सत्यमेव जयते

INDIA TB REPORT 2019

Revised National TB Control Programme

Annual Report

Central TB Division

Ministry of Health and Family Welfare,
Nirman Bhawan, New Delhi - 110011
www.tbcindia.gov.in

DOTS
Pura course. Pakka ilaaj.

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

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May, 2019

MESSAGE

The Annual Report of Revised National TB Control Programme's captures the progress made by the country in 2018 towards the fight against TB. This report outlines the overall achievement of the TB programme, which include newer policy updates, data on key performance indicators, improvement in diagnostics and drug regimen, private sector and community engagement.

The Revised National TB Control Program (RNTCP) has taken many new initiatives and policy changes over the last few years. There has been a major shift under the National Strategic Plan for ending TB (NSP 2017-25) with regard to the approach towards private sector engagement. Reaching TB patients in private sector has been identified as one of the key factor to achieve universal health coverage for TB care services under the programme.

Currently, TB incidence is declining by about 1-2% per year and to achieve the NSP goal by 2025, we need to have an accelerated annual decline in TB incidence by about 10%. For this, we need to optimize utilization of the existing strategies and ensure universal access through free diagnosis and treatment services, active engagement with the private sector, utilize digital technologies and solutions to reach the last mile.

The print, electronic and digital Media are important stakeholders in our fight against TB. An informed media has helped in drawing public attention to the disease and has been a valuable support in disseminating information about the services available under RNTCP to the community at large.

With these value added initiatives, which are described in detail in this report, I am sure, the country will achieve impressive gain in the reduction of morbidity and mortality due to TB in the years ahead.

(Vikas Sheel)

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Project Director, RNTCP

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MESSAGE

TB India Report 2019 is an annual publication from Central TB Division (CTD) wherein a comprehensive status of TB control activities in the country has been compiled. It has been a year of significant strides for India's National TB Control Program. We are happy to report that there is a 16% increase in the number of TB case notifications in 2018 as compared to 2017, which shows that more and more people are seeking standardized care.

This year also saw major developments in delivery of drugs and diagnostics. The initiation of the daily regimen through Fixed Dosage Combination (FDCs) in October 2017 has seen rapid expansion in 2018 with over 19 lakh treatment recipients. The introduction of Bedaquiline and Delamanid along with a shorter regimen of 9-11 months for drug resistant TB patients, has made it easier for those with MDR-TB to complete their treatment. There has been an increase in proportion of patients on injection-free drug regimes, which went up from 67% in 2017 to 98.5% in 2018

Major steps were taken to improve molecular diagnostics and detection of drug-resistant TB. Cartridge-based nucleic acid amplification test or the CBNAAT was scaled up to 1180 laboratories; the number of tests performed, doubled to 22.5 lakhs in 2018 as compared to 10.7 lakhs in 2017. The Central TB Division (CTD) has been able to deploy 345 TrueNAT machines developed indigenously and has planned for adding another 1500 machines at sub-district level facilities in the coming years. These measures along with a scale up of DR-TB centres from 197 to 509 in the past year have collectively resulted in a 52% increase in drug-resistant TB detection.

A key achievement has been the success in greater community engagement through a network of TB champions at all levels to ensure there is proper information and support for TB patients in the community.

I would like to express my gratitude to all my colleagues at the Central TB Division, Ministry of Health and Family Welfare and State/UT Governments for their enormous efforts and inspiring leadership. I would also like to thank the development partners and civil society partners who have provided their relentless support to the programme to achieve its targets.

Let's unite to End TB!

Dr. K.S. Sachdeva

ABBREVATIONS

ACF	Active Case Finding
ACSM	Advocacy, Communication and Social Mobilization
AIDS	Acquired Immune Deficiency Syndrome
AIIMS	All India Institute of Medical Sciences
ANSV	Annual Negative Slide Volume
ART	Anti-Retroviral Therapy
ARTI	Annual Risk of Tuberculosis Infection
ASHA	Accredited Social Health Activist
CGHS	Central Government Health Scheme
CHAI	Clinton Health Access Initiative
CHAI	Catholic Health Association of India
CHC	Community Health Centre
CTD	Central TB Division
DALYs	Disability Adjusted Life Years
DBS	Domestic Budgeting Source
DBT	Direct Benefit Transfer
DDG	Deputy Director General
DGHS	Director General of Health Services
DMC	Designated Microscopy Centre
DOTS	Directly Observed Treatment Short Course
DRS	Drug Resistance Surveillance
DRTB	Drug Resistant Tuberculosis
DST	Drug Susceptibility Testing
DTC	District Tuberculosis Centre
DTO	District Tuberculosis Officer
E	Ethambutol
EPTB	Extra-pulmonary Tuberculosis
EQA	External Quality Assurance

FIND	Foundation for Innovative New Diagnostics
GFATM	The Global Fund to Fight against AIDS, Tuberculosis and Malaria
GMSD	Government Medical Store Depot
GoI	Government of India
H	Isoniazid
HBCs	High Burden Countries
HIV	Human Immuno Deficiency Virus
HRD	Human Resource Development
ICMR	Indian Council of Medical Research
ICT	Information and Communication Technology
ICTC	Integrated Counselling and Testing Centre
IDSP	Integrated Disease Surveillance Project
IEC	Information, Education and Communication
IMA	Indian Medical Association
IPT	Isoniazid Preventive Therapy
IRL	Intermediate Reference Laboratory
JMM	Joint Monitoring Mission
KAP	Knowledge, Attitude and Practices
LT	Laboratory Technician
MDGs	Millennium Development Goals
MDRTB	Multi Drug Resistant
MIS	Management Information System
MO	Medical Officer
MoHFW	Ministry of Health and Family Welfare
MOTC	Medical Officer-Tuberculosis Control
MoU	Memorandum of Understanding

NACO	National AIDS Control Organisation
NACP	National AIDS Control Programme
NCDC	National Centre for Disease Control
NEP	New Extra Pulmonary
NGO	Non-Governmental Organisation
NIRT	National Institute of Research in Tuberculosis
NJIMOD	National Jalma Institute of Mycobacterial and Other
NRHM	Diseases National Rural Health Mission
NRL	National Reference Laboratory
NSN	New Smear Negative
NSP	New Smear Positive
NSP	National Strategic Plan
NTF	National Task Force
NTI	National Tuberculosis Institute
NTP	National Tuberculosis Programme
NUHM	National Urban Health Mission
OR	Operational Research
OSE	On-Site Evaluation
PATH	Program for Appropriate Technology in Health
PHC	Primary Health Centre
PHI	Peripheral Health Institution
PLHIV	People Living with HIV and AIDS
PP	Private Practitioner
PPM	Public-Private Mix
PSU	Public Sector Unit
PTB	Pulmonary Tuberculosis
PWB	Patient-Wise Box
QA	Quality Assurance
R	Rifampicin

RBRC	Random Blinded Re-Checking
RCH	Reproductive and Child Health
RNTCP	Revised National Tuberculosis Control Programme
S	Streptomycin
SDGs	Sustainable Development Goals
SDS	State Drug Store
SHGs	Self Help Groups
SOP	Standard Operating Procedure
SPR	Slide Positivity Rate
STC	State TB Cell
STDC	State Tuberculosis Training & Demonstration Centre
STF	State Task Force
STLS	Senior TB Laboratory Supervisor
STO	State TB Officer
STS	Senior Treatment Supervisor
TB	Tuberculosis
The Union	International Union Against Tuberculosis and Lung Disease
TU	Tuberculosis Unit
UDST	Universal Drug Susceptibility Test
UHC	Urban Health Coverage
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
WHO	World Health Organization
WVI	World Vision India
XDR-TB	Extensively Drug Resistant TB
Z	Pyrazinamide
ZTF	Zonal Task Force

CONTENT

Executive Summary

The year 2018 was another milestone in the progress towards ending TB in India, from leaping advances in several areas. We are the closest ever to covering all TB cases through the on-line notification system (NIKSHAY) in the country. With the aim of universal access to free diagnostics and treatment services, state-of-the-art diagnostic tests and quality assured drugs have been extended to all patients seeking TB care. We have put in place new technologies in terms of IT, adherence monitoring, and are scaling it up across the country. Private sector engagement has been elevated as one of the highest priorities in the program and the PPSA (Patient Provider Support Agency) model of engagement has been scaled up to 48 cities throughout the country. Last year we saw one of the fastest implementations of the Direct Benefit Transfer Schemes in the country, such as the Nikshay Poshan Yojana (Nutrition support for TB patients), where benefits amounting to Rs. 240 cores have been disbursed. In addition to all the above, several states have developed specific strategies to take forward TB elimination initiatives.

The estimated TB incidence in India is 27 lakh. In 2018, RNTCP was able to achieve a notification of 21.5 Lakh. This is a 16% increase as compared to 2017 and the highest so far. Of the total notification, 25% (5.4 lakh) cases was from the private sector; a 40% increase from last year. Among the notified, treatment was initiated for about 19.1 lakh cases (~90%), across both public and private sectors. This Indicates increased engagement with private sector providers and patients seeking care from them. The characteristics of the affected population largely remain similar with majority of the affected individuals being in the age group of 15-69 years and 2/3rd being males. HIV co-infection among TB was nearly fifty thousand cases amounting to TB HIV coinfection rate of 3.4%.

The improved notification is dependent on increased access to TB diagnostic services. The laboratory network of RNTCP includes 6 National reference laboratories, 31 Intermediate reference laboratories. 48 Certified laboratories provid Liquid Culture and DST services; 62 certified laboratories provide LPA services. 1180 CBNAAT facilities developed at district and sub district levels offer decentralised testing for TB and Rifampicin resistance. In 2018, the TrueNat test, an indigenously developed technology under the “Make in India” initiative, was deployed in about 350 PHCs. This marked the further decentralisation and increased access to highly sensitive molecular tests with augmented capacity for resistance testing at the peripheral level.

Building on this large laboratory network we have implemented Universal Drug Susceptibility Testing (UDST), whereby Drug Resistance and Drug Susceptibility tests were made available throughout the country free of cost to the patient. Last year, about 24 lakh CBNAAT tests were performed UDST was offered to approximately 60% of those eligible. With this intervention, approximately 66,000 Rifampicin Resistant cases were detected early. With second line LPA, 23,000 patients with additional resistance to second line drugs were detected which included 3794 XDR TB patients. Further, with First Line LPA, about 13,000 patients were detected with resistance to Isoniazid.

In 2017, India also took a bold decision to actively search for TB among vulnerable and marginalised groups. Under active case finding activities nearly 19 crore population have been screened, yielding an additional notification of 47,307. To facilitate improved access to diagnostic facilities during the active search in remote areas, 80 Mobile TB Diagnostic Vans have been made available under the programme.

In order to manage drug resistant TB, treatment centres have been expanded with decentralisation to district level, newer drugs introduced, duration of treatment shortened and drug safety monitoring strengthened. From the 148 nodal DRTB centres at the state level, care has been decentralised to 509 district level DRTB centres. Additionally treatment initiation is made more patient friendly as it is possible to initiate treatment on an Out-Patient basis. Shorter regimen for MDRTB, where treatment duration has been shortened by half, has been introduced across all states in the country, benefitting nearly 16000. Regimens, with Bedaquiline and Delamanid, have been made available across the country, with nearly 3000 patients enrolled. Delamanid use in children from 6 to 17 years has also been introduced.

TB co-morbidities, especially HIV, Diabetes and tobacco have been prioritised. The single window delivery of TB and HIV services for all People Living with HIV (PLHIV) receiving care in the ART centres have been streamlined with improved coverage. Over 90% of PLHIV are being screened in ART centres for TB symptoms, and nearly 6 lakh PLHIV have been given access to rapid molecular testing via CBNAAT for TB diagnosis. Nearly 1 lakh TB/HIV patients were initiated on daily drug regimen nearly 5 lakh PLHIV were initiated on TB preventive therapy till December 2018. These interventions along with the joint collaborative activities helped in reducing TB related fatalities by 82% (from baseline 2010). RNTCP has expanded its collaboration with Diabetes and Tobacco control programmes and is being further strengthened with cross linkage of services. Nearly 36% and 27% of the TB patients in public sector have been screened for Diabetes & Tobacco usage respectively and linked to appropriate services through the Non-Communicable Disease Program and the Tobacco Control Program.

Direct Benefit Transfer (DBT), which entailed targeted and transparent delivery of benefits to citizens through effective use of technology has been implemented through four schemes of RNTCP namely Nikshay Poshan Yojana (NPY), Honorarium to Treatment Supporters, upport to TB patients from Tribal areas and Incentives for Notification and treatment outcomes to Private Providers and Informants. During the period from April 2018 to March 2019, more than 15 lakh beneficiaries have received benefits of 240 Crores in total under Nikshay Poshan Yojana, through 20 lakh transactions. The treatment supporters were paid a total of Rs. 17 Crores as honorarium. Patients from tribal areas received a total of Rs. 1.8 Crores as treatment support. Approximately Rs. 1 Crore were paid to private providers as incentives for notification.

RNTCP is supported by many development partners such as USAID, BMGF, FIND, CHAI, CHRI, The UNION, REACH, GHS, Abt. Associate,

WHP, KHPT, and PSI. They work in tandem with the program for generating evidence, strengthening existing services and in testing, implementation and scale up of newer interventions.

To End TB by 2025, expansion of TB services and addressing determinants of TB that are beyond health through a multi-sectoral approach is necessary. RNTCP has established a national level committee including membership from 17 Ministries. The Department of Post and the Department of Financial Services have been supporting expansion of TB services and formal engagement processes have been underway with the Department of Ex-Servicemen Welfare and Ministry of Labour & Employment. Effective program implementation is also dependent on local accountability and ownership, by the close involvement of the civil society, community and Panchayati Raj Institutions. For such a community-led response to address the challenge of TB, National, State and District TB Forums have been formed. In addition to the National level TB Forum, 22 States and 351 District have formed till date. TB champions/ Kshay veers are being recognised and engaged for effective engagement of civil society and affected communities.

The last two years have seen a number of bold policies and interventions aligned with the ambitious National Strategic Plan for ending TB in India. The next two years will be focused towards streamlining, strengthening and intensifying these to bring about the most optimum and impact.

Chapter 1

Structure of Revised National Tuberculosis Programme

Hon'ble Minister of Health & Family Welfare & Minister of State reviewed the Revised National TB Control Program on 4th June 2019

Chapter 1

Structure of Revised National Tuberculosis Programme

Revised National TB Control Programme is a Centrally Sponsored Scheme being implemented under the aegis of National Health Mission with resource sharing between the State Governments and the Central Government.

A. National Level

At the central level, the Revised National TB Control Programme is managed by the Central TB Division (CTD), the technical arm of the Ministry of Health and Family Welfare (MoH&FW). CTD and its establishment has been placed under the Department of H&FW. The Additional Secretary & Director General (RNTCP & NACO) is overall in-charge of the programme. The respective Joint Secretary from the administrative arm of the MoH&FW looks after the financial and administrative aspects of the programme. A Deputy Director General-TB (DDG-TB), is the head of the CTD, leading technical implementation of RNTCP nation-wide. The CTD is assisted by 4 national level institutes, namely the National TB Institute in Bengaluru, the National Institute of TB and Respiratory Disease in New Delhi, the National Institute of Research in Tuberculosis in Chennai and the JALMA Institute of Leprosy and other Mycobacterial Diseases, Agra. The Central TB Division has Addl. DDG, Joint Director, and Dy. Directors, assigned to managing the various areas of programme activities.

a. Committees at National level

Altogether 14 committees have been constituted at national level to provide technical guidance for programme implementation. These are:

1. National Laboratory Coordination Committee: A central Laboratory Coordination Committee has been constituted with the representatives of the six RNTCP National Reference Laboratories, CTD , WHO, India and other Partners as its members. This committee works as a task force to guide and oversee laboratory related activities of the programme.

2. National Technical Expert Group on Diagnosis: National Technical Expert Group (NTEG) on Diagnosis under Revised National Tuberculosis Control Program was constituted to provide expert advice to the program on diagnosis of all forms of TB. It provides expert opinion of all forms of TB including Pediatric, Extra-pulmonary and Drug Resistant TB. It is aimed at offering regular update on diagnostic policies in line with international guidelines and WHO recommendations for TB including DR-TB in public as well as private sector.

3. National Technical Expert Group on Treatment: RNTCP has expanded its scope of activities and treatment regimens multifolds in past several years. Rapid changes are also happening in WHO guidelines for the management of TB & DR-TB. A 'National Technical Expert Group (NTEG) on treatment of Tuberculosis under Revised National Tuberculosis Control Programme' is constituted to provide expert advice to the programme on management of all forms of TB.

4. National TB-Comorbidity Coordination Committee: Constituted under the chairmanship of Secretary (Health), MoHFW with the objective of strengthening co-ordination mechanisms, reviewing

and adopting policies for strengthening implementation, Suggesting strategies for roll out and scale up of activities aimed at minimizing mortality and morbidity and review implementation of joint TB-HIV, TB-DM, TB-COPD, TB-Tobacco, TB-Nutrition and other co-morbidity activities under NACP-RNTCP, NPCDCS-RNTCP, NTCP-RNTCP, WCD-RNTCP and other relevant programs co-ordination.

5. National Technical Working Group on TB – Comorbidities – Formed under the chairmanship of Dr Naveet Wig (Professor, AIIMS New Delhi) with the objective of strengthening co-ordination, review and plan collaborative activities, develop strategies for rollout and scale up of interventions, Strengthening mechanism for joint supervision and monitoring and Identify key areas for research and facilitate conduct of Operational research on TB-HIV, TB-DM, TB-COPD, TB-Tobacco, TB-Nutrition and other related co-morbidities under NACP-RNTCP, NPCDCS-RNTCP, NTCP-RNTCP, WCD-RNTCP and other relevant programs co-ordination.

6. Technical working group on Latent TB Infection management in India – Committee formalized under the chairmanship of Dr Ranadeep Guleria (Director, AIIMS New Delhi with the aim to review the existing guidelines, prepare and finalize a technical and operational guideline. It will contribute to regular updating the evidence based, national policy and guidelines and also to identify and prioritize research needs and oversee implementation of guidelines for diagnosis and treatment of Latent TB Infection (LTBI) in India.

7. National Technical expert group on Pediatric TB - Committee established under the chairmanship of Dr Varinder Singh (Director Professor, Dept of Pediatrics, LHMC, New Delhi) with the goals of finalizing the revised guidelines, contributing to regular updating the evidence based, national policy and guidelines, identifying and prioritizing research needs and oversee implementation of the guidelines for Pediatric TB management under RNTCP

8. Technical expert committee on TB in Women including Gender issues – Committee constituted under the chairmanship of Dr Ashok Kumar (Ex. Addl. Director General (HAG), Central Health Services, Ministry Of Health & FW, Govt. Of India (GOI)) with the purpose of finalizing collaborative framework for TB and Women in India, framework for ensuring gender-sensitive and gender-responsive approaches to TB and Identifying research needs in the above areas

9. National Task Force for Medical Colleges: A National task Force has been formed for effective implementation of RNTCP in Medical Colleges. DDG (TB) is the Member Secretary of the NTF and the members are from CTD, each Zonal Task Force, the National Institutes and WHO. The main task of NTF will be to provide leadership and advocacy, coordination, monitoring, and policy development on issues related to effective involvement of medical colleges in RNTCP.

10. National Operational Research Committee: The National Standing Committee comprises individuals and institutional members, including heads of prominent institutes and eminent persons

from the centers of excellence in the field of medicine and research, Central TB Division and technical agencies. This committee provides technical guidance to CTD on the RNTCP OR, provides expertise to identify OR priority areas for commissioned research. They also serve on panels of experts for the review of commissioned research activities and technically review and approve proposals submitted by State/Zonal OR Committees to the National Level

11. National Technical Working Group (NTWG) on Private Sector Engagement: The NTWG comprises individuals and institutional members, and eminent persons from the field of public private partnership, management, private sector, Central TB Division and technical agencies. This committee provides technical guidance to CTD on the public private partnership, provides expertise to develop strategies for reaching to TB patients who seek care outside public sector.

12. Inter-ministerial Co-ordination Committee for TB Elimination: The Inter-ministerial Coordination Committee for TB Elimination has been formed to forge convergence at policy, programme and implementation level across various ministries of the Government for an accelerated multi-sectoral response towards Ending TB.

13. National TB Forum: To execute plan of meaningful involvement of community and civil society "National TB Forum" has been constituted under the chairpersonship of the Secretary, Health, Government of India for engagement of community and civil society for increasing participation of community at large in TB control programme, to reach the unreached and to support TB patients in the course of their illness through a community-based response.

14. National ACSM Committee: ACSM committee comprises of experts in the field of mass communication, journalism and has vast experience in the field of TB and other related field. The committee has been constituted to provide inputs on creatives developed under Advocacy Communication & Social Mobilization.

B. State Level

At the State level, State Health Secretary and MD-NHM are responsible for programme implementation in the State. The State Tuberculosis Officer (STO) is responsible for the planning, training, supervising and monitoring of the programme in their respective states as per the guidelines of the State Health Society and CTD. The STO, based at the State TB Cell, coordinates with the CTD and the respective districts for execution of their duties with regards to RNTCP.

The **State TB Cells** have been provided with contractual staff in addition to the general health system staff, to carry out its functions. It includes Medical Officer STC, Assistant Programme Officer, State HIV-TB Coordinator, State DR-TB Coordinator, State PPM Coordinator, State ACSM Officer, Technical Officer for Procurement and Logistics, State Accountant, and NIKSHAY Operator.

State TB Training and Demonstration Centre (STDC) supports the State TB Cell in most of the larger states. The STDC has 3 units: a training

unit; supervision and monitoring unit and an Intermediate Reference Laboratory (IRL). **State Drug Store** (SDS) has been established for the effective management of anti-TB drug logistics.

At the State level, the STDC is supported by the State TB Forums for community engagement, State level PMDT committee for implementation guidance and review of PMDT, State level Technical Working Group for HIV-TB for smooth HIV-TB coordination. Nodal Drug Resistant TB centres are established for management of drug resistant TB with newer drugs, adverse drug reactions and as referral unit.

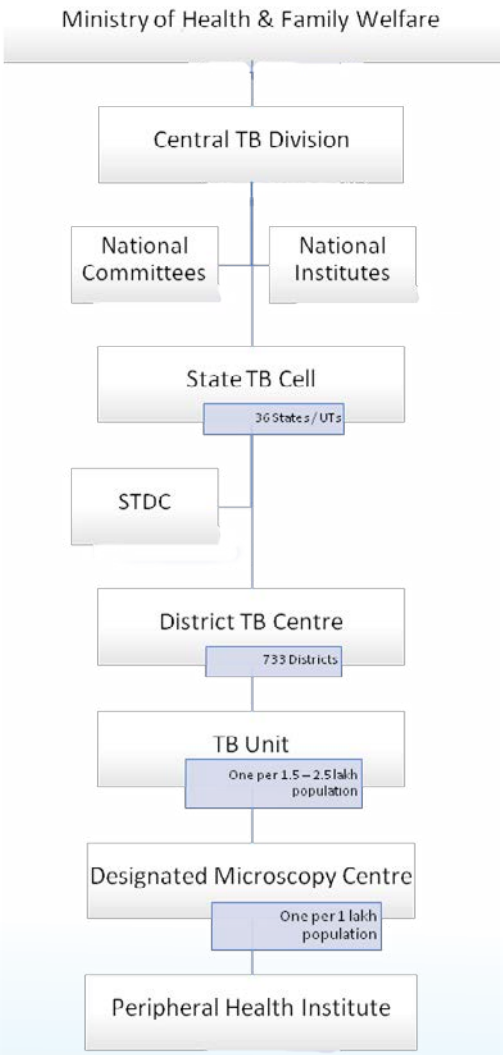
C. District Level

The district is the key level for the management of the primary health care services. The Chief District Health Officer (CDHO) / Chief District Medical Officer (CDMO), or an equivalent functionary in the district, is responsible for all medical and public health activities, including TB control. The District Tuberculosis Centre (DTC) is the nodal point for all TB control activities in the district. The District TB Officer (DTO) at the DTC has the overall responsibility of management of RNTCP at the district level as per the programme guidelines and the guidance of the District Health Society. The DTO is assisted by contractual staff provided by RNTCP which includes District Programme Coordinator, District PPM Coordinator, District DR-TB and HIV-TB Coordinator, District NIKSHAY Operator.

D. Sub-District Level (Tuberculosis Unit Level)

Tuberculosis Unit (TU) is a programme management unit in RNTCP at the sub-district level. The TU consists of a designated Medical Officer-Tuberculosis Control (MO-TC) who does TB work in addition to other responsibilities. There are also two full-time RNTCP contractual supervisory staff exclusively for tuberculosis work - a Senior TB Treatment Supervisor (STS) and a Senior TB Laboratory Supervisor (STLS). The TU is generally aligned with the blocks in the district.

ORGANOGRAM OF RNTCP



Chapter 2

Burden of Disease

Hon'ble Minister of Health & Family Welfare & Minister of State reviewed the Revised National TB Control Program on 4th June 2019

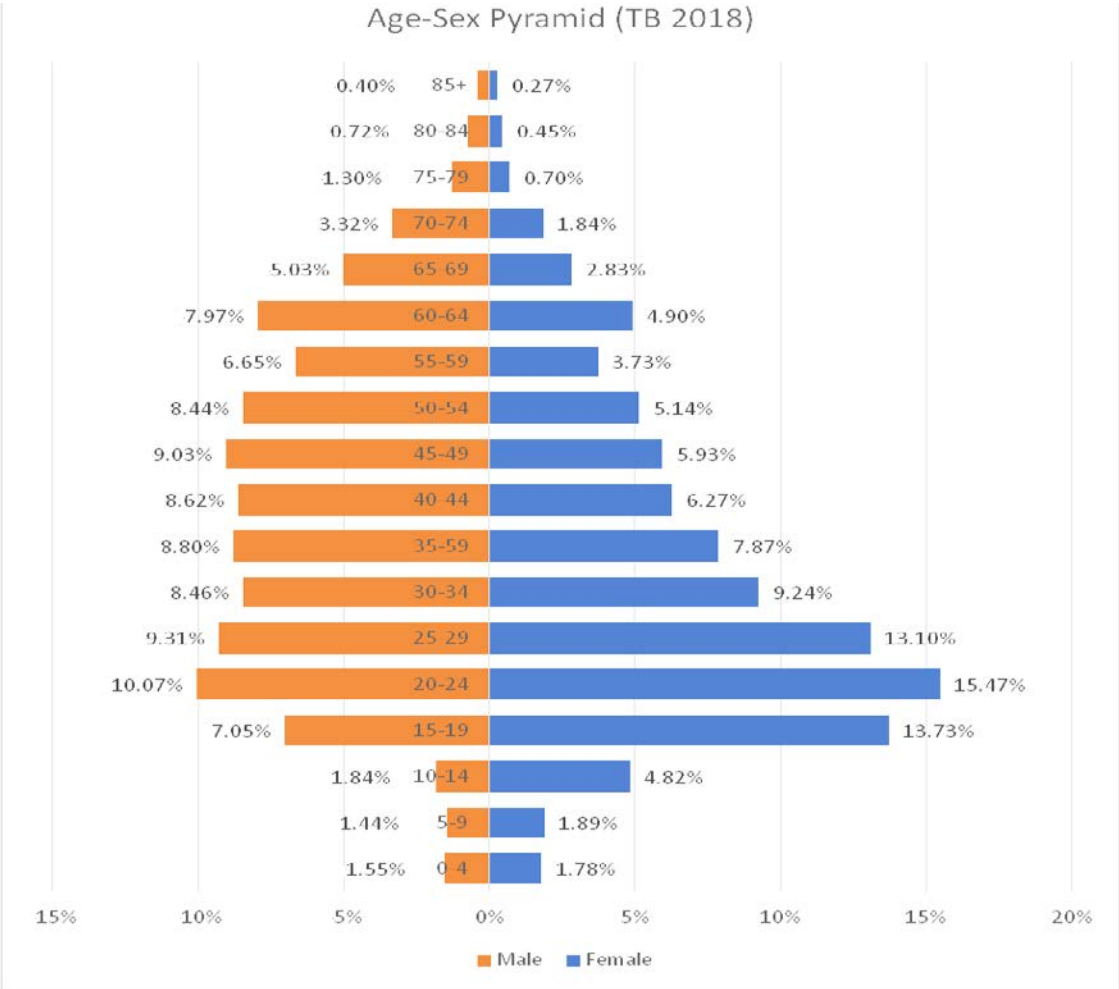
Chapter 2

Burden of Disease

In 2018, India was able to achieve a Total Notification of 21.5 Lakh TB cases of which 25 % was from the private sector. Majority of the TB burden is among the working age group. The 89% of TB cases come from the age group of 15-69 years. About 2/3 of the TB cases are Males.

Uttar Pradesh, with 17% of population of the country, is the largest contributor to the TB cases in with 20% of the total notifications, accounting to about 4.2 Lakh cases (187 cases/ lakh population).

Two states Delhi and Chandigarh stand apart from all other states & UTs with regard to Notification rate relative to their resident population. Their annual notification is 504 cases/lakh population and 496 cases/lakh population. This is because patients residing in many other parts of the country are diagnosed/ notified from these two UTs.



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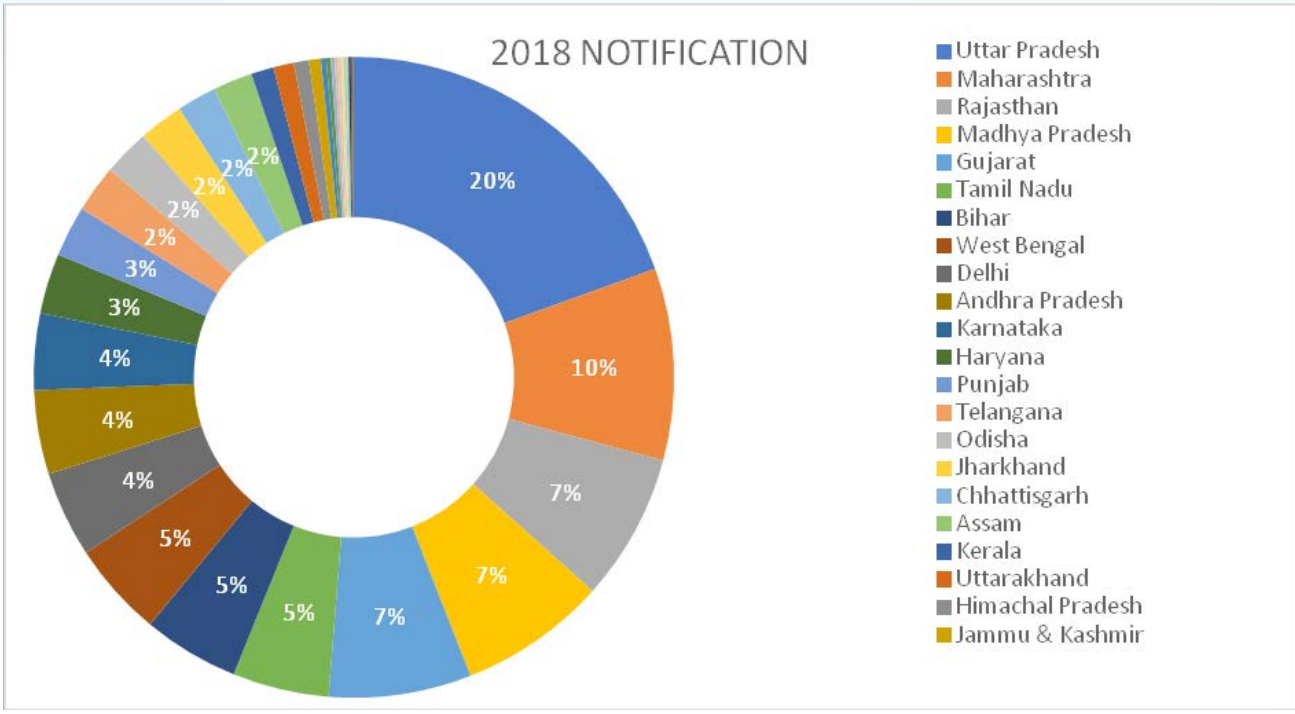

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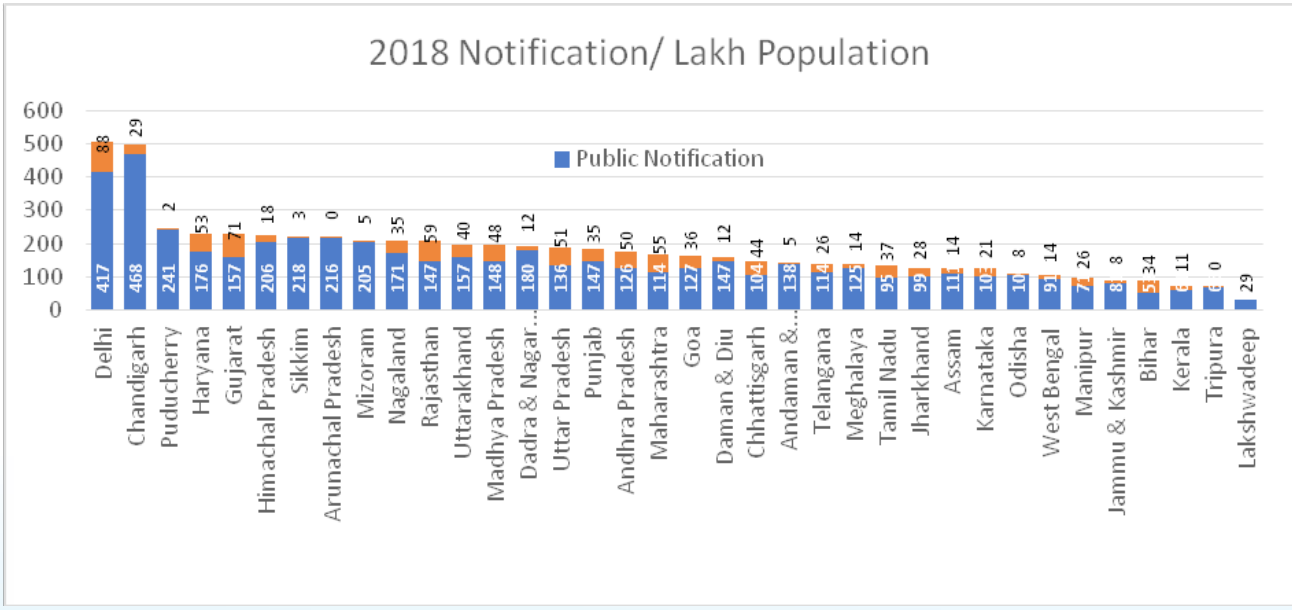


Chapter 3

Diagnostic Services under RNTCP

Digital Health Technologies for World Free of TB Workshop in New Delhi (24th - 26th July 2018)

Chapter 3

Diagnostic Services under RNTCP

Background:

Early and accurate diagnosis followed by prompt appropriate treatment is cornerstone for ending TB. The TB laboratory network has been expanded to cover the entire country. Laboratory services are provided free of costs to patients attending public health facilities as well as for those referred from the private sector. The Programme has promoted partnership with the private sector and has certified private sector and NGO laboratories to provide quality assured services to all patients. Quality assurance is provided by a 3-tiered system comprising of Laboratories at National, State and District levels. Universal drug susceptibility testing for Rifampicin resistance has been implemented throughout the country. Intensified search for TB among key population groups has also been prioritized by RNTCP.

National Policy for diagnosis:

Drug Sensitive TB: Direct sputum smear microscopy by Ziehl-Neelsen acid-fast staining / Fluorescence Microscopy are the primary tools for diagnosis of patients with infectious tuberculosis presumed to be drug sensitive and also for monitoring their response to treatment.

Diagnostic services for PLHIV, Children and EPTB

CBNAAT is also offered for TB diagnosis in key populations such as PLHIV, Children and EP-TB cases, and also to smear negative patients who have an X ray suggestive of TB and patients referred from the private sector for early diagnosis and initiating appropriate treatment.

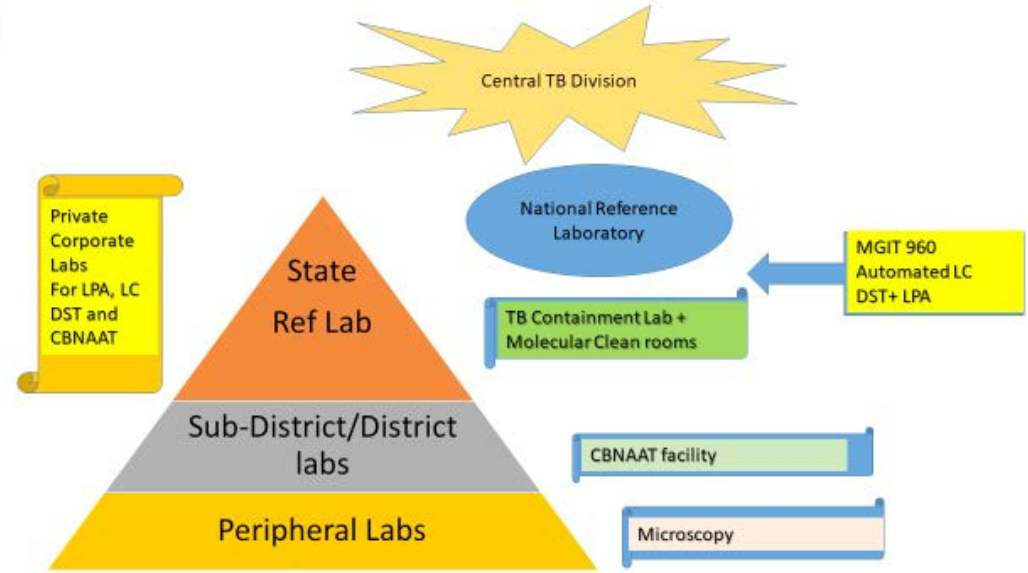
Drug Resistant TB: Patients at risk of Multi-Drug Resistant TB (MDR-TB) as defined by the programme are diagnosed by using WHO endorsed rapid diagnostics (WRD) like Cartridge Based Nucleic Acid Amplification Test (CBNAAT) / Line Probe Assay (LPA). Response to treatment for MDR is monitored by follow up culture on Liquid Culture Mycobacteria Growth Indicator Tube (MGIT) system (critical follow-ups requiring clinical response) and Lowenstein-Jensen medium for non-crucial follow-ups. Identification of Mycobacterial species is performed by commercial Immunochromatic test (ICT).

MDR-TB diagnosis is offered to all patients as well as patients who remain smear positive on any follow up including failures of first line treatment and those at high risk such contacts of MDR-TB cases. Since there is no separate regimen for previously treated cases, all such cases are offered LPA for diagnosis of H resistance in addition to Rif resistance.

Universal Drug-Susceptibility Testing (U-DST): Testing all TB patients for resistance to at least Rifampicin constitutes U-DST. This is achieved by offer of CBNAAT to all patients diagnosed as TB. U-DST has been rolled out across the country since January 2018.

Structure and functions of RNTCP Laboratory network:

The RNTCP laboratory network is composed of a three tier system. These are National level Reference Laboratories (NRLs), State level Intermediate Reference Laboratories (IRLs), and peripheral level laboratories as Designated Microscopy Centres (DMCs).



At the top of laboratory network hierarchy are Six designated NRLs:

1. National Institute for Research in Tuberculosis (NIRT), Chennai;
2. National Tuberculosis Institute (NTI) Bengaluru;
3. National Institute for Tuberculosis and Respiratory Diseases, New Delhi;
4. National Japanese Leprosy Mission for Asia (JALMA) Institute of Leprosy and Other Mycobacterial Diseases (NJIL&OMD), Agra;
5. Bhopal Memorial Hospital and Research Centre (BMHRC), Bhopal and
6. Regional Medical Research Centre (RMRC), Bhubaneswar. NIRT, Chennai in addition to being one of the NRLs is also one of the WHO designated supranational reference laboratory (SNRL) for the South-east Asia Region and NITRD-Delhi is Center of Excellence with Global Laboratory Initiative (GLI). All NRLs report to Central TB Division.

Laboratory Network	
Level	**Number of certified laboratories**
National Reference laboratories	6
State level laboratories	48 for LC DST and 62 LPA
Private /corporate Labs	19 (LPA/LC DST and CBNAAT)
District level CBNAAT laboratories	1180
Peripheral microscopy centres	More than 16000

NRLs assist the programme:

- on technical issues,
- to develop laboratory guidelines, SOPs,
- conduct trainings to state level intermediate reference laboratories,
- conduct annual on-site evaluation / supervisory visits to laboratories for microscopy,
- Culture and DST, and for providing support for overall laboratory quality improvement. States are distributed among NRLs for this purpose. NRLs are quality assured through the SRL coordinating laboratory at Antwerp, Belgium. NRLs also participate in evaluation of newer diagnostic technologies and research activities.

There is at least one IRL per major State, situated in the campus of State Training and Demonstration Centres (STDC) or an identified location in a State Government Hospital. The IRLs were initially set up to function as a Culture and DST facility for the conduct of State wise DRS and to execute external quality assurance programme (EQA) for smear microscopy in the State. Each IRL conducts On-Site Evaluation visits to districts which also includes panel testing of Senior TB Laboratory Supervisor (STLS) at least once a year and ensures proficiency of staff performing smear microscopy by providing training to laboratory technicians and STLS. IRLs also provide technical support to C & DST laboratories in Medical College, Private and NGO laboratories under RNTCP. The IRL Microbiologists also visit CB-NAAT sites across the State, monitor performance and provide feedback for quality testing and reporting.

Diagnostic services are provided by NRLs, IRLs as well as Culture & DST laboratories across India which have been certified for performing DST by various technologies such as Solid Culture / Liquid Culture as well as for Molecular tests such as LPA / CBNAAT.

In addition to IRLs, the programme has also involved the Microbiology Department of Medical colleges for providing diagnostic services for drug resistant Tuberculosis, Extra-Pulmonary Tuberculosis (EP-TB) and research.

Culture and DST services are also available outside the RNTCP, in NGO and the Private sectors. The programme has been proactively engaged in the inclusion of these facilities, through provision of RNTCP certification for culture and DST for these labs, promoting the public-private partnerships and availing TB culture and DST services for the programme through purchase of lab services through partnership schemes.

Standalone CBNAAT facilities have been established at District levels. The District TB Centre (DTC) is the nodal center for all TB control activities of a district. The DTO organizes and manages laboratory service at all DMCs and conducts EQA activities that include On-Site Evaluations and Random Blinded Rechecking (RBRC) procedure. The maintenance of a regular supply of good quality laboratory consumables and reagents to all DMCs in the district is also the responsibility of the DTO.

At the peripheral level, networks of RNTCP designated microscopy centers (DMCs) are functional under District TB centres and supervised by sub-district TB units.

Quality Assurance (QA) of Laboratory Services:

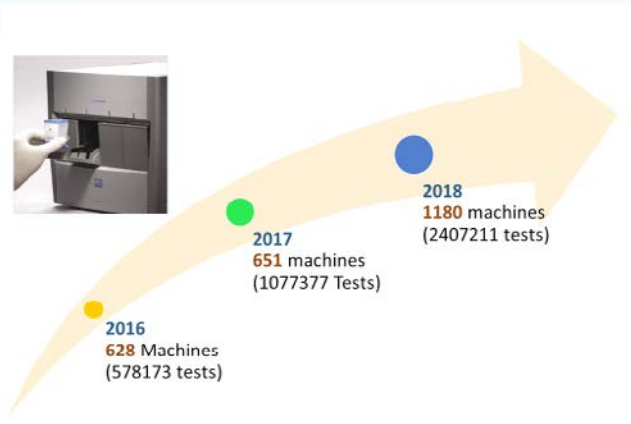
The programme has a very well established quality assurance (QA) mechanism which follows the WHO system of hierarchal control from the highest level of National Reference laboratories to State Intermediate Reference labs (both IRL and CDST), to CBNAAT at the district/sub district level and then designated microscopy centres at the most peripheral level. The QA has all elements of internal quality control, on-site evaluation and external quality control. The EQA (External Quality Assurance) for DST is through structured panel testing and retesting exercises. The proficiency testing schedule is annual in nature with biennial certification process for all technologies. All certified laboratories have successfully cleared the proficiency test conducted in the year 2018.

Laboratory performance (2018):

- **CBNAAT:**

Scale-Up of Facilities:

There has been a significant scale up of CBNAAT facilities in the past three years. 1180 CBNAAT machines have been deployed, across all parts of the country. 45 of them have been mounted on mobile vans and supplied to the States for improving case finding (Annexure I- State wise CBNAAT performance in 2018).



Performance (2018):

The number of tests performed has increased over each quarter of 2018 reaching 2407211 tests in Q4 from 447721 tests in Q1. TB has been detected in 30% of tests performed. 8 % Rifampicin resistance was detected among them.

CBNAAT testing in Key Population:

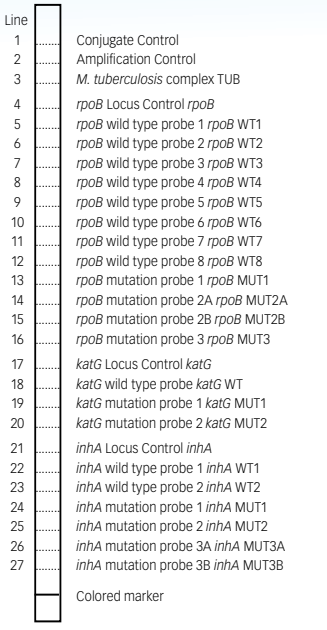
CBNAAT testing is offered for diagnosis of TB in Key Population including PLHIV, Children, Extra Pulmonary TB and has also extended to the private sector. The testing performed in 2018 included 9.3 % for EP TB, 9.1% for PLHIV and 7.4% for children. 8.2% of the tests conducted were referred from the private sector.

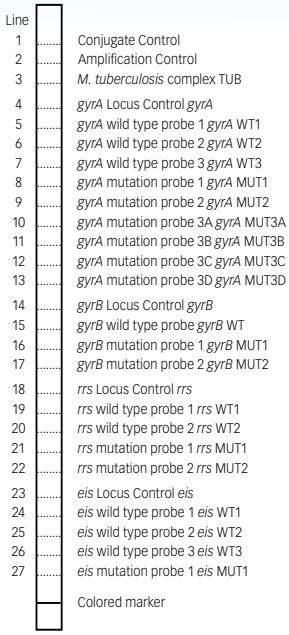
B. Line probe Assay –LPA:

* "Line Probe Assay used to identify M. Tuberculosis complex in smear positive samples along with related drug resistant to Rifampicin and INH as well as FQ and SLI drugs. LPA can be used for testing culture isolates (indirect) as well as direct testing of AFB smear microscopy specimens (FL LPA)

and both smear positive and smear negative specimens (SL LPA). FL LPA will be performed on specimen from patients detected as RS TB and SL LPA will be performed on specimens from patients detected as RR TB".

In the year 2018, 200876 first line LPA tests were conducted across the country, and 6% among them were detected as MDR. Further, 59933 Second Line LPA tests were also conducted. Fluoroquinolone class resistance was detected in 29.6%, second line injectable class resistance was observed in 1.5% of cases and 6.3% were detected as XDR TB.





FL- LPA

No. of test No of sensitive

No. of tests conducted	H & R Sensitive	H Resistant	R Resistant	MDR TB
200876	159488(87%)	13483(7.3%)	1900(1.03%)	10822(6%)

SL- LPA

No. of tests conducted	FQ & SLI Sensitive	FQ Resistant	SLI (Second line Injectable Drugs) Resistant	Low level Kanamycin Resistant	XDR TB
59933	29368(49%)	17797(29.6%)	880(1.5%)	719(1.1%)	3794(6.3%)

C. Liquid Culture DST:

245355 Liquid Cultures and 18887 DSTs were performed in the year 2018. The details are shown in the table below. (Annexure II – lab wise performance of LPA, Liquid Culture and DST)

The TrueNAT test has been developed by the Indian firm MolBio Diagnostic Pvt. Ltd".

TrueNat, a new indigenous diagnosis platform was validated by ICMR. It was compared with other tests such as Xpert, LPA and Culture. Subsequently, operational feasibility of TrueNat testing was carried out at 100 Designated Microscopy Centres in 50 districts of the country. Based on the findings of the studies, ICMR recommended the use of TrueNat for diagnosis of TB and for detecting resistance to Rifampicin.

Liquid Culture performed	SL DST's conducted	No. of MDR + FQ resistance detected	No. of MDR + SLI (Second line Injectable Drugs) resistance detected	No. of XDR detected
245355	18887	5565(29.5%)	1118(5.9%)	1456(7.7%)

TrueNAT:

"The TrueNat TB test is a new molecular test that can diagnose TB in one hour as well as testing for resistance to the drugs Rifampicin.

In view of the recommendations of ICMR and the amenability for use of TrueNat in peripheral settings, the Programme Division has planned a phased roll out across the country.

National Reference Laboratories Coordination Committee Meeting:

Central TB Division conducts NRL coordination committee meetings wherein, update on the laboratory issue, newer development, discussions on the findings of On-Site Evaluation visit of IRLs and C & DST laboratories, research study finding, Proficiency Testing status, training needs etc., are deliberate upon.

Two NRL CC meetings were conducted in the current year. Discussions in the NRL CC meetings held on 21st and 22nd May 2018 at NIRT, Chennai, included Laboratory Information Management System, maintenance of laboratory equipment, development of newer laboratories, Quality assurance protocols, performance indicators for laboratories and discordance resolution.

During the NRL CC Meeting held on 10th and 11th January 2019 at NITRD, New Delhi, in addition to carrying forward the deliberations of the previous meeting, updates on the interpretation and reporting guidance on LPA as well as the Critical concentrations for drugs used in the treatment of DR TB were dealt in details. It was also decided to organize workshops for capacity building of the NRLs. A follow up meeting of the Microbiologist of the NRLs was organized at NTI, Bengaluru on 31st January and 1st February 2019, to develop the agenda and to undertake ground work for capacity building.

NRL CC meeting held at NITRD New Delhi

National Technical Expert Group on Diagnosis (NTEG-D):

A National Technical Expert Group on diagnosis of Tuberculosis (NTEG -Diagnosis) was constituted to provide expert advice to the programme on diagnosis of all forms of TB.

The first meeting of NTEG-D was convened on 23rd October 2018 to discuss the findings of the TrueNat Validation and Feasibility studies, Revision of EQA for Sputum Microscopy, HR needs of the Laboratory and AMC of C & DST Laboratory Equipment. Deliberations were also held on the recommendations of NTEG on treatment of TB & its implications on laboratories.

During the second NTEG-D Meeting held on 11th December 2018, in addition to carrying forward the deliberations of the previous meeting, updates on the interpretation and reporting guidance on LPA as well as the Critical concentrations for drugs used in the treatment of DR TB were discussed in detail. Deliberations were also held on use of TB-Loop-Medicated Isothermal Amplification (TB-LAMP) as well as the recommendations of NTEG on Paediatrics and LTBI & its implications on laboratories.

Capacity Building of laboratory Personnel:

National level training programs are organized for laboratory personnel. The details of the training courses conducted in 2018 are given in the table below. A total of 154 laboratory staff from across the country was trained at the National level.

Training course	Number of Batches	Number of Personnel trained
Comprehensive Training Course for Laboratory Personnel	3	28
External Quality Assessment for Sputum Smear Microscopy	3	28
First and Second line LPA	2	15
Liquid Culture & DST	5	46
Preventive Maintenance and Minor Repair Binocular Microscopes	2	37

Newer Initiatives:

Quality Assurance for CBNAAT:

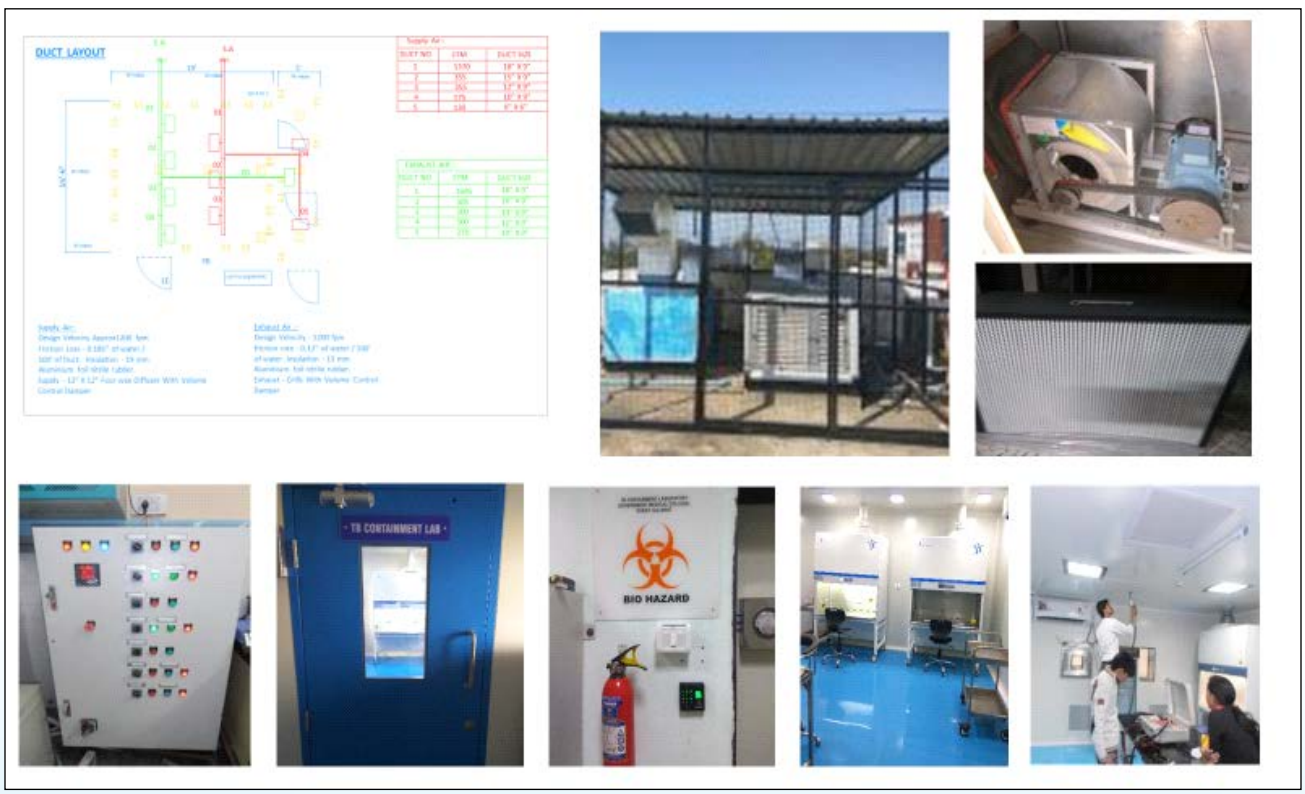
Quality assurance for CBNAAT had been limited only to instrument guided internal controls. The programme division, with support from FIND India and CDC has rolled out External Quality Assurance of CBNAAT using dried spot panels. Coordination of the EQA activity, manufacture and validation of the panels is undertaken by NTI, Bengaluru. In the first Phase 20 Public sector laboratories and 21 private sector laboratories from Mumbai were covered. In the second phase 200 sites were covered.

Expansion of TB C&DST Laboratory Network of RNTCP

Currently, 80 TB C&DST Laboratories certified by RNTCP provide diagnostic services (Annexure III - List of certified laboratories). In addition, 15 TB containment Laboratories with liquid culture facility have been established across the country under the New Funding Model (NFM) The Global Fund Grant. (Annexure IV- List of LC-DST Laboratories established under NFM TGF Grant).

Under the current grant from Global fund, establishment of 20 more TB Liquid Culture & DST Laboratories across the country has been planned. Initial assessment has been completed for 13 of these 20 laboratories. Establishment of laboratories is being supported by FIND, India.

Establishment of TB CDST Laboratories:



Laboratory Information Management System (LIMS)

Programme division with the support of implementing partner Foundation for Innovative New Diagnostics (FIND), has developed and is rolling out a Laboratory Information Management System (LIMS) to establish uniformity in laboratory processes across the network, minimize data-entry errors and to automate notifications by linking to NIKSHAY. The Technical design document and Pilots have been concluded successfully. Hardware has been delivered to 61 Laboratories under RNTCP Network. The software installation is complete at 57 sites and is ongoing at remaining sites.

Genome Sequencing Facilities:

Whole Genome Sequencing facilities have been established at 5 sites namely, NTI Bengaluru, NITRD New Delhi, New Delhi TB Centre (NDTBC), New Delhi, Grant Medical College (GMC) & Sir JJ Group of Hospitals, Mumbai and IRL-STDC, Ahmedabad. In addition, 1 Pyro sequencing facility was established at IRL Guwahati. A stakeholder meeting was organized on 17th & 18th September 2018 in Delhi to deliberate on strategies to make these sites functional and to develop technical protocols. Subsequently, a capacity building workshop with hands-on training for participants from WGS sites was conducted from 24th to 28th September 2018 in Mumbai with technical support from international experts as well as Foundation for Medical research (FMR) and the WHO.

WGS Training at Mumbai

NABL accreditation of laboratories under RNTCP:

As part of the quality assurance mechanism, 11 identified TB C&DST laboratories were supported to achieve the prestigious National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation. Foundation for Innovative New Diagnostics (FIND India), provided technical assistance to these laboratories in strengthening Quality Management System (QMS) documentation and implementation following strict adherence to ISO 15189 standards. All 11 labs successfully applied for and achieved NABL Accreditation by November 2018. These included 5 National Reference Laboratories (NIRT, Chennai; NITRD, Delhi; NJIL & OMD, Agra; BMHRC Bhopal and RMRC Bhubaneswar), 6 Intermediate Reference Laboratories (NDTB Centre Delhi; IRL Lucknow; IRL Guwahati; IRL Nagpur; IRL Cuttack) and 01 TB C & DST Laboratory (SMS Medical College Jaipur).

Sputum Sample transportation using Indian Postal services in Delhi:

Ministry of Health and Family Welfare, Government of India in collaboration with Indian Postal services launched a pilot project in Delhi on 19th September 2018 to determine the operational feasibility of sputum specimen transport using postal services. The Pilot project was completed successfully and the study results showed that all the samples from peripheral centers of Karawal Nagar, New Delhi were delivered to the IRL within a day after booking. Samples were received in good condition. These were packed inside a triple layer and no breakage or soiling of the packages were seen. Indian post delivered the samples in the lab in forenoon enabling the lab to process all the samples on the day of delivery.

The outcome of the pilot study along with relevant guidance documents were provided to all States, for availing facilities of Postal services for sputum specimen transportation from peripheral health facilities to the higher level diagnostic laboratories.

BD-USAID Partnership: Making STRIDES against MDR-TB (Strengthening TB Resistance Testing & Diagnostic Systems)

Becton Dickinson's (BD) Global Health Initiative and the United States Agency for International Development's (USAID) Bureau for Global Health signed a Memorandum of Understanding to collaborate on improving access to and capacity for TB and drug resistant (DR) TB diagnosis within priority countries. The BD-USAID Partnership "Making STRIDES against MDR-TB" has undertaken activities to Strengthening TB Resistance Testing & Diagnostic Systems under RNTCP. This included two-day TOTs at Bengaluru and Agra. Microbiologists from 16 Culture & DST laboratories participated in the ToT course at the NTI, Bengaluru and from 15 laboratories at NJIL & OMD, Agra. In addition, baseline assessment of 4 public sector TB liquid culture laboratories was undertaken with a focus on liquid culture and DST capabilities personnel competency, laboratory practices, infrastructure and documentation. BD Epicenter, has also been installed at NTI, Bengaluru and the demonstration training provided. This will help in management of specimen, test turnaround time and real time monitoring in addition to supporting epidemiology and surveillance.

ToT at NRL JALMA Agra

Chapter 4

Active Case Finding

Active Case Finding in community under Revised National TB Control Program

Chapter 4

Active Case Finding

Active Case Finding to implement systematic screening for tuberculosis among selected high-risk groups

The burden of undetected tuberculosis is large in many settings, especially in high-risk groups which are identified under the country's National Strategic Plan (2017-25).

Mapping of high-risk groups and carefully planned systematic screening for active disease among them has improved early case detection that may help to reduce the risks of tuberculosis transmission, poor treatment outcomes, undesirable health sequelae, and adverse social and economic consequences of the disease.

Active TB Case Finding activities began under Revised National TB Control Programme in 2017. In 2018, a total of 18.93 crore population has been screened yielding 47,307 additional TB cases. Mobile TB Diagnostic Van (45) has been provided to each State for active TB case finding which enables reaching the hard to reach areas for early detection of TB.

Chapter 5

Treatment Services

50th Union World Conference on Lung Health in Hyderabad (30th -2nd Nov. 2018)

Chapter 5

Treatment Services

India contributes 27% of global burden with estimated 27.5 lakhs patients as per Global TB report 2018. First time ever in history of national TB control programme, 16% surge was observed in total TB notification with absolute increase of more than 3 lakhs TB cases.

1. Treatment of Drug Sensitive TB

Patient once diagnosed for TB, standard first line anti TB regimen (FDC) is provided to patients within 7 days of diagnosis. RNTCP has introduced country wide implementation of Universal Drug Susceptibility Test (UDST) in 2018 to provide appropriate regimen for the TB patients. RNTCP has expanded the access of drugs to the patient seeking care in private sector through various mechanism including PPSA.

Policy decision on discontinuation of regimen for previously treated TB patients:

India envisages implementing injection free regimen for all TB patients. As per the recommendation of the National Technical Expert Group (NTEG) on Treatment of TB, the regimen for previously treated TB (erstwhile known as Category II), was discontinued under RNTCP and directives were issued to the states in Dec'18. All previously treated TB patients need to be assessed for presence of Rifampicin and Isoniazid resistance at the time of TB diagnosis and decision on the choice of regimen should be made accordingly. Patient found sensitive to both the drugs are to be continued on Standard First Line Anti TB Regimen (2HRZE/4HRE) as prescribed for new TB patients while patients found to be resistant to Isoniazid or Rifampicin are treated with Isoniazid mono/poly resistant TB regimen or Multi-drug resistant TB regimen respectively. This will benefit more than 2.5 lakhs previously treated TB patients under the public sector.

Performance and Achievement in 2018 (Drug Sensitive TB)

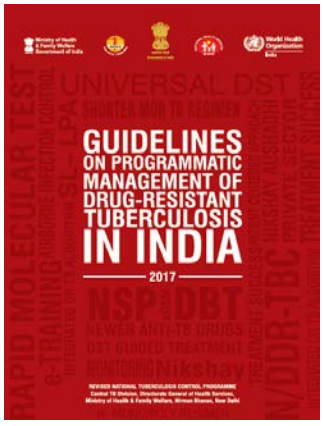
Total notification during 2018 has crossed 21.5 lakhs (which include 5.42 lakhs cases notified from the private sector) of which 19.1 lakhs (88%) patients were initiated on first line standard treatment, public (90%) and private (82%). During 2018, 94.7% of new and 94.4% of previously treated patient were put on treatment.

During 2017, 13,64,562 patients were notified as DSTB patients and the treatment success rate of 79% was achieved amongst them, by the use of standardized treatment regimens, delivered in an uninterrupted manner to patients free of cost with the help of treatment supporter or Information & Communication Technology (ICT) enabled adherence monitoring mechanism like 99 DOTS, MERM, ZMQ V-DOT, etc.

With an ambitious goal of ending TB by 2025 and to have universal access to high quality diagnosis and treatment for all TB patients (including HIV-associated and drug resistant TB) the programme has adapted new treatment strategies in light of changing global treatment guidelines.

2. Programmatic Management of Drug Resistant TB Services (PMDT)

Services under PMDT were introduced in 2007 and nation-wide geographic coverage was achieved by 2013. During 2011-12, there was a systematically planned approach to scale-up of all these facilities with concerted efforts of multiple stakeholders resulting in countrywide coverage by 2013. Rapid molecular tests were introduced in 2009 (line probe assay) and 2012 (CBNAAT) and scaled up in subsequent years to 55 LPA and 1180 CBNAAT sites till end of 2018.



After the implementation of guidelines for PMDT in India - 2017, a network of nodal and district DR-TB centers were established for early and decentralized DR-TB treatment initiation. By the end of 2018, 509 DR TB centres have been made functional which include 149 Nodal DR TB centres, and 360 District DR-TB centres. This decentralization will empower districts to enable the "test and treat approach" to minimize delays in diagnostic and treatment initiation pathways for all MDR/RR-TB patients within their respective district. Tuberculosis strains with multidrug- and rifampicin-resistance (MDR/RR-TB) are more difficult to treat than drug-susceptible TB. This is considered to be one of the major challenges to progress towards the country's targets to end TB by 2025.

Major initiatives and policy decisions for drug resistant TB:

Introduction of Shorter MDR TB regimen

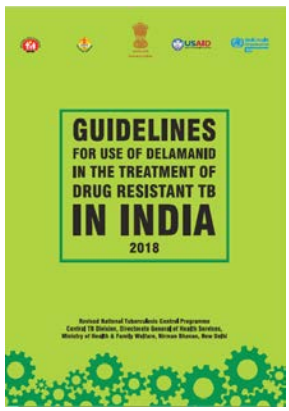
Since December 2017, based on the guidelines on PMDT in India (2017), ground level preparatory activities and trainings for the state and district level staff were completed by majority of the states during 1Q18. On the occasion of World TB Day 2018, the programme introduced shorter MDR TB regimen for country wide implementation. As per the current programme guidelines, Shorter MDR TB Regimen (9-11 months duration) is the first choice of treatment for patients diagnosed with Rifampicin resistance that would be continued or switched to longer regimen, based on second line LPA results. In addition to pulmonary MDR/RR TB patients, extra pulmonary diseases like lymph node TB & plural TB are also eligible for Shorter MDR TB regimen. In 2018, more than 16,488 MDR/RR TB patients were initiated on Shorter MDR regimen in India.

Country wide expansion of Bedaquiline containing regimen

After successful expansion in initially selected 5 states (Assam, Delhi, Gujarat, Maharashtra and Tamil Nadu) during 2016-17, the access to the Bedaquiline containing regimen was expanded to rest of the states in 2018. Introduction of Second Line LPA (SL LPA) during 2018 have reduced the time required to detect additional resistance to Fluroquinolone (FQ) and/or Second line Injectable (SLI) at base line. This resulted in early identification of patients eligible for newer drug containing regimen. In

addition to regular Training of Trainer (TOTs) conducted for guidelines for PMDT in India – 2017, various capacity building sessions were conducted through the ECHO platform for all Nodal DR-TB Centers, wherein experience sharing was done by experts from the National Institute for TB and Respiratory Diseases, New Delhi. Three experience sharing workshops were conducted in collaboration with the USAID funded Challenge TB Project, covering all regions of the country where experts from across India were invited to share their experience in using Bedaquiline, especially its effectiveness, safety and management of its adverse effects. Positive implementation experience of Mumbai on initiation of Bedaquiline containing regimen on out-patient basis was also discussed during these workshops. With these concerted efforts, 2827 patients have been initiated on Bedaquiline containing regimen during 2018, marking three times improvement compared to 2017. There would be significant increase in uptake once the RNTCP will update its policy as per the recommendations of recently released WHO guideline for management of DR TB (Dec'18).

Delamanid is one of two drugs developed specifically for the treatment of MDR/ RR TB in the last 40 years. The programme has implemented Delamanid containing regimen in 7 states (Chandigarh, Karnataka, Kerala, Lakshadweep, Odisha, Punjab and Rajasthan) as per the guidelines for use of Delamanid in the treatment of DR TB under RNTCP (2018). In these states, Delamanid is indicated for use as part of an appropriate combination regimen for pulmonary MDR-TB in adult and adolescent (6-17 years) patients when an effective treatment regimen cannot otherwise be composed for reasons of resistance or tolerability. Recently, a decision to expand the access of Delamanid to the entire country, for all eligible patients among children and adolescents (6 to 17 years). Programme has received donation of 400 courses of Delamanid from the manufacturer, Otsuka Pharmaceutical from Japan.



The first patient was put on Delamanid containing regimen in October 2018 at Chandigarh. Till end of 2018, 41 MDR/RR TB patients were initiated on regimen containing Delamanid including 5 children. As required by Drug Controller General of India (DCGI), each patient initiated on Delamanid containing regimen is being followed up as per the Delamanid guidelines for monitoring of drug safety parameters in the prescribed format on a regular basis.

H mono/poly regimen made injection free

During Dec 2018, RNTCP has introduced all 6 oral Levofloxacin, Rifampicin, Ethanabutol & Pyrizinamide (LfxREZ) regimen for H mono/ poly patients based on recommendation of the National Technical Expert Group on Treatment of TB. Both Pulmonary as well as Extra Pulmonary patients are given the same regimen.

After introduction of all oral H mono/poly regimen, more than 95% of all TB patients are now eligible to receive an injection free oral regimen for treatment of TB and H mono/poly DR-TB.

Decentralized treatment initiation of newer drugs containing regimen from District DR TB Centres

As per the Guidelines for PMDT in India (2017), patient eligible for newer drug containing regimen can be initiated on treatment from Nodal DR TB Centre only. Based on the request received from the states, treatment initiation of such patient was further decentralized to District DR-TB Centres established at medical colleges, district hospitals or other tertiary/ secondary level facilities in public or private sector (using partnership guidelines) which meet the requirements as per the PMDT guidelines 2017.

Performance and Achievement in 2018 (Drug resistant TB)

During 2018, 58,347 MDR/ RR TB cases were diagnosed and 46,569 (80%) of them were put on either shorter or conventional MDR TB treatment. H mono/poly patients diagnosed were 8809 and put on treatment were 6454 (73%). Based on the DST results and other eligibility criteria, 2868 were initiated on newer drug containing regimen; majority on Bedaquiline while 41 on Delamanid containing regimen. Surge in number of MDR/ RR TB patient (150%), poor coordination between decentralized diagnostic & treating health facilities could be the reason for reduction in the proportion patients put on treatment.

Programme has secured 10,000 Bedaquiline courses through USAID Bedaquiline donation programme and donation of 400 Delamanid courses from Otsuka Pharmaceutical from Japan, the manufacturer of Delamanid. Rest of the drugs in the regimen was procured through domestic fund or Global Fund (through Global Drug Funding).

Treatment success rate of 30,183 MDR/ RR TB patients initiated on treatment during 3Q15

to 2Q16 was reported to be 47% with 20% death and 19% loss to follow up. For 2305 XDR TB patients initiated during 3Q15 to 2Q16, success rate was reported to be 27% with 42% death and 14% loss to follow up.

DR-TB patient Counselling through the Saksham Pravaah Project (TISS)

The Saksham Project of Tata Institute of Social Sciences (TISS) has been providing counseling support to all DR-TB patients under PMDT in four states- Rajasthan, Gujarat, Maharashtra (Mumbai) and Karnataka. The Saksham Project is currently in the second phase of Global Fund Grant and has a network of 183 counsellors strategically placed as per the patient load within the state. Home visit carried out by counsellor to conduct patient counselling sessions in presence of their family members. These home visits also ensure identification of other socioeconomic issues that need to be addressed, such as stigma within family, poor financial conditions, need for TB screening for other members of the family etc. This home-based counselling has further helped Saksham in supporting the patients throughout their treatment duration. Saksham counsellors provided counselling to family caregivers of around 90% of the registered patients. Of instances of treatment interruption that took place during the treatment course of all registered patients in the year 2018, Saksham counsellors succeeded in retrieving patients in 68% of the instances. They also succeeded in retrieving 14% of the patients after they had been declared Loss to Follow Up (LTFU) by the RNTCP system. In addition to these counselling services, Saksham counsellors have linked 485 DRTB patients and connected them to government and non- governmental Social Protection services for nutrition and livelihood support. Saksham Pravaah counselors have also provided social protection linkages like helping DR-TB patients requiring Adhaar card, ration card, bank account etc. Hearing aids were provided to patients who suffered hearing loss due to adverse reaction of DR-TB drugs. These counselors have provided nutritional support to 1476 patients.

Challenges and Way Forward:

In-spite of many advances in treatment, the country continues to face major challenges in ending TB in India. With 1/4th of the world's DS-TB and DR-TB burden and a slow rate of decline, there is still much work for the country to do.

- Ensuring availability of diagnostics and drugs for the patient being managed in private sector along with other services identified under the public health action would be one of the major challenges. RNTCP with JEET project has envisaged to overcome this challenge.
- A major hindrance in detection of DS/DR -TB patients is poorly established specimen collection and transportation systems, which adversely affects RNTCP's UDST coverage as well as first and second line DST. There are efforts being made to link sputum transport with India Postal services
- Ensuring patient adherence for long duration of treatment
- Identifying & managing adverse drug reactions (ADRs) and establishing linkages with higher referral centres to manage them

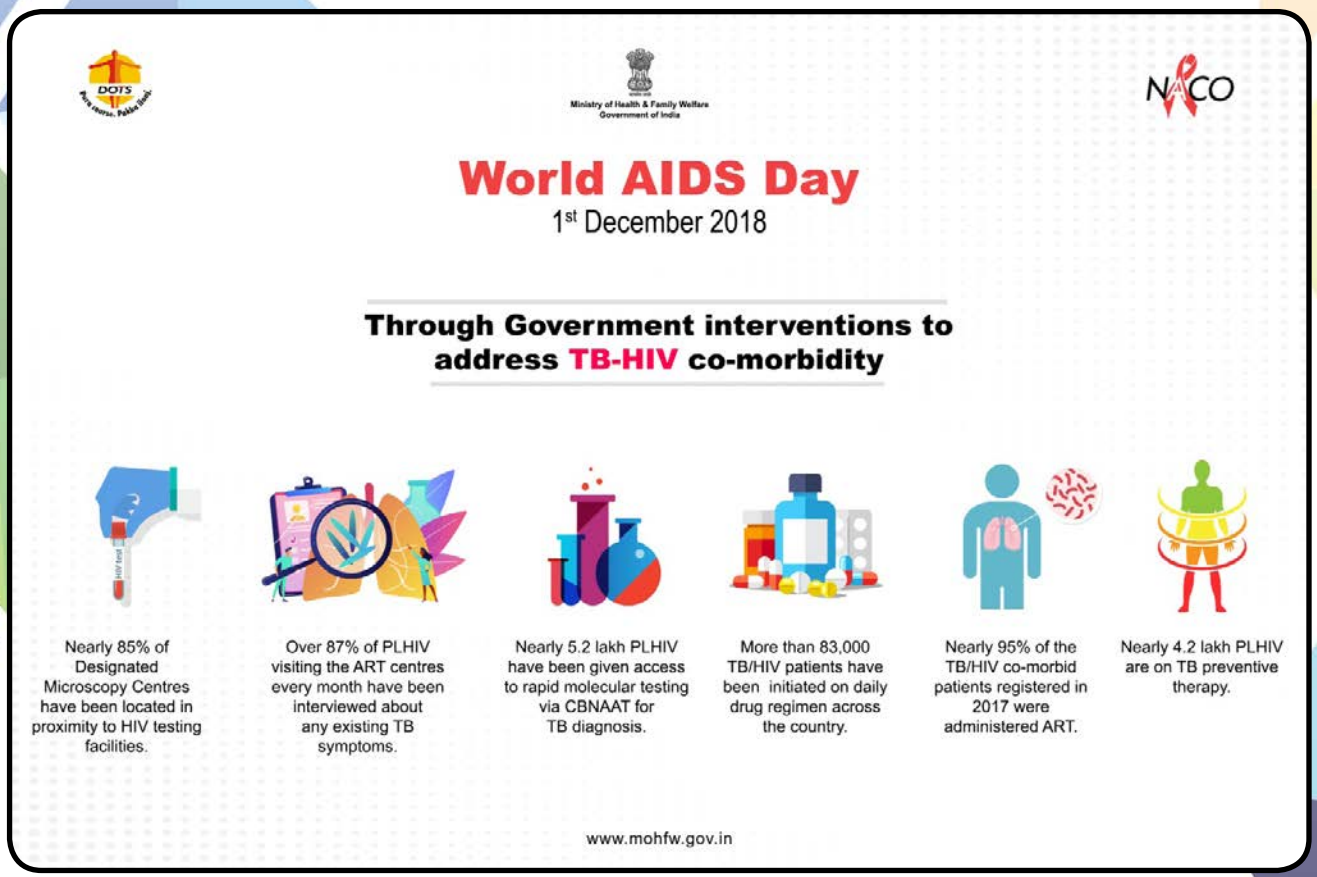
continue to be suboptimal. Linkages with the Pharmacovigilance Program of India (PvPI) and active Drug Safety Monitoring and Management (aDSM), have helped improve the program to build its capacity in managing and reporting ADRs, however, there remains a need to strengthen aDSM systems at the district and block levels. All PMDT trainings include detailed sessions on ADR Management, ADSM and Causality Assessment to strengthen RNTCP's pharmacovigilance activities. Better ADR management would also lead to better adherence to the long and complex DR-TB treatment regimen.

- Home based counselling services by the Saksham counselors in four states have been useful. The program envisages expanding counseling services to all other states.
- Addressing social determinants of TB like poverty, malnutrition, ventilation, stigma & belief and linkages with social schemes will be beneficial to promote patients adherence to treatment & completion of treatment.

More efforts are needed to systematically bridge the gap between estimated and actual initiated on treatment through establishing Nikshay system for patient tracking. Decentralization of DR-TB treatment services under the "test and treat" approach within the districts would facilitate further to reduce the gap in treatment initiation of DR TB patients.

Chapter 6

TB Co-morbidities



Chapter 6

TB Co-morbidities

6.1 TB-HIV

Background

TB is the leading cause of morbidity and mortality among People Living with HIV. India is the third highest HIV burden country in the world, with an adult prevalence of 0.22%. PLHIV are 21 (16-27) times at higher risk of developing TB. TB-HIV co-infection results in higher mortality rates. Nearly 25% of all deaths among PLHIV are estimated to be due to TB.

To mitigate the effect of dual burden of HIV and TB, RNTCP and National AIDS Control Programme have developed a collaborative framework. The objectives of the framework include development of a coordination mechanism between the programmes at all levels and decreasing morbidity and mortality due to TB/HIV through ensuring access to services, prevention, early detection and prompt management through provision of Anti-tuberculosis and Anti-Retroviral therapy together. The country began implementation of the collaborative activities in 2001 achieving nation-wide coverage in 2008. Components such as dedicated human resources, integration of surveillance, joint training, standard recording & reporting, joint monitoring & evaluation, operational research were strategically implemented and nationwide coverage was achieved in July 2012. At the National level TB-HIV coordination committee (NTCC) and National Technical Working Group (NTWG) regularly monitor and suggest on key policy related to TB/HIV Collaborative activities.

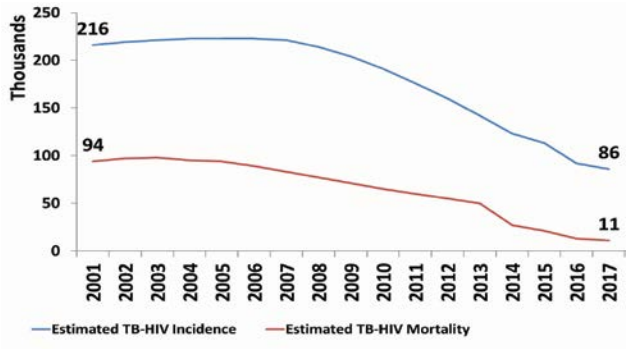
Progress

HIV co-infection rates among incident TB patients is estimated to be 3%. 86,000 HIV-associated TB patients are emerging annually. In terms of numbers India ranks second in the world and accounts for about 9% of the global burden of HIV-associated TB. The mortality in this group is very high and every year 11,000 people die every year among TB/HIV co-infected patients.

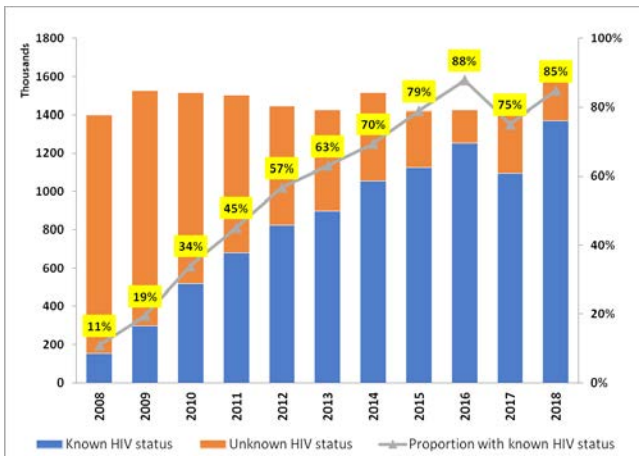
Government of India has launched a single window delivery of TB and HIV services for all People Living with HIV in the ART centres, wherein intensified case-finding through screening all ART centre attendees for TB, rapid molecular testing of symptomatics and ICT based adherence monitoring of treatment, Isoniazid therapy for TB prevention and Airborne Infection control activities in HIV care settings are being carried out. From the beginning of this activity, over 90% of PLHIV visiting the ART centres every month are being interviewed for TB symptoms, nearly 6 lakh PLHIV have been given access to CBNAAT for TB diagnosis, nearly 1 lakh TB/HIV patients initiated on daily drug regimen and nearly 5 lakh PLHIV were initiated on TB preventive therapy till December 2018. These interventions along with the joint collaborative activities helped in reducing TB related fatalities by 82% (baseline 2010) among PLHIV to meet the 2025 END TB target.

Annual trend analysis of TB-HIV burden in India (2001-2017)

HIV testing of TB patients is now routine through provider initiated testing and counselling (PITC), implemented in all states. At Country level, 67% of TB patients knew their HIV status which has increased from 11% in 2008. 49,047 (3.4% of those tested) were diagnosed as HIV positive and were offered access to HIV care.



Annual Trends analysis of Number (%) of registered TB patients with known HIV status in public sector (2008- 2018)



(State wise trend as annexure) 2018 data in graph

The updated WHO TB/HIV policy of 2012 recommended implementation of Provider Initiated HIV Testing & Counselling (PITC) among presumptive TB cases. Considering the country evidence and global recommendation, the National Technical Working Group on TB/HIV decided to implement PITC

among presumptive TB cases in all high HIV prevalent settings in India (A and B category districts) in a phased manner. Routine screening of Presumptive TB cases for HIV is being implemented in phase wise manner throughout the country.

Similarly, among HIV-infected TB patients diagnosed, 45,653 (93%) were put on (co-trimoxazole preventive therapy (CPT). The coverage of ART among TB patients who were known to be HIV-positive reached 90% in patients registered in 2018, up from 49% in 2008.

Intensified TB case finding has been implemented nationwide at all HIV Care centres (at Integrated Counselling and Testing Centres (ICTCs) and ART centres. As of December, 2018, 540 ART centres and 1120 link ART centres are operating in the country. Table below shows the trend of intensive case finding at ICTC and ART centres in India.

Table: Trend of Intensive Case Finding (ICF) through ICTC India

Year	Total clients	Presumptive TB cases referred	Total TB cases Detected	Total Put on DOTS	Proportion referred through ICTC	Proportion detected TB	Proportion Put on DOTS
2011	9774581	580695	55572	42223	6%	10%	76%
2012	9193113	552350	46863	36842	6%	8%	79%
2013	7264722	620539	64506	45471	9%	10%	71%
2014	8383140	726805	45597	30922	9%	6%	68%
2015	11799964	941285	63134	41725	8%	7%	66%
2016	13773132	1088814	70836	45432	8%	7%	64%
2017	15415049	1152122	69914	44734	7%	6%	64%
2018	17020279	1245787	71885	44838	7%	6%	62%

In proportion ART and ICTC centres contributes to around 5% of case finding of the RNTCP (Table below).

Table: Contribution of ICTC and ART centres in TB case detection

Year	Total TB cases Detected (ICF- ICTC+ ART)	Total cases Put on DOTS	Total TB cases notified under RNTCP	Percentage Contribution of ICF in TB notification
2010	67323	53503	1521438	3.5%
2011	84007	65996	1515872	4.4%
2012	74875	61252	1467585	4.2%

2013	89420	68595	1410880	4.8%
2014	73298	81742	1443942	5.7%
2015	100044	69239	1423181	4.9%
2016	108696	77158	1424771	5.4%
2017	112205	90947	1832013	6%
2018	108106	87560	2155894	5%

Country is monitoring Treatment outcome among TB HIV patients over the years (Table Below).

Table: Year-wise treatment outcome of TB HIV co-infected patients 2010-2016

Year	All TB-HIV Total Case Registered/ Notified	Treatment Success	Died	Failure	Lost to follow up	Transferred out	Treatment regimen changed
2010	43093	77%	13%	1%	6%	2%	0%
2011	47097	78%	11%	5%	4%	1%	0%
2012	34134	77%	13%	1%	7%	1%	0%
2013	45911	77%	13%	1%	7%	1%	0%
2014	44257	76%	13%	1%	6%	2%	1%
2015	38894	77%	14%	1%	6%	2%	1%
2016	39702	77%	14%	1%	6%	1%	1%
2017	33366	70%	12%	1%	5%		0.2%

6.2 TB-Diabetes

Background

India has an estimated 69 million people suffering from Diabetes with a prevalence of 7.8% in general population. World Health Organization (WHO) has declared that India will become the "Diabetes Capital of World" by the year 2025. More than 5 lakh cases of Tuberculosis can be attributed to Diabetes. Diabetes increases the risk of developing TB by nearly two-three times. Moreover, diabetes can worsen the clinical course of TB, and TB can worsen glycaemic control in people with Diabetes. Also, diabetes worsens TB treatment outcomes in terms of increased deaths, failure and relapse rates.

RNTCP and National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) have jointly developed the **'National Framework for Joint TB-Diabetes Collaborative Activities' in 2017** to strengthen the response to deal with this double burden and reduce co-morbidity of disease in India. This framework includes

strategies for optimal care, early diagnosis & prompt management of TB among Diabetics and Diabetes among TB patients through bi-directional screening and efficient referral-linkage mechanisms. It guides the national programmes, health personnel and others engaged in prevention and control of diabetes and TB on establishing a coordinated response to both diseases at State, District and lower levels.

Progress:

In response to high prevalence rate of both Diabetes & TB, its essential to screen people who have one disease for the other and vice versa – a process known as "bidirectional screening".

Under RNTCP, 29% (4% - 98% across state/UTs) of the notified TB patients in 2018 at the National level were screened for Diabetes, with nearly 8% (3% - 28% across state/UTs) among those screened, confirmed with newly diagnosed/already existing Diabetes and 40% (0% - 100% across state/UTs) among those initiated on Anti-Diabetic therapy.

Under NPCDCS, nearly 6% (0% - 100% across state/UTs) of the 1,57,25,917 NCD clinic visits were screened for TB symptoms in 2018 at the National level and 1% (0% - 20% across state/UTs) among those were presumed to have TB and referred for TB testing.

"Population Based screening for NCDs is being carried out in 216 districts across all State/UTs in the country. Symptoms for TB screening have been included in the Community Based Assessment Checklist (CBAC) form for Early Detection of Tuberculosis (TB), in addition to NCDs." Nearly 1 crore population have been screened across all the districts in the country.

The programme plans to strengthen the collaboration through capacity building activities and establishment of TB-comorbidity committee at National, State and District levels on the lines of TB-HIV committee to ensure coordination between RNTCP and NCD, adequate referral & efficient linkage mechanism and strengthening mechanism for joint supervision and monitoring.

6.3 TB-Tobacco

Background

Tuberculosis disease and tobacco use are major public health burdens that are largely preventable. As per Global Adult Tobacco Survey (GATS2) nearly 28 % of the adult population in 2017-18 i.e nearly 275 million adults consume tobacco in some form or the other and this adversely impacts TB case management due to the strong association between tobacco use and TB treatment outcomes. Nearly 8% of Tuberculosis cases can be attributable to Tobacco usage. Findings of pilot projects implemented in Vadodara, Gujarat and Jaipur, Rajasthan showed that 67.3% patients and 75% TB patients respectively quit tobacco use after offer of 'Brief Advice' to TB patients registered for the Directly Observed Treatment Short course (DOTS).

RNTCP and National Tobacco Control Program (NTCP) have jointly developed the **'National Framework for Joint TB-Tobacco Collaborative Activities'** in 2017 to reduce the burden of co-morbidity due to TB and tobacco use. The strategies of the framework include

establishment of collaboration mechanism, identification of tobacco users among TB patients and provision of brief advice, TB symptoms screening among all Tobacco cessation setups and linkage to services and awareness generation activities.

Progress

Under RNTCP nearly 4% (1,10,592) of TB patients were identified as Tobacco users at enrolment at the National level and among those screened, 21% (2% - 84% across state/UTs) were linked to Tobacco cessation services.

The programme is being implemented in the collaboration across all States/UTs with focussed supervision and hand-holding activities in 2 districts each of 8 States – Gujarat (Sabarkantha, Vadodara), Kerala (Thiruvananthapuram, Kollam), Mizoram (Aizawl West, Kolasib), Bihar (Darbhanga, Muzaffarpur), Rajasthan (Kota, Jhunjhunu), Himachal Pradesh (Shimla, Chamba), Punjab (Kapurthala, Sangrur) and Andhra Pradesh (Srikakulam, Anantapuram). The programme plans to build capacity of all stakeholders, establish and streamline recording & reporting mechanisms and strengthens the collaboration through setting up of TB-comorbidity committee at National, State and District levels on the lines of TB-HIV committee to ensure coordination between RNTCP and NTCP.

6.4 TB-Women

Background

TB affects an estimated three million women every year and remains among the top five leading causes of death among adult women globally. The presence of tuberculosis disease during pregnancy, delivery, and post-partum is known to result in unfavourable outcomes for both pregnant women and infants. These outcomes include a roughly two-fold increased risk of premature birth, low birth weight, intrauterine growth retardation. Genital TB, which is challenging to diagnose, has been identified as an important cause of infertility in high TB-prevalent settings. Geriatric women are often malnourished, have low immunity, and are vulnerable to infections and they are dependent on others for medical help.

RNTCP and Maternal & Child Health programme are finalizing a collaborative framework for early diagnose and prompt management of TB in pregnancy and reduce the burden of co-morbidity. The programme is also working towards developing a collaborative framework to address the issue of TB & infertility and TB among women beyond pregnancy.

Gender:

Background

Women health is affected not only by their biological differences from men but, also by gender-based social, cultural, and economic inequities. Women are restricted from receiving many opportunities such as education, employment and health. Women are a vulnerable group and have unmet needs with respect to general healthcare, difficulties in diagnosis, non-compliance of treatment, and stigma of the disease and access to TB care. Women with TB are more vulnerable due to delays and difficulties in diagnosis, non-compliance of treatment, and stigma of the disease.

The tuberculosis (TB) response needs a paradigm shift – to become people and community centered, gender sensitive and human rights. Gender inequality affects susceptibility to TB, its diagnosis, access to treatment, adherence to treatment, the availability of supportive care and treatment outcomes. Addressing the gender parity has the potential to help the RNTCP to accomplish its goals of equitable and better case detection and treatment of TB in India among both gender in turn facilitating progress towards the attainment of the Sustainable Development Goal (SDG) linked to TB for India.

Progress

India is one of the first countries to utilize the Communities, their Rights and Gender sensitization tools as developed by the Stop TB Partnership. This is in line with the programs efforts to engage civil societies and affected communities in the TB response through the creation of National, State and District TB Forums and involving TB Champions or Kshay Veers at various levels. Increase focus on these areas has the potential not to just increase case detection and treatment outcomes but also improve the overall quality of care.

The expert group has been constituted for the programme to develop a framework of collaboration between TB control and Reproductive Child Health programs to address all issues related to Tuberculosis among women as well as to incorporate a gender responsive approach to the disease in the country.

6.5 Paediatric-TB

Background

Pediatric Tuberculosis (TB among the population aged less than 15 years) is among the 10 major causes of mortality among children globally. An estimated 10 lakh children became ill with TB and 2,50,000 children died of TB in 2017 (including children with HIV associated TB). Though MDR-TB and XDRTB is documented among paediatric age group, there are no estimates of overall burden.

Progress

Case finding

All presumptive Paediatric sputum samples are prioritized for testing by rapid molecular test CBNAAT with over 1.6 lakhs cases being tested in 2018 under the programme. In 2017, Paediatric TB cases accounted for 6% of the total TB burden due to under diagnosis, while the actual paediatric burden is closer to 8%. About 2,24,000 incident cases of pediatric TB are estimated to occur every year accounting for 22% of global burden. In 2018, a total of 1,32,711 pediatric TB patients (only 59% of estimated) were notified in India, which included new and relapse pediatric TB patients.

Contact tracing and Chemoprophylaxis:

The contact screening is one of the ways for intensified case finding activity which RNTCP has implemented since its inception. Under RNTCP all children less than 6 years of age, contacts of the family member suffering with active TB are screened for TB and provided INH chemoprophylaxis once active TB has been ruled out. Only 30% of the eligible households were visited and 68% of the identified contacts were screened for TB. More than 2.5 lakh children contacts of less than 6 years of age were screened for TB as part of household contact investigation in 2018. Nearly 83,000 contacts (23% of eligible) of adult pulmonary microbiologically confirmed TB cases offered preventive therapy in 2018.

Chapter 7

Monitoring & Evaluation

Central Internal evaluation (CIE) in Dehradun, Uttrakhand

Monitoring & Evaluation

Chapter 7

Introduction:

Regular monitoring and review of the programme interventions is an essential component in the control of the disease. Supervision and monitoring are pivotal in ensuring quality services delivery for achieving the vision of TB Free India by 2025.

Monitoring is a continuous process of collecting and analysing information to compare how well a project, programme, or policy is being implemented against expected result. Monitoring is the day to day follow up of activities and identifying deviations so that activities can be put back on their right part. Evaluation is an assessment of a planned, ongoing, or completed intervention to determine its relevance, efficiency, effectiveness, impact, and sustainability. Evaluation is basically the collection and analysis of data (information) to determine programme performance. Both are needed to better manage policy, program, and project implementation. Program Indicators are essential part of a monitoring and evaluation system as the year what you measure and/or monitor

Nikshay:

The most important part in the monitoring of the services delivery is the collection and collation of patient wise data which is done through "Nikshay". Nikshay is a case-based web based real time patient management system which offers the programme managers the ability to monitor their patients real time. It captures the components of services delivery to both DSTB and DRTB patients in both public as well as private sector patients such as:

- Demography details of the patients
- Treatment initiation status
- Laboratory tests done
- UDST status
- Treatment adherence/ compliance of the patient
- TB comorbidity status
- Treatment outcome
- Direct Benefit Transfer of Nikshay Poshan Yojana

The following activities are being conducted by the programme.

1) Supervisory visits to the States

2) Central Internal evaluation

3) Review meetings – Both at the National level & Regional levels

4) Zonal Task Force Meetings

5) PMDT review of the States - Regional level

6) Regular program performance review of the State program managers by the Officials of the MoHFW [Secretary – Health, AS & DG (RNTCP & NACP), JS (RNTCP), DDG-TB]

7) Special Central team visits to provide supportive supervision and technical assistance in implementing special interventions

8) NRL and IRL visits by CTD officials

List of Monitoring & Evaluation activities undertaken during the year 2018

S.No	Activity	Number
1.	RNTCP regional review meeting at the South region	1
2.	PMDT regional review meeting (West region)	1
3.	Nikshay Poshan Yojana – Visits to States to accelerate payment process	28
4.	Central Internal Evaluations	6
5.	Lab monitoring visits	6
6.	States supervisory visits	14

Review Meeting:

Several newer initiatives have been taken up in the program in the past year including decentralization of diagnostic services across all Primary Health Centres, expansion of molecular testing facilities across all districts, active case finding activities among vulnerable population including prisons and closed settings, newer drugs and treatment regimens for management of Drug resistant TB patients, scale up of engagement with private sector, launch of Nikshay Poshan Yojana for nutritional support for all TB patients, engagement of communities through formation of TB forum and mechanisms for collaboration with National Program for Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), National Tobacco Control Program (NTCP), National Urban Health Mission etc and launch of revamped MIS system – Nikshay 2.0.

As already enumerated regular monitoring of the States were being done through review meeting planned at both the State and the Central level. Till now an annual one-time review meeting of all the states was done at the national level involving the State TB officers, Directors – STDC, IRL/ NRL microbiologists as well as the WHO consultants.

For the first time, regional level review meeting was undertaken in order to have understanding of the issues/ challenges faced by the States so as to have focussed and concerted attention be given and action be planned. The first such meeting was held in the South region involving the 8 States (Andhra Pradesh, Andaman & Nicobar Islands, Karnataka, Kerala, Lakshadweep, Puducherry, Tamil Nadu & Telangana) at Bengaluru on November 2018. The meeting was attended by Shri Sanjeeva Kumar, AS & DG (RNTCP & NACP), Shri Vikas Sheel (JS-RNTCP), Dr. K.S. Sachdeva (DDG-TB),

MD NHMs (Telangana & Karnataka), Officers from MoHFW (NUHM, NACP, NCD, NTCP), Officers from Central TB Division (MoHFW), NTI, NITRD, representatives of State TB Cell, STDC, IRL, NTF, NIRT, ZTF, STF, NUHM, NCD, SACS as well as representatives from Partner organizations.

Central Internal Evaluations:

Internal Evaluation forms an integral component of RNTCP supervision and monitoring strategy. It acts as a tool to evaluate if good program practices are adopted and quality services are provided to the community. The evaluations also offer an opportunity for program managers to look into all aspects of program critically and swiftly. These activities help program managers in understanding determinants of good as well as poor performance for replication of good practices in other states /districts and take appropriate measures for improvement.

The following State's CIE were conducted:

Name of the State	Date
West Bengal	2nd to 6th January 2018
Uttar Pradesh	16th to 20th January 2018
Uttarakhand	19th to 23rd February 2018
Odisha	21st to 25th May 2018
Haryana	24th to 28th September 2018
Punjab	10th to 14th December 2018

PMDT regional review meeting:

The PMDT meeting was conducted for the West region on 9th to 11th May 2018 at Pune, Maharashtra. Objectives of the meeting was to give update on recent developments in PMDT, sensitize on revised PMDT Guidelines, review the progress and challenges in scaling up of PMDT services, update the status on implementation of universal DST and to review TB-HIV collaborative activities in these states.

State Supervisory Visits:

In addition to the review meetings and Central Internal Evaluations, three-day intense supervisory visits to the States were also done covering 14 States.

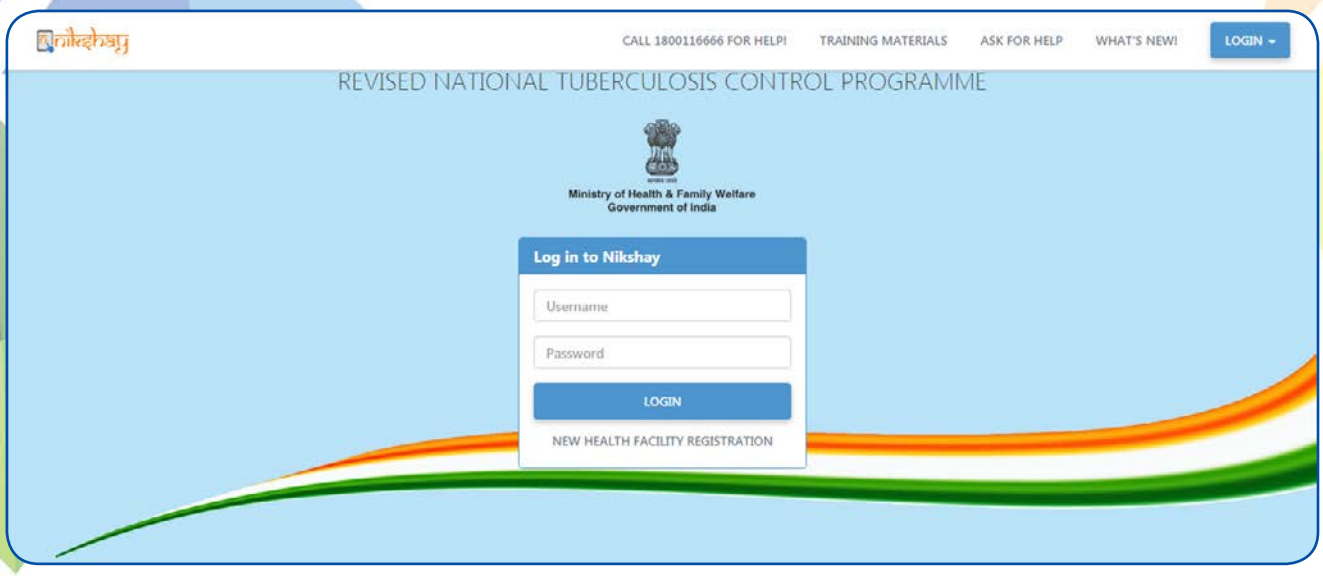
The supervisory visits paved the way for a more regular as well as focussed monitoring of the States and helped the States to raise key issues to their administrators.

The key areas that were focussed up on are Human resource, Nikshay Poshan Yojana, Case detection and treatment initiation, Drug resistant TB services & Private sector engagement

The following States were visited viz: Bihar, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh &West Bengal.

Chapter 8

Nikshay & TB Surveillance



Chapter 8

Nikshay & TB Surveillance

2018 marks a milestone in TB disease surveillance in India. With the implementation of Notification at Diagnosis in 2017 and its further strengthening in 2018, we have now reached our highest count of Tuberculosis case notification in the country. Based on private drug sales data, in 2016 there was about 1.59 times patients in the private sector as compared to the public sector (approximately 22.7 lakh patients in total). In 2018, we were able to achieve a total notification of 21.5 lakh cases. In 2018 India's TB notification has crossed the lower interval of the WHO estimated incidence range for the country indicating we are close to capturing all TB cases in the surveillance system.

In March 2018 we implemented TB case notification as a mandatory responsibility of all health care providers in the country. Even laboratories and Chemists are also required to inform cases of TB whatever they test for TB or dispense drugs for TB. The above measures accompanied by further enabling factors such as incentives for notification through Direct Benefit Transfer (DBT), up gradation of Nikshay, with a newer, faster, user friendly version compatible on mobile devices, are some of the important contributory factors that enabled the above mentioned achievement. However, there is a long way to go before we have a comprehensive surveillance system that looks beyond just notification and case detection to reach the goal of relapse free cure.

Surveillance beyond notification

The ideal surveillance system should be able to detect a case of TB at the earliest possible time, before the possibility of spreading the infection to another person. Additionally, due to the prolonged nature of the disease and multi-drug treatment options, effective surveillance should also be able to detect cure and not just diagnosis. However, surveillance in TB is fraught with challenges and at present there is no ideal model. Notification based models of surveillance is dependent on the information provided to the public health system, and the health seeking behaviour of the person. There will be a gap in terms of missing notifications and those who are yet to seek health care. To reach as close to the ideal scenario as possible, we have to look beyond the notification-based models.

RNTCP is now implementing more active measures to find TB cases. Active Case Finding in vulnerable populations and intensified case finding in people who come in contact with the health system are being implemented now across the country. A few states like Kerala have moved to more intensive level of surveillance at the population level where people vulnerable to developTB are identified by house to house surveys. In the 2018, survey the state of Kerala identified about 20 Lakh vulnerable individuals who have risk of infection and active disease from about 3.48 Crore population surveyed. The vulnerable population is then periodically followed up in an attempt to detect TB cases at the earliest. This model is being adapted and implemented in more states of the country.

Apart from intensifying surveillance on the case detection element, we are also broadening out to other elements in relation to adherence, drug resistance testing, laboratory sentinel surveillance, and follow-up to cure. We have

extended access to ICT Based adherence monitoring technology to all TB patients and are further strengthening its implementation using a cafeteria-based approach. This would ensure adherence monitoring is as real time and most reliable as possible. Universal Drug Susceptibility testing for Rifampicin and further to DST in cases of Rif resistance has been expanded across the country and has achieved a coverage of approximately 40% of the TB cases Notified from the Public Sector. To detect strains of TB bacteria and evolving resistance patterns a sentinel surveillance model roping in culture and DST laboratories is on the anvil. These measures are novel and are in various stages of implementation and being strengthened across the country and it is expected to launch India into the next phase of surveillance in the coming year.

Advances in Nikshay in 2018

In 2018 Nikshay undertook a number of path breaking changes in terms of functionalities and infrastructure

New Functionalities:

1. Direct Benefit Transfers (DBT) through Nikshay PFMS interface

2. Ability to follow-up patients from the Presumptive TB stage

3. New release of Nikshay (Version 2) integrating public, private and DSTB and DRTB datasets for 2017 and 18

4. Android mobile app on Google Play store: Nikshay has now an Android based mobile app that increases performance and accessibility on mobile devices for all types of users both in the public and private sector. We have over 30,000 users and Trending app in the health sector.

5. Transaction based information system, where the primary function is to exchange information (diagnosis, adherence, Transfer, outcome, DBT etc) between various users logged into Nikshay.

6. Institutional level login decentralised to PHIs: Now all public and private health facilities have separate user credentials which they can use to manage their own patients.

Infrastructure upgrades

1. A 21-member ICT team placed within Central TB Division through WHO and supported by an 18-member IT agency through Bill and Melinda Gates Foundation based in Bengaluru, along with the 100-seater National Call Centres based out of NOIDA and Mumbai.

2. Shift to cloud-based services: Nikshay is now on the Cloud, leaving physical servers, ensuring increased scalability and performance for the users.

3. Distribution of 20,000 Mobile Tablets for increased access for field staff.

Challenges

Real time data: Historically RNTCP followed a cohort based aggregate reporting system. Information relay could be delayed anywhere between 3 months for notification to even a year in cases of outcomes. With Nikshay,

the program has directed the health system to use patient wise real time data for patient management However, the behavioural change to use real time information systems has been slow. Other infrastructure and management related issues ranging from connectivity, lower acceptability and reliability of electronic as compared to paper-based systems, lack of training and knowhow etc. also prevent real time data entry.

Data quality and completion: Information in relation to TB notification and outcomes has been fairly well fed into Nikshay from across the country. However, follow-up, comorbidity, public health action, contact tracing etc need further intensive monitoring supervision and support till it reaches optimum levels.

Penetration of information system and communication technology: The most reliable information source is the point of information generation, ie Peripheral Health Institutions. However, historically majority of the program is still using TUs as the focal point where information is collected and entered into the system. Nikshay has now decentralised data collection points to PHIs and the program expects to completely shift to PHI level data entry across the country by the next year.

Opportunities

Transaction-based information system: Nikshay is now a transaction-based patient management system, where the system is used to help manage TB patients by recording their information and is exchanged between parties (eg. a test requesting facility and a laboratory) through transactions. Transactions include information exchanges such as request for tests, transmission of results backward and referral for transfer. Since these transactions require multiple parties to handle one set of information, and the information entered into the system is validated at the point of entry, data is automatically triangulated and cleaned. Additionally, the need to provide Direct Benefit Transfers to notified patients, puts additional impetus to monitor patient level information and ensure that it is accurate.

Centralised database: Nikshay being the single TB registry of the country, it enables the system compile information and act as the mediator of information between interstate boundaries.

Thrust areas for 2019:

In 2019 we hope to further strengthen surveillance in all modalities by more intensive support and supervision to the field level. Following are the thrust areas for 2019

1. Private sector notification and engagement for monitoring patients till treatment outcome and long-term outcomes using various engagement models such as the Public-private Support Agency (PPSA).
2. ICT enabled Adherence monitoring scale up to all TB patients both in Public and private sector
3. Intensive monitoring and strengthening of implementation of ICT based adherence monitoring technologies
4. Implementation of additional and enhanced monitoring tools in Nikshay to ensure data quality and consistency.
5. Improved interfaces for Laboratories and field staff.

Direct Benefits Transfer (DBT)

Chapter 9

Chapter 9

Direct Benefits Transfer (DBT)

Background:

Direct Benefit Transfer (DBT) is a major reform agenda of the Government, entailing targeted delivery of benefits to citizens through effective use of technology. Recognizing the benefits of DBT in terms of transparency and 100% target precision, it has been decided to implement DBT in the following schemes of RNTCP namely Nikshay Poshan Yojana (NPY), Incentive to Treatment Supporters/DOTS Providers, Notification incentive to Private Providers, Transport Incentive to Tribal TB patients and Incentive to Informants in Public Sector.

Progress/Steps Taken for DBT under RNTCP:

- NIKSHAY, the online case-based and web-based application has come in very handy as online digitized database of TB patients which is available TB Unit, district, state-wise and accessible at the National level.
- NIKSHAY is further modified to capture bank account details and provides all information as is necessary for DBT implementation.
- The NIKSHAY database is integrated with PFMS (Public Finance Management System) for smooth transfer of benefit directly into the bank account of the beneficiary.
- Currently, DBT module is active for NPY beneficiaries in Nikshay through which users are able to make DBT payments to TB patients.
- For the remaining schemes, DBT modules are under development in NIKSHAY and DBT payment to beneficiaries of these schemes are made directly through PFMS.

Challenges and way forward:

- Invalid or dormant bank accounts or holding of account in a branch which is yet to be integrated with PFMS (Public Finance Management System) are a few challenges being faced in DBT implementation. To overcome these issues and to ensure that TB patients are not denied of NPY benefit, flexibility of providing the benefit through existing bank account of a blood relative has been given. Further, procedural simplifications were made in the Scheme by allowing different methods of payment available under PFMS to expedite payments. States have also been advised to facilitate opening of zero balance accounts for TB patients, if necessary, under the Pradhan Mantri Jan Dhan Yojana (PMJDY) and Indian Postal Bank.

Payments made through DBT module during FY 2018-19 are as under:

Period: 01.04.2019-28.02.2019	No. of transactions	Amount (in Rs.)
Nikshay Poshan Yojana	17,35,784	201,54,40,529
Notification incentive to Private Providers	1,145	83,24,700
Incentive to Treatment Supporters/DOTS Provider	42,536	6,91,56,127
Transport assistance to Tribal TB Patients	16,968	1,28,80,656

Source: DBT-04 Report, PFMS

Chapter 10

Budgeting and Finance

6th Global Fund Replenishment Meeting in New Delhi (7th-8th February 2019)

Budgeting and Finance

RNTCP is being implemented in line with the National Strategic plan. Under 12th Five Year Plan, NSP 2012-17 for TB Control approved for a period of five years has come to an end in 2017. The new NSP 2017-25 for TB elimination has been approved for the upcoming years. RNTCP is centrally sponsored scheme under NHM.

The Procedures for the financial management are being followed as per the manuals and guidelines available on the program website (Financial Manual for RNTCP.).The financial management arrangements to account for and report on program funds, includes both Domestic Budgetary Support (DBS) and External Aided Component (EAC). The arrangements are as follows:

a. **Institutional arrangements:** Central TB Division (CTD), being a part of the National Health Mission (NHM) holds the overall responsibility of the financial management of the program. Similarly, at the state and district level, the State TB Cell and the District TB Centre are responsible respectively.

b. **Budget:** Program expenditures are budgeted under the Demand for Grants of the MoHFW Flexible Pool for Communicable Diseases funding arrangement. These are reflected in two separate budget lines- General Component (GC) and Externally Aided Component (EAC).

c. **Funds flow and Releases:** The fund flow remains within the existing financial management system of the MoHFW, which operates through the centralized Pay and Accounts office. Release of funds to states is done in installments through State Treasury.

d. **Sanctions & Approvals:** All procurements of commodities are processed by the Empowered Procurement Wing (EPW) and approved by the Secretary and Union Minister in line with the Delegation of the Financial Powers. All funds releases for commodity advances for approved contracts are routed through the Integrated Finance Division (IFD) and processed by the Drawing and Disbursing offices (DDO) and Pay and Accounts Office (PAO). All the program expenditures follow the standard government systems of the PAO and are subject to control as per the General Financial Rules (GFR) of the Government of India. Payments are made through electronic funds transfer through treasury since the financial year 2014-2015.

e. **Accounting:** The accounting records for all payments are made against approved budget. Budget lines are maintained by the Principal Accounts Officer and compiled by the Controller General of Accounts (CGA). The compiled monthly accounts are reconciled with the CTD record of transactions.

f. **Financial reporting:** A financial report is submitted by CTD to MoHFW and the donors like The Global Fund and World Bank on periodic intervals based on the compiled monthly accounts and CTD's own record of expenditures.

g. **External Audit:** The audits are being conducted as per the standard terms of reference. The audit reports are being made

available to all donors as per the agreement. At state level audits are being done as per state NHM manual and guidance for audit by empanelled chartered accountancy firms of the state. All the states are required to submit the annual audit report to CTD by 30th September.

Financial Performance of RNTCP:

Description	2014-15	2015-16	2016-17	2017-18	2018-19	Total (Rs. In crores)
Budget Requested	1358.00	1300.00	1000.00	2200.00	4115.00	9973.00
Budget Estimates/ approved	710.15	640.00	640.00	1840.00	3140.00	6970.15
Total Releases to States	373.87	483.19	533.17	871.36	907.65	3169.24
Total Expenditure	639.94	639.86	677.78	2759.44	2237.79	6954.81

DONOR AND EXTERNAL AIDED FINANCING FOR RNTCP:

The donor supported funding to the program is in line with the National Strategic Plan to achieve 'Universal access to quality diagnosis and treatment for all TB patients in the community'. The donor and external aided component are vital funding sources to the Revised National TB Control Programme (RNTCP) which is well aligned with the National Strategic Plan (NSP) 2017-2025. This includes funding from The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), The World Bank and other donors.

The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)

Since 2003, The Global Fund has been providing support to Revised National TB Control Programme. Currently The Global Fund has allocated USD 201 Million to Central TB Division as Principal Recipient under the Global Fund Grant for the period from January 2018 to March 2021. This grant was signed on 13th March, 2018. The grant supports in scaling up of the program activities across the country including procurement of Second Line Drugs, Newer Drugs (Badaquiline), DRTB Patient Incentive through Direct Benefit Transfer, Diagnostic Equipments and Cartridges, 123 Digital X-ray Machines, Strengthening of RNTCP Supply Chain Management System, AMC services for the Diagnostic Equipment, Establishment of National Project Management Unit, Capacity Building of Public Financial Management Services and contribution to Green Light Committee. The Sub-Recipients of the Central TB Division under the Global Fund Grant 2018-2021 are;

1. Indian Council for Medical Research (ICMR): The primary role of ICMR under the Global Fund grant is to strengthen Implementation and Operational Research (OR) under Revised National Tuberculosis Control

Programme. The Five OR studies will be completed using the Global Fund Grant of USD 3.43 Million by March, 2021.

2. World Health Organization (WHO): RNTCP Technical Support Networks (TSN) is one of vital components, and is providing high end technical assistance at national, state and district levels. This project is partially supported through the Global Fund Grant for the period from January to December, 2018 with an allocation of USD 3.78 Million.

3. Tibetan Voluntary Health Association (TVHA): The project involves Active Case Finding in Tibetan Refugee Community in India with special emphasis on MDR case detection, continuum of care including HIV co-morbidities for the period from January 2018 to March 2021 with an allocation of USD 0.33 Million.

4. Tata Institute of Social Sciences (TISS): This project is focused on MDR and XDR TB through structural and psycho-social support interventions for four States i.e. Maharashtra, Gujarat, Karnataka and Rajasthan for the period from January 2018 to March 2021 and allocated USD 4.64 Million. The DR-TB patients are provided psycho social support by DR-TB counsellors.

5. Southern Health Improvement Samity (SHIS): This project is funded on Active Case Finding in the "Unreached" key population areas on the Sundarban region 19 Blocks under Sunderban belt, comprising portions of North and South 24 Parganas with an allocation of USD 0.37 Million for the period from January 2018 to March 2021.

The United States Agency for International Development (USAID)

USAID has been supporting Revised National TB Control Programme for in-kind support for roll out of newer drug Bedaquiline. The 10,000 courses of newer drug Badaqualine has been committed by the USAID to the RNTCP Programme as a donation through Global Drug Facility (GDF), out of which 6,750 courses have already been delivered and balance 3,250 courses are expected to be completed by March 2019. USAID also supported RNTCP for providing donation of 17,876 course of pediatric drugs costing USD 0.60 Million.

WORLD BANK

International Development Association (IDA)

Central TB Division has implemented "Accelerating Universal Access to Early and Effective Tuberculosis Care" Project with an International Development Association (IDA) Credit. The project was to support India's National Strategic Plan (NSP) for Tuberculosis Control to expand the provision and utilization of quality diagnosis and treatment services for people suffering from tuberculosis. The project has been closed as on 31-03-2018. The project overall outcome rating is **"Satisfactory"** which largely achieved its Project Development Objectives (PDO) indicators and intermediate outcome indicators. The project contributed to a substantial turn-around of the implementation trajectory of the entire NSP, partly because of the reforms supported through the DLIs.

The International Bank for Reconstruction and Development (IBRD)

In order to fulfill the RNTCP NSP (2017-2025) funding gap, World Bank support is to be extend upto 2025. The new project "Program towards Elimination of Tuberculosis (PTETB)" is based on the "Program-for-Results (P for R) Instrument, which has been in-principally approved by the MoHF&W and DEA, Ministry of Finance, Government of India. The World Bank has conducted Technical, Fiduciary, Environment & Social and Risk assessment, which has been completed and final approval is in process. The main objectives of this project are to focus on scaling of the private provider engagement, rolling out TB patient management and support interventions, strengthening detection, treatment, and monitoring of drug-resistant TB and strengthening RNTCP institutional capacity and information systems.

GLOBAL FUND PREPARATORY MEETING OF 6TH REPLENISHMENT

The Global raises funds in multiyear cycles known as Replenishments and is preparing for sixth voluntary replenishment conference to mobilize needed resources to scale up life-saving programs over 2020-22. A high level preparatory meeting for the sixth replenishment conference of the Global Fund was hosted by India on 7th – 8th February, 2019 in New Delhi. The preparatory meeting was aimed at setting stage for the Global Fund to launch its investment case for its sixth replenishment conference and its fund mobilization campaign.

India became the first implementing country to host a replenishment milestone and highlighted its role and political leadership in global health, as well as its strong commitment to achieve SDG3 through a dedicated India showcase event.

On 7th February, 2019, Ministry of Health and Family Welfare, Govt of India organized "India Showcase" to showcase India's global footprint in the field of innovation and technology to end AIDS, Tuberculosis and Malaria and its increased ownership of the national response and its growing role in development. India's key achievements and efforts in Health sector with special focus on HIV, TB and Malaria were highlighted during the event.

Chapter 11

Procurement & Supply Chain Management

TB Free India Summit in New Delhi (2nd - 3rd February 2019)

Chapter 11

Procurement & Supply Chain Management

The Revised National Tuberculosis Control Programme (RNTCP) of the Ministry of Health and Family Welfare has been maintaining continuous and uninterrupted supply of Quality Assured Anti TB Drugs, diagnostics and related commodities under the programme which is the prime objective and an essential component of DOTS strategy under RNTCP.

This critical activity of Procurement of Anti-TB drugs and diagnostics for the entire country is done centrally through a well-defined and transparent procurement mechanism using Domestic Budget and The Global Fund. The procurement of drugs & diagnostics is done by the Central Procurement Agency viz., Central Medical Services Society (CMSS) for all domestic fund supported procurement of both First- and Second-Line Drugs. However, the procurement of Second Line Drug supported by the Global Fund is done through the Global Drug Facility (GDF)/United Nation Office for Project Services (UNOPS) by their authorized procurement agent i.e. International Dispensary Association Foundation (IDA).

The Procurement and Supply Chain Management Unit in Central TB Division (CTD) functions under the management and supervision of an exclusive Addl. DDG(TB) and is supported by a team comprising of Consultants supported by the Government of India and World Health Organization.

Many initiatives were taken during the year to strengthen the existing Procurement and supply chain mechanism system of drugs.

Salient Activities:

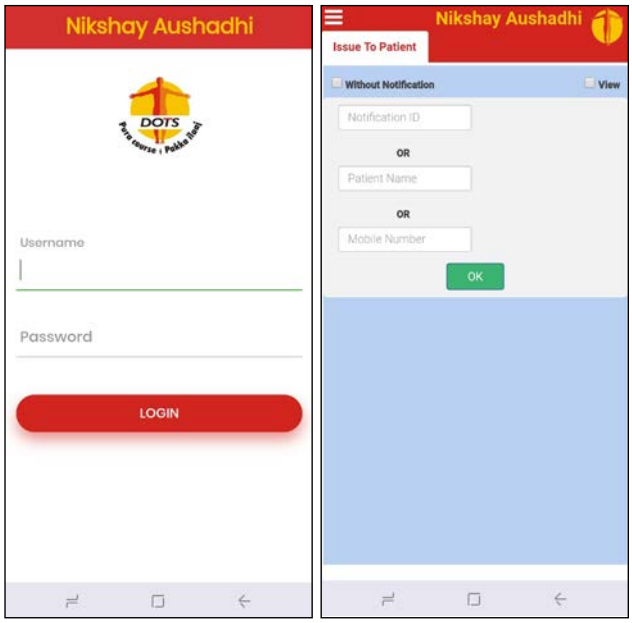
1. Nikshay Aushadhi application: "Nikshay Aushadhi", a web-based application for management of Anti TB Drugs and other commodities under RNTCP has successfully been rolled out in the entire country from Mar-2018 onwards.

   Implementation of Nikshay Aushadhi up to State Drug Stores, District and TUs (Tuberculosis Unit) levels has been completed in the year 2018. Further, Programme has also completed national level trainings of trainers (ToT) on Nikshay Aushadhi implementation up to the PHIs (Peripheral Health Institutions) in the year 2018. Based on national level trainings and cascade trainings by respective states for the field staff, Programme has planned implementation of PHI module across the country from 1Q-2019 onwards. This will complete the entire cycle of RNTCP supply chain mechanism digitalization and will facilitate in providing real time data of inventory management from across the country.

2. Nikshay Aushadhi (mobile based application): To further strengthen drug inventory through online mechanism and to make it more accessible and user friendly, an android based mobile app for Nikshay-Aushadhi has also been developed and is expected to be available by end of 1Q-2019.

   Further, to ensure smooth, streamlined and successful implementation of Nikshay Aushadhi application at all levels across the country, a dedicated helpdesk has been placed at central level and is continuously working since implementation of Nikshay Aushadhi. The helpdesk team ensures

facilitating recording and reporting correctness of the drug inventories by states and also enables remotely troubleshooting the technical issues faced by states.



3. Procurement of X-Ray Machine with CR System: To strengthen the diagnostic capacity at district levels for better management and treatment of TB patients, programme division has initiated the procurement of 395 numbers X-Ray Machines with Computed Radiography system using Domestic Budget Source and The Global Fund funding.

4. Procurement of Tablet Computer: To facilitate real time data entry, programme had procured 20,000 tablets in the year 2018 for implementation of RNTCP software i.e. Nikshay, Nikshay Aushadhi and other digital initiatives. Tablet computers have been provided to Pharmacists of SDSs, DTCs, TB Units and Periphery field staff such as STSs (Senior Treatment Supervisor) STLSs (Senior TB Laboratory Supervisor) and High load DMCs (Designated Microscopy Centre). These are now being used for entering patient data and drug related database in Nikshay and Nikshay Aushadhi respectively.

Additionally, programme division has commenced the procurement of about 10,000 tablet computers which will be provided especially to DMCs and Lab Technicians for Nikshay data entry, Nikshay Aushadhi, DBT and other digital Initiatives.

5. Anti TB drugs: Programme is ensuring procurement of sufficient anti TB drugs as per the requirement of the states. Procurement of drugs undertaken by CMSS and The Global Drug Facility (GDF) supported by the Global Fund the year 2018-19 is under process and supplies are expected to commence from 2Q-2019 onwards. Programme division is continuously monitoring the procurement processes and relevant progress to ensure that all procurements materialize and delivered in the desired timeframe as per the programme need. To ensure implementation of Isoniazid Preventative Therapy (IPT), procurement for Tab Pyridoxine has been initiated by the programme through GDF and supplies are expected to commence from 2Q-2019 onwards.

With regard to availability of LED Fluorescence Microscopes (LED), programme had procured 2,500 LEDs and 1,500 Binocular Microscopes (BM) during the year 2016 and same have been distributed to the states as per the requirement and availability.

6. CBNAAT cartridges: Programme has implemented policy on Universal DST. Accordingly about 1,135 CBNAAT machines have been installed and providing services

across the country. In order to ensure availability of sufficient CBNAAT cartridges, approx 27.0 lakh cartridges were procured in the year 2018. Further, procurement of about 30.0 lakhs cartridges for the year 2019-20 has already been initiated by the programme through Central Medical Services Society (CMSS) and supplies are expected to commence from 2Q-2019 onwards.

7. TrueNat diagnostics: To further strengthen and scale-up diagnostics facilities by offering molecular testing to presumptive MDR-TB cases and TB in selective groups, programme is in the process of procuring about 1,500 machines of TrueNat in FY 2019-20.

8. Expansion of Bedaquiline: Use of Bedaquiline under the programme has been expanded from 5 states to the entire country in the year 2018. Procurement of 10,000 Patient courses through GDF supported by USAID has been done by the programme and is being supplied to states as per the requirement and utilization. Out of this 10,000 courses 6,750 courses have already been received during the year 2018. The remaining 3,250 courses will be received during the Q1 of 2019. In order to implement the recommendation of the rapid communication of the World Health Organization and as per the Technical Expert Group held on 15th January 2019 the Programme has requested USAID for the supply of 10,000 courses of BDQ during the year 2019.

9. Expansion of Delamanid: Delamanid is currently being used under Conditional Access Programme (CAP) in the state of Karnataka, Kerala, Chandigarh, Punjab, Odisha, Lakshadweep and Rajasthan. Currently, procurement for 400 patient courses of Delamanid has been received and is being supplied to the above states as per the requirement. Further, as decision has been taken for the implementation of Delamanid containing regimen for the eligible patients among 6 to 17 years group (where BQ in currently not permissible).

10. Mobile Diagnostic Vans: Programme has procured 45 Medical Mobile Vans and distributed the same to states in the year 2018 to support diagnosis of MDR-TB and TB in high risk population through Active Case Finding. These Mobile Vans have been installed with CBNAAT Machine along with other essentials like Gen-set, Refrigerator, UPS, Printer, Air Conditioner etc. States have started using services of these mobile diagnostic vans for strengthening diagnostics facilities especially in rural high-risk population areas. The mobile diagnostic vans have already started providing services in the states.

11. Infrastructure upgradation of Drug Stores: As programme is moving towards achieving universal access to TB diagnosis and treatment procurement of sufficient diagnostics and anti TB drugs is being ensured by the Programme. Accordingly, to improve infrastructure for supply chain

management in states, programme is in the process of hiring an agency to develop and improve comprehensive infrastructure for SCM in states drug stores. This project is being supported by The Global Fund. The administrative action of hiring an agency has been initiated by the programme and is expected to be finalized by mid of 2019.

12. Supervisory & Monitoring visits: The Central teams make periodical visits to the states to review and assess implementation status of Nikshay Aushadhi and other relevant activities pertaining to PSM in the year 2018. The states which have already been visited are Bihar, Maharashtra, Tamil Nadu, Karnataka, Rajasthan, Uttar Pradesh, Madhya Pradesh, Gujarat, Punjab, Haryana and Himachal Pradesh. Implementation status of Nikshay Aushadhi and Supply chain activities were reviewed up to the TUs & PHI levels were visits were made by the Central teams. The Programme will continue and repeat these reviews for the remaining states and for these states too as a matter of routine so that the implementation of the advices, policies of the programme is monitored fully.

Challenges in Procurement & Supply Chain Management: Ongoing changes in treatment guidelines of 2nd line TB patients following WHO guidelines may have resulted in some procurement challenges like availability of limited suppliers & shelf-life of drugs etc. Further, forecasting and quantitative assessment of anti TB drugs especially for DST guided regimen is also a major challenge as DST guided regimen is still under scaled up phase across the states and it may take some time for the actual data of patients enrolled on DST guided regimen to be streamlined PAN India. However, despite challenges, programme is taking all efforts to ensure uninterrupted supply of anti TB drugs.

Further, few challenges in the implementation of Nikshay Aushadhi especially at District Drug Stores and sub districts levels across the country is also being observed by the Programme. Accordingly, programme division is routinely reviewing and monitoring Nikshay Aushadhi implementation with the support of Nikshay Aushadhi helpdesk, respective state authorities and video conferencing (VCs) etc. Further, state authorities have been requested to ensure full transition to Nikshay Aushadhi software at all levels across the state in a timeframe manner.

Advocacy, Communication & Social Mobilization

Chapter 12

Partners' Forum in New Delhi (12th- 13th December 2018)

Chapter 12

Advocacy, Communication & Social Mobilization

Background:

Advocacy Communication & Social Mobilization (ACSM) is an important pillar in the RNTCP program as proposed in National Strategic Plan (2017-2025). ACSM refers to a set of interventions that are used to improve tuberculosis (TB) control, particularly with the objectives of improving case detection and treatment adherence and TB-control strategy to ensure long-term, sustained impact. An evidence-based, intensive, integrated and targeted ACSM strategy usually planned to put forward issues related to TB control on the public agenda, generate demand and favourably change knowledge, attitude, behaviours and practices (KABP) across a wide section of the population at national level.

The programme main focus is on implementing a well-synchronized Advocacy Communication & Social Mobilization (ACSM) plan to link the campaign across National, State, District Block and ensure mass dissemination of RNTCP services at all levels. It creates positive behaviour change, influences decision-makers, and empowers communities to change. Issues that can be addressed through ACSM are delayed detection and treatment, lack of access to TB treatment, difficulty in completing treatment, lack of knowledge and information about TB that can lead to stigma, discrimination & delayed diagnosis and/or treatment.

Newer Initiatives:

New IEC Material on different thematic areas such as Symptoms & Adherence, Daily Regimen, Myth & Stigma, Nikshay Poshan Yojana (DBT), Drug-Resistant TB, Active Case Finding, Private Sector Engagement, TB-HIV, Cough Etiquettes were developed and shared with all 36 States/UTs in the month of August 2018.

Achievements & Highlights of Media Campaign (2018-19):

The budget under ACSM component in this financial year (2018-19) increased four times as compared to last financial year. This favours to explore various platforms for the campaign and reaching out the masses. Central TB Division telecasted and broadcasted the campaign on different thematic areas such as Symptoms & adherence, Drug Resistant-TB, Myth & Stigma, Nutritional Support to TB patients through Nikshay Poshan Yojana (DBT) in Hindi as well as regional languages.

Month September 2018 is celebrating as Poshan Maah in which audio and video spots especially shoots for the nutritional Support to TB patients through Nikshay Poshan Yojana (DBT) was screened in Pan India.

I) Audio-Visual Campaign:

Four months long campaign 40 second video spots from July 2018 to 30th September 2018 & January 2019 on TB were telecasted through **91** Pvt. Cable & Satellite TV and **15** Doordarshan Channels.

First time, any media campaign on TB was planned during a major cricket tournament i.e. during Asia Cup Cricket Series 2018 held from Sept. 15 – 28, 2018 in Abu Dhabi & Dubai (UAE), India – West

Indies Cricket Series 2018 (5 ODI & 3 T20) from 21st October to 11th November 2018 and India vs New Zealand 2019 (5 ODI & 3vT20) from 23rd January – 10th February 2019. Our advertisement was shown in all the matches; in which Team India played, telecasted on DD Sports Channel. As per viewership shared by Deputy Director General (Prasar Bharti), this tournament was **viewed by more than 3 crore persons (30 million).** The campaign was a grand success.

Two months long campaign in the month of September 2018 & January 2019 on TB through Pvt. FM (242 Channels) & All India Radio (AIR 25 Channels) was broadcasted the 40 second audio spots PAN India.

ii. Digital Media Campaign:

A month long campaign launched in the month of September 2018 on TB in PAN India was telecasted through Directorate of Advertising Visual Publicity (DAVP). The campaign was run through a good number of **3023 theatres** in the country with 4 shows each day in each theatre.

iii. Outdoor Campaign:

On the Commenmoration of 150th Birth anniversary of Mahatma Gandhi occasion of

Gandhi Jayanti; a month long media campaign planned "Audio advertisement at Bus Terminals" **in 7 States (Goa, Haryana, HP, KA, MH, PB, and RJ).** The **campaign covers 302 bus stops in all 7 States.**

Participation in the events:

Central TB Division first time grabbed the opportunity to participate in "25th MTNL Perfect Health Mela" held from 23rd- 27th October 2018 at Talkatora Indoor Stadium New Delhi under the theme of "Affordable Health Care".

The event reaches out approximate 230 million populations through Doordarshan, All India Radio FM, and Print. 25000 visitors along with the representation of 2 Medical Colleges, 8 Nursing Colleges, 65 Hospitals, Consultation with 7092 patients (65 Doctors), 56 College (2950 students), 63 Schools (3500 students) visited the event in 5 days.

The Government of India, in association with the Partnership for Maternal, Newborn and Child Health (PMNCH) hosted for two-day international conference on 12th and 13th December 2018, bringing together about 1500 participants from across 85 countries to improve the health and well-being of women, children and adolescents.

(12th-13th Dec. 2018)

Central TB Division has participated in the event and showcased India's health system strengthening system in the field of Tuberculosis.

TB –Free India Summit

(2nd - 3rd Feb. 2019)

Global Champion on TB Mr Anurag Thakur (Member of Parliament-LS) hosted India's largest TB Free India Summit 2019 at Major Dhyan Chand National Stadium. India's Top Political Leaders, Bollywood Actors, Parliamentarians & MLA's such as Hon'ble Speaker Lok Sabha, Hon'ble Health & Family Welfare Minister, Chief Minister of Haryana & other Ministers, and thousands of General Public joined hands for TB-Free India.

An 'India Versus TB Cricket Tournament' was also planned to engage all the ministers, parliamentarians, experts, the media and civil society present at the Summit over a period of two days. The Cricket tournament in the T20 format was hosted between 'Member of Parliament's XI & Chief Minister's XI.

6th Global Fund Replenishment Meeting

(7th - 8th Feb. 2019)

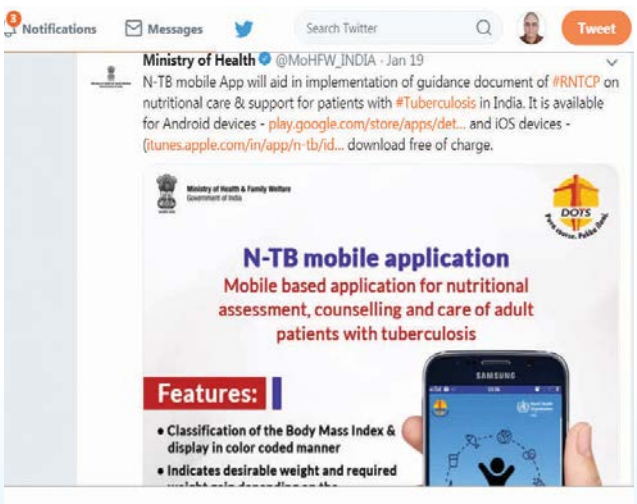
Step Up the Fight Against AIDS, TB and Malaria.

Attended by Hon'ble Finance Minister, Hon'ble Health & Family Welfare Minister, Minister of State (HFW), Member, NITI Aayog, Secretary (Health), Deputy Director General of Programmes, WHO, Executive Director, The Global Fund and Country Director, UNAIDS and more than 300 International & National delegates delegations and representatives from several countries were also participated.

iv. Social Media Campaign:

Under Social Media Campaign, DDG-TB twitter handle has been operational from August 2017 for creating mass awareness about tuberculosis through social media. More than 1500 tweets have been posted till date.

Twitter, Facebook, Instagram, and You Tube Channel of Central TB Division has been operational from February 2019.




Messages
Search Twitter
Tweet
Dr. K. S. Sachdeva @ddgtb2017 · Jan 18
निक्षय पोषण योजना के अंतर्गत #TB रोगियों को हर माह 500 रुपये की पोषण सहायता प्राप्त कराई जा रही है| यह सहायता डी बी टी के माध्यम से रोगियों के बैंक खाते में भेजी जाती है|
#NikshayPoshanYojana @MoHFW_INDIA @JPNadda @AnupriyaSPatel @AshwiniKChoubey @AS_RNTCP @iamvikassheel @WHO
Translate Tweet


Messages
Search Twitter
Tweet
You Retweeted
Vikas Sheel @iamvikassheel · Jan 19
Secretary Health GoI Ms Preeti Sudan at the health pavilion
#VibrantGujaratGlobalSummit @MoHFW_INDIA @JPNadda @PIB_India @EndTB2025 #TBharegaDeshJeetega

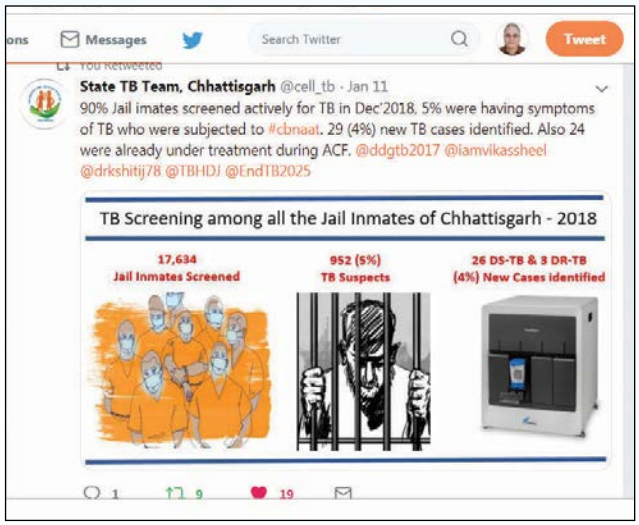

Messages
Search Twitter
Tweet
Dr. K. S. Sachdeva @ddgtb2017 · Jan 18
The lifetime risk of developing TB is greater in Smokers. Awareness & alertness is the key to protection. @MoHFW_INDIA @JPNadda @AnupriyaSPatel @AshwiniKChoubey @AS_RNTCP @iamvikassheel @NHPINDIA @AyushmanNHA @WHO @PMOIndia @WHOSEARO
0:25
30 views

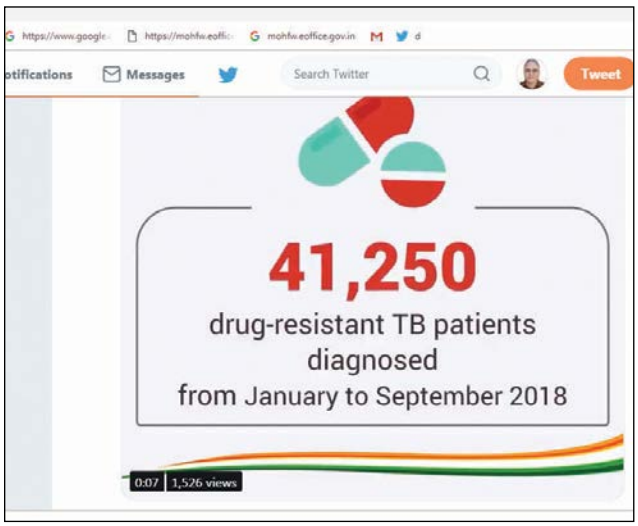

Messages
Search Twitter
Tweet
Ministry of Health @MoHFW_INDIA · Jan 14
For Drug-Resistant TB (DR-TB) patients, a better and newer drug regimen Bedaquiline is now available across 428 district level DR-TB centres and 148 specialized DR-TB centres.
#SwasthaBharat #TB #Tuberculosis #EndTB


Messages
Search Twitter
Tweet
क्षय रोग #TB से ग्रसित मरीजों की सहायता के लिए सरकार द्वारा उन्हें मासिक 500 रुपये का वित्तीय प्रोत्साहन मुहैया कराया जाता है| यह सहायता डी बी टी के माध्यम से रोगियों के बैंक खाते में भेजी जाती है|
Translate Tweet
एक बड़ी पहल टीबी रोकथाम की ओर
टीबी मरीजों को इलाज की पूरी अवधि के दौरान


You Retweeted
TB Harega Desh Jeetega @TBHDJ · Jan 11
#REPOST: When @SrBachchan tells you something, you listen - see your doctor i you've been coughing for 2 weeks or longer. Remember, #TB can be cured with complete treatment. #FridayMotivation #TBHaregaDeshJeetega
दवाजाना
0:20
76 views


Messages
Search Twitter
Tweet
Rntcp Rajasthan @Rntcp_Rajasthan · Jan 12
आज गंगानगर में युवा दिवस के अवसर पर गोदारा कॉलेज में टीबी जागरूकता अभियान की पर्दशनी लगाई गई और कठपुतली के माध्यम से जागरूकता अभियान चलाया जा रहा है।
@nishantjeph @DrRaghuramRao @ddgtb2017 @chin1710
Translate Tweet


Messages
Search Twitter
Tweet
State TB Team, Chhattisgarh @cell_tb · Jan 11
90% Jail imates screened actively for TB in Dec'2018, 5% were having symptoms of TB who were subjected to #cbnaat. 29 (4%) new TB cases identified. Also 24 were already under treatment during ACF. @ddgtb2017 @iamvikassheel @drkshitij78 @TBHDJ @EndTB2025
TB Screening among all the Jail Inmates of Chhattisgarh - 2018
17,634
Jail Inmates Screened
952 (5%)
TB Suspects
26 DS-TB & 3 DR-TB
(4%) New Cases identified


Messages
Search Twitter
Tweet
41,250
drug-resistant TB patients diagnosed
from January to September 2018
0:07
1,526 views


Messages
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First Meeting of the National Technical Working Group on Private Sector Engagement at New Delhi ongoing on 9th Jan 2019 under the expert guidance of Prof Venkatraman, Faculty of Management Studies, Delhi and several State, National and International subject experts. @MoHFW_INDIA


Messages
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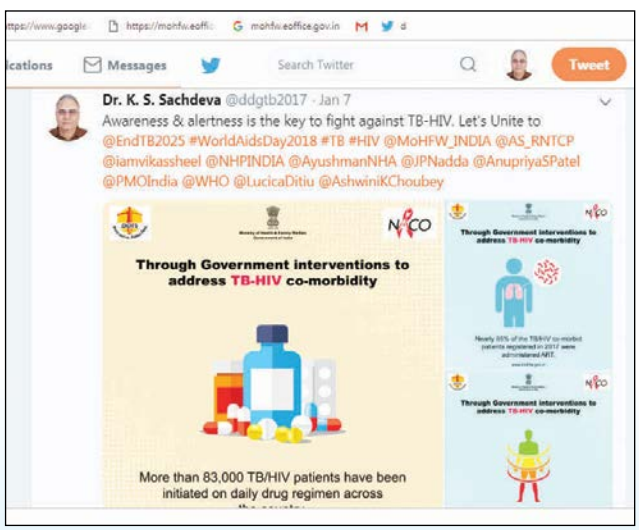
Union minister @AshwiniKChoubey reviews National TB Control Programme, wants all stakeholders cooperation to combat and eliminate TB. @JPNadda @MoHFW_INDIA @ddgtb2017
Healthworld
Union min reviews National TB Control Programme - ET HealthWorld
To the query of the minister, it was stated that after the last drug found in 1960, a new and more effective medicine was found and introduced in 201...


Messages
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Dr. K. S. Sachdeva @ddgtb2017 · Jan 7
Awareness & alertness is the key to fight against TB-HIV. Let's Unite to @EndTB2025 #WorldAidsDay2018 #TB #HIV @MoHFW_INDIA @AS_RNTCP @iamvikassheel @NHPINDIA @AyushmanNHA @JPNadda @AnupriyaSPatel @PMOIndia @WHO @LucicaDitiu @AshwiniKChoubey
Through Government interventions to address TB-HIV co-morbidity
More than 83,000 TB/HIV patients have been initiated on daily drug regimen across

Challenges:

- Empower community to understand Government services
- Enhance community ownership to prevent the transmission of disease
- Identification of the factors stopping the community to share bank account details and required information to the programme for effective implementation of Nikshay Poshan Yojana (NPY)

Community Engagement for a People-centred and Community-led TB response

Chapter 13

Celebration of World TB Day in New Delhi (24th March 2019)

Chapter 13

Community Engagement for a People-centred and Community-led TB response

Background:

Under the National Strategic Plan (2017-25) of the Revised National TB Control Programme (RNTCP), a community-led response for TB has been incorporated as one of the key strategies to reach the un-reached and to support TB patients through their illness. Community engagement is the process of working collaboratively with and through communities to address issues affecting their well-being, including influencing systems and serving as catalysts for changing polices, programs and practices, more patient sensitive.

TB patients are affected by social and political factors (such as stigma and discrimination, availability and access to services at a convenient time and in their social context like work, migration, gender etc.), and economic barriers (for example, the cost of transport, ancillary medicines and investigations in private sector).

The role of community engagement in contributing to TB prevention, diagnosis and treatment, especially among marginalized and vulnerable population, and for those who seek care from to private health sector, is therefore well recognized.

Patient support services through community participation focus on:

- Awareness creation and stigma reduction
- Screening
- Referral
- Treatment adherence support
- Social support
- Equity and Non-discrimination

Empowerment for sustainable community engagement focuses on

- Inform i.e. improve community awareness
- Empower by building capacity
- Institutionalize formal structures
- Accountability through feedbacks and Community Monitoring
- Financing which is general & sustainable

Some key community engagement activities being undertaken include:

- Training of TB advocates, survivor and champions who can demand changes and quality health care.
- Capacity-building for peer learning, counseling, advocacy, service delivery, monitoring etc
- Establishment of patient support groups for those affected by TB
- Sensitizing Village Health Sanitation and Nutrition Committee, Mahila Aarogya Samiti (VHNSC), Panchayat Raj Institutions on TB
- Providing community-led mentoring and call centre for grievance redressal services and providing information on TB
- Patient score cards to get feedback on TB services

Institutional Structures

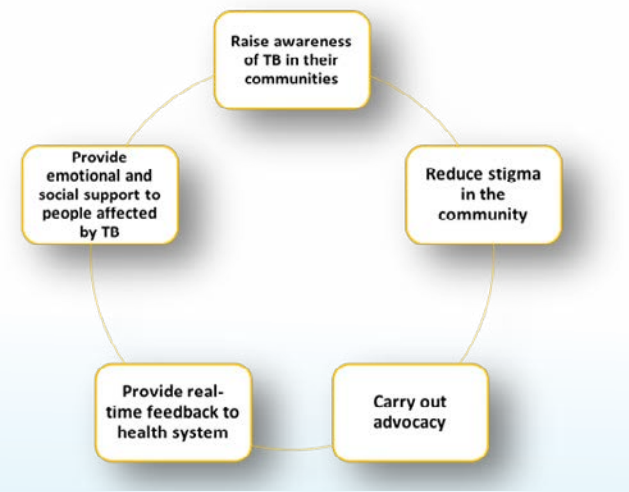
For a community-led response to TB, a National TB Forum, State TB Forums and District TB Forums are being created, with represtations of people affected by TB, civil society NGOs decision makers and programme managers. At the sub-district and village level, creatation of community-led TB forums of people affected by TB, creation will be facilitated.

National TB Forum	State TB Forums	District TB Forums
• National TB Forum formed • First meeting held in April 2018 under Chairmanship of Secretary Health, GOI	• Each State to establish a forum with key decison makers and TB Champions/ affected communities • More than 20 States/UTs have already formed such forum.	• Each District to establish a TB forum with key decison makers and TB Champions/ affected communities • Over 350 District TB Forums have been established.

TB Forums have the mandate to:

- Advice the programme on strategies for engaging communities and increasing community participation in TB program,
- Periodically review progress of NGO related activities and involvement of communities
- Facilitate community financing to sustain TB patients support services through community.

All forums include community representatives and TB Champions as members.



TB Champions:

There is growing recognition that affected communities – TB survivors, patients and their families – must play a greater role in the response to TB. Accordingly, RNTCP will engage TB Champions in the TB response in the following ways:

A standardized curriculum is being developed to support TB survivors to become effective Champions and advocates.

Chapter 14

Research

Partners' Forum in New Delhi (12th- 13th December 2018)

Chapter 14 Research

Background

"Intensified research" is an important pillar for elimination of TB. The major components of this pillar are "discovery, development and rapid uptake of new tools, intervention and strategies" and also to promote research and innovation to optimize implementation and impact." Research is a critical component to break the trajectory of the epidemic and to reach the target of Ending of Tuberculosis by 2025. It aims to intensify the development of new tools and strategies and their adoption and effective rollout in the country.

In order to maximize India's response to TB elimination, Revised National Tuberculosis Control Program (RNTCP) has been actively involved in conducting research activities in the form of operational research which helps the programme to develop in-country evidences to guide the policy decisions. As new evidences became available, RNTCP has made necessary changes in its policies and programme management practices.

One of the mandates of NSP is to scale up TB research and develop newer and comprehensive approaches to control TB. An organizational structure has also been capacitated to review, optimize the operational research and make recommendations for improvement of program output.

RNTCP is continuously promoting Operational Research (OR) and set up mechanisms for its strengthening, it has resulted in improvement of quality, effectiveness, efficiency and accessibility (coverage) of the control efforts.

Structure for operational research under RNTCP:

- National OR Committee
- Zonal OR Committee
- State OR Committee
- Medical colleges

Priority Areas of Operational Research:

- Strengthening surveillance and tuberculosis notification
- Improvement of TB disease burden estimation
- Understanding TB transmission
- Demand generation, Prevention, systematic screening of high-risk groups, and early case finding
- Improving the cascade of care in public and private sector care
- Socio-economic impact and poverty alleviation
- Strengthening RNTCP management
- Integration with State Insurance and Universal Health Coverage (UHC) initiatives

Summary of National Operational Research proposals

Status of operational Research proposals submitted and approved by National Operational Research Committee Meeting for FY 2017-18 are as follows:

Date of Meeting	NO. of Proposals presented	No. of proposals Approved	No. of proposals Initiated
5th February 2018	11	4	2

Studies supported by Global Fund

Under Global Fund Grant 2018-21, funding has been provided to ICMR for conducting operational as well as implementation research studies, currently ICMR is conducting 5 research studies under this grant. Details of these studies are as follows:

Studies supported by Global Fund		
S.No.	**Study Title**	**Principal Investigator**
1	"After two years of RNTCP treatment among TB patients: What's the status of their child contacts (less than 14 years)?"	Dr. Avi Kumar Bansal, Scientist E, National JALMA Institute for Leprosy and OMD, Agra, India.
2	Prevalence of Microbiologically Positive Pulmonary Non-Tuberculous Mycobacterium (NTM) including Species Information under the Revised National Tuberculosis Control Programme (RNTCP), India.	Dr. Shripad A Patil, Director, National JALMA Institute for Leprosy and OMD Agra, India.
3	Sentinel Surveillance for measuring the TB Burden and trends in High Risk Group for TB.	Dr. P. Paul Kumaran, Scientist E, NIRT, Chennai
4	Feasibility and acceptability of 12doses Rifapentine–Isoniazid in preventing Tuberculosis among household contacts of patients diagnosed with Tuberculosis under programmatic conditions in India– a demonstration study.	Dr. Pradeep A. Menon, Scientist F, NIRT, Chennai
5	Strengthening Mechanisms for TB Death Reporting under the Revised National Tuberculosis Control Programme (RNTCP) and the Registrar General of India.	Dr. Avi Kumar Bansal, Scientist E, National JALMA Institute for Leprosy and OMD, Agra, India.

Implementation and Operational Research Studies supported by Global Fund

Following Implementation and Operational Research studies has been conducted by Indian Council of Medical Research in collaboration with Central TB Division under the Global Fund

grant IDA-T-CTD from March 2016 to December 2017.

Sr No.	Title
1	Strengthening Tuberculosis and HIV detection and Management through intensified case finding in Central Jail, Aizawl, Mizoram.
2	A multi-component health system strengthening intervention to reduce pre-treatment loss to follow up of smear positive tuberculosis patients in Chennai.
3	Improving treatment adherence among tuberculosis patients through evening DOTS in Chennai, India.
4	Systematic screening of presumptive TB patients and gastric aspirate specimen collection in primary and secondary health care facilities in Rajnandgaon district, Chhattisgarh.
5	Identifying and addressing factors contributing to pre-treatment loss to follow up of tuberculosis patients referred for treatment from medical colleges in Pondicherry.
6	Revision of Tools for Evaluation of Programmatic Management of drug Resistant Tuberculosis and their use in three states of Northern India.
7	Engaging public sector AYUSH practitioners to increase referral of presumptive TB Cases for early tuberculosis case detection in Shimla and Kangra districts of Himachal Pradesh, India.
8	Identifying the costs contributing to catastrophic expenditure amongst TB patients registered under RNTCP in two metro cities in India.
9	Provision of DOTS by a Family member to prevent treatment default in tribal and hard to reach areas in the state of Chhattisgarh , India: An Implementation research study I Kondagaon district.
10	Developing an integrated strategy to improve utilization of Tuberculosis services among people who inject drugs (PWID) in Mizoram.

Operational Research projects under RNTCP in FY 2018-19

S.No.	Study Title	PI	Status	Total Duration
1	Tuberculosis among paediatric household contacts of drug sensitive and multi-drug resistant TB patients – a multi-centric prospective cohort study	Dr Sangeeta Sharma, NITRD	On going	3 Years
2	Evaluation of gene xpert as compared to conventional methods of genital TB among infertile Women.	Dr J.B. Sharma, AIIMS, Delhi	On going	3 Years
3	A Randomized controlled trial of either Discontinuation at 6 months or continuation till 9 months after initial response to RNTCP Category I treatment	Dr. C.S. Yadav, AIIMS, Delhi	Completed	4 Years
4	Evaluation of gene xpert as compared to conventional methods of genital TB among infertile Women.	Dr Sudha Prasad, MAMC Delhi	On going	3 Years

*list of research paper published by CTD in year 2018 is attached as Annexure I.

Developments in Research

Prevalence Survey: Considering the diversity and variation of burden of Tuberculosis across the country, Central TB Division, Ministry of Health & Family welfare, Government of India in collaboration with Indian Council of Medical Research (ICMR) is conducting a National TB Prevalence Survey in 20 States. The survey is planned for the period 2018-19 to 2020-21. The Objective of the Survey is to estimate the point prevalence of TB in India and 20 States/groups of states. The survey will be implemented across the country using specially designed Mobile Vans equipped with Digital X-ray Unit and CBNAAT machines by 20 Survey Teams.

Research Consortium for Tuberculosis: India TB Research Consortium has been created with joint collaboration between Central TB division and ICMR. This consortium helps to address various TB related challenges on mission mode by bringing together all agencies (National & International)

The aim of the Consortium is to develop advance technology and products by harnessing interdisciplinary expertise and focus on building and strengthening scientific capabilities to accelerate development of new diagnostics, new & improved vaccines, immunotherapies, drugs for TB. The consortium will also drive the development of a pioneer national TB Research Strategy in

line with the WHO End-TB Strategy and create a scientific network and develop a country specific prioritized research agenda that will allow India to be a model country for TB research.

This forum will have strong financial and technical commitment from all stakeholders, including Department of Biotechnology (DBT), Council of Scientific and Industrial Research (CSIR), Departments of Science and Technology (DST) and other academic/ research institutions and representatives from the private sector.

Involvement of National Institutes in TB Research

National Institutes like NIRT, JALMA, NITRD & NTI are exclusively focusing on TB research. ICMR & its basic science institutes, Department of Health Research (ICMR), DST, DBT, CSIR and Indian Institute of Science (IISc) India are also leaders in basic, clinical, translational and operational research.

In addition various technical partners like WHO, The Union support in capacity building and implementation of researches under RNTCP, funding through various institutes could be harnessed to promote integrated research.

National Research Committee provides technical guidance to Central TB Division in identification of priority areas for Operation Research under RNTCP and helps the programme in taking evidence based policy decisions.

Operational Research Course 2018-19

The Union South Asia Office, New Delhi in collaboration with Central TB Division, WHO India office and Centre for Disease Control (CDC), Atlanta has been conducting Operational Research (OR) Training courses as part of research capacity building for TB program in India through Project Axshya. The training is based on the success of 'The Union/ MSF' model of capacity building, a target-oriented training with defined milestones and expected outputs.

The 5th OR training course was inaugurated on 20th August 2018 by Dr. Kuldeep Singh Sachdeva, Deputy Director General, Central TB Division; Dr. Rohit Sarin, Director, National Institute for TB and Respiratory Diseases (NITRD) and Dr. Sarabjit Singh Chadha, Deputy Regional Director, The Union South East Asia office.

Module 1 and 2 were conducted at NITRD, New Delhi during August 20-31, 2018 with 17 participants involved in TB program selected through open call for applications. Key areas of research were Active Case Finding (ACF) campaign impact, geospatial distribution of DR TB patients, LTBI among contacts paediatric TB in private sector, treatment outcomes in private sector, etc. List of research papers published through Operational Research course is attached as Annexure III.

BRICsTB Research Network

Considering the burden of tuberculosis in the Brazil, Russia, India and China (BRICs) countries and the research capacity that lies within these five countries, the BRICs Research Network was conceived in light of the strong need of rigorous research to develop new tools and inform about the best use of existing and new interventions in TB control. It is an outcome of the BRICs TB Cooperation Plan approved in the 6th Health Ministers Meeting in New Delhi, 2016, and supported by BRICs Heads of States, as agreed in the Xiamen Declaration, 2017.

Purpose of this Network is to promote and conduct collaborative scientific research along the spectrum, from basic to operational, for the development and innovation on diagnostics, vaccines, drugs and regimens, infection control for TB and patient service delivery. Till now four meetings have been conducted. Management and operational mechanisms of the BRICs TB Research Network , Terms of Reference (TOR) and work plan has been defined in first meeting held at Rio de Janeiro, Brazil.Ministry of Health & Family Welfare (MoHFW) and Indian Council of Medical Resarch (ICMR) are commited and working towards it.

3rd BRICs TB Research Network Meeting held on 28th -29th June at Johannesburg, South Africa

Chapter 15

Human Resources

Hon'ble Minister of State reviewed the program

Chapter 15
Human Resources

Human resource is the key resource of any service delivery system. The performance of health care system is directly related to the numbers, distribution, knowledge, skills, and motivation of its workforce, particularly of those individuals delivering the services. Health workers are essential in tuberculosis control given the fact that they determine the quality control and efficiency of provision of TB control interventions.

Human resources for RNTCP consist of all categories of clinical and non-clinical staffs that make each individual responsible for and public health interventions. These workforce has been deployed at different levels i.e. block, Districts, Region and Central. Central and regional levels support the district level.

The RNTCP has integrated its HRD policy in the NHM HR policy to enable it to function at optimal capacity in the states/districts in an integrated manner with the General health system. The HR plan of RNTCP prefers posting of regular state staff for senior positions in RNTCP for eg. MO STC, MO STDC etc. However, the event of unavailability of such at the state level, the programme hires staff on a contractual basis. (Details of Human Resource at State and District level at Annexure …).The HR policies of the contractual are governed by the respective State based on state specific situation and are similar to other programme under NHM. The Performance (Workload) based incentives introduced recently by the Programme & that are to be given to the contractual staff at State / district / sub-district level. Decisions related to performance-based incentives would be centered on core performance indicators. The details of the same are available on the website tbcindia.gov.in.

One of the main elements of HR is training which builds adequate workforce to cater to complex and demanding multiple new task for MDR/ XDR TB and co-morbidities care. RNTCP has traditionally adapted the cascading methodology to train its Staff, with National institutes and NRLs being involved as centres for training the trainers (STO, STDC Staff, IRL Staff, DTO, Medical College faculty and STC MO-RNTCP etc.) on various components of the programme (list of National level trainings at Annexure ….). These trainers come back and train the relevant cadre.

The size and complexity necessitates a more focused training delivery, relevant to the particular trainee category, without generating multiple versions of the same instruction. New instruction need to be integrated easily and penetrated quickly to the periphery, while maintaining quality standards and efficiently utilizing training resources. The development of E-learning methods gives us the opportunity to achieve all the above.

The National Strategic Plan (NSP-2018-2025) envisages the introduction of innovative, user friendly approaches to capacity building. One of the key strategies is to move towards an e-learning mode utilizing the web based and mobile based learning experiences. The programme will be transitioning from conventional stand-alone modular training methodologies to newer composite tools which enable self-learning.

Apart from the e-training modules, simultaneously the STDCs are being further strengthened. The STDCs act as resource centres

for translating the content to vernacular and adding relevant content as per local needs at the State level. The STDCs will also continue to act as centres for final certification of successful completion of training by interacting with the participants after culmination of e-learning and administering a post-test questionnaire, if needed. These steps will not only help in rapidly filling the gap of untrained staff but will also prove to be an effective and sustainable way to keep-up with changing policy guidelines and percolating correct knowledge to every level of staff.

Training Programs at National Tuberculosis Institute, Bengaluru (2018)

Training Program at National Tuberculosis Institute, Bengaluru (2018)

Chapter 16

Partnerships

Shri Sanjeeva Kumar (Addl. Secretary, MoHFW), Shri Vikas Sheel (Joint Secretary, MoHFW) Shri Kuldeep Singh Sachdeva (DDG-TB, MoHFW) and Dr. Imran Sayed (Project Director, Challenge TB)

Chapter 16 Partnerships

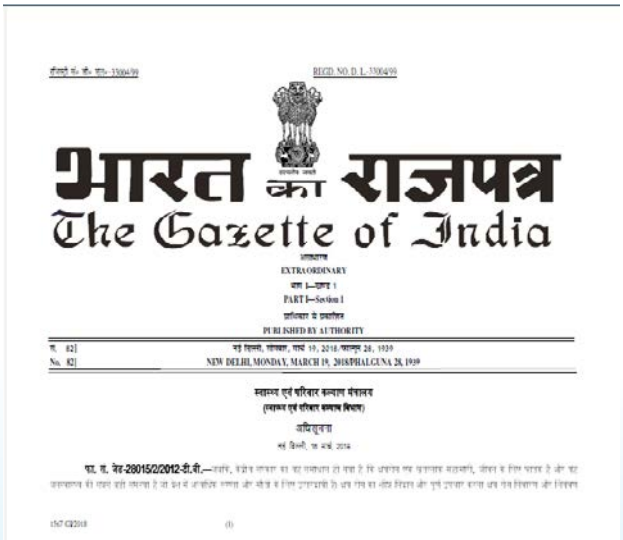
In India about 80% of the outpatient care is provided by private health care providers. Considering the quantum of private sector, it necessitates to leverage their capacity to expand health coverage. The public sector plays role to ensure quality of services through capacity building and regulatory measures.

Performance of TB services through partnerships has been divided into

1. Notification of TB patients from private providers and their management
2. Engagement of NGOs and Private Providers through National Guideline on Partnerships
3. Partnership with Developmental Partners and Indian Medical Association
4. Involvement of Medical Colleges

Notification of TB patients from private providers and their management

TB is a notifiable disease vide 2012 as per declaration of Government of India Order. This has expanded the ambit of TB surveillance covering all public as well as private health facilities. The healthcare providers shall notify every TB cases to local authorities such as District Health Officers/Chief Medical Officers of a district and Municipal Health Officer of a municipal corporation. This notification should be done every month. The surveillance begins with the notification, and completed with acting on the information gathered. In March 2019, the notification was published in Gazette of India, making it mandatory for private providers to notify TB patients and public health system to act upon it.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स्वास्थ्य एवं परिवार कल्याण मंत्रालय

अधिसूचना

In 2018, TB notification has been increased to 5,37,836. This is 35% increase in notification from private sector as compared to 2017.

Engagement of NGOs and Private Providers through National Guideline on Partnerships

For expansion of services through partnership with NGOs and Private Providers, RNTCP has National Partnership Guidelines to guide the States. 22 partnership options are available under this guideline.

Through these efforts, 685 NGOs and Private Providers were engaged. Among them are, 187 Designated Microscopy Centres, 88 laboratory technicians, 80 specimen collection and transport units, 80 ACSM units, 58 Adherence support units, 40 Urban slum, 10 C& DST laboratories, 14 TB units were established. State wise and scheme wise information on these collaboration has been placed below

State wise and Partnership Option wise details:

State	No. of Collaborations	ACSM at Community level	ACSM for Youth	ACSM for PRI	Designated Microscopy Centre	Designated Microscopy cum Treatment Centre	Culture & DST Services	DR TB Centre	Corporate Hospital/ clinics involvement	TB Control in Urban Slums	Referal of TB HIV patients	TB-HIV intervention for High risk groups	Paediatric TB	Case Management & Reporting	Sputum Collection & Sputum Transport	Contact Tracing	Chemoprophylaxis	Adherence of TB cases	Lab Technician	TBUnit Model
Andhra Pradesh	14				2	1	1												8	2
Assam	13	3				8									2					
Bihar																				
Chandigarh	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chhattisgarh	7				3														4	
Delhi	51																	51		
Goa	2									2										
Gujarat	63	30			11	**5**				17										
Himachal Pradesh	30				24	**0**				5					1				0	
Jharkhand	10	1	1	1	0	**4**	0	0	0	0	0	0	0	0	2					1
Karnataka	24		3	2	7	**3**		2		1					2				3	1
Kerala	52	2			37	**3**			5						2			1	2	
Madhya Pradesh	16	2			1	**4**	1			2					1				5	
Maharashtra	32	4			11	**1**	3	2							6	2		2	1	
Manipur	2				1	**1**														
Meghalaya	15	2	1		1	**5**	1					1			2			2		
Mizoram	6					**3**									3					
Nagaland	21	6			2						1			2	5	5				
Odisha	18	2			4	**2**				1									9	
Puducherry	1														1					
Punjab	3	1			1														1	
Rajasthan	90	4			2	**2**				1				80	1					

State	No. of Collaborations	ACSM at Community level	ACSM for Youth	ACSM for PRI	Designated Microscopy Centre	Designated Microscopy cum Treatment Centre	Culture & DST Services	DR TB Centre	Corporate Hospital/ clinics involvement	TB Control in Urban Slums	Referal of TB HIV patients	TB-HIV intervention for High risk groups	Paediatric TB	Case Management & Reporting	Sputum Collection & Sputum Transport	Contact Tracing	Chemoprophylaxis	Adherence of TB cases	Lab Technician	TBUnit Model
Tamil Nadu	18	1			12	**3**	1								1					
Telangana	11	1				5	1											1		3
Tripura	1	1																		
Uttar Pradesh	0																			
Uttarakhand	5				1	3									1					
West Bengal	179	9	5		15	13	2	1		13					49	16	6	1	42	7
Total	**685**	**69**	**11**	**3**	**135**	**66**	**10**	**5**	5	42	1	1	0	82	79	23	6	58	75	14

States who are not engaged with NGO/PPs with financial support through Partnership Options are Andaman & Nicobar Islands, Arunachal Pradesh, Daman & Diu, Dadra Nagar Haveli, Haryana, Jammu & Kashmir, Lakshadweep and Sikkim

Partnership with Developmental Partners

International Union Against TB & Lung Diseases (The Union)

Project Axshya

Global Funded, The Union's Project Axshya supports in enhancing the access to diagnosis and treatment of TB cases among vulnerable and marginalised groups in 128 chosen districts of 14 states across the country.

The Union works in partnership with 5 sub-recipient partners, over 200 local NGOs and nearly 2000 community volunteers. Following progress has been made during in financial year 2018 under the project are:

- Reached out to over 5.3 million people from various vulnerable and marginalised communities.
- Facilitated identification and testing of over 1, 05, 300 presumptive TB cases.
- ~ 80,000 sputum samples were collected and transported.
- Facilitated diagnosis and treatment initiation of 14,144 patients.

- Sensitised nearly 2,600 TB patients including 933 (36%) women on their rights and responsibilities through patient charter.

Progress related to programmatic indicators (Jan – Sep 2018)

Indicators	Target	Achievement	% achievement
No. of households covered through active case finding	14,20,800	10,58,902	75%
No. of Sputum Collection and transportation done	71,040	79,558	112%
No. of health facilities with fast tracking intervention initiated	128	109	85%
No. of health camps conducted	768	422	55%
No. of active surveillance units established	3840	2115	55%
Number of notified cases of TB (all forms)	14208	14144	100%
No. of TB cases notified among KAP (subset of all notified TB cases)	12787	13868	108%
No. of TB patients put on treatment	14144	13065	92%
Treatment success rate	NA	NA	NA

The Union is also supporting use of Public Financial Management System (PFMS) and Direct Beneficiary Transfer (DBT) in 16 priority States. Till September, 2018, expenditure reporting has been started through PFMS in 95% districts for RNTCP. Six additional sates have also been added for supporting rollout of PFMS and accelerating uptake of DBT.

CHALLENGE TB

Under the stewardship of Ministry of Health and Family Welfare, the USAID funded global flagship project- Challenge TB (CTB) in India, is implemented by The Union, Program for Appropriate Technology in Health (PATH) and KNCV (a DUTCH Tuberculosis Foundation) with The Union as the lead partner. The Project has increased political will and leadership to tackle TB in India through a high-powered Call to Action for a TB Free India initiative.

Key areas of focus in the country include scale-up of programmatic management of drug-resistant TB (PMDT), particularly through the introduction of new anti-TB drugs; digital solutions for TB i.e., e learning, ICT enabled adherence mechanisms; case-finding and treatment initiation for vulnerable populations, including children and people living with HIV through engagement of other health providers in public and private practice; and increasing political action and domestic funding for TB in the face of dwindling international aid. CTB India is being implemented in the states of

Maharashtra, Punjab, Gujarat, Assam, Delhi, Tamil Nadu and Uttar Pradesh. The major achievements of the project in the year 2018 are.

- Successful completion of Bedaquiline Conditional Access Programme (BDQ CAP) leading to pan India expansion of Bedaquiline access
- A total of 1669 patients were initiated on BDQ containing regimen,
- Provided 140 ECG machines across 29 states and 7 Union territories and 829 patients follow up tests facilitating roll out of New Drugs and shorter treatment regimen with active Drug Safety Monitoring (aDSM)
- Conducted 6 state level revised PMDT guidelines and review cum trainings for introduction of Delamanid (DLM) in India leading to roll out of shorter treatment regimen and Delamanid Conditional Access Programme (DLM CAP);
- Experience sharing workshop for scale up of new drugs and shorter treatment regimen conducted for 156 nodal DR TB centres across 33 states and union territories
- Supported preparation of framework of work place policy,
- First Inter-ministerial meeting with >25 ministries and national consultation of PSUs for multisectoral action for a TB Free India
- CTB through its partners PATH and FIND demonstrated successful policy defining interventions for drug resistant TB, HIV-TB and pediatric TB in private sector. Details of performance on these interventions are provided in relavant partners' section.

2) SAATHI

Catalyzing Pediatric TB Innovations (CaP-TB project)

A four year (Oct 2017 – Sept 2021) multi-country Pediatric TB initiative supported by UNITAID and Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) with SAATHII acting as the implementing partner in India. The objective of CaP TB project in India is to support rapid scale-up of pediatric TB services across private health sector through evidence generation.

The project began its field implementation in mid-2018 in the six implementation districts across three states of Andhra Pradesh, Telangana and Maharashtra. The following are the key project outputs:

- Completed the policy landscape analysis of pediatric TB services
- Mapped 4,777 private health facilities, visited 3493(73%) facilities, identified 1422 (41%) facilities providing pediatric services and is in the process of establishing hub and spoke model
- Identified 68 private health facilities that can serve as hubs for pediatric TB services and established 30 hub sites who are either providing or willing to provide comprehensive pediatric TB case management services from screening, diagnosis, treatment till completion.

- Starting August 2018, 171 pediatric TB cases were diagnosed out of 388 presumptive cases from private health facilities. 168 new pediatric TB cases are initiated on TB treatment and 157 of them are reported in Nikshay. In addition, 200 pediatric TB cases that were diagnosed prior to August 2018 and not notified were compiled and notified in the Nikshay.

- CaP TB project supported the national technical working group on Pediatric TB guidelines development

- The project joins hands with Indian Academy of Pediatrics (IAP) for joint ownership, training of its member Pediatricians on practicing national guidelines and standards of TB care, ensuring notification of pediatric TB cases and their treatment outcomes.

1) Global Health Strategy

Global Health Strategies (GHS) combines expertise in policy research and communications to enable evidence-based solutions on issues of public health importance.GHS has worked closely with the Central TB Division to raise public discourse and build awareness on tuberculosis (TB) in India through audience-specific materials and communications strategies.

- **Policy Research**

Supported the development and the launch of the patient support systems report titled, *'State Initiatives on Patient Support Systems for TB Elimination in India'.* The reportcovered nutrition, economic assistance and psycho-social supportmodels and measures that are being implemented across 16 states in India. The report also captured patient experiences (from 88 beneficiaries) which shed light on the impact of such initiatives and provides implementers opportunity to learn more on the community's perspective. The report was launched in November 2018 that was accompanied with comprehensive social media activities that amplified attention to the report.

- **Media sensitization workshops**

National media workshop: A media sensitization workshop for national and regional media outlets was organized in July 2018 in New Delhi. The workshop shared factual information with journalists and clarified key aspects of the scheme. About 26 journalists from mainline publications participated in the workshop.

Media workshops in states: Apart from the national level, media workshops were organized in Patna and Pune, in partnership with and with support from the State TB Officers (STOs) to increase the discourse on TB in states, ensure accurate information on the program's initiatives and reach the broader public through the media.

- **Sensitizing political leaders in Maharashtra**

GHS supported the Maharashtra State TB Office in organizing two meetings in March and November 2018and in the process sensitized 38 Members of Legislative Assembly (MLAs) from across the state. The political leaders pledged to support the program in their constituencies by working with their respective District TB Offices, and the health department at the state level.

- **Communications support for the Delhi End TB Summit:** GHS provided sponsored the development of an 8-minute video for the launch of the "TB Free India Campaign: India's Commitment to Eliminate TB by 2025" which was launched by the Hon'ble Prime Minister at Delhi End TB Summit.

- **Social media support and 'Tracking TB' newsletter:** GHS continued to amplify TB and RNTCP messaging through social media platforms was propagated through such as the *TB Harega Desh Jeetega* Facebook page and Twitter handle; and Tracking TB Newsletter.

4) GLOBAL COALITION AGAINST TB (GCAT)

The Global Coalition Against TB, led by Mr. Dalbir Singh, is a multi-partisan political forum that works to raise the political discourse on TB. Launched in 2013, the forum has brought together over 35 Members of Parliament (MPs) and 18 renowned public health experts to regularly discuss the challenges of TB elimination in the country and support the ministry in galvanizing political will at all levels, to end the disease.

At the Delhi End TB Summit in March 2018, a meeting was organized with the WHO Director General, Dr. Tedros Adhanom Ghebreyesus and Deputy Director General, Dr. Soumya Swaminathan. The MPs raised the importance of TB research to develop new tools including an effective vaccine to eliminate TB, as well as conduct greater awareness about the government's health care initiatives among community

On the side-lines of the first-ever UN High-Level Meeting on TB in September, 2018 in New York, the GCAT organized a dinner meeting to promote idea sharing and dialogue between countries on advancing TB research and development, the need for greater inter-country collaboration and the importance of review mechanisms to track progress of the program. The meeting was chaired by Hon'ble the Union Health Minister, Shri. Jagat Prakash Nadda and was attended by Dr. Soumya Swaminathan, Deputy Director General WHO, Regional Director for WHO South East Asia Region, Representative of the UN Special Envoy for TB, Indian MPs, representatives from the Kenyan delegation and representatives from other multi-lateral organizations and donors.

5) Foundation for Innovative and New Diagnostics (FIND)

Project for Accelerating access to quality TB care for presumptive pediatric TB cases through improved diagnostic strategies

FIND, in collaboration with RNTCP and with funding support from USAID under the Challenge TB Project, implemented a novel initiative from April 2014, initially in the four major cities of India, and subsequently scaled up to include six more cities. This initiative focused on demonstrating the feasibility of rolling out upfront GeneXpert-based diagnosis of TB in the paediatric population.

Key achievements during Jan-Mar 2018 are listed below:

Performance	Case Detection *compared to previous quarter*	Efforts	Quality parameters
6126 patients tested 281 (46%) patients diagnosed 17 (6%) RR-TB patients detected 259 (92%) cases initiated on treatment	↑ 4% in referrals ↑ 15% in paediatric cases	500 + PP sensitized Total 1416 providers engaged	99.7% valid results 99.1% results within 24 hr of receipt of samples

April 2014 to March 2018:

All pediatric project sites were successfully transitioned to the RNTCP by the end of March 2018. In September 2018, the WHO published best practices in their guidance document entitled "Best practices in child and adolescent tuberculosis" citing the pediatric TB project as a recommended model for replication.

E-Training program for laboratory staff working in TB C&DST Laboratories

Under the Challenge TB project supported by USAID, FIND is supporting development of e-Training modules and contents for TB diagnostic technologies and bio-safety practices. The training material is being developed with the help of subject matter experts from NRLs, IRLs and relevant partners. These e-Training modules and contents, in conjunction with other learning methods/ material, shall be then be used for induction trainings, routine competency assessments and provision for refresher trainings on various TB diagnostics technologies in use under the RNTCP. In July 2018, FIND supported RNTCP in organizing an E-training workshop at the NTI, Bengaluru.

Providing Universal Access to Drug-Resistant TB (DR TB) Control Services

FIND continues to provide critical support for establishment and functioning of laboratories. During 2018 FIND, in collaboration with RNTCP undertook the following critical activities towards supporting the implementation of the country's Laboratory Scale up Plan under the Global Fund Grant.:

Establishment of TB LCD Labs	15 completed
	20 in process
Human Resource	335 laboratory personnel incl. Microbiologists, Lab technicians, lab attendants, DEOs
	Traininings
Advance TB Lab Support	5 Whole Genome Sequence facilities
	1 Pyrosequence facility
Regular operations	Supply of consumables
	Maintenance of essential equipment
	Lab Store upgradation at 6 sites
Digital tools	Lab Management Information System
	20,000 tablet computer
Mobile TB Diagnostic Van	45 van equipped with CBNAAT for active TB case finding

Facilitating NABL accreditation TB C-DST labs under RNTCP

As part of the quality assurance mechanism, FIND supported eleven RNTCP TB-CDST labs to achieve the prestigious National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation. These eleven labs achieved NABL Accreditation by November 2018. These eleven labs included 5 NRLs (NIRT, Chennai; NITRD, Delhi; JALMA Agra; BMHRC Bhopal and RMRC Bhubaneswar) 6 IRLs (NDTB Centre Delhi; IRL Lucknow; IRL Guwahati; IRL Nagpur; IRL Cuttack and SMS Medical College Jaipur).

Implementing External Quality Assessment (EQA) for CBNAAT

FIND in collaboration with Revised National Tuberculosis Control Programme (RNTCP), CDC, WHO India and NTI is implementing a comprehensive CBNAAT EQA program for all CBNAAT sites across the country in a phased manner using CDC's Dried Tube Specimen (DTS) technology. The project aims to build in country capacity to manufacture proficiency testing panels at NTI Bengaluru. Microbiologist from FIND and NTI had been trained in Dec 2017 by CDC's International Laboratory Branch (ILB) at Atlanta, USA. Two rounds of EQA/ Proficiency Testing (PT) were carried out under the project using panels manufactured in country using CDC's DTS technology. FIND in collaboration with CTD and NTI, Bengaluru rolled out a pilot of External Quality Assurance program for Private Sector GeneXpert under the UNITAID/STOP TB Partnership supported TB REACH Wave 5 project.

6) JOINT EFFORT FOR ELIMINATION OF TB (JEET)

Project JEET (Joint Efforts for Elimination of TB) was launched with funding support from the Global Fund. It is being implemented by a consortium of 3 partners, William J Clinton Foundation (WJCF), Centre for Health Research and Innovation (CHRI) and Foundation for Innovative New Diagnostics (FIND). The key objective of this project is to set up effective and sustainable structures to strengthen existing systems and seamlessly extend quality TB care to patients seeking care in private sector. The project contracts agencies at district level to work closely with the patient and all patient touch points including chemists, pharmacies, clinics, providers, hospitals, laboratories, and RNTCP. The project is designed to expand the programme management capacity to:

Expected Impact:

- 1.6 million notifications over 3 years
- To report successful treatment outcomes
- Setup effective and sustainable PPM strategy pan India

1) Develop an insight into private sector by conducting mapping & prioritization of private sector healthcare providers

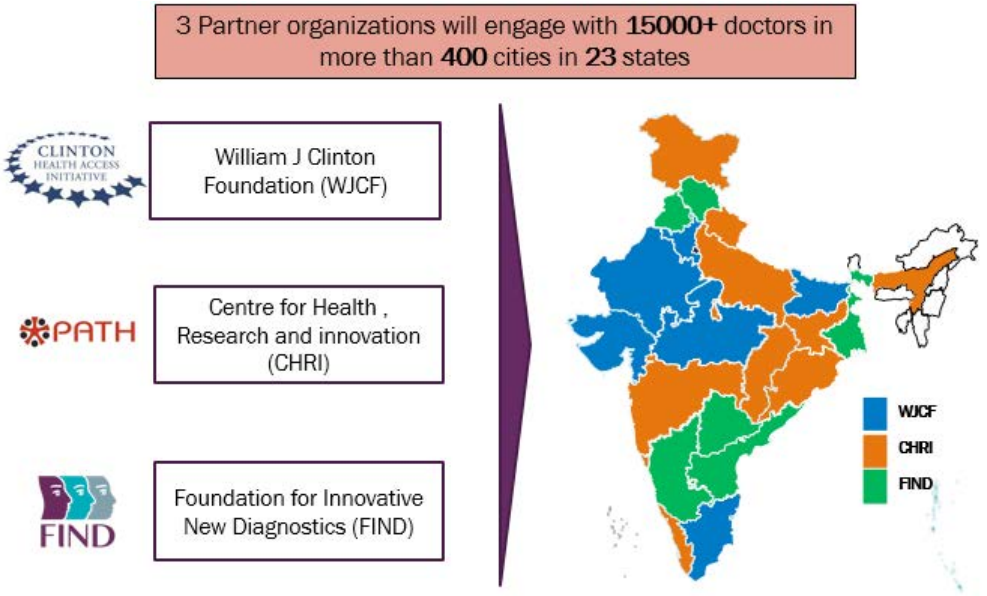
2) Facilitate nationwide access to RNTCP approved affordable TB diagnostics for patients seeking care in the private sector for quality diagnosis

3) Facilitate nationwide access to early,

appropriate and free treatment initiation, public health actions and adherence support systems for patients seeking care in the private sector

Major Milestones Achieved under JEET in 2018:

Hubs Established	Providers Mapped	Providers reached out to / interaction	CMEs conducted	Samples transported and tested through the Hubs and / or our efforts	Notification from PPs
819	57,949	13,504	114	12,524	1,65,739



Coverage Details:

PR	Name of States	Number of *PPSA Districts	Name of Sub Recipients	Number of nPPSA Districts	Population Covered
WJCF	Bihar	01	World Health Partner	27	92,812,979
	Delhi	25	TB Alert India	0	18,024,798
	Gujarat	04	World Health Partner	30	64,462,573
	Haryana	01	TB Alert India	15	22,664,913
	Madhya Pradesh	02	Lepra India	26	51,245,099
	Rajasthan	02	World Vision	22	59,249,011
	Tamil Nadu	04	World Vision	21	59,669,630
	Total	39		**141**	**368,129,003**

CHRI	Assam	1	World Vision	11	1,67,10,391
	Chhattisgarh	0		18	2,36,56,839
	Goa	0		1	15,04,245
	J&K	0		1	17,25,936
	Jharkhand	0		8	1,64,99,788
	Kerala	0		14	3,39,73,596
	Maharashtra	13	WVI/MJK/Alert India	60	10,40,17,796
	Odisha	0		10	1,98,05,350
	Uttarakhand	0		3	49,61,425
	Uttar Pradesh	15	LEPRA/MAMTA	45	17,72,30,894
	Total	29		**171**	**400,086,260**
FIND	Punjab	2		6	1,66,94,152
	West Bengal	11	WHP	18	7,79,28,812
	Andhra Pradesh	1	WHP	12	5,14,83,722
	Telangana State	4	TB Alert India	16	2,67,78,111
	Karnataka	3	TB Alert India	16	4,94,72,592
	Himachal Pradesh	**0**	KHPT	4	40,99,106
	Chandigarh	**0**		1	11,33,639
	Total	21		73	227,590,134
	Grand Total	89		385	995,805,397

*Patient Provider Support Agency (PPSA)

In Maharashtra, World Vision (WVI) covers Bhiwandi Nizampur, Kalyan Dombivli MC, Mira Bhayander and Vasai Virar Maharashtra Jan Vikas Kendra (MJK) covers Bhiwandi Nizampur, Kalyan Dombivli MC, Mira Bhayander and Vasai Virar and Alert India covers Aurangabad MC, Kolhapur, Nashik, Navi Mumbai, Pimpri Chindwad, Pune, Raigarh MH and Sholapur MC

In Uttar Pradesh, LEPRA covers Allahabd, Gorakhpur, Jaunpur and Varanasi, and MAMTA covers Agra, Aligarh, Bareilly, Ghaziabad, Gautam Buddh Nagar, Meerut, Moradabad, Mathura, Jhansi, Lucknow and Kanpur Nagar

7) PATH India

Challenge TB project

DR-TB intervention

Program for Appropriate Technology in Health (PATH), under the United States

for International Development's (USAID) Challenge TB project, initiated the patient-centric drug resistant TB (DR-TB) care project in 2016. The project linked private-sector DRTB patients to public-sector treatment centers for treatment initiation and adherence support, resulting in reduced out-of-pocket expenditures and ensuring treatment completion. Through this initiative which was implemented in 9 districts of Maharashtra, Uttar Pradesh and Odisha. Out of 10,516 presumptive TB cases that were screened with Cartridge Based Nucleic Acid Amplification Test (CBNAAT), 6,366 drug sensitive TB patients and 760 drug resistant TB patients were detected. In 2018, PATH along with the CTD has supported in documenting the key takeaways and experiential learnings from this project in the Patient Support System (PSS) Toolkit. Through the Joint Efforts for Elimination of TB (JEET) project funded through Global Fund to Fight Aids, TB and Malaria project PSS toolkit is being piloted for private sector patients in Thane, Pune and Navi Mumbai in Maharashtra.

Furthermore, PATH team through DBT and PFMS consultants support, is facilitating the government initiative of providing Direct Benefit Transfer (DBT) to the TB patients.

TB/HIV intervention

Through the support of Challenge TB, PATH led efforts to screen private-sector TB patients for HIV and link them to the public sector for treatment and support. PATH tested out various models of TB HIV linkages under Challenge TB, in Mumbai leveraged the private doctors network under the Public Partner Interface Agency (PPIA) initiative and created new network of doctors in Thane, Pune and Navi Mumbai. Out of the 9,473 patients screened for HIV, 181 patients were co-infected with TB-HIV out of which 116 patients were linked to Integrated Counselling and Testing Centres (ICTC)/Anti Retroviral Therapy (ART) for treatment.

To transition the ownership of this model, PATH received guidance from the National Aids Control Organization to develop and implement a draft standard operating procedure, "Expansion of TB-HIV activities in private sector for Public Health action of notified TB cases." This standard operating procedure was developed in consultation with the NACO, CTD and Partners working with both programmes, and in March 2018, PATH presented this standard operating procedure to all the stakeholders for expansion and roll out across India.

8) REACH:

TB Call to Action Project

In 2018, Resource Group for Education and Advocacy for Community Health (REACH) continued to implement the TB Call to Action project, supported by USAID, in six key states – Assam, Bihar, Chhattisgarh, Jharkhand, Odisha and Uttar Pradesh. Through this project, REACH is working to amplify and support India's response to TB by involving previously unengaged stakeholders and broadening the conversation around the disease. In 2018, the project focussed on strengthening and supporting the community response to TB and advocating for increased financial, intellectual and other resources for TB.

Key highlights

- 4 workshops in Assam, Chhatisgarh, Uttar Pradesh
- 122 TB survivors trained on advocacy & communication skills

Capacity building of TB Survivors

- Six-month advocacy mentorship programme
- 37 TB champions from 4 States

TB Champions Mentorship Programme

- Touched by TB national coalition supported
- Six State's TB champions formed network

Survivor led network formation

- Mobile based application for communities
- Response team estabblished in 2 districts of Odisha

TB Mitra Application

- Commitment for TB free consitutency
- Tinsukia, Assam
- Baharagora, Jharkhand
- Phulwari Sharif, Bihar

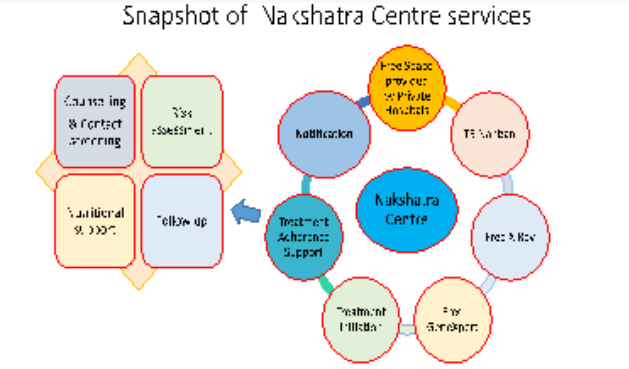
Elected Representatives Engagement

- 9 Letter of Intent with Mining companies in Odisha
- 31 LoI with Tea Gardens Estates in Assam

Employer-led-model for TB

AT A GLANCE

S. No.	Key indicator	Achievement
1	Number of districts with at least one trained TB Champion (since project's inception)	75 districts (Bihar 7, Jharkhand 8, Assam 11 Odisha 10, Uttar Pradesh 12, Chhattisgarh 27)
2	Number of TB survivors trained as Champions through capacity-building workshops (since project's inception)	164 (National 14, Bihar 14, Jharkhand 14, Assam 23, Odisha 14, Uttar Pradesh 31 and Chhattisgarh 54)
3	Number of networks of TB survivors formed	7 (Touched by TB, TB Mukt Vahini in Bihar, TB Elimination Jharkhand (TEJ) in Jharkhand, Kalinga TB Survivors Network in Odisha, Assam TB Champions Network, TB Mukta Chhattisgarh, UP TB Elimination Force)



Nakshatra initiative- Private sector engagement initiative under TB Free Chennai Initiative

TB Free Chennai is a flagship program spearheaded by Greater Chennai Corporation, supported by NIRT, and REACH to make Chennai a TB free city. Under the initiative, REACH has scaled up its multi-pronged approach with a special focus on engagement of private health sector through establishment of Nodal Centres (Nakshatra Centres) for TB care service. This initiative is funded through a stop TB wave 5 TBREACH grant and USAID Tuberculosis Health Action & Learning Initiative (THALI) grant. The goal was to improve and increase access to patients with symptoms of TB to standardized diagnosis, treatment, counselling, strengthen notification rate and provide support services to increase adherence to TB drugs in the private health care sector.

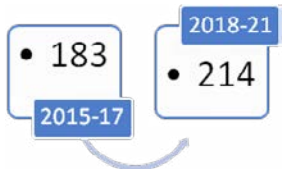
A core feature of this model is the Nakshatra centres in private hospitals which were scaled up and promoted as "Centres of Excellence for TB" in the community. A REACH TB Nanban was also placed in these centres, for guiding and supporting referrals/TB patients for receiving TB care services.

Major progress indicators 2018

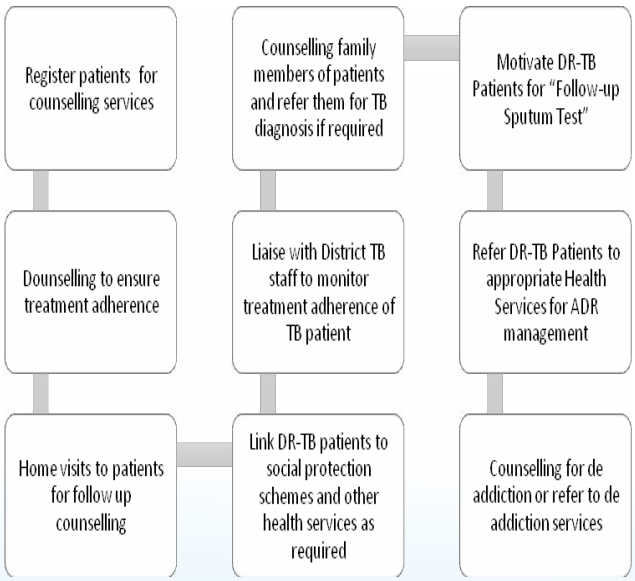
Private Provider Engagement	Case diagnosis and treatment
• 1,643 providers sensitized • 900+ Private Practitioners engaged • 393 pharmacies engaged • 60 laboratories engaged	• 12,079 referrals • 4,588 patients provided free X-Ray • 7,669 patients provided free CBNAAT • 3,380 patients diagnosed • 3,324 patients put on treatment

9) Saksham Pravaah

Saksham Pravaah is a Tata Institute of Social Sciences (TISS) project, implemented as Sub-Recipient to CTD under GFATM Grant. It has been providing psychosocial counselling to DR-TB patient and caregivers through Saksham DR-TB counsellors, in Mumbai, Maharashtra, Gujarat, Karnataka and Rajasthan.



Role of Saksham DR TB Counsellors



Saksham Pravaah Programme Performance-2018

Sr. No.	Activities	Performance
1	MDR TB patients put on treatment by RNTCP	14703
2	MDR/MONO/POLY H TB patients registered by SAKSHAM	13989(95%)
3	XDR TB patients put on treatment by RNTCP	772
4	XDR TB patients registered by SAKSHAM for counselling services	721(93%)
5	No. of DR TB patients registered by SAKSHAM	14710
6	No. of DR TB patients' caregivers registered for counselling services	13186(90%)
7	Total no. of treatment interruption instances reported	3123
8	Total no. of interruption instances retrieved back on treatment	2134 (68%)
9	Total no. of Lost to follow up (LFU) cases reported	768
10	Total no. of LFU patients retrieved back on treatment	110 (14%)
11	Total no. of DR TB patients linked to Social Protection Schemes	497
12	Total no. of DR TB patients linked to nutritional support services	1173

Saksham counsellors have also provided social protection linkages like helping DR-TB patients acquire Aadhar card, ration card, bank account etc. Furthermore, counsellors have also provided nutrition linkages like milk, curd, eggs, protein powder, rice, dal, wheat powder etc., to patients in order to help them adhere to the treatment. Further, **3437** DR TB patient contacts referred for testing, out of which **220** were found to be M-TB positive.

10) World Health Partners

Public Private Interface Agency (PPIA), Patna

World Health Partners (WHP) is the implementer of the BMGF supported project, Public Private Interface Agency (PPIA). Its aim is to facilitate early diagnosis and treatment with free diagnostics and anti-TB drugs, increase private sector TB case notifications, and ensure treatment adherence and treatment completion. PPIA provides free services through an electronic voucher system and facilitates notifications via mobile call to a Call Center.

District (s) Covered	Patna
Total Population Covered	6.4 million
Number of Private Formal MBBS/+ Provider Engaged	635
Number of TB Case Notifications	15,636
Number of Notified Cases Initiated on Free Drugs	12,817
Number of Notified Cases Initiated on GoI FDCs	11,377
Proportion of Pulmonary Cases Microbiologically Confirmed	28%
Proportion of Pulmonary Cases Receiving a DST (CBNAAT)	44%
Number of DR-TB Cases Notified	207

99 Dots and Medication Event Reminder Monitoring System (MERM) adherence: Till October 2018, of the 619 cases enrolled for 99dots, 448 (72%) cases have been given treatment outcomes with a mean adherence of 50%. Similarly, of the 36 cases enrolled for MERM adherence, all were given treatment outcome with a mean adherence of 78%.

PPIA, Gaya: Replicating the Patna model, the Gaya project has been able to engage 105 providers and notified 1,924 TB cases till the month of December 2018.

District	Gaya
Formal provider mapped	419
Formal provider engaged	105
Total TB case notifications	1,924

Tuberculosis Health Action Learning Initiative (THALI), West Bengal

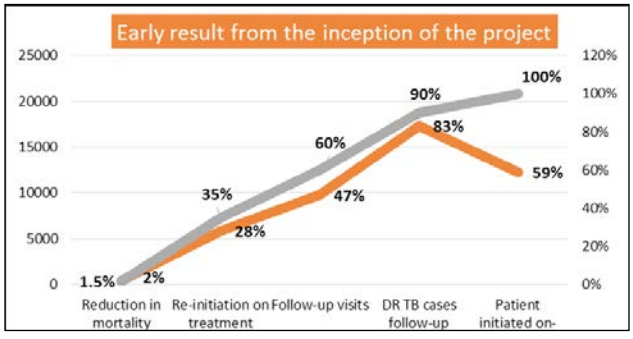
WHP is the implementer of Tuberculosis Health Action Learning Initiative (THALI) project, in partnership with Child in Need Institute, John Snow, Inc., and Global Health Strategies. The project is supported by USAID in five districts of West Bengal. The objectives of THALI are to strengthen urban TB control through community outreach and mobilization; research, evaluation, and knowledge dissemination; and strategic advocacy and media relations in order to create a pathway for the government to integrate successful models. The project partnered with 8 NGOs to implement a "TOUCH" Agent model, in which key community members serve as change agents to build awareness and generate demand for THALI services, facilitate referrals for diagnostic and treatment services, and manage adherence of high-risk patients.

Number of Private Formal MBBS/+ Provider Engaged	1,153 (Jharkhand & Kolkata)
Number of TB Case Notifications (ICT)	4,611 (Jharkhand & Kolkata)
Number of Presumptive Cases Registered	5319
Number of Presumptive cases converted to positives	516

Patient centric care and support: Implementing patient centric support, THALI has now expanded to 15 districts of Punjab, Gujarat,

Bihar and UP apart from West Bengal and Jharkhand thereby promoting a TB-Free Initiative.The project has been successful in the reduction of TB related deaths by nearly 2%, has facilitated re-initiation of treatment for nearly 28% TB cases. The project also anticipated outcomes towards the end of contract which have been expressed against the current in the graph.

Community engagement: By utilising the reach and experience of institutional arrangements (NGOs, SHGs, schools, etc.), WHP aims to increase the community engagement to raise awareness and facilitate early diagnosis of TB/ Sustained care for treatment among the high-risk groups.



Rural Bihar Ananya Program

In May 2017, WHP's rural Bihar Ananya Program supplemented its childhood illnesses – diarrhea and pneumonia – program covering a population of 45.8 million with TB notification services. The project is being implemented in 12 districts of Bihar. To strengthen TB notifications (via Call Center-enabled ICT platforms) and adherence management from the private sector, WHP conducted comprehensive trainings and orientations across the intervention districts in association with the District TB office. From January 2018 till July 2018, the program contributed to 62% of the total private sector notifications across the 12 districts.

Number of Private Formal MBBS/+ Provider Engaged	439
Number of TB Case Notifications	7,317
Number of Formal Providers Sensitized on STCI Protocols	379

11) Indian Medical Association

Indian Medical Association has been the largest medical professional association in the country. With close to 300,000 doctors as a member of IMA and 1700 branches across the country. IMA has interaction & coordination with private medical practitioners right from single practitioner clinics to large corporate hospitals.

Engaging with private practitioners for TB patients who seek care from them is an important intervention in scheme of things planned to make TB Free India. IMA has been associated with RNTCP and has brought about a substantial visibility of Standards of TB care to large number of providers from 2007 till 2014. Taking it forward, IMA and Government of India has begun IMA End TB Initiative with advocacy, been tailored to more focused strategies to encourage private providers to expand quality diagnostic and treatment services as per STCI and notify each and every TB patient to improve surveillance.

The Project has been designed to deliver series of Continued Medical Education (CME) Programmes, Communication material for private practitioners, IEC through digital, print and mass media. To conduct CME with uniform material across country, two digital modules

were prepared to give update on diagnosis and treatment of TB, notification system, linkages for free services, and Government run patient benefit scheme.

Performance of IMA End TB initiative:

Sr No.	Output indicator	No.
1	No. of Digital Module developed	2
2	No. of CMEs to conducted with private practitioners	250
3	No. of private practitioners to be sensitized through CMEs	12,500

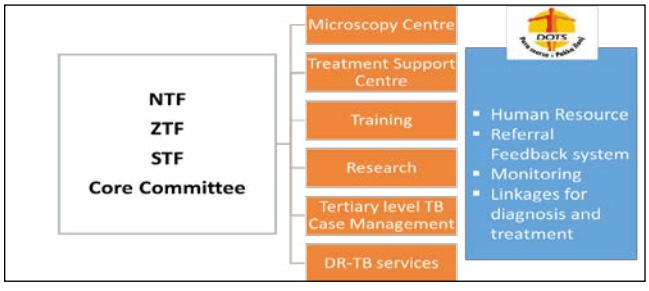
Under the project, attempt was made to conduct large scale media campaign through professional public relationship agency, targeting, largely private practitioners. Under this initiative, 13 authored articles were published, 4 press conferences (Indore, Chandigarh, Lucknow, Goa) were held and 13 creatives (infographics and posters) were designed and disseminated via social media on Twitter and Facebook page. Two films on notification of TB have been prepared and released on social media till now.

Medical College Involvement

Systematic involvement of Medical Colleges under the RNTCP through the Task Force is one of the unique mechanism in the public health interventions in India. Since inception of RNTCP, the Medical Colleges play important roles in service delivery, teaching and training on the national guidelines of TB management, technical inputs in preparing guidelines and operational research.

The medical colleges have been instrumental in expanding programmatic management of drug resistant TB services in India, and now, for scaling up of newer treatment regimens. To facilitate the process and coordination, the Medical Colleges have been provided with a Medical Officer, a Laboratory Technician and a TB-Health Visitor from RNTCP. There is a Task Force for regular coordination, monitoring and advocacy purpose at the State, Zonal and National Level. Below depicted is the Task Force structure, service delivery mechanism and support from RNTCP to medical colleges.

Currently, 407 medical colleges are involved with RNTCP. They contribute 19% of all forms of TB patients and 44% extra pulmonary TB patients out of total TB patients notified in the RNTCP. The service delivery structure in the medical colleges is as follows.



Facilities	Number
No. of medical colleges having DMC and Treatment Support Centre	397
No. of Medical colleges having CBNAAT/TrueNat Laboratories	114
No. of Medical colleges having RNTCP certified C&DST laboratories	39
No. of Medical colleges having DR-TB Centre	99

Best Practices & Success Stories

Chapter 17

Hon'ble Minister of Health & Family Welfare & Minister of State graced the occasion in World TB Day in Uttar Pradesh (24th March 2018)

Best Practices & Success Stories

Chapter 17

Good, Replicable Practices & Innovations in Public Healthcare Systems

The National Summit on Good and Replicable Practices and Innovations in Public Healthcare Systems in India, has, become an institutional mechanism for the sharing of innovations supported by the National Health Mission. The programmatic areas ranging from health systems, maternal and new-born health, family planning, ***tuberculosis*** and other communicable diseases, non-communicable diseases, mental health and e-health are considered. They also include innovations that apply systems thinking to health problems such as the use of information technology to strengthen continuum of care and to addressing human resource shortages and challenges in capacity building, and innovations that address the needs of vulnerable slum populations in the National Urban Heath Mission.

At the 5th National Summit held at Kaziranga, Assam, 39 oral and 80 poster presentations were made on good practices and innovations in public health system. Out of them, 4 oral and 4 poster presentations were selected with respect to RNTCP, details are as under:

Oral presentation

- RNTCP care through private sector innovations in Maharashtra
- Betul initiative for TB free Districts – Madhya Pradesh.
- Covering Private Sector TB Patients through Public Health System – Mehsana Model of Universal Access to Free TB Care– Gujarat
- Rapid Molecular diagnostics (RTPCR) for Tuberculosis Diagnosis under the Revised National TB Control Programme (RNTCP) at primary health care facility level in Andhra Pradesh.

Poster presentations

- AP-eRxApp for Doctors Anti- TB Drugs- Andhra Pradesh.
- Implementing TB Elimination Mission Through Local Self-Government Bodies in Kerala
- TB MuktVahini- Bihar.
- Empanelment of private X-ray' - A Tool Augmenting TB Diagnosis in Mumbai, Maharashtra

The above mentioned presentation downloadable from the following link:

http://www.nhm.gov.in/publications/2018-01-09-09-22-26/national-summit.html

Annual Performance Awards

During the NHM Best Practices Workshop at Assam, the awards were given for the best performing State/UT in Tuberculosis programme implementation based on 7 selected indicators.

Indicators identified:

Parameter	Indicator
Achievement of TB notification among the target identified.	% of Target TB notification achieved
HIV testing/ screening of TB notified patients.	% of TB notified patients with known HIV status
UDST coverage among the TB notified patients	% of TB notified patients with UDST done
Treatment Success Rate of patients.	Treatment Success Rate
Nikshay Poshan Yojana implementation.	% of Eligible beneficiaries paid under Nikshay Poshan Yojana
Shorter regimen utilisation among the eligible DRTB patients.	% of eligible MDR patients offered shorter MDR regimen
Utilisation of the allotted budget.	% of expenditure amongst the fund allocated to the State

Points Allotment System:

- Each State's achievement is graded using the point system.
- Each indicator has been weighted by a point with the State with the highest performance given the maximum point.
  - For Ex: If the point allotted to Percentage TB Target Notification is 15, the State which has achieved the highest Percentage among the Target TB cases is allotted 15 points.
- All other States are allotted points in relation to the point achieved by the State with the highest performance.
  - If State 'A' has achieved 71% of Target TB notification and State 'B' has achieved the highest target TB notification of 99%, the points allotted to States A and B is as follows:
  - State A - (71%/99%)*15 = 11
  - State B - (99%/99%)*15 = 15

Indicator wise point's weightage:

Indicator	Points
% of Target TB notification achieved	30
% of TB notified patients with known HIV status	10
% of TB notified patients with UDST done	10
Treatment Success Rate	15
% of Eligible beneficiaries paid under NikshayPoshanYojana	10
% of eligible MDR patients offered shorter MDR regimen	15
% of expenditure amongst the fund allocated to the State	10
Total	100

Using above system of scoring based on the performance, following States were awarded during the workshop.

1st Prize: Andhra Pradesh
2nd Prize: Gujarat
3rd Prize: Arunachal Pradesh

Intervention in Aspirational Districts under the Extended Gram Swaraj Abhiyan

Ministry of Health & Family Welfare had implemented health related interventions under the Extended Gram Swaraj Abhiyan in 117 aspirational districts across the country. NIKSHAY Poshan Yojana (NPY) for TB patients was identified for saturation and focussed attention under the Abhiyan. Under the NPY scheme, all TB patients are given Rs. 500/- per month for nutrition assistance during the course of treatment. The focussed action was executed from 01st June to 15th August 2018. By September 2018, 72% of TB patients in aspirational districts were provided benefits under the scheme.

Sri Ajit Kr Dutta, a resident of Coochbehar district, had met a person while visiting the district hospital, who was discussing with some other persons about Tuberculosis- its symptoms, how it spreads, diagnosis, treatment, and care provided by the government during the course of treatment including nutritional support etc. Mr. Dutta became curious and joined the discussion as an audience. After a few days, one of his friends, Mridul Dey Sarkar, a gentleman of 41 yrs of age, developed symptoms exactly simulating Tuberculosis. Mr Dutta advised him to visit the district hospital immediately. After going through all the necessary laboratory tests Mr Mridul Dey Sarkar was diagnosed with Tuberculosis. He was treated for 6 months, got nutritional support as a part of treatment and declared cured by the medical officers after the treatment was over. This incident had immensely motivated both Mr Dutta and Mr Sarkar to spread awareness about Tuberculosis in the community they belong to. They have now formed a team of another eleven highly motivated persons, who have taken oath of working hard to spread awareness about this deadly disease, so that no more people suffer from this disease in their community and even if they develop TB they can seek medical help at the earliest.

Role of ACSM in Schools

Arun Roy, a 48 yrs old male patient, farmer by occupation, from the Purba Bardhman district of West Bengal, was diagnosed with Tuberculosis and he had started taking anti-TB medicines from the private sector. It was becoming difficult for him to buy those expensive medicines from the private chemist shop. Meanwhile, Mr Roy's son who studies in class IX, had attended a School Health awareness programme under RNTCP, conducted by Purba Medinipur district RNTCP staff and became aware of the availability of all TB related facilities in the government free of cost! He then met the local STS, told him the difficulties his father was having in buying expensive medicines from the private chemist shop. The concerned STS arranged everything, i.e. treatment, follow-up test, nutritional support etc for the patient. Now the patient and his family are more than happy as the programme has relieved them from a huge financial burden incurred due to treatment availed in private sector.

Rehabilitation and support to women with TB facing domestic violence

District TB Cell, Hyderabad and NGO, Helping Hand Foundation have joined hands in helping women battling TB and facing stigma and domestic violence with monetary support on a monthly basis ranging from Rs 2000 to Rs 3000, depending on the complexity of the case. Further, some women who are totally abandoned are being provided shelter, boarding and lodging by the NGO.

They have also come up with a plan to leverage Mosques to address the problems being faced by the women in the surrounding localities, irrespective of religion.

Alcoholism among the daily wagers in some slums is high and such men show hostility to women and abandon them if they are afflicted by TB. The core group from the Mosque is trained to counsel men about TB. Information regarding TB is also given during the sermons and pamphlets are distributed after the prayers at the Mosques.

Single Window System for TB- Public Private Partnership.

Strengthening the private partnership is a major Challenge. Co-ordinating with Multi Speciality Hospitals includes a lot of steps. By Creating a Single Window System in the SKS Hospital, Salem, a successful model of public private partnership was implemented.

Sensitizing the Hospital Staff:

Hospital Staff – Consultants, Nurses, Assistants, Lab technicians, Reception Staff and Pharmacist were sensitized on 11.09.2017 about Basics of TB and mandatory private TB Notification. It was the first step to get all the TB Cases notified and provided with TB Support Activities.

One to One Discussions with Consultants:

All the 67 Consultants were sensitized about RNTCP Updates, services under RNTCP, Real time TB Notification and TB Support activities at District TB Centre.

Identifying the Key Staff:

Dr. Sivakumar M.D pulmonologist is a key person to co-ordinate the referral linkages with DTC. He has given circular to all the consultants for CBNAAT Referral of Presumptive TB Cases and Notifying the diagnosed TB Cases.

Ms. Sakthi was made in-charge of referring the patients for CBNAAT, collecting the results, informing the results to the respective consultants who had initiated the referral, and notifying in NIKSHAY on real time basis.

Mr. Senthil, Pharmacist is in-charge of maintaining Schedule H1 register and notifying the cases to DTC. After validation of duplicate entries and repeat patient list, the H1 list would be entered in NIKSHAY through RNTCP Staff. He attends monthly Anti TB Drug Sellers Co-ordination meeting at DTC also.

The single window system activity has been replicated in two more multi-speciality hospitals.

Lessons Learnt: Nothing is Impossible with good co-ordination.

1. Ultimately Death Defeated

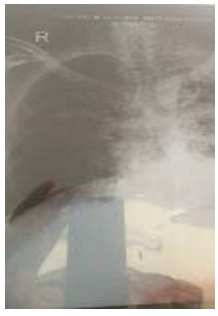
Nothing is impossible in this world. A person can achieve anything if he/she has strong determination, devotion, sincerity and will power. This has been proved by Mr. Tilak Raj S/o Late Sh. Amar Chand R/o Changran, Tehsil and District Kathua. He was the first Extremely Drug Resistance (XDR) Tuberculosis (TB) patient of District Kathua and the State of Jammu and Kashmir. He has proved it right "Where there is Will there is way". He has encountered with so many hurdles during his treatment, as at one point of time he decided to commit suicide on account of his ailment as well as lengthy treatment that was full of toxicity (as narrated by patient himself). But with the support of his family members, relatives, friends etc. along with valuable and coordinated efforts made by DTC Kathua team, he recovered entirely from the ailment [XDR Tuberculosis], and he successfully had overcome the disease and complications caused by toxic drugs given for about 36 months of duration for treatment.

Mr. Tilak Raj suffered from fever but did not approach any doctor for his treatment, rather consumed medicine on his own from local Chemists of the vicinity which did not relieve his symptoms. He ultimately approached a private practitioner who, after conducting X-ray, suggested him to go to District

Tuberculosis Centre Kathua for sputum examination. That too did not lead anywhere as Sputum Examination was "negative" for MTB. So the sufferings faced by him remained continued and he remained under constant fever and after the expiry of about 25 days, he again came to District Tuberculosis Centre Kathua for Re- Examination of sputum but the result again found was "negative". He was taken to Acharaya Shree Chander College of Medical Science, (ASCOMS) (a private Medical college) Jammu for treatment, where he was diagnosed to be suffering from Tuberculosis on CT Scan Chest, where he remained admitted for 45 days as indoor patient but no encouraging response. He was finally admitted at Chest Diseases Hospital Jammu During admission his sputum sample was sent to Intermediate Reference Laboratory (IRL) (located within the same premises) for CBNAAT (Cartridge Based Nucleic Acid Amplification Test), a Gene based test for TB Bacilli detection, which revealed a whole story of his prolonged suffering as he was diagnosed to be suffering from Drug Resistance Tuberculosis. As per PMDT Guidelines after completing three months course at District Tuberculosis Centre Kathua, sputum samples were sent to IRL Jammu and found "positive" that shows no treatment response. Not only this his clinical symptoms were worsening, more involvement, his appetite and weight were reducing, fever again appeared, X Ray chest shows more diseased area so IRL Jammu was requested for second line DST (Drug Sensitivity Testing), so sample was sent to National Institute of Tuberculosis and Respiratory Diseases, New Delhi and Mr Tilak Raj was declared resistant to two second line drugs namely Inj. Kanamycin and Tab. Ofloxacin which revealed that Mr. Tilak Raj was a case of Extremely Drug Resistance (XDR) form of Drug Resistance Tuberculosis so he was again referred for pre-treatment evaluation and initiation of XDR treatment to DR-TB Centre CD Hospital Jammu where he was admitted and his treatment for XDR started being first XDR patient of the State of Jammu And Kashmir. That in saving the life of the patient, Mr. Tilak Raj, numbers of people have contributed significantly including his mother namely Chanchla Devi, sister, wife, uncle and cousin. District Tuberculosis Centre Kathua has played a vital role in saving the life of patient thereby conducting all the necessary tests well in time, conduct proper and relevant counselling of the patient and his family and as such has rendered their services towards the humanity in an honest and dedicated manner.

Precious life of the patient had been saved due to the efforts made by his family members, relatives, friends and more particularly on account of the will power, confidence and courage shown by the patient, relatives, friends and more so un-tiring efforts made by all staff members of DTC Kathua, IRL Jammu and NRL, NTIRD New Delhi. They all proved that everything could be possible in case efforts could be made in a composite manner as have been made by the family members of Mr. Tilak Raj, his relatives, friends and personal working for TB control. Such acts not only unite the family but also left rememberable message to the whole society as man is a social animal.


Tilak Raj Cured XDR Patient and Dr. Kavi Raj (DTO Kathua) counseling Patient & family(wife)



X-Rays of Tilak Raj Dated 28.06.14


Engagement of Corporate Social Responsibility (CSR) for early diagnosis in Bharuch

An MoU was signed with 'Al Mohmmad Private Hospital' Jambusar for digital Chest X-ray of sputum negative TB Patients of Taluka Amod for 1 year and to be auto renewed every year. Since the signing of the MoU, 53 X-rays were done and 20 patients could be clinically diagnosed.

The cost of Rs.100/- X-ray is paid By Seva Yagna Samiti, (NGO) Bharuch. So, the patient gets access to free Digital x-ray. Similar CSR operations have been started at the Dahej health and welfare hospital since 1/07/2018.

At present there are a total 4 Hospitals in 4 different talukas for Chest X-rays for TB Patient under CSR activity. This is very important tool for early diagnosis of TB cases when we are going toward 'TB Elimination 2025'.

Chapter 18

Multi-sectoral Convergence

Workshop on Implementation of TB-Tobacco collaborative activities

Chapter 18
Multi-sectoral Convergence

MULTI-SECTORAL CONVERGENT EFFORTS FOR TUBERCULOSIS ELIMINATION

TB is not only a disease but a social problem. TB adversely affects the poor and marginalized population in the spheres of poverty, employment, nutrition, housing, working conditions etc. Such multi-faceted issues are often beyond the domain of health and call for comprehensive solutions. Despite concerted efforts, Tuberculosis, causes more deaths than any other infectious disease worldwide and is one of the leading killers among people of working age with potential catastrophic social and economic consequences for families, communities, and countries at large.

Globally, there is a paradigm shift to equity, inclusion and rights-based developmental approach with health and wellbeing as an integral part. The Government has shown highest political and administrative commitment to achieve SDG targets for TB by 2025 (five years ahead) by launching TB-Free India campaign.

Multi-Sectoral Collaboration to take convergent action and to reach key populations served by various Ministries/PSUs and Partners such as workers, miners, migrants, slum dwellers, tribal population, women and children etc. is a key strategy in the NSP (2017-25).

Multi-Sectoral Engagement can mainstream TB patients by innovative approaches and through their existing programs/schemes and contribute towards ending TB in India by raising awareness about TB and promoting TB prevention measures, providing TB patients with quality care and socio-economic support.

The first meeting of Inter-Ministerial Coordination for TB was held under the Chairmanship of the Secretary, Health & Family Welfare, Government of India on 16th August 2018 at Nirman Bhawan, New Delhi.

A total of 25 ministries were represented. The objective was to forge convergence at policy, programme and implementation level across various ministries of the Government for an accelerated response towards End TB.

How Inter-ministerial/Inter-sectoral convergence can lead high-impact initiatives to End TB

- Integration of TB services in the **health facilities under various ministries/PSEs**
- Initiatives focused on TB under **Corporate Social Responsibility (CSR)** for providing TB patients with quality care, socio-economic support, and engaging communities for reducing stigma
- Adopting **TB friendly workplace policies** at PSE offices / sub-offices / plant sites etc.
- **Raising awareness** about TB and promoting TB prevention measures, providing TB patients with quality care and socio-economic support.

Objectives of Collaboration

1. Expansion of services of TB outside public health facilities
2. Reaching out to the large number of populations with information on prevention and TB care related services
3. Build capacity of functionaries in all departments to address TB preventions and care activities in schemes of departments
4. Ensure patient support through social assistance benefits to TB patients and affected family through existing scheme.
5. Effective scale up of non-medical interventions by leveraging linkages, outreach, technology, financial inclusion to strengthen services for TB elimination

Different Ministries targeted for efforts for TB elimination by 2025

- Ministry of Labour and Employment
- Ministry of Railways
- Ministry of Home Affairs
- Ministry of Defence
- Ministry of AYUSH
- Ministry of Tribal Affairs
- PSUs under the Ministries with Health Facilities
- Ministry of Consumer Affairs, Food & Public Distribution
- Ministry of Women and Child Development
- Ministry of Housing and Urban Affairs
- Ministry of Rural Development
- Ministry of Social Justice and Empowerment
- Ministry of Skill Development and Entrepreneurship
- Ministry of Micro, Small and Medium Enterprises
- Ministry of Road Transport & Highways
- Ministry of Development of North Eastern Region
- Ministry of Coal
- Ministry of Textiles
- Ministry of Steel
- Ministry of Power
- Ministry of Heavy Industries and Public Enterprises
- Ministry of Petroleum & Natural Gas
- Ministry of Human Resource Development
- Ministry of Youth Affairs and Sports
- Ministry of Information and Broadcasting
- Ministry of Electronics and Information Technology
- Ministry of Panchayati Raj

Process of collaboration with different Ministries

- Inter-ministerial consultation on TB
- Collaboration with Ministries/Departments
- Formalizing partnership through MoU/ LOI/LOA signing
- Constituting Joint working group for activities implementation
- Regular follow up and meetings

Scope of Collaboration

1. TB care services in health infrastructure
2. Socio-economic support & Empowerment
3. Infection Prevention
4. Information Education Communication
5. Prevention and Care at Work Place
6. Corporate Social Responsibility

1. TB care services in health infrastructure

Provide TB diagnostic and treatment services as per

national protocols and guidelines in all health facilities

- Training of health staff / AYUSH providers / Traditional Healers
- Establish system of notification of TB patients
- Extend patient support services including NIKSHAY Poshan Yojana benefits
- Incorporate TB Screening in Health facilities and Health Camps
- Linkages for free diagnostic and treatment services to TB patients
- Supply chain system to be established for free anti-TB drugs
- Establish DMC or Sample Transport system from health facility to RNTCP

2. Socio-economic support & empowerment

- Link and prioritize TB patients in livelihood opportunities and vocational training
- Prioritize / include TB patients in social assistance programme
- Sensitize Self-help Groups (SHGs) and engage them for TB care and prevention measures
- Nutrition support linkages
- Travel support
- Provision of disability benefits
- Prioritization of TB patients in housing

3. Infection Prevention

- Infection Prevention Measures in work place settings
- Mass awareness on infection prevention at public transport

- Training of staff on infection prevention and cough hygiene
- Adequate ventilation at all settings
- Decongestion measures
- Enabling environment for practicing preventive measures – availability of spittoons, tissues, adequate disposal measures

4. Awareness Generation & Communication

- Information on TB prevention and care
- Raise awareness on services and benefits available through RNTCP on TB
- Stigma reduction and non-discrimination
- Capacity building of community
- Large scale and sustained IEC campaign on TB

5. TB Prevention and Care at Work Place

- To promote awareness on TB prevention, screening and treatment across workplace in India.
- To advocate for and facilitate an environment that minimizes and prevents TB transmission at workplaces across India.
- To support and ensure early and free diagnosis of TB across workplaces in India.
- To facilitate and ensure access to free TB drugs and adherence for the entire workforce across India.
- To ensure care and support services for the workforce, post the completion of treatment.
- To advocate and facilitate an "enabling workspace", stigma free environment for accessing TB associated services at the workplace in India

6. Corporate Social Responsibility Support for TB

TB specific initiatives/projects through CSR activities of the PSUs

- Large Scale awareness through mass/ social/mid-media
- Case finding drives in priority population through health camp
- Support to expand rapid and newer diagnostics
- Mobile TB diagnostic van
- Support for linkages to diagnosis/treatment
- Technology support
- Adoption of village/ward for TB free
- Nutrition Support to TB patients
- Livelihood support

Some Recent Examples of Collaboration

1. Department of Post

- Expansion of TB Sample Transport

Network through Postal services Specimen Transportation from peripheral health facility to TB diagnostic laboratory Expand drug susceptibility testing services

2. Department of Financial Services

- Financial assistance for nutrition support provided to each TB patients for entire duration of treatment

3. Department of Home

- HIV and TB Interventions in Prisons and Other Closed Settings

4. Ministry of Panchayati Raj

- Involvement in the Gram Panchayat Development Plans (GPDP) in special gram sabhas to include strategies for TB free Panchayat/Village

5. Ministry of Labour and Employment

- Jointly prepared Policy Framework to address Tuberculosis, TB related co-morbidities and HIV in the World of Work in India.

6. ECHS, Ministry of Defense

- Department of Ex-Servicemen Welfare, Ministry of Defense having more than 450 policlinics throughout the country to offer RNTCP services to all its beneficiaries.

7. Public Sector Undertakings (PSUs) For TB Free India

- A total of 22 PSUs represented by about 33 actively participated in the National Consultation Workshop of Public Sector Undertakings (PSUs) For TB Free India. Action plans with all PSUs being prepared followed by formal engagements through LOA/I's.

Annexures

Nutritional support to Drug-Resistant TB patient

Annexures

1.1 Presumptive TB Cases examined & TB patients notified 2018

State	Population	Presumptive TB Cases examination		TB patients notified$			Annualised TB case notification rate			Paediatric TB patients notified$	TB patients notified$ – Gender			TB patients notified$ – Type of disease#		TB patients initiated on treatment				
		Number examined	Rate*	Public	Private	Total	Public	Private	Total		Male	Female	Trans-gender	New	Previously	Public	Private	Total	Pulmonary@	Extrapulmonary@
Andaman & Nicobar Islands	387466	6,163	1590	539	19	558	139	5	144	37	344	214	0	451	54	535	19	554	333	221
Andhra Pradesh	51834544	4,51,321	871	65192	25932	91124	126	50	176	3641	61977	29046	101	80073	9351	64465	25651	90116	76840	13276
Arunachal Pradesh	1581877	13,575	858	3417	2	3419	216	0	216	462	1871	1545	3	2917	347	2978	2	2980	1912	1068
Assam	34183941	1,85,660	543	37936	4960	42896	111	15	126	1664	28732	14142	22	37739	4744	36168	3209	39377	31175	8202
Bihar	120092000	5,03,849	420	63642	41288	104930	53	34	87	10691	67489	37322	119	94227	9325	57518	39590	97108	82470	14638
Chandigarh	1146798	29,110	2538	5361	335	5696	467	29	496	368	3194	2496	6	4997	608	4326	104	4430	2416	2014
Chhattisgarh	29033682	2,39,783	826	30119	12912	43031	104	44	148	2396	28477	14513	41	39413	3333	29364	9566	38930	31129	7801
Dadra & Nagar Haveli	442143	8,133	1839	794	55	849	180	12	192	40	531	318	0	709	118	740	55	795	522	273
Daman & Diu	313258	5,002	1597	460	37	497	147	12	159	17	330	167	0	391	94	460	36	496	382	114
Delhi	18534932	2,52,050	1360	77175	16405	93580	416	89	505	9729	51038	42472	70	81616	9744	55051	5479	60530	35402	25128
Goa	1522877	17,975	1180	1944	548	2492	128	36	164	91	1513	978	1	2251	192	1531	497	2028	1272	756
Gujarat	67673985	8,69,701	1285	106451	48100	154551	157	71	228	8962	102067	52377	107	129475	23242	100624	45356	145980	119408	26572
Haryana	28602354	2,78,984	975	50311	15437	65748	176	54	230	3414	41192	24499	57	55783	9036	45385	12536	57921	44500	13421
Himachal Pradesh	7355160	1,34,250	1825	15129	1356	16485	206	18	224	671	10304	6177	4	14079	2153	14167	1247	15414	10649	4765
Jammu & Kashmir	14335893	1,26,515	883	11708	1187	12895	82	8	90	906	7534	5339	22	11455	1343	8723	735	9458	6337	3121
Jharkhand	38031010	2,39,576	630	37764	10724	48488	99	28	127	2750	33497	14972	19	43784	4351	36149	9176	45325	40941	4384
Karnataka	66868115	7,64,712	1144	68657	14437	83094	103	22	125	4532	54924	28101	69	71662	9597	64547	12002	76549	60171	16378
Kerala	34208129	4,78,758	1400	20990	3567	24557	61	10	71	1530	16389	8159	9	22695	1654	20771	3318	24089	16566	7523
Lakshadweep	65864	941	1429	19	0	19	29	0	29	2	12	7	0	19	0	19	0	19	14	5
Madhya Pradesh	81741779	6,75,536	826	120771	39373	160144	148	48	196	14007	103379	56655	110	139080	18694	113187	32569	145756	122340	23416
Maharashtra	122765975	10,81,654	881	140068	69574	209642	114	57	171	13699	120122	89317	203	183674	20039	123285	54313	177598	131948	45650
Manipur	3034285	18,206	600	2151	776	2927	71	26	97	156	1894	1028	5	2595	308	2086	549	2635	1887	748
Meghalaya	3505055	33,392	953	4382	485	4867	125	14	139	417	2830	2033	4	4221	443	3627	472	4099	2672	1427
Mizoram	1223413	13,589	1111	2513	57	2570	205	5	210	219	1490	1079	1	2302	257	2349	44	2393	1343	1050
Nagaland	2050220	14,128	689	3542	727	4269	173	35	208	344	2551	1718	0	3710	518	3487	636	4123	2749	1374

State	Population	Presumptive TB Cases examination		TB patients notified$			Annualised TB case notification rate			Paediatric TB patients notified$	TB patients notified$ – Gender			TB patients notified$ – Type of disease#		TB patients initiated on treatment				
		Number examined	Rate*	Public	Private	Total	Public	Private	Total		Male	Female	Trans-gender	New	Previ-ously	Public	Private	Total	Pulmo-nary @	Extrapulmo-nary@
Odisha	45349185	3,43,587	758	46629	3674	50303	103	8	111	2351	34157	16092	54	44358	5557	44618	3088	47706	35423	12283
Puducherry	1440247	29,934	2078	3466	23	3489	241	2	243	117	2369	1117	3	2938	420	3364	21	3385	2278	1107
Punjab	30006214	2,43,841	813	43975	10426	54401	147	35	182	3069	31921	22432	48	47579	6140	40702	6762	47464	35494	11970
Rajasthan	77400659	5,93,127	766	113972	46196	160168	147	60	207	9767	108027	52036	105	135970	21410	97547	41130	138677	114919	23758
Sikkim	649841	10,535	1621	1418	20	1438	218	3	221	85	812	626	0	1167	114	1289	8	1297	872	425
Tamil Nadu	79338612	9,94,312	1253	75415	29502	104917	95	37	132	5086	73051	31788	78	91616	11204	70971	25640	96611	78097	18514
Telangana	37061723	2,92,774	790	42084	10246	52330	114	28	142	1805	33190	19091	49	44041	7180	41153	9253	50406	41273	9133
Tripura	3893295	25,988	668	2575	4	2579	66	0	66	54	1949	630	0	2268	296	2435	4	2439	1941	498
Uttar Pradesh	225116729	20,64,161	917	305626	114808	420434	136	51	187	25359	258459	161665	310	367671	45461	268904	90927	359831	304116	55715
Uttarakhand	11294981	94,269	835	17806	4556	22362	158	40	198	1224	13591	8757	14	19058	3023	16165	3766	19931	15067	4864
West Bengal	98005985	10,26,585	1047	89503	14642	104145	91	15	106	3397	71545	32558	42	90602	11110	86812	9259	96071	72409	23662
India	1340092226	1,21,61,676	908	1613504	542390	2155894	120	40	160	133059	1372752	781466	1676	1876586	241460	1465502	447019	1912521	1527267	385254

* Includes presumptive TB cases examined by smear microscopy and CBNAAT in Public sector

$ TB notified cases based on diagnosing PHI.

@ Classification of TB patients based on site of disease among treatment initiated

Only data on New cases and previously treated cases are given. Data source – Nikshay.

Data on PMDT cases which are included in the total TB notification is given in the table on PMDT case finding. Data source – State data.

1.2 TB Comorbidities

1.2 TB Comorbidities	Total TB patients Notified (notified cases based on current PHI)	Total TB patients with known HIV status (%)#	HIV positive patients among tested* (%)	TB-HIV co-infected patients initiated on ART*	TB-HIV co-infected patients initiated on CPT*	Total TB patients with known blood sugar status (%)	Total TB-DM Co-morbid patients (%)	TB-DM Co-morbid patients Linked to NCD Clinic (%)	Total TB patients with known Tobacco usage status	Tobacco users among TB patients with known usage status	Tobacco users linked with Tobacco cessation centres
Andaman & Nicobar Islands	572	360 (63%)	2 (0.6%)	2	0	190 (33%)	27 (14%)	15 (54%)	137 (24%)	26	6
Andhra Pradesh	91995	82175 (89%)	6924 (8%)	6301	5973	57057 (62%)	3945 (7%)	1790 (45%)	47090 (51%)	7339	1966
Arunachal Pradesh	3473	2502 (72%)	3 (0.1%)	0	0	228 (7%)	7 (3%)	4 (57%)	602 (17%)	74	20
Assam	43181	16462 (38%)	278 (1.7%)	239	275	3990 (9%)	440 (11%)	86 (20%)	8199 (19%)	3524	174
Bihar	106313	59455 (56%)	1498 (2.5%)	1138	1148	4483 (4%)	243 (5%)	74 (31%)	6081 (6%)	1060	122
Chandigarh	3699	3594 (97%)	328 (9.1%)	283	326	1657 (45%)	139 (8%)	37 (27%)	1525 (41%)	123	12
Chhattisgarh	43155	30244 (70%)	476 (1.6%)	433	476	19849 (46%)	1386 (7%)	498 (36%)	13926 (32%)	3643	1652
Dadra & Nagar Haveli	606	523 (86%)	5 (1%)	2	1	567 (94%)	29 (5%)	15 (52%)	284 (47%)	73	16
Daman & Diu	414	411 (99%)	6 (1.5%)	3	1	191 (46%)	8 (4%)	3 (43%)	175 (42%)	14	1
Delhi	89449	33097 (37%)	1701 (5.1%)	1606	1779	22906 (26%)	1918 (8%)	505 (26%)	11442 (13%)	900	235
Goa	2392	1529 (64%)	91 (6%)	81	93	884 (37%)	158 (18%)	67 (42%)	753 (31%)	39	5
Gujarat	152667	119697 (78%)	3537 (3%)	3383	3544	85588 (56%)	3566 (4%)	1457 (41%)	54998 (36%)	9084	2080
Haryana	66734	42243 (63%)	1230 (2.9%)	996	1230	29871 (45%)	1940 (6%)	619 (32%)	19802 (30%)	1642	506
Himachal Pradesh	16614	10399 (63%)	129 (1.2%)	122	129	8727 (53%)	507 (6%)	234 (46%)	5749 (35%)	1041	441
Jammu & Kashmir	12961	5162 (40%)	75 (1.5%)	53	75	3096 (24%)	158 (5%)	50 (31%)	2101 (16%)	287	103
Jharkhand	48772	32241 (66%)	351 (1.1%)	248	266	7422 (15%)	341 (5%)	113 (33%)	7421 (15%)	1363	392
Karnataka	81380	57297 (70%)	5910 (10.3%)	5475	5868	41250 (51%)	4431 (11%)	2086 (47%)	31147 (38%)	7005	1352
Kerala	24720	21131 (85%)	312 (1.5%)	265	317	8020 (32%)	2225 (28%)	1106 (50%)	5752 (23%)	882	554
Lakshadweep	22	15 (68%)	0 (0%)	0	0	12 (52%)	1 (9%)	1 (100%)	13 (59%)	1	1

1.2 TB Comorbidities	Total TB patients Notified (notified cases based on current PHI)	Total TB patients with known HIV status (%)#	HIV positive patients among tested* (%)	TB-HIV co-infected patients initiated on ART*	TB-HIV co-infected patients initiated on CPT*	Total TB patients with known blood sugar status (%)	Total TB-DM Co-morbid patients (%)	TB-DM Co-morbid patients Linked to NCD Clinic (%)	Total TB patients with known Tobacco usage status	Tobacco users among TB patients with known usage status	Tobacco users linked with Tobacco cessation centres
Madhya Pradesh	161285	123907 (77%)	1439 (1.2%)	1304	1425	37173 (23%)	1621 (4%)	460 (28%)	23301 (14%)	4312	531
Maharashtra	208177	123445 (59%)	8863 (7.1%)	8275	8079	53036 (25%)	3234 (6%)	1445 (45%)	48244 (23%)	7190	1242
Manipur	2946	2575 (87%)	228 (8.9%)	224	230	125 (4%)	12 (10%)	5 (42%)	201 (7%)	70	0
Meghalaya	4690	3115 (66%)	126 (4%)	116	127	721 (15%)	33 (5%)	11 (34%)	963 (21%)	368	46
Mizoram	2592	2013 (78%)	382 (19%)	326	329	862 (33%)	44 (5%)	3 (7%)	1305 (50%)	428	46
Nagaland	4297	2289 (53%)	357 (15.6%)	229	253	195 (5%)	8 (4%)	0 (0%)	851 (20%)	182	5
Odisha	50244	36679 (73%)	943 (2.6%)	878	940	22799 (45%)	1777 (8%)	695 (39%)	14783 (29%)	3901	938
Puducherry	1586	1546 (97%)	29 (0.9%)	27	27	1308 (83%)	312 (24%)	188 (60%)	1549 (98%)	272	101
Punjab	55152	43821 (79%)	1111 (2.5%)	845	964	25891 (47%)	2530 (10%)	618 (24%)	10695 (19%)	601	74
Rajasthan	160244	115193 (72%)	1776 (1.5%)	1660	1767	35589 (22%)	1006 (3%)	339 (34%)	23490 (15%)	2788	568
Sikkim	1444	1002 (69%)	4 (0.4%)	3	4	931 (64%)	70 (8%)	13 (19%)	533 (37%)	52	3
Tamil Nadu	107075	76287 (71%)	4099 (5.4%)	3681	4055	26308 (25%)	5193 (20%)	2231 (43%)	16914 (16%)	4354	941
Telangana	52139	40779 (78%)	2065 (5.1%)	1796	1819	14246 (27%)	718 (5%)	209 (29%)	13435 (26%)	1310	408
Tripura	2660	1237 (47%)	40 (3.2%)	38	42	495 (19%)	62 (12%)	29 (47%)	388 (15%)	148	3
Uttar Pradesh	425451	257931 (61%)	3121 (1.2%)	2676	2638	37920 (9%)	2197 (6%)	565 (26%)	55573 (13%)	8738	994
Uttarakhand	21931	6742 (31%)	166 (2.5%)	51	64	1732 (8%)	131 (8%)	25 (19%)	2803 (13%)	561	175
West Bengal	104862	79743 (76%)	1442 (1.8%)	1321	1397	65208 (62%)	7261 (11%)	3317 (46%)	35348 (34%)	8863	1775
India	2155894	1438912 (67%)	49047 (3.4%)	44080	45653	619470 (29%)	47597 (8%)	18882 (40%)	467574 (22%)	82258	17488

* Source: NACO/ MPR report
# Data Complied from states

1.3 Paediatric TB case finding using molecular diagnostic tests (CBNAAT)

State	Total presumptive paediatric TB cases tested in CBNAAT	Paediatric TB cases diagnosed among tested (%)	Rif Resistance detected among paediatric TB cases diagnosed (%)
Andaman & Nicobar Islands	207	6 (3%)	1 (17%)
Andhra Pradesh	5000	195 (4%)	17 (9%)
Arunachal Pradesh	445	77 (17%)	45 (58%)
Assam	2255	234 (10%)	8 (3%)
Bihar	4362	728 (17%)	206 (28%)
Chandigarh	1828	153 (8%)	13 (8%)
Chhattisgarh	2215	153 (7%)	4 (3%)
D & N Haveli	96	23 (24%)	1 (4%)
Daman & Diu	70	4 (6%)	0 (0%)
Delhi	18506	2154 (12%)	283 (13%)
Goa	878	13 (1%)	0 (0%)
Gujarat	7161	536 (7%)	45 (8%)
Haryana	6769	1113 (16%)	206 (19%)
Himachal Pradesh	2997	225 (8%)	10 (4%)
Jammu & Kashmir	1655	160 (10%)	2 (1%)
Jharkhand	1535	189 (12%)	9 (5%)
Karnataka	11886	805 (7%)	97 (12%)
Kerala	4426	58 (1%)	0 (0%)
Lakshadweep	8	2 (25%)	0 (0%)
Madhya Pradesh	7877	708 (9%)	75 (11%)
Maharashtra	26094	1926 (7%)	452 (23%)
Manipur	296	21 (7%)	5 (24%)
Meghalaya	1464	112 (8%)	49 (44%)
Mizoram	710	33 (5%)	4 (12%)
Nagaland	360	47 (13%)	0 (0%)
Orissa	3054	276 (9%)	8 (3%)
Pondicherry	1174	49 (4%)	0 (0%)
Punjab	2675	566 (21%)	94 (17%)
Rajasthan	10955	1256 (11%)	75 (6%)
Sikkim	341	12 (4%)	1 (8%)
Tamil Nadu	14735	398 (3%)	14 (4%)
Telangana	6858	398 (6%)	35 (9%)
Tripura	330	10 (3%)	0 (0%)
Uttar Pradesh	18585	3276 (18%)	479 (15%)
Uttarakhand	525	129 (25%)	17 (13%)
West Bengal	9848	760 (8%)	144 (19%)
Z.INDIA	178180	16805 (9%)	2399 (14%)

1.4.a Treatment outcome of TB patients notified in 2017 (Both Public and Private sector)

State	Public Sector															Private Sector						
	TB patients Notified*	Microbiologically Confirmed TB Patients Notified	Cured	Cure rate $ (%)	Treatment Success	Success rate# (%)	Died	Death Rate (%)	Failure	Failure Rate (%)	Lost to follow up	% Lost to follow up (%)	Regimen Change	% Regimen Change	Not evaluated	TB patients Notified*	Treatment Success	Success rate (%)	Died	Death Rate (%)	Others	Not evaluated
Andaman & Nicobar Islands	579	254	178	70	522	90	18	3.1	3	0.5	14	2.4	4	0.7	18	26	0	0	0	0	0	26
Andhra Pradesh	62841	40992	31974	78	56836	90	2732	4.3	639	1.0	1585	2.5	545	0.9	504	15728	15209	97	134	1	365	20
Arunachal Pradesh	3082	1641	837	51	2203	71	55	1.8	49	1.6	171	5.5	112	3.6	492	15	0	0	0	0	0	15
Assam	36532	19744	11254	57	27906	76	1393	3.8	314	0.9	2113	5.8	206	0.6	4600	3770	450	12	0	0	1340	1980
Bihar	51052	38318	18776	49	36895	72	1073	2.1	267	0.5	2065	4.0	243	0.5	10509	45426	12654	28	777	2	3959	28036
Chandigarh	3144	2154	1163	54	2768	88	107	3.4	14	0.4	119	3.8	29	0.9	107	228	12	5	2	1	1	213
Chhattisgarh	31181	16400	12628	77	27724	89	1416	4.5	329	1.1	976	3.1	170	0.5	566	10658	5476	51	39	0	891	4252
Dadra & Nagar Haveli	735	367	279	76	689	94	15	2.0	0	0.0	12	1.6	1	0.1	18	70	65	93	1	1	4	0
Daman & Diu	367	162	89	55	294	80	15	4.1	1	0.3	44	12.0	2	0.5	11	76	71	93	0	0	1	4
Delhi	56862	24735	14099	57	40857	72	1005	1.8	471	0.8	2355	4.1	734	1.3	11440	6808	11	0	1	0	2	6794
Goa	1345	843	506	60	1176	87	40	3.0	17	1.3	59	4.4	21	1.6	32	398	0	0	0	0	0	398
Gujarat	94412	63746	42710	67	77878	82	5704	6.0	1423	1.5	4264	4.5	1624	1.7	3519	39925	22818	57	336	1	6155	10616
Haryana	34804	24883	15925	64	29358	84	1508	4.3	512	1.5	1106	3.2	370	1.1	1950	6757	3605	53	39	1	419	2694
Himachal Pradesh	13040	9192	5975	65	11652	89	537	4.1	88	0.7	258	2.0	192	1.5	313	849	479	56	12	1	21	337
Jammu & Kashmir	7993	5569	2673	48	5507	69	191	2.4	70	0.9	157	2.0	40	0.5	2028	1100	119	11	0	0	7	974
Jharkhand	35376	21368	14103	66	27731	78	759	2.1	191	0.5	982	2.8	177	0.5	5536	7880	1947	25	9	0	18	5906
Karnataka	60894	46156	28617	62	48827	80	3777	6.2	777	1.3	3920	6.4	593	1.0	3000	11991	4767	40	137	1	1099	5988
Kerala	16948	10808	8106	75	14899	88	682	4.0	186	1.1	475	2.8	146	0.9	560	6470	4550	70	80	1	718	1122
Lakshwadeep	51	36	29	81	48	94	2	3.9	0	0.0	0	0.0	0	0.0	1	0						
Madhya Pradesh	114827	62860	42745	68	99814	87	3923	3.4	1165	1.0	5386	4.7	760	0.7	3779	16964	10748	63	58	0	2048	4110
Maharashtra	113444	68095	42900	63	91615	81	4993	4.4	848	0.7	5073	4.5	1691	1.5	9224	68453	9079	13	73	0	417	58884
Manipur	1648	1100	572	52	1143	69	41	2.5	11	0.7	58	3.5	12	0.7	383	1123	490	44	13	1	20	600
Meghalaya	2946	1927	848	44	2000	68	94	3.2	17	0.6	109	3.7	36	1.2	690	607	0	0	0	0	0	607
Mizoram	2383	853	384	45	1567	66	49	2.1	27	1.1	40	1.7	27	1.1	673	62	0	0	0	0	0	62
Nagaland	2332	1297	778	60	1734	74	46	2.0	28	1.2	100	4.3	15	0.6	409	805	0	0	0	0	785	20

State	Public Sector															53						
	TB patients Notified*	Microbiologically Confirmed TB Patients Notified	Cured	Cure rate $ (%)	Treatment Success	Success rate# (%)	Died	Death Rate (%)	Failure	Failure Rate (%)	Lost to follow up	% Lost to follow up (%)	Regimen Change	% Regimen Change	Not evaluated	TB patients Notified*	Treatment Success	Success rate (%)	Died	Death Rate (%)	Others	Not evaluated
Odisha	63342	39458	20913	53	38988	62	2449	3.9	294	0.5	1799	2.8	203	0.3	19609	3779	604	16	8	0	54	3113
Puducherry	1414	993	745	75	1206	85	78	5.5	25	1.8	54	3.8	12	0.8	39	10	10	100	0	0	0	0
Punjab	35800	22948	14687	64	30980	87	1555	4.3	330	0.9	1416	4.0	384	1.1	1135	6029	1112	18	11	0	62	4844
Rajasthan	83866	51870	36828	71	70876	85	2944	3.5	735	0.9	3476	4.1	621	0.7	5214	23446	8825	38	85	0	1717	12819
Sikkim	934	535	294	55	721	77	25	2.7	0	0.0	6	0.6	37	4.0	145	39	0	0	0	0	0	39
Tamil Nadu	77158	57068	38806	68	63311	82	3677	4.8	878	1.1	4270	5.5	551	0.7	4471	20701	11409	55	87	0	688	8517
Telangana	36878	26182	17542	67	30885	84	1460	4.0	508	1.4	1168	3.2	332	0.9	2525	7766	7290	94	41	1	271	164
Tripura	1951	1394	864	62	1399	72	101	5.2	7	0.4	79	4.0	8	0.4	357	8	0	0	0	0	0	8
Uttar Pradesh	219912	153306	76653	50	151321	69	7505	3.4	1747	0.8	9608	4.4	2081	0.9	47650	67461	4518	7	30	0	5892	57021
Uttarakhand	13198	7613	4568	60	10114	77	454	3.4	147	1.1	737	5.6	151	1.1	1595	3917	3428	88	4	0	19	466
West Bengal	81291	55032	40724	74	67723	83	3761	4.6	904	1.1	4168	5.1	929	1.1	3806	12363	5654	46	116	1	1013	5580
India	1364562	874241	550772	63	1079167	79	54184	4.0	13022	1.0	58222	4.3	13059	1.0	146908	391708	135400	35	2093	1	27986	226229

* notified cases based on current PHI-2017
$ Cure Rate - Number of patients with treatment outcome cured out of DS-TB patients microbiologically confirmed
# Success Rate - Include cure and treatment completed. It is calculated for all notified TB patients including new and previously treated. This includes patients not put on treatment as well in denominator.

1.4.b Treatment outcome of New and Previously treated TB patients notified in 2017 (Public Sector)

state	New Cases								Previously Treated							
	TB patients Notified*	Cured (Cure rate)	Treatment Success (Success rate)	Died (Death rate)	Failure (Failure rate)	Lost to follow up (%)	Regimen Change	Not evaluated	TB patients Notified*	Cured (Cure rate)	Treatment Success (Success rate)	Died (Death rate)	Failure (Failure rate)	Lost to follow up (%)	Regimen Change	Not evaluated
Andaman & Nicobar Islands	492	141 (29%)	439 (89%)	17 (3%)	2 (0%)	14 (3%)	4 (1%)	16	87	37 (43%)	83 (95%)	1 (1%)	1 (1%)	0 (0%)	0 (0%)	2
Andhra Pradesh	53141	26468 (50%)	48932 (92%)	2020 (4%)	395 (1%)	1128 (2%)	277 (1%)	389	9700	5506 (57%)	7904 (81%)	712 (7%)	244 (3%)	457 (5%)	268 (3%)	115
Arunachal Pradesh	2693	702 (26%)	1997 (74%)	46 (2%)	41 (2%)	139 (5%)	80 (3%)	390	389	135 (35%)	206 (53%)	9 (2%)	8 (2%)	32 (8%)	32 (8%)	102
Assam	32363	9836 (30%)	25270 (78%)	1137 (4%)	243 (1%)	1758 (5%)	122 (0%)	3833	4169	1418 (34%)	2636 (63%)	256 (6%)	71 (2%)	355 (9%)	84 (2%)	767
Bihar	45345	16699 (37%)	33256 (73%)	896 (2%)	214 (0%)	1746 (4%)	166 (0%)	9067	5707	2077 (36%)	3639 (64%)	177 (3%)	53 (1%)	319 (6%)	77 (1%)	1442
Chandigarh	2768	947 (34%)	2487 (90%)	77 (3%)	9 (0%)	86 (3%)	20 (1%)	89	376	216 (57%)	281 (75%)	30 (8%)	5 (1%)	33 (9%)	9 (2%)	18
Chhattisgarh	27892	11243 (40%)	25146 (90%)	1181 (4%)	245 (1%)	741 (3%)	88 (0%)	491	3289	1385 (42%)	2578 (78%)	235 (7%)	84 (3%)	235 (7%)	82 (2%)	75
Dadra & Nagar Haveli	652	237 (36%)	623 (96%)	12 (2%)	0 (0%)	4 (1%)	0 (0%)	13	83	42 (51%)	66 (80%)	3 (4%)	0 (0%)	8 (10%)	1 (1%)	5
Daman & Diu	321	76 (24%)	262 (82%)	14 (4%)	1 (0%)	31 (10%)	2 (1%)	11	46	13 (28%)	32 (70%)	1 (2%)	0 (0%)	13 (28%)	0 (0%)	0
Delhi	48430	10529 (22%)	36327 (75%)	683 (1%)	336 (1%)	1678 (3%)	357 (1%)	9049	8432	3570 (42%)	4530 (54%)	322 (4%)	135 (2%)	677 (8%)	377 (4%)	2391
Goa	1181	440 (37%)	1058 (90%)	32 (3%)	12 (1%)	37 (3%)	14 (1%)	28	164	66 (40%)	118 (72%)	8 (5%)	5 (3%)	22 (13%)	7 (4%)	4
Gujarat	75805	32310 (43%)	64900 (86%)	3914 (5%)	784 (1%)	2777 (4%)	763 (1%)	2667	18607	10400 (56%)	12978 (70%)	1790 (10%)	639 (3%)	1487 (8%)	861 (5%)	852
Haryana	28656	12475 (44%)	24766 (86%)	1083 (4%)	340 (1%)	805 (3%)	206 (1%)	1456	6148	3450 (56%)	4592 (75%)	425 (7%)	172 (3%)	301 (5%)	164 (3%)	494
Himachal Pradesh	10818	4651 (43%)	9841 (91%)	386 (4%)	56 (1%)	176 (2%)	97 (1%)	262	2222	1324 (60%)	1811 (82%)	151 (7%)	32 (1%)	82 (4%)	95 (4%)	51
Jammu & Kashmir	6818	2122 (31%)	4817 (71%)	141 (2%)	40 (1%)	107 (2%)	23 (0%)	1690	1175	551 (47%)	690 (59%)	50 (4%)	30 (3%)	50 (4%)	17 (1%)	338
Jharkhand	31335	12663 (40%)	24814 (79%)	621 (2%)	151 (0%)	808 (3%)	135 (0%)	4806	4041	1440 (36%)	2917 (72%)	138 (3%)	40 (1%)	174 (4%)	42 (1%)	730
Karnataka	51203	23977 (47%)	42458 (83%)	2885 (6%)	507 (1%)	2675 (5%)	328 (1%)	2350	9691	4640 (48%)	6369 (66%)	892 (9%)	270 (3%)	1245 (13%)	265 (3%)	650
Kerala	15626	7370 (47%)	13881 (89%)	581 (4%)	153 (1%)	411 (3%)	116 (1%)	484	1322	736 (56%)	1018 (77%)	101 (8%)	33 (2%)	64 (5%)	30 (2%)	76
Lakshadweep	50	28 (56%)	47 (94%)	2 (4%)	0 (0%)	0 (0%)	0 (0%)	1	1	1 (100%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
Madhya Pradesh	99483	36170 (36%)	88213 (89%)	2998 (3%)	857 (1%)	4064 (4%)	399 (0%)	2952	15344	6575 (43%)	11601 (76%)	925 (6%)	308 (2%)	1322 (9%)	361 (2%)	827
Maharashtra	96587	35432 (37%)	80127 (83%)	3868 (4%)	551 (1%)	3519 (4%)	1215 (1%)	7307	16857	7468 (44%)	11488 (68%)	1125 (7%)	297 (2%)	1554 (9%)	476 (3%)	1917
Manipur	1430	480 (34%)	998 (70%)	29 (2%)	6 (0%)	50 (3%)	10 (1%)	337	218	92 (42%)	145 (67%)	12 (6%)	5 (2%)	8 (4%)	2 (1%)	46
Meghalaya	2610	746 (29%)	1832 (70%)	79 (3%)	13 (0%)	85 (3%)	31 (1%)	570	336	102 (30%)	168 (50%)	15 (4%)	4 (1%)	24 (7%)	5 (1%)	120

Mizoram	2179	334 (15%)	1476 (68%)	43 (2%)	21 (1%)	31 (1%)	25 (1%)	583	204	50 (25%)	91 (45%)	6 (3%)	6 (3%)	9 (4%)	2 (1%)	90
Nagaland	1979	630 (32%)	1503 (76%)	33 (2%)	19 (1%)	74 (4%)	12 (1%)	338	353	148 (42%)	231 (65%)	13 (4%)	9 (3%)	26 (7%)	3 (1%)	71
Odisha	56044	18321 (33%)	35401 (63%)	2027 (4%)	203 (0%)	1343 (2%)	102 (0%)	16968	7298	2592 (36%)	3587 (49%)	422 (6%)	91 (1%)	456 (6%)	101 (1%)	2641
Puducherry	1189	608 (51%)	1051 (88%)	54 (5%)	15 (1%)	28 (2%)	7 (1%)	34	225	137 (61%)	155 (69%)	24 (11%)	10 (4%)	26 (12%)	5 (2%)	5
Punjab	29481	11368 (39%)	26093 (89%)	1130 (4%)	216 (1%)	1011 (3%)	193 (1%)	838	6319	3319 (53%)	4887 (77%)	425 (7%)	114 (2%)	405 (6%)	191 (3%)	297
Rajasthan	65681	27427 (42%)	56941 (87%)	1829 (3%)	434 (1%)	2286 (3%)	275 (0%)	3916	18185	9401 (52%)	13935 (77%)	1115 (6%)	301 (2%)	1190 (7%)	346 (2%)	1298
Sikkim	829	242 (29%)	651 (79%)	20 (2%)	0 (0%)	5 (1%)	30 (4%)	123	105	52 (50%)	70 (67%)	5 (5%)	0 (0%)	1 (1%)	7 (7%)	22
Tamil Nadu	65551	33061 (50%)	55441 (85%)	2740 (4%)	526 (1%)	2882 (4%)	295 (0%)	3667	11607	5745 (49%)	7870 (68%)	937 (8%)	352 (3%)	1388 (12%)	256 (2%)	804
Telangana	29936	14241 (48%)	25827 (86%)	980 (3%)	292 (1%)	717 (2%)	149 (0%)	1971	6942	3301 (48%)	5058 (73%)	480 (7%)	216 (3%)	451 (6%)	183 (3%)	554
Tripura	1710	768 (45%)	1253 (73%)	80 (5%)	5 (0%)	54 (3%)	6 (0%)	312	241	96 (40%)	146 (61%)	21 (9%)	2 (1%)	25 (10%)	2 (1%)	45
Uttar Pradesh	185831	64072 (34%)	130299 (70%)	5763 (3%)	1284 (1%)	7383 (4%)	1112 (1%)	39990	34081	12581 (37%)	21022 (62%)	1742 (5%)	463 (1%)	2225 (7%)	969 (3%)	7660
Uttarakhand	10387	3469 (33%)	8217 (79%)	309 (3%)	102 (1%)	530 (5%)	66 (1%)	1163	2811	1099 (39%)	1897 (67%)	145 (5%)	45 (2%)	207 (7%)	85 (3%)	432
West Bengal	71190	35272 (50%)	60628 (85%)	3051 (4%)	644 (1%)	3113 (4%)	607 (1%)	3147	10101	5452 (54%)	7095 (70%)	710 (7%)	260 (3%)	1055 (10%)	322 (3%)	659
Grand Total	1157686	455555 (39%)	937272 (81%)	40761 (4%)	8717 (1%)	42296 (4%)	7332 (1%)	121308	206876	95217 (46%)	141895 (69%)	13423 (6%)	4305 (2%)	15926 (8%)	5727 (3%)	25600

* notified cases based on current PHI-2017

1.5 Treatment outcome of TB HIV patients notified in 2017

State	TB patients Notified*	Cured	Cure rate (%)	Treatment Success	Success rate (%)	Died	Death Rate (%)	Failure	Failure Rate (%)	Lost to follow up	% Lost to follow up (%)	Regimen Change	% Regimen Change	Not evaluated
Andaman & Nicobar Islands	4	1	25	3	75	0	0	0	0	0	0	1	25	0
Andhra Pradesh	5116	1536	30	4239	83	573	11	33	1	177	3	54	1	40
Arunachal Pradesh	4	1	25	3	75	0	0	1	25	0	0	0	0	0
Assam	196	15	8	111	57	24	12	1	1	8	4	2	1	50
Bihar	1293	619	48	847	66	47	4	7	1	42	3	9	1	341
Chandigarh	51	9	18	31	61	4	8	0	0	1	2	4	8	11
Chhattisgarh	320	91	28	222	69	58	18	3	1	11	3	7	2	19
Dadra & Nagar Haveli	5	2	40	5	100	0	0	0	0	0	0	0	0	0
Delhi	617	72	12	359	58	53	9	4	1	49	8	13	2	139
Goa	36	6	17	29	81	4	11	1	3	1	3	0	0	1
Gujarat	3836	769	20	2492	65	578	15	41	1	307	8	73	2	345
Haryana	333	134	40	243	73	32	10	5	2	11	3	6	2	36
Himachal Pradesh	74	25	34	57	77	11	15	1	1	1	1	0	0	4
Jammu & Kashmir	59	12	20	24	41	4	7	0	0	1	2	0	0	30
Jharkhand	159	67	42	108	68	9	6	0	0	6	4	3	2	33
Karnataka	4224	1084	26	2840	67	657	16	25	1	285	7	34	1	383
Kerala	159	60	38	120	75	20	13	0	0	10	6	2	1	7
Madhya Pradesh	891	226	25	673	76	91	10	18	2	59	7	3	0.3	47
Maharashtra	6424	1267	20	4296	67	734	11	43	1	340	5	81	1	930
Manipur	149	22	15	92	62	12	8	1	1	7	5	0	0	37
Meghalaya	35	3	9	17	49	3	9	0	0	1	3	0	0	14
Mizoram	180	8	4	75	42	11	6	1	1	3	2	2	1	88
Nagaland	191	29	15	100	52	8	4	0	0	12	6	2	1	69
Odisha	741	172	23	497	67	85	11	4	1	30	4	6	1	119
Puducherry	38	16	42	29	76	4	11	0	0	2	5	1	3	2
Punjab	302	76	25	223	74	30	10	2	1	18	6	12	4	17
Rajasthan	898	320	36	654	73	98	11	7	1	53	6	7	1	79
Sikkim	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Tamil Nadu	2426	705	29	1727	71	280	12	17	1	180	7	25	1	197
Telangana	1484	626	42	1175	79	177	12	14	1	52	4	9	1	57
Tripura	18	2	11	7	39	0	0	0	0	0	0	1	6	10
Uttar Pradesh	2110	686	33	1258	60	167	8	33	2	107	5	27	1	518
Uttarakhand	52	9	17	32	62	8	15	0	0	3	6	0	0	9
West Bengal	940	242	26	661	70	119	13	7	1	54	6	23	2	76
India	**33366**	**8912**	**27**	**23249**	**70**	**3901**	**12**	**269**	**1**	**1831**	**5**	**407**	**1**	3709

* notified cases based on current PHI-2017
Daman & Diu, Lakshadweep – No TBHIV cases were notified during the year 2017

1.6 Contact tracing and chemoprophylaxis

State	Total Notified Patients	No of patient households visited (module filled up in Nikshay) N (%)		Number of Household Contacts <6	Number Of Screened Below Six N (%)		Number Of On Treatment Below Six	Number Of Children Below Six initiated on chemoprophylaxis N (%)	
Andaman & Nicobar Islands	252	51	20%	22	22	100%	0	22	100%
Andhra Pradesh	40195	38667	96%	3926	3871	99%	218	3352	90%
Arunachal Pradesh	1154	36	3%	96	84	88%	0	4	4%
Assam	16991	3494	21%	10213	3501	34%	1	84	1%
Bihar	38701	17832	46%	13575	12300	91%	54	6249	46%
Chandigarh	1793	187	10%	353	131	37%	0	36	10%
Chhattisgarh	18950	1828	10%	348	348	100%	3	227	66%
Dadra & Nagar Haveli	308	178	58%	242	207	86%	0	56	23%
Daman & Diu	141	48	34%	30	30	100%	0	23	77%
Delhi	20922	1513	7%	455	455	100%	3	238	53%
Goa	765	215	28%	278	154	55%	4	278	101%
Gujarat	52720	21193	40%	23114	16163	70%	103	21150	94%
Haryana	26765	5441	20%	14307	11027	77%	36	594	4%
Himachal Pradesh	8043	2136	27%	6617	3450	52%	21	153	2%
Jammu & Kashmir	4333	1218	28%	4364	2960	68%	0	172	4%
Jharkhand	20934	10724	51%	3169	3169	100%	25	573	18%
Karnataka	39715	14124	36%	678	678	100%	40	2379	373%
Kerala	11206	1566	14%	8588	2298	27%	124	1814	21%
Lakshwadeep	6	1	17%	24	24	100%	0	3	13%
Madhya Pradesh	50032	8426	17%	1831	1831	100%	24	1131	63%
Maharashtra	53802	14737	27%	32421	28153	87%	31	15814	49%
Manipur	438	250	57%	153	153	100%	4	2	1%
Meghalaya	1780	452	25%	442	442	100%	1	355	80%
Mizoram	838	257	31%	1818	857	47%	27	31	2%
Nagaland	1500	44	3%	128	103	80%	0	3	2%
Odisha	19581	19162	98%	5384	5220	97%	11	2961	55%
Puducherry	895	895	100%	125	125	100%	0	123	98%
Punjab	22071	2217	10%	4677	1680	36%	1	324	7%
Rajasthan	53588	8196	15%	53651	13971	26%	17	18777	35%
Sikkim	583	167	29%	539	137	25%	0	1	0%
Tamil Nadu	46864	10330	22%	4358	4358	100%	47	2728	63%
Telangana	26489	4610	17%	11072	5488	50%	3	175	2%
Tripura	1611	78	5%	166	53	32%	0	15	9%
Uttar Pradesh	144470	26611	18%	101118	67800	67%	57	1626	2%
Uttarakhand	7812	1640	21%	6287	4510	72%	0	261	4%
West Bengal	63393	23347	37%	53050	37241	70%	109	1375	3%
INDIA	799641	241871	30%	367619	232994	63%	964	83109	23%

1.7 Active Case Finding

State	Target population mapped	Persons screened out of the mapped population	Presumptive TB cases tested out of the persons screened	Total TB patients diagnosed in the ACF activity among tested
Andaman & Nicobar Islands	51,203	3,136	103	6
Andhra Pradesh	99,22,758	51,30,826	35,785	1,771
Arunachal Pradesh	92,215	55,040	1,535	27
Assam	3,53,946	1,33,181	7,114	547
Bihar	97,47,689	31,48,051	51,380	2,483
Chandigarh	2,56,000	9,500	13	6
Chhattisgarh	2,98,00,000	1,31,77,785	14,648	986
Dadra & Nagar Haveli	4,60,000	3,20,000	723	18
Daman & Diu	3,47,000	1,61,000	299	7
Delhi	15,000	4,900	324	15
Goa	1,20,000	63,000	825	18
Gujarat	2,24,10,251	1,78,80,000	99,636	4,154
Haryana	36,88,846	15,34,024	15,474	548
Himachal Pradesh	9,54,658	9,25,284	11,398	315
Jammu & Kashmir	1,75,378	75,834	3,830	187
Jharkhand	37,23,237	31,32,870	14,013	1,095
Karnataka	1,03,47,300	1,02,65,692	99,946	2,957
Kerala	3,41,00,000	2,76,62,028	26,487	329
Lakshwadeep	69,142	65,482	183	2
Maharashtra	1,89,01,687	1,68,53,553	61,604	4,143
Meghalaya	2,36,421	1,48,521	705	20
Mizoram	5,113	4,186	434	28
Nagaland	86,501	11,343	1,587	56
Odisha	42,35,030	11,96,031	42,133	939
Puducherry	954	953	50	0
Punjab	62,35,317	7,98,500	7,217	481
Rajasthan	20,94,000	16,91,000	29,161	606
Sikkim	4,779	1,083	63	2
Tamil Nadu	35,66,777	29,72,314	3,57,667	1,528
Telangana	3,01,509	54,861	2,594	106
Uttar Pradesh	7,54,35,905	7,13,02,155	4,79,446	21,779
Uttarakhand	13,43,500	5,61,649	3,658	270
West Bengal	1,08,57,140	1,00,21,058	1,73,825	1,878
India	24,99,39,256	18,93,64,840	15,43,860	47,307

Madhya Pradesh has merged ACF activity with Nirogi Kaya Abhiyaan (A State initiative to club TB Leprosy and NCD) in which house to house survey were being conducted in 2 blocks of every district twice a year.

Manipur & Tripura has NOT conducted ACF activity

1.8 Intensified TB case finding activities in ICTC

State	ICTC attendees (excl. pregnant women)	Clients referred for TB testing N (%)	Clients diagnosed with TB N (%)	Clients initiate on TB treatment N (%)
Andaman and Nicobar	17099	429 (3%)	2 (0%)	0 (0%)
Andhra Pradesh	846549	77122 (9%)	4896 (6%)	4754 (97%)
Arunachal Pradesh	4654	272 (6%)	5 (2%)	5 (100%)
Assam	128847	9061 (7%)	1030 (11%)	314 (30%)
Bihar	373456	27676 (7%)	554(2%)	498 (90%)
Chandigarh	80996	611 (1%)	13 (2%)	3 (23%)
Chhattisgarh	238060	16350 (7%)	1484 (9%)	971 (65%)
Dadar and Nagar Haveli	15066	139 (1%)	18 (13%)	18 (100%)
Daman and Diu	11905	139 (1%)	6 (4%)	6 (100%)
Delhi	355989	11967 (3%)	436 (4%)	339 (78%)
Goa	32748	779 (2%)	18 (2%)	15 (83%)
Gujarat	955968	105350 (11%)	4950 (5%)	4223 (85%)
Haryana	328884	19207 (6%)	1722 (9%)	234 (14%)
Himachal Pradesh	101052	5528 (5%)	606 (11%)	69 (11%)
Jammu and Kashmir	39158	843 (2%)	75 (9%)	4 (5%)
Jharkhand	150442	10921 (7%)	1391 (13%)	275 (20%)
Karnataka	1675878	125023 (7%)	5907 (5%)	5210 (88%)
Kerala	415669	13096 (3%)	188 (1%)	79 (42%)
Lakshadweep		0 (0%)	0 (0%)	0 (0%)
Madhya Pradesh	586290	37061 (6%)	2262 (6%)	1102 (49%)
Maharashtra	2157175	211303 (10%)	13058 (6%)	11272 (86%)
Manipur	62660	3689 (6%)	22 (1%)	11 (50%)
Meghalaya	19461	193 (1%)	32 (17%)	19 (59%)
Mizoram	20180	981 (5%)	58 (6%)	31 (53%)
Nagaland	66003	2910 (4%)	198 (7%)	115 (58%)
Odisha	446589	30879 (7%)	1777 (6%)	1143 (64%)
Pondicherry	43372	1901 (4%)	153 (8%)	31 (20%)
Punjab	342478	13433 (4%)	1186 (9%)	252 (21%)
Rajasthan	585702	43772 (7%)	2051 (5%)	1339 (65%)
Sikkim	9014	107 (1%)	49 (46%)	9 (18%)
Tamil Nadu	2953119	246439 (8%)	6824 (3%)	5545 (81%)
Telangana	498582	42422 (9%)	3423 (8%)	2694 (79%)
Tripura	42265	1129 (3%)	125 (11%)	4 (3%)
Uttar Pradesh	1031708	57963 (6%)	8895 (15%)	3457 (39%)
Uttarakhand	94019	4629 (5%)	304 (7%)	126 (41%)
West Bengal	684012	28798 (4%)	1244 (4%)	599 (48%)
Grand Total	**15415049**	**1152122 (7%)**	**64962 (6%)**	**44766 (69%)**

1.9 Intensified TB case finding activities in ART centre

State	PLHIV attending ART centre	PLHIV screened for TB N (%)	PLHIV with presumptive TB N (%)	PLHIV referred for TB diagnosis test N (%)	PLHIV tested for TB N (%)	PLHIV diagnosed with TB N (%)	PLHIV microbi-ologically confirmed N (%)
Andaman & Nicobar Islands	159	147 (92%)	19 (13%)	19 (100%)	19 (100%)	1 (5%)	1 (100%)
Andhra Pradesh	1551382	1405803 (91%)	63907 (5%)	50603 (79%)	44948 (89%)	5243 (12%)	3591 (68%)
Arunachal Pradesh	346	345 (100%)	22 (6%)	22 (100%)	22 (100%)	0 (0%)	
Assam	42693	37370 (88%)	1495 (4%)	1230 (82%)	443 (36%)	144 (33%)	42 (29%)
Bihar	366722	259267 (71%)	19010 (7%)	11471 (60%)	6678 (58%)	1407 (21%)	812 (58%)
Chandigarh	34760	32253 (93%)	624 (2%)	461 (74%)	332 (72%)	91 (27%)	28 (31%)
Chhattisgarh	95806	72448 (76%)	5073 (7%)	4859 (96%)	4560 (94%)	318 (7%)	254 (80%)
Delhi	241253	197878 (82%)	9221 (5%)	5374 (58%)	4219 (79%)	1046 (25%)	476 (46%)
Goa	23632	23560 (100%)	1162 (5%)	431 (37%)	153 (35%)	24 (16%)	23 (96%)
Gujarat	580260	548172 (94%)	16426 (3%)	15263 (93%)	14038 (92%)	3116 (22%)	1283 (41%)
Haryana	54362	47999 (88%)	988 (2%)	988 (100%)	700 (71%)	278 (40%)	147 (53%)
Himachal Pradesh	38694	31998 (83%)	657 (2%)	588 (89%)	579 (98%)	76 (13%)	60 (79%)
Jammu & Kashmir	24772	24765 (100%)	537 (2%)	473 (88%)	273 (58%)	82 (30%)	38 (46%)
Jharkhand	89380	74811 (84%)	1897 (3%)	1815 (96%)	1539 (85%)	253 (16%)	156 (62%)
Karnataka	1449138	1291801 (89%)	78119 (6%)	65016 (83%)	58373 (90%)	5156 (9%)	3146 (61%)
Kerala	122475	109532 (89%)	6118 (6%)	2497 (41%)	1966 (79%)	299 (15%)	172 (58%)
Madhya Pradesh	209134	164324 (79%)	13951 (8%)	8824 (63%)	5421 (61%)	1012 (19%)	631 (62%)
Maharashtra	1808177	1639850 (91%)	107244 (7%)	63846 (60%)	54442 (85%)	7838 (14%)	3686 (47%)
Manipur	134611	78065 (58%)	992 (1%)	807 (81%)	760 (94%)	186 (24%)	125 (67%)
Meghalaya	15459	11628 (75%)	611 (5%)	472 (77%)	195 (41%)	138 (71%)	75 (54%)
Mizoram	42409	35243 (83%)	2447 (7%)	1035 (42%)	781 (75%)	230 (29%)	222 (97%)
Nagaland	57160	22701 (40%)	1039 (5%)	639 (62%)	515 (81%)	314 (61%)	225 (72%)

State	PLHIV attending ART centre	PLHIV screened for TB N (%)	PLHIV with presumptive TB N (%)	PLHIV referred for TB diagnosis test N (%)	PLHIV tested for TB N (%)	PLHIV diagnosed with TB N (%)	PLHIV microbi-ologically confirmed N (%)
Odisha	148217	117290 (79%)	4968 (4%)	4879 (98%)	4378 (90%)	438 (10%)	340 (78%)
Pondicherry	13258	10673 (81%)	377 (4%)	332 (88%)	332 (100%)	38 (11%)	27 (71%)
Punjab	253208	232989 (92%)	7393 (3%)	3107 (42%)	2791 (90%)	498 (18%)	367 (74%)
Rajasthan	307128	260152 (85%)	13861 (5%)	13269 (96%)	11830 (89%)	1497 (13%)	968 (65%)
Sikkim	1529	1084 (71%)	37 (3%)	31 (84%)	18 (58%)	18 (100%)	18 (100%)
Tamil Nadu	1113586	995295 (89%)	54778 (6%)	47210 (86%)	43032 (91%)	4138 (10%)	2609 (63%)
Telangana	622834	384214 (62%)	73919 (19%)	11766 (16%)	9827 (84%)	2280 (23%)	1796 (79%)
Tripura	9378	9237 (98%)	365 (4%)	357 (98%)	263 (74%)	23 (9%)	17 (74%)
Uttar Pradesh	613053	550736 (90%)	17906 (3%)	11765 (66%)	9431 (80%)	2226 (24%)	1008 (45%)
Uttarakhand	27228	6807 (25%)	1115 (16%)	771 (69%)	379 (49%)	160 (42%)	116 (73%)
West Bengal	295189	234477 (79%)	8324 (4%)	5526 (66%)	3518 (64%)	517 (15%)	356 (69%)
INDIA	10762163	8912914 (83%)	514602 (6%)	335746 (65%)	286755 (85%)	39085 (14%)	22815 (58%)

1.10 PMDT – Case Finding

State	No. of DR-TB Centres (Nodal + District) established	Total presumptive DR TB tested	Total TB patients Notified*	UDST Tested (%)	No. of MDR/RR patient diagnosed$	Total put on treatment#	No. of patient initiated on Shorter MDR-TB regimen	No. of H mono/poly notified	No. of H mono/poly patient initiated on treatment#	No. of patient eligible for DST guided treatment regimen
Andaman & Nicobar	3	268	572	239 (42%)	60	60	11	1	1	7
Andhra Pradesh	13	47604	91995	32433 (35%)	1924	1753	1318	1277	1032	221
Arunachal Pradesh	2	3365	3473	1273 (37%)	173	168	69	0	0	6
Assam	27	13589	43181	11789 (27%)	588	513	355	48	34	45
Bihar	30	62271	106313	18256 (17%)	4055	2559	429	69	26	990
Chandigarh	1	1485	3699	1143 (31%)	47	47	27	31	30	9
Chhattisgarh	22	17087	43155	9696 (22%)	359	270	172	107	80	27
Dadra & Nagar Haveli*	1	1925	606	276 (46%)	35	34	19	0	0	4
Daman & Diu*	1	153	414	236 (57%)	16	14	10	1	1	8
Delhi	29	24145	89449	21986 (25%)	1948	1606	1064	568	515	470
Goa	2	1320	2392	1078 (45%)	66	48	14	19	14	23
Gujarat*	38	84450	152667	60568 (40%)	3255	2779	1584	626	521	1087
Haryana	21	27042	66734	18945 (28%)	1820	1276	905	223	167	109
Himachal Pradesh	7	9568	16614	9131 (55%)	294	278	244	120	108	55
Jammu & Kashmir	5	5198	12961	3399 (26%)	140	111	75	14	14	9
Jharkhand	24	19113	48772	13464 (28%)	888	697	127	45	21	115
Karnataka	31	47335	81380	33805 (42%)	1696	1502	1069	721	533	263
Kerala*	16	21100	24720	8106 (33%)	226	209	113	66	60	31
Lakshadweep*	0	2	22	4 (18%)	0	0	0	0	0	0
Madhya Pradesh	51	73042	161285	27709 (17%)	2981	2653	1563	384	327	278

State	No. of DR-TB Centres (Nodal + District) established	Total presumptive DR TB tested	Total TB patients Notified*	UDST Tested (%)	No. of MDR/RR patient diagnosed$	Total put on treatment#	No. of patient initiated on Shorter MDR-TB regimen	No. of H mono/poly notified	No. of H mono/poly patient initiated on treatment#	No. of patient eligible for DST guided treatment regimen
Maharashtra	50	134171	208177	71602 (34%)	9895	8302	1364	592	518	2063
Manipur	3	1277	2946	931 (32%)	26	17	14	0	0	0
Meghalaya	7	2401	4690	1765 (38%)	283	273	186	30	20	21
Mizoram	4	2220	2592	925 (36%)	105	96	39	4	4	5
Nagaland	2	696	4297	643 (15%)	111	86	46	2	2	4
Odisha	31	23692	50244	13649 (27%)	483	451	210	133	113	49
Puducherry	1	67	1586	601 (38%)	16	14	8	66	41	13
Punjab	15	20666	55152	15873 (29%)	831	762	350	229	186	157
Rajasthan	35	72760	160244	43330 (27%)	4366	2879	386	587	120	1754
Sikkim	5	1387	1444	1114 (77%)	208	243	141	12	1	25
Tamil Nadu	33	49956	107075	35952 (34%)	1723	1529	1001	2203	1569	156
Telangana	11	32799	52139	20125 (39%)	1507	1255	802	292	246	158
Tripura	2	1099	2660	1333 (50%)	27	25	18	1	1	1
Uttar Pradesh	77	170309	425451	85925 (20%)	14466	10964	1032	151	82	2354
Uttarakhand	8	6813	21931	2653 (12%)	539	396	12	93	14	101
West Bengal	35	67066	104862	48234 (46%)	3190	2700	1711	94	53	591
Grand Total	643	1047441	2155894	618279 (29%)	58347	46569	16488	8809	6454	11209

Notes: # These no.s are NOT from the same cohort of patients from which MDR/RR-TB diagnosed are reported, but rather from treatment initiation registers only. The current PMDT information system does not allow for cohort-based reporting of MDR TB patients, hence this should not yet be taken as proportion of MDR/RR-TB diagnosed and used as an indicator for efficiency of initiation on treatment.

* TB patients notified based on current PHI.

$ Data Source – State data
UDST data - Source of data is Nikshay

1.11 PMDT – 12 Months culture conversion report

State	No. of MDR/ RR-TB patients initiated on treatment during 4Q16 to 3Q17 (b)	Out of b, No. (%) who are alive, on treatment and culture Positive$		Out of b, No. (%) who are alive, on treatment and culture negative		Out of b, No. (%) who are alive, on treatment and culture not known		Out of b, No. (%) who died		Out of b, No. (%) who lost to follow up	
Andaman & Nicobar	43	1	2%	10	23%	18	42%	9	21%	3	7%
Andhra Pradesh	760	36	5%	443	58%	50	7%	110	14%	89	12%
Arunachal Pradesh	196	5	3%	90	46%	64	33%	9	5%	21	11%
Assam	426	25	6%	204	48%	51	12%	61	14%	59	14%
Bihar	1900	88	5%	853	45%	446	23%	233	12%	194	10%
Chandigarh	53	3	6%	37	70%	0	0%	2	4%	3	6%
Chhattisgarh	257	0	0%	105	41%	63	25%	42	16%	41	16%
Delhi	1471	16	1%	580	39%	225	15%	144	10%	223	15%
Goa	40	1	3%	27	68%	2	5%	4	10%	3	8%
Gujarat*	2000	108	5%	863	43%	182	9%	275	14%	274	14%
Haryana	637	6	1%	318	50%	54	8%	133	21%	85	13%
Himachal Pradesh	248	11	4%	151	61%	58	23%	9	4%	11	4%
Jammu & Kashmir	120	5	4%	77	64%	11	9%	11	9%	11	9%
Jharkhand	395	21	5%	129	33%	143	36%	27	7%	60	15%
Karnataka	921	18	2%	435	47%	80	9%	175	19%	148	16%
Kerala*	231	6	3%	118	51%	32	14%	35	15%	24	10%
Madhya Pradesh	1668	104	6%	813	49%	223	13%	236	14%	240	14%
Maharashtra	8134	245	3%	2936	36%	1445	18%	983	12%	1092	13%
Manipur	45	0	0%	30	67%	0	0%	5	11%	6	13%
Meghalaya	281	18	6%	135	48%	68	24%	33	12%	20	7%
Mizoram	47	2	4%	32	68%	4	9%	6	13%	3	6%

State	No. of MDR/ RR-TB patients initiated on treatment during 4Q16 to 3Q17 (b)	Out of b, No. (%) who are alive, on treatment and culture Positive$		Out of b, No. (%) who are alive, on treatment and culture negative		Out of b, No. (%) who are alive, on treatment and culture not known		Out of b, No. (%) who died		Out of b, No. (%) who lost to follow up	
Nagaland	66	0	0%	16	24%	28	42%	6	9%	16	24%
Odisha	350	5	1%	188	54%	38	11%	50	14%	43	12%
Puducherry	14	4	29%	8	57%	0	0%	1	7%	0	0%
Punjab	521	11	2%	279	54%	49	9%	71	14%	60	12%
Rajasthan	2435	110	5%	1072	44%	401	16%	437	18%	263	11%
Sikkim	253	4	2%	178	70%	14	6%	29	11%	18	7%
Tamil Nadu	1163	67	6%	538	46%	83	7%	181	16%	226	19%
Telangana	833	26	3%	481	58%	82	10%	147	18%	79	9%
Tripura	31	1	3%	19	61%	1	3%	3	10%	5	16%
Uttar Pradesh	7335	426	6%	3671	50%	720	10%	1028	14%	891	12%
Uttarakhand	324	10	3%	156	48%	51	16%	42	13%	49	15%
West Bengal	1864	94	5%	1013	54%	180	10%	217	12%	237	13%
Grand Total	35062	1477	4%	16005	46%	4866	14%	4754	14%	4497	13%

$ This also excludes extra pulmonary patients put on treatment

* Data from Daman-Diu & Dadra Nagar Haveli is included in Gujarat: Lakshadweep is included in Kerala for 6/12 months interim and treatment outcome report.

1.12 PMDT – Treatment Outcome of MDR/ RR TB patients

State	No. of MDR/ RR-TB patients initiated on Cat IV during 3Q15 to 2Q16 (c)	Out of c, No. reported as Cured	Out of c, No. reported as Treatment Completed	Out of c, Success Rate	Out of c, No. (%) who died		Out of c, No. (%) who lost to follow up		Out of c, No. (%) who failed treatment		Out of c, No. (%) who were declared with outcome like Switch to XDR regimen, stopped due to ADR, Transferred out etc.,	
Andaman & Nicobar Islands	53	27	8	66%	13	25%	3	6%	1	2%	1	2%
Andhra Pradesh	843	297	117	49%	208	25%	170	20%	12	1%	39	5%
Arunachal Pradesh	209	67	54	58%	19	9%	57	27%	3	1%	9	4%
Assam	369	119	77	53%	60	16%	73	20%	5	1%	35	9%
Bihar	1507	501	303	53%	276	18%	280	19%	40	3%	107	7%
Chandigarh	40	22	4	65%	2	5%	7	18%	1	3%	4	10%
Chhattisgarh	188	47	61	57%	40	21%	32	17%	0	0%	8	4%
Delhi	1512	492	208	46%	218	14%	340	22%	28	2%	226	15%
Goa	41	17	3	49%	3	7%	6	15%	1	2%	11	27%
Gujarat*	1929	629	187	42%	400	21%	361	19%	108	6%	244	13%
Haryana	686	250	127	55%	164	24%	102	15%	3	0%	40	6%
Himachal Pradesh	212	81	65	69%	28	13%	18	8%	0	0%	20	9%
Jammu & Kashmir	92	38	19	62%	18	20%	13	14%	2	2%	2	2%
Jharkhand	280	91	67	56%	48	17%	52	19%	1	0%	21	8%
Karnataka	956	274	138	43%	248	26%	213	22%	6	1%	77	8%
Kerala*	166	78	19	58%	34	20%	20	12%	0	0%	15	9%
Madhya Pradesh	1403	533	181	51%	316	23%	277	20%	39	3%	57	4%
Maharashtra	6763	1549	1149	40%	1061	16%	1318	19%	89	1%	1597	24%
Manipur	47	14	9	49%	7	15%	11	23%	0	0%	6	13%

State	No. of MDR/ RR-TB patients initiated on Cat IV during 3Q15 to 2Q16 (c)	Out of c, No. reported as Cured	Out of c, No. reported as Treatment Completed	Out of c, Success Rate	Out of c, No. (%) who died		Out of c, No. (%) who lost to follow up		Out of c, No. (%) who failed treatment		Out of c, No. (%) who were declared with outcome like Switch to XDR regimen, stopped due to ADR, Transferred out etc.,	
Meghalaya	220	77	70	67%	27	12%	22	10%	5	2%	19	9%
Mizoram	41	13	15	68%	7	17%	4	10%	0	0%	2	5%
Nagaland	64	22	16	59%	7	11%	17	27%	1	2%	1	2%
Odisha	225	86	31	52%	51	23%	28	12%	2	1%	27	12%
Puducherry	16	6	0	38%	3	19%	5	31%	1	6%	1	6%
Punjab	527	208	57	50%	119	23%	78	15%	6	1%	59	11%
Rajasthan	1914	604	262	45%	478	25%	354	18%	19	1%	197	10%
Sikkim	230	112	18	57%	46	20%	34	15%	3	1%	17	7%
Tamil Nadu	1069	276	143	39%	251	23%	290	27%	24	2%	85	8%
Telangana	741	361	39	54%	180	24%	116	16%	17	2%	28	4%
Tripura	15	7	1	53%	3	20%	4	27%	0	0%	0	0%
Uttar Pradesh	5465	1375	1307	49%	1139	21%	1009	18%	96	2%	539	10%
Uttarakhand	296	69	94	55%	51	17%	64	22%	3	1%	15	5%
West Bengal	2064	662	342	49%	409	20%	383	19%	79	4%	189	9%
India	30183	9004	5191	47%	5934	20%	5761	19%	595	2%	3698	12%

* Data from Daman-Diu & Dadra Nagar Haveli is included in Gujarat: Lakshadweep is included in Kerala for 6/12 months interim and treatment outcome report.

1.13 District Wise Indicators

State	District	Total TB patients Notified$	TB patients notified from Public sector	TB patients notified from Private sector	Paediatric TB patients notified	New TB patients notified	Previously treated TB patients notified	PMDT cases notified*	TB patients initiated on treatment-Total	TB patients initiated on treatment - Public Sector	TB patients initiated on treatment - Private Sector	Treatment success rate of TB notified patients (Public sector) 2017 (N&%)	Treatment success rate of TB notified patients (Private sector) 2017 (N&%)
Andaman & Nicobar Islands	Nicobars	93	93	0	10	74	15	4	93	93	0	238 (95%)	
Andaman & Nicobar Islands	North & Middle Andaman	66	66	0	0	57	9	0	66	66	0	107 (89%)	
Andaman & Nicobar Islands	South Andaman	399	380	19	27	320	30	49	395	376	19	177 (85%)	0 (0%)
Andhra Pradesh	Anantapur	7063	5090	1973	165	6039	894	130	6683	4954	1729	4530 (87%)	1163 (93%)
Andhra Pradesh	Chittoor	8673	4989	3684	180	7677	819	177	8662	4980	3682	3714 (87%)	1290 (92%)
Andhra Pradesh	Cuddapah	5268	4232	1036	153	4577	636	55	5259	4223	1036	3857 (90%)	1510 (99%)
Andhra Pradesh	East Godavari	8662	6238	2424	682	7620	799	243	8566	6142	2424	5141 (91%)	1160 (98%)
Andhra Pradesh	Guntur	9612	6417	3195	301	8480	959	173	9471	6282	3189	5957 (89%)	2150 (99%)
Andhra Pradesh	Krishna	7250	5624	1626	174	6343	784	123	7213	5588	1625	4525 (89%)	1121 (93%)
Andhra Pradesh	Kurnool	11204	6566	4638	568	10134	992	78	11123	6498	4625	5237 (91%)	1890 (98%)
Andhra Pradesh	Nellore	5011	3565	1446	88	4212	589	210	4981	3537	1444	3408 (93%)	713 (96%)
Andhra Pradesh	Prakasam	5506	3731	1775	163	4783	643	80	5495	3720	1775	3621 (90%)	1345 (98%)
Andhra Pradesh	Srikakulam	3884	3221	663	217	3514	328	42	3868	3210	658	2829 (95%)	234 (96%)
Andhra Pradesh	Visakhapatnam	9364	7373	1991	507	8435	816	113	9258	7271	1987	5087 (92%)	1617 (99%)
Andhra Pradesh	Vizianagaram	4450	3795	655	325	3847	467	136	4365	3713	652	3244 (92%)	292 (89%)
Andhra Pradesh	West Godavari	5177	4351	826	118	4412	625	140	5172	4347	825	5686 (92%)	724 (100%)

$ - TB notified cases based on diagnosing PHI includes new TB, PT TB & PMDT Patients

*- PMDT cases initiated on treatment as per Nikshay

Blank boxes in the treatment outcome column of the Private sector indicates NO private sector notified patients in the district during the year 2017.

State	District	Total TB patients Notified$	TB patients notified from Public sector	TB patients notified from Private sector	Paediatric TB patients notified	New TB patients notified	Previously treated TB patients notified	PMDT cases notified*	TB patients initiated on treatment-Total	TB patients initiated on treatment - Public Sector	TB patients initiated on treatment - Private Sector	Treatment success rate of TB notified patients (Public sector) 2017 (N&%)	Treatment success rate of TB notified patients (Private sector) 2017 (N&%)
Arunachal Pradesh	Changlang	141	141	0	8	119	20	2	137	137	0	146 (85%)	
Arunachal Pradesh	Dibang Valley	92	92	0	1	77	14	1	89	89	0	52 (71%)	
Arunachal Pradesh	East Kameng	303	303	0	86	263	30	10	301	301	0	256 (66%)	
Arunachal Pradesh	East Siang	243	243	0	20	197	36	10	239	239	0	154 (87%)	
Arunachal Pradesh	KurungKumey	21	21	0	5	18	3	0	21	21	0	71 (93%)	
Arunachal Pradesh	Lohit	174	174	0	9	142	31	1	165	165	0	117 (73%)	
Arunachal Pradesh	Lower Subansiri	71	71	0	9	58	9	4	71	71	0	56 (69%)	
Arunachal Pradesh	Papumpare	1681	1679	2	211	1410	150	121	1265	1263	2	678 (57%)	0 (0%)
Arunachal Pradesh	Tawang	59	59	0	10	48	11	0	59	59	0	58 (81%)	
Arunachal Pradesh	Tirap	229	229	0	42	213	16	0	229	229	0	259 (98%)	
Arunachal Pradesh	Upper Siang	57	57	0	3	52	2	3	57	57	0	23 (79%)	
Arunachal Pradesh	Upper Subansiri	113	113	0	28	111	2	0	112	112	0	96 (76%)	
Arunachal Pradesh	West Kameng	110	110	0	15	103	6	1	110	110	0	88 (78%)	
Arunachal Pradesh	West Siang	125	125	0	15	106	17	2	125	125	0	149 (93%)	
Assam	Baksa	990	990	0	13	870	120	0	985	985	0	672 (71%)	
Assam	Barpeta	1359	1238	121	36	1207	131	21	1320	1202	118	814 (71%)	0 (0%)
Assam	Bongaigaon	916	692	224	20	783	109	24	863	664	199	446 (81%)	62 (28%)
Assam	Cachar	2925	2560	365	115	2669	223	33	2731	2465	266	1512 (71%)	0 (0%)
Assam	Chirang	602	550	52	17	522	76	4	600	549	51	413 (74%)	4 (11%)
Assam	Darrang	761	668	93	10	687	68	6	731	663	68	564 (82%)	0 (0%)

State	District	Total TB patients Notified$	TB patients notified from Public sector	TB patients notified from Private sector	Paediatric TB patients notified	New TB patients notified	Previously treated TB patients notified	PMDT cases notified*	TB patients initiated on treatment-Total	TB patients initiated on treatment - Public Sector	TB patients initiated on treatment - Private Sector	Treatment success rate of TB notified patients (Public sector) 2017 (N&%)	Treatment success rate of TB notified patients (Private sector) 2017 (N&%)
Assam	Dhemaji	790	663	127	17	685	95	10	789	662	127	723 (87%)	103 (98%)
Assam	Dhubri	2024	1995	29	53	1827	192	5	2020	1991	29	1828 (81%)	2 (12%)
Assam	Dibrugarh	3922	3488	434	314	3526	377	19	3304	3068	236	2189 (80%)	0 (0%)
Assam	Goalpara	1311	1066	245	39	1145	137	29	1258	1059	199	976 (74%)	0 (0%)
Assam	Golaghat	1904	1730	174	82	1754	150	0	1750	1669	81	1328 (82%)	0 (0%)
Assam	Hailakandi	522	522	0	23	468	48	6	505	505	0	450 (74%)	0 (0%)
Assam	Jorhat	1558	1337	221	83	1360	169	29	1382	1311	71	993 (84%)	26 (27%)
Assam	Kamrup	1919	1812	107	72	1483	367	69	1717	1618	99	929 (77%)	0 (0%)
Assam	Kamrup Metro	2871	2277	594	91	2377	483	11	2281	2052	229	621 (69%)	1 (0.3%)
Assam	KarbiAnglong	1127	1060	67	17	1025	92	10	1098	1049	49	980 (81%)	0 (0%)
Assam	Karimganj	688	663	25	16	562	106	20	676	653	23	613 (70%)	
Assam	Kokrajhar	1883	1796	87	40	1663	203	17	1857	1771	86	1400 (85%)	65 (76%)
Assam	Lakhimpur	1188	946	242	46	992	179	17	1067	935	132	865 (85%)	22 (8%)
Assam	Marigaon	856	849	7	15	717	137	2	807	806	1	843 (85%)	
Assam	Nagaon	2718	2236	482	65	2433	278	7	2527	2194	333	1703 (68%)	32 (8%)
Assam	Nalbari	837	654	183	19	777	59	1	818	637	181	643 (75%)	127 (95%)
Assam	North Cachar Hills	380	373	7	27	322	52	6	379	373	6	313 (78%)	0 (0%)
Assam	Sibsagar	1519	1346	173	62	1313	195	11	1401	1337	64	1225 (81%)	0 (0%)
Assam	Sonitpur	3119	2842	277	149	2732	348	39	2916	2747	169	2244 (75%)	5 (2%)
Assam	Tinsukia	2987	2438	549	192	2762	209	16	2388	2063	325	1646 (62%)	1 (0.2%)
Assam	Udalguri	1220	1145	75	31	1078	141	1	1207	1140	67	973 (83%)	0 (0%)
Bihar	Araria	2322	1828	494	544	2128	133	61	2312	1818	494	1745 (87%)	881 (99%)
Bihar	Arwal	389	284	105	25	353	28	8	378	281	97	207 (69%)	0 (0%)
Bihar	Aurangabad-BI	1581	1324	257	138	1318	226	37	1520	1267	253	661 (72%)	63 (16%)

State	District	Total TB patients Notified$	TB patients notified from Public sector	TB patients notified from Private sector	Paediatric TB patients notified	New TB patients notified	Previously treated TB patients notified	PMDT cases notified*	TB patients initiated on treatment-Total	TB patients initiated on treatment - Public Sector	TB patients initiated on treatment - Private Sector	Treatment success rate of TB notified patients (Public sector) 2017 (N&%)	Treatment success rate of TB notified patients (Private sector) 2017 (N&%)
Bihar	Banka	920	915	5	37	772	140	8	914	909	5	415 (43%)	3 (38%)
Bihar	Begusarai	2590	1867	723	205	2260	297	33	2559	1837	722	1399 (88%)	6 (2%)
Bihar	Bhagalpur	4951	3015	1936	731	4569	286	96	4266	2344	1922	2206 (88%)	0 (0%)
Bihar	Bhojpur	1667	1356	311	70	1335	312	20	1476	1165	311	772 (73%)	15 (4%)
Bihar	Buxar	1149	1147	2	28	880	226	43	1146	1145	1	542 (90%)	
Bihar	Darbhanga	7100	3807	3293	1143	6076	925	99	6186	2931	3255	2082 (76%)	0 (0%)
Bihar	Gaya	5142	2920	2222	492	4514	601	27	5050	2832	2218	2662 (90%)	1 (0.1%)
Bihar	Gopalganj	3053	1889	1164	181	2782	213	58	2880	1742	1138	1209 (93%)	217 (18%)
Bihar	Jamui	1403	1105	298	53	1221	164	18	1215	947	268	927 (75%)	10 (9%)
Bihar	Jehanabad	608	607	1	37	546	56	6	596	595	1	502 (76%)	0 (0%)
Bihar	Kaimur	1107	983	124	32	899	187	21	1094	971	123	622 (65%)	0 (0%)
Bihar	Katihar	2562	1988	574	198	2283	242	37	2475	1901	574	1641 (80%)	102 (84%)
Bihar	Khagaria	1337	887	450	168	1235	76	26	1277	827	450	667 (83%)	35 (7%)
Bihar	Kishanganj	1271	1102	169	60	1174	77	20	1006	840	166	531 (83%)	0 (0%)
Bihar	Lakhisarai	813	619	194	103	686	121	6	792	599	193	443 (87%)	121 (86%)
Bihar	Madhepura	1124	912	212	59	963	145	16	1030	823	207	275 (41%)	0 (0%)
Bihar	Madhubani	2079	2074	5	71	1805	210	64	1952	1951	1	717 (79%)	8 (89%)
Bihar	Munger	1568	1376	192	86	1304	238	26	1559	1367	192	1218 (94%)	168 (98%)
Bihar	Muzaffarpur	5090	3725	1365	260	4706	368	16	4621	3261	1360	1487 (61%)	0 (0%)
Bihar	Nalanda	1353	1021	332	78	1182	148	23	1348	1016	332	789 (66%)	314 (94%)
Bihar	Nawada	922	832	90	45	790	107	25	905	815	90	656 (52%)	0 (0%)
Bihar	PashchimChamparan	2153	1614	539	459	1943	199	11	1855	1316	539	299 (44%)	0 (0%)
Bihar	Patna	21463	3571	17892	3220	20417	823	223	19396	2424	16972	576 (42%)	9960 (42%)
Bihar	PurbaChamparan	3604	2136	1468	246	3316	254	34	3577	2114	1463	1705 (83%)	0 (0%)

State	District	Total TB patients Notified$	TB patients notified from Public sector	TB patients notified from Private sector	Paediatric TB patients notified	New TB patients notified	Previously treated TB patients notified	PMDT cases notified*	TB patients initiated on treatment-Total	TB patients initiated on treatment - Public Sector	TB patients initiated on treatment - Private Sector	Treatment success rate of TB notified patients (Public sector) 2017 (N&%)	Treatment success rate of TB notified patients (Private sector) 2017 (N&%)
Bihar	Purnia	3190	2600	590	206	2889	247	54	2959	2551	408	2149 (84%)	4 (2%)
Bihar	Rohtas	2015	1514	501	81	1712	299	4	1933	1434	499	796 (56%)	0 (0%)
Bihar	Saharsa	1135	1036	99	18	1059	71	5	1056	957	99	200 (35%)	0 (0%)
Bihar	Samastipur	4976	3142	1834	666	4520	354	102	4756	2926	1830	1816 (75%)	475 (24%)
Bihar	Saran	3855	3073	782	164	3306	518	31	2956	2437	519	1496 (58%)	0 (0%)
Bihar	Sheikhpura	402	323	79	23	291	94	17	382	321	61	252 (80%)	191 (86%)
Bihar	Sheohar	231	219	12	11	161	51	19	230	218	12	162 (63%)	0 (0%)
Bihar	Sitamarhi	3103	2101	1002	263	2872	223	8	2840	1986	854	1056 (61%)	58 (10%)
Bihar	Siwan	3193	2323	870	223	2831	345	17	3167	2300	867	967 (44%)	0 (0%)
Bihar	Supaul	836	830	6	29	731	93	12	826	821	5	588 (79%)	0 (0%)
Bihar	Vaishali	2673	1577	1096	238	2398	228	47	2618	1529	1089	458 (70%)	22 (2%)
Chandigarh	Chandigarh	5696	5361	335	368	4997	608	91	4430	4326	104	2768 (88%)	12 (5%)
Chhattisgarh	Balarampur	929	859	70	41	847	82	0	880	842	38	903 (91%)	16 (50%)
Chhattisgarh	Balod	1086	899	187	53	1004	80	2	1007	875	132	800 (82%)	17 (15%)
Chhattisgarh	Baloda Bazar	1909	1449	460	105	1786	113	10	1832	1446	386	1481 (92%)	57 (19%)
Chhattisgarh	Bastar	1287	1159	128	91	1182	99	6	1278	1150	128	1124 (93%)	84 (92%)
Chhattisgarh	Bemetara	659	592	67	15	583	76	0	659	592	67	640 (91%)	60 (100%)
Chhattisgarh	Bijapur	435	428	7	25	392	43	0	435	428	7	331 (66%)	2 (8%)
Chhattisgarh	Bilaspur-CG	4977	3339	1638	335	4660	294	23	4209	3200	1009	3063 (95%)	1191 (52%)
Chhattisgarh	Dhamtari	1526	822	704	72	1387	124	15	1249	808	441	814 (90%)	193 (37%)
Chhattisgarh	Durg	3589	1994	1595	310	3333	231	25	2888	1960	928	1925 (88%)	806 (59%)
Chhattisgarh	Gariyaband	829	784	45	49	726	102	1	827	782	45	890 (89%)	11 (38%)
Chhattisgarh	Janjgir	2027	1408	619	72	1844	167	16	2027	1408	619	1450 (87%)	82 (16%)
Chhattisgarh	Jashpur	917	913	4	37	849	68	0	916	912	4	950 (92%)	
Chhattisgarh	Kabirdham (Kawardha)	817	665	152	52	733	83	1	799	660	139	658 (90%)	63 (71%)

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Chhattisgarh	Kondagaon	732	682	50	20	657	73	2	731	681	50	467 (83%)	57 (100%)
Chhattisgarh	Korba	1797	1188	609	133	1679	102	16	1592	1183	409	1194 (92%)	373 (81%)
Chhattisgarh	Koriya	751	564	187	42	671	70	10	749	562	187	596 (86%)	39 (22%)
Chhattisgarh	Mahasamund	1555	1254	301	67	1370	146	39	1546	1246	300	1146 (88%)	126 (56%)
Chhattisgarh	Mungeli	832	665	167	26	773	55	4	797	662	135	740 (94%)	86 (60%)
Chhattisgarh	Narayanpur	259	259	0	10	228	31	0	259	259	0	197 (81%)	
Chhattisgarh	Raigarh-CG	3228	2407	821	151	2954	251	23	3223	2402	821	2021 (93%)	300 (97%)
Chhattisgarh	Raipur	6385	2733	3652	321	5963	359	63	4639	2266	2373	1670 (83%)	1329 (49%)
Chhattisgarh	Rajnandgaon	2415	1657	758	111	2131	270	14	2366	1642	724	1533 (86%)	433 (76%)
Chhattisgarh	Sarguja	1185	896	289	93	1057	125	3	1185	896	289	794 (91%)	43 (12%)
Chhattisgarh	South BastarDantewada	759	536	223	38	640	113	6	695	536	159	448 (86%)	0 (0%)
Chhattisgarh	Sukma	432	431	1	33	398	34	0	432	431	1	350 (84%)	6 (75%)
Chhattisgarh	Surajpur	800	711	89	72	722	73	5	798	710	88	705 (91%)	3 (33%)
Chhattisgarh	Uttar BastarKanker	914	825	89	22	844	69	1	912	825	87	834 (86%)	99 (60%)
Dadra & Nagar Haveli	Dadra & Nagar Haveli	849	794	55	40	709	118	22	795	740	55	689 (94%)	65 (93%)
Daman & Diu	Daman	464	427	37	15	368	88	8	463	427	36	261 (78%)	71 (93%)
Daman & Diu	Diu	33	33	0	2	23	6	4	33	33	0	33 (97%)	
Delhi	Bijwasan	1544	1258	286	112	1316	190	38	1405	1190	215	1024 (64%)	1 (1%)
Delhi	BJRM Chest Clinic	1772	1676	96	205	1456	260	56	1659	1605	54	1507 (88%)	3 (9%)
Delhi	BSA Chest Clinic	8101	2874	5227	457	7610	389	102	2741	2630	111	1758 (63%)	0 (0%)
Delhi	CD Chest Clinic	4202	1909	2293	329	3853	281	68	2026	1779	247	1413 (87%)	1 (0.1%)
Delhi	DDU Chest Clinic	3826	3410	416	431	3290	485	51	3492	3185	307	2677 (86%)	3 (2%)
Delhi	GTB Chest Clinic	3277	3094	183	381	2763	435	79	2658	2559	99	1650 (69%)	1 (3%)

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Delhi	Gulabi Bagh	805	756	49	74	671	102	32	734	717	17	619 (72%)	0 (0%)
Delhi	Hedgewar Chest Clinic	1571	1474	97	225	1388	168	15	997	931	66	522 (61%)	0 (0%)
Delhi	Jhandewalan	1217	947	270	135	995	180	42	1143	878	265	773 (65%)	0 (0%)
Delhi	Karawal Nagar	4386	4087	299	538	3847	461	78	4021	3810	211	2399 (64%)	0 (0%)
Delhi	Kingsway	2890	2608	282	203	2277	465	148	2646	2417	229	1642 (88%)	0 (0%)
Delhi	LN Chest Clinic	5350	5210	140	751	4834	318	198	1773	1644	129	632 (72%)	0 (0%)
Delhi	LRS	11287	11052	235	684	9664	1085	538	4345	4168	177	1600 (77%)	2 (0.2%)
Delhi	MNCH Chest Clinic	2086	1441	645	189	1863	185	38	1449	1203	246	1546 (58%)	0 (0%)
Delhi	Moti Nagar	4406	3906	500	490	3806	566	34	3761	3326	435	3000 (88%)	0 (0%)
Delhi	Narela	2386	2376	10	234	1989	370	27	2253	2245	8	1740 (80%)	0 (0%)
Delhi	NDMC	9511	8673	838	1203	8474	848	189	4079	3993	86	2040 (72%)	0 (0%)
Delhi	Nehru Nagar	6125	4726	1399	563	5249	746	130	4281	3542	739	3356 (66%)	0 (0%)
Delhi	Patparganj	5254	5020	234	898	4665	504	85	4003	3854	149	2915 (70%)	0 (0%)
Delhi	RK Mission	2330	721	1609	192	2129	160	41	1392	593	799	452 (81%)	0 (0%)
Delhi	RTRM Chest Clinic	1550	1538	12	148	1291	231	28	1424	1416	8	1417 (76%)	0 (0%)
Delhi	SGM Chest Clinic	2272	2129	143	235	1919	313	40	2171	2042	129	1979 (80%)	0 (0%)
Delhi	Shahadra	2672	2283	389	355	2241	357	74	2629	2267	362	1784 (65%)	0 (0%)
Delhi	SPM Marg	1288	989	299	162	1064	188	36	1129	845	284	661 (66%)	0 (0%)
Delhi	SPMH Chest Clinic	3470	3016	454	535	2960	457	53	2317	2210	107	1745 (54%)	0 (0%)
Goa	North Goa	1650	1357	293	59	1483	127	40	1368	1117	251	748 (89%)	0 (0%)
Goa	South Goa	842	587	255	32	768	65	9	660	414	246	428 (86%)	0 (0%)
Gujarat	Ahmadabad	4299	3364	935	281	3570	669	60	3770	2836	934	1892 (82%)	455 (61%)
Gujarat	Ahmadabad MC	18371	13445	4926	957	15119	2817	435	16595	12480	4115	8633 (80%)	207 (5%)

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Gujarat	Amreli	1708	1395	313	62	1379	283	46	1652	1339	313	1237 (85%)	477 (95%)
Gujarat	Anand	5446	3716	1730	218	4528	902	16	5214	3580	1634	2746 (77%)	867 (72%)
Gujarat	Arvalli	3213	2029	1184	137	2607	574	32	3143	1959	1184	1610 (88%)	305 (34%)
Gujarat	Banaskantha	7181	5175	2006	341	5968	1162	51	7041	5035	2006	4062 (87%)	1508 (79%)
Gujarat	Bharuch	3812	2816	996	104	3248	515	49	3623	2639	984	2091 (85%)	704 (92%)
Gujarat	Bhavnagar	4849	3220	1629	595	3975	828	46	4799	3175	1624	2619 (82%)	484 (35%)
Gujarat	Botad	922	642	280	31	754	155	13	900	620	280	537 (82%)	191 (97%)
Gujarat	ChhotaUdepur	1720	1403	317	62	1400	302	18	1714	1397	317	1306 (86%)	179 (81%)
Gujarat	Dahod	8468	5679	2789	1273	6973	1407	88	8141	5355	2786	4405 (83%)	1326 (80%)
Gujarat	Devbhumid-warka	715	575	140	34	534	176	5	713	573	140	525 (82%)	119 (98%)
Gujarat	Gandhinagar	3783	2534	1249	139	3148	587	48	3417	2350	1067	1811 (85%)	304 (24%)
Gujarat	Gir Somnath	1855	1417	438	108	1499	320	36	1854	1417	437	1212 (78%)	395 (82%)
Gujarat	Jamnagar	2757	2006	751	191	2203	479	75	2698	1951	747	1328 (78%)	423 (88%)
Gujarat	Junagadh	2339	1610	729	144	1991	318	30	2258	1531	727	1208 (82%)	477 (77%)
Gujarat	Kachchh	4083	3117	966	155	3483	583	17	4081	3115	966	2633 (91%)	713 (83%)
Gujarat	Kheda	5536	4017	1519	244	4471	1000	65	5153	3820	1333	2677 (80%)	839 (54%)
Gujarat	Mahesana	8076	3169	4907	316	7317	708	51	7405	2864	4541	2093 (78%)	1165 (27%)
Gujarat	Mahisagar	3325	2031	1294	174	2899	391	35	3301	2009	1292	2131 (91%)	900 (100%)
Gujarat	Morbi	1840	933	907	63	1627	188	25	1819	917	902	879 (79%)	900 (100%)
Gujarat	Narmada	1787	1087	700	27	1533	252	2	1705	1024	681	800 (81%)	0 (0%)
Gujarat	Navsari	2330	1760	570	95	1982	309	39	2296	1727	569	1550 (83%)	378 (89%)
Gujarat	Panch Mahals	5500	3911	1589	571	4216	1263	21	5368	3780	1588	3030 (82%)	899 (75%)
Gujarat	Patan	4211	2349	1862	193	3472	704	35	4174	2312	1862	1635 (85%)	804 (45%)
Gujarat	Porbandar	893	609	284	95	698	171	24	892	608	284	546 (79%)	256 (90%)
Gujarat	Rajkot	5793	4116	1677	308	4807	882	104	5592	3916	1676	2917 (85%)	1731 (90%)

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Gujarat	Sabarkantha	4758	2768	1990	176	4073	621	64	4607	2618	1989	1851 (88%)	884 (61%)
Gujarat	Surat	4137	3434	703	185	3424	659	54	3984	3282	702	2533 (83%)	756 (96%)
Gujarat	Surat Municipal Corp	12468	8067	4401	756	11029	1329	110	10846	7261	3585	5381 (79%)	2065 (69%)
Gujarat	Surendranagar	4076	2812	1264	157	3394	652	30	3943	2680	1263	1857 (80%)	383 (43%)
Gujarat	The Dangs	344	344	0	12	277	67	0	313	313	0	251 (85%)	
Gujarat	Vadodara	4141	3967	174	301	3477	629	35	3728	3556	172	2719 (84%)	121 (88%)
Gujarat	Vadodara Corp	5027	3133	1894	246	4297	705	25	4675	3005	1670	2303 (78%)	1111 (67%)
Gujarat	Valsad	3305	2371	934	146	2869	401	35	3156	2223	933	1779 (83%)	451 (70%)
Gujarat	Vyara (Surat)	1483	1430	53	65	1234	234	15	1410	1357	53	1090 (85%)	41 (68%)
Haryana	Ambala	2576	2186	390	89	2191	312	73	2176	1949	227	1385 (87%)	266 (70%)
Haryana	Bhiwani	3731	2747	984	113	3030	656	45	3065	2115	950	1353 (84%)	483 (63%)
Haryana	Faridabad	7987	5583	2404	666	7127	727	133	7359	5394	1965	2981 (88%)	1053 (84%)
Haryana	Fatehabad	1904	1543	361	77	1502	342	60	1743	1383	360	1007 (88%)	95 (48%)
Haryana	Gurgaon	5266	3224	2042	320	4619	595	52	3442	2756	686	1391 (81%)	1 (0.1%)
Haryana	Hisar	5476	3105	2371	195	4461	937	78	4814	2870	1944	1561 (74%)	205 (37%)
Haryana	Jhajjar	2130	1905	225	148	1799	309	22	1722	1543	179	1190 (71%)	6 (17%)
Haryana	Jind	2533	2238	295	89	2025	485	23	2440	2204	236	1591 (87%)	75 (28%)
Haryana	Kaithal	2181	1781	400	68	1854	291	36	2062	1670	392	979 (85%)	80 (43%)
Haryana	Karnal	3305	2753	552	152	2810	422	73	3158	2606	552	1910 (88%)	339 (99%)
Haryana	Kurukshetra	1707	1362	345	76	1449	236	22	1697	1355	342	1015 (89%)	205 (94%)
Haryana	Mahendragarh	2157	1524	633	75	1792	326	39	2077	1453	624	936 (81%)	119 (81%)
Haryana	Mewat	3047	2341	706	244	2420	573	54	3000	2301	699	1335 (85%)	2 (2%)
Haryana	Palwal	2491	2011	480	174	2199	250	42	2129	1718	411	1131 (91%)	19 (18%)
Haryana	Panchkula	1796	1657	139	123	1596	165	35	1516	1403	113	958 (86%)	17 (61%)
Haryana	Panipat	2852	2415	437	154	2424	398	30	2836	2400	436	1716 (85%)	166 (96%)

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Haryana	Rewari	2098	1514	584	107	1766	296	36	2033	1451	582	966 (82%)	42 (17%)
Haryana	Rohtak	4144	3572	572	191	3563	569	12	2798	2289	509	1090 (73%)	2 (1%)
Haryana	Sirsa	2562	2070	492	66	2088	439	35	2361	1942	419	1491 (84%)	79 (20%)
Haryana	Sonipat	3669	3106	563	202	3229	437	3	3534	2972	562	2023 (91%)	243 (96%)
Haryana	Yamunanagar	2136	1674	462	85	1839	271	26	1959	1611	348	1349 (88%)	108 (86%)
Himachal Pradesh	Bilaspur-HP	488	469	19	18	398	85	5	483	464	19	606 (88%)	2 (11%)
Himachal Pradesh	Chamba	1118	1073	45	61	869	237	12	1071	1027	44	1096 (85%)	1 (20%)
Himachal Pradesh	Hamirpur-HP	773	767	6	15	664	100	9	717	711	6	533 (75%)	0 (0%)
Himachal Pradesh	Kangra	3466	3229	237	187	2974	429	63	3224	3009	215	2311 (89%)	84 (53%)
Himachal Pradesh	Kinnaur	110	110	0	4	87	20	3	99	99	0	120 (89%)	
Himachal Pradesh	Kullu	1441	1163	278	62	1261	165	15	1373	1125	248	792 (93%)	61 (32%)
Himachal Pradesh	Lahul&Spiti	18	18	0	0	16	2	0	18	18	0	57 (81%)	
Himachal Pradesh	Mandi	2375	2003	372	96	2028	326	21	2238	1895	343	1875 (92%)	37 (27%)
Himachal Pradesh	Shimla	2851	2681	170	99	2497	323	31	2668	2498	170	1694 (93%)	55 (98%)
Himachal Pradesh	Sirmaur	861	853	8	36	738	119	4	841	833	8	976 (92%)	1 (20%)
Himachal Pradesh	Solan	2233	2050	183	78	1922	244	67	1967	1794	173	1006 (89%)	231 (92%)
Himachal Pradesh	Una	751	713	38	15	625	103	23	715	694	21	586 (92%)	7 (70%)
Jammu & Kashmir	Anantnag	875	737	138	246	831	43	1	829	732	97	507 (73%)	3 (10%)
Jammu & Kashmir	Badgam	213	193	20	17	197	16	0	207	189	18	196 (87%)	
Jammu & Kashmir	Baramula	508	487	21	31	454	54	0	505	484	21	523 (96%)	3 (14%)

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Jammu & Kashmir	Doda	850	847	3	101	744	101	5	784	782	2	474 (64%)	0 (0%)
Jammu & Kashmir	Jammu	4396	3970	426	222	3761	559	76	2614	2406	208	1082 (55%)	2 (1%)
Jammu & Kashmir	Kargil	133	128	5	9	110	23	0	127	122	5	72 (59%)	1 (50%)
Jammu & Kashmir	Kathua	1115	954	161	21	978	135	2	831	749	82	108 (26%)	0 (0%)
Jammu & Kashmir	Kupwara	412	382	30	27	393	18	1	405	381	24	447 (97%)	9 (53%)
Jammu & Kashmir	Leh	325	276	49	4	317	8	0	77	38	39	49 (39%)	0 (0%)
Jammu & Kashmir	Poonch	443	440	3	21	401	40	2	442	439	3	327 (89%)	0 (0%)
Jammu & Kashmir	Pulwama	310	296	14	31	286	24	0	291	279	12	372 (96%)	0 (0%)
Jammu & Kashmir	Rajouri	555	550	5	26	484	71	0	546	541	5	295 (63%)	0 (0%)
Jammu & Kashmir	Srinagar	1837	1545	292	122	1761	74	2	922	723	199	209 (44%)	101 (15%)
Jammu & Kashmir	Udhampur	923	903	20	28	738	177	8	878	858	20	846 (83%)	
Jharkhand	Bokaro	3118	1973	1145	337	2874	229	15	2860	1832	1028	1404 (78%)	276 (28%)
Jharkhand	Chatra	938	877	61	32	875	55	8	910	867	43	723 (79%)	0 (0%)
Jharkhand	Deoghar	2017	1021	996	67	1952	51	14	1190	1007	183	923 (90%)	82 (45%)
Jharkhand	Dhanbad	2524	2178	346	147	2261	263	0	2512	2172	340	1883 (88%)	635 (90%)
Jharkhand	Dumka	2805	2252	553	74	2483	307	15	2792	2240	552	1882 (89%)	347 (69%)
Jharkhand	Garhwa	1460	1196	264	97	1295	158	7	1238	1010	228	510 (39%)	0 (0%)
Jharkhand	Giridih	2239	1893	346	80	1912	316	11	2020	1727	293	1208 (62%)	0 (0%)
Jharkhand	Godda	1461	1199	262	56	1325	125	11	1453	1191	262	1212 (92%)	0 (0%)
Jharkhand	Gumla	1030	916	114	46	932	90	8	1030	916	114	823 (88%)	3 (13%)
Jharkhand	Hazaribagh	1738	1445	293	112	1528	181	29	1403	1172	231	629 (44%)	0 (0%)

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Jharkhand	Jamtara	960	873	87	15	778	165	17	870	861	9	823 (90%)	0 (0%)
Jharkhand	Khunti	555	552	3	17	522	31	2	551	548	3	527 (94%)	0 (0%)
Jharkhand	Kodarma	633	546	87	31	571	49	13	633	546	87	236 (80%)	0 (0%)
Jharkhand	Lathehar	678	672	6	30	602	69	7	611	610	1	347 (45%)	
Jharkhand	Lohardaga	467	423	44	16	422	44	1	392	363	29	340 (74%)	0 (0%)
Jharkhand	Pakur	1569	1558	11	23	1317	234	18	1552	1546	6	1254 (73%)	0 (0%)
Jharkhand	Palamu	3076	2421	655	239	2809	251	16	3052	2398	654	2182 (92%)	1 (2%)
Jharkhand	PashchimiSinghbhum	3431	3184	247	152	3226	182	23	3395	3160	235	2832 (93%)	0 (0%)
Jharkhand	PurbiSinghbhum	4157	3611	546	96	3626	488	43	4006	3479	527	2081 (68%)	15 (2%)
Jharkhand	Ramgarh	955	822	133	28	785	156	14	941	809	132	376 (50%)	74 (57%)
Jharkhand	Ranchi	6389	3577	2812	462	5980	354	55	5778	3268	2510	2110 (88%)	0 (0%)
Jharkhand	Sahibganj	3386	1863	1523	502	3147	214	25	3253	1733	1520	1380 (88%)	484 (72%)
Jharkhand	Saraikela-Kharsawan	2126	1945	181	75	1858	268	0	2124	1943	181	1684 (93%)	30 (97%)
Jharkhand	Simdega	776	767	9	16	704	71	1	759	751	8	362 (51%)	0 (0%)
Karnataka	Bagalkot	2759	1942	817	204	2376	321	62	2669	1874	795	1299 (68%)	165 (33%)
Karnataka	Bangalore City	13325	11106	2219	519	11588	1528	209	10809	9810	999	4129 (81%)	212 (9%)
Karnataka	Bangalore Rural	1062	845	217	39	886	148	28	998	811	187	818 (80%)	34 (89%)
Karnataka	Bangalore Urban	2945	2419	526	68	2593	317	35	2807	2297	510	4305 (85%)	639 (97%)
Karnataka	Belgaum	4746	4180	566	436	4148	483	115	4717	4152	565	4425 (82%)	419 (76%)
Karnataka	Bellary	4864	3848	1016	247	4191	586	87	4153	3514	639	2395 (83%)	109 (19%)
Karnataka	Bidar	2627	2035	592	83	2168	343	116	2598	2006	592	1356 (81%)	161 (64%)
Karnataka	Bijapur	3254	2110	1144	573	2920	285	49	3088	1944	1144	1572 (82%)	683 (85%)
Karnataka	Chamarajanagar	970	925	45	24	790	169	11	941	897	44	895 (83%)	69 (95%)

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Karnataka	Chikkaballapur	1664	1515	149	25	1451	183	30	1650	1501	149	1670 (86%)	89 (85%)
Karnataka	Chikmagalur	737	719	18	29	613	103	21	722	705	17	780 (84%)	4 (9%)
Karnataka	Chitradurga	2644	2166	478	136	2314	275	55	2417	2008	409	1651 (75%)	276 (77%)
Karnataka	Dakshina Kannada	3339	2791	548	93	2870	352	117	3102	2627	475	1161 (80%)	119 (43%)
Karnataka	Davanagere	2368	2209	159	112	2042	272	54	2182	2031	151	1140 (71%)	141 (93%)
Karnataka	Dharwad	3570	2709	861	222	3092	356	122	3115	2254	861	1154 (76%)	155 (22%)
Karnataka	Gadag	1877	1320	557	243	1683	164	30	1735	1195	540	1193 (85%)	270 (81%)
Karnataka	Gulbarga	3189	2538	651	170	2667	432	90	3090	2496	594	1489 (84%)	15 (3%)
Karnataka	Hassan	1497	1313	184	43	1252	214	31	1443	1260	183	901 (84%)	130 (86%)
Karnataka	Haveri	1105	1078	27	82	955	129	21	968	942	26	859 (58%)	0 (0%)
Karnataka	Kodagu	348	336	12	14	295	46	7	345	333	12	277 (87%)	20 (91%)
Karnataka	Kolar	1635	1551	84	40	1415	186	34	1620	1536	84	1367 (84%)	52 (93%)
Karnataka	Koppal	2136	1734	402	254	1780	292	64	2110	1725	385	1353 (76%)	301 (88%)
Karnataka	Mandya	1164	1079	85	32	978	150	36	1137	1062	75	1126 (82%)	15 (20%)
Karnataka	Mysore	4392	4002	390	143	3837	507	48	4304	3916	388	2313 (83%)	55 (29%)
Karnataka	Raichur	4426	3533	893	225	3775	506	145	4157	3328	829	2116 (76%)	157 (27%)
Karnataka	Ramanagara	733	647	86	6	607	106	20	708	623	85	891 (76%)	66 (88%)
Karnataka	Shimoga	1875	1684	191	72	1632	222	21	1797	1649	148	1254 (83%)	4 (1%)
Karnataka	Tumkur	3271	3014	257	144	2820	415	36	3229	2985	244	2449 (81%)	88 (86%)
Karnataka	Udupi	1974	1188	786	74	1762	144	68	1461	1059	402	575 (78%)	3 (0.3%)
Karnataka	Uttara Kannada	1167	998	169	76	980	154	33	1068	905	163	696 (84%)	64 (38%)
Karnataka	Yadgiri	1431	1123	308	104	1182	209	40	1409	1102	307	1214 (78%)	252 (68%)
Kerala	Alappuzha	1109	1083	26	44	1003	94	12	1074	1057	17	1021 (86%)	91 (50%)
Kerala	Ernakulam	2705	2195	510	143	2501	180	24	2606	2156	450	1514 (84%)	806 (78%)
Kerala	Idukki	517	474	43	12	474	34	9	517	474	43	485 (92%)	128 (90%)

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Kerala	Kannur	1481	1353	128	125	1375	95	11	1468	1342	126	928 (90%)	305 (97%)
Kerala	Kasaragod	784	736	48	56	710	65	9	781	734	47	678 (87%)	133 (92%)
Kerala	Kollam	1960	1631	329	102	1843	114	3	1957	1628	329	1533 (89%)	490 (89%)
Kerala	Kottayam	1836	1630	206	50	1711	108	17	1830	1624	206	747 (91%)	162 (94%)
Kerala	Kozhikode	2797	2019	778	185	2590	182	25	2647	2010	637	1179 (87%)	431 (71%)
Kerala	Malappuram	2110	1897	213	344	1990	117	3	2106	1894	212	1135 (89%)	391 (94%)
Kerala	Palakkad	1786	1688	98	75	1622	144	20	1691	1611	80	1546 (84%)	211 (57%)
Kerala	Pathanamthitta	1010	882	128	42	931	68	11	1006	879	127	265 (90%)	170 (97%)
Kerala	Thiruvananthapuram	2898	2387	511	94	2641	215	42	2892	2381	511	1510 (91%)	506 (65%)
Kerala	Thrissur	2919	2470	449	198	2698	202	19	2869	2436	433	2041 (87%)	445 (34%)
Kerala	Wayanad	645	545	100	60	606	36	3	645	545	100	317 (92%)	281 (96%)
Lakshwadeep	Lakshadweep	19	19	0	2	19	0	0	19	19	0	48 (94%)	
Madhya Pradesh	Agar Malwa	1135	1063	72	141	966	158	11	955	906	49	822 (78%)	
Madhya Pradesh	Alirajpur	980	806	174	76	886	73	21	974	800	174	727 (72%)	4 (57%)
Madhya Pradesh	Anuppur	923	922	1	34	809	113	1	913	913	0	850 (75%)	
Madhya Pradesh	Ashoknagar	2085	1970	115	114	1922	147	16	1768	1653	115	1494 (92%)	2 (100%)
Madhya Pradesh	Balaghat	2469	2015	454	80	2205	252	12	2464	2010	454	3012 (93%)	392 (99%)
Madhya Pradesh	Barwani	2049	1494	555	370	1768	236	45	1919	1407	512	1748 (90%)	552 (98%)
Madhya Pradesh	Betul	2710	2385	325	144	2477	211	22	2597	2378	219	2145 (82%)	13 (4%)
Madhya Pradesh	Bhind	2868	2289	579	477	2444	341	83	2359	2050	309	1765 (79%)	36 (48%)
Madhya Pradesh	Bhopal	8715	6875	1840	697	7231	1356	128	7927	6340	1587	4792 (91%)	1062 (71%)

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Madhya Pradesh	Burhanpur	2915	1086	1829	230	2741	129	45	2346	1010	1336	1124 (82%)	259 (95%)
Madhya Pradesh	Chhatarpur	14429	3362	11067	627	12294	1980	155	12566	2674	9892	2552 (92%)	71 (90%)
Madhya Pradesh	Chhindwara	3118	2763	355	162	2638	447	33	2950	2717	233	3301 (89%)	3 (1%)
Madhya Pradesh	Damoh	3218	2936	282	138	2669	495	54	3002	2771	231	2594 (88%)	32 (52%)
Madhya Pradesh	Datia	1650	1623	27	125	1211	438	1	1421	1394	27	1332 (82%)	19 (100%)
Madhya Pradesh	Dewas	2526	2118	408	303	2234	254	38	2497	2111	386	2395 (91%)	247 (69%)
Madhya Pradesh	Dhar	4133	3416	717	475	3886	221	26	4034	3321	713	3258 (96%)	1412 (94%)
Madhya Pradesh	Dindori	1004	994	10	45	905	95	4	987	977	10	1207 (86%)	0 (0%)
Madhya Pradesh	Guna	2866	1943	923	270	2604	254	8	2412	1546	866	1102 (77%)	189 (44%)
Madhya Pradesh	Gwalior	9020	5273	3747	864	7644	1149	227	7532	4699	2833	4259 (83%)	991 (37%)
Madhya Pradesh	Harda	940	723	217	191	848	70	22	918	718	200	595 (91%)	227 (67%)
Madhya Pradesh	Hoshangabad	2560	2363	197	287	2348	194	18	2539	2351	188	2068 (94%)	27 (84%)
Madhya Pradesh	Indore	11454	7176	4278	1414	10260	987	207	10252	6925	3327	7333 (97%)	1385 (97%)
Madhya Pradesh	Jabalpur	5532	4625	907	335	4768	668	96	4317	4008	309	3006 (80%)	0 (0%)
Madhya Pradesh	Jhabua	2115	1953	162	156	1844	237	34	1763	1602	161	1395 (90%)	0 (0%)
Madhya Pradesh	Katni	2511	2192	319	119	2291	183	37	2310	1993	317	1599 (89%)	1 (0.4%)
Madhya Pradesh	Khandwa	2484	2117	367	247	2262	203	19	2309	1942	367	1272 (89%)	207 (100%)
Madhya Pradesh	Khargone	3885	3096	789	668	3540	301	44	3850	3063	787	2363 (81%)	546 (93%)

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Madhya Pradesh	Mandla	1879	1838	41	184	1721	151	7	1871	1838	33	1270 (92%)	0 (0%)
Madhya Pradesh	Mandsaur	3133	2130	1003	679	2649	427	57	2669	2113	556	1785 (90%)	560 (99%)
Madhya Pradesh	Morena	3858	3150	708	239	3451	379	28	2963	2338	625	1579 (75%)	2 (1%)
Madhya Pradesh	Narsinghpur	1426	1141	285	64	1154	242	30	1384	1111	273	1126 (80%)	94 (33%)
Madhya Pradesh	Neemuch	1962	1311	651	91	1740	192	30	1954	1306	648	1199 (91%)	492 (86%)
Madhya Pradesh	Panna	1326	1324	2	135	1074	218	34	1309	1309	0	1428 (88%)	5 (100%)
Madhya Pradesh	Raisen	2243	1754	489	130	1967	269	7	2231	1750	481	1554 (93%)	58 (56%)
Madhya Pradesh	Rajgarh	2486	2336	150	238	2118	350	18	2469	2333	136	1414 (74%)	57 (66%)
Madhya Pradesh	Ratlam	2894	2625	269	237	2302	515	77	2678	2580	98	1502 (76%)	10 (5%)
Madhya Pradesh	Rewa	4145	3992	153	283	3595	462	88	3826	3676	150	3187 (89%)	6 (86%)
Madhya Pradesh	Sagar	5276	3989	1287	378	4651	515	110	4716	3542	1174	2784 (82%)	131 (35%)
Madhya Pradesh	Satna	4754	3714	1040	300	4476	212	66	4085	3691	394	3659 (95%)	375 (100%)
Madhya Pradesh	Sehore	2215	2130	85	317	1951	254	10	2214	2129	85	1618 (87%)	122 (64%)
Madhya Pradesh	Seoni	1597	1555	42	47	1378	203	16	1579	1552	27	1376 (89%)	17 (17%)
Madhya Pradesh	Shahdol	1457	1296	161	64	1307	146	4	1401	1247	154	970 (88%)	330 (92%)
Madhya Pradesh	Shajapur	1792	1429	363	306	1577	184	31	1788	1427	361	1237 (93%)	6 (7%)
Madhya Pradesh	Sheopur	1681	1492	189	178	1321	310	50	1650	1461	189	1115 (78%)	1 (100%)
Madhya Pradesh	Shivpuri	3070	2697	373	229	2502	543	25	2940	2574	366	2021 (76%)	0 (0%)

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Madhya Pradesh	Sidhi	1887	1763	124	88	1601	266	20	1619	1618	1	1520 (94%)	1 (1%)
Madhya Pradesh	Singrauli	1388	1192	196	247	1190	178	20	1383	1187	196	962 (90%)	50 (81%)
Madhya Pradesh	Tikamgarh	2054	1955	99	117	1687	324	43	2008	1909	99	1618 (79%)	37 (41%)
Madhya Pradesh	Ujjain	4113	3476	637	390	3332	642	139	3950	3322	628	2127 (87%)	506 (91%)
Madhya Pradesh	Umaria	661	637	24	37	586	69	6	656	632	24	808 (91%)	0 (0%)
Madhya Pradesh	Vidisha	2553	2267	286	240	2055	451	47	2532	2263	269	1843 (85%)	211 (52%)
Maharashtra	Ahmadnagar	4728	4140	588	302	4286	420	22	4702	4122	580	3474 (90%)	81 (81%)
Maharashtra	Ahmednagar MC	514	311	203	35	450	57	7	488	291	197	191 (82%)	0 (0%)
Maharashtra	Akola	1250	1175	75	43	1036	188	26	1245	1170	75	852 (88%)	46 (94%)
Maharashtra	Akola MC	1663	530	1133	71	1560	94	9	1604	509	1095	355 (89%)	38 (5%)
Maharashtra	Amravati	2441	2163	278	90	2072	352	17	2321	2051	270	2062 (91%)	439 (99%)
Maharashtra	Amravati MC	1667	1071	596	55	1458	177	32	1552	958	594	484 (79%)	0 (0%)
Maharashtra	Andheri East	2467	1562	905	155	2162	224	81	1929	1240	689	788 (79%)	2 (0.1%)
Maharashtra	Andheri West	3785	2120	1665	300	3347	263	175	2758	1528	1230	796 (81%)	20 (1%)
Maharashtra	Aurangabad MC	2090	1608	482	138	1835	194	61	1863	1422	441	805 (81%)	47 (7%)
Maharashtra	Aurangabad-MH	2459	2074	385	112	2166	228	65	2237	1898	339	1641 (91%)	352 (90%)
Maharashtra	Bail Bazar Road	2391	1239	1152	161	1959	245	187	2267	1211	1056	772 (81%)	3 (0.2%)
Maharashtra	Bandra East	1689	990	699	156	1410	129	150	1477	823	654	701 (67%)	3 (0.5%)
Maharashtra	Bandra West	1175	705	470	59	975	137	63	1081	677	404	307 (63%)	46 (8%)
Maharashtra	Bhandara	1292	1028	264	43	1145	135	12	1124	975	149	871 (82%)	3 (1%)
Maharashtra	Bhiwandi Nizampur	2950	2518	432	299	2467	467	16	2412	2016	396	1529 (78%)	0 (0%)
Maharashtra	Bid	2018	1362	656	273	1827	184	7	1979	1325	654	1230 (84%)	572 (98%)

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Maharashtra	Borivali	1514	510	1004	63	1354	102	58	1285	442	843	334 (80%)	5 (1%)
Maharashtra	Buldana	2527	1665	862	132	2249	258	20	2483	1639	844	1263 (74%)	351 (39%)
Maharashtra	Byculla	4095	2798	1297	235	3342	465	288	3063	1924	1139	368 (61%)	8 (1%)
Maharashtra	Centenary	3382	2705	677	269	2471	395	516	2723	2181	542	829 (80%)	10 (2%)
Maharashtra	Chandrapur	2798	2073	725	117	2478	284	36	2759	2034	725	1844 (86%)	558 (96%)
Maharashtra	Chembur	1883	724	1159	174	1587	149	147	1678	614	1064	352 (69%)	24 (2%)
Maharashtra	Colaba	1618	839	779	157	1373	150	95	1444	758	686	450 (70%)	9 (1%)
Maharashtra	Dadar	8614	1392	7222	634	7955	261	398	2231	1122	1109	745 (76%)	2 (0%)
Maharashtra	Dahisar	706	319	387	32	636	66	4	575	289	286	316 (78%)	1 (0.2%)
Maharashtra	Dhule	1885	1730	155	65	1681	199	5	1816	1700	116	1670 (91%)	97 (75%)
Maharashtra	Dhule MC	1683	1058	625	89	1509	134	40	1368	916	452	470 (82%)	367 (58%)
Maharashtra	Gadchiroli	1689	1467	222	29	1467	210	12	1670	1459	211	1342 (90%)	3 (4%)
Maharashtra	Ghatkopar	3412	1292	2120	216	2988	237	187	2993	1096	1897	478 (68%)	1 (0%)
Maharashtra	Gondiya	1547	1215	332	48	1400	119	28	1449	1119	330	800 (73%)	55 (8%)
Maharashtra	Goregaon	1672	1051	621	90	1404	184	84	1503	944	559	480 (72%)	1 (0.2%)
Maharashtra	Govandi	2029	649	1380	285	1928	93	8	1963	643	1320	1042 (76%)	27 (2%)
Maharashtra	Grant Road	778	97	681	36	742	29	7	514	78	436	133 (69%)	4 (0.3%)
Maharashtra	Hingoli	1259	978	281	47	1088	147	24	1181	964	217	753 (86%)	4 (2%)
Maharashtra	Jalgaon	4140	2854	1286	137	3844	294	2	3869	2656	1213	1779 (65%)	712 (45%)
Maharashtra	Jalgaon MC	1837	939	898	107	1628	177	32	1561	893	668	374 (86%)	2 (0.4%)
Maharashtra	Jalna	2117	1365	752	98	1876	210	31	2105	1353	752	1196 (90%)	534 (95%)
Maharashtra	Kalyan Dombivli MC	2120	1705	415	70	1813	278	29	1734	1366	368	1078 (81%)	1 (0.2%)
Maharashtra	Kandivali	2606	1779	827	193	2162	309	135	2325	1544	781	711 (79%)	2 (0.3%)
Maharashtra	Kolhapur	2769	2284	485	175	2427	272	70	2623	2149	474	2042 (88%)	0 (0%)
Maharashtra	Kolhapur MC	1084	595	489	61	974	83	27	976	552	424	412 (87%)	456 (74%)

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Maharashtra	Kurla	944	381	563	73	851	88	5	846	365	481	472 (78%)	0 (0%)
Maharashtra	Latur	2843	1926	917	202	2518	286	39	2708	1827	881	1408 (80%)	28 (4%)
Maharashtra	Malad	2368	1401	967	169	2017	216	135	2139	1244	895	1233 (77%)	2 (0.2%)
Maharashtra	Malegaon Corporation	1190	1025	165	135	1117	62	11	1104	1011	93	746 (88%)	0 (0%)
Maharashtra	Mira Bhayander	1570	1191	379	83	1326	168	76	1390	1098	292	836 (81%)	161 (70%)
Maharashtra	Mulund	893	341	552	84	826	58	9	788	315	473	326 (73%)	1 (0.1%)
Maharashtra	Nagpur	2374	1892	482	85	2163	202	9	2274	1794	480	1787 (89%)	304 (66%)
Maharashtra	Nagpur MC	7293	3135	4158	317	6733	465	95	6512	2596	3916	1509 (80%)	769 (32%)
Maharashtra	Nanded	3000	2754	246	106	2562	359	79	2965	2721	244	2109 (79%)	51 (16%)
Maharashtra	Nanded Waghela MC	1357	449	908	54	1274	82	1	1314	448	866	441 (82%)	2 (0.2%)
Maharashtra	Nandurbar	2921	2104	817	159	2636	272	13	2605	2018	587	1703 (86%)	162 (12%)
Maharashtra	Nashik	2794	2586	208	165	2551	238	5	2508	2382	126	2692 (88%)	3 (1%)
Maharashtra	Nashik Corp	2713	1834	879	118	2528	170	15	2166	1566	600	1265 (79%)	3 (0.3%)
Maharashtra	Navi Mumbai	3981	3046	935	310	3394	480	107	3170	2507	663	1638 (83%)	5 (1%)
Maharashtra	Osmanabad	1900	1126	774	275	1753	125	22	1796	1030	766	1068 (79%)	3 (1%)
Maharashtra	Parbhani	1718	1360	358	83	1504	199	15	1425	1223	202	1141 (82%)	30 (8%)
Maharashtra	Parel	7800	7137	663	660	6117	1128	555	4552	4005	547	399 (77%)	52 (9%)
Maharashtra	Pimpri Chinchwad	3015	2289	726	179	2713	260	42	2116	1807	309	1243 (83%)	0 (0%)
Maharashtra	Prabhadevi	528	223	305	37	472	47	9	515	220	295	349 (77%)	0 (0%)
Maharashtra	Pune	4897	2735	2162	171	4405	399	93	4441	2601	1840	2901 (83%)	276 (16%)
Maharashtra	Pune Rural	8934	6331	2603	830	7993	835	106	7793	5861	1932	4947 (92%)	147 (7%)
Maharashtra	Raigarh-MH	4636	3386	1250	195	4050	520	66	3625	3192	433	2593 (68%)	1 (0.1%)
Maharashtra	Ratnagiri	2657	2037	620	64	2289	283	85	2199	1776	423	1288 (76%)	1 (0.3%)
Maharashtra	Sangli	3363	2059	1304	355	3046	291	26	3036	2032	1004	1566 (87%)	1 (0.1%)
Maharashtra	Sangli MC	772	229	543	85	722	49	1	711	182	529	165 (64%)	0 (0%)

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Maharashtra	Satara	4499	2434	2065	365	4172	267	60	4324	2331	1993	1628 (80%)	1154 (89%)
Maharashtra	Sindhudurg	975	737	238	29	878	73	24	964	728	236	703 (83%)	1 (1%)
Maharashtra	Sion	3923	2923	1000	443	3304	471	148	3057	2244	813	666 (73%)	12 (1%)
Maharashtra	Solapur	3234	2086	1148	280	2954	259	21	2961	1973	988	1618 (81%)	365 (24%)
Maharashtra	Solapur MC	2112	1219	893	220	1798	288	26	1814	1033	781	762 (79%)	0 (0%)
Maharashtra	Thane	5148	4809	339	349	4440	661	47	4374	4285	89	3613 (74%)	1 (0.2%)
Maharashtra	Thane MC	5404	4128	1276	416	4547	574	283	3492	2486	1006	1175 (65%)	8 (1%)
Maharashtra	Ulhasnagar MC	1308	1245	63	62	1017	197	94	1245	1191	54	803 (83%)	0 (0%)
Maharashtra	Vasai Virar	2640	2215	425	171	2154	359	127	2511	2130	381	1322 (70%)	0 (0%)
Maharashtra	Vikhroli	2093	1118	975	111	1669	205	219	1900	1027	873	768 (74%)	13 (1%)
Maharashtra	Wardha	1970	1645	325	72	1727	229	14	1881	1608	273	1000 (86%)	166 (46%)
Maharashtra	Washim	1886	1050	836	186	1678	185	23	1881	1046	835	919 (84%)	248 (46%)
Maharashtra	Yavatmal	3646	2803	843	150	3245	390	11	3566	2731	835	2694 (83%)	223 (84%)
Manipur	Bishnupur	115	112	3	3	94	20	1	114	111	3	122 (77%)	0 (0%)
Manipur	Chandel	151	70	81	33	137	14	0	141	63	78	54 (60%)	1 (100%)
Manipur	Churachandpur	401	208	193	24	332	69	0	381	203	178	165 (86%)	115 (38%)
Manipur	Imphal East	787	540	247	23	723	62	2	781	535	246	235 (94%)	368 (96%)
Manipur	Imphal West	836	601	235	47	774	56	6	589	562	27	138 (40%)	6 (2%)
Manipur	Senapati	267	267	0	11	212	47	8	267	267	0	231 (83%)	
Manipur	Tamenglong	37	37	0	0	31	5	1	36	36	0	20 (83%)	
Manipur	Thoubal	210	197	13	8	194	15	1	204	191	13	68 (39%)	0 (0%)
Manipur	Ukhrul	123	119	4	7	98	20	5	122	118	4	108 (82%)	0 (0%)
Meghalaya	East Garo Hills	169	167	2	13	137	31	1	162	160	2	56 (65%)	
Meghalaya	East Khasi Hills	2482	2298	184	171	2103	233	146	1963	1787	176	419 (74%)	0 (0%)
Meghalaya	Jaintia Hills	554	400	154	105	492	50	12	534	384	150	428 (70%)	0 (0%)
Meghalaya	Ri Bhoi	282	246	36	21	236	25	21	228	192	36	83 (31%)	0 (0%)

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Meghalaya	South Garo Hills	80	80	0	1	74	5	1	79	79	0	118 (61%)	
Meghalaya	West Garo Hills	818	818	0	28	745	70	3	663	663	0	388 (63%)	
Meghalaya	West Khasi Hills	482	373	109	78	434	29	19	470	362	108	508 (84%)	0 (0%)
Mizoram	Aizawl	1599	1543	56	149	1450	141	8	1465	1422	43	862 (62%)	0 (0%)
Mizoram	Champhai	162	161	1	14	148	13	1	131	130	1	112 (75%)	
Mizoram	Kolasib	220	220	0	14	192	28	0	220	220	0	167 (85%)	
Mizoram	Lawngtlai	129	129	0	7	122	7	0	128	128	0	41 (30%)	
Mizoram	Lunglei	222	222	0	12	175	47	0	219	219	0	175 (86%)	
Mizoram	Mamit	60	60	0	5	55	5	0	54	54	0	50 (69%)	
Mizoram	Saiha	132	132	0	8	118	12	2	130	130	0	75 (51%)	
Mizoram	Serchhip	46	46	0	10	42	4	0	46	46	0	81 (89%)	
Nagaland	Mon	553	553	0	92	476	77	0	549	549	0	11 (7%)	
Nagaland	Dimapur	1605	1281	324	63	1331	256	18	1572	1248	324	724 (79%)	0 (0%)
Nagaland	Kiphire	111	111	0	12	96	14	1	111	111	0	109 (78%)	
Nagaland	Kohima	834	434	400	72	758	66	10	738	429	309	266 (79%)	0 (0%)
Nagaland	Longleng	48	48	0	2	40	8	0	48	48	0	57 (72%)	
Nagaland	Mokokchung	289	289	0	22	245	36	8	280	280	0	158 (83%)	
Nagaland	Peren	76	76	0	3	70	6	0	75	75	0	57 (89%)	
Nagaland	Phek	98	98	0	7	83	15	0	97	97	0	80 (93%)	
Nagaland	Tuensang	424	424	0	46	401	23	0	422	422	0	50 (56%)	
Nagaland	Wokha	113	110	3	8	95	14	4	113	110	3	112 (94%)	
Nagaland	Zunheboto	118	118	0	17	115	3	0	118	118	0	108 (74%)	
Odisha	Anugul	1253	1243	10	49	1040	206	7	1244	1242	2	1652 (92%)	26 (93%)
Odisha	Balangir	1768	1754	14	63	1621	144	3	1747	1734	13	1005 (50%)	0 (0%)
Odisha	Baleshwar	1779	1694	85	72	1580	186	13	1718	1653	65	1596 (71%)	0 (0%)
Odisha	Bargarh	1335	1149	186	38	1240	94	1	1335	1149	186	1489 (70%)	0 (0%)

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Odisha	Baudh	224	224	0	5	203	19	2	224	224	0	313 (88%)	
Odisha	Bhadrak	803	784	19	25	692	109	2	787	773	14	674 (62%)	0 (0%)
Odisha	Bhubaneshwar MC	2521	1896	625	174	2207	266	48	2386	1866	520	911 (90%)	48 (7%)
Odisha	Cuttack	4382	4018	364	224	3869	389	124	3369	3184	185	1332 (68%)	0 (0%)
Odisha	Debagarh	320	320	0	9	293	27	0	306	306	0	405 (94%)	
Odisha	Dhenkanal	1024	1022	2	33	859	156	9	1024	1022	2	1316(75%)	0 (0%)
Odisha	Gajapati	1247	1203	44	106	1055	181	11	1238	1195	43	1297 (82%)	98 (99%)
Odisha	Ganjam	4851	4437	414	335	4232	567	52	4598	4232	366	2922 (47%)	8 (1%)
Odisha	Jagatsinghapur	386	329	57	20	339	41	6	380	329	51	743 (92%)	30 (81%)
Odisha	Jajapur	1238	1087	151	38	1100	131	7	1203	1075	128	1474 (55%)	32 (68%)
Odisha	Jharsuguda	677	672	5	21	590	85	2	650	645	5	600 (56%)	
Odisha	Kalahandi	1567	1511	56	56	1328	224	15	1522	1483	39	1268 (85%)	12 (10%)
Odisha	Kandhamal	939	932	7	70	863	70	6	933	927	6	900 (54%)	0 (0%)
Odisha	Kendrapara	547	536	11	20	465	70	12	547	536	11	715 (94%)	
Odisha	Kendujhar	2503	2417	86	93	2170	326	7	2483	2399	84	2518 (68%)	31 (100%)
Odisha	Khordha	1162	771	391	53	940	213	9	1135	746	389	856 (54%)	56 (43%)
Odisha	Koraput	1966	1948	18	132	1791	170	5	1887	1881	6	1957 (89%)	8 (24%)
Odisha	Malkangiri	945	944	1	37	834	105	6	921	921	0	980 (52%)	2 (50%)
Odisha	Mayurbhanj	5324	4822	502	126	4858	455	11	5219	4760	459	4020 (50%)	68 (14%)
Odisha	Nabarangapur	1156	975	181	58	1077	79	0	1110	934	176	858 (62%)	4 (4%)
Odisha	Nayagarh	1226	1160	66	28	1032	191	3	1036	995	41	532 (44%)	0 (0%)
Odisha	Nuapada	979	960	19	33	905	74	0	748	747	1	802 (79%)	0 (0%)
Odisha	Puri	924	861	63	109	773	140	11	908	846	62	1160 (86%)	181 (99%)
Odisha	Rayagada	1651	1631	20	95	1411	233	7	1602	1582	20	1051 (42%)	0 (0%)
Odisha	Sambalpur	2294	2095	199	127	2007	283	4	2209	2052	157	617 (35%)	0 (0%)

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Odisha	Sonapur	379	379	0	11	344	35	0	379	379	0	654 (89%)	
Odisha	Sundargarh	2933	2855	78	91	2640	288	5	2858	2801	57	2371 (48%)	0 (0%)
Puducherry	Puducherry	3489	3466	23	117	2938	420	131	3385	3364	21	1206 (85%)	10 (100%)
Punjab	Amritsar	5537	4970	567	429	4893	574	70	4987	4630	357	3424 (92%)	67 (8%)
Punjab	Barnala	707	658	49	31	599	102	6	671	637	34	589 (83%)	0 (0%)
Punjab	Bathinda	2682	2230	452	123	2415	256	11	2584	2140	444	1929 (93%)	0 (0%)
Punjab	Faridkot	1872	1781	91	107	1543	291	38	1734	1661	73	938 (84%)	35 (90%)
Punjab	Fatehgarh Sahib	469	451	18	23	379	77	13	463	445	18	535 (84%)	21 (78%)
Punjab	Fazilka	1799	1583	216	63	1525	253	21	1740	1528	212	1328 (85%)	1 (2%)
Punjab	Firozpur	1292	1172	120	47	1040	233	19	1224	1105	119	1140 (82%)	0 (0%)
Punjab	Gurdaspur	2115	1856	259	75	1817	278	20	2023	1768	255	1361 (85%)	0 (0%)
Punjab	Hoshiarpur	2854	2127	727	89	2522	270	62	2443	2064	379	1515 (89%)	500 (79%)
Punjab	Jalandhar	4502	3388	1114	295	4069	397	36	3931	2826	1105	2314 (84%)	45 (8%)
Punjab	Kapurthala	1055	1023	32	64	910	132	13	984	953	31	707 (87%)	0 (0%)
Punjab	Ludhiana	13879	8176	5703	1084	12770	992	117	10549	7744	2805	4678 (86%)	143 (7%)
Punjab	Mansa-PN	1049	997	52	33	877	158	14	1048	996	52	807 (85%)	77 (91%)
Punjab	Moga	1087	983	104	54	898	176	13	1047	945	102	977 (85%)	43 (45%)
Punjab	Mohali	1668	1197	471	65	1444	209	15	1523	1142	381	1502 (86%)	1 (0.2%)
Punjab	Muktsar	1422	1389	33	71	1189	220	13	1324	1316	8	1046 (91%)	74 (96%)
Punjab	Nawanshahr	796	732	64	42	677	110	9	705	662	43	619 (90%)	48 (89%)
Punjab	Pathankot	919	872	47	30	839	69	11	874	833	41	520 (87%)	0 (0%)
Punjab	Patiala	4670	4505	165	190	3838	680	152	3622	3460	162	1581 (86%)	0 (0%)
Punjab	Rupnagar	945	857	88	26	812	128	5	921	834	87	835 (87%)	39 (98%)
Punjab	Sangrur	2020	1968	52	80	1716	288	16	2007	1955	52	1733 (83%)	18 (45%)
Punjab	Tarn Taran	1062	1060	2	48	807	247	8	1060	1058	2	900 (83%)	
Rajasthan	Ajmer	8113	5962	2151	738	6715	1245	153	7415	5295	2120	3399 (87%)	480 (73%)

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Rajasthan	Alwar	7580	4481	3099	414	7017	467	96	6921	3850	3071	3347 (85%)	962 (47%)
Rajasthan	Banswara	4231	3887	344	178	3789	374	68	4118	3814	304	3832 (93%)	8 (7%)
Rajasthan	Baran	2930	2046	884	171	2472	427	31	2830	1948	882	1693 (84%)	414 (95%)
Rajasthan	Barmer	2243	1719	524	226	1888	302	53	2199	1676	523	1597 (91%)	170 (94%)
Rajasthan	Bharatpur	5074	3151	1923	493	4420	615	39	5001	3083	1918	2087 (84%)	528 (49%)
Rajasthan	Bhilwara	6928	4627	2301	854	5622	1162	144	5401	4263	1138	3700 (85%)	91 (5%)
Rajasthan	Bikaner	6165	4675	1490	263	5280	775	110	4394	3243	1151	1763 (89%)	0 (0%)
Rajasthan	Bundi	2698	1784	914	644	2300	357	41	2631	1718	913	1169 (81%)	396 (99%)
Rajasthan	Chittaurgarh	2757	2263	494	225	2095	614	48	2692	2225	467	2152 (86%)	206 (61%)
Rajasthan	Churu	2752	2316	436	157	2268	437	47	2496	2097	399	1633 (77%)	120 (57%)
Rajasthan	Dausa	2562	2150	412	81	2259	255	48	2089	1680	409	1024 (71%)	12 (80%)
Rajasthan	Dhaulpur	3358	2423	935	141	2636	599	123	2830	2219	611	1674 (81%)	4 (0.4%)
Rajasthan	Dungarpur	3628	3308	320	103	3134	422	72	3072	2950	122	2707 (92%)	12 (13%)
Rajasthan	Ganganagar	5250	3543	1707	294	4558	600	92	4698	3052	1646	2282 (88%)	308 (33%)
Rajasthan	Hanumangarh	4815	3570	1245	265	4065	672	78	4341	3099	1242	2180 (79%)	323 (93%)
Rajasthan	Jaipur	18121	12099	6022	967	15713	1982	426	12925	7831	5094	3603 (84%)	8 (0.3%)
Rajasthan	Jaipur DTC II	8185	5013	3172	517	7128	987	70	7566	4483	3083	4311 (90%)	1314 (90%)
Rajasthan	Jaisalmer	716	487	229	186	628	83	5	601	372	229	276 (68%)	24 (71%)
Rajasthan	Jalore	3379	2006	1373	382	2975	363	41	3325	1952	1373	2057 (90%)	720 (75%)
Rajasthan	Jhalawar	2960	2102	858	216	2488	450	22	2787	1932	855	1251 (85%)	227 (99%)
Rajasthan	Jhunjhunun	2499	1628	871	85	2076	391	32	2358	1488	870	1235 (84%)	72 (15%)
Rajasthan	Jodhpur	7846	5753	2093	396	6684	1024	138	6763	4766	1997	2494 (75%)	32 (4%)
Rajasthan	Karauli	4087	3653	434	96	3486	543	58	3029	2597	432	1300 (79%)	154 (72%)
Rajasthan	Kota	6913	4141	2772	391	5587	1266	60	5667	3515	2152	1689 (80%)	220 (22%)
Rajasthan	Nagaur	4087	2687	1400	147	3431	556	100	3386	2373	1013	1894 (81%)	0 (0%)
Rajasthan	Pali	3058	2348	710	60	2554	420	84	2942	2240	702	1768 (89%)	121 (98%)

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Rajasthan	Pratapgarh	1748	1705	43	50	1414	272	62	1714	1671	43	1359 (87%)	0 (0%)
Rajasthan	Rajsamand	1555	1274	281	47	1335	200	20	1520	1239	281	1397 (93%)	237 (98%)
Rajasthan	Sawai Madhopur	3871	3003	868	236	3281	541	49	3793	2925	868	1533 (75%)	425 (73%)
Rajasthan	Sikar	5819	3373	2446	169	4850	823	146	5141	3008	2133	1783 (89%)	55 (4%)
Rajasthan	Sirohi	2465	1553	912	147	2147	276	42	1715	812	903	858 (65%)	304 (62%)
Rajasthan	Tonk	3523	2831	692	139	2825	651	47	3330	2676	654	1850 (83%)	145 (56%)
Rajasthan	Udaipur	8252	6411	1841	289	6850	1259	143	6987	5455	1532	3978 (86%)	733 (53%)
Sikkim	East District	767	748	19	46	605	47	115	643	635	8	206 (67%)	0 (0%)
Sikkim	North District	84	84	0	4	71	5	8	84	84	0	52 (88%)	
Sikkim	Singtam	126	125	1	11	115	10	1	122	122	0	150 (77%)	
Sikkim	South District	252	252	0	13	208	28	16	240	240	0	169 (79%)	0 (0%)
Sikkim	West District	209	209	0	11	168	24	17	208	208	0	144 (91%)	
Tamil Nadu	Centeral Chennai	7454	4521	2933	297	6320	870	264	6385	4019	2366	2800 (77%)	488 (27%)
Tamil Nadu	Coimbatore	5821	3354	2467	91	5169	584	68	5763	3297	2466	2672 (86%)	1734 (86%)
Tamil Nadu	Cuddalore	2990	2605	385	176	2579	377	34	2957	2573	384	1731 (72%)	2 (3%)
Tamil Nadu	Dharmapuri	1796	1420	376	53	1489	261	46	1793	1417	376	1247 (82%)	241 (98%)
Tamil Nadu	Dindigul	3035	2441	594	105	2715	285	35	2393	1989	404	2489 (83%)	141 (38%)
Tamil Nadu	Erode	3914	3123	791	49	3305	555	54	3803	3072	731	2006 (76%)	179 (44%)
Tamil Nadu	Kancheepuram	6145	5651	494	116	5076	910	159	5279	4872	407	2727 (85%)	1 (0.2%)
Tamil Nadu	Kanniyakumari	1636	1233	403	185	1483	136	17	1378	1141	237	1423 (84%)	31 (19%)
Tamil Nadu	Karur	1073	831	242	24	945	116	12	1071	829	242	831 (82%)	278 (100%)
Tamil Nadu	Krishnagiri	2157	1412	745	55	1943	195	19	2147	1402	745	1579 (88%)	542 (100%)
Tamil Nadu	Madurai	8094	4768	3326	428	7038	812	244	7338	4388	2950	2647 (74%)	373 (18%)
Tamil Nadu	Nagapattinam	1793	1468	325	61	1527	251	15	1788	1464	324	1645 (88%)	195 (100%)
Tamil Nadu	Namakkal	2097	1571	526	57	1797	230	70	2088	1563	525	1458 (84%)	276 (82%)

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Tamil Nadu	North Chennai	4569	3361	1208	162	3902	593	74	4091	3105	986	1769 (81%)	199 (42%)
Tamil Nadu	Perambalur	1633	1229	404	150	1419	178	36	1625	1221	404	845 (70%)	61 (97%)
Tamil Nadu	Pudukkottai	1426	1282	144	29	1341	48	37	772	638	134	700 (54%)	0 (0%)
Tamil Nadu	Ramanathapuram	2068	1397	671	422	1890	129	49	2054	1384	670	1172 (92%)	396 (100%)
Tamil Nadu	Salem	4436	3039	1397	113	3895	452	89	4146	2968	1178	3363 (87%)	1087 (91%)
Tamil Nadu	Sivaganga	1792	1314	478	90	1610	142	40	1711	1243	468	930 (91%)	217 (68%)
Tamil Nadu	South Chennai	2347	1123	1224	50	2066	243	38	2091	1067	1024	1044 (67%)	140 (8%)
Tamil Nadu	Thanjavur	3746	2671	1075	476	3310	358	78	3643	2568	1075	2275 (76%)	293 (100%)
Tamil Nadu	The Nilgiris	303	294	9	25	266	33	4	303	294	9	370 (92%)	19 (90%)
Tamil Nadu	Theni	1835	1641	194	71	1616	200	19	1812	1618	194	1330 (82%)	80 (51%)
Tamil Nadu	Thiruvallur	2469	2290	179	34	2104	337	28	2456	2277	179	3686 (93%)	72 (99%)
Tamil Nadu	Thiruvarur	1592	1292	300	184	1304	242	46	1445	1266	179	1299 (77%)	49 (42%)
Tamil Nadu	Thoothukudi	2652	1769	883	157	2423	169	60	2548	1670	878	1667 (84%)	646 (100%)
Tamil Nadu	Tiruchirappalli	4738	3201	1537	134	4333	344	61	4590	3054	1536	1959 (72%)	1067 (100%)
Tamil Nadu	Tirunelveli	4555	3053	1502	270	4012	474	69	4089	2789	1300	2597 (84%)	808 (72%)
Tamil Nadu	Tiruppur	2272	1851	421	41	1922	292	58	2158	1742	416	1811 (73%)	234 (83%)
Tamil Nadu	Tiruvannamalai	2201	1901	300	75	1866	266	69	2192	1898	294	1660 (94%)	120 (99%)
Tamil Nadu	Vellore	6069	3515	2554	185	5420	496	153	4587	3441	1146	3934 (88%)	297 (14%)
Tamil Nadu	Viluppuram	2622	2283	339	75	2236	364	22	2608	2271	337	3200 (93%)	406 (93%)
Tamil Nadu	Virudhunagar	3587	2511	1076	646	3295	262	30	3507	2431	1076	2445 (85%)	737 (100%)
Telangana	Adilabad	1395	1332	63	60	1175	211	9	1385	1322	63	981 (79%)	2 (67%)
Telangana	Asifabad	692	665	27	11	617	75	0	688	661	27	364 (63%)	3 (100%)
Telangana	Bhadrachalam	2133	1736	397	38	1750	320	63	2031	1664	367	1424 (90%)	533 (92%)
Telangana	Gadwal	1282	1156	126	55	1090	184	8	1281	1155	126	567 (94%)	6 (75%)
Telangana	Hyderabad	10849	8619	2230	644	9328	1247	274	9842	8324	1518	4881 (89%)	456 (94%)

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Telangana	Jagtiyal	1087	920	167	23	851	185	51	1085	919	166	822 (85%)	21 (100%)
Telangana	Jangaon	505	422	83	6	345	139	21	495	414	81	404 (76%)	61 (95%)
Telangana	Jayashankar	675	656	19	6	465	202	8	669	650	19	659 (72%)	
Telangana	Kamareddy	799	574	225	14	747	52	0	798	573	225	769 (93%)	81 (76%)
Telangana	Karimnagar	1598	1226	372	29	1336	198	64	1582	1210	372	650 (84%)	289 (99%)
Telangana	Khammam	3271	1681	1590	72	2807	359	105	3115	1605	1510	1196 (80%)	1722 (96%)
Telangana	Mahabubabad	681	651	30	10	545	124	12	630	600	30	409 (66%)	1 (33%)
Telangana	Mahbubnagar	1810	1720	90	50	1560	219	31	1799	1709	90	1442 (92%)	66 (97%)
Telangana	Mancherial	937	894	43	18	727	191	19	925	882	43	786 (65%)	15 (100%)
Telangana	Medak	768	714	54	8	715	45	8	768	714	54	349 (86%)	2 (67%)
Telangana	Medchal	2724	2158	566	119	2366	341	17	2614	2127	487	2240 (91%)	255 (75%)
Telangana	Nagarkurnool	762	704	58	16	628	134	0	762	704	58	728 (88%)	8 (100%)
Telangana	Nalgonda	2541	1610	931	85	2137	354	50	2512	1589	923	1467 (85%)	1099 (97%)
Telangana	Nirmal	1102	1008	94	15	943	150	9	960	917	43	426 (61%)	
Telangana	Nizamabad	3050	1899	1151	137	2844	168	38	3035	1884	1151	1475 (89%)	994 (92%)
Telangana	Peddapally	787	617	170	18	637	118	32	785	615	170	563 (80%)	11 (100%)
Telangana	Rangareddy	2923	2494	429	142	2473	383	67	2913	2487	426	2370 (90%)	103 (93%)
Telangana	Sangareddy	1513	1425	88	71	1218	265	30	1442	1363	79	970 (82%)	6 (100%)
Telangana	Siddipet	1325	906	419	12	1105	196	24	1323	904	419	703 (87%)	1 (100%)
Telangana	Sircilla	718	654	64	5	554	137	27	716	652	64	367 (86%)	38 (95%)
Telangana	Suryapet	1164	1055	109	9	951	192	21	1164	1055	109	911 (89%)	393 (100%)
Telangana	Vikarabad	928	927	1	33	722	184	22	920	919	1	833 (86%)	1 (100%)
Telangana	Wanaparthy	717	562	155	14	623	91	3	713	558	155	405 (90%)	1 (100%)
Telangana	Warangal Rural	477	419	58	3	316	146	15	450	410	40	401 (54%)	152 (82%)
Telangana	Warangal Urban	2496	2134	362	73	1973	445	78	2383	2021	362	880 (74%)	950 (98%)
Telangana	Yadadri	621	546	75	9	493	125	3	621	546	75	443 (78%)	20 (57%)

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Tripura	Dhalai	196	196	0	2	163	33	0	194	194	0	139 (60%)	
Tripura	Gomati	235	234	1	5	200	35	0	228	227	1	203 (84%)	
Tripura	Khowai	186	186	0	1	174	12	0	162	162	0	60 (58%)	
Tripura	North Tripura	341	340	1	7	292	44	5	332	331	1	200 (72%)	
Tripura	Sepahijala	103	103	0	1	91	12	0	103	103	0	201 (91%)	
Tripura	South Tripura	203	203	0	0	172	30	1	201	201	0	188 (68%)	0 (0%)
Tripura	Unakoti	127	127	0	3	112	15	0	124	124	0	139 (77%)	
Tripura	West Tripura	1188	1186	2	35	1064	115	9	1095	1093	2	269 (64%)	0 (0%)
Uttar Pradesh	Agra	12307	8070	4237	714	9190	2811	306	10535	6809	3726	2690 (65%)	6 (0.5%)
Uttar Pradesh	Aligarh	10988	7867	3121	671	9972	916	100	9638	6994	2644	4408 (79%)	2 (0.4%)
Uttar Pradesh	Allahabad	10312	8382	1930	409	8575	1606	131	8339	6706	1633	3381 (58%)	91 (7%)
Uttar Pradesh	Ambedkar Nagar	3130	2728	402	131	2749	279	102	2485	2133	352	671 (39%)	0 (0%)
Uttar Pradesh	Amethi	2126	1777	349	76	1817	270	39	1993	1701	292	738 (71%)	0 (0%)
Uttar Pradesh	Auraiya	2382	1956	426	74	2184	181	17	2110	1688	422	733 (38%)	6 (1%)
Uttar Pradesh	Azamgarh	5257	4653	604	327	4736	424	97	4261	3704	557	963 (47%)	0 (0%)
Uttar Pradesh	Baghpat	2959	2329	630	130	2470	431	58	2899	2269	630	1793 (82%)	36 (27%)
Uttar Pradesh	Bahraich	5207	4046	1161	146	4560	525	122	4929	3770	1159	2603 (79%)	989 (100%)
Uttar Pradesh	Ballia	3721	2947	774	155	3354	330	37	3024	2558	466	494 (31%)	8 (2%)
Uttar Pradesh	Balrampur	2541	2054	487	129	2286	169	86	2405	1924	481	909 (52%)	6 (2%)
Uttar Pradesh	Banda	3836	2679	1157	213	2894	804	138	3376	2226	1150	1164 (75%)	22 (3%)
Uttar Pradesh	Barabanki	5760	4836	924	590	4965	709	86	5614	4772	842	3930 (84%)	4 (1%)
Uttar Pradesh	Bareilly	12018	8486	3532	674	10529	1256	233	9781	6609	3172	3923 (76%)	1 (0%)
Uttar Pradesh	Basti	5531	3700	1831	278	5194	209	128	4963	3586	1377	1594 (55%)	18 (5%)
Uttar Pradesh	Bijnor	6844	5427	1417	525	5916	866	62	6199	5286	913	2851 (71%)	0 (0%)
Uttar Pradesh	Budaun	6771	5113	1658	256	5829	880	62	5363	3727	1636	1155 (31%)	1 (0.2%)

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Uttar Pradesh	Bulandshahar	8575	6514	2061	422	7743	734	98	7258	6128	1130	4926 (79%)	34 (3%)
Uttar Pradesh	Chandauli	3149	2340	809	139	2801	305	43	2753	2169	584	1493 (83%)	0 (0%)
Uttar Pradesh	Chitrakoot	1616	1311	305	122	1254	276	86	1582	1277	305	1002 (83%)	3 (1%)
Uttar Pradesh	Deoria	3594	2867	727	148	3008	497	89	3535	2832	703	1469 (84%)	615 (57%)
Uttar Pradesh	Etah	4495	2789	1706	959	4056	379	60	4047	2404	1643	1544 (71%)	1 (0.1%)
Uttar Pradesh	Etawah	4591	4010	581	307	4009	507	75	3174	2770	404	2008 (81%)	2 (0.2%)
Uttar Pradesh	Faizabad	4345	3602	743	241	3842	445	58	4035	3308	727	1076 (47%)	1 (0.2%)
Uttar Pradesh	Farrukhabad	3656	2874	782	130	3129	440	87	3110	2476	634	931 (64%)	6 (1%)
Uttar Pradesh	Fatehpur	4004	3174	830	192	3423	515	66	3393	2711	682	2555 (77%)	278 (29%)
Uttar Pradesh	Firozabad	5999	4045	1954	550	5012	894	93	5336	3481	1855	2215 (85%)	5 (0.4%)
Uttar Pradesh	Gautam Budh Nagar	7835	5697	2138	648	6827	909	99	6712	4991	1721	3165 (79%)	0 (0%)
Uttar Pradesh	Ghaziabad	13756	10726	3030	1169	12185	1499	72	12052	9790	2262	6015 (78%)	2 (0.2%)
Uttar Pradesh	Ghazipur	3167	2539	628	116	2901	174	92	2788	2305	483	404 (25%)	0 (0%)
Uttar Pradesh	Gonda	5143	4542	601	432	4683	347	113	4813	4296	517	2474 (83%)	810 (94%)
Uttar Pradesh	Gorakhpur	8821	5918	2903	407	7575	1048	198	5155	4921	234	2941 (75%)	0 (0%)
Uttar Pradesh	Hamirpur-UP	2259	1644	615	85	2013	190	56	1916	1357	559	618 (60%)	7 (1%)
Uttar Pradesh	Hapur	3150	2363	787	194	2791	305	54	2709	2067	642	847 (46%)	0 (0%)
Uttar Pradesh	Hardoi	7229	6530	699	313	6450	682	97	6957	6260	697	4219 (73%)	78 (60%)
Uttar Pradesh	Hathras	3778	2431	1347	251	3269	467	42	3619	2297	1322	1469 (76%)	0 (0%)
Uttar Pradesh	Jalaun	3397	2328	1069	132	2954	374	69	3107	2158	949	1492 (73%)	0 (0%)
Uttar Pradesh	Jaunpur	6413	5549	864	278	5539	687	187	5958	5301	657	1467 (51%)	0 (0%)
Uttar Pradesh	Jhansi	4712	2961	1751	165	3801	784	127	4554	2843	1711	1652 (65%)	0 (0%)
Uttar Pradesh	Jyotiba Phule Nagar	2764	2270	494	197	2536	179	49	1715	1486	229	321 (28%)	0 (0%)
Uttar Pradesh	Kannauj	2501	2358	143	81	2088	381	32	2127	1988	139	1161 (79%)	41 (95%)
Uttar Pradesh	Kanpur Dehat	2191	1903	288	59	1764	398	29	1975	1690	285	1030 (51%)	3 (1%)

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Uttar Pradesh	Kanpur Nagar	18218	9428	8790	1104	16470	1659	89	11364	6855	4509	3833 (58%)	14 (0.3%)
Uttar Pradesh	Kanshiram Nagar	3794	1988	1806	298	3559	204	31	3710	1907	1803	1457 (91%)	110 (12%)
Uttar Pradesh	Kaushambi	2513	2258	255	55	2210	246	57	2449	2205	244	1828 (90%)	0 (0%)
Uttar Pradesh	Kheri	7804	6886	918	377	7005	722	77	7361	6510	851	4422 (81%)	23 (6%)
Uttar Pradesh	Kushinagar	4081	2703	1378	162	3664	308	109	3645	2396	1249	1074 (60%)	6 (1%)
Uttar Pradesh	Lalitpur	3550	1869	1681	135	3109	371	70	2553	1663	890	1024 (78%)	0 (0%)
Uttar Pradesh	Lucknow	19992	13712	6280	1447	17797	1817	378	14950	10487	4463	6123 (68%)	115 (3%)
Uttar Pradesh	Maharajganj	2977	2661	316	74	2647	243	87	2746	2496	250	1494 (83%)	77 (22%)
Uttar Pradesh	Mahoba	1644	1119	525	61	1229	352	63	1313	1031	282	531 (77%)	2 (1%)
Uttar Pradesh	Mainpuri	3081	2236	845	287	2705	335	41	2787	2036	751	1387 (67%)	126 (27%)
Uttar Pradesh	Mathura	13421	4506	8915	638	12559	630	232	12480	4122	8358	1990 (55%)	278 (8%)
Uttar Pradesh	Mau	3356	2193	1163	302	3057	194	105	3169	2015	1154	1150 (83%)	1 (0.1%)
Uttar Pradesh	Meerut	12479	8140	4339	1118	11011	1311	157	10995	6840	4155	4310 (73%)	1 (0.1%)
Uttar Pradesh	Mirzapur	4602	4182	420	152	3785	772	45	4475	4066	409	1292 (47%)	1 (0.5%)
Uttar Pradesh	Moradabad	11256	5541	5715	1072	10273	805	178	9018	4699	4319	2751 (73%)	1 (0%)
Uttar Pradesh	Muzaffarnagar	6332	5421	911	360	5410	753	169	5868	5185	683	3135 (72%)	0 (0%)
Uttar Pradesh	Pilibhit	4012	2904	1108	165	3302	642	68	3733	2662	1071	1764 (75%)	3 (0.3%)
Uttar Pradesh	Pratapgarh	4537	3969	568	174	3736	689	112	4367	3877	490	2735 (86%)	33 (5%)
Uttar Pradesh	Rae Bareli	4004	3499	505	184	3589	362	53	2624	2244	380	1521 (77%)	3 (1%)
Uttar Pradesh	Rampur	5721	4800	921	231	5095	559	67	5082	4199	883	3266 (88%)	0 (0%)
Uttar Pradesh	Saharanpur	9754	6876	2878	862	8361	1236	157	9377	6675	2702	5005 (82%)	31 (3%)
Uttar Pradesh	Sambhal	3757	2530	1227	124	3457	260	40	3093	2327	766	718 (45%)	5 (1%)
Uttar Pradesh	Sant Kabir Nagar	2990	1575	1415	115	2653	230	107	1551	1347	204	840 (74%)	29 (10%)
Uttar Pradesh	Sant Ravidas Nagar	2090	1817	273	129	1814	234	42	2057	1787	270	1291 (82%)	32 (9%)
Uttar Pradesh	Shahjahanpur	7440	4820	2620	381	6827	553	60	6061	4548	1513	2229 (64%)	0 (0%)

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Uttar Pradesh	Shamli	2512	2136	376	159	2166	302	44	2397	2025	372	863 (58%)	0 (0%)
Uttar Pradesh	Shravasti	1259	1237	22	80	1110	106	43	1252	1230	22	901 (89%)	0 (0%)
Uttar Pradesh	Siddharthnagar	2715	2165	550	164	2421	160	134	2059	1793	266	119 (19%)	0 (0%)
Uttar Pradesh	Sitapur	9283	8071	1212	664	7899	1315	69	8575	7364	1211	3723 (59%)	2 (0.2%)
Uttar Pradesh	Sonbhadra	3020	2481	539	113	2551	391	78	2606	2309	297	1464 (81%)	2 (0.5%)
Uttar Pradesh	Sultanpur	3104	2638	466	157	2743	313	48	2630	2259	371	502 (27%)	1 (0.2%)
Uttar Pradesh	Unnao	4411	3802	609	189	3805	571	35	3840	3286	554	1487 (65%)	72 (11%)
Uttar Pradesh	Varanasi	7895	5128	2767	591	6779	734	382	7350	4691	2659	2595 (68%)	474 (25%)
Uttarakhand	Almora	471	471	0	19	396	73	2	471	471	0	316 (61%)	
Uttarakhand	Bageshwar	270	270	0	11	218	49	3	270	270	0	149 (52%)	
Uttarakhand	Chamoli	336	336	0	10	269	67	0	326	326	0	174 (58%)	
Uttarakhand	Champawat	236	236	0	9	198	36	2	228	228	0	157 (79%)	
Uttarakhand	Dehradun	6623	4990	1633	384	5687	830	106	5552	4388	1164	2140 (86%)	1579 (99%)
Uttarakhand	Garhwal	992	988	4	40	793	189	10	936	932	4	740 (85%)	
Uttarakhand	Hardwar	4836	3614	1222	345	4191	582	63	4765	3544	1221	2740 (84%)	1362 (98%)
Uttarakhand	Nainital	3832	2776	1056	201	3268	501	63	2758	1979	779	898 (69%)	246 (51%)
Uttarakhand	Pithoragarh	524	510	14	20	412	112	0	523	510	13	338 (73%)	7 (100%)
Uttarakhand	Rudraprayag	190	152	38	4	136	50	4	190	152	38	251 (82%)	20 (91%)
Uttarakhand	Tehri Garhwal	448	448	0	9	355	91	2	426	426	0	461 (76%)	0 (0%)
Uttarakhand	Udhamsingh Nagar	3227	2638	589	148	2810	391	26	3111	2564	547	1381 (63%)	214 (50%)
Uttarakhand	Uttarkashi	377	377	0	24	325	52	0	375	375	0	369 (92%)	
West Bengal	Alipore	1536	964	572	115	1391	105	40	1111	848	263	219 (83%)	234 (48%)
West Bengal	Alipurduar	2156	2057	99	80	1841	276	39	2106	2030	76	2345 (87%)	0 (0%)
West Bengal	Bagbazar	1433	1179	254	62	1238	160	35	1068	896	172	352 (82%)	9 (3%)
West Bengal	Bankura	4563	4238	325	64	4262	270	31	4436	4168	268	2377 (89%)	22 (4%)

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West Bengal	Barddhaman	5983	5364	619	195	5239	623	121	5965	5354	611	4705 (71%)	10 (20%)
West Bengal	Basirhat	1226	1171	55	27	1016	165	45	1198	1160	38	1370 (89%)	18 (95%)
West Bengal	Behala	1046	680	366	25	883	129	34	971	616	355	230 (81%)	303 (91%)
West Bengal	Birbhum	3344	3213	131	63	2940	364	40	3198	3168	30	2893 (84%)	0 (0%)
West Bengal	Bishnupur	1038	839	199	35	971	66	1	949	835	114	990 (91%)	7 (25%)
West Bengal	Dakshin Dinajpur	2809	2598	211	48	2470	316	23	2722	2587	135	2137 (85%)	46 (21%)
West Bengal	Darjiling	3933	2908	1025	194	3433	388	112	2886	2759	127	1768 (76%)	0 (0%)
West Bengal	Diamond Harbour	1296	1190	106	23	1134	129	33	1117	1104	13	1246 (87%)	0 (0%)
West Bengal	Haora	5418	4473	945	204	4520	716	182	4908	4297	611	3168 (84%)	119 (53%)
West Bengal	Hazi	942	719	223	63	838	87	17	811	686	125	183 (88%)	1 (0.4%)
West Bengal	Hugli	5488	4687	801	112	4680	623	185	5219	4509	710	3983 (84%)	492 (49%)
West Bengal	Jalpaiguri	4051	3656	395	114	3533	454	64	3723	3561	162	2643 (85%)	0 (0%)
West Bengal	Jhargram	1232	1124	108	24	1097	121	14	1178	1120	58	816 (85%)	0 (0%)
West Bengal	Kalimpong	421	331	90	27	379	41	1	326	305	21	162 (90%)	0 (0%)
West Bengal	Koch Bihar	2756	2332	424	56	2535	186	35	2400	2327	73	1968 (87%)	2 (1%)
West Bengal	Maldah	5430	4965	465	197	4816	504	110	4980	4823	157	4060 (89%)	8 (20%)
West Bengal	Maniktala	2544	1594	950	204	2079	215	250	2045	1461	584	488 (84%)	513 (69%)
West Bengal	Manshatala	1009	677	332	63	855	144	10	904	610	294	713 (83%)	588 (92%)
West Bengal	Medinipur East	1818	1499	319	35	1577	209	32	1776	1483	293	1357 (83%)	249 (70%)
West Bengal	Medinipur West	5632	5218	414	119	5007	508	117	5264	5148	116	3977 (86%)	6 (7%)
West Bengal	MTMTB	722	349	373	11	672	46	4	659	331	328	138 (80%)	646 (78%)
West Bengal	Murshidabad	7712	7198	514	266	6651	864	197	7687	7176	511	5402 (85%)	358 (82%)
West Bengal	Nadia	4331	3898	433	90	3734	514	83	4057	3834	223	3244 (87%)	240 (44%)
West Bengal	Nandigram	517	447	70	8	437	62	18	460	440	20	438 (71%)	33 (60%)
West Bengal	North 24 Parganas	6856	5518	1338	154	5734	940	182	6276	5299	977	4140 (81%)	757 (41%)

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West Bengal	Paschim Bardhaman	2090	1888	202	72	1759	294	37	2074	1886	188	1457 (75%)	6 (5%)
West Bengal	Puruliya	2858	2721	137	80	2517	303	38	2855	2720	135	2020 (82%)	126 (99%)
West Bengal	Rampurhat	968	815	153	31	869	88	11	811	805	6	432 (75%)	0 (0%)
West Bengal	South 24 Parganas	4092	3628	464	119	3537	435	120	3978	3520	458	3156 (84%)	220 (52%)
West Bengal	Strand Bank	968	596	372	70	826	125	17	769	469	300	177 (82%)	13 (4%)
West Bengal	Tangra	2220	1621	599	213	1858	260	102	1702	1379	323	711 (87%)	354 (65%)
West Bengal	Tollygunge	855	583	272	23	782	67	6	672	548	124	266 (79%)	225 (82%)
West Bengal	Uttar Dinajpur	2852	2565	287	111	2492	313	47	2810	2550	260	1992 (85%)	49 (31%)
India		2155894	1613504	542390	133059	1876586	241460	37848	1912521	1465502	447019	1079167 (79%)	135400 (35%)

$ - TB notified cases based on diagnosing PHI includes new TB, PT TB & PMDT Patients

*- PMDT cases initiated on treatment as per Nikshay

Blank boxes in the treatment outcome column of the Private sector indicates NO private sector notified patients in the district during the year 2017.

2. Lab Performance

2.1 State wise CBNAAT performance (2018)

S.N	State/UT	Number of CBNAAT Machines	Number of CBNAAT tests conducted	TB detected*	Rif resistance detected*
1	Andaman & Nicobar	5	1994	442	79
2	Andhra Pradesh	44	130123	34944	1988
3	Arunachal Pradesh	12	6682	1538	254
4	Assam	31	34903	11957	716
5	Bihar	71	95948	24802	3779
6	Chandigarh	3	6797	1633	181
7	Chhattisgarh	29	48718	11587	402
8	Dadar & Nagar Haveli	2	2001	541	34
9	Daman & Diu	3	1022	207	24
10	Delhi	32	83189	27055	2564
11	Goa	3	5570	1321	68
12	Gujarat	61	131309	54291	3018
13	Haryana	27	75773	28161	2141
14	Himachal Pradesh	16	38642	8429	299
15	Jammu & Kashmir	16	25670	4939	184
16	Jharkhand	37	45009	15884	963
17	Karnataka	65	147026	38445	2112
18	Kerala	22	62682	13714	323
19	Lakshadweep	1	259	8	0
20	Madhya Pradesh	72	104973	37932	3529
21	Maharashtra	115	269896	73681	11306
22	Manipur	10	6180	1254	100
23	Meghalaya	8	8840	2286	260
24	Mizoram	9	5850	1028	98
25	Nagaland	10	5040	1688	182
26	Orissa	41	62181	19184	583
27	Puducherry	2	6403	1053	71
28	Punjab	30	54729	21837	945
29	Rajasthan	59	130185	55773	4703
30	Sikkim	8	4898	1031	280
31	Tamil Nadu	60	224369	44879	1745
32	Telangana	30	78188	20382	1675
33	Tripura	7	5648	1263	31
34	Uttar Pradesh	147	294948	123023	14491
35	Uttarakhand	14	11632	6315	511
36	West Bengal	78	189934	56677	3695
India		1180	2407211	749184	63334
* - Among the samples tested					

2.2 Laboratory wise performance of LPA, Liquid culture and DST (2018)

S.N.	State/UT	Laboratory	FL LPA Performed	SL LPA Performed	SL DSTs performed	Liquid cultures performed
1	Andhra Pradesh	DFIT, Nellore	4699	605		
2	Andhra Pradesh	IRL, Vizag	16490	2358	231	14620
3	Assam	IRL Guwahati	2555	985	98	3584
4	Bihar	DFIT Darbhanga	961	944		902
5	Bihar	IRL, Patna	2592	1261	61	6743
6	Bihar	JLNMCH Bhagalpur	678	474	204	739
7	Chhattisgarh	IRL, STDC Raipur	3259	418	36	546
8	Chandigarh	PGIMER	1131	469	24	3841
9	Delhi	IRL AIIMS	4093	1401	993	15426
10	Delhi	NDTBC	6428	1500	774	9817
11	Delhi	NITRD	10355	3882	1826	15961
12	Gujarat	IRL/STDC Ahmadabad	3205	3312	1092	9990
13	Gujarat	MPSMS Jamnagar	3126	1785	753	4538
14	Gujarat	SchmakaTeKnology	1967			
15	Himachal Pradesh	IRL Dharampur	3699	558		
16	Haryana	IRL Karnal	6037	691		2770
17	Jammu & Kashmir	IRL Srinagar	931	65		
18	Jharkhand	IRL, Ranchi	979	232		4845
19	Karnataka	IRL Bangalore	8121	1298	484	2374
20	Karnataka	KIMS Hubli	5803	933	112	4855
21	Karnataka	NRL NTI	3569	423	38	1556
22	Karnataka	RIMS Raichur	6347	905		1989
23	Kerala	IRL-Trivandrum	1219	227	124	3178
24	Meghalaya	Nazerath Hospital, Shillong	373			
25	Maharashtra	GMC Aurangabad	1222	288		1691
26	Maharashtra	GTB Hospital Sewree	1678	788	1049	4608
27	Maharashtra	INFEXN Thane	9	820	273	
28	Maharashtra	IRL Nagpur	4278	1104	570	7033
29	Maharashtra	IRL Pune	2970	1862	423	10525
30	Maharashtra	JJ Hospital	2508	2102	582	11727

S.N.	State/UT	Laboratory	FL LPA Performed	SL LPA Performed	SL DSTs performed	Liquid cultures performed
31	Maharashtra	P D Hinduja Hospital	2880	2183	2339	1894
32	Maharashtra	SRL Diagnostics Mumbai			98	
33	Madhya Pradesh	IRL, STDC Indore	7163	1775	569	3981
34	Madhya Pradesh	NRL, BMHRC Bhopal	3522	940	522	5249
35	Madhya Pradesh	RMRCT, Jabalpur	1387	443		
36	Odisha	IRL Cuttack	5195	474	28	6121
37	Odisha	RMRC, Bhubaneswar	2518	521	235	1432
38	Punjab	IRL, Patiala	5306	1155	198	6230
39	Puducherry	IRL Puducherry	7681	986	1037	3221
40	Rajasthan	IRL Ajmer	5840	1378	427	7800
41	Rajasthan	SMS Medical College	5870	2342	1135	13538
42	Rajasthan	SNMC Jodhpur	3179	887		5039
43	Tamil Nadu	IRL, Chennai	9728	1114	872	4321
44	Tamil Nadu	MMC Madurai	9776	1387	117	3511
45	Tamil Nadu	NRL NIRT	4814	739	341	1579
46	Telangana	IRL,STDC Hyderabad	9744	975	38	3299
47	Uttarakhand	IRL Dehradun	631			
48	Uttar Pradesh	C&DST Lab,Aligarh	981	1172		
49	Uttar Pradesh	IMS BHU Varanasi	116	2386	10	3628
50	Uttar Pradesh	IRL Agra	893	1741		6208
51	Uttar Pradesh	IRL Lucknow	730	3035	651	8971
52	Uttar Pradesh	NRL,ICMR NJIL&OMD, Agra		226	87	910
53	West Bengal	IRL Kolkata	928	1993	436	9957
54	West Bengal	NBMC, Siliguri	712	391		4608

2.3 List of Certified Laboratories

S. No.	State	IRL / C-DST Laboratory	LC FLDST	LC SLDST	FL LPA	SL LPA
2	Andaman & Nicobar	RMRC, Port Blair	-	-	-	-
3	Andhra Pradesh	DFIT, Nellore	-	-	Certified	Certified
4	Andhra Pradesh	SVIMS, Tirupati	-	-	-	-
5	Andhra Pradesh	IRL, Visakhapatnam	Certified	Certified	Certified	Certified
6	Arunachal Pradesh	IRL-Naharlagun	-	-	-	-
7	Assam	RMRC, Dibrugarh	-	-	-	-
8	Assam	IRL, Guwahati	Certified	Certified	Certified	Certified
9	Bihar	IRL, Patna	Certified	Certified	Certified	Certified
10	Bihar	JLNMCH, Bhagalpur	Certified	Certified	Certified	Certified
11	Bihar	DFIT, Darbhanga	-	-	Certified	Certified
12	Chandigarh	PGIMER Chandigarh	Certified	Certified	Certified	Certified
13	Chhattisgarh	IRL Raipur	Certified	Certified	Certified	Certified
14	Delhi	NRL NITRD	Certified	Certified	Certified	Certified
15	Delhi	IRL NDTB Delhi	Certified	Certified	Certified	Certified
16	Delhi	AIIMS - Medicine	Certified	Certified	Certified	Certified
17	Delhi	AIIMS - Laboratory Medicine	-	-	Certified	-
18	Goa	IRL Goa	-	-	-	-
19	Gujarat	IRL Ahmadabad	Certified	Certified	Certified	Certified
20	Gujarat	MPSMS, Jamnagar	Certified	Certified	Certified	Certified
21	Gujarat	Microcare, Surat	-	-	-	-
22	Gujarat	SchmakaTeKnology, PVT, LTD, Vadodara,Gujarat	–	–	Certified	–
23	Haryana	IRL Karnal	-	-	Certified	Certified
24	Himachal Pradesh	IRL Dharampur	-	-	Certified	Certified
25	Himachal Pradesh	TB C-DST Laboratory, Tanda	-	-	-	-
26	Jammu &Kashmir	IRL Jammu	-	-	-	-

S. No.	State	IRL / C-DST Laboratory	LC FLDST	LC SLDST	FL LPA	SL LPA
27	Jammu & Kashmir	IRL Srinagar	-	-	Certified	Certified
28	Jharkhand	IRL Ranchi	Certified	-	Certified	Certified
29	Karnataka	NRL NTI	Certified	Certified	Certified	Certified
30	Karnataka	IRL, Bangalore	Certified	Certified	Certified	Certified
31	Karnataka	KIMS, Hubli	Certified	Certified	Certified	Certified
32	Karnataka	GMC, Raichur	Certified	-	Certified	Certified
33	Karnataka	KMC Manipal			Certified	
34	Kerala	IRL Thiruvananthapuram	Certified	Certified	Certified	Certified
35	Kerala	GMC Kozikode			Certified	
36	Madhya Pradesh	NRL BMHRC	Certified	Certified	Certified	Certified
37	Madhya Pradesh	IRL Indore	Certified	Certified	Certified	Certified
38	Madhya Pradesh	Choitram Hospital, Indore	-	-	-	-
39	Madhya Pradesh	NIRTH, Jabalpur	-	-	Certified	Certified
40	Madhya Pradesh	GRMC Medical College			Certified	Certified
41	Maharashtra	IRL Nagpur	Certified	Certified	Certified	Certified
42	Maharashtra	IRL Pune	Certified	Certified	Certified	Certified
43	Maharashtra	JJ Hospital, Mumbai	Certified	Certified	Certified	Certified
44	Maharashtra	MGIMS, Wardha	-	-	-	-
45	Maharashtra	Metropolis, Mumbai	Certified	-	Certified	-
46	Maharashtra	SRL, Mumbai	Certified	Certified	-	-
47	Maharashtra	Infexn, Thane	Certified	Certified	Certified	Certified
48	Maharashtra	PD. Hinduja, Mumbai	Certified	Certified	Certified	Certified
49	Maharashtra	GTB, Sewree, Mumbai	Certified	Certified	Certified	Certified
50	Maharashtra	Aurangabad	Certified	-	Certified	Certified
51	Maharashtra	K. J. Somaiah Hospital, Mumbai	-	-	-	-
52	Maharashtra	BJMC, Pune	-	-	-	-
53	Maharashtra	Thyrocare lab Navi Mumbai	Certified	Certified	Certified	Certified

S. No.	State	IRL / C-DST Laboratory	LC FLDST	LC SLDST	FL LPA	SL LPA
54	Maharashtra	Military Hospital Pune			Certified	
55	Meghalaya	Nazerath, Shillong	-	-	Certified	Certified
56	Odisha	NRL RMRC	Certified	Certified	Certified	Certified
57	Odisha	IRL Cuttack	Certified	Certified	Certified	Certified
58	Puducherry	IRL Puducherry	Certified	Certified	Certified	Certified
59	Punjab	IRL Patiala	Certified	Certified	Certified	Certified
60	Rajasthan	IRL Ajmer	Certified	Certified	Certified	Certified
61	Rajasthan	SMS Jaipur	Certified	Certified	Certified	Certified
62	Rajasthan	DMRC, Jodhpur	-	-	-	-
63	Rajasthan	IRL, Jodhpur	-	-	Certified	Certified
64	Sikkim	IRL Gangtok	-	-	-	-
65	Tamilnadu	NRL NIRT	Certified	Certified	Certified	Certified
66	Tamilnadu	IRL Chennai	Certified	Certified	Certified	Certified
67	Tamilnadu	CMC , Vellore	-	-	-	-
68	Tamilnadu	Shankar Nethralaya, Chennai	Certified	-	-	-
69	Tamilnadu	GMC, Madurai	Certified	Certified	Certified	Certified
70	Telangana	IRL Hyderabad	Certified	Certified	Certified	Certified
71	Telangana	BPHRC, Hyderabad	Certified	Certified	Certified	
72	Uttar Pradesh	NRL JALMA	Certified	Certified	Certified	Certified
73	Uttar Pradesh	IRL Lucknow	Certified	Certified	Certified	Certified
74	Uttar Pradesh	BHU, Varanasi	Certified	Certified	Certified	Certified
75	Uttar Pradesh	IRL, Agra	Certified	Certified	Certified	Certified
76	Uttar Pradesh	AMU, Aligarh	-	-	Certified	Certified
77	Uttar Pradesh	Subharti Medical College, Meerut	-	-	Certified	-
78	Uttarakhand	IRL Dehradun	-	-	Certified	Certified
79	West Bengal	IRL Kolkata	Certified	Certified	Certified	Certified
80	West Bengal	SRL,Kolkata	Certified	-	-	-
81	West Bengal	NBMC Siliguri	Certified		Certified	Certified

2.4 List of LC-DST Laboratories established under NFM TGF Grant

S.N	Name of the laboratory/ Institute/ City	State
1	SMC Vijayawada	Andhra Pradesh
2	MC Silchar	Assam
3	IGIMS Patna	Bihar
4	RBIPMT	Delhi
5	IRL Goa	Goa
6	GMC, Surat	Gujarat
7	GMC Dhanbad	Jharkhand
8	Medical College Kozhikode	Kerala
9	RMRC Jabalpur	Madhya Pradesh
10	IRL Gangtok	Sikkim
11	RGIMS Adilabad	Telangana
12	Agartala	Tripura
13	MC Gorakhpur	Uttar Pradesh
14	LLRMC Medical College, Meerut	Uttar Pradesh
15	Bardhman Medical college, Bardhman	West Bengal

3. Research

3.1 Research Paper Published in year 2018

Title	Author	Journal
Unacceptable treatment outcomes and associated factors among India's initial cohorts of multidrug-resistant tuberculosis (MDR-TB) patients under the revised national TB control programme (2007-2011): Evidence leading to policy enhancement.	Parmar MM, Sachdeva KS, Dewan PK, Rade K, Nair SA, Pant R, Khaparde SD	PLoS One
Social support a key factor for adherence to multidrug resistant tuberculosis treatment.	Deshmukh RD, Dhande DJ, Sachdeva KS, Sreenivas AN, Kumar AMV, Parmar M. 2018 Jan	Indian Journal Of Tuberculosis
Developing a model to predict unfavourable treatment outcomes in patients with tuberculosis and human immunodeficiency virus co-infection in Delhi, India.	Madan C, Chopra KK, Satyanarayana S, Surie D, Chadha V, Sachdeva KS, et al. (2018)	PLOS ONE
Tuberculosis preventive treatment: the next chapter of tuberculosis elimination in India.	Moonan PK, Nair SA, Agarwal R, Chadha VK, Dewan PK, Gupta UD, Ho CS, Holtz TH, Kumar AM, Kumar N, Kumar P, Maloney SA, Mase SR, Oeltmann JE, Paramasivan CN, Parmar MM, Rade KK, Ramachandran R, Rao R, Salhorta VS, Sarin R, Sarin S, Sachdeva KS, Selvaraju S, Singla R, Surie D, Tonsing J, Tripathy SP, Khaparde SD.	BMJ Global Health
N-TB: A mobile-based application to simplify nutritional assessment, counseling and care of patients with tuberculosis in India	AnuragBhargava, MadhaviBhargava, TriptiPande, RaghuramRao, MalikParmarf	Indian Journal of Tuberculosis
Catalysing progressive uptake of newer diagnostics by health care providers through outreach and education in four major cities of India.	Raizada N, Khaparde SD, Swaminathan S, Sarin S, Salhotra VS, Kalra A, Khanna A, Chopra KK, Hanif M, Umadevi KR, Hissar S, Nair SA, Prakash CHS, Saha BK, Rao R, Denkinger C, Boehme C.	PLOS One.
Recurrence of tuberculosis among newly diagnosed sputum positive pulmonary tuberculosis patients treated under the Revised National Tuberculosis Control Programme, India: A multi-centric prospective study	BanurekhaVelayutham , Vineet Kumar Chadha , Neeta Singla , Pratibha Narang, Vikas Gangadhar Rao , Sanjeev Nair , Srinivasan Ramalingam , Gomathi Narayanan Sivaramakrishnan, Bency Joseph , Sriram Selvaraju , Shivakumar Shanmugam , Rahul Narang , PraseejaPachikkaran , Jyothi Bhat , ChinnaiyanPonnuraja , Bhoomika Bajaj Bhalla, Bhadravathi Amarnath Shivashankara2 , George Sebastian2 , Rajiv Yadav5 , Ravendra Kumar Sharma , Rohit Sarin , Vithal Prasad Myneedu , Rupak Singla , Khalidumer Khayyam, Sunil Kumar Mrithunjayan , Subramonia Pillai Jayasankar , Praveen Sanke , Krishnaveni Viswanathan , RajeevanViswambharan , Kapil Mathuria , Manpreet Bhalla , Nitu Singh, Kondeshvar Balaji Tumane, Ajay Dawale, Chandra Prakash Tiwari, RadhelalBansod, Lavanya Jayabal, Lakshmi Murali, Sunil D. Khaparde, Raghuram Rao, Mohideen S. Jawahar , Mohan Natrajan	PLOS One.
Assessing tuberculosis control priorities in high-burden settings: a modelling approach	Juan F Vesga, Timothy B. Hallett, Michael J A Reid, Kuldeep Singh Sachdeva, Raghuram Rao, Sunil Khaparde, Paresh Dave, Kiran Rade, Maureen Kamene, Eunice Omesa, Enos Masini, Newton Omale, Elizabeth Onyango, Philip Owiti, Muthoni Karanja, Richard Kiplimo, Sofia Alexandru, Valentina Vilc, ValeriuCrudu, Stela Bivol, Cristina Celan, NimalanArinaminpathy	Lancet Global Health

3.2 List of Oral Presentations in 49th World Conference on Lung Health of the International Union Against Tuberculosis and Lung Disease (The Union) 2018

S. No	Topic	Presented By
1	Ensuring effective TB prevention, early diagnosis and treatment of TB among PLHIV in a Concentrated HIV Epidemic setting – Experience from India.	Dr K.S. Sachdeva
2	Sub-national tuberculosis burden estimate in India using TB notification data and TB drug sales data.	Dr Kiran Rade RNTCP, New Delhi, India.
3	miRNAs as molecular tool for diagnosis of pulmonary tuberculosis and to predict treatment response	S Kaul, S Rathore, S Dhawan, K Rade, P Malhotra, A Khanna, D Palakodeti, A Mohmmed
4	Modelling the impact of India's national strategic plan for tuberculosis.	JF Vesga, S Khaparde, R Rao, B Vadera, K Rade, P Dewan, SA Nair,NArinaminpathy
5	Demonstration of a successful model for diagnosing paediatric TB using upfront Genexpert testing	D Parija, S Khaparde,S Sarin, A Kalra, VS Salhotra, R Rao,NRaizada,CBoehme,CMDenkinger
6	Leveraging rapid molecular tests for TB detection in a key population, India.	S Khaparde, V Salhotra, N Kumar, Y Patel, A Sridhar, H Jha, L Mehndru, R Ramachandran, M Parmar
7	Active case finding among vulnerable populations reduces catastrophic costs due to tuberculosis diagnosis.	HD Shewade, V Gupta, S Satyanarayana,SPandurangan, S Mohanty,RRao,AMKumar,SS Chadha, Axshya SAMVAD
8	QTcF prolongation with bedaquiline: early experience from India	Y Patel, V Salhotra, M Parmar, L Mehndru
9	Preparing TB C&DST laboratories under the RNTCP for NABL accreditation in India.	T Shah,SSarin,SKhaparde,V Salhotra, A Chauhan, L Prabakaran, S Shenai, C Boehme
10	Rapid scale-up of liquid culture and DST facilities under the RNTCP to increase access to universal DST.	T Shah,S Sarin, S Khaparde, V Salhotra, R Ramachandran, J Panda, A Chauhan, C Boehme

3.3 List of publications in 2018 in collaboration with UNION

S.N	Title	Author	Journal/ Publication
1	Diagnostic pathways and direct medical costs incurred by new adult pulmonary tuberculosis patients prior to anti-tuberculosis treatment in Tamil Nadu, India.	Veesa KS, John KR, Moonan PK, Kaliappan SP, Manjunath K, Sagili KD, et al. (2018)	PLoS ONE 13(2): e0191591. https://doi.org/10.1371/journal.pone.0191591
2	Use of Verbal Autopsy to Determine Underlying Cause of Death during Treatment of Multidrug-Resistant Tuberculosis, India. Emerging Infectious Diseases	Poonam Ramesh Naik, Patrick K. Moonan, Abhay SubhashraoNirgude, Hemant Deepak Shewade, Srinath Satyanarayana, Pracheth Raghuveer, Malik Parmar, ChinnappareddyRavichandra, Anil Singarajipura.	www.cdc.gov/eid • Vol. 24, No. 3 March 2018"
3	Developing a model to predict unfavourable treatment outcomes in patients with tuberculosis and human immunodeficiency virus co-infection in Delhi, India.	Madan C, Chopra KK, Satyanarayana S, Surie D, Chadha V, Sachdeva KS, et al. (2018)	PLoS ONE 13(10): e0204982
4	Non-response to first-line tuberculosis treatment in Sikkim, India: A risk factor analysis study.	Lalita Singhi, Karuna D Sagili, Sharath BN, et al.	Public Health Action, December 2018
5	Tuberculosis retreatment outcomes and associated factors: a mixed-methods study from Puducherry, India.	Velavan, A. J. Purty, K. Shringarpure, K. D. Sagili, A. K. Mishra, K. S. Selvaraj, M. Manikandan, V. Saravanan.	Public Health Action, December 2018
3.3.2 Systematic Reviews (published through workshop conducted in collaboration with RNTCP)			
6	Cost-effectiveness of GeneXpert and LED-FM for diagnosis of pulmonary tuberculosis: A systematic review.	Sagili KD, Muniyandi M, Nilgiriwala KS, Shringarpure KS, Satyanarayana S, Kirubakaran R, et al. (2018)	PLoS ONE 13(10): e0205233
7	Shortened treatment regimens versus the standard regimen for drug-sensitive pulmonary tuberculosis.		Cochrane Database of Systematic Reviews 2018, Issue 1. Art. No.: CD012918. DOI: 10.1002/14651858.CD012918"
8	Is Chemoprophylaxis for Child Contacts of Drug-Resistant TB Patients Beneficial? A Systematic Review	C. Padmapriyadarsini et al	Tuberculosis Research and Treatment Volume 2018, Article ID 3905890 https://doi.org/10.1155/2018/3905890
3.3.3 Research papers published by Project Axshya			
9	Operational research within a Global Fund supported tuberculosis project in India: why, how and its contribution towards change in policy and practice.	Karuna D Sagili, Srinath Satyanarayana, Sarabjit S Chadha, et al. (2018)	Global Health Action, 11:1, 1445467, DOI: 0.1080/16549716.2018.1445467
10	Kiosk: An Innovative Client Centric Approach to Tuberculosis Prevention and Care.	Samal, J., Prasad, B.M., Jonalgadda, S., Vegendela, S. and Chadha, S.S. (2018)	Journal of Tuberculosis Research, 6, 148-155. doi: 10.4236/jtr.2018.62014.

4. Human Research

4.1 State Level - Programme Staffing Status in 2018

State	Epidemiologist (APO)		MO – State TB Cell		TB-HIV Coordinator		PPM Coordinator		DR TB Coordinator		State IEC Officer	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar	0	0	1	0	1	0	0	0	0	0	1	1
Andhra Pradesh	1	1	1	1	1	1	1	1	1	1	1	1
Arunachal	1	1	1	0	0	0	0	0	0	0	1	1
Assam	0	0	1	1	1	1	0	0	1	0	1	1
Bihar	1	0	1	0	1	0	1	0	1	0	1	1
Chandigarh	0	0	1	0	1	0	0	0	0	0	1	1
Chhattisgarh	1	1	1	1	1	0	1	1	0	0	1	0
Dadra & Haveli	1	1	1	1	0	0	0	0	0	0	1	1
Daman & Diu	1	1	0	0	0	0	0	0	0	0	1	0
Delhi	1	1	1	1	1	0	1	0	1	0	1	1
Goa	1	0	1	0	1	0	0	0	1	0	1	1
Gujarat	1	1	1	1	1	1	1	1	1	1	1	1
Haryana	1	1	1	0	1	1	1	0	1	0	1	1
Himachal Pradesh	1	0	1	0	1	0	0	0	0	0	1	1
Jammu	1	1	1	0	1	1	1	0	1	0	1	1
Kashmir	1	1	1	1	1	1	1	0	0	0	1	0
Jharkhand	1	0	0	0	1	0	1	0	1	0	1	1
Karnataka	1	0	1	0	1	0	1	1	1	0	1	1
Kerala	1	1	1	1	1	1	1	0	1	1	1	1
Lakshdweep	0	0	0	0	0	0	0	0	0	0	1	1
Maharashtra	2	1	1	0	1	1	1	0	1	0	1	1
Manipur	1	0	1	1	1	0	1	1	1	1	1	1

State	Epidemiologist (APO)		MO – State TB Cell		TB-HIV Coordinator		PPM Coordinator		DR TB Coordinator		State IEC Officer	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Meghalaya	1	1	1	1	1	1	1	1	1	1	1	0
Mizoram	1	1	1	1	1	1	1	1	1	0	1	1
MP	1	1	1	0	1	0	1	1	1	0	1	0
Nagaland	1	1	1	1	1	0	1	1	1	0	1	1
Odisha	1	1	1	1	1	1	1	0	1	1	1	0
Pondicherry	0	0	1	1	1	1	0	0	0	0	1	1
Punjab	1	1	1	0	1	1	0	0	0	0	1	0
Rajasthan	1	0	1	0	1	0	1	1	1	0	1	1
Sikkim	1	1	1	1	1	0	1	0	1	0	1	0
Telangana	1	0	0	0	1	0	1	0	1	1	1	1
TN	1	0	1	1	1	0	1	1	1	0	1	1
Tripura	1	0	1	1	1	0	0	0	1	0	1	1
UP	2	2	2	0	2	1	2	2	2	0	2	2
Uttarakhand	0	0	1	1	0	0	0	0	0	0	1	1
West Bengal	2	1	1	0	2	0	2	2	2	0	2	2

State	State Accountant		Technical Officer-Proc. and Logistics		DEO-STC		Pharmacist - SDS		Store Assistant - SDS		Director (STDC)		MO - STDC	
	Sanc-tioned	In Place	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Andaman & Nicobar	1	1	0	0	1	1	1	1	1	1	0	0	0	0
Andhra Pradesh	1	1	1	1	1	1	1	1	1	1	0	0	0	0
Arunachal	1	1	1	0	1	1	1	0	1	1	0	0	0	0
Assam	1	1	1	1	1	1	1	1	1	1	0	0	0	0
Bihar	1	0	1	0	1	1	1	1	1	1	2	2	13	12
Chandigarh	1	1	0	0	1	1	1	1	1	1	0	0	0	0
Chattisgarh	1	1	0	0	1	1	1	1	1	1	0	0	2	0
Dadra & Haveli	1	1	0	0	1	1	1	1	1	0	0	0	0	0
Daman & Diu	1	1	0	0	1	1	1	1	0	0	0	0	0	0
Delhi	1	1	1	0	1	1	2	0	2	0	1	1	1	1
Goa	1	1	0	0	1	1	1	1	1	1	0	0	0	0
Gujarat	1	1	1	0	1	1	1	1	1	1	1	1	6	6
Haryana	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Himachal Pradesh	1	1	0	0	1	1	1	0	1	1	1	1	1	1
Jammu	1	1	1	0	1	1	1	1	1	1	0	0	0	0
Kashmir	1	1	1	1	1	1	1	1	1	1	0	1	5	5
Jharkhand	2	1	1	0	1	1	2	1	2	1	1	1	4	1
Karnataka	2	2	1	1	1	1	2	2	2	2	1	1	0	0
Kerala	2	2	1	0	1	1	1	1	1	1	1	1	2	2
Lakshdweep	1	0	0	0	1	1	0	0	0	0	0	0	0	0
Maharashtra	3	3	1	0	2	2	4	4	4	4	2	2	2	2
Manipur	1	1	1	0	1	1	1	1	1	1	1	1	0	0

State	State Accountant		Technical Officer-Proc. and Logistics		DEO-STC		Pharmacist - SDS		Store Assistant - SDS		Director (STDC)		MO - STDC	
	Sanc-tioned	In Place	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Meghalaya	1	1	1	1	1	1	1	1	1	1	0	0	0	0
Mizoram	1	1	0	0	1	1	1	1	1	1	0	0	0	0
MP	1	0	1	0	2	1	1	1	1	1	1	1	4	3
Nagaland	1	1	1	1	1	1	1	1	1	1	0	0	0	0
Odisha	1	1	0	0	1	1	1	0	1	0	1	1	4	3
Pondicherry	1	1	0	0	1	1	1	1	1	1	1	1	5	5
Punjab	1	1	0	0	1	1	0	0	0	0	1	1	3	1
Rajasthan	1	1	1	1	1	1	3	2	4	2	1	1	6	6
Sikkim	1	1	1	0	1	1	1	1	1	1	1	1	1	0
Telangana	1	0	1	0	1	0	1	1	1	1	1	1	2	2
TN	2	2	1	1	2	1	2	2	3	2	1	1	0	0
Tripura	1	1	1	1	1	0	1	1	1	1	0	0	0	0
UP	2	2	2	2	2	1	4	4	8	2	1	1	10	2
Uttarakhand	1	1	1	0	1	1	2	2	2	2	1	1	1	0
West Bengal	2	2	1	0	2	1	2	2	4	2	1	1	2	2

4.2 IRL- Programme Staffing Status in 2018

State	Microbiologist (IRL)		Microbiologist (EQA)		Senior Lab. Tech.		Technical Officer		Lab Technicians		Data Entry Operator		Lab Attendant	
	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Andaman & Nicobar	0	0	1	1	0	0	0	0	0	0	1	1	0	0
Andhra Pradesh	1	1	1	0	2	2	1	1	6	6	1	1	2	2
Arunachal	1	1	0	0	1	1	0	0	0	0	1	1	4	4
Assam	1	1	1	0	1	1	2	2	10	8	2	1	2	2
Bihar	2	2	1	0	2	2	2	2	4	4	2	2	4	2
Chandigarh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chattisgarh	1	1	1	1	1	0	0	0	2	1	1	1	0	0
Dadra & Haveli	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daman & Diu	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delhi	3	3	2	0	2	1	3	3	12	12	4	2	4	3
Goa	1	1	0	0	1	1	0	0	1	1	1	1	0	0
Gujarat	1	1	1	0	1	1	3	3	11	9	1	1	7	6
Haryana	1	1	1	0	1	1	0	0	1	1	1	1	2	0
Himachal Pradesh	1	1	1	0	1	1	1	1	3	3	1	1	1	1
Jammu	1	1	1	0	1	1	0	0	0	0	1	1	0	0
Kashmir	1	1	0	0	1	1	0	0	2	2	1	1	0	0
Jharkhand	1	1	1	0	1	1	0	0	4	2	1	0	0	0
Karnataka	2	2	1	1	2	2	0	0	6	6	2	2	5	5
Kerala	1	0	1	1	1	1	2	2	8	6	2	2	3	3
Lakshdweep	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maharashtra	2	1	0	0	3	3	0	0	3	2	3	2	0	0
Manipur	1	1	1	1	1	1	0	0	0	3	1	1	0	2
Meghalaya	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mizoram	0	0	1	0	0	0	0	0	0	0	0	0	0	0
MP	1	1	3	2	3	1	0	0	5	5	3	2	0	0

State	Microbiologist (IRL)		Microbiologist (EQA)		Senior Lab. Tech.		Technical Officer		Lab Technicians		Data Entry Operator		Lab Attendant	
	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Nagaland	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odisha	1	1	1	1	1	0	1	1	4	3	1	0	2	0
Pondicherry	1	1	1	1	1	1	0	0	0	0	1	1	0	0
Punjab	1	1	1	1	1	1	2	2	5	1	1	1	3	3
Rajasthan	1	1	1	1	3	3	2	2	9	9	3	2	1	1
Sikkim	1	1	1	0	1	1	1	1	2	2	1	1	1	0
Telangana	1	0	1	0	2	0	2	2	4	4	1	0	1	1
TN	0	0	1	1	1	1	0	0	6	4	2	0	0	0
Tripura	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UP	4	4	2	2	2	2	3	3	28	22	4	2	3	3
Uttarakhand	1	1	0	0	1	1	1	1	5	3	1	1	3	2
West Bengal	3	3	1	0	1	0	2	2	12	11	2	2	1	1

4.3 CDST Lab - Programme Staffing Status in 2018

State	Microbiologist (C-DST)		Technical Officer		Senior Lab. Tech.		Data Entry Operator		Lab technicians		Lab Attendant	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Andaman & Nicobar	1	1	0	0	1	1	0	0	0	0	0	0
Andhra Pradesh	0	0	0	0	1	1	0	0	0	0	0	0
Arunachal	1	1	0	0	1	1	0	0	0	0	0	0
Assam	0	0	0	0	0	0	0	0	0	0	0	0
Bihar	2	2	2	1	2	0	2	1	8	6	4	3
Chandigarh	1	1	1	1	0	0	1	1	2	2	2	2
Chattisgarh	1	1	0	0	0	0	1	0	2	0	0	0
Dadra & Haveli	0	0	0	0	0	0	0	0	0	0	0	0
Daman & Diu	0	0	0	0	0	0	0	0	0	0	0	0
Delhi	4	2	2	0	4	4	2	1	4	4	1	1
Goa	0	0	0	0	0	0	0	0	0	0	0	0
Gujarat	2	2	1	1	0	0	1	1	9	8	5	5
Haryana	0	0	0	0	0	0	0	0	0	0	0	0
Himachal Pradesh	2	1	0	0	0	0	2	0	4	0	0	0
Jammu	0	0	0	0	0	0	0	0	0	0	0	0
Kashmir	0	0	0	0	0	0	0	0	0	0	0	0
Jharkhand	1	0	0	0	0	0	0	0	0	0	0	0
Karnataka	2	2	0	0	3	3	1	1	5	5	1	1
Kerala	1	1	0	0	0	0	1	0	2	2	2	0
Lakshdweep	0	0	0	0	0	0	0	0	0	0	0	0
Maharashtra	7	5	0	0	0	0	2	0				
Manipur	0	0	0	0	0	0	0	0	0	0	0	0

State	Microbiologist (C-DST)		Technical Officer		Senior Lab. Tech.		Data Entry Operator		Lab technicians		Lab Attendant	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Meghalaya	0	0	0	0	0	0	1	0	0	0	0	0
Mizoram	1	0	0	0	1	1	1	1				
MP	3	1	0	0	2	0	3	0	2	0	4	2
Nagaland	0	0	0	0	0	0	0	0	0	0	0	0
Odisha	1	0	1	0	4	0	1	0	2	0	2	0
Pondicherry	1	1	0	0	0	0	1	1	4	4	1	1
Punjab	0	0	0	0	0	0	0	0	0	0	0	0
Rajasthan	3	2	2	2	1	1	3	2	15	15	5	5
Sikkim	1	1	0	0	1	0	0	0	0	0	0	0
Telangana	1	0	0	0	0	0	1	0	0	0	0	0
TN	1	1	0	0	3	3	1	0	0	0	6	0
Tripura	1	1	0	0	1	1	1	1	0	0	0	0
UP	8	4	2	2	6	2	8	2	4	2	4	4
Uttarakhand	0	0	0	0	0	0	0	0	0	0	0	0
West Bengal	4	3	1	1	0	0	4	2	13	5	3	3

4.4 District level - Programme Staffing Status in 2018

State	Senior MO – DR TB Centre		Counselor – DR TB Centre		SA – DR TB Centre		MO – DTC		MO-TC		Senior DR TB – TBHIV supervisor	
	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Andaman & Nicobar	1	1	1	1	1	1	3	0	0	0	3	3
Andhra Pradesh	9	4	9	4	9	8	5	5	225	225	13	12
Arunachal	2	0	0	0	2	2	14	14	6	6	14	14
Assam	5	3	5	2	5	3	10	0	154	73	27	26
Bihar	6	5	6	0	6	6	38	34	534	508	38	26
Chandigarh	1	0	0	0	1	1	0	0	4	4	1	1
Chattisgarh	4	2	4	3	4	4	9	3	155	155	27	25
Dadra & Haveli	0	0	0	0	0	0	0	0	0	0	1	1
Daman & Diu	0	0	0	0	0	0	1	0	0	0	1	1
Delhi	4	2	4	0	4	4	12	7	38	12	26	23
Goa	1	0	1	1	1	1	0	0	6	5	2	2
Gujarat	5	5	5	5	5	5	4	3	306	302	38	37
Haryana	2	1	3	1	3	1	0	0	64	64	21	19
Himachal Pradesh	4	1	4	0	4	2	5	1	74	74	12	11
Jammu	1	1	1	0	1	0	7	6	32	31	6	6
Kashmir	2	1	0	0	2	2	2	1	25	25	8	8
Jharkhand	5	2	5	2	5	3	8	0	177	177	24	20
Karnataka	6	5	6	3	6	6	8	4	231	201	33	33
Kerala	2	1	0	0	2	2	14	17	59	65	14	13
Lakshdweep	0	0	0	0	0	0	0	0	0	0	0	0
Maharashtra	2	1	20	9	22	18	67	48	0	0	84	75
Manipur	1	0	2	2	2	2	3	1	11	11	16	9
Meghalaya	2	2	2	2	2	2	1	1	19	17	7	7
Mizoram	1	1	1	1	1	1	2	2	0	0	8	8
MP	9	2	9	1	9	0	22	9	228	183	51	40
Nagaland	2	2	2	2	2	2	2	1	13	13	11	11
Odisha	4	3	4	2	4	3	9	5	269	260	31	30
Pondicherry	1	1	0	0	1	1	3	3	7	7	1	1

State	Senior MO – DR TB Centre		Counselor – DR TB Centre		SA – DR TB Centre		MO – DTC		MO-TC		Senior DR TB – TBHIV supervisor	
	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place	Sanc-tioned	In Place
Punjab	3	1	0	0	2	1	3	1	134	134	22	19
Rajasthan	7	2	7	6	7	6	39	39	283	283	34	31
Sikkim	1	0	1	0	1	1	0	0	5	2	5	4
Telangana	7	2	6	0	7	4	5	1	171	171	11	11
TN	8	6	13	8	8	8	20	16	230	217	36	35
Tripura	1	0	1	1	1	1	3	1	0	18	8	7
UP	23	19	23	17	23	17	14	8	993	661	89	83
Uttarakhand	2	0	2	2	2	2	0	0	95	95	13	12
West Bengal	9	6	9	8	9	8	32	14	379	356	48	43

District level - Programme Staffing Status in 2018

State	District PPM Coordinator		Accountant		Senior Treatment Supervisor (STS)		Senior TB Lab Supervisor (STLS)		Lab. Techs. (LT) – RNTCP Contractual		TBHV	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar	0	0	3	3	9	9	4	4	4	4	5	4
Andhra Pradesh	13	11	13	12	230	210	134	106	242	187	152	126
Arunachal	0	0	14	14	20	20	17	17	10	10	0	0
Assam	27	23	27	23	153	142	78	75	95	85	34	29
Bihar	38	0	38	0	534	189	223	145	558	368	110	28
Chandigarh	0	0	0	0	4	3	5	5	13	13	14	8
Chattisgarh	27	25	27	25	155	149	69	63	140	124	48	43
Dadra & Haveli	0	0	0	0	2	2	1	1	3	1	1	1
Daman & Diu	0	0	0	0	2	2	2	1	2	2	2	2
Delhi	25	0	25	0	72	32	38	31	186	168	189	177
Goa	2	2	0	0	6	5	4	4	7	6	8	6
Gujarat	35	33	36	34	306	304	150	148	189	176	243	242
Haryana	21	6	21	6	119	92	52	49	77	77	99	81
Himachal Pradesh	10	0	12	0	74	67	52	42	101	63	20	0
Jammu	6	0	6	3	49	30	18	18	0	0	10	6
Kashmir	8	0	8	7	34	24	25	25	20	20	21	18
Jharkhand	24	11	24	14	206	94	101	67	169	120	74	51
Karnataka	33	27	31	23	273	188	136	132	181	164	217	192
Kerala	6	0	14	14	73	78	73	73	67	65	45	45
Lakshdweep	0	0	0	0	1	1	1	1	3	3	0	0
Maharashtra	79	58	79	62	524	426	323	289	360	347	510	469
Manipur	9	9	9	8	27	21	19	16	23	20	8	7
Meghalaya	1	1	7	6	24	19	15	13	20	18	12	12
Mizoram	8	8	8	8	12	12	9	9	7	7	4	4
MP	51	0	51	16	253	161	166	141	250	202	211	141

State	District PPM Coordinator		Accountant		Senior Treatment Supervisor (STS)		Senior TB Lab Supervisor (STLS)		Lab. Techs. (LT) – RNTCP Contractual		TBHV	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Nagaland	11	2	11	11	23	21	13	13	12	12	7	4
Odisha	31	26	31	25	318	269	109	90	156	102	64	57
Pondicherry	0	0	1	0	7	6	5	5	4	4	9	9
Punjab	0	0	0	0	134	100	59	43	142	100	102	58
Rajasthan	34	30	34	27	283	261	152	126	67	38	90	60
Sikkim	5	4	5	4	5	5	5	5	4	1	1	1
Telangana	31	19	11	4	171	136	96	82	150	130	100	82
TN	37	34	36	31	461	421	145	123	359	272	373	330
Tripura	0	0	8	6	20	19	13	10	13	10	3	3
UP	89	78	75	68	998	830	411	388	978	907	502	450
Uttarakhand	3	0	13	10	95	77	31	30	72	67	28	27
West Bengal	28	27	28	26	464	433	193	177	376	364	373	221

4.5 Medical College - Programme Staffing Status in 2018

State	MO – Medical College		LT – Medical College		TBHV-Medical College	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar	0	0	0	0	0	0
Andhra Pradesh	22	12	22	22	22	20
Arunachal	0	0	0	0	0	0
Assam	6	4	6	6	6	6
Bihar	11	6	11	6	11	2
Chandigarh	2	2	2	2	2	2
Chattisgarh	9	5	9	5	9	6
Dadra & Haveli	0	0	0	0	0	0
Daman & Diu	0	0	0	0	0	0
Delhi	14	7	14	6	14	8
Goa	1	0	1	1	1	1
Gujarat	17	13	26	25	19	19
Haryana	9	0	0	0	9	7
Himachal Pradesh	3	2	4	3	1	1
Jammu	2	2	2	2	2	2
Kashmir	3	2	3	3	3	3
Jharkhand	3	2	3	3	3	3
Karnataka	55	53	55	53	55	53
Kerala	18	14	23	23	24	24
Lakshdweep	0	0	0	0	0	0
Maharashtra	0	0	0	0	0	0
Manipur	2	1	2	2	2	2
Meghalaya	1	1	1	1	1	1
Mizoram	0	0	0	0	0	0
MP	13	8	13	9	13	12
Nagaland	0	0	0	0	0	0
Odisha	549	503	6	2	7	3
Pondicherry	4	3	9	9	10	8
Punjab	9	2	9	8	9	8
Rajasthan	6	2	8	5	8	8
Sikkim	1	0	1	1	1	1
Telangana	22	11	22	15	22	11
TN	41	28	49	33	51	39
Tripura	2	1	2	2	2	2
UP	36	17	40	29	36	27
Uttarakhand	4	2	4	3	4	2
West Bengal	15	11	15	12	15	14

Team Central TB Division, New Delhi