	Dr S. Uma Shankar
20.	2 nd preparatory meeting for NABL accreditation of NTI Lab	26 th & 27 th Jun 2019	Dr Sarika Jain Agrawal Mr Raghunandan Mrs Mamatha V
21.	Meeting with officials from Oxford immunotech Ltd on T- Spot- TB Elispot at NTI	28 th Jun 2019	Dr. Sarika Jain Agrawal Dr George, Dr. Reena.K Dr. R. Lakshmi Mrs.H. G. Mamatha
22.	Central Internal Evaluation : Bihar State	1 st - 3 rd Jul 2019	Dr. Chethana Rangaraju

23.	Post CBNAAT EQA visit to- Karnataka- Kolar CBNAAT site	2 nd Jul 2019	Mrs. H. G. Mamatha Mr. H. D. Surendra
24.	Revision of EQA module -Visit to Ramnagara District to collect EQA slides for re-evaluation at NTI	3 rd Jul 2019	Dr. Reena.K Mr. Somashekharayya. H
25.	Revision of EQA module -Visit to Bangalore Urban district to collect EQA slides for re-evaluation at NTI	4 th Jul 2019	Mrs. H. G. Mamatha & Mr. Somashekharayya. H
26.	Post CBNAAT EQA visit to- Maharashtra-Nanded CBNAAT site	8 th & 9 th Jul 2019	Dr. Reena.K
27.	Visited CLTRI, Chengalpattu for discussions with the Director on preparation of the pre-final draft of National Research Cell (NRC) to be constituted and made functional at NTI	11 th – 12 th Jul 2019	Dr S. Uma Shankar
28.	Consultative meeting for revision of EQA guidelines for Smear Microscopy	11 th – 12 th Jul 2019	Dr. Sarika Jain Agrawal Dr George, Dr Reena.K Dr. R. Lakshmi Mrs. H. G. Mamatha
29.	Assessment of lab layout for Mumbai labs- GTB, sewree, KEM hospital and Kasturba Medical College	23 rd Jul 2019	Dr. Reena.K Dr. R. Lakshmi
30.	ECHO sahayatha sequencing programme on NGS for TB by	24 th Jul 2019	Dr. Reena.K Dr. R. Lakshmi
31.	Revision of EQA module – Re-Visit to Ramnagara District and Harohalli DMC, Bangalore Urban for intervention	1 st Aug 2019	Dr. Reena.K Mr. Somashekharayya. H
32.	Attended Sub-Committee of National Operational Research Committee meeting for developing a proposal for de-centralization of Operational Research mechanism and to strengthen NTI, Bangalore for establishing National Research Cell (NRC) at TB Association of India, New Delhi	4 th – 5 th Aug 2019	Dr S. Uma Shankar
33.	Post CBNAAT EQA visit to- Bihar- Jamui and Hajipur CBNAAT site	5 th and 6 th Aug 2019	Dr. Reena.K
34.	Attended a UNION SORT IT OR course at Yenepoya Medical University at Mangalore	6 th – 15 th Aug 2019	Dr S. Uma Shankar

35.	Review meeting on report of STRIDES by CTD supported by BD and USAID at NTI	14 th Aug 2019	NTI- Lab and EQA team
36.	National Symposium at BMS College of Engineering, a talk on recent update in the field of Tuberculosis and RNTCP	23 rd Aug 2019	Dr. Parvathi Anil
37.	ECHO sahayatha sequencing programme on NGS for TB by FMR	26 th Aug 2019	Dr. Sarika Jain Agrawal Dr. Reena.K Mrs. H.G. Mamatha
38.	STRIDES- Lab assessment visit to IRL Pune	27 th Aug 2019	Dr. R. Lakshmi
39.	Delivered a lecture on TB at Sagar Hospital, Tilaknagar, Bengaluru	6 th Sept 2019	Dr. C. Ravichandra
40.	Participated as part of the Central team for Integrated Digital Adherence Technology (IDAT) for treatment support of TB patient evaluations in Delhi and Gujarat (Surat)	23 rd - 27 th Sep 2019	Dr. Chethana Rangaraju
41.	Review Meeting with Joint Secretary, at MOHFW, Delhi	26 th Sep 2019	Dr. Somashekar N Dr. A Krishnamurthy Dr. Chethana Rangaraju
42.	Attended ZTF workshop of South zone II at Shri Manukula Vinaya Nagar Medical College and Hospital, Puducherry	26 th - 27 th Sep 2019	Dr S. Uma Shankar
43.	Participated as part of the Central team for 13 th Common Review Mission (CRM) (Delhi, Chennai and Villupuram district) from	15 th Oct - 23 rd Oct 2019	Dr. Chethana Rangaraju
44.	Participated as one of the team members for 13 th Common Review Mission (CRM) for the state of Uttarakhand	16 th - 24 th Oct 2019	Dr S. Uma Shankar
45.	Attended 6 th meeting of BRICS Tuberculosis Research Network at New Delhi	4 th - 5 th Nov 2019	
46.	Attended Technical workshop on “Cash Accounts, Budget Management, GST & Income Tax Matters” at New Delhi	21 st to 23 rd Nov 2019	Smt S.L. Nagarathna, Sri. Amit Kumar
47.	Attended expert review committee meeting on implementation of research projects under ITRC and expert group meeting for vaccine trial project.	3 rd - 4 th Dec 2019	Dr S. Uma Shankar

48.	Central Internal Evaluation : West Bengal	8 th - 13 th Dec 2019	Dr. Chethana Rangaraju
49.	NRL assessment visit to C& DST lab RIMS Raichur	12 th Dec 2019	Mrs.H.G.Mamatha , Mr. Somashekharayya.H Mrs.Geetha
50.	Mentoring visit to IRL Pune:	17 th - 21 st Dec 2019	Mr. Somashekarayya.H Mr. Jaya Ganesh
51.	74 th NATCON ,held at Chennai	20 th & 22 nd Dec 2019	Dr. Somashekar N Dr S. Uma Shankar Dr. Chethana Rangaraju Dr. Reena.K Mrs.Mamtha.H.G
52.	Lab Consumables Technical Specification Meeting at H&FW office Bangalore	9 th Jan 2020	Mr. Somashekharayya. H
53.	Hands on training in LCDST under STRIDES Partnership	30 th Jan 2020	Dr. Sarika Jain Agrawal Dr.George, Dr. Reena.K Mrs. Mamatha H.G, Mr.Raghunandhan, Mr. Ranganath
54.	Sensitization programme for faculty of ESI medical college Bengaluru	30 th Jan 2020	Dr. S. Uma Shankar
55.	Microscopy Training at DTC Bijapur	10 th - 15 th Feb 2020	Mr. Somashekharayya.H
56.	STRIDES assesment visit to IRL Pune	17 th - 18 th Feb 2020	Dr. Reena K
57.	NTEP Karnataka State World Bank Project engagement workshop & DTO review meeting	24 th - 25 th Feb 2020	Dr. Reena.K
58.	NTEG-D meeting at New Delhi	26 th Feb 2020	Dr. Reena.K
59.	Central Internal Evaluation : Jharkhand	2 nd - 7 th Mar 2020	Dr. George Sebastian
60.	Attended National OR Committee meeting at NITRD, New Delhi to present one protocol of NTI and support two other protocols in which NTI is also participating	12 th - 13 th Mar 2020	Dr S. Uma Shankar
61.	Attended the TrueNAT sensitization workshop at New Delhi	17 th & 18 th Mar 2020	Dr. Reena.K Mrs. Mamtha H.G

INSTITUTIONAL ETHICS COMMITTEE MEETINGS

During the period under report, two IEC meetings were held:

1. The 23rd Institutional Ethics Committee Meeting was held in the Institute on 1st June 2019 and under the Chairmanship of Shri S. Vijay Shankar, Senior Advocate, Ex. Advocate General for Karnataka.
 - The meeting was attended by Director, NTI; Brief presentation on the two protocols submitted for ethical clearance was made by the Principal Investigators / Presenters and ethical issues pertaining to each protocol was discussed.
 - Both the protocols were approved by the Chairman and committee members.
 - While concluding the meeting, Director expressed appreciation to the Chairman and the members for their contribution in this meeting. The suggestions given by the Chairman/Members were incorporated in the minutes and communicated to the concerned Principal/Co-Investigators.
2. The 24th Institutional Ethics Committee Meeting was held in the Institute on 7th December 2019 under the Chairmanship of Shri S. Vijay Shankar, Senior Advocate, Ex. Advocate General for Karnataka.
 - The meeting was attended by Director, NTI; the IEC members and the Principal Investigator / Presenters of the protocol. Brief presentation on the three protocols submitted for ethical clearance was made and ethical issues pertaining to each protocol was discussed.
 - All the three protocols were approved by the Chairman and committee members.
 - While concluding the meeting, Director expressed gratitude to the Chairman, Member Secretary and the members for their valuable presence in this meeting. Minute of the meeting was prepared as per the suggestions given by the Chairman/Members and circulated to the Chairman and members for their approval. On receipt of approved minutes, copy of the same was provided to the concerned Principals /co-investigators

RESEARCH DOCUMENTATION CELL (RDC)

The Research Documentation cell is carrying out the responsibility to digitize and upload the published TB research in Indian context as a nodal centre of NTI. The uploaded research articles are available in the research documentation portal www.tbresearch.ntiindia.org.in. The portal includes the published TB research from the following institutions/organization:

- Indian Institute of Science (IISc), Bangalore
- Institute of Bioinformatics, Bangalore
- Mahatma Gandhi Institute of Medical Sciences (MGIMS), Wardha
- National Institute for Research in Tribal Health (ICMR), Jabalpur
- National Institute for Research in Tuberculosis (NIRT), Chennai
- National Institute of Tuberculosis and Respiratory Diseases (LRS), New Delhi
- National JALMA Institute of Leprosy and other Mycobacterial Diseases, Agra
- National Operations Research Committee, Central TB Division, Govt. of India
- National Task Force, Zonal Task Force & State Task Force of Medical Colleges
- National Tuberculosis Institute (NTI), Bangalore
- New Delhi TB Centre (NDTB), New Delhi
- State Tuberculosis Centres.
- Tuberculosis Association of India (TAI)

The following activities were undertaken by Research Documentation Cell during Apr 2019 to Mar 2020

(A) Research Documentation Cell:

- Web Administration of TB research portal www.tbresearch.ntiindia.org.in
- Digitization and uploading of Indian TB research articles (72 Nos.) received from collaborating centres and published in various publications viz. Int J Tuberc & LD, IJMM, IJMR, IJTB, PHA etc.

(B) Institutional Ethics Committee (NTI - IEC)

- Organization of **23rd & 24th NTI IEC** meetings held during the year 2019-2020.
- Maintaining the records and correspondence between NIT IEC and Researchers

(C) National Research Cell

- A document “National Research Cell – Conceptual outline and Establishment Framework” was prepared in association with DH-ERD & Director, CLTRI

(D) Compiling of the Annual Report in consultation with the all the Division/Unit Heads of NTI and submitting to the Ministry.

(E) NTI Bulletin

- NTI Bulletin’s “Policy and Procedures” was finalized
- listing and indexing NTI Bulletin in UGC Care List
- Assisted Publication Unit in compilation of NTI Bulletin