

NATIONAL TUBERCULOSIS INSTITUTE BANGALORE



**Government of India
NATIONAL TUBERCULOSIS INSTITUTE
(Directorate General of Health Services)
'Avalon', No.8, Bellary Road, Bangalore-560 003
INDIA**

**ANNUAL REPORT
2016-17**

**For
Tuberculosis Research and Training**

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NATIONAL TUBERCULOSIS INSTITUTE
(Directorate General of Health Services)
'Avalon', No.8, Bellary Road, Bangalore-560 003
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LIST OF ABBREVIATIONS

AIIMS	All India Institute of Medical Sciences
ARTI	Annual Risk of Tuberculous Infection
BCG	Bacillus Calmette Guerin
BBMP	Bruhat Bangalore MahanagaraPalika
CMO	Chief Medical Officer
CPWD	Central Public Works Department
CTD	Central Tuberculosis Division
Dte.GHS	Directorate General of Health Services
DGNM	Diploma in General Nursing & Midwifery
DMC	Designated Microscopy Centre
DOT	Directly Observed Treatment
DOTS	Directly Observed Treatment Short course
DRS	Drug Resistance Surveillance
DST	Drug Susceptibility Testing
DTO	District Tuberculosis Officer
EQA	External Quality Assurance
HIV	Human Immuno deficiency Virus
HRD	Human Resource Development
IRL	Intermediate Reference Laboratory
JALMA	Japanese Leprosy Mission for Asia
LPA	Line Probe Assay
MDR	Multi Drug Resistance
M.TB	Mycobacterium tuberculosis
NDRS	National Drug Resistance Survey
NIRT	National Institute of Research in Tuberculosis
NRL	National Reference Laboratory

NTI	National Tuberculosis Institute
NTP	National Tuberculosis Programme
NFSG	Non-Functional Selection Grade
OSE	On-Site Evaluation
PPM	Public Private Mix
PPs	Private Practitioners
RNTCP	Revised National Tuberculosis Control Programme
SAARC	South Asian Association for Regional Co-operation
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
TUs	Tuberculosis Units
WHO	World Health Organization

FOREWORD

It gives me immense pleasure to present the Annual report for the year 2016-2017. This report highlights the major activities undertaken by the Institute during the year of report and has a blend of both administrative and technical activities.

The Technical Activities carried out at NTI include building the capacity of human resources for effective implementation of RNTCP, and also to undertake Operational Research to strengthen the roll out of services under RNTCP. The laboratory at NTI has been designated as one of the National Reference Laboratories, which assess the quality of the sputum smear microscopy, culture and drug susceptibility testing services in the laboratory network under RNTCP. Additionally, the institute also provides technical support to WHO, SAARC, The Union and other Partners of Global TB Control. Being a technical arm of the Central TB Division, Director NTI is the member of most National Advisory Committees, TWG on RNTCP and WHO South-East Asia Regional Technical Working Group on Tuberculosis Care and Prevention (SEAR TWG TB).

A core activity of the Institute is to support human resources development and strengthen the capacity of programme managers through skill development activities relevant to RNTCP. 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. Induction training in RNTCP for programme managers, Training in TB/HIV, Training of Master trainers in Epi-Centre, Training on procurement & drug logistics management, 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. In order to establish a National Database on Tuberculosis an Open Access Repository of abstracts of published scientific papers from all major national institutes is functional under the TB Net project. The Institute also provides one-day sensitization on

TB Control Programme to medical and para-medical students pursuing life sciences and nursing courses.

The first National Anti-tuberculosis Drug Resistance Survey (NDRS) in a representative sample of both newly diagnosed sputum smear-positive pulmonary TB cases and previously treated sputum smear-positive pulmonary TB cases is under progress. The sample intake has been completed from 120 TB Units pan India and Drug Susceptibility Testing (DST) for all the 13 first line and second line anti-TB drugs is completed. Preliminary data analysis is completed and the report writing is under progress. This survey is expected to provide information on the prevalence of anti-tuberculosis drug resistance among new and previously treated patients and will contribute to a better understanding of the national and international situation of TB drug resistance.

Operational research is one of the prime functions of the institute. The studies undertaken/initiated during the period under report were, *Improving TB case finding efficiency and management of TB cases in private health care facilities in Bangalore city, A study of knowledge of Private Practitioners of Bangalore city in diagnosis and treatment of TB, Pediatric TB Inventory study in Tumkur District – collection of baseline data, Multi centric Cohort Study of Recurrence of TB among newly diagnosed Sputum positive PTB patients treated under RNTCP – Collaborative Study.*

Several CMEs were organized during the period for sensitization of private care providers (PPs) & RNTCP officials in Indian Standards for TB Care (INDSTC).

The functions of NRL comprises of training laboratory personnel and accreditation of state level Intermediate Reference Laboratories (IRLs), Medical college and other private laboratories for the culture and Drug Sensitivity testing to detect Multi – Drug Resistant Tuberculosis (MDR-TB) apart from supporting Drug Resistant Surveillance (DRS) and PMDT at the state level. NTI supervises and monitors the quality sputum smear microscopy network across nine states. The NRL is also responsible for Human Resource Development and capacity building of IRLs for the management of MDR-TB.

Participation of faculty and Technical staff in various meetings, training programmes, seminars, internal evaluation visits, 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.

Amongst the visitors to the Institute were luminaries from the Government of India; State Governments; CDC, Atlanta; WHO, Bill & Millinda Gates; PATH and FIND.

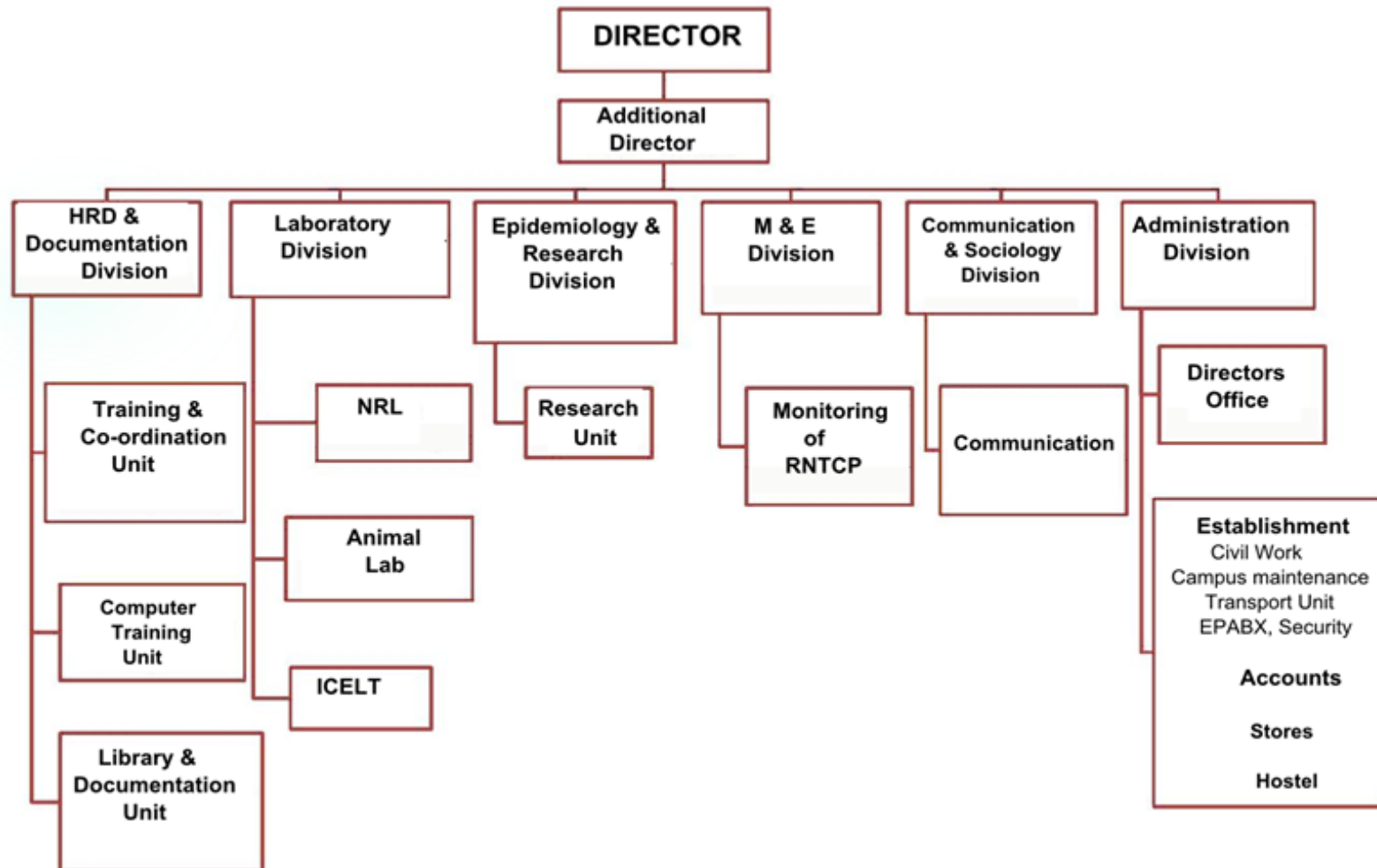
I acknowledge the co-operation, hard work and diligence of all the members of the NTI family and I solicit the same degree of motivation and dedication from all in times to come.

I also express my gratitude to the Director General Health Services and the Central TB Division for their continuous guidance, support and encouragement.

Dr. Prahlad Kumar
Director

Dated: 22 August, 2017
Place: Bangalore

ORGANOGRAM



1. Human Resource Development & Documentation

A core activity of the Institute is to support human resources development and strengthen the capacity of programme managers through skill development activities relevant to RNTCP. The three units under this Division are Training and Coordination Unit, Computer Training unit and Library & Documentation Unit.

A. Training and Coordination Unit

The aim of RNTCP training programmes is to ensure that programme managers, teachers of medical colleges, medical officers and paramedical staff are equipped with the necessary skills and knowledge required to implement and sustain TB control activities including quality assured diagnosis of TB, management of TB-HIV co-infection, management of drug resistant TB, data management and forging partnerships with all sectors involved in TB control activities.

All RNTCP training activities at NTI are organized in coordination with the HRD unit at Central Tuberculosis Division (CTD). The proposed annual plan for training activities to be held at NTI is prepared for the ensuing year and sent to CTD. The CTD communicates the annual training plan to all State TB Officers. Prior intimation of the annual training plan, ensures staggered nomination of candidates in appropriate batch sizes and also provides adequate time to secure release of participants from their offices for attending the training programmes. Also, the Training Unit works in tandem with the hostel, stores and transport units of the institute to facilitate smooth organization of training activities. Several training courses and workshops on all facets of TB control were conducted during the year under report to cater to the ever-increasing demand of trained manpower, the details of which are briefly appended below.

I. Training activities

1. Revised National Tuberculosis Control Programme (RNTCP) Modular Training

Sl. No.	Category of personnel	Period	No. of Participants
1.	State and District level programme Managers and faculty from Medical colleges	4 th – 16 th April 2016	29

2. Training of Trainers (ToT) on RNTCP Technical and Operational Guidelines for TB Control in India – 2016

Sl. No.	Category of personnel	Period	No. of Participants
1.	District TB Officers, Sr.	13 th – 17 th June 2016	39
2.	Regional Directors, Regional Director, Chest Physician,	11 th – 15 th July 2016	30
3.		19 th – 23 rd September 2016	47
4.	Associate Professors, Deputy civil Surgeon (TB), Regional Directors, Assistant Professors,	28 th November - 2 nd December 2016	40
5.	Medical Officers, Regional Directors, Specialist, Professor & Superintendents, HOD (TB & RD), Sr. Residents, Deputy Director of Medical Services,	6 th – 10 th February 2017	37
6.		27 th February – 3 rd March 2017	40

3. PMDT (Programmatic Management of Drug Resistant TB) Training

Sl. No.	Category of personnel	Period	No. of Participants
1.	WHO RNTCP Consultant, State Tuberculosis Officer, District Tuberculosis Officer, Sr. Medical Officer, DRTB Coordinator, Deputy Director TB Cell, State Tuberculosis, Professor of Chest Diseases,	25 th – 29 th July 2016	25
2.		7 th – 11 th November 2016	23

	Assistant Programme Officer / Epidemiologist and Assistant Director of Health Services (TB)		
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4. RNTCP National Training on Catridge Management and refresher training on Procurement and Supply Chain Management

Sl. No.	Category of personnel	Period	No. of Participants
1.	State and district level programme managers	28 th – 30 th September 2016	32
2.		15 th – 17 th November 2016	30
3.		14 th – 16 th December 2016	34

5. Training on Procurement and Supply Chain Management

Sl. No.	Category of personnel	Period	No. of Participants
1.	State and district level programme managers	30 th March – 1 st April 2016	27

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

Sl. No.	Category of personnel	Period	No. of Participants
1.	Sr. Lab Technicians, Microbiologists, Medical college professors	6 th – 18 th June 2016	05

7. Training in External Quality Assessment

Sl. No.	Category of personnel	Period	No. of Participants
1.	DTOs, Microbiologists, STLSSs and LTs	18 th – 22 nd April 2016	08
2.		24 th – 28 th October 2016	21

8. Training in Liquid Culture MGIT 960 (First line and Second line DST)

Sl. No.	Category of personnel	Period	No. of Participants
1.	Laboratory Technician, Microbiologist and Consultant Microbiologist	17 th – 21 st October 2016	11

9. Second Line DST Training in Liquid Culture

Sl. No.	Category of personnel	Period	No. of Participants
1.	Microbiologists, Laboratory Technicians, Assistant	11 th – 14 th April 2016	5
2.	Professors and Technical Officers	16 th -19 th August 2016	4

10. Collaborative training activities with

a. CTD-NTI- CDC- The Union Operations Research Capacity Building workshop and project mentorship for professionals working with the RNTCP

Sl. No.	Category of personnel	Duration	No. of Participants
1.	Director STDC, WHO RNTCP Consultants, STO, DTO, Medical Officers and IRL Microbiologists	1 st – 10 th October 2016	10

b. NTI – SAARC / NTP Nepal - TB Management Training

Sl. No.	Category of personnel	Duration	No. of Participants
1.	Officials from National TB Programme, Afghanistan	10 th March 2017	04

11. Other Trainings

Sl. No.	Particulars	Date	No. of Participants	Participants
1.	Training for the master trainers for the 'Bedaquiline' held at Ahmedabad.	21 st – 23 rd February 2017	-	Dr. C. Ravichandra, CMO (NFSG)

12. Other workshops / Meetings / CME

a. At NTI

Sl. No.	Particulars	Date	No. of Participants	Participants
1.	Brain Storming Workshop for e-training module development	7 th and 8 th July 2016	14	NTI, CTD & WHO
2.	E-training module content development workshop	30 th - 31 st January 2017	-	Participants from CTD and NTI
3.	Joint activity of National Tuberculosis Institute, Bengaluru & Academy of Family Physicians of India at NTI, Bengaluru to commemorate World TB Day	24 th March 2017	41	Physicians from Academy of Family Physicians of India

b. Outside NTI

Sl. No.	Particulars	Date	No. of Participants	Participants
1.	Zonal Task Force Meeting held in Guwahati	19 th to 20 th January 2017	-	Dr. C. Ravichandra, CMO (NFSG)

13. Sensitization on TB Control Programme for Undergraduate/ Post graduates / medical / paramedical students

Under Advocacy Communication and Social Mobilization, Communication & Sociology Division at NTI has been conducting one-day orientation / sensitization training about RNTCP. Students from different institutions of the state and neighboring states are utilizing this program. A total of **1501 students & scholars** of life sciences visited NTI in **46 batches** during the period as follows:

SL. NO	DATE	CATAGORY OF STUDENTS	NO.OF STUDENTS	ORGANISATION
1.	21-04-16	B.Sc(N)	29	St.Martha's Hosp. College of Nursing , Bangalore
2.	25-04-16	PG's Medical	03	Devraj Urs Medical college. Kolar
3.	27-04-16	GNM	40	St.Philomina's College of nursing, Bangalore
4.	05-05-16	B.Sc(N)	19	Sri Kalabyraveshwara College of Nursing, Bangalore
5.		GNM	37	
6.	09-05-16	B.Sc(N)	50	St.John's college of nursing, Bangalore
7.	10-05-16	B.Sc(N)	50	St.John's college of nursing, Bangalore

SL. NO	DATE	CATAGORY OF STUDENTS	NO.OF STUDENTS	ORGANISATION
8.	24-05-16	Medical PG's	04	M.S.Ramaiah Medical college Hosp.Bangalore
9.	14-06-16	GNM	54	SJB College of nursing, Bangalore
10.	22-06-16	B.Sc(N)	39	St.John's college of nursing, Bangalore
11.	23-06-16	Msc Life science	15	Mount Carmel college Bangalore
12.	21-07-16	Msc (Entamology) Public health staff	12	NCDC, Bangalore-03
13.	25-07-16	MD Community medicine-PG Students	09	AFMC, Pune, Maharashtra
14.	03-08-16	B.Sc(N)	42	Sri Devraj Urs College of Nursing, Kolar, Karnataka
15.	18-08-16	MD Community medicine-PG Students	13	Mysore Medical College, Mysore, Karnataka
16.	23-08-16	B.Sc(N)	32	SSIHMS college of nursing, White field, Bangalore
17.	04-10-16	B.Sc(MLT)	26	Regional Inst.of paramedical & nursing sciences Aizwal, Mizoram
18.	08-11-16	B.Sc(N)	45	Goutham Institute of Nursing Science and Research Centre, Bangalore
19.	16-11-16	PG's Community medicine	04	K.S. Medical Academy, Mangalore
20.	16-11-16	PG's Community medicine	02	JSS Medical college, Mysore
21.	18-11-16	B.Sc(N)	45	Sri. Devraj Urs College of Nursing, Kolar

SL. NO	DATE	CATAGORY OF STUDENTS	NO.OF STUDENTS	ORGANISATION
22.	23-11-16	GNM	24	St.Philominas School of Nursing, Bangalore
23.	23-11-16	MPH Students	07	Mahatma Gandhi University School of medical education, Kottayam, Kerala
24.	28-11-16	B.sc(MIT)	30	Acharya Inst. of Health sciences, Bangalore
25.	29-11-16	GNM	52	Krupanidhi School of Nursing, Bangalore
26.	30-11-16	B.sc(MLT)	38	Acharya Inst. of Health sciences, Bangalore
27.	14-12-16	B.Sc(N)	50	St.John's College of nursing, Bangalore
28.	20-12-16	PG's Community medicine	02	S.S.Inst. of medical science, Shimoga, Karnataka
29.	30-12-16	PG's Community medicine	06	Raja Rajeshwari Medical college & Hosp, Bangalore
30.	05-01-17	BPT Students	25	Acharya Inst.of Health sciences, Bangalore
31.	12-01-17	Bsc(N)	38	St.John's College of nursing, Bangalore
32.	13-01-17	Bsc(N) GNM	20 28	Narayana Hrudayalaya College of Nursing, Bangalore
33.	20-01-17	PG's Community medicine	06	A.J. College of Medical sciences, Mangalore
34.	23-01-17	Bsc(N)	55	St.Philomina's college of nursing, Bangalore
35.	30-01-17 and 31-01-17	Bsc(N)	79	NIMHANS, Bangalore
36.	20-02-17 and 21-02-17	PG's Pulmonary medicine	8	GSL College & Hosp. Rajahmundry, A.P-533296

SL. NO	DATE	CATAGORY OF STUDENTS	NO.OF STUDENTS	ORGANISATION
37.	22-02-17	BAMS Students	60	Santhigiri Ayurveda Medical College, Palakkad, Kerala
38.	28-02-17	GNM	28	Lakshmi Memorial Inst. Of Nursing, Mangalore
39.	01-03-17	Bsc(N)	52	Global college of Nursing, Bangalore
40.	02-03-17	Bsc(N)	37	Global college of Nursing, Bangalore
41.	03-03-17	Bsc(N)	28	Sri Sathya Sai Institute of Higher Medical Sciences college of nursing, Bangalore
42.	07-03-17	MBBS VII Term	54	Sapthagiri Inst. of medical sciences & RC, Bangalore
43.	08-03-17	Bsc(N)	50	Florence college of nursing, Bangalore
44.	10-03-17	Bsc(N)	55	Vaidehi Inst. Of Nursing sciences & RC, Bangalore
45.	16-03-17	PG's-Public Health Dentistry	09	KLE's Inst. of Dental sciences, Bangalore
46.	20-03-17	Health Inspectors Trainees	30	Air force medical Training center, Bangalore

International Center of Excellence for Laboratory Training (ICELT)

International Center of Excellence for Laboratory Training, supported by FIND, RNTCP and UNITAID, was started in NTI, Bengaluru with the mission “to support the scaling up of laboratory capacity building in India and Asia by providing hands-on training courses in the diagnosis and monitoring of major infectious diseases such as TB, HIV/AIDS and Malaria”. Presently, ICELT is imparting trainings on WHO endorsed Newer Diagnostic Techniques for TB and its drug resistance. In addition to Line Probe Assay and Liquid Culture, this year training was also conducted on GeneXpert MTB/RIF, the latest technique in TB diagnostic armamentarium. GeneXpert MTB/RIF is a cartridge based nucleic acid amplification test (CB NAAT) that can diagnose TB and Rifampicin resistance in less than two hours. The Training activities held in ICELT during the year under report are given below:

Sl No	Name of training	Participating laboratories	Date	Number of participants
1.	National Training on Second line DST testing using both solid and liquid media – MGIT 960.	Intermediate Reference Laboratories, C & DST Laboratories & Medical colleges	11 th -14 th April, 2016	5
2.	CDC – Team Visit- for lab assessment under the PT programme of xpert EQA.	ICELT- NTI, LAB	2 nd June, 2016 and 20 th -22 nd August, 2016	6
3.	Comprehensive & integrated training on all TB Diagnostics	Intermediate Reference Laboratories, C & DST Laboratories & Medical colleges	8 th -18 th June, 2016	5
4.	National Training on Second line DST testing using both solid and liquid media – MGIT 960.	Intermediate Reference Laboratories, C & DST Laboratories & Medical colleges	7 th -14 th October, 2016	11

Sl No	Name of training	Participating laboratories	Date	Number of participants
5.	Attended CDC-Atlanta, ILB, USA. For laboratory training on preparation of Dried tube specimens for xpert EQA.	ICELT-NTI (Dr Kishore Reddy & Mr. George Sebastine)	20 th November – 20 th December , 2016	2

II. Other technical activities conducted by the officers of the Training and co-ordination unit

- Preparation for all the training activities scheduled during the year 2017-18
- Preparation of the technical reports of the training activities held during the year 2016-17.

III. Administrative activities

a. Dr. Ravi Chandra. C, CMO-NFSG was involved in the following administrative activities:

1. Discharged duties as Chairman of Condemnation committee and Purchase Committee.
2. As Hostel In charge and Chairman of the Hostel committee, discharged duties successfully to the satisfaction of the trainees accommodated in the hostel.
3. Member Secretary for the Hindi Rajbasha Samithi.
4. Discharged the duties as Division Head, HRD & Documentation Division, I/c Hostel, Chairman of Condemnation committee and Purchase Committee.
5. Discharged duties as a Stock Verification Officer whenever nominated by the Director for physical verification of items held by various Divisions/Units of the Institute.
6. Other administrative duties entrusted by the Director from time to time.

- b. Dr. Poornima A, MO was involved in the following administrative activities:
1. Discharged duties as a member of Departmental Promotion Committee (DPC) and assisted in meetings.
 2. Worked as a committee Member for appointment on compassionate grounds and member of recruitment committee.
 3. Serving as a Liaison officer.
 4. Discharged the duties as Unit Head, Training.
 5. Discharged duties as a Stock Verification Officer whenever nominated by the Director for physical verification of items held by various Divisions/Units of the Institute.
 6. Other administrative duties entrusted by the Director from time to time.

Computer Training Unit

The Computer Training Unit supports the following major areas:

- Facilitate in organizing need based training with relevance to programme and customized application related trainings
- To support Information and Communication Technology (ICT) Initiatives in the context of the Programme.
- To support Data Management and Statistical Analysis of research studies and other MIS.
- To cater to the maintenance of website / upkeep / up-gradation of IT infrastructure of the Institute.

a. National Drug Resistance Survey:

The Computer Training Unit has been entrusted with the responsibility of implementing the data management module for the ongoing National Drug Resistance Survey. The Data management module for the survey caters to real time registration of samples, capture of results declared by the Lab technician and further verification by the Microbiologist. Also the dash board created for each of the 120 TB units, keep the field teams updated with regards to their registration status and quality control activities. Further the DST results of all the registered patients are shared with the concerned field officials in real time by emails.

The following NDRS activities that were under taken in the year –

1. DRS data management module is functional and the features as required are being updated.
2. I/c CTU attended meeting with Director on 1st April 2016 to finalize the presentation to be made in the meeting at CTD on 06.04.2016 regarding midterm review of NDRS along with other areas of the support to be provided for RNTCP by Director and the team at NTI. The points for discussion with Dr Ranjani Ramachandran, Co-investigator of NDRS & WHO NPO for laboratories regarding various issues related to lab component of NDRS were also finalized & follow-up action thereof.

3. I/c CTU attended the meeting with Director & NDRS team on 5th April 2016 where detailed review on NDRS data was discussed and the presentation was finalized for the midterm review meeting to be held at DDG's office on 06.04.2016 & follow up action thereof.
4. I/c CTU attended the meeting along with Director in DDG's office, New Delhi on 6th April 2016. The other members present were: Dr Ranjani Ramachandran, WHO NPO lab focal point; Dr Malik Parmer, WHO DR-TB NPO; Dr Srinivas, WHO NPO; Addl. DDGs; Consultants of CTD. The meeting was chaired by DDG (TB) to discuss midterm review of NDRS. Director made a presentation on NDRS and detailed discussions on various components was held & follow up action thereof.
5. I/c CTU attended the meeting with Director & WHO officials on 29th April 2016 to discuss the status of NDRS and new lab related research projects to be initiated jointly by WHO & NTI. Director appreciated the support of WHO team and also assured fullest cooperation for initiating the new research project & follow-up action thereof.
6. I/c CTU attended meeting with Director & NDRS study coordinator on 5th May 2016 to have telephonic interaction with the authorities of state TUs for settlement of accounts pertaining to NDRS & follow-up action thereof.
7. I/c CTU attended meeting with Director, lab and NDRS team on 9th May 2016 to review the progress of NDRS and a report was sent to Dr Ranjani Ramachandran, co-investigator of the survey and WHO lab focal point, requesting for extension of the survey period from September to December 2016, since result of the sensitivity will take time to be completed by the end of December 2016 & follow-up action thereof.
8. I/c CTU attended meeting with Director & NDRS Study Coordinator on 20th May 2016 & had telephonic communication with the participating TUs for completion of pending work.
9. I/c CTU attended meeting with Director and NDRS Study Coordinator on 25th July 2016 regarding revised date of TSA for NDRS. It was decided that the present TSA may be revised till the end of March 2017 since the lab work will be completed only by the end of December 2016

and another 3 months will be required for preparation of the report. Hence Director instructed the team to send a communication in this regard to CTD and WHO & follow-up action thereof.

10. Preparation tables & analysis reports for upcoming NDRS meeting & follow-up action thereof.
11. I/c CTU attended meeting with Director, I/c NRL, NDRS Study Coordinator and Sr. Microbiologist, NRL on 2nd August 2016 about sending the updated report of NDRS to DGHS & follow-up action thereof.
12. I/c CTU attended meeting with Director NDRS Study Coordinator and Sr. Microbiologist of NDRS on 4th August 2016 about preparing the interim report of NDRS, as requested by DDG (TB) and forwarding the same to DGHS & follow-up action thereof.
13. I/c CTU attended meeting with Director, Study Coordinator and Sr. Microbiologist on of NDRS 17th August 2016 to review the status of DSTs being performed under NDRS. It was informed by Sr. Microbiologist that about 4000 DST results are available and the remaining about 950 DST results are likely to be available by the end of October 2016 & follow-up action thereof.
14. I/c CTU attended meeting with Director & NDRS Study Coordinator on 26th August 2016 who informed that since NDRS DST is in full swing and likely to be completed by the end of October 2016, preparation of draft report is to be started. Director suggested for constitution of a committee by incorporating the members from Laboratory and Analysis wing of NDRS and the draft report has to be initiated by involving both Laboratory and Analysis wing of NDRS & follow-up action thereof.
15. I/c CTU attended meeting review the progress of NDRS with Director Dr PR Narayanan, renowned Lab Expert and former Director of NIRT, Chennai Division Head of Lab, Sr. Microbiologists of NDRS, and analysis team of NDRS on 29th Aug 2016. Agenda for review of NDRS was finalized and team members were instructed to present the status of their work to Dr. Narayanan so that review can be completed and

appropriate guidance is provided by Dr Narayanan. I/c CTU attended meeting with Director, NDRS Study Coordinator on 12th, 22nd, Sep 2016 to review NDRS & follow-up action thereof.

16. I/c CTU attended meeting with Director, NDRS Study Coordinator and Sr. Microbiologist NDRS on 1st September 2016 for the monthly review of NDRS. A report was prepared about progress of NDRS up to 31.08.2016 and sent to CTD & follow-up action thereof.
17. I/c CTU attended meeting with Director, Sr. Microbiologist, NDRS on 7th Sep 2016 to prepare an Action Plan for C&DST to be performed for the remaining samples of NDRS & follow-up action thereof.
18. I/c CTU attended meeting with Director, NDRS Study Coordinator, Sr. Microbiologist of NDRS on 16th Sep 2016 to discuss requirements for NDRS for the period 16th Sep to Dec. 2016 and a communication was sent to WHO regarding no cost extension for the period 16th Sept. to Dec. 2016, to complete the survey & follow-up action thereof.
19. I/c CTU attended meeting with Director on 21st Sep 2016 regarding revised TSA for NDRS from 16th Sept to 31st December 2016.
20. I/c CTU attended meeting with Director, NDRS Study Coordinator on 24th, 31st Oct 2016 to review NDRS & follow-up action thereof.
21. I/c CTU attended meeting with Director, Sr. Microbiologist, NDRS, NDRS Study Coordinator on 1st Oct 2016 to review NDRS and to prepare a report to be sent to DDG. An up to date report on progress of NDRS was prepared and sent to CTD. Director also instructed the officials to start reporting of the NDRS since all DST results are likely to be available by the end of November 2016 & follow-up action thereof.
22. I/c CTU attended meeting with Director, Addl. Director and NDRS study coordinator on 26th Oct 2016 regarding pending work pertaining to NDRS in various TUs of the states. Director instructed them to telephonically coordinate with the concerned officials to complete the pending work at the earliest, not later than the end of November 2016 and follow-up action thereof.

23. I/c CTU attended two days meeting with Director, Mr Avijit Chowdhury on 26th & 27th Oct 2016 to discuss on issues pertaining to e-module development and technical inputs were shared.
24. I/c CTU attended meeting with Director, NDRS Study Coordinator on 4th & 30th November 2016 to review NDRS & follow-up action thereof.
25. I/c CTU attended meeting with Director, Addl. Director, and Sr. Microbiologist, NDRS on 4th November 2016 to review the progress. It was informed by Sr. Microbiologist that DSTs are likely to be completed by the end of November 2016 and quality control & EQA work under progress are likely to be completed by the end of December 2016. It was also informed that there is some pending work regarding cluster summary sheet and field quality control interview to be performed by the DTOs and the Consultants. Director advised about sending a letter to Dr Srinivasan Nair, NPO, WHO, requesting to inform all the consultants in the states to expedite pending NDRS work. It was also decided that a letter from NTI will be sent to all the DTOs to complete the pending work of NDRS as early as possible.
26. I/c CTU attended meeting with Director, NDRS Study Coordinator & Sr. Microbiologist NDRS on 1st, 16th December 2016 to review NDRS & follow-up action thereof.
27. I/c CTU attended meeting with Director, Sr. Microbiologist and Study Coordinator, NDRS on 2nd December 2016 who informed about completion of genetic sequencing work of NDRS and a report on this to be prepared, which will be discussed during the visit of a team of CTD and WHO to the Institute for verification of NDRS data & follow-up action thereof.
28. I/c CTU attended meeting with Director NDRS Study Coordinator, and Sr. Microbiologist, NDRS on 5th December 2016 about preparation of the report on NDRS findings to be sent to DGHS, as desired by him. Subsequently, a report was prepared and submitted to DGHS & follow-up action thereof.
29. I/c CTU attended meeting with Director, I/c Lab and NDRS Study Coordinator on 7th & 8th December 2016 to review the pending work of

NDRS with Peripheral Units. Telephonic interactions were made to expedite the pending work, since NDRS is coming to end & follow-up action thereof.

30. I/c CTU attended meeting with Director, NDRS Study Coordinator on 23rd December 2016 regarding drafting of the NDRS report. Director suggested that a Sr. Lab expert may be invited for verification of lab data and also support the team in drafting of the NDRS report. After detailed discussion, it was decided that Dr PR Narayanan, former Director, TRC Chennai and Chairman of WHO Technical Working Group may be requested to visit NTI to verify the lab work performed for NDRS and gene sequencing work and also seek his support for drafting of the report & follow-up action thereof.
31. I/c CTU attended meeting with Director, I/c NRL and Sr. Microbiologist, NDRS on 28th December 2016 regarding action taken on the recommendations of Dr Narayanan, External expert who reviewed NDRS data. Director instructed the officers to implement his recommendations and initiate drafting the report in consultation with Dr Narayanan & follow-up action thereof.
32. I/c CTU attended the meeting with NDRS team on 2nd Jan 2017 to review final presentation of NDRS including drug sensitivity data and processing adopted for completion of NDRS. Both the analysis and laboratory teams presented details of the processing data of the survey. The NDRS Accountant also informed that the data of accounting of NDRS is under progress and will be completed very soon. These presentations will be made to the team of experts from WHO and GOI officials who are likely to visit NTI shortly. The relevant data and documents will be produced to them as per their requirement & follow-up action thereof.
33. I/c CTU participated the meeting with Director; I/c Lab; Dr Lakshmi; I/c Admin., and I/c Hostel on 4th Jan 2017 about arrangements to be made for the meeting of GOI and WHO experts team visiting NTI on 5-6th January 2017 for data verification of NDRS. The presentation to be

made and necessary arrangements were finalized & follow-up action thereof.

34. I/c CTU attended meeting with Director & I/c NRL on 9th Jan 2017 to discuss the action taken on the minutes of meeting of experts of CTD and WHO for data verification of NDRS, received from DDG (TB). As per the information from WHO, a team of experts from WHO Headquarters Geneva will be visiting NTI from 25-27th January 2017 for data verification of NDRS and discussion on various components of NDRS under the leadership of Dr Matteo and Dr Babis. Director instructed NDRS team to make necessary arrangements in this regard & follow-up action thereof.
35. I/c CTU attended meeting with Director and I/c NRL on 23rd Jan 2017 to finalize the presentation to be made in the meeting with the officials of WHO Headquarters, Geneva and GOI at NTI from 25-27 January 2017. The presentation was finalized & follow-up action thereof.
36. I/c CTU attended the meeting with Director, Dr Malik Parmer; and Dr Lakshmi on 30th Jan 2017 to review NDRS and furnishing of additional information on NDRS findings & follow-up action thereof.
37. I/c CTU attended meeting with Director & I/c NRL on 1st Feb 2017 to review the action taken on the Joint meeting held with WHO & GOI officials for reviewing the NDRS & follow-up action thereof.
38. I/c CTU attended meeting with Director & I/c Accountant, I/c NRL on 27th Feb 2017. It was informed that a cheque of the balance amount of NDRS returned to the WHO was bounced, due to some technical error in the bank. The required amount was transferred by bank to WHO account & the matter was settled as informed by the I/c Accountant. It was telephonically confirmed by the WHO officials at WHO office, New Delhi. They have confirmed the receipt of the money. Finally, the WHO NDRS account was audited and closed.
39. I/c CTU attended meeting with Director, NDRS Study Coordinator & Sr. Microbiologist NDRS to review NDRS & follow-up action thereof.

40. I/c CTU attended meeting with Director at DDG (TB) office, New Delhi chaired by DDG(TB) attended by Dr. Patrick Moonan, Head of CDC, Delhi Office, Dr Ranjani Ramachandran (WHO NPO Lab) on 2nd March 2017. It was decided in the meeting that Genetic Sequencing of NDRS samples will be performed by NTI in a joint collaboration project of CDC – GOI – CTD – NTI & follow-up action thereof.
41. I/c CTU attended along with Director NDRS review meeting. Chaired by DGHS, Government of India in his office at Nirman Bhavan, New Delhi on 30th March 2017, which was attended by team of experts of CTD & WHO. Director NTI presented the findings of NDRS to DGHS. DGHS appreciated the NTI for successful completion of NDRS & directed the DDG(TB) that the report may be submitted by CTD in the file for approval of report by authorities of Ministry of Health & Family Welfare, government of India. DGHS also decided that NTI will conduct Genetic Sequencing with the support of WHO & CDC on NDRS samples available in NTI.

b. TB-Net Project - Establishing a National Database on Tuberculosis – Phase II:

The Phase II of the TB-Net project was initiated upon obtaining approval from the Department of Biotechnology, Ministry of Science and Technology, Government of India. An Open Access Repository of abstracts of published scientific papers from all major national institutes has been launched vide URL <http://tbresearch.ntiindia.org.in>. It attempts to collect, preserve and disseminate the intellectual output of these Institutes available in peer-reviewed journals. Another site <http://ntiresearch.ntiindia.org.in> facilitates archival of research protocols and other documents which are intellectual property of NTI Bangalore.

- c.** The report on activities undertaken at NTI as a WHO collaborating Centre has been uploaded to WHO CC website for the year 2016-17.

d. The I/c Computer Training Unit has contributed as a member of the publication committee in the following publications:

- i. NTI annual report for the year 2016-17
- ii. Compilation & Consolidation of NTI Bulletin Vol.51/1&4, hosted onto NTI website.
- iii. In addition, the unit is also responsible for compiling & consolidation of the Institute's monthly, quarterly & annual reports and submission to DteGHS and CTD.

e. **IT Support Services:**

1. Periodic licensing server configuration & maintenance like SPSS, STATA, McAfee Licensing etc.
2. Application server configuration and maintenance for the following applications www.ntiindia.org.in, www.ntiresearch.ntiindia.org.in, www.ntiindia.org.in/ndrs, www.drs.ntiindia.org.in, www.tbresearch.ntiindia.org.in
3. Maintenance of access to subscribed Journals.
4. Handling matters pertaining to AMC of computers / UPS and issues pertaining to server configuration / Internet services / mailing services
5. Periodic uploading of contents onto NTI website is undertaken as per requirement.
6. Technical inputs pertaining to Internet/ Server / Software's / Audio Visual Equipments and infrastructure expansion are entrusted to the unit.
7. Periodic technical server configuration / proxy server configuration for Internet services & maintenance there off are being under taken regularly.

f. **Other workshops / Meetings/ CME**

1. I/c CTU attended the meeting in FIND India Office, New Delhi on 6th April 2016 to discuss the joint proposal of FIND-CTD-NTI for 2nd line DST by LPA.

2. During the meeting following discussions were held with the officials of FIND India
 - a. To initiate the project 2nd line DST by LPA at NTI. In this regard, Director informed that already NTI has received communication from CTD and NTI will initiate the work on this project in consultation with NRL- NTI and ICELT at NTI.
 - b. To initiate the mechanism for quality control of CBNAAT machines, since 500 more new CBNAAT machines are being installed. Director agreed with the suggestion and mentioned that with this new addition.
 - c. Further CDC officials informed that all the CBNAAT machines and MGIT liquid culture machines have to be linked with the software to develop drug resistant surveillance (DRS) system and CDC in collaboration with FIND India is willing to support this initiative. Director NTI welcomed the support of CDC and FIND to develop DRS system at NTI by linking all CBNAAT and MGIT machines so that all the data can be pooled at NTI.
3. I/c CTU attended the meeting with Director, Dr Salhotra, Addl. DDG, CTD, New Delhi; Dr Kiran Rade, Dr Ashu Pande; Dr Amar Shah, Dr Mayank Ghedia, Mr Avijit Choudhry and training team of NTI on 16th June 2016 & discussed regarding preparing the training material by using information and communication technology. Director, NTI, was requested to lead the group who is preparing this training material and organize a meeting to finalize the draft methodology to undertake the development in 1st week of July 2016.
4. I/c CTU attended the TCC meeting on 22nd June 2016 to discuss DPS protocol which was attended by Sr. Officers. The protocol was finalized after incorporating all the suggestions by various Officers. The Division Head ERD was informed to forward the finalized protocol and the presentation to DDG (TB) for their perusal as well as for onward transmission to DG ICMR.

5. I/c CTU facilitated NIKSHAY training on 16th June 2016 for the Comprehensive Training Course to Laboratory Personnel (Solid Culture, Liquid Culture, LED-FM, LPA, CBNAAT) in which 5 participants from 5 different states participated.
6. I/c CTU attended the meeting with Director, on 4th July 2016 to review the project supported by DBT and also collaborative project with Indian Institute of Science (IISc). Director instructed I/c CTU to actively participate and support Training Division in development of E-module for RNTCP.
7. I/c CTU attended the meeting with Director and I/c NRL on 5th July 2016 about their visit to IISc for the collaborative project of new technological development in the field of diagnosis of pulmonary tuberculosis.
8. I/c CTU attended the Development of E-training module workshop from 16th to 19th August 2016.
9. I/c CTU attended the Meeting with Director & Dr Kiran Rade, CTD, on 19.09.2016 to discuss the electronic module on the OR guidelines.
10. I/c CTU attended the Meeting with Director &, I/c RDC and HC on 13th Oct 2016 regarding internet access to various sections. It was observed that internet was not functioning properly and Director instructed them to take proper measures to streamline proper internet access for various sections in the Institute & follow-up action thereof.
11. I/c CTU attended meeting with Director & Sri Avijit Choudhury, WHO on 26th & 27th Oct 2016 to discuss finalization of the electronic module for training to be imparted to various levels of officials working under RNTCP. It was discussed that a joint team of WHO and NTI consisting of IT officials will finalize this e-module and Mr. Avijit Choudhury from WHO and Mr. Jitendra, I/c CTU from NTI will be the nodal officials regarding IT component of this e-module. In this regard, deliberations were held and an action plan was prepared, followed by debriefing of the action plan on 27.10.2016 & follow-up action thereof.

12. I/c CTU participated in NATCON 2016 held at Chandigarh, from 16th - 18th December 2016.
13. I/c CTU attended Meeting with Director & Dr Narayanan on 26th & 27th December 2016 to support NDRS team for drafting the report. Dr Narayanan held discussion with the lab & analysis team and subsequently verified the records & reports and gave his observations on the NDRS. He appreciated the work carried out by the lab & analysis team and provided suitable support for drafting the report. Subsequently, the NDRS lab & analysis team prepared the draft report which was seen and accepted by Dr Narayanan. Director expressed sincere thanks to Dr Narayanan for his valuable support & follow-up action thereof.
14. I/c CTU attended Meeting with Director, Sr. Microbiologist of NDRS, HC, I/c NRL, and Hostel Warden on 29th December 2016 regarding farewell to be organized to NDRS staff on their last working day in the Institute.
15. I/c CTU attended the meeting on 2nd Jan 2017 with Director, I/c Admin. & I/c RDC about uploading the information as required by WHO for extension of re-designation of NTI as WHO Collaborating Centre. The form was uploaded after obtaining the required information from Divisional Heads of NTI.
16. I/c CTU attended meeting on 10th Jan 2017 with Director and I/c RDC regarding uploading of the WHO form for extension of NTI as WHO CC. It was informed that the form was successfully uploaded.
17. I/c CTU attended meeting with Director & I/c RDC on 8th Feb 2017 about uploading the information as required by WHO for extension of re-designation of NTI as WHO Collaborating Centre. The form was uploaded after having discussion with Dr Hyder, Regional Advisor WHO (SEARO), New Delhi.

18. I/c CTU attended meeting with Director on 3rd march 2017 and informed about the official e-mail used by NIC to NTI has to be operational & necessary papers in this regard were submitted to NIC.

19. Actively participated in World TB Day on 24th march 2017 at NTI Auditorium.

g. Other Activities Undertaken

1. I/c CTU was a member of the committee to review & implement Adhaar Enabled Attendance System (AEBAS) at NTI.
2. Periodic committee meetings, feasibility testing, updation of networking & infrastructure to implement AEBAS was undertaken.

Library and Documentation Unit

Activities undertaken by the library are:

- Collection and Maintenance of Core periodicals on TB & respiratory diseases, documents on TB research, reports, proceedings, souvenirs, WHO unpublished documents, selected papers, and non-print media viz. slides, cassettes, transparencies, CD ROMS etc.
- Coordinating with CTU in digitization of important research studies and hosting the same on the internet/intranet.
- Library provided the information needs of the faculty, staff of the Institute besides Medical and Para-medical trainees and delegates/visitors from medical fraternity.
- Coordinated in periodicals updating of the NTI website, both internet and intranet.

Additional Activities:

The copies of the following documents were archived and database updated:

- Research Protocol including work instructions endorsed by the Director.
 - Final cleansed data base in the format recommended by the documentation division.
 - Final analysis undertaken in terms of tables, figures etc.
 - Published article with Bibliography.
- 1) Renewed subscription of over 11 journals/periodicals (inclusive of six online) for the year 2016-17.
- i) SWAMY'S NEWS & SWAMY'S HANDBOOK.
 - ii) LYNDA.COM online premium software.

The following six journals have been subscribed online for the year 2016.

- i) Lancet
- ii) Tuberculosis
- iii) International Journal of Epidemiology.
- iv) International Journal of TB & Lung Diseases.
- v) Indian Journal of Medical Microbiology.
- vi) Journal of Clinical Microbiology.

Renovation work of the proposed Guest Room in the Library Annex has been completed.

- a) I/c Library co-ordinated/participated in the two training program held in Kalaniketan by extending services in operations of the audio/visual equipment in Kala Niketan.
- b) i/c library co-ordinated in participation of seven officer/officials in the NATCON 2016 held in PGI, Chandigarh from 16th to 18th December, 2016.
- c) i/c library as i/c X-ray extended technical advice pertaining to X-ray Units & equipment to needy DTCs,
- d) I/c Library in addition is discharging duty as Transport unit i/c by allotting drivers and vehicles from Transport section for field duties, head quarters duties & various other state/central government programmes.
- e) Library tickets issued to Mr. Krishan Murari Singh, JSO.
- f) As Fitness Certificate was due for vehicle Bolero KA 04 Z 6872 correspondence with India Garage and private garages for servicing of transport vehicle was done. The vehicle was presented at the Regional Transport Officer, Yeshwantpur and fitness certificate for 5 years has been successfully obtained.

Published:

NTI Annual Report for the year 2015-16 was published and distributed amongst faculty & as per advice of the Director.

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

The laboratory at NTI has been designated as one of the National Reference Laboratories, which assess the quality of the sputum smear microscopy, Culture and drug susceptibility testing services by phenotypic and genotypic methods in the laboratory network under RNTCP. 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. 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 in the states supervised by NTI).

Besides these activities, it also supports State level Drug Resistance Surveillance (DRS) and PMDT activities.

The NRL is also monitoring 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.

A. Quality Assurance System (QAS):

The Quality Assurance (QA) system for sputum smear microscopy in RNTCP consists of Internal Quality Control (IQC), External Quality Assessment (EQA) and subsequently Quality Improvement (QI) of the laboratory services.

B. External Quality assessment (EQA):

External Quality Assessment is performed by an On-Site Evaluation (OSE) visit. The components of EQA include, infrastructure assessment, panel testing (smear microscopy) of the laboratory staff and analyzing data from the Random Blinded Re-Checking (RBRC) at the district level.

The OSE visit facilitates the STDC and STC in reviewing the implementation of

EQA, especially on the problems of non-availability of LTs/DTOs, staff structure in STDC, training, quality of reagents, disposal of infectious materials and RBRC activities.

Certification of Laboratories

Certification of Mycobacteriology laboratories is a pre-requisite for efficient diagnosis and follow-up of MDR-TB patients. Towards this objective, efforts are being made to establish IRLs to cater to the diagnostic and follow-up needs of DR-TB patients, in each state. Provision also has been made for inclusion of laboratories in Medical Colleges and the Private Sector, interested in participating in the diagnosis and follow-up of such cases.

The Microbiologists and Laboratory Technicians from such laboratories are trained by the NRL. Subsequently, a pre-assessment visit is undertaken by a Central team, the objective of which is to assess the suitability of the laboratory Infrastructure and installation and commissioning of equipments.

Panel cultures are then exchanged between NRL and IRL for proficiency testing and retesting. A satisfactory performance is determined in terms of concordance of more than 90% for Isoniazid & Rifampicin ; more than 80% for Streptomycin and Ethambutol among the first line drugs and more than 90% for Kanamycin, Ofloxacin, Amikacin, Capreomycin, Levofloxacin & Moxifloxacin. The laboratory carries out investigation of errors if any in case of an unsatisfactory performance in the Proficiency testing and informs the NRL regarding the corrective actions taken.

A pre-certification visit is then undertaken by a central team to assess the laboratory's technical performance, prior to formal certification. Certification is initially for a period of two years. During this phase, the certified laboratory is required to regularly participate in proficiency testing exercises conducted by the NRL and achieve the requisite bench mark. The minimum number of participations in the proficiency testing is once prior to and twice within two

years of certification. Following this, the laboratory is required to undergo proficiency testing at least once in every year.

An onsite – evaluation of the laboratory, is undertaken within the first year of grant of certification. A re-assessment is performed before the lapse of two years of certification, for which the laboratory applies six months in advance. Thereafter, re-assessment of the certified culture and DST facility is conducted every two years. The details of the certification visits made are as follows:

Labs certification for solid culture in 2016-17

- a. BMHRC Bhopal
- b. Government Medical College Aurangabad

Labs certified for liquid culture in 2016-17

1. 1st line drugs

- a. IRL Ranchi
- b. RMRC Bhuvaneshwar
- c. Suburban Lab Mumbai
- d. Infexn Lab Thane

2. 2nd line drugs

- a. GTB Hospital Sewree
- b. IRL Ajmer

3. 2nd line Extended drugs

- a. GTB Hospital Sewree
- b. IRL Cuttack Orissa
- c. IRL Indore
- d. IRL Pune
- e. IRL Kolkata West Bengal
- f. IRL Nagpur
- g. Super Religare Laboratories Ltd, Mumbai, Maharashtra
- h. SMS Medical College Jaipur
- i. IRL Bangalore
- j. P D Hinduja Hospital Mumbai
- k. IRL Guwahati

Labs certified for LPA in 2016-17

- a. RIMS Raichur

Proficiency Testing of certified laboratories in LPA

Annual proficiency testing was conducted for the following seventeen labs by sending panel of 20 cultures in May 2016.

1. IRL Nagpur
2. IRL Pune
3. JJ Hospital Mumbai
4. GTB Hospital Sewree
5. P D Hinduja Hospital Mumbai
6. Metropolis Hospital Mumbai
7. Government Medical College Aurangabad
8. IRL Bangalore
9. KIMS Hubli
10. IRL Ajmer
11. SMS Medical college Jaipur
12. SN Medical College Jodhpur
13. IRL Indore
14. BMHRC Bhopal
15. IRL Kolkata
16. IRL Orissa
17. RMRC Bhubaneshwar

Proficiency Testing of certified laboratories in Solid Culture

Annual proficiency testing was conducted for the following fifteen labs by sending panel of 20 cultures in May 2016.

1. IRL Nagpur
2. IRL Pune
3. JJ Hospital Mumbai
4. BJ Medical College Pune
5. MGIMS Wardha
6. KJ Somaiah Hospital
7. KIMS Hubli

8. IRL Ajmer
9. SMS Medical college Jaipur
10. DMRC Jodhpur
11. IRL Indore
12. BMHRC Bhopal
13. IRL Kolkata
14. IRL Cuttack, Orissa
15. RMRC Bhubaneswar

Proficiency Testing of certified laboratories in first line Liquid C&DST

Annual proficiency testing was conducted for the following twelve labs by sending panel of 20 cultures in May 2016.

1. IRL Nagpur
2. IRL Pune
3. JJ Hospital Mumbai
4. P D Hinduja Hospital Mumbai
5. Metropolis Hospital Mumbai
6. Super Religare Laboratories Ltd, Mumbai, Maharashtra
7. IRL Bangalore
8. SMS Medical college Jaipur
9. IRL Indore
10. IRL Kolkata
11. SRL Kolkata
12. IRL Cuttack, Orissa

Proficiency Testing of certified laboratories in second line Liquid C&DST

Annual proficiency testing was conducted for the following ten labs by sending panel of 20 cultures in May 2016.

1. IRL Nagpur
2. IRL Pune
3. JJ Hospital Mumbai
4. P D Hinduja Hospital Mumbai
5. Super Religare Laboratories Ltd, Mumbai, Maharashtra
6. IRL Bangalore

7. SMS Medical college Jaipur
8. IRL Indore
9. IRL Kolkata
10. IRL Cuttack, Orissa

Proficiency Testing of certified laboratories in extended second line

Liquid C&DST

Annual proficiency testing was conducted for the following ten labs by sending panel of 20 cultures in May 2016.

1. JJ Hospital Mumbai

External Quality Assurance for Mycobacterium Culture and DST

Sl. No	Proficiency tested for	Month of Reporting	Month of passing	Testing agency	Methods / Media Used	Proficiency Result
1	13 th round: Sputum smear microscopy	January 2017		STAC, Kathmandu, Nepal	ZN Staining	Result Awaited
2	22 nd round of External Proficiency testing in DST by WHO SNRL network Belgium	February 2016	July 2016	WHO Supra National Laboratory Network, Antwerp Belgium	First and Second Line DST Phenotypic & Genotypic DST	100 %

National Drug Resistance Survey (NDRS)

The Revised National Tuberculosis Control Programme (RNTCP), in collaboration with the National Tuberculosis Institute; U.S. Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO); carried out the first ever National anti-tuberculosis Drug Resistance Survey (NDRS) in a representative sample of both newly diagnosed sputum smear-positive pulmonary TB cases and previously treated sputum smear-positive

pulmonary TB cases. The survey was aimed to provide a statistically representative National estimate of the prevalence of anti-tuberculosis drug resistance among new and previously treated patients in India, and will contribute to a more accurate estimate of anti-tuberculosis drug resistance globally.

A single-stage weighted cluster sampling method was used to select clusters with a probability-proportional-to-size, and with each cluster contributing a fixed number of new and previously treated patients. The sampling unit was the tuberculosis unit (a virtual supervisory unit covering a population of 500,000 and having at one designated microscopy centre for 100,000 population) and patients were recruited from all designated microscopy centers within the TU until the sample size was achieved. An estimated 5280 patients from 120 clusters submitted two sputum specimens to National Tuberculosis Institute – Bangalore (NTI). The specimens were processed for smear examination and liquid culture for *M. tuberculosis*. Drug susceptibility testing (DST) for 13 anti tuberculosis drugs (Streptomycin, Isoniazid, Rifampicin, Ethambutol, Pyrazinamide, Kanamycin, Amikacin, Capreomycin, Ofloxacin, Levofloxacin and Moxifloxacin) were carried out for all the culture positive isolates on MGIT960. Real time reporting from initial specimen registration till DST results on digital platform to the respective tuberculosis units was implemented. Internal quality control was undertaken at NTI, while external quality assessment (EQA) was carried out with support of the National Institute for Research in Tuberculosis – Chennai (NIRT) in the capacity of Supranational Reference Laboratory (SRL). The study was completed successfully and the draft report was submitted to Central TB Division and WHO, India during December 2016.

Specimens processed at NTI during the period April 2016- March 2017

Total Specimens (Sputum + XDR Culture +PMDT+NTM and OP) registered	4250
XDR suspect culture samples registered	560
Total number of Specimens registered for OP(Also NTM)	35
Total number of Specimens from Karnataka registered for LPA (PMDT)	3562
Total No. of specimens put up for primary culture OP + 3 Dist of Karnataka -PMDT	2162
Total no. of Line Probe Assay performed	1393
Total number of specimens subjected to Gene-Xpert	703
Total no. of drug Susceptibility tests performed by using MGIT	845
No. of Specimens subjected for identification test (Immuno-Chromatographic Test)	845
Total number of samples subjected for HPLC	23
Total Number of Belgium cultures received for Quality control	20
Total Number of drug suspetibility test by solic culture (LJ)	20
Total number of Patients registered for NDRS Survey	366
Total number of Specimens registered for NDRS Survey	732
Total number of Specimens rejected for NDRS Survey	62
Total number of Specimens put for primary culture for NDRS Survey	670
Total number of NDRS Survey samples put up for DST by (MGIT)	1615
Total number of NDRS Survey samples subjected for GeneXpert	7
Total number of Specimens registered for relapse study	514
Total number of Relapse study Specimens put for primary culture	514
Total number of Relapse study samples put up for DST by Solid culture (LJ)	50

PARTICIPATION IN CONFERENCES, WORKSHOPS, TRAINING PROGRAMMES, MEETINGS ETC.

The officers and technical Staff of Laboratory participated as Facilitators, Resource person/delegate in Conference /workshops/ Training programmes conducted in both at NTI and outside. The details are furnished below.

Meetings/ Visits: Inside and Outside NTI

Sl.No.	Particulars	Date	Resource person
1.	Meeting was held at NTI Bangalore regarding discussion of various parameters of the forecasting tool to be used by all states for diagnostic and treatment services	28 th April 2016	Represented by Dr.Ranjani Ramachandran, WHO Focal Point, Ms. Shakshi Arora from CHAI, Dr.Anand CTD Consultant, Dr.Krishnamurty, Ms.Reena.K., Dr.Lavanya, Dr.S.Lakshmi, Ms.R.Lakshami and Mr.George Sabastian.
2.	Facilitated on site LED FM Microscopy training at STDC Agra.	4 th - 6 th May 2016	Mr. Ranganatham
3.	Attended workshop on National Capacity Building on Bio Risk Management at NCDC New Delhi	16-20 th May 2016	Mr. George Sabastian
4.	A sensitization workshop for EQA-CBNAAT was conducted at Mumbai on 11 th July and Director NTI and Mrs. Reena. K Contractual Microbiologist attended the same.	11 th July 2016	Director NTI and Mrs. Reena. K Contractual Microbiologist
5.	Imparted onsite training in 2 nd line Liquid DST to GTB Hospitals sevee Mumbai (group of TB hospitals)	23 rd July - 6 th August 2016	Mr. Shomashekar and Mr. Jaya Ganesh

Sl.No.	Particulars	Date	Resource person
6.	Visited NTI and the National Reference Laboratory to assess the laboratory for XpertMTB/RIF PT transfer readiness as a part of external quality assurance programme.	25 th and 26 th August 2016	Mrs. Kyle DeGruy and Ms. Zilma Rey CDC Officials
7.	Visited laboratory to revive NDRS	29 th and 30 th August 2016	Dr. P.R. Narayanan, Ex Director of NIRT
8.	Imparted onsite training in 1 st and 2 nd line liquid DST In IRL Pune.	19 th - 21 st September 2016	Mr.Shomashekar and Mr. Jaya Ganesh
9.	Imparted training in 1 st and 2 nd line liquid culture DST in BMHRC Bhopal	1 st - 3 rd November 2016	Mr.Jaya Ganesh and Mr.T.Prathap
10.	Undergone training on Xpert MTB/RIF Dried Tube Specimen preparation at CDC, Atlanta	21 st November - 8 th December 2016.	Mr. George Sebastian and Mr. Kishore Reddy (ICELT)
11.	Conducted on site training in LPA at RIMS Raichur	14 th to 19 th November 2016	Mr.Somashekhara and Mr.Prathap
12.	Conducted on site liquid primary culture training for lab staff, at KIMS Hubli.	23 rd to 25 th November 2016	Mr. Pratap
13.	Conducted onsite training in DST by liquid culture at KMS Hubli	31 st January to 3 rd February 2017	Mr. Jayaganesh and Mr. Prathap
14.	Gave onsite training in Liquid culture DST at RIMS Raichur	13 th to 17 th February 2017	Mr.Somashekarayya and Mr.Prathap
15.	Attended Second Meeting of the Technical Specifications committee for TB laboratory equipment, consumables and infrastructure held at Nirman Bhawan, New Delhi	20 th February 2017	Mrs. R.Lakshmi
16.	Participated in international symposium on TB genomics organized by NIRT, Chennai	17 th and 18 th February 2017	Mr. George Sebastian and Mrs. R.Lakshmi

Sl.No.	Particulars	Date	Resource person
17.	Attended Zonal Task Force (East Zone) at Ranchi Jharkhand	4 th and 5 th March 2017	Mr. George Sebastian
18.	Delivered a lecture on “ Current Status Prevention and Control of Tuberculosis in India” at Veterinary collage Hebbel on World TB Day.	24 th March 2017	Mr. George Sebastian
19.	Attended a CME and gave Lecture on “Microbiological Diagnostic in Tuberculosis – an overview” at Rajiv Gandhi Institute of Chest diseases Bangalore	24 th March 2017	Mrs. R.Lakshmi
20.	Attended CME along with the “ Academy of Family Physician of India” at JW Auditorium NTI on World TB Day	24 th March 2017	Laboratory Staff along with “Academy of Family Physician of India”
21.	Presented a Research paper, titled ‘Speciation of Non-tuberculosis mycobacteria using HPLC under programmatic setting in India’	20 th and 21 st February 2016	Mr. George Sebastian
22.	Attended a review meeting on Multi-centric cohort study on TB recurrence at NIRT Chennai	16 th March 2016	Dr. V K Chadha and Mr. George Sebastian
23.	Visited Tumkur DTC, CBNAAT site, DMC, District Drug Store and had discussion with patients and KCG General Hospital, Malleswaram, and visited IRL Laboratory, DR-TB center	31 st March 2016 and 1 st April 2016	Dr. V. Lavanya and Dr.Krishna Murthy along with CTD team Addl. DDG Dr. V.S.Salhotra and Dr. Mayank Ghedia

Animal Laboratory:

The main objective of the unit Animal Laboratory is to experiment in Laboratory Animals and their utility in TB Control. In 1979, Breeding wing became operational and breeding of laboratory animals, mainly albino guinea pigs, was started and maintained thereafter, ensuring homogeneity of the successive generation of the stock animals. In 1981, preliminary in-vivo tests started on a modest scale not only to get familiarized with the procedures, but also to standardize various techniques. Animal Model Research Unit (AMRU) is registered under Breeding of & Experiments with the Committee for the Purpose of Control & Supervision of Experiments on Animals (CPCSEA), Ministry of Social Justice & Empowerment. Studies involving animal experimentation are subject to approval by the Institutional Animal Ethics Committee (IAEC) constituted as per the prescribed guidelines, which includes a nominee from CPCSEA. In this regard, all the guidelines of Government of India are complied with. In view of advancement in TB research, modernization and 'facility safeguards' a Bio-Safety Laboratory (negative pressure) facility & an open shelter for retired breeders have been established at NTI.

Status of laboratory animals

Breeding and maintenance of homogenous stock laboratory animals Guinea Pigs

Major Activities

A. Status of laboratory animals;

i. During the period of reporting under reference a total of 15 albino guinea pigs were raised in healthy condition. Appropriate preventative measures were taken to check outbreak of diseases among breeding stock. Outdoor shelter for Retired Breeders was maintained in good condition.

ii. Monthly and Quarterly reports on monitoring the experiment on animals in organizations / institutions under Dte.GHS were prepared in the prescribed format for timely submission to ADG (EPI) with a copy to DDG TB.

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.

Major functions of Epidemiology & Research Division are as under:-

- A. 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.
- B. Provide Technical and Operational support to other Organizations / Institutions in the country in conducting TB Epidemiology and operational research studies.
- C. Provide mentorship and training in operational research, epidemiology and different aspects of TB control.
- D. Mathematical modeling in TB.
- E. Engage in other RNTCP related activities including development of training modules & guidelines; provide technical inputs towards policy development and monitoring & supervision.
- F. Research dissemination

The activities carried out by ERD during 2016-17 are as under:

RESEARCH STUDIES

A.1. Intramural studies

A.1.1. Improving TB case finding efficiency and management of TB cases in private health care facilities in Bangalore city (RP/239)

Objectives of the study were

1. To enhance TB case finding efficiency in Private health care facilities (PHCFs)
2. To enhance treatment efficiency including observation of treatment & adherence
3. To document case-finding activities and treatment outcome
4. To improve TB case notification efficiency

Methods

Major study procedures involved were (i) Mapping of PHCFs and public health facilities (ii) Networking of health facilities; private – private, private-RNTCP (iii) Sensitization of Private Providers (PPs) in Indian Standards for TB Care (INDSTC) (iv) Sensitization of PPs and all RNTCP officials on Standard Operating Procedures (SOPs) of the project (v) Establish and implement recording and reporting system in PHCFs : state of the art patient cards - TB symptomatic, TB case, health facility notification TB register (vi) Training of private labs in sputum microscopy (vii) Collect and manage data. In addition, a ready reckoner outlining diagnostic algorithms and treatment regimen were provided to participating PPs.

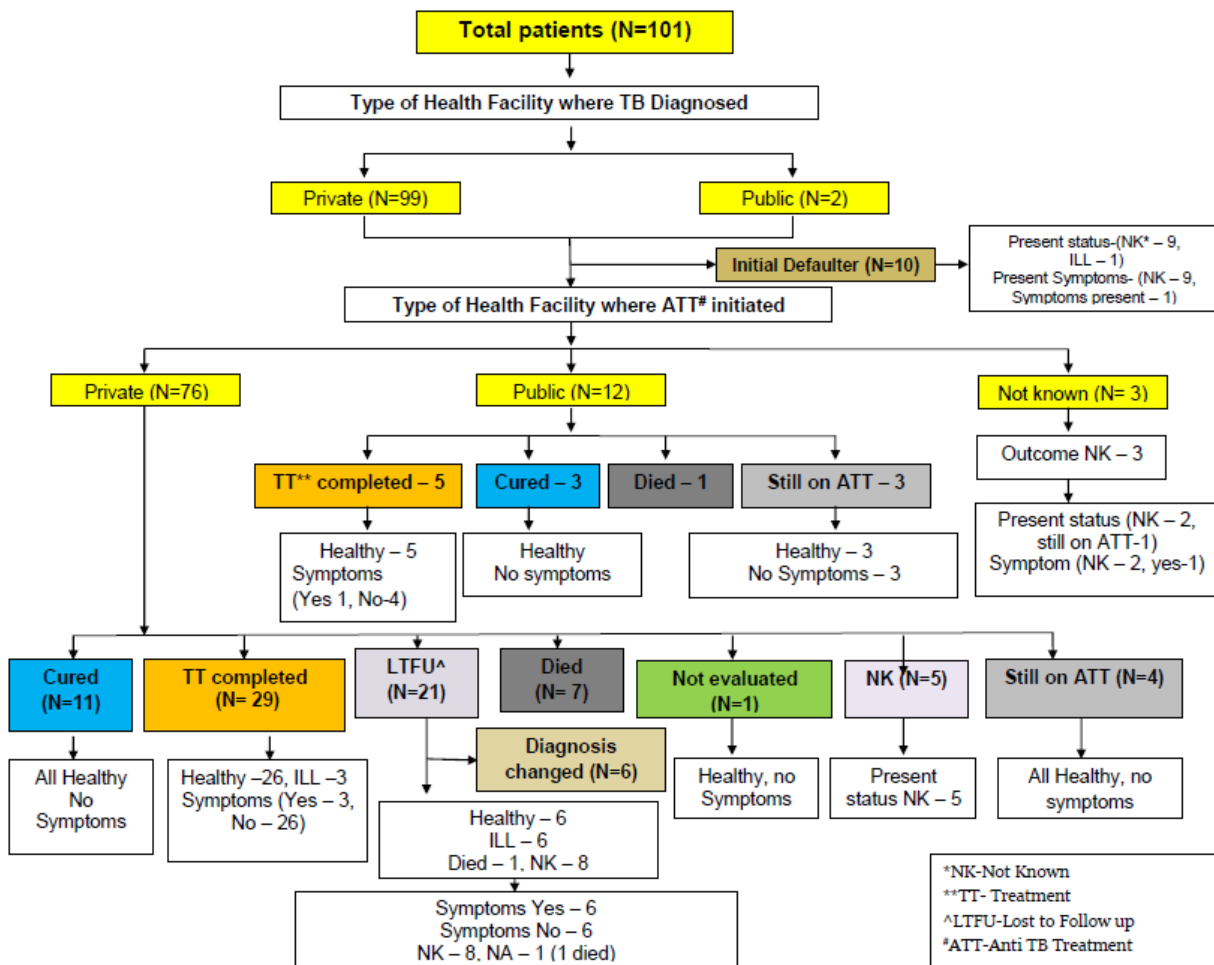
Current status:

Data collection completed and findings were presented during National Conferences on TB in February and December 2016.

Salient findings of the study are as under:

A total of 364 patients were enrolled by PPs in the study- 60% were presumptive pulmonary TB patients, 30% had pulmonary as well as extra pulmonary symptoms and signs and 10% had exclusively extra pulmonary symptoms and signs. Of pulmonary, 86% met the criteria of presumptive TB patients. Of all presumptive TB patients, 36% were diabetic, 12% were smokers, 6% had history of contacts, 8% had previous history of anti-TB treatment (ATT), 5% were alcoholic and 3% were HIV reactive. Of presumptive pulmonary patients, 92% were subjected to sputum smear examination, 12% to culture, 4% to Xpert MTB/RIF and 92% to chest X-ray; as many as 73% were subjected to unnecessary blood tests. Of those tested by smear microscopy, most were tested with a single sputum specimen at a private laboratory. Of those X-rayed, 60% had some pulmonary abnormality. Among presumptive extra-pulmonary TB patients, PPs advised blood test in 69%, Mantoux test, ultra sonography and CT Scan / MRI in 17% each; histopathology was advised in 3% while sputum smear and chest X-ray were advised in 46% and 55% respectively.

Among these presumptive TB patients, PPs diagnosed TB in 101-78% were new and remaining recurrent cases; about 90% were notified. Of them, 64% were pulmonary and remaining extra pulmonary. About 42% of pulmonary and 9% of extra pulmonary were microbiologically confirmed. About 22% were diabetic and 12% were smokers. About 34% were subjected to counseling and testing for HIV, of whom 9% were HIV reactive. About 40% were prescribed standard ATT regimen and 60% non-standardized regimen. About 48% were treated successfully; 10% reported adverse side effects due to anti-TB drugs. Course of anti-TB treatment of these 101 patients post and functional health status at the end of treatment is described in the flow chart below:-



Further data cleaning and analysis is in progress.

Overall, implementation of the study and its findings revealed that though it is feasible to engage private sector; major challenges remain and much intensified efforts are required to enhance quality of TB care in private sector.

A.1.2. A study of knowledge of Private Practitioners of Bangalore city in diagnosis and treatment of TB

This study was conducted with the following objective:

- To find out the proportions of PPs having adequate knowledge regarding diagnosis and treatment of a new case of pulmonary TB.

b. To find out the proportions of PPs complying with mandatory TB case notification.

Methods

A series of CMEs were conducted for PPs of Bangalore city. Prior to each CME, consenting PPs were asked to fill up a semi-structured questionnaire to elicit their knowledge on the tools for diagnosing pulmonary TB in adults, treatment regimen and drug dosage for treating a new drug sensitive TB case, method of ensuring treatment adherence, monitoring treatment response, common adverse reactions to anti-TB drugs and their practice of TB case notification.

Current status:

Data collection, data entry, analysis, report writing has been completed and a manuscript has been submitted for publication.

Salient findings of the study are as under:-

One hundred twenty nine qualified private practitioners (PPs) were assessed on their knowledge in diagnosis of Pulmonary Tuberculosis (PTB), treatment of a new drug sensitive PTB case and practices of case notification, using semi-structured questionnaire. Of 129 PPs participated in the study 62 (48%) had >15 years of professional experience, 38 (30%) between 5-15 years, 12 (9%) <5 years; remaining 17 did not provide the information. About 20% had adequate knowledge of diagnosis, 29% of treatment regimen, 54% the need for Direct Observation Treatment and 57% about role of sputum smear examination in monitoring treatment response. Of 85 (68%) PPs who had diagnosed any TB case during last two years, 54 (64%) had practised notification.

A.1.3. Pediatric TB Inventory study in Tumkur District – collection of baseline data.

Baseline data was collected from 223 private health facilities in the district regarding number of pediatric OPD, presumptive pediatric TB patients, diagnosed pediatric TB cases catered to, number of cases notified besides the knowledge of providers on TB symptomatology and diagnostics & treatment modalities in pediatric age group. This data will be useful for planning pediatric inventory studies.

A.2. Extramural studies

A.2.1 Multi centric Cohort Study of Recurrence of TB among newly diagnosed Sputum positive PTB patients treated under RNTCP – Collaborative Study (RP/240)

This multi-centric cohort study was undertaken with the following objectives:

Primary objective

To estimate the recurrence of TB among newly diagnosed sputum positive pulmonary TB patients who have been successfully treated under RNTCP

Secondary objective

- a. To distinguish between relapse and re-infection among those who have recurrence of TB and
- b. To identify risk factors for unfavourable treatment outcomes (treatment failed, lost to treatment follow up and died), and recurrent TB among newly diagnosed sputum positive pulmonary TB patients who have been successfully treated under RNTCP

Methods

The National Tuberculosis Institute (NTI), Bangalore, as one of the six implementing institutes, conducted the study in Ramanagara (rural) and Mandya (urban) districts of Karnataka state.

New smear positive pulmonary TB patients treated under RNTCP were recruited into the study from 3 TUs of the selected districts. They were followed-up till treatment completion, and those with successful treatment outcome were followed up for a further period of 12 months after completing treatment. Interviews were conducted with study participants within 14 days of treatment initiation, at the time of outcome of treatment and at 12 months post treatment / at TB recurrence. They were subjected to sputum collection - 2 samples (one spot and one early morning) (a) at initiation of treatment, (b) at time of declaration of treatment outcome (c) during post treatment follow-up at 3rd month, 6th month and at 12 months or on TB recurrence. Sputum examination was performed for smear, culture, drug susceptibility tests (DST) and genotyping and blood tests for diabetes mellitus and HIV infection at treatment initiation and at the time of recurrence.

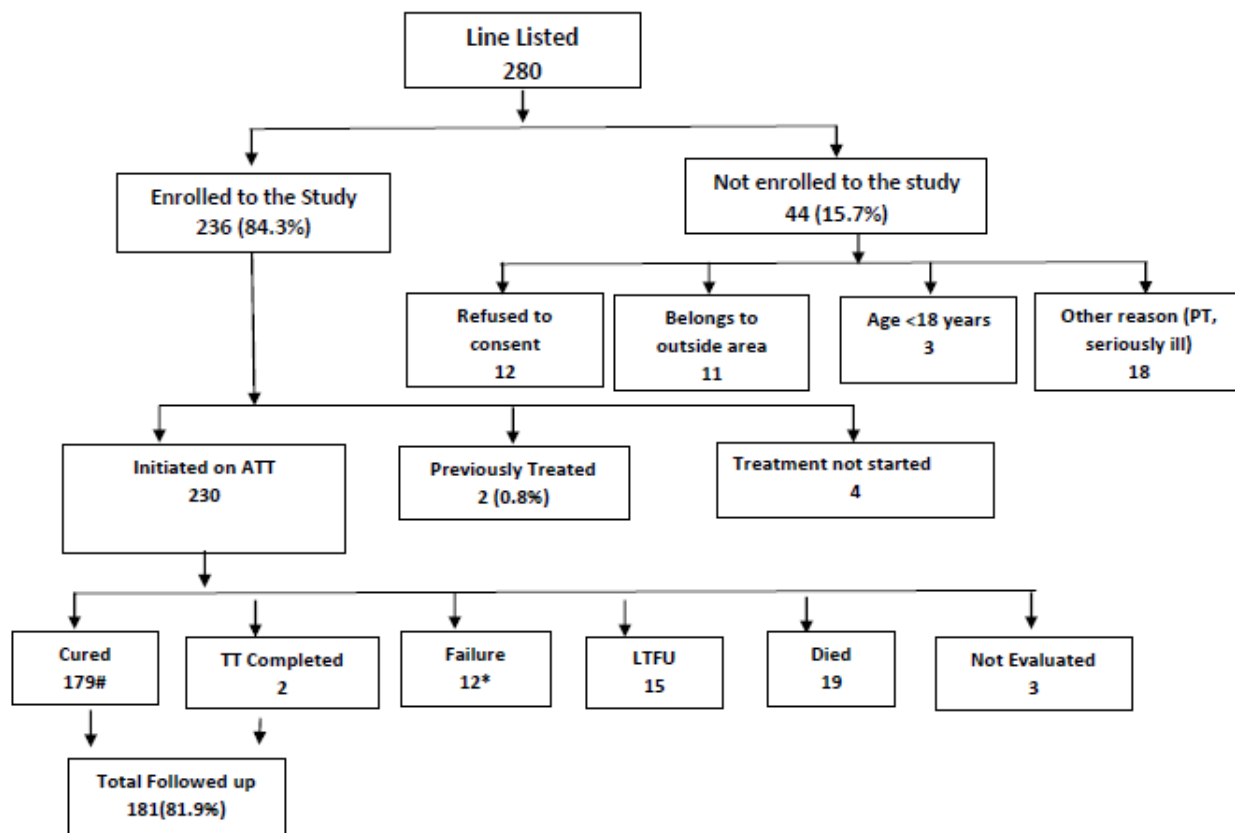
Current Status:

Field work, data entry, data cleaning and preliminary analysis completed. Besides, detailed inputs were provided regarding analytical methods for the over all study across all the sites.

Salient findings of the study pertaining to the field area of NTI are as under:-

A total of 280 TB patients were enlisted during the period of recruitment, of whom 236 met the inclusion criteria, 4 were initial defaulters and 2 previously treated. Therefore, a total of 230 patients comprised the study population. Of 181 patients successfully treated and followed up for recurrence of TB, 12 were lost to follow up, 3 died, 32 had recurrence of TB and 127 patients were recurrence free; sputum culture results of seven patients are pending. The course of treatment and post treatment follow-up are presented in flow charts below:-

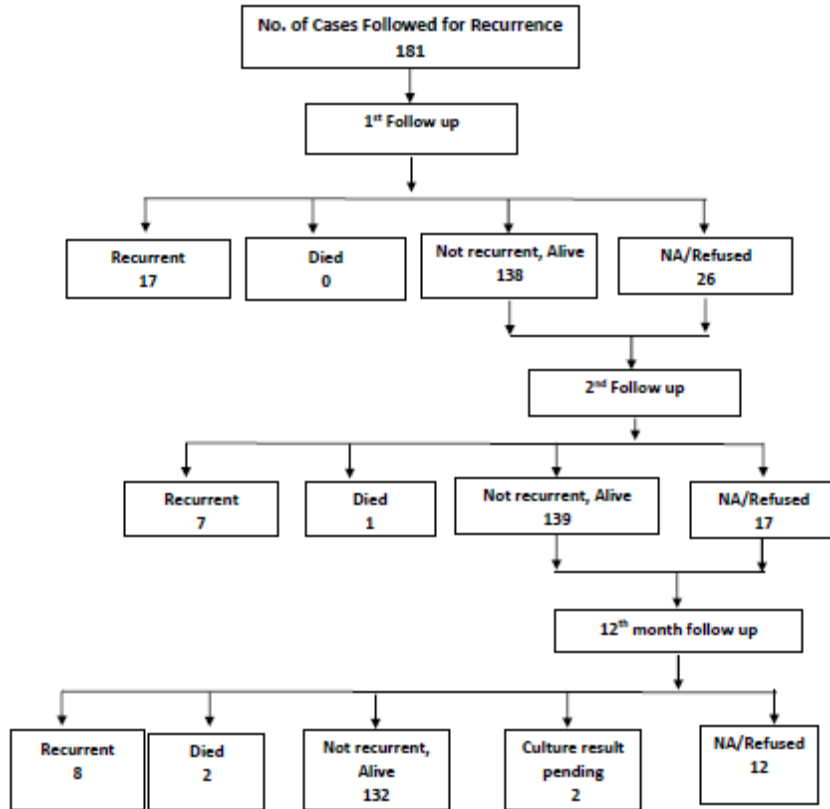
Flow chart showing patient enrolment and course of their anti-TB treatment



#Cured at RNTCP is 186, But 7 Cases failure at NTI

*10 at NTI, 2 additional in RNTCP center

Flow chart showing results of post treatment follow-up of successfully treated patients



A.3. Research Protocols Developed

A.3.1. Intramural

1. Expenditure incurred for diagnosis by new TB patient notified by RNTCP and private practitioners in Bangalore city.
2. Predictors of unfavorable tuberculosis treatment outcome in TB-HIV co-infected patients in selected districts of Karnataka 2015.
3. Adherence to guidelines on diagnosis and management of extra pulmonary TB care in tertiary care health facilities – an evaluation

A.3.2. Extra-mural

1. National sample survey to estimate prevalence of pulmonary TB in India – several versions were prepared during the course of the year; last version submitted on 24th May 2016 to Central TB Division, response is awaited.
2. Intensified case finding of Pulmonary Tuberculosis patients in Institutional Health care settings.
3. Active case finding for pulmonary tuberculosis in congregate settings.
4. Implementation research for improving quality of diagnosis of pulmonary TB in the private sector.

Protocols 2-4 were developed as generic documents, for TB India research consortium

B. Technical and Operational support to other Organizations

Technical support was provided to TB India Research Consortium in first laying down the broad scope of epidemiological and implementation research and priority areas. Concept notes for addressing ten priority research questions were prepared and presented to the International Scientific Advisory Committee. Subsequently, detailed protocols were formulated by the ERD officials for the protocols as mentioned under sub-head A.3.2 above.

Besides, a proposal titled 'Randomized, controlled, phase II study to evaluate safety, immunogenicity and POD after vaccination in high risk group (IGRA

positive subjects)' for participation in multi-centric trial in India was submitted to TB Research consortium.

C. Operational Research (OR) methodology mentorship programme and training

C.1. Operational Research methodology mentorship programme

C.1.1. ERD officials provided mentorship on ongoing basis to the participants of the yearlong OR methodology course with respect to and including development of following research protocols:-

1. Correlation between Public Health System Performance Indicators with TB Case Detection and TB Treatment Success at district-level in India.
2. Predictors of unfavorable TB treatment outcomes in TB-HIV co-infected patients in New Delhi, 2015.
3. Workplace Policies on health with focus on TB and HIV among Temporary Workers in Cement and Mining Industries in Rajasthan, 2016.

Besides, technical support was provided in preparation of manuscripts for publication to the mentees of previous OR methodology courses.

C.1.2. ERD officials provided mentorship on ongoing basis to the participants GFATM sponsored OR methodology course with NIRT, Chennai as the nodal center

C.2. Training

C.2.1. Imparted training on TB epidemiology, TB case finding and TB-HIV to various batches of post graduate medical students and Country Fellows.

C.2.2. Imparted training on various aspects of TB control including technical and operational guidelines of RNTCP especially with respect to TB case finding and diagnosis, research, disaster management.

D. Mathematical modeling in TB

D.1. State level TB burden estimates.

Provided technical support and necessary data, as a member of Global Burden of Disease (GBD), India group to estimate TB incidence, prevalence and mortality in each state of India; including review of the preliminary estimates and necessary feedback.

D.2. Provided technical support to other 'TB modelers' to estimate TB incidence in India and to estimate impact of RNTCP.

E. Other RNTCP activities

1. National Strategic plan 2017-23: Prepared chapters on:-

- Surveillance, Monitoring, Evaluation, Supervision and research
- Research priorities of RNTCP: Developed a comprehensive list of topics for implementation research after conducting detail analysis of OR carried out in India till date.

2. Operation ASHA

- Evaluated project implementation in Maharashtra.
- Prepared a consolidated national level report of evaluation.

3. PPM:

- Evaluation of Public Private interface project in Patna and making recommendations for further strengthening of the projects.
- Presented the low cost PPM model – implementation research being carried out by NTI in a TU of Bangalore city, during a workshop in Delhi aimed at reviewing major PPM projects in the country.
- A summary of all PPM projects in India was presented on World TB Day as a part of the talk entitled 'Enhancing TB Care in Private Sector' and 'Treatment of drug resistant TB'.

4. Submitted a proposal for 'National Research Cell' at NTI, highlighting the proposed activities and the mechanism for the same.

5. E-module: As the lead, drafted the module on ‘TB Case Finding and Diagnosis’.

RNTCP review in Bihar: As a key member of the Common Review Mission (CRM) – NHM conducted the review of RNTCP besides reviewing other national communicable disease control programmes in the state.

F. Research Dissemination

F.1. Research Papers

F.1.1. ERD officials as lead authors

Cost analysis of different diagnostic algorithms for pulmonary tuberculosis varying in placement of Xpert MTB/RIF ; Indian J Tuberc. 2016 Jan; 63(1):19-27.

F.1.2. ERD officials as co-authors

1. Drug-Induced Hypothyroidism during Anti-Tuberculosis Treatment of Multidrug-Resistant Tuberculosis: Notes from the Field; Journal of Tuberculosis Research 2016; 4: 105-110.
2. Relationship between Nutritional Support and Tuberculosis Treatment Outcomes in West Bengal, India: Journal of Tuberculosis Research 2016; 4: 213-219.
3. Integration and decentralization of TB-HIV services increases HIV testing of TB cases in Rajasthan, India: Public Health Action 2017; 7(1): 71–73.
4. Engaging private providers and Ayurvedic practitioners in Bilaspur, India: did it increase TB case detection?: Public Health Action 2016; 6(2): 154-156.
5. The Tuberculosis Cascade of Care in India’s Public Sector: A Systematic Review and Meta-analysis: PLOS Medicine 2016, 13(10): e1002149. doi: 10.1371/journal.pmed.100214.

F.1.3. Papers submitted for publication:

1. Knowledge of private practitioners in Bangalore city in Diagnosis and treatment of pulmonary tuberculosis and compliance with case notification' was submitted for publication in IJTB.
2. TB epidemiology in India – current scenario and trends: submitted for publication in a text book for post graduate medical students.

F.1.4. Papers prepared for publication

1. Sub-national TB Prevalence Surveys in India, 2006-2012: Results of uniformly conducted data analysis was prepared and submitted to Director for seeking permission of Dte.GHS for submission for publication. The developed manuscript will prove to be a land mark for TB epidemiology when published as it contains data from 7,61000 individuals investigated.
2. Sensitivity and specificity of screening tools in community based Active Case Finding and its implementation.

F.2. Research dissemination in conferences

- Revised TB burden estimates in India.
- Significance of Sputum smear grading as a marker of bacterial load in the management of drug sensitive pulmonary TB under RNTCP.
- PPM project in Bangalore City.

F.5. Other research dissemination activities

Prepared a document summarizing all TB operations research studies carried out in India during 2013- 16.

G. Other Technical activities:

1. Drafted detailed reply to the three Starred Rajya Sabha question No. S1552 on 22nd July 2016 regarding content status of research in India on TB vaccines, diagnostics and treatment.
2. Drafted a write up on Contribution of NTI in TB Surveillance.

3. Detail comments given to Central Bureau of Health Intelligence regarding monitoring indicators for TB surveillance.
4. Submitted the details of activities of Epidemiology and Research Division proposed to be performed as part of WHO collaborating center.

4. MONITORING AND EVALUATION

The Monitoring & Evaluation Division (erstwhile Statistical Section) of the Institute plays an essential role and forms a supportive unit for the research activities. The erstwhile Statistics Section provided the statistical needs of all the research activities i.e. from the planning stage of studies or surveys, protocol development, designing study schedules/forms, sample size estimation, collection and validation of data, collation, analysis of data, generating tables and results and interpretation of the results of various research studies.

Now, the Division has Statistical Subordinate Service (SSS) Officers (Junior Statistical Officers) manpower to maintain the standards of the statistical support for the research activities supervised by officers belonging to Indian Statistical Service (ISS) Cadre. However, presently, all the work related to M & E w.r.to various research studies and monitoring related work undertaken by ERD, Laboratory Division, and HRD respectively is being carried out by the JSO's functioning under M&E Division.

Hitherto, this section adhered to the responsibility of documenting and archiving the various Research Protocols (RP) approved and studies conducted in the Institute up to RP no.236.

Technical activities:

Officer attended TCC meetings, Hindi & Purchase Committee meetings.

Miscellaneous:

Officer and Staff of the Division attended statistics day programs, Hindi Week Competitions, Hindi day Programs and World TB day functions.

5. COMMUNICATION AND SOCIOLOGY

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 and staff of health and other departments, doctors and para-medical personnel from government and private sector and 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.

Visit of students

Under Advocacy Communication and Social Mobilization, Communication & Sociology Division at NTI has been conducting one-day orientation / sensitization training about RNTCP. Students from different institutions of the state and neighboring states are utilizing this program. A total of **1501 students & scholars** of life sciences visited NTI in **46 batches** during the period as follows: -

SL.NO	CATAGORY OF STUDENTS	NO.OF STUUDENTS
01	BSc(Nursing)	875
02	DGNM	263
03	BSc(MIT)	030
04	BSc(MLT)	064
05	Post graduate Medical students.	066
06	MBBS Students	054
07	BAMS Students	060
08	BPT	025
09	Health Inspector Trainees	030
10	MPH students	007
11	Msc(Life science)	015
12	Msc(Entamology)	012
Total number of students		1501

- Total no. of students – 1501, Total no.of batches - 46,

Other activities

Divisional head extended his services as facilitator for RNTCP Modular Training, Operational Research Training and MDR-TB Counselor's Training conducted by the HR Division.

Divisional head was part of a series of sensitization programmes conducted in NTI and private health facilities for private practitioners on Standards for TB Care in India.

Divisional Head participated in an in-house training of trainers program on Technical & operational guidelines, 2016 for RNTCP.

Divisional head was part of an in-house Training on operational research conducted by the Union.

Divisional head has facilitated the TOT on Technical & Operational Guidelines on 14th and 15th Dec, 2016 for the DTOs of Tamil Nadu held at Chennai.

A five-day sensitization training was held at the HRD division of NTI for SRDs, Medical College faculty and RNTCP program Managers from 27th Feb to 3rd Mar, 2017; and the Divisional Head facilitated this sensitization.

Divisional head went to Chennai for attending a programme on 'Expanding Bedaquiline Access to all States in the Country' from 7th to 9th April 2017.

A five-day sensitization training was held at the HRD division of NTI for SRDs, Medical College faculty and RNTCP program Managers from 27th Feb to 3rd Mar, 2017; and the Divisional Head facilitated this sensitization.

Divisional head has facilitated in the e-module workshop on Technical & Operational guidelines-2016 held on 30th & 31st January 2017.

Divisional head has extended his services in the capacity of chairman of the local purchase committee and also as member of purchase committee, condemnation committee and Hostel committee.

Divisional head is also working as a presenting officer nominated by the central vigilance commission, Min. of H & FW for departmental enquiry.

Divisional Head & Sri. Govindanarayanaswamy-X-Ray Technician carried out the stock verification of **a)** Human Resource Development (HRD) Division **b)** Computer Training unit & Auditorium for the year 2016-17.

Total 70 request letters were received from life science colleges during the year for conducting one day orientation/sensitization training on TB for their students. All request were considered & orientation/sensitization programs were conducted.

Mr. Mallikarjunaiah , Social worker & Mr.O. Srinivasalu Sister Tutor have been deputed on other official duty to Bruhat Bengaluru Mahanagara Palike(BBMP),Govt. of Karnataka, Since 6th November 2016 and were reported back to the Division on 01/06/2016.

Sri. Govindaarayanaswamy-X-Ray Technician has scrutinized 450 medical claims & processed 425 claims for payment in the capacity as I/c medical claims.

6. ADMINISTRATION DIVISION

The Administration Division of NTI caters to all the administrative requirements of the Institute. The five units under this Division are Establishment, Accounts, Hostel, Stores and Transport Units. The major activities of the units for the financial year April 2016 to March 2017 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
01	Group 'A'	14	10	04
02	Group 'B' Gazetted Non-Gazetted	02 29	01 24	01 05
03	Group 'C'	96	88	08
		141	123	18

Promotions

Sl. No.	Name	Designation	Date
01	Sri.Rajan R, UDC	Head Clerk	01.06.2016

Retirements on attaining the age of superannuation

Sl. No.	Name	Designation	Date
01.	Shri.K.Mohan	Head Clerk	31.05.2017
02.	Shri.SLN Shalluvanaryana Swamilu	MTS	28.02.2017

Retirements other than superannuation

Sl. No.	Name	Designation	Date
-	-	-	-

Transfers from NTI

Sl. No.	Name	Designation	Date
01	Smt. N.Sangeetha	Chief Statistical Officer	01.03.2017

Transferred to NTI

Sl. No.	Name	Designation	Date
01	Sri.Krishan Murari Singh	JSO	15.04.2016

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.1,00,00,000/- 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 2016-17 for carrying out maintains and new works. The following Civil, Horticultural and Electrical works were executed during the period under report, in addition to other routine repair & maintenance work.

CIVIL & HORTICULTURAL WORKS

1. Construction of Guest House work at NTI Campus.
2. Relaying / replanting of hedges & shrubs and disposal of garden debris at NTI Campus.

ELECTRICAL WORKS

1. Running and Maintenance 2nos of 125 KVA DG Set and 1No of Passenger Lift at NTI Campus.
2. Providing LED fittings in the Silver Jubilee Hall, Golden Jubilee Hall & Training rooms at NTI Campus.

In addition to this maintaining the all Civil, Electrical and Horticulture work and supervising the all the Safaiwala staffs Regular & contractual for cleaning the institute and Campus and Any other work assigned by the officers.

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.

Accounts Unit

The unit caters to the financial matters of the Institute. This includes:

- a. Preparation of annual budget and performance budget proposals.
- b. Drawing and disbursement of salaries, traveling allowances, medical reimbursement & other claims and advances related to the staff & officers
- c. Calculation and disbursement of MACP arrears, Pay re-fixation, and payment of arrears.
- d. Processing of payments pertaining to procurements made through stores and annual maintenance contracts services.
- e. Details of Budget received under Non Plan and Plan and Expenditure up to end of October 2016 is as follows:

(Rupees in Thousands)

	Budget received	Expenditure
Non Plan	10,50,00,000	10,38,38,245

Plan	2,75,00,000	2,51,54,154
Total	13,25,00,000	12,89,92,399

- f. The revenue generated by the Institute for the year 2016-17 through various sources was credited to the consolidated fund of Government of India as given in the table below:

Year	Amount (Rs.)
2016-2017	Rs.3,14,910/-

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
- iii. units/Divisions.
- iv. Arrangement for Annual Stock verification
- v. Arrangement for condemnation and disposal of unserviceable items as per Government laid down procedure.

Hostel

The hostel unit of the institute caters to the accommodation needs of medical & paramedical trainees attending various training programmes and also officials visiting from headquarters and other Institutions/Offices. The Institute has two hostel blocks viz., Krishna Nivas and Cauvery Nivas and a Guest House. Krishna Nivas block has 25 double bedded rooms; Cauvery Nivas has 9 single rooms & 5 guest rooms and the Guest House has 7 beds. The Mess attached to the Hostel provides hygienic boarding facility.

7. PARTICIPATION IN CONFERENCES, WORKSHOPS, TRAINING PROGRAMMES, MEETINGS 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:

At NTI

Sl. No.	Particulars	Date	Participant
1.	Meeting with WHO and CTD officials: Discussion on proposed National level Disease Prevalence Survey	27 th - 28 th April 2016	Dr. P. Kumar, Director and faculty members
2.	Training of Trainer's on Technical and operational guidelines	11 th - 15 th June 2016	
3.	Meeting of E-module: Brainstorming session.	7 th and 8 th July 2016	
4.	Workshop on Technical & Operational Guidelines	11 th - 15 th July 2016	
5.	Training of post graduates medical students	18 th - 19 th August 2016	
6.	Operations Research workshop:	1 st - 10 th October 2016	
7.	Training of trainers on revised technical and Operational guidelines 2016	28 th - 30 th November 2016	
8.	Data verification of NDRS: Participated in the meeting chaired by DDG (TB), which was attended by Addl. DDG Dr Salhothra; CTD Consultants Dr Mayank Ghedia & Dr Anand; WHO NPO India Dr Sreenivas; DR-TB Dr Malik Parmer; WHO NPO Lab Dr Ranjani Ramachandran; I/c CTU; DH Lab; I/c NRL Dr Lakshmi and Jr. Bacteriologist. Presentation on NDRS was made and various components of the study were discussed at length. The way forward about preparation of the report and publication were also discussed. DDG along with the team of CTD and WHO NPOs were satisfied and appreciated the process and data of NDRS conducted by NTI. Record of discussion was also received from DDG (TB) which has been filed in respective files of NDRS.	5 th - 6 th January 2017	Dr. P. Kumar, Director
9.	Workshop on e- module content framework	23 rd -24 th	Dr. P. Kumar,

Sl. No.	Particulars	Date	Participant
	preparation workshop	January 2017	Director and faculty members
10.	Data verification of NDRS: Participated in the meeting which was attended by the officials of WHO HQ Geneva and WHO India Office, for data verification of NDRS. A presentation was made and detailed discussions were held regarding process of NDRS. Reply to the clarifications sought by the experts was given at the concluding meeting. The WHO team expressed their appreciation to the NDRS team for the excellent work conducted. Dr Matteo informed that NTI has established new bench mark regarding NDRS and formal communication appreciating the NTI NDRS work from WHO has also been received. The document has been filed in the respective NDRS file.	25 th -27 th January 2017	Dr. P. Kumar, Director
11.	Inaugurated the E-training module content development workshop, addressed the participants in both inaugural and concluding sessions. Assurance was given to extend full cooperation and support from NTI for development of all the E-training module for capacity building of TB control activity.	30 th -31 st January 2017	Dr. P. Kumar, Director and faculty members
12.	Technical and Operational Guidelines workshop:	27 th February 2017	
13.	Technical & Operational Guidelines workshop:	3 rd March 2017	
14.	Technical session to commemorate the World TB Day	24 th March 2017	
15.	Study tour of TB programme managers, Afghanistan	10 th March 2017	

Outside NTI

Sl. No.	Details	Period	Participant
1.	<p>MEETING WITH FIND-CDC-NTI AT FIND OFFICE, NEW DELHI:</p> <p>Attended the meeting in FIND India Office, New Delhi to discuss the joint proposal of FIND-CTD-NTI for 2nd line DST by LPA. During the discussion, the officials of FIND India requested Director, NTI to initiate this project at NTI. In this regard, Director informed that already NTI has received communication from CTD and NTI will initiate the work on this project in consultation with NRL NTI and ICELT at NTI. The officials of FIND India also requested Director, NTI to initiate the mechanism for quality control of CBNAAT machines, since 500 more new CBNAAT machines are being installed. Director agreed with the suggestion and mentioned that with this new addition, the number of CBNAAT machines will be more than 630 and it is essential for a mechanism for quality control of these machines. For this purpose, a protocol for external quality control of CBNAAT and liquid culture machines have to be prepared in consultation with CTD, NRLs and the partners supporting PMDT. Director expressed that NTI will be very happy to coordinate this work. Further CDC officials informed that all the CBNAAT machines and MGIT liquid culture machines have to be linked with the software to develop drug resistant surveillance (DRS) system and CDC in collaboration with FIND India is willing to support this initiative. Director NTI welcomed the support of CDC and FIND to develop DRS system at NTI by linking all CBNAAT and MGIT machines so that all the data can be pooled at NTI and this issue may be discussed in the next NRL coordination committee meeting to finalise the mechanism. Director assured fullest cooperation to CTD in this regard.</p>	6 th April 2016	Dr P Kumar Director

Sl. No.	Details	Period	Participant
2.	<p>MID TERM REVIEW OF NDRS BY DDG (TB):</p> <ul style="list-style-type: none"> - Attended the meeting along with I/c CTU in DDG's office. The other members present were: Dr Ranjani Ramachandran, WHO NPO lab focal point; Dr Malik Parmar, WHO DR-TB NPO; Dr Sreenivas, WHO NPO; Addl. DDGs; Consultants of CTD. The meeting was chaired by DDG (TB) to discuss midterm review of NDRS. Director made a presentation on NDRS and detailed discussions on various components was held. Suggestions made by DDG and other members were incorporated in the presentation. It was decided that a formal communication giving details of the discussion held in the meeting may be sent to WHO to release next instalment of NDRS. - Further, DDG informed that NTI as a technical arm of CTD has to support RNTCP as a nodal centre for operational research (OR). Director informed that a software has been developed by I/c CTU in this regard and I/c CTU made a presentation on the OR software, which was appreciated by everybody present in the meeting. DDG made a decision that various administrative formalities will be completed for making NTI as a nodal centre for OR. Director assured fullest cooperation to CTD in this regard. - DDG furthermore informed that disease surveillance system also has to be developed at NTI. Director informed that as per the instructions issued by DteGHS, NTI is already preparing for development of DR-TB and disease surveillance system at NTI. Director expressed that a meeting may be arranged between officials of CTD, NTI and the supporting partners to develop modalities in this regard. DDG also informed that since the new Technical and Operational guidelines document has been prepared, the training material has to be developed and NTI should support CTD in this regard. Director informed that NTI will be very happy to support CTD for development of training material and a joint team of CTD and NTI may prepare the Agenda in this regard. - Dr Jacek from CDC raised ⁶⁷the issue of CDC-NTI-CTD proposal for genetic sequencing of drug surveillance system. DDG decided that since the project is very important, CDC should 	6 th April 2016	Dr P Kumar Director

Sl. No.	Details	Period	Participant
	Meeting on GDB held at ICMR Head Quarter, New Delhi : Discussion on estimation of State Level TB Burden.	6 th April 2016	Dr. V.K. Chadha, Public Health Consultant
3.	Meeting with DGHS regarding pending administrative issues of NTI. DGHS was briefed about the midterm review meeting of NDRS held in DDG's chamber on 06.04.2016. The other component of development of quality control for CBNAAT and liquid culture machines; Drug resistant surveillance system; disease surveillance system; and development of NTI as nodal centre for OR were also discussed. DGHS instructed Director to initiate work on these issues and Director assured to comply with the instructions of DGHS and make periodic report to DGHS. Director also expressed his gratitude to DGHS for his guidance and support to NTI.	7 th April 2016	
4.	Visited culture and DST lab of SMS Medical College, Jaipur and had meeting with Dr Bharathi Malhotra, Prof & HOD and the team working in the lab. It was observed that their lab is equipped with 1 st and 2 nd line DST and providing services by solid, liquid, LPA and CBNAAT services for PMDT in the state of Rajasthan. Dr Bharathi requested Director, NTI to provide training to the staff in 2 nd line DST. She also informed about new negative pressure area along with MGIT liquid culture machines and purchase of CBNAAT machines by the College and wanted to utilize these for the programme purposes. Director appreciated the efforts of Dr Bharathi Malhotra and expressed sincere thanks to the medical college authorities for providing these facilities and advised the lab head to initiate some new research projects to support and strengthen PMDT in the state of Rajasthan, since they are equipped with very good facilities. Director also assured full cooperation from NRL NTI.	22 nd April 2016	Dr P Kumar Director

Sl. No.	Details	Period	Participant
5.	<ul style="list-style-type: none"> - Attended WHO-GOI workshop for development of protocol for National Disease Prevalence Survey (NDPS) held at Hotel Taj Palace, Delhi. Chaired scientific sessions, addressed the participants in the inaugural session and guided group discussion. - Dr V.K Chadha delivered talks on 'Sub National surveys in India' and 'protocol for national level survey' and also presented the 'revised protocol methods' during the concluding session. - The officials also participated in group work on 'screening strategy and sampling' and 'Data management and sampling'. 	10 th and 12 th May 2016	Dr. P. Kumar, Director, Dr. V.K.Chadha, Public Health Consultant and Ms. Praseeja, SSO
	<p>During this period, Dr P Kumar, Director held series of meetings as under:</p> <ul style="list-style-type: none"> - Meeting with officials of FIND and CDC office, Delhi on 11.05.2016, regarding joint project on quality assurance of CBNAAT, genetic sequencing and the proposed visit of CDC officials to NTI to strengthen NTI NRL. - Meeting with DG ICMR on 12.05.2016, regarding providing NTI support for NDPS. DG ICMR requested Director, NTI to provide leadership to NDPS and NTI to play the role of nodal centre for the survey. Director assured fullest cooperation for smooth conduction of the survey. - Meeting with DGHS on 13.05.2016 to brief him about the progress of NDRS and also about the discussions held during the workshop for development of draft protocol for NDPS from 10-12 May 2016. The DGHS instructed Director, NTI to play a lead role for NDPS and also directed that NTI will be the nodal centre for development of draft protocol for NDPS and all other required documents for the survey. He also instructed that all the communications pertaining to NDPS should be forwarded to DDG (TB) for further necessary action and onward transmission to ICMR. Director assured compliance of the instructions and informed DGHS that periodic reports will be submitted to DGHS through DDG (TB) in this regard. 	11 th - 13 th May 2016	Dr P Kumar Director

Sl. No.	Details	Period	Participant
6.	Concurrent Assessment of Private Sector Engagement Intervention: Participated as a lead member of the assessment team in Patna and presented the report during the debriefing in Delhi.	16 th – 21 st May 2016	Dr. V.K.Chadha, Public Health Consultant
7.	Meeting at Sakara Hospital, Bangalore, regarding C&DST lab support to be provided by NTI and extend other diagnostic facilities for MDR and XDR patients of their hospital. The administration of Sakara Hospital also requested NTI to organize sensitization on standards of TB care on India for doctors working in their hospital, to update their knowledge. Director assured fullest cooperation on this issue.	28 th May 2016	Dr P Kumar Director
8.	Operational Research Workshop held at NIRT, Chennai: Facilitated the OR workshop including mentorship in developing 3 protocols and technical inputs during plenary sessions for all protocols besides final screening of the projects for funding	30 th May- 3 rd June 2016.	Dr. V.K. Chadha, Public Health Consultant
9.	Meeting with DGHS during his visit to Bangalore. Director made presentation on the activities being carried out by various Divisions of NTI including NDRS, as per the instructions of DGHS. Following the presentation, DGHS instructed Director, NTI on the following : (1) to complete NDRS as early as possible; (2) to initiate surveillance system of DR-TB by establishing a unit at NTI so that CTD can be supported for effective implementation of PMDT; (3) to initiate monitoring and surveillance system unit at NTI to support CTD for effective monitoring, supervision and evaluation of RNTCP; (4) to take lead in conducting National disease prevalence survey (NDPS). Director informed DGHS about compliance of all the instructions and submission of periodic progress report about these instructions to DGHS. Director also mentioned about the meeting being organized in CTD on 27-28 June 2016 for development of NDPS protocol.	25 th June 2016	Dr P. Kumar Director

Sl. No.	Details	Period	Participant
10	<p>- Attended the meeting for National Disease Prevalence Survey (NDPS) in DDG's Office, chaired by DDG (TB), CTD, New Delhi and attended by Addl. DDG; CTD Consultants; Dr Ranjani Ramachandran, Representatives from NIRT, Chennai; and Dr Chadha, NTI. A presentation on the survey protocol was made by Dr V.K. Chadha on 27.06.2016 and suggestions were incorporated. DG ICMR also joined and reviewed progress of the protocol development of NDPS. Discussion on preparation of protocol and costing were continued on 28.06.2016.</p> <p>- Director along with DDG held meeting with DGHS and the DG reiterated his instructions to Director, NTI during his visit to Bangalore on 25.06.2016 and directed again to complete all the tasks assigned viz., complete NDRS as early as possible; initiate surveillance system of DR-TB by establishing a unit at NTI; initiate monitoring and surveillance system unit at NTI; and take lead in conducting NDPS. Director and DDG informed DGHS about compliance of all the instructions and submission of periodic progress report about these instructions to DGHS for his perusal.</p> <p>-</p>	27 th and 28 th June 2016	Dr P Kumar Director, Dr. V.K.Chadha, Public Health Consultant
11.	Attended Sensitisation workshop for piloting CBNAAT/GeneXpert EQA Implementation in Maharashtra, held in Mumbai. Addressed the participants in inaugural and concluding sessions; chaired scientific sessions and made presentation on the role of NRL in CBNAAT EQA.	11 th July 2016	Dr P Kumar Director
12.	Carried out the "Assessment of Operation ASHA interventions using biometric based treatment adherence under RNTCP" in Hubli, Karnataka and a report on this was prepared.	17 th - 20 th July 2016	
13.	As team leader, evaluated ICT based biometric adherence system of Operation ASHA; Bhiwandi, Maharashtra: Meeting with Joint Commissioner, RNTCP officials, Operation ASHA officials, field visits, interviews with staff and patients, record review.	18 th and 19 th July 2016	V.K. Chadha, Public Health Consultant

Sl. No.	Details	Period	Participant
14.	Participated in the BRICS workshop on Health Surveillance System and Best practices held at RITZ Carlton, Bangalore : Submitted a write up on 'Contribution of NTI in TB Surveillance'	1 st and 2 nd August 2016	Dr. V.K. Chadha, Public Health Consultant
15.	- Attended a meeting to review preparation of Disease Prevalence Survey (DPS) in DteGHS, New Delhi. It was decided to undertake the DPS for which detailed modalities are to be worked out in consultation with the officials of CTD and the National Institutions involved. - Dr P Kumar Director Meeting with DDG (TB) to discuss various technical and administrative issues of the Institute. - Dr. V.K. Chadha Provided technical and operational inputs for the meeting	8 th August 2016	Dr P Kumar Director and Dr. V.K. Chadha, Public Health Consultant
16.	Attended the dissemination workshop on "INDEX-TB Guidelines" for diagnosis and management of Extra Pulmonary TB, held in AIIMS, New Delhi. Chaired scientific sessions and panel discussion. The undersigned is also one of the committee members for development of extra pulmonary TB guidelines.	9 th August 2016	Dr P Kumar Director
17.	Attended meeting to discuss TB Modeling held at BMGF Office, New Delhi: Provided technical inputs for estimating TB burden through modeling and role of PPM towards controlling TB.	10 th August 2016	Dr. V.K. Chadha, Public Health Consultant
18.	Workshop on Dissemination and consultation on improving quality of private TB care held at BMGF Office, New Delhi: Presented the low cost PPM model – implementation research being carried out by NTI in a TU of Bangalore city besides actively participating in the discussions and giving inputs towards improving care of TB patients in private sector.	11 th – 12 th August 2016	Dr. V.K. Chadha, Public Health Consultant
19.	Regional workshop on the introduction of new drugs and shorter regimens organized by The Union south east Asia office, New Delhi: Contributed towards preparation of presentation on country roll out plan for India.	18 th - 19 th August 2016	Dr. SK Tripathy, TB Specialist
20.	Attended RNTCP National Review Meeting of STOs and Consultants in Hyderabad, as per the instructions received from DteGHS. Chaired scientific sessions and provided technical support during the meeting on both the days.	22 nd and 23 rd August 2016	Dr P Kumar Director

Sl. No.	Details	Period	Participant
21.	Participated in meeting on state-level TB burden estimates held at ICMR Head Quarters New Delhi	7 th Sept 2016	Dr. V.K. Chadha, Public Health Consultant
22.	RNTCP zonal (East) Operations Research workshop for Medical college of East Zone held at Ranchi, Jharkhand: Participated as chief facilitator	8 th - 9 th September 2016	Dr. V.K. Chadha, Public Health Consultant
23.	First meeting of the working group expert panels for the India TB Research consortium held at ICMR office, New Delhi: Prepared draft of the background (landscape) document for Epidemiology and implementation Research Group	19 th and 20 th September 2016	Dr. V.K. Chadha, Public Health Consultant
24.	Attended a workshop for development of training module on INDEX TB guidelines at AIIMS, New Delhi.	27 th September 2016	Dr P Kumar Director
25.	Participated in the “National Expert Committee on Diagnosis and Management of Tuberculosis under Revised National Tuberculosis Control Programme” held in DteGHS, Nirman Bhavan, New Delhi. Actively participated in the meeting and also presented progress of NDRS. DGHS instructed Director, NTI to complete the NDRS as early as possible and submit the report. Director assured DGHS for compliance of his instructions.	6 th October 2016	Dr P Kumar Director
26.	Participated in the National Working group meeting - TB Research consortium held at ICMR Head Quarters: As team leader of the epidemiological implementation research group, made presentation on research priorities to be addressed during the consortium meeting.	17 th October 2016	V.K. Chadha, Public Health Consultant

Sl. No.	Details	Period	Participant
27.	<p>Attended “National Strategic Plan for TB Control in India (2017-2023) - Consultative workshop” held in Hotel Le – Meridian, New Delhi. Actively participated in the meeting, chaired scientific sessions and guided group discussion. Also made presentation, as a group leader of Group No. 7, related to financial arrangements for the programme.</p> <p>Dr. V.K. Chadha Participated as team leader for the Epidemiology surveillance, monitoring and evaluation group and made presentation on the draft recommendations of the group.</p>	18 th and 19 th October 2016	Dr P Kumar Director and V.K. Chadha, Public Health Consultant
28.	<p>“Regional Consultation of the WHO Collaborating Centers in the South-East Asia Region” held in Hotel Le – Meridien, New Delhi. Actively participated and also presented poster and activities of NTI pertaining to functioning of NTI as WHO collaborating centre.</p>	19 th - 21 st October 2016	Dr P Kumar Director
29.	<p>Meeting with Dr. Aladi Mohan, Prof. Sri Venkateshwara Institute of Medical Sciences, Tirupathi about strengthening research promotion and dissemination by involving Sri Venkateshwara Institute of Medical Sciences, Tirupathi. Dr Aladi Mohan has been involved in publication for involvement of medical colleges in TB control and he is involved in a number of researches related to RNTCP. He has expressed his interest for research collaboration with NTI. At present, he is heading the department of TB & Chest Diseases and arranged a visit to his department and also to C&DST lab of Sri Venkateshwara Institute of Medical Sciences, Tirupathi, which is certified for solid C&DST. There is scope for implementation of DST based treatment for DR-TB. He also informed that he will coordinate with State TB authorities so that indoor facilities can be arranged nearby government hospital, which will strengthen the PMDT support. Director assured fullest cooperation and also requested the authorities of Sri Venkateshwara Institute of Medical Sciences, Tirupathi to promote research and dissemination of TB related research, which the authorities have agreed.</p>	2 nd November 2016	Dr P Kumar Director

Sl. No.	Details	Period	Participant
30.	Discussion with RNTCP Consultants of Andhra Pradesh where a decision was taken that TB hospital attached to medical college can be developed as DR-TB facility for this area and a lab supervision support can be provided by Dr Aladi Mohan, Prof. & Head of TB & Chest Diseases, Sri Venkateshwara Institute of Medical Sciences, Tirupathi. It was also decided that some DR-TB research can be initiated jointly by RNTCP authorities & Sri Venkateshwara Institute of Medical Sciences, Tirupathi and NTI can facilitate these research projects.	3 rd November 2016	Dr P Kumar Director
31.	Participated in briefing meeting for common review of NHM held at New Delhi	4 th November 2016	Dr. V.K. Chadha, Public Health Consultant
32.	Delivered talk on research priorities in Epidemiology and implementation research during the international advisory group meeting/TB Research consortium held at New Delhi	8 th and 9 th November 2016	Dr. V.K. Chadha, Public Health Consultant
33.	Participated as team member for common review of NHM held at Bihar. Reviewed all communicable disease control programmes	10 th - 16 th November 2016	Dr. V.K. Chadha, Public Health Consultant
34.	Meeting with Dr Rakesh Kumar, ICMR, New Delhi, to discuss Agenda of the SAG meeting to be held from 9-10 Nov. 2016 in New Delhi.	8 th November 2016	Dr P Kumar Director
35.	Participated in the first meeting of the International Scientific Advisory Group (SAG) for the 'India TB Research Consortium' in New Delhi.	9 th and 10 th November 2016	Dr P Kumar Director
36.	Attended as an examiner in the viva-voce examination to award PHD degree to a student in AIIMS, New Delhi.	11 th November 2016	Dr P Kumar Director
37.	Meeting with DGHS during his visit to Bangalore and made a presentation on the findings of NDRS. The DGHS instructed Director, NTI to prepare a brief report and send as confidential document to DGHS for his perusal. DGHS also informed about the visit of a team of experts from CTD and WHO to NTI to verify the findings of NDRS. Director requested the DGHS to kindly chair this forthcoming session, for which DGHS agreed.	3 rd December 2016	Dr P Kumar Director

Sl. No.	Details	Period	Participant
38.	<ul style="list-style-type: none"> - Attended the meeting “first line anti-TB drugs sale and distribution regulation in private sector in India” held in Nirman Bhavan, New Delhi. - Meeting with Mr A.K. Jha, Joint Secretary and Economic Advisor regarding administrative issues pending in the Min. of H&FW. - Meeting with DDG (TB) and Addl. DDG (TB) to request them to visit NTI along with WHO team to verify the findings of NDRS, which is completed. DDG agreed for the request and informed that a suitable date will be provided in due course of time in consultation with WHO team in this regard. 	21 st December 2016	Dr P Kumar Director
39.	Meeting with the authorities of Narayana Hrudayalaya, Bangalore regarding collaboration with NTI. They requested NTI’s support for C&DST for DR-TB patients and also requested sensitization programme on Indian standard of TB care for their doctors. Director agreed to extend support for both their proposals.	17 th January 2017	Dr P Kumar Director
40.	<ul style="list-style-type: none"> - Participated in the launch of Tribal Project “Targeted Intervention to Expand and Strengthen TB Control in Tribal Populations under RNTCP” held at 7 Tigers Resort, Kanha National Park, Madhya Pradesh. - Held meeting with DDG (TB); Joint Secretary, Min. of H&FW, GOI; STO MP; DTO Jabalpur; Dr Rao from National Institute of Research and TB; and Hon’ble Minister of State for H&FW. As per the request of DDG (TB), Director coordinated the technical session of presentation in the inaugural session. 	19 th – 21 st January 2017	Dr P Kumar Director
41.	<ul style="list-style-type: none"> - Attended the Zonal Task Force meeting for South Zone for involvement of Medical College held at Kempegowda institute of Medical Sciences (KIMS), Bangalore. - Chaired the Scientific session & addressed in inaugural & valedictory function & also made presentation on “Updates of RNTCP” on behalf of CTD, Govt. of India. 	2 nd and 3 rd February 2017	Dr P Kumar Director

Sl. No.	Details	Period	Participant
42.	<ul style="list-style-type: none"> - Participated in a meeting on “End TB Strategy” held at Trivandrum, Kerala, in which officials from WHO, Govt. of India, Govt. of Kerala & partners participated. - Dr P Kumar, Director Chaired the Scientific session & facilitated the Group discussion. - Dr P Kumar, Director Attended meeting with DDG(TB), Dr Sreenivas (WHO NPO India); Dr Malik Parmer (WHO NPO DRTB); Dr Ranjani Ramachandran (WHO NPO Lab); regarding preparation of NDRS report. - Participated in the Inauguration of Launching daily regimen in the state of Kerala, which was inaugurated by Hon’ble Health minister, Govt. of Kerala. <p>Dr. V.K. Chadha Chaired the technical session on presentations by National Professional Officers and DDG(TB) regarding Global TB Elimination strategy & national strategic plan respectively. Participated as leader of the group on TB Epidemiology, Surveillance, Monitoring and Evaluation.</p>	6 th and 7 th February 2017	Dr P Kumar Director and Dr. V.K. Chadha, Public Health Consultant
43.	Actively participated in the National workshop on ‘Expanding Bedaquiline access and introduction of shorter regimen’ held at Ahmadabad, Gujarat	21 st - 23 rd February 2017	Dr. S K Tripathy, TB Specialist
44.	<ul style="list-style-type: none"> - Meeting with Dr Behera, Chairmen National Task Force and Chairmen of National Research Committee, in PGIMR, Chandigarh. - Attended as an examiner in a Ph.D exam held at Department of Bio chemistry in PGIMR, Chandigarh. 	21 st – 22 nd February 2017	Dr P Kumar Director
45.	Attended the National Research Committee meeting held at DGHS, Ministry of Health & Family Welfare Govt. of India, New Delhi	23 rd February 2017	Dr P Kumar Director
46.	<p>Attended Review meeting of the ongoing Multi centric Cohort Study of Recurrence of TB among newly diagnosed sputum positive PTB patients treated under RNTCP – Collaborative Study (RP/240) held at NIRT Chennai:</p> <p>Led the discussions on progress of the study, its review by different centres and provided guidance on analysis of data.</p> <p>Mrs. Praseeja made detailed presentation on the study progress as well as the results of data analysis in the areas of NTI.</p>	22 nd - 23 rd February 2017	Dr. VK Chadha and Mrs. P Praseeja

Sl. No.	Details	Period	Participant
47.	<ul style="list-style-type: none"> - Attended the meeting on “Finalization of New Strategic plan of RNTCP – Consultative workshop” held in the Hotel HAYAT Residence, New Delhi. - Dr P Kumar, Director, chaired the Scientific session, guided group discussion & made presentation on Group-6, related to Finance, Budgeting, procurement & Supply of the Drug & logistics, required for RNTCP. - Dr P Kumar, Director, facilitated the Group work of procurement, supply chain management, Finance & expenditure related to RNTCP. - Participated in the concluding session of the meeting <p>Dr. V. K. Chadha Participated as leader of the group on surveillance, monitoring and evaluation, research. Presented framework for the same. Gave inputs especially regarding intensified case finding and active case finding.</p>	28 th February and 1 st March 2017	Dr P Kumar Director and Dr. V.K. Chadha, Public Health Consultant
48.	<ul style="list-style-type: none"> - Participated in a meeting at DDG (TB) office chaired by DDG(TB) attended by Dr. Patrick Moonan, Head of CDC, Delhi Office, Dr Ranjani Ramachandran (WHO NPO Lab). It was decided in the meeting that Genetic Sequencing of NDRS samples will be performed by NTI in a joint collaborative project of CDC – GOI – CTD – NTI. - DDG (TB) decided that Director, NTI may attend the meeting at NIRT, Chennai on 9th March 2017 & have a meeting with Director, NIRT, Dr. Patrick Moonan, Head of CDC, Delhi Office, Dr Ranjani Ramachandran (WHO NPO Lab) to finalize modalities of the release of funds from NIRT, Chennai to NTI, Bangalore in order to execute Genetic Sequencing of NDRS samples. 	2 nd March 2017	Dr P Kumar Director
49.	TB Research Consortium held at ICMR, New Delhi: Held discussions with the officers of TB Research Consortium Secretariat, on the progress of activities of group on epidemiology & Implementation Research	2 nd March 2017	Dr. V.K. Chadha, Public Health Consultant

Sl. No.	Details	Period	Participant
50.	<p>Attended “India TB research Consortium” held in ICMR, New Delhi. The Epidemiology & Implementation Research group was chaired by Dr Behera, from PGI Chandigarh along with Director NITRD, New Delhi and Director NTI as an expert. Finalized Research protocols to be taken up for research.</p> <p>Dr. V.K. Chadha, as group leader, drafted and presented three protocols; revised presentation made after obtaining inputs from working group</p>	6 th and 7 th March 2017	Dr P Kumar Director and Dr. V.K. Chadha, Public Health Consultant
51.	<ul style="list-style-type: none"> - Attended meeting with Director NIRT, Dr. Patrick Moonan, Head of CDC, Delhi Office, Dr Ranjani Ramachandran (WHO NPO Lab), Dr Anand CTD Consultant, & Dr Lakshmi R from NRL, NTI in the Hotel Radisson. It was decided in the meeting that as instructed by DDG(TB) the Sequencing of NDRS samples will be performed at NTI, Bangalore. This project will be supported by CDC and Dr Ranjani Ramachandran (WHO NPO Lab), in consultation with CTD & the NTI representative will formulate the proposal to get the fund release from CDC, Delhi office to NTI for execution of this project. - Chaired the review meeting held at Hotel Radisson, Chennai. State presentations on bedaquiline preparedness, plan, Revised PMDT Guidelines & Implementation of Shorter Drug Resistance Regimen to be implemented by the states were made. 	9 th March 2017	Dr P Kumar Director
52.	Meeting with DDG (TB) in CTD, New Delhi. It was informed that DGHS desired to have a detailed discussion on NDRS findings along with experts of NTI, CTD & WHO. The finalized dates & venue of the meeting will be communicated by DDG(TB) to Director, NTI in due course of time.	14 th March 2017	Dr P Kumar Director
53.	Participated in WHO SEARO Ministerial Meeting held in Le-meridian Hotel, New Delhi	15 th and 16 th March 2017	Dr P Kumar Director

Sl. No.	Details	Period	Participant
54.	<ul style="list-style-type: none"> - Meeting with VK Arora, Vice Chairmen of TB Association of India & Vice chairmen & Secretary of Andhra Pradesh TB Association in Vijayawada, Andhra Pradesh. - Presented Dr. P V Benjamin oration on “Drug Resistance TB in India, Challenges & opportunities” in APTB conference in Vijayawada. The Hon’ble Minister Dr K V Rao felicitated Dr. Prahlad Kumar, Director, NTI by awarding Dr P V Benjamin award. - Attended APTB conference & chaired the Scientific Session. 	17 th - 19 th March 2017	Dr P Kumar Director
55.	<ul style="list-style-type: none"> - Attended the NDRS review meeting, chaired by DGHS, Government of India in his office at Nirman Bhavan, New Delhi, which was attended by a team of experts of CTD & WHO. Director NTI presented the findings of NDRS to DGHS. - DGHS appreciated NTI for successful completion of NDRS & directed the DDG(TB) to submit the report in the file for approval by authorities of Ministry of Health & Family Welfare, government of India. - DGHS also decided that NTI will conduct Genetic Sequencing with the support of WHO & CDC on NDRS samples available in NTI. - Attended DRTB expert committee meeting for North East region of India & contributed as expert & assisted the chairmen to finalize the protocol to be funded by Department of Biotechnology for DRTB in NE Region. 	30 th March 2017	Dr P Kumar Director

c. 71st National Conference on TB & Chest Diseases (NATCON) 2016 held at Postgraduate Institute of Medical Education and Research, Chandigarh from 16th - 18th December 2016

1.	Dr. V. K. Chadha Attended NATCON 2016 held in Chandigar, and delivered guest lecture on 'TB Burden estimation in India-Revised estimates'
2.	Dr. S.K. Tripathy presented paper entitled 'Significance of Sputum smear grading as a marker of bacterial load in the management of drug sensitive pulmonary TB under RNTCP'.
3.	Mr. Padmesh made poster presentation on paper titled 'Subsequent treatment seeking behavior, treatment outcome and fate of patients initiated on Anti-TB treatment in selected private health care facilities in Bangalore city. Mr. B A Shivashankara and Mr. R Jitendra I/c CTU also attended the Conference

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 (ICMR), 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 (NDTBC), New Delhi
- State Tuberculosis Centres
- Tuberculosis Association of India (TAI)

The following activities were undertaken by I/C RDC during **April 2016 to March 2017** at Research and Documentation cell:

(A) Research Documentation Cell:

- Discharged the duties and responsibilities as in-charge RDC.
- Web Administration of TB research portal
www.tbresearch.ntiindia.org.in
- Correspondence with all the participating nodal centres.
- Provided access of full text of documents as & when requested.

- Digitization and uploading of Indian TB research articles received from collaborating centres and published in various publications viz. Int J Tuberc & LD, IJMM, IJMR, IJT, PHA, IJT etc.

(B) TB-HIV and Airborne Infection Control (AIC)

- Maintaining TB-HIV and (AIC) files
- Reviewed and provided comments and suggestion to NACO for “Provider Initiated Testing and Counseling for TB and WBFPT Training manual for laboratory technicians”.

(C) Technical assistance to Director’s Office

- Completed all the task given by Director
- Assisted Director’s office and Administration division in preparation of a document on Achievements of last 5 years pertaining to National Tuberculosis Institute, Bangalore:
- Assisted NTI in preparation of NTI’s annual report as a WHO CC for WHO annual report 2017
- Prepared power point presentation about NTI for LCD display at Director’s chamber
- Assisted Director’s office in compilation of activities proposed for designation of National Tuberculosis Institute, Bangalore as a WHO Collaborating Centre. Proposed activities were finalized in consultation with Divisional heads, NTI; WHO SEARO office, New Delhi and Director NTI and the same was uploaded to WHO Portal.

(D) Miscellaneous

- Discharged responsibilities as member of NTI new website committee.
- Assisted Publication Division in Compilation of NTI Bulletin Vol-1-4, 2015.
- Assisted Establishment Division in preparation of material for printing of annual report for Ministry of Health &FW for the year, 2015-2016. A draft report was prepared with regards to the National Tuberculosis Institute Bangalore

8. VISITORS

During the year the Institute had the privilege of having the following dignitaries as visitors.

Sl. No.	Name of visitor	Date	Details of visit
1.	Mr Satish, Commissioner of Sericulture Department, Govt. of Karnataka	1 st April 2016	To discuss some information pertaining to TB.
2.	Dr Mayank Ghedia, RNTCP Consultant, CTD, New Delhi	1 st April 2016	Regarding NTI support for installation of new CBNAAT machine and also to develop a mechanism for quality assurance of CBNAAT machine being installed for early case detection under PMDT. Director assured fullest cooperation for development of a mechanism for quality control of all CBNAAT machines as desired by DteGHS and also assured fullest cooperation for effective management of PMDT.
3.	Dr Om Prakash, Member of Institutional Ethics Committee, NTI and Dr Thara, Research Fellow from US	13 th April 2016	To discuss the role of NTI and status of RNTCP in India Also Dr Om Prakash informed that he has spoken to Shri S. Vijay Shankar, Senior Advocate, Ex. Advocate General for Karnataka, regarding accepting the request of Director, NTI, to be the Chairman of NTI Ethics Committee.
4.	Dr M.Narayanappa from St. Martha's Hospital, Bangalore	3 rd May 2016	To discuss collaborative research projects between NTI and St. Martha's Hospital.
5.	Mr Chandramohan, Scientist from GKVK Agricultural university, Bangalore	18 th May 2016	To discuss objective and functioning of the Institute.
6.	Dr Sahai, STO, Bihar	27 th May 2016	To discuss some technical issues where STO, Bihar requested support from NTI.

Sl. No.	Name of visitor	Date	Details of visit
7.	Delegation from Railway Hospital, Bangalore	31 st May 2016	To request providing diagnostic facilities for MDR and XDR patients attending Railway Hospital and also organizing sensitization workshop on Indian standard of TB care in India. Director assured fullest cooperation on these two issues.
8.	<p>VISIT OF DGHS TO BANGALORE ON 19th May 2016:</p> <p>Review of NDRS and the activities of NTI was carried out by DGHS during his visit to Bangalore. Director made a presentation on the activities being carried out by various divisions of the Institute and also on latest status of NDRS being carried out by the Institute. The DGHS appreciated the efforts of Director and the NDRS team for speedy work of NDRS.</p> <p>Regarding training material, the DGHS directed Director to update the same by using latest technology and E-modules for the training being imparted to the trainees for management of RNTCP as per approved new Technical and Operational guidelines provided under RNTCP.</p> <p>The DGHS directed Director, NTI to initiate the following :</p> <ul style="list-style-type: none"> - setting up of Drug Surveillance System and Disease Surveillance System at NTI in consultation with CTD and supporting partners like WHO, CDC, Delhi office and FIND India office. - action for implementation of new recommendations of WHO on Short Term Version of MDR treatment and diagnosis of Second line Drug Resistance by using Line Probe Assay (LPA). - to play the lead role in initiating the National TB Prevalence survey and work as nodal Centre for preparing the protocol in consultation with CTD and submit to DGHS for his approval. - to ensure the quality of sputum smear, Culture and Drug Sensitivity Test by Solid culture, liquid culture and by LPA. He also directed to Quality Control, the vast network of CBNAAT being installed in the country, which will ensure early and quality diagnosis, and proper management of Drug Resistant TB. - whole Genome Sequencing in NTI as per the approved project between Ministry of Health and Family Welfare and CDC, Delhi. - strengthen the Research component of RNTCP by creating a Central Operational Research Cell to support Central TB Division for operational research. <p>Director assured the DGHS on the compliance of above instructions.</p>		
9.	Dr. Heather Alexander, Lab Head, CDC Atlanta; Dr	2 nd June 2016	To discuss with NTI NRL team about the support of CDC lab division to strengthen labs involved in RNTCP

Sl. No.	Name of visitor	Date	Details of visit
	Jacek Skarbinkski from CDC Delhi office		India and also the support through FIND for CBNAAT and EQA activities. In this regard, NTI was informed to play a lead role. Director, NTI informed the CDC team that NTI will be very happy to lead this activity after thorough discussion and approval in the next NRL coordination committee meeting, followed by communication from CTD to NTI to take up this job. On receipt of communication from CTD, NTI will be willingly taking up this job.
10.	Manager and Asst. Manager from Balmer Lawrie & Co. Ltd., Bangalore	10 th June 2016	To discuss extending cooperation regarding arranging air tickets for official visits of the Institute.
11.	Dr Devesh Gupta, Addl. DDG, CTD, New Delhi	13 th June 2016	<ul style="list-style-type: none"> - With regard to Training of trainers on technical and operational guidelines from 13-17th June 2016 at the Institute. Requested NTI to facilitate future training programmes of TOT on technical and operational guidelines, for which Director agreed. - I/c Admn. raised some administrative and technical issues pending in CTD, for which the Addl. DDG assured that he will look into the matter and expedite process of completion of the pending work.
12.	Dr Ranjani Ramachandran, NPA WHO & lab focal point and also co- investigator of NDRS	13 th June 2016	To review NDRS progress. Dr Ranjani Ramachandran expressed satisfaction about the progress of NDRS and was of the opinion that sensitivity results of samples may be available by the end of 2016.
13.	Dr Rupak Singla, HOD, Chest Diseases, NITRD, New Delhi	14 th June 2016	Discussed regarding initiating the DST based treatment under RNTCP, which Director appreciated and informed that CTD in principle has agreed and taking necessary steps to initiate DST based treatment in some pilot area. Director informed that NTI will be very

Sl. No.	Name of visitor	Date	Details of visit
			happy to support this initiative if a request is received from CTD.
14.	Dr Atul Kharate, STO, Madhya Pradesh		To discuss some issues on EQA PMDT and NDRS. Director requested the STO to review pending work of NDRS in the TUs of MP and expedite completion of the work and sending report to NDRS NTI team.
15.	Dr Anurag Bhargav, Prof. Medical College, Bangalore, Karnataka		To discuss regarding nutritional food supplements to the TB patients. Director informed that the primary responsibility of RNTCP is to provide medicine and reagents for diagnosis and management of TB, including drug resistance and TB-HIV co-infection cases. Further Director mentioned about the availability of certain social schemes to provide nutritional food and other support and coordination with such agencies providing these services will facilitate nutritional food for the needy TB patients.
16.	Dr Rohit Sarin, Director, NITRD and Dr Tripathy from NIRT	15 th June 2016	Discussed regarding extending support to CTD by the National institutes having NRL, in supervision, monitoring and evaluation. At this point, Director, NTI informed about the request of CTD to NTI for initiating drug surveillance and disease surveillance system at NTI about which Director had meeting with CTD to finalise modalities for initiating these systems.
17.	Dr Salhotra, Addl. DDG, CTD, New Delhi; Dr Kiran Rade, Dr Ashu Pande; Dr Amar Shah, Dr Mayank Ghedia, Dr Avijit Choudhry, Mr Jitendra, NTI, and training team of NTI	16 th June 2016	Discussed regarding preparing the training material by using information and communication technology. Director, NTI, was requested to lead the group who is preparing this training material and organize a meeting to finalise the draft electronic training module in 1 st week of July 2016. Director appreciated the effort of CTD in preparing the electronic training module for the training and

Sl. No.	Name of visitor	Date	Details of visit
			accepted the request to organize a meeting to finalise the modalities in this regard, in 1 st half of July 2016.
18.	Delegation from ICMR	22 nd June 2016	To discuss NRL NTI support for their research project related to TB. Director agreed for their proposal and informed that NTI will be very happy to support their research project related to TB.
19.	Officials from NITRD, New Delhi	29 th June 2016	Discussed regarding collaboration between NTI and NITRD on various research studies and initiate genetic sequencing in NRL NTI. Director, NTI appreciated the proposal of NITRD with NTI and assured fullest cooperation from NTI.
20.	Dr. Raghuram Rao, DADG (TB), DteGHS, New Delhi	12 th July 2016	Discussion about draft protocol of National Disease Prevalence Survey submitted to CTD
21.	Dr Mayank Ghedia, Consultant, CTD	12 th July 2016	To discuss lab related issues. He informed about constitution of a new national expert committee on diagnosis and management and henceforth all the lab related issues will be discussed in the ensuing meeting.
22.	Dr Bhawin Vadra, CTD, DteGHS, New Delhi	13 th July 2016	Discussed about organization of 'assessment of ASHA' and informed that Director, NTI has been instructed to lead the team to Hubli on 18-19 July 2016 and conveyed the request of CTD about compiling the reports of the assessment visits made by various teams by Director, NTI and to submit the report to CTD. Director agreed to the request of CTD.
23.	Team of State TB Cell, Karnataka	15 th July 2016	To finalise arrangements for the assessment visit of operational ASHA to Hubli, Karnataka. It was decided that NTI will arrange vehicle for Director, NTI and STO, MP for this purpose from 17-20 July 2016 and the

Sl. No.	Name of visitor	Date	Details of visit
			other arrangements will be made by the state of Karnataka.
24.	Smt Jija Hari Singh, retired Director General of Police, Karnataka	26 th July 2016	To see bio-safety measures taken in the NTI lab. A presentation on bio-safety measures to safeguard the staff working in NTI Lab was made by the Director, which was appreciated by the DG of Police, Karnataka.
25.	Drs. Kyle DeGruy and Zilma Rey, Laboratory Experts from CDC Atlanta, USA.	25 th -26 th Aug 2016	To evaluate site preparedness for initiating EQA CBNAAT. Dr Kyle DeGruy made a presentation on CBNAAT EQA procedures undertaken by NTI, as per the instructions received from CTD. After the presentation, question answer session was held and clarifications were given by Dr Kyle for the points raised by the laboratory experts of NTI, which was followed by visit to NRL NTI. On the concluding day, the laboratory experts of CDC Atlanta made a presentation on their observations and the future plan of CBNAAT EQA to be performed by NTI lab. The meeting was also attended by I/c NRL, I/c ICELT, Consultant Microbiologist of NRL EQA project, NDRS Study Coordinator and Addl. Director & Division Head of Lab.
26.	Dr PR Narayanan, renowned Lab Expert and former Director of NIRT, Chennai	29 th August 2016	To review the progress of NDRS. The meeting was chaired by Director and attended by Division Head of Lab, Sr. Microbiologists of NDRS, I/c CTU and analysis team of NDRS. Agenda for review of NDRS was finalized and team members were instructed to present the status of their work to Dr Narayanan so that review can be completed and appropriate guidance is provided by Dr Narayanan on completion of this review meeting on 31.08.2016. Review of lab work was also carried

Sl. No.	Name of visitor	Date	Details of visit
			out by Dr Narayanan.
27.	Sri Avijit Choudhury, WHO.	26 th and 27 th Oct 2016	To discuss finalization of the electronic module for training to be imparted to various levels of officials working under RNTCP. It was discussed that a joint team of WHO and NTI consisting of IT officials will finalise this e-module and Mr Avijit Choudhury from WHO and Mr Jitehdra, I/c CTU from NTI will be the nodal officials regarding IT component of this e-module. In this regard, deliberations were held and an action plan was prepared, followed by debriefing of the action plan on 27.10.2016. I/c CTU also joined the discussion on both the days.
28.	State TB Officer, UP	2 nd December 2016	Discussed about extending technical support of NTI for establishment of three new C&DST labs in UP. Director advised I/c Lab to extend the required support to the STO, UP in this regard.
29.	Dr Sanjay Kumar Sinha, WHO TB Consultant, Bihar	13 th December 2016	To request Director, NTI to provide technical support for strengthening IRL, Bihar. Director instructed I/c NRL to extend the required support to IRL, Bihar. Dr Sinha was in NTI for Cartridge Management and refresher training on Supply Chain Management.
30.	Mr Dhanraj, Global Fund of RNTCP		Facilitated the Cartridge Management and refresher training on Supply Chain Management.
31.	Dr Anand, Consultant at CTD, New Delhi		Discussed regarding new diagnostic tools for DR-TB treatment. Dr Anand informed that this new machine which is prepared in India for detection of DR-TB will be studied in 50 identified districts and the study will be implemented by NIRT Chennai, for which he requested NTI's support. Director appreciated the new

Sl. No.	Name of visitor	Date	Details of visit
			development and expressed his willingness to support such important study.
32.	Dr PR Narayanan, former Director, TRC Chennai and Chairman of WHO Technical Working Group	26 th and 27 th December 2016	Review of NDRS. Dr Narayanan was invited by Director to critically review the lab work performed by NDRS team including gene sequencing and provide suitable guidelines. He was also requested to support NDRS team for drafting the report. Dr Narayanan held discussion with the lab & analysis team and subsequently verified the records & reports and gave his observations on the NDRS. He appreciated the work carried out by the lab & analysis team and provided suitable support for drafting the report. Subsequently, the NDRS lab & analysis team prepared the draft report which was seen and accepted by Dr Narayanan. Director expressed sincere thanks to Dr Narayanan for his valuable support.
33.	Dr Paramasivan and Dr Umesh from FIND India, New Delhi	9 th and 11 th January 2017	Discussed regarding formulating an action plan for the year 2017. I/c ICELT, NTI campus also participated in the discussion. It was informed to Director, NTI that the joint project between FIND India and NTI, Bangalore on 2 nd line LPA validation and sequencing is nearing completion and the joint project of FIND, CDC and NTI on quality assurance of CBNAAT is under progress. It was also informed that they are planning some new collaborative projects, for which Director informed that whatever decision taken at CTD will be implemented by NTI.
34.	Officials from State TB Cell, Karnataka, State Task Force Medical College and WHO	30 th January 2017	Discussed regarding extending support of Director, NTI, for ZTF meeting being organized on 2-3 February 2017 in Bangalore. Director assured them the

Sl. No.	Name of visitor	Date	Details of visit
	RNTCP Karnataka		fullest support from NTI for successful organization of ZTF.
35.	Dr D Behra, Chairmen National Task force	1 st February 2017	Meeting regarding the involvement of Medical College in TB control in India. During this meeting, Agenda for zonal task force for South zone to be held on 2 nd & 3 rd Feb 2017 in Bangalore was finalized.
36.	Dr Ashu Pande, RNTCP Consultant, CTD	9 th February 2017	<ul style="list-style-type: none"> - Meeting with the CTD Consultant who was a facilitator in the ongoing training of Technical & Operational guidelines of RNTCP held at NTI. - Dr Pande requested NTI, Director to provide support on series of trainings to be held on TOG, e-module & training for VIDICULIN CAP. He also requested for NTI support for implementation of Daily regimen, Disease prevalence Study (DPS) & other research studies. - Director assured the best cooperation for implementation of all these components of RNTCP.
37.	Dr. Ravi Kumar, Sr. Regional Director, Bangalore		Meeting regarding involvement of Regional Directors in the training being conducted at NTI on Technical & Operational Guidelines. Dr Ravi Kumar appreciated CTD in this regard.
38.	Dr Beg, Vice-Chairmen of TB Association of Andhra Pradesh	17 th February 2017	Meeting regarding APTB conference. Director, NTI was requested to deliver an oration in the conference to be held in the month of March 2017, which was accepted by Director.

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