सत्यमेव जयते

INDIA TB REPORT 2020

NATIONAL TUBERCULOSIS ELIMINATION PROGRAMME

ANNUAL REPORT

DOTS
Pura course. Pakka ilaaj.

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

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

World TB Day Slogans

Every year 24th March is observed as the World Tuberculosis Day. This day presents an opportunity to mobilise political, social commitment and build public awareness for the fight against tuberculosis (TB), one of the world's top infectious disease killers. 24th March commemorate the day in 1882 when Dr Robert Koch astounded the scientific community by announcing that he had discovered the cause of tuberculosis, the TB bacillus. At the time of Koch's announcement in Berlin, TB was raging through Europe and the America, causing the death of one out of every seven people. Koch's discovery opened the way towards diagnosing and curing tuberculosis, so this day is celebrated as World TB Day.

World TB Day 2020: It's Time
World TB Day 2019: It's Time
2018: Wanted: Leaders for a TB – free World You can make history – End TB
2017: Unite to End TB
2016: Unite to End TB
2015: Gear up to end TB
2014: Reach the 3 million
2013: STOP TB: in my lifetime
2012: STOP TB: in my lifetime
2011: On The Move Against TB: Transforming the fight towards elimination
2010: On the move against tuberculosis: Innovate to accelerate action
2009: I am stopping TB: Fighting TB is the responsibility of every citizen
2008: I am stopping TB: Fighting TB is the responsibility of every citizen
2007: TB anywhere is TB everywhere
2006: Actions for life: towards a world free of tuberculosis
2005: Frontline TB Care providers: heroes in the fight against tuberculosis
2004: Every breadth counts – Stop TB now
2003: DOTS cured me – it will cure you too
2002: Stop TB, fight poverty
2001: DOTS: TB Cure for all
2000: Forging new partnerships to Stop TB
1999: DOTS: Key to success
1998: DOTS success stories and also TB disaster stories
1997: Use DOTS more widely

सत्यमेव जयते

INDIA TB REPORT 2020

NATIONAL TUBERCULOSIS ELIMINATION PROGRAMME

ANNUAL REPORT

DOTS
Pura course. Pakka ilaaj.

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

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

This Publication can be obtained from:

Central TB Division,
Ministry of Health and Family Welfare,
Nirman Bhawan, New Delhi 110011
http://www.tbcindia.gov.in
March 2020

Printed By: JK Offset Pvt. Ltd., New Delhi

डॉ हर्ष वर्धन
Dr Harsh Vardhan
स्वास्थ्य एवं परिवार कल्याण, विज्ञान और प्रौद्योगिकी व पृथ्वी विज्ञान, भारत सरकार
Union Minister for Health & Family Welfare, Science & Technology and Earth Science Government of India

सबका साथ, सबका विकास, सबका विश्वास
Sabka Saath, Sabka Vikas, Sabka vishwas

FOREWORD

I am pleased to present the Annual India TB report for the year 2020. In the fight against Tuberculosis (TB), our dynamic Prime Minister has set an ambitious target of a TB-free India by 2025, five years before the global target of 2030.

2. The year 2019-20, was a milestone in the progress towards Ending TB in India. In order to effectively reflect the commitment of country towards fast-tracking Sustainable Goal Targets, Government of India is currently implementing the National Strategic Plan (NSP-2017-25), geared to reach our goal of Ending TBG envisioning a TB-free India with zero deaths and zero TB disease and zero TB suffering, under the aegis of the National Tuberculosis Elimination Programme (NTEP).

3. I am of the view that, we as a nation, need to come together, to fight against TB and the stigma surrounding it so that every TB patient can seek care with dignity and without discrimination. The community must act as a wellspring of support and comfort for the patient.

4. Towards this end, engagement of elected representatives is of special importance for a disease that is surrounded by layers of misinformation, myths and stigma. We are closely working with State/ UT Governments, Members of Parliament and Members of Legislative Assemblies owing to their sustained interface with community members and also to tap their potential to improve awareness and dispel myths around TB. Elected representatives can serve as a two-way channel of communication- to sensitize the community about TB and to appraise the health system and the government about the ground realities.

5. An Accelerator campaign to National Strategic Plan- "TB Harega Desh Jeetega" has been launched on 25th September, 2019. The campaign has seven pillars- Advocacy and Communication, Health & Wellness Centers & TB TB, Inter-Ministerial Collaboration, Private and Corporate Sector engagement, Community Participation and Latent TB Infection Management.

6. All stakeholders including Government, affected communities, broader civil society, donors and partners need to take urgent steps to ensure accountability for fulfilling commitments to 'End TB' through multi- sectoral response with accountability for creating TB free panchayats, TB free blocks and TB free constituencies facilitated by 'TB Champions' through promoting accountability and thus ensuring that commitments are fulfilled, and TB elimination targets are met.

TB Harega Desh Jeetega!

(Dr. Harsh Vardhan)

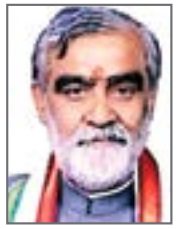
Digitally signed by DR HARSH VARDHAN
Date:Mon Mar 16 20:38:09 IST 2020
Reason:Approved

कार्यालय: 348, ए-विंग, निर्माण भवन, नई दिल्ली-110011 • Office: 348, A-Wing, Nirman Bhawan, New Delhi - 110011
Tele: (O) : +91-11-23061661, 23063513 • Telefax: 23062358 • E-mail: hfm@gov.in
निवास: 8, तीस जनवरी मार्ग, नई दिल्ली-110011 • Residence: 8, Tees January Marg, New Delhi - 110011
Tele: (R) : +91-11-23794549 • Telefax: 23794540

अश्विनी कुमार चौबे
Ashwini Kumar Choubey

सर्वेसन्तु निरामया

स्वास्थ्य एवं परिवार कल्याण राज्य मंत्री
भारत सरकार
MINISTER OF STATE FOR
HEALTH & FAMILY WALFARE
GOVERNMENT OF INDIA



संदेश

हर्ष का विषय है कि मैं आपके समक्ष वर्ष 2019 के लिए इंडिया टीबी रिपोर्ट पेश कर रहा हूं। भारत सरकार ने वर्ष 2025 तक भारत में टीबी को समाप्त करने का लक्ष्य निर्धारित किया है। जी हां लक्ष्य महत्वाकांक्षी हैं और इसे आगे बढ़ाने के लिए भारत सरकार ने टीबी के विरुद्ध साहसपूर्ण एवं महत्वाकांक्षी कार्यनीति बनाई है जिसके अंतर्गत अनेक नई पहल जैसे निजी क्षेत्र को शामिल करना निक्षय पोषण योजना नैदानिक नेटवर्क का विस्तार नई औषधियाँ डिजिटल क्रियाकलाप आदि को कार्यान्वित किया है।

मुझे यह बताते हुए खुशी हो रही है कि हमारे माननीय मंत्री डॉक्टर हर्षवर्धन जी ने मिशन मोड में टीबी की चुनौती को दूर करने के लिए सभी राज्यपालों, चयनित प्रतिनिधियों, लोक सभा एवं राज्य सभा अध्यक्ष को पत्र लिखा है। भारत सरकार ने पूनरीक्षित राष्ट्रीय क्षय नियंत्रण कार्यक्रम का नाम बदलकर "राष्ट्रीय क्षय उन्मूलन कार्यक्रम 1 जनवरी 2020 से रख दिया है। जिससे इस कार्यक्रम को एक नई दिशा और टीबी मुक्त भारत बनाने मे सफलता मिलेगी।

पिछले वर्ष की तुलना में वर्ष 2019 में क्षय रोग के नए अधिसूचित मामलों का लक्ष्य 28.5 रखा गया था राष्ट्रिय स्तर पर हमने 23.7 लाख (82%) नए मामलों को अधिसूचित किया है। "राष्ट्रीय क्षय उन्मूलन कार्यक्रम (एन टी ई पी) ने जांच, इलाज, दवाइयाँ, और अन्य पब्लिक हेल्थ एक्शन जैसी सभी सेवाओ को मुफ्त कर दिया है। टीबी के मरीजे निजी या सार्वजनिक मे से किसी भी जगह से अपना इलाज मुफ्त करवा सकते हैं। हमारा लक्ष्य सभी प्रकार की टीबी के लिए गुणवत्तापूर्ण निदान और उपचार के लिए सार्वजनिक पहुंच प्राप्त करना है।

रोगी केंद्रित उपचार के अंतर्गत, भारत सरकार ने यह सुनिश्चित करने के लिए कदम उठाए हैं कि रोगी को न केवल निःशुल्कउ उपचार मिले, अपितु उन्हें पर्याप्तर रूप में पोषित भी किया जाए। मुझे यह बताते हुए खुशी है कि निक्षय पोषण योजना के माध्यसम से 85 प्रतिशत क्षय रोगियों को 553.74 करोड़ रुपये से अधिक राशि वितरित की गई है। यह पहल उपचार के दौरान 500 रुपये के प्रत्यनक्ष लाभ अंतरण के माध्यतम से रोगियों को पोषण संबंधी सहायता देती है।

हम क्षय रोग की चुनौती का सामना करने के लिए प्रतिबद्ध हैं और साहसिक कार्यनीतियों को प्रवर्तित और कार्यान्वित करने के लिए स्वतंत्र हैं। मैं व्यक्तिगत रूप से सभी स्टेयकहोल्डरर्स – विकास सहयोगियों समाज सिविल सोसायटी से अनुरोध करता हूं कि वे आगे आएं और क्षय रोग के विरुद्ध हमारे संघर्ष में हमारे साथ जुड़ें।

टीबी हारेगा देश जीतेगा !

(अश्विनी कुमार चौबे)

Office : 250. 'A' Wing,
Nirman Bhavan, New Delhi - 110 0011
Tel. : 011- 23061016, 011-23061551
Telefax: 011-23062828
E-mail : moshealth.akc@gov.in

Residence :
30, Dr, APJ Abdul Kalam Road,
New Delhi - 110003
Tel : 011-23794971, 23017049

प्रीति सूदन, आईएएस
सचिव
PREETI SUDAN, IAS
Secretary

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण विभाग
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
Government of India
Department of Health and Family Welfare
Ministry of Health & Family Welfare

Date: 4th March, 2020

MESSAGE

The year 2019-20 was a milestone in the progress towards ending TB in India. Despite significant challenges, significant progress has been made towards this ambitious target over the past 2 years, ever since Honorable PM Shri Narendra Modi gave a clarion call to End TB by 2025, five years ahead of the Sustainable Development Goal. As per WHO Global TB report, 2019, the incidence of TB reduced from 300 / lakh population in 1990 to 199/ lakh population in 2018 and mortality reduced from 76/ lakh population in 1990 to 32/ lakh population in 2018.

More than 24 Lakh TB patients have been notified in 2019. India has moved closer to the target of notifying all TB cases through the on-line notification system (NIKSHAY) addressing the problem of "missing millions". The number of missing cases has now reduced to 2.9 lakh cases in 2019 as against more than 10 lakh in 2017.

Mandatory TB notification, patient-provider support agency (PPSA) and incentives for notification to private providers, are some of the key initiatives that have enabled private health care providers to play a pivotal role in providing quality TB care. Overall, with both collaborative and regulatory steps, the country has notified 6,64,584 TB patients in 2019 in the private sector. This amounts to 22% increase in TB notification as compared to year 2018.

With the aim to provide universal access to treatment of all TB patients, free diagnostics and treatment including quality assured drugs have been provided to all patients of both public and private healthcare facilities. Through Ayushman Bharat-Health and Wellness Centres, screening for TB, sputum collection, referral services are now being undertaken.

The Annual TB Report, 2020 documents the journey on sustained acceleration of efforts and increased collaboration to end TB. To maintain the momentum, I personally urge all State Governments, UTs, private providers, Civil Society Organizations, employers and other Ministries in Government of India, to join hands in making TB, a disease of the past.

TB Harega Desh Jeetega !!

Preeti Sudan

Room No. 156, A-Wing, Nirman Bhawan, New Delhi- 110 011
Tele: (O) 011-23061863, 23063221, Fax : 011-23061252, E-mail : secyhfw@nic.in

संजीव कुमार
SANJEEVA KUMAR
Special Secreatary
Tele.: 011-23063809
E-mail : ash-mohfw@nic.in

भारत सरकार
स्वास्थ्य और परिवार कल्याण मंत्रालय
निर्णन भवन, नई दिल्ली–110011
Government of India
Department of Health and Family Welfare
Nirman Bhavan, New Delhi -110011

Dated the 13th March, 2020

MESSAGE

As a signatory to the 2030 Agenda for Sustainable Development, India remains committed to achieving the Sustainable Development Goals (SDG) and aligned them mirrored in our national agenda – ending poverty, protecting our planet and ensuring peace and prosperity for all. At the Ministry of Health and Family Welfare, our focus is on achievement of SDG 3 goals, many of them ahead of the scheduled timeline of 2030, for ensuring good health and well – being of our people. We also recognize the need for a holistic approach and inter-ministerial collaboration to achieve the SDGs, given how they are intrinsically linked to one another.

The year 2019 is a remarkable year; the central government has renamed the Revised National Tuberculosis Control Programme (RNTCP) to the National Tuberculosis Elimination Program (NTEP), the commitment is emphasized of the Union government achieving the sustainable development goal of ending TB by 2025, five years ahead of the global targets. Through NTEP, we are currently implementing the National Strategic Plan (NSP – 2017-25), geared to achieving our goal of Ending TB by 2025. The NSP envisions a TB – free India with zero deaths, zero TB disease and no poverty due to TB. Achievement of these goals will only be possible if we adopt comprehensive approach to ending TB – including a shift towards multi-sectoral engagement.

This understanding is echoed in the 2018 United National General Assembly Resolution on Tuberculosis, to which India is signatory. The resolution "recognizes the various socio-cultural barriers to tuberculosis prevention, diagnosis and treatment services especially for those who are vulnerable or in vulnerable situations and the need to develop integrated, people –centered, community –based and gender-responsive health services based human rights". The resolution commits us to "developing community-based health services through approaches that protect and promote equity, ethics, gender equality and human rights in addressing tuberculosis".

In this context, I am pleased to present India TB Report 2020 which brings the updates so far achieved by National TB Elimination Programme last year.

(Sanjeeva Kumar)

विकास शील
संयुक्त सचिव
VIKAS SHEEL
Joint Secretary

भारत सरकार
स्वास्थ्य और परिवार कल्याण मंत्रालय
निर्णन भवन, नई दिल्ली–110011
Government of India
Ministry of Health and Family Welfare
Nirman Bhavan, New Delhi -110011
Tel. : 011- 23063506
: 011-23061481 (T/F)
E-mail : sheelv@nic.in

MESSAGE

The Annual Report of National Tuberculosis Elimination Programme captures 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 Programme. In order to make our country TB free five years ahead of the global target, National TB Elimination Program (NTEP) renewed our commitment and strengthening national efforts in fight against tuberculosis.

The Programme has directed attention towards the private sector which caters to nearlyhalf the patients seeking healthcare for TB. The Programme has incentivized private providers for notification and completion of treatment, along with extending free NTEP services like rapid diagnostics, free medicines, contact tracing, and nutritional support to patients in the private sector.There are 48 Patient Provider Support Agency (PPSA) through the JEET Consortium and 125 PPSAs through domestic resources which support private sector engagement. This has helped in fostering trust between the two sectors, and has materialized in the form of a boost in TB notification from the private sector in 2019.

For patient centric and community led response to TB, Programme is successful in making National TB Forum to engage community with representation from various stakeholders including cured patients, civil society etc. Also, all State TB forums and 700 (99%) District TB forums have also been established.

Despite of all notable success achieved by the programme, robust efforts are needed to sustain and improve on the gains made to date, and to address persistent challenges that have led to uneven progress in the fight against tuberculosis, including from the complex challenges created by the rise of drug-resistant forms of tuberculosis.

I take this opportunity to acknowledge the support of all state Governments for their continued support for joining hands to End TB.

(Vikas Sheel)
13/03/2020

एड्स – जानकारी ही बचाव है
Talking about AIDS is taking care of each other
www.mohfw.nic.in

Dr. K S SACHDEVA
Dy. Director General
Head. Central TB Division
Project Director, RNTCP

Tel : 011-2306 3226
011-2306 2980
E-mail: ddgtb@rntcp.org

भारत सरकार
Government of India
स्वास्थ्य और परिवार कल्याण मंत्रालय
Ministry of Health & Family Welfare
निर्णन भवन, नई दिल्ली–110108
Nirman Bhavan, New Delhi -110108

Date : 19.03.2020

MESSAGE

This is perhaps the most challenging time in the history of TB elimination efforts in the country. While the world has set a target of 2030 for ending TB under the Sustainable Development Goals, India has taken an ambitious decision of ending TB by 2025, a full five years ahead of the global targets.The TB programme in the country has undergone a paradigm shift in recent times and is a glowing success story on many levels. There is substantial visible commitment not only at the highest political levels, but also among other Ministries and stakeholders.

The increasing trend in case notification has continued,which has resulted in a drastic reduction in the quantum of missing cases.The programme has successfully disbursed incentives totalling nearly 463 crores towards nutritional support and preventing catastrophic expenditure, in addition to various State schemes towards social support and vocational training to TB patients.
To effectively engage with the private sector and ensuring quality of care among patients seeking care there, an Updated Guidance Document on Partnerships has been developed by the programme. The programme has also successfullyexecuted multi-sectoral engagements withvarious line Ministries and Departmentsin its effort to expand TB services including the Indian Academy of Paediatrics, organizing more than 300 seminars to involve Paediatricians across the country.

Moving towards a patient-centric approach for Ending TB in the country, community empowerment has been institutionalized through the constitution of TB Forums in all states and districts. Over 90,000 TB survivors have been sensitized and more than 300 trained TB champions are now supporting close to 8,000 TB patients.

Being the forerunner in adopting a Rights and Gender-based approach, a National Framework for Gender-Responsive approach to TB was developed aimed at equitable, rights-based TB services for women, men and transgender persons and to mobilize, empower and engage them in TB response at community levels.

The coming years are critical and would require a holistic approach and intensive efforts at expanding access and improving the quality of services to realize the ambitious aspirations of ending TB by 2025 in the country.

Dr. K.S. Sachdeva

Acknowledgments

- Smt. Preeti Sudan, Secretary (Health), MoHFW
- Shri Sanjeeva Kumar, Special Secretary (Health). MoHFW
- Shri Vikas Sheel, Joint Secretary (NTEP), MoHFW
- Smt. Sandhya Bhullar, Director (NHM &NTEP), MoHFW
- Dr. K. S. Sachdeva, Dy. Director General, Central TB Division
- Dr. Sudarsan Mandal, Addl. Dy. Director General, Central TB Division
- Dr. Somenath Karmakar, Consultant SAG, Central TB Division
- Dr. Ritu Gupta, ADDG cum Consultant, Central TB Division
- Dr. Sanjay K Mattoo, Joint Director, Central TB Division
- Dr. Raghuram Rao, DADG, Central TB Division
- Dr. Nishant Kumar, DADG, Central TB Division
- Dr. Ravinder Kumar, TB Specialist, Central TB Division
- All consultants of Central TB Division

ABBREVIATION

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 Diseases
NRHM	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
NTEP	National Tuberculosis Elimination 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

Efforts to end TB in India through implementation of the National Strategic Plan (2017-2025) has completed the first three years of implementation. During this period, the programme has seen tremendous success and is better poised today, to meet the ambitious goal pronounced by our Honourable Prime Minister at the Delhi End TB Summit in March 2018 of ending the TB epidemic by 2025 from the country, five years ahead of SDG goals for 2030, responding to which, some States/ UTs have committed to end TB even before 2025 - Kerala (2020), Himachal Pradesh (2021), Sikkim, Lakshadweep (2022) Chhattisgarh, Jammu & Kashmir, Madhya Pradesh, Tamil Nadu and Bihar, Jharkhand, Puducherry and Dadra Nagar Havelli & Daman Diu (2025). The programme has now been renamed as National Tuberculosis Elimination Programme, to invigorate the fight in alignment with this ambition.

The programme has comprehensively moved closer to near-complete online notification of all TB cases in the country through the NIKSHAY portal. 24.04 lakh patients have been notified through the system, an increase of 11% over last year, with 6.7 lakh patients being notified from the private sector. First line standard treatment was initiated for 22.7 lakh (94.4%) of the notified drug sensitive TB cases. NIKSHAY also expanded provision of four Direct Benefit Transfers (DBT) schemes of the programme – i. Nikshay Poshan Yojana (NPY) to patients ii. Incentive to Treatment Supporters iii. Notification Incentive to Private Providers and iv. Transport incentive to Tribal TB patients. DBT transfers under NPY, one of the fastest ever implemented schemes of GoI, saw over ₹462 crores being disbursed this year as nutritional support to patients, a jump of nearly 130% from last year.

Mapping of high-risk groups, carefully planned systematic screening and active case finding for active TB has improved early case detection leading to reduced risks of transmission, poor treatment outcomes and adverse social and economic consequences. This year, 27.74 crore population were screened across 337 districts in 23 States resulting in 62,958 TB cases identified.

Early accurate diagnosis followed by prompt appropriate treatment is vital for ending TB. The programme has expanded both the laboratory network as well as WHO endorsed rapid molecular diagnostic facilities to cover the entire country. The laboratory network now includes 6 National Reference Laboratories, 31 Intermediate Reference Laboratories, 50 certified laboratories for Liquid Culture and DST services and 64 certified laboratories for LPA services along with 20,356 Designated Microscopy Centres. In addition, 15 additional TB containment laboratories with liquid culture facility have been established across the country under the New Funding Model (NFM) of The Global Fund Grant and 8 additional TB Culture & DST Laboratories have been sanctioned through State PIPs. 1,180 CBNAAT facilities at the district and sub district levels offer decentralised testing for TB and Rifampicin resistance with a total of 35.31 lakh tests performed, an increase of 47% from last year.

This year the programme focussed on quality of

services offered by laboratories and supported TB C&DST laboratories in achieving the prestigious National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation. 11 laboratories have already been accredited with 5 more in the process. The programme also rolled out External Quality Assurance of CBNAAT machines using dried spot panels and 651 (98%) out of 664 machines attained proficiency scores of 80% and above. A Laboratory Information Management System (LIMS) was also rolled out to establish uniformity in laboratory processes across the network, minimize data-entry errors and to automate notifications by linking with NIKSHAY.

For sentinel surveillance, delineation of molecular epidemiology, determining hot spots and study of transmission dynamics, 5 Whole Genome Sequencing facilities and 1 Pyro Sequencing facility have been established.

The programme has advanced to decentralize Drug Resistant TB treatment to the district level to make services more accessible to patients. This year saw 711 DR-TB centres made functional including 154 Nodal DR-TB centres for DR-TB treatment. A total of 66,359 Multi Drug Resistant/ Rifampicin Resistant (MDR/ RR) TB cases were notified and 56,500 (85%) of them put on treatment, an improvement of 7.6% over last year. Additionally, an injection-free all-oral regimen was launched for all MDR/ RR TB patients not eligible for Shorter MDR TB regimen. Delamanid use was extended to eligible patients in 6-17 years age-group across the country as part of an appropriate combination regimen for pulmonary MDR-TB, where effective treatment regimens cannot be composed due to resistance or tolerability.

A Gazette notification has been issued by Government of India specifying "Facility for Management of MDR-TB in Medical Colleges". As per this amendment every Medical College, at the time of 4th renewal for admission of 5th batch of MBBS students, will need facilities for management of MDR-TB patients.

TB co-morbidities, especially HIV, Diabetes and Tobacco have been prioritised. Over 94% of People Living with HIV (PLHIV) are being screened in ART centres for TB symptoms. 2.4 lakh PLHIV were given access to rapid molecular testing via NAAT for TB diagnosis. More than 3 lakh PLHIV were initiated on TB preventive therapy in 2019. As a result of the implementation of TB-Diabetes collaborative framework, over 60% of the notified TB patients in the public sector have been screened for Blood Sugar .

India is one of the first countries to adopt the Communities, Rights and Gender Tools developed by the Stop TB Partnership. The programme has developed a National Framework for Gender-Responsive approach to TB. The framework aims for equitable, rights-based TB services for women, men and transgender persons by adopting a gender-specific programmatic approach at all levels, and to mobilize, empower and engage women, men and transgender persons in the TB response at the health system and community levels .

For a community-led response to TB, an institutional mechanism has been set up to support TB patients through their treatment and recovery. TB Forums at state and district levels provide a platform to include community as an important stakeholder to improve the quality of TB services and making them patient-

centric. TB Forums have been constituted in all states with over 700 (99%) TB Forums formed in districts across the country.

'TB Survivors to TB Champions' is an important strategy in engaging with TB affected communities. A national level standardised training curriculum has been developed for capacity building of TB survivors and 304 TB Survivors have undergone training as TB Champions. An additional 100 TB Survivors were trained using state specific modules in Telangana.

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. In line with the WHO Multisectoral Accountability Framework, the programme has undertaken an inter-ministerial coordination initiative with various Union Ministries and Departments. These efforts have yielded significant results in the form of Memorandum of Understandings (MoUs) signed with three Ministries - Ministry of AYUSH, Ministry of Defence and Ministry of Railways - for expansion of TB services in their existing health facilities as well as in health facilities of PSUs under these ministries. A National Consultation Workshop for PSUs was also organized with representations from 22 major PSUs. Subsequently, Nodal Officers have been identified Action Plans prepared.

The TB Sample Transport Network has been widened through support from Department of Post's services for specimen transportation from peripheral health facilities to TB diagnostic laboratories. This will help expand drug susceptibility testing services.

The last three years has seen several policies and interventions augmenting the ambitious target of ending TB in India. The coming years will see the programme build on the progress already made and intensify efforts at expanding access and improving the quality of services to ensure optimum impact.

The Government of India has committed to achieve the SDG goal of eliminating Tuberculosis in the country by 2025, five years ahead of the Global Target. In light of this ambitious target and to accelerate momentum towards the ultimate goal, an appropriate and representative change in the name of the programme was imperative, and it was decided to rename the programme as "National Tuberculosis Elimination Program (NTEP)" from Revised National Tuberculosis Control Program (RNTCP).

❑

Structure of National Tuberculosis Elimination Programme

CHAPTER 1

Hon'ble Vice President of India inaugurating the event India Mahasabha at The 50th Union World Conference on Lung Health

Structure of National Tuberculosis Elimination Programme

CHAPTER 1

National TB Elimination 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 National TB Elimination Programme (erstwhile Revised National TB Control Programme) is managed by the Central TB Division (CTD), the technical arm of the Ministry of Health and Family Welfare (MoHFW). CTD and its establishment have been placed under the Health Ministry. The Special Secretary & Director General (National TB Elimination Programme & NACO) is the overall in-charge of the programme. The respective Joint Secretary from the administrative arm of the MoHFW takes care of the financial and administrative aspects of the programme. The Deputy Director General-TB (DDG-TB), is the head of the CTD, leading technical implementation of National TB Elimination Programme nation-wide. The CTD is assisted by 6 national level institutes, namely the National Tuberculosis Institute (NTI), Bangalore, the National Institute of Tuberculosis and Respiratory Disease (NITRD) New Delhi, the National Institute for Research in Tuberculosis (NIRT) Chennai and the National JALMA Institute of Leprosy and other Mycobacterial Diseases, NJIL & OMD Agra, Bhopal Memorial Hospital and Research Centre (BMHRC), Bhopal and Regional Medical Research Centre (RMRC), Bhubaneswar. The Central TB Division has Addl. DDG, Joint Director, Dy. Directors and Sr. Specialists assigned to manage the various areas of programme activities.

a. Committees at National level

Fourteen 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 is in place with the representatives of the six National TB Elimination Programme 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 National Tuberculosis Elimination Program provides expert advice to the program on diagnosis of all forms of TB. It provides expert opinion on 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 to public as well as private sector.

3. **National Technical Expert Group on Treatment:** National TB Elimination

Programme has expanded its scope of activities and treatment regimens multifold in past several years. WHO guidelines are rapidly changing for the management of TB & DR-TB. A 'National Technical Expert Group (NTEG) for treatment of Tuberculosis under National Tuberculosis Elimination Programme' provides expert advice to the programme for management of all forms of TB.

4. **National TB-Comorbidity Coordination Committee:** Constituted under the chairpersonship of Secretary (Health & Family Welfare), MoHFW with the objective of strengthening co-ordination mechanisms, scaling 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 with NACP, NPCDCS, National Tobacco Control Programme, WCD and other relevant programs co-ordination.

5. **National Technical Working Group on TB – Comorbidities –** Formed under the chairpersonship of Dr Naveet Wig (Professor, AIIMS New Delhi) with the objective of strengthening co-ordination, review and plan collaborative activities, strengthening mechanism for joint supervision and monitoring and identify key areas for research and facilitate conduct of operational research on different co-morbidities.

6. **Technical working group on Latent TB Infection management in India**– Committee formalized under the chairpersonship of Dr. Ranadeep Guleria (Director, AIIMS New Delhi) with the aim to review the existing guidelines, prepare and finalize technical and operational guidelines. It will contribute to regular updating of 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 chairpersonship 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 National TB Elimination Programme.

8. **Technical expert committee on TB in Women including Gender issues–** Committee instituted under the chairpersonship of Dr. Ashok Kumar (Ex. Addl. DGHS, Chairperson) with the purpose of finalizing collaborative framework for TB in Women in India, rolling out gender-responsive approaches to TB and identifying research needs in the above areas.

9. **National Task Force for Medical Colleges:** A National Task Force

(NTF) has been formed for effective implementation of National TB Elimination Programme 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 the effective involvement of medical colleges in National TB Elimination Programme.

10. **National Operational Research Committee (NORC):** 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 National TB Elimination Programme Operational Research (OR), provides expertise to identify 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 composed 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 National TB Elimination Programme.

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) support 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 STC 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 TB-comorbidities for management of co-morbidity. Nodal Drug Resistant TB centres are established for management of drug resistant TB with newer drugs, adverse drug reactions and as referral unit.

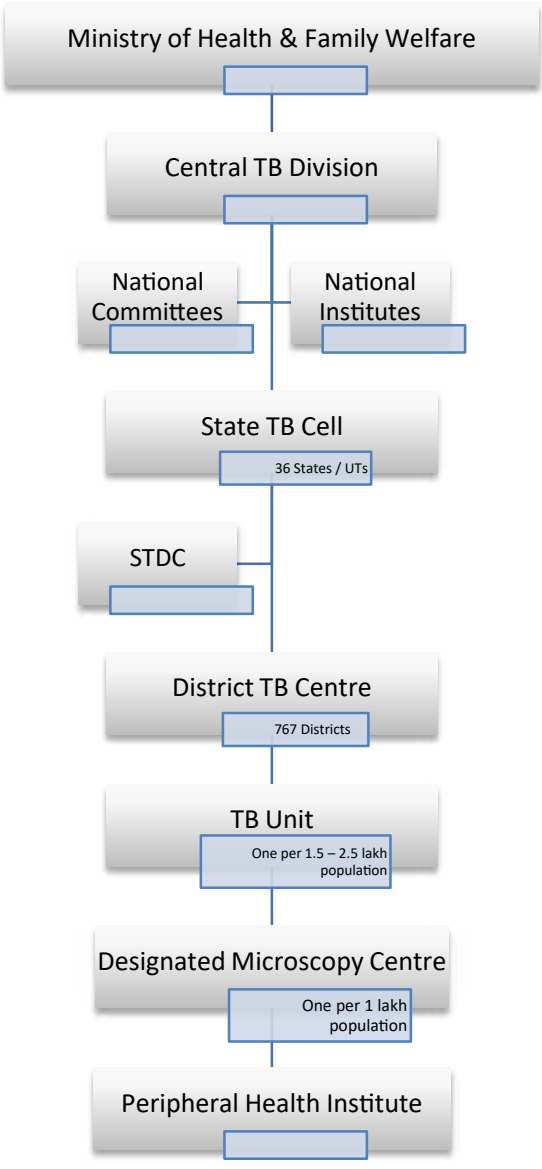
C. District Level

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 managing of National TB Elimination Programme 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 National TB Elimination Programme 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 National TB Elimination Programme 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 is also two full-time National TB Elimination Programme 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 National TB Elimination Programme



❑

CHAPTER 2

Hon'ble Minister of Health & Family Welfare launched the National Campaign 'TB Harega Desh' Jeetega on 25th September 2019

TB Surveillance and Epidemiology

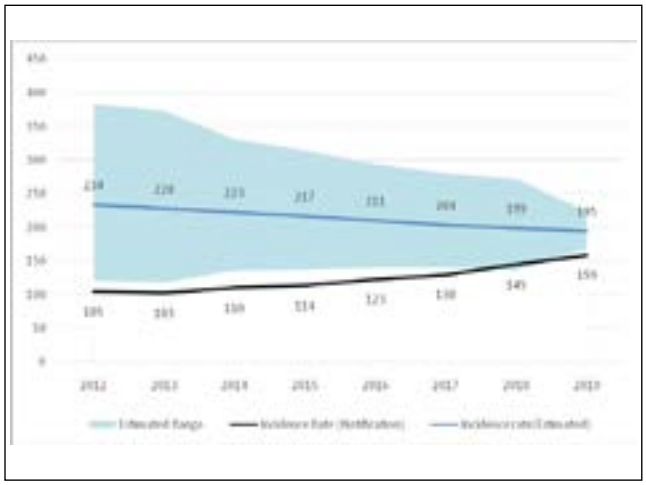
CHAPTER 2

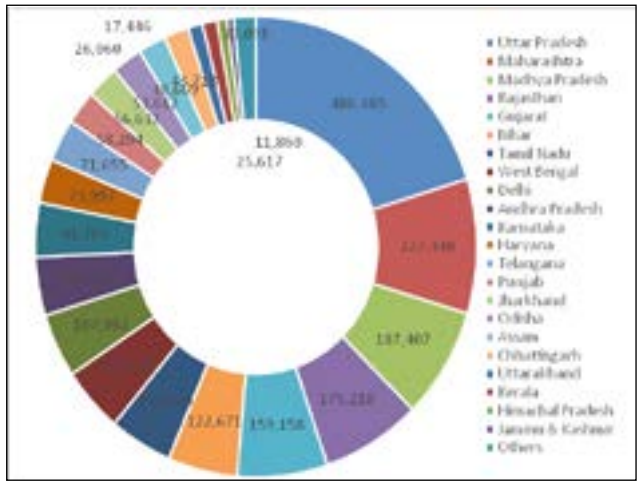
India is the highest TB burden country in the world having an estimated incidence of 26.9 lakh cases in 2019 (WHO). To address this, the ability to achieve complete surveillance coverage is the prerequisite. Complete surveillance coverage would enable all levels of program management to ensure that complete and adequate diagnostic, treatment and preventive services are provisioned to all affected cases.

2019 marks another milestone year for TB surveillance effort in India, with a record high notification of 24 Lakh cases; an increase of over 12% as compared to 2018. Of the 24 lakh TB cases 90% (N=21.6 lakhs) were incident TB cases (New and Relapse/ Recurrent).This translates to an incident notification rate of approximately 159 cases/lakh against the estimated incidence rate of 199 cases lakh population; thus, closing the gap between the estimated and notified incident cases to just 40 Cases per lakh population, or an approximate of 5.4 lakh missing cases across India.

This increase in cases was observed across all aspects of TB Notification. However, the largest proportion of increase came from the private sector. In 2019 the private sector contributed 6.79 lakh notifications, approximately 28% of total notifications. This is an increase of 25% as compared to 2018.

Similar to trends in the previous years, over half of the total notifications are contributed by the five states namely Uttar Pradesh (20%), Maharashtra (9%), Madhya Pradesh (8%), Rajasthan (7%) and Bihar (7%).

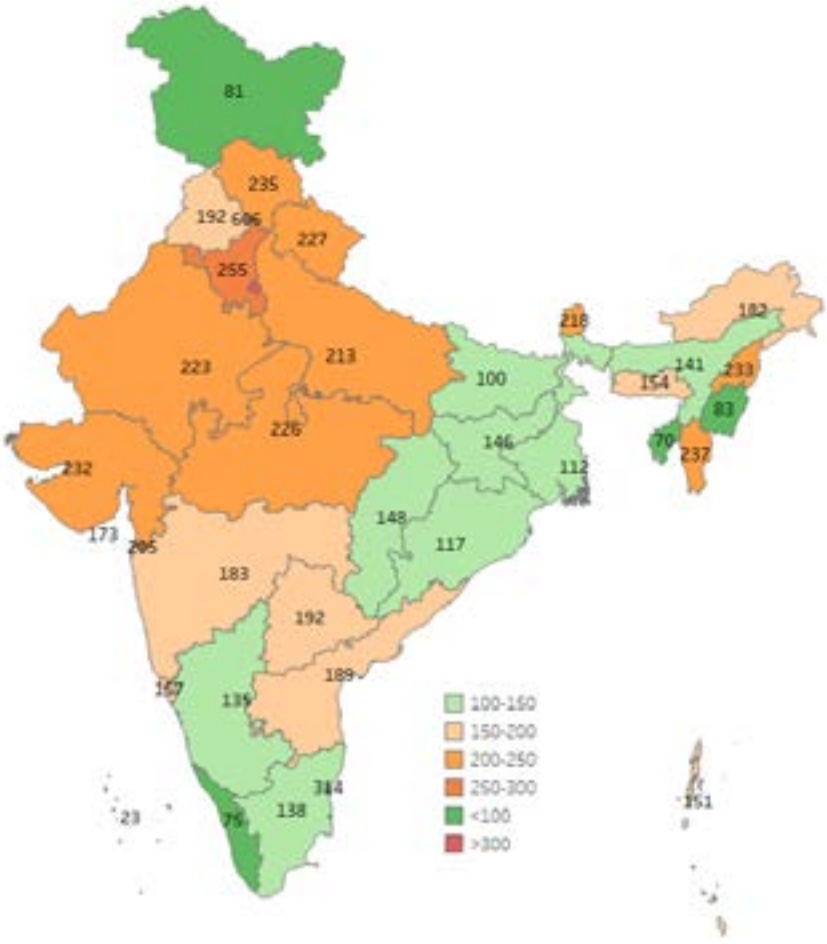




Other states	Notifications	%
Chandigarh	7,026	0.29%
Meghalaya	5,528	0.23%
Nagaland	4,794	0.20%
Puducherry	4,606	0.19%
Mizoram	2,944	0.12%
Arunachal Pradesh	2,938	0.12%
Tripura	2,761	0.12%
Manipur	2,553	0.11%

Other states	Notifications	%
Goa	2,410	0.10%
Sikkim	1,432	0.06%
Dadra & Nagar Haveli	937	0.04%
Andaman & Nicobar Islands	587	0.02%
Daman & Diu	560	0.02%
Lakshadweep	15	0.001%

Notification Rate /lakh population



The TB Notification relative to population is the highest in Chandigarh (605/lakh), Delhi (574/lakh), and Puducherry (313/lakh); largely owing to these states providing diagnostic care for populations beyond their own boundaries. After accounting for patient movement post diagnosis, the notification in these states changes, with Delhi (520/lakh), Chandigarh (306/lakh), Puducherry (113/lakh).

State	Notification rate (at time of diagnosis)	Net Notification rate (Post diagnosis with Transfers accounted)	% Change
Andaman & Nicobar Islands	151	158	4%
Andhra Pradesh	189	191	1%
Arunachal Pradesh	182	188	3%
Assam	141	141	0%
Bihar	100	103	3%
Chandigarh	606	307	-49%
Chhattisgarh	148	148	0%
Dadra & Nagar Haveli	205	125	-39%
Daman & Diu	173	141	-18%
Delhi	575	520	-9%
Goa	157	153	-3%
Gujarat	232	227	-2%
Haryana	255	257	1%
Himachal Pradesh	235	242	3%
Jammu & Kashmir	81	82	1%
Jharkhand	146	148	1%

State	Notification rate (at time of diagnosis)	Net Notification rate (Post diagnosis with Transfers accounted)	% Change
Karnataka	135	133	-2%
Kerala	75	75	0%
Lakshadweep	23	33	47%
Madhya Pradesh	226	226	0%
Maharashtra	183	181	-1%
Manipur	83	86	4%
Meghalaya	154	150	-3%
Mizoram	237	241	2%
Nagaland	233	232	0%
Odisha	117	116	-1%
Puducherry	314	113	-64%
Punjab	192	196	2%
Rajasthan	223	223	0%
Sikkim	218	224	3%
Tamil Nadu	138	141	2%
Telangana	192	192	0%
Tripura	70	77	10%
Uttar Pradesh	213	218	3%
Uttarakhand	227	220	-3%
West Bengal	112	113	1%

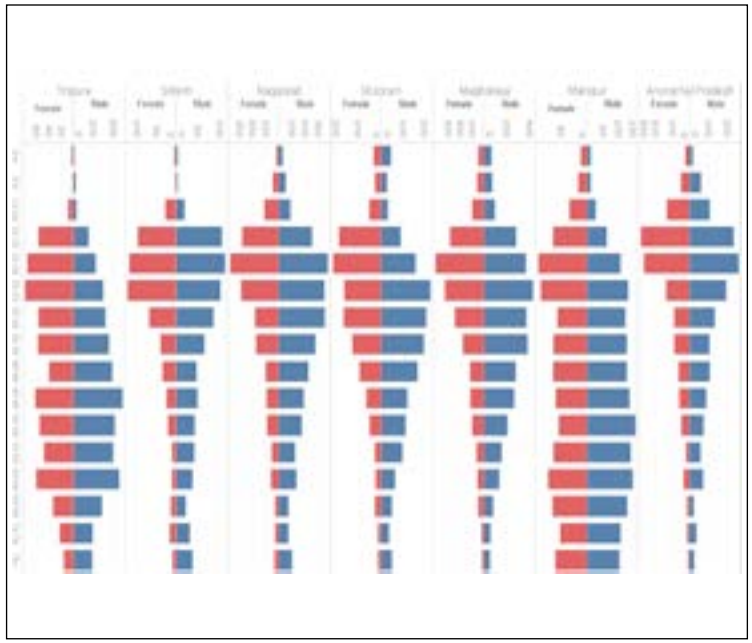
Movement of patients is a critical aspect to consider when trying to ensure that all notified cases are on treatment without interruptions and complete treatment successfully. With the policy of notification at diagnosis of TB to ensure that no case is missed and the surveillance system has maximum coverage, the aspect of patient movement has become increasingly important as most often TB patients seek diagnosis care at higher, central facilities, while long term treatment is sought at peripheral, closer to home institutions. Through Nikshay, the National TB Elimination Programme has built a system to track such movement and enable field staff to follow up such patients effectively.

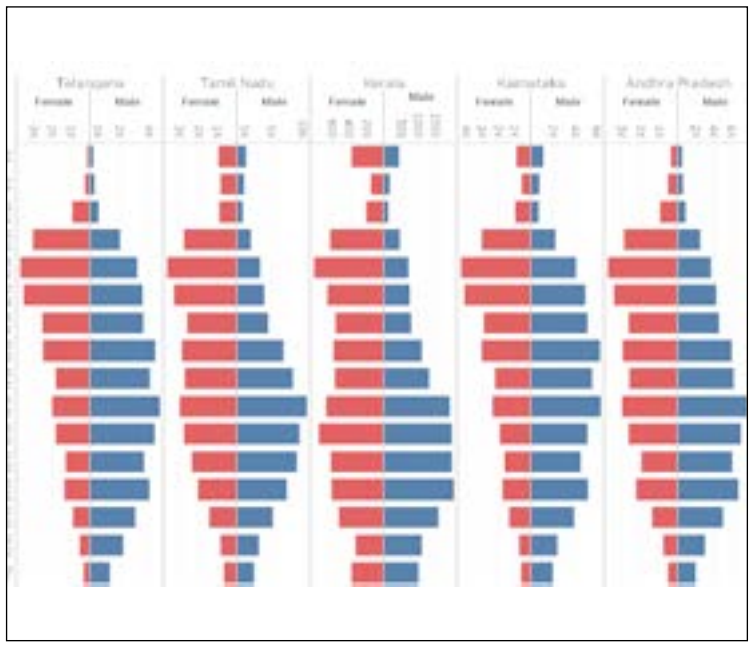
Type of Transfer	Number Notified	% of Total Number Notified
1. No Transfer	10,78,375	44.84%
3. Inter-TU within District	5,59,083	23.25%
2. Inter-PHI within TU	4,03,619	16.78%
4. Inter-district within state	2,57,530	10.71%
5. Inter-State	1,06,369	4.42%
Total	**24,04,976**	

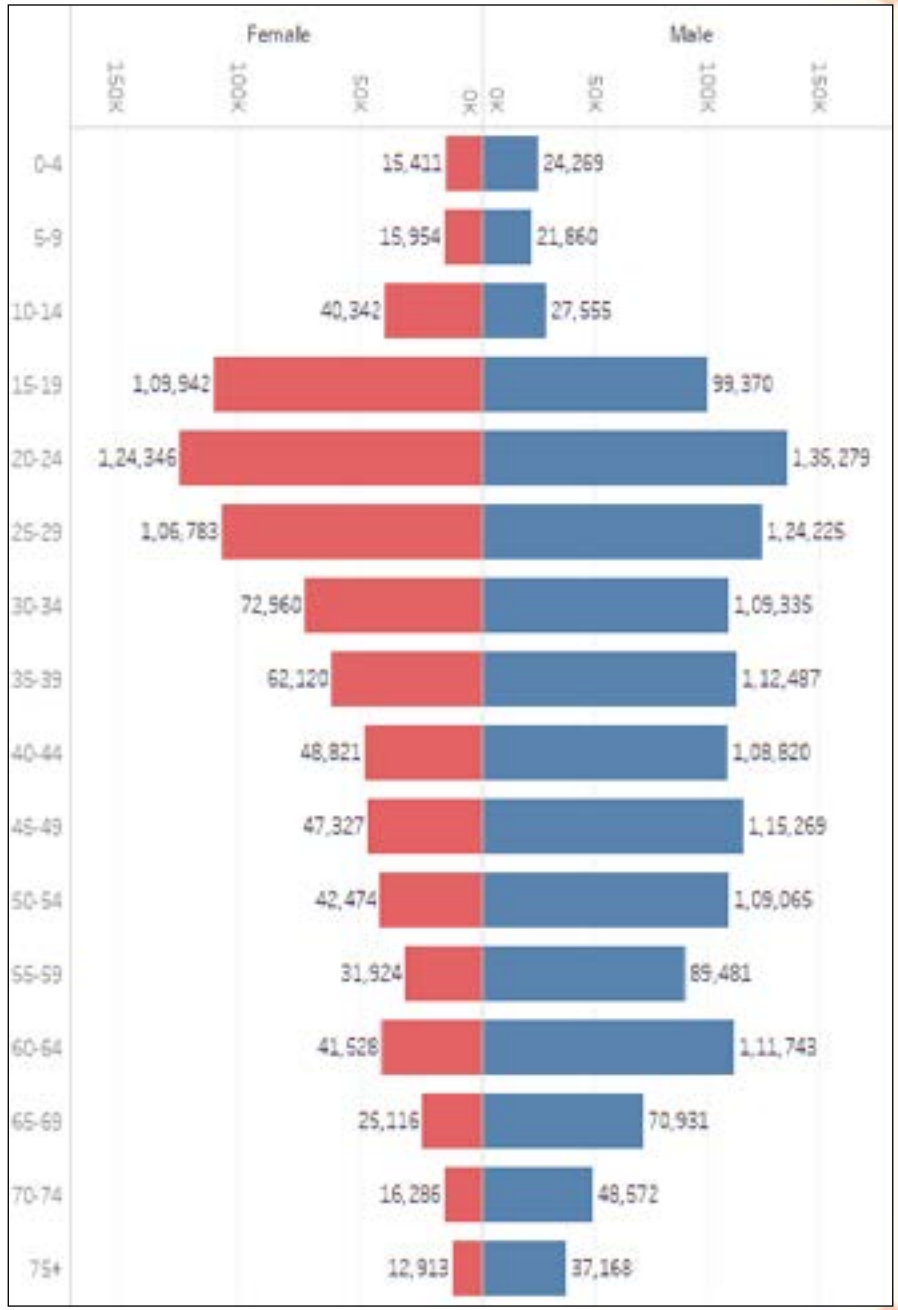
In 2019, 13.26 lakh (55% of notifications) patients were transferred after notification to a different health facility. Of the total transfers majority (23%) occurred between TUs within a District. Over half a lakh cases (2% of all notifications) got transferred between states. The top 5 states where outward patient movement was observed was Delhi(21%); UP(8%), Maharashtra(8%), Madhya Pradesh (7%), Chandigarh (7%) and Gujarat (7%); while the states of Uttar Pradesh (32%), Bihar (8%), Haryana (8%), Madhya Pradesh (7%), Tamil Nadu (7%) states had the highest proportion of inward movement. The highest proportion of movement happened between the states of Delhi and UP accounting for 14% of all transfers.

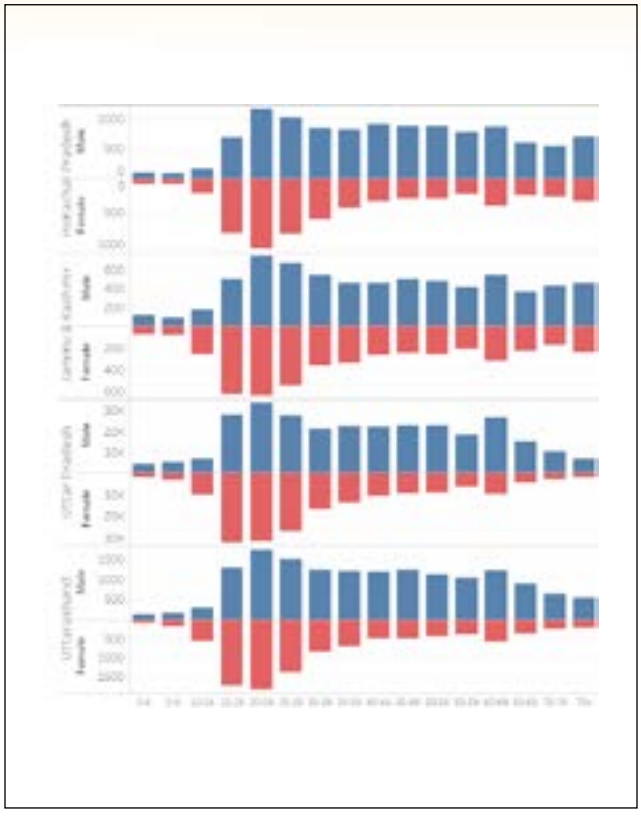
Movement between public and private sector also was recorded in the system; 8134 cases moved between public and private sector after notification. Majority (88%, N=7192) of these were diagnosed in the private sector and then transferred to Public sector.

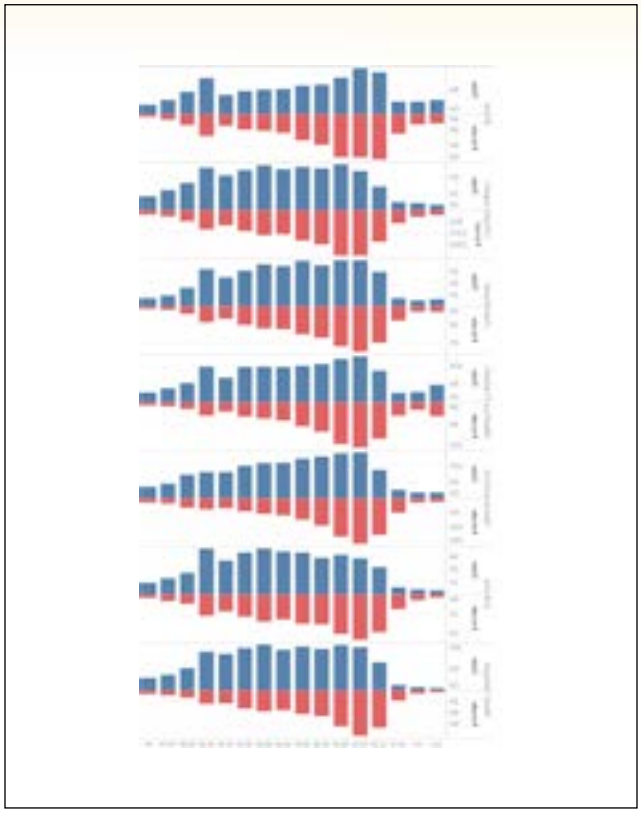
Overall the age distribution of TB diagnosed incident cases shows a predominance in the adolescent and young adult age groups between 15 to 30, indicating ongoing disease transmission. However, there is a wide variation in the age distribution patterns among the states. In southern states of Kerala, Karnataka, Tamil Nadu, Andhra Pradesh along with the UTs of Puducherry, Lakshadweep and Andaman and Nicobar, there is a general elderly prevalence of TB towards the age 50-year ranges. However, in most of the other states the incidence is similar to that of the country with a predominance in the 15-30-year groups. This indicates the need to further optimise program performance and the need to push novel interventions to accelerate progress towards TB elimination in those states.

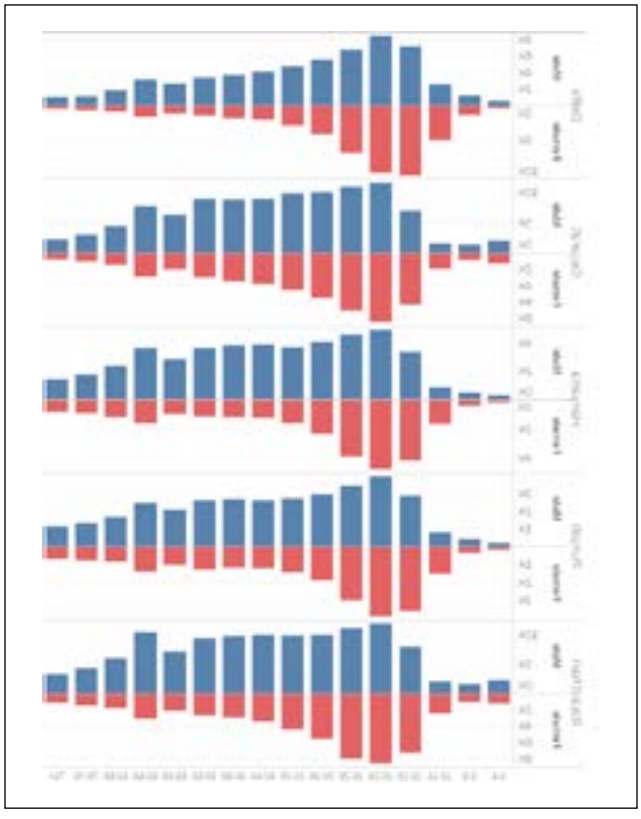


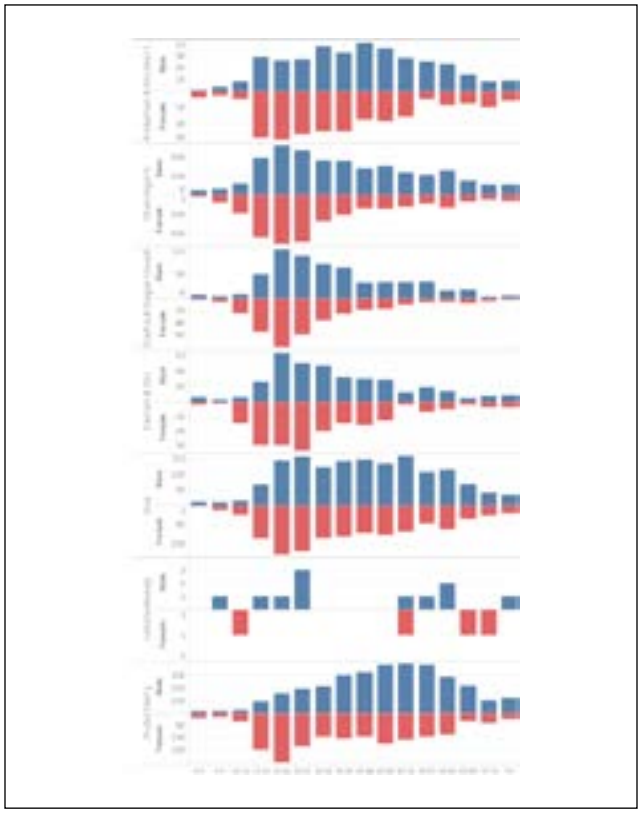



Female
Male
150K
100K
50K
0K
0-4
15,411
24,269
5-9
15,954
21,660
10-14
40,342
27,555
15-19
1,09,942
99,370
20-24
1,24,346
1,35,279
25-29
1,06,783
1,24,225
30-34
72,960
1,09,335
35-39
82,120
1,12,487
40-44
48,821
1,08,820
45-49
47,327
1,15,269
50-54
42,474
1,09,065
55-59
31,924
89,481
60-64
41,528
1,11,743
65-69
25,116
70,931
70-74
16,286
48,572
75+
12,913
37,168









Care Cascade (2019): Of the 24 lakh notified TB cases in 2019, 94.4% (N=22,72,518) were initiated on treatment. The remaining 5.6% (132297) of cases were not initiated on treatment.

Status of treatment	Total Notified	%
Notified and Not initiated on treatment	1,32,297	6%
Currently on treatment	11,36,475	47%
Notified, Initiated treatment, and outcome assigned	11,36,043	47%
Total	**24,04,815**	

Care cascade and Treatment Outcomes 2018:

Indicator	Private	%	Public	%	Grand Total	%
Total Notified 2018	483781		1619047		2102828	
Treatment initiated	469665	97%	1555842	96%	2025507	96%
Treatment Success	342066	71%	1337201	83%	1679267	80%
Died	8368	2%	70776	4%	79144	4%
Lost to Follow-up	24252	5%	61954	4%	86206	4%
Treatment Failure	2214	0%	12104	1%	14318	1%
Regimen Changed	2617	1%	19623	1%	22240	1%
Not Evaluated	90148	19%	54184	3%	144332	7%

Based on the latest reported data (29 Feb 2019) notification of 2018 was counted to be 21,02,828. This apparent decrease of 2.5% from the earlier reported number of 21,55,894 is attributable to a combination of advanced facilities of deduplication, patient movement and data validation.

Of the reported 21.02 lakh cases in 2018, reported treatment success was 80% (N=16.79 lakhs), Death rate was 4%, Lost to follow-up after treatment initiation was 4%, Treatment failure and regimen change was together about 2%, and an overall of 7% cases was not evaluated after notification.

❑

Diagnostic Services under National TB Elimination Programme

CHAPTER 3

Hon'ble Minister of Health and Family Welfare visiting the exhibition area during the launch of National Campaign TB Harega Desh Jeetega on 25th September 2019

Diagnostic Services under National TB Elimination Programme

CHAPTER 3

Background:

National Strategic Plan (2017-25), advocates for early Identification of presumptive TB cases, at the first point of care, be it private or public sector, and prompt diagnosis using highly sensitive diagnostic tests to provide universal access to quality TB diagnosis including drug resistant TB in the country.

The TB laboratory network has been expanded over the years to provide better access to quality assured diagnostic services. Laboratory services are provided free of cost to patients attending public health facilities as well as for those referred from the private sector. The Programme has promoted partnerships 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 (UDST) for Rifampicin resistance at the time of TB diagnosis has been implemented throughout the country. Intensified search for TB cases among key population groups has also been prioritized by National TB Elimination Programme. The strategies adopted for case finding include:

- Passive Case Finding– Patients with symptoms of TB voluntarily seek health care. Medical officer follows diagnostic algorithm for evaluating TB patients.
- Intensified Case Finding– (NCD clinic) Involves screening patients attending health facilities with comorbidities, for TB (HIV care settings, Diabetes clinic, Tobacco cessation clinic, Nutrition Rehabilitation Centre). This is a provider-initiated screening of OPD clinic/hospital attendees for symptoms of TB
- Active Case Finding – Involves actively searching for TB patients among vulnerable population in the community (Slum, Tribal, Prison *etc.).* This activity adopted by the programme enables early detection of TB patients.

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 Pulmonary Tuberculosis presumed to be drug sensitive and also for monitoring their response to treatment.

Drug Resistant TB: Patients at risk of Multi-Drug Resistant TB (MDR-TB) as defined by the programme are diagnosed using WHO endorsed rapid diagnostics (WRD) like Cartridge Based Nucleic Acid Amplification Test (CBNAAT) / Line Probe Assay (LPA)/ TrueNAT. Response to treatment for MDR is monitored by follow up on Liquid Culture (MGIT) system. Identification of Mycobacterial species is performed by commercial Immunochromatic test (ICT).

Counseling support in DRTB cases by Tata Institute of Social Sciences (TISS)

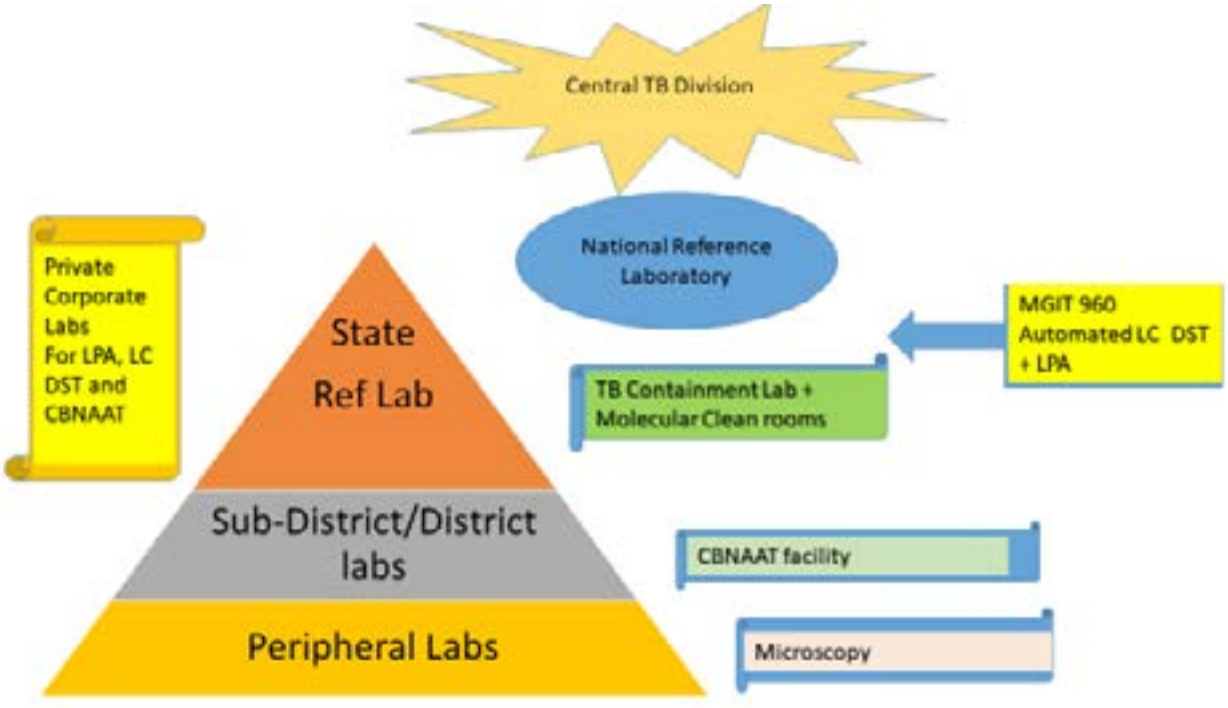
MDR-TB diagnosis is offered to all patients who remain smear positive on any follow up including failures of first line treatment and H monopoly DR-TB treatment.

CBNAAT is also offered for TB diagnosis in key populations such as presumptive 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.

Universal Drug-Susceptibility Testing (UDST): All TB patients are offered CBNAAT/ TrueNAT testing for determining resistance to Rifampicin. Cascading test for determining resistance to Isoniazid, Fluoroquinolones and Second Line Injectable Drugs is offered through Line Probe Assay.

Structure and functions of National TB Elimination Programme Laboratory network:

The National TB Elimination Programme laboratory network is composed of a three tier system with 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), Bangalore;
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	50 LC DST and 64 LPA
Private /corporate Labs	19 (LPA/LC DST)
District level CBNAAT laboratories	1180
Peripheral microscopy centers	20356

National Reference Laboratories: NRLs provide technical assistance to the programme which includes developing laboratory guidelines, SOPs, conducting training to state level intermediate reference laboratories, conducting annual on-site evaluation / supervisory visits to Microscopy as well as Culture and DST laboratories, and 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.

Intermediate Reference Laboratories: There is at least one IRL per major State, situated in the campus of State Training and Demonstration Centers (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

IRL at lucknow

technical support to C & DST laboratories in Medical College, Private and NGO laboratories under National TB Elimination Programme. The IRL Microbiologists also visit CBNAAT sites across the State, monitor performance and provide feedback for improving quality of diagnosis and reporting results.

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 National TB Elimination Programme, in NGO and the Private sector. The programme has been proactively engaged with the private sector through partnership schemes. Certification is provided for Culture and DST followed by purchase of laboratory services through MoU.

District TB Centers: The District TB Centre (DTC) is the nodal center for all TB control activities of a district. CBNAAT facilities have been established at all Districts. The District TB Officer (DTO) organizes and manages laboratory service at all Designated Microscopy Centres and conducts EQA activities that include On-Site Evabluation visits carrying out EQ Aactivities including On-Site Evaluation visits to DMCs and RBRC of routine slides, coordinated by the DTO. STLS prepares reagents for smear microscopy, checks quality using QC slides and provides these reagents as well as QC slides to the DMCs. Apart from providing on-site training for quality improvement, STLS also ensures adequate laboratory supplies to DMCs.

Designated Microscopy Centre: The most peripheral laboratory under the National TB Elimination Programme network is the DMC which serves a population of around 100,000 (50,000 in tribal and hilly areas). Binocular microscope has been provided by the programme to each DMC. High workload DMCs have been provided with LED Fluorescent Microscopes (FM). DMCs are manned by a trained Laboratory Technician (LT) of the state health system. Microscopy services have been further decentralized to the PHI levels, based on need and access.

Quality Assurance 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, to the district/sub district level and then designated microscopy centers at the most peripheral level. The QA has all elements of internal quality control, on-site evaluation and external quality control. EQA for sputum smear microscopy includes On Site Evaluation, Panel Testing and RBRC.

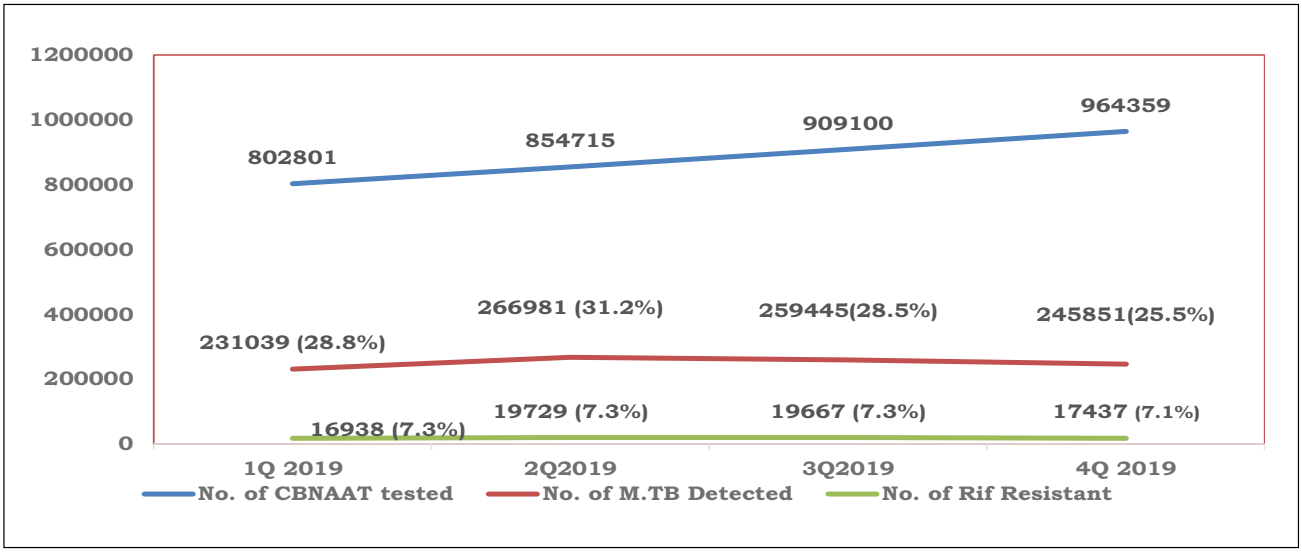
The components of QA for C &DST include Internal Quality Control (IQC) and EQA mechanisms. IQC of LJ media involves testing each batch of media for contamination as well as the use of control strain (H37RV) for growth parameters. IQC for MGIT is instrument guided. IQC of DST involves use of control strain (H37RV) as well as mono resistant strains with every batch of DST performed. The EQA for DST is through structured panel testing and retesting exercises.

Proficiency testing (PT) exercise is conducted annually for certification of laboratories in all technologies used for determination of drug resistance. PT for LPA includes benchmarks for invalid results, contamination in negative control, internal as well as external concordance. The proficiency testing schedule for phenotypic DST as well as LPA is annual in nature and the certification process is biennial for all technologies. All certified laboratories have successfully cleared the proficiency test conducted in the year 2019. List of certified laboratories is provided in annexure (I)

Quality control for CBNAAT is in-built in the cartridge which contains two internal controls, the Probe Check and the Sample Processing C ontrol.

Diagnostic services (1-4 Q 2019):

CBNAAT



First Line LPA

No. of tests conducted	H & R Sensitive	H Resistant	R Resistant	MDR TB
346282	288944(83%)	20329(5.9%)	2247(0.65%)	10837 (3.1%)

Second Line LPA

No. of tests conducted	FQ & SLI Sensitive	FQ Resistant	SLI Resistant	Low level Kanamycin resistant	XDR TB
72748	39931 (54.8%)	19984 (27.4%)	1007 (1.3%)	487 (0.66%)	3882(5.3%)

Liquid culture and Drug susceptibility testing

Liquid Culture performed	SL DST Conducted	No. of MDR + FQ resistance detected	No. of MDR + SLI resistance detected	No. of XDR detected
353011	16399	3063 (18.6%)	1361 (8.3%)	992 (6%)

Evaluation of CBNAAT performance:

With the scale up and uptake of CBNAAT in the country, it was imperative to review the performance. An independent assessment of CBNAAT machines across India was conducted by IQVAI. 42 districts in 13 States were identified to cover 105 CBNAAT machines spread across 91 facilities. The assessment covered 2 NRLs, 8 IRLs, 24 Medical Colleges, 13 District Hospitals, 22 sub-district hospitals and 22 District TB Centers. The findings of the assessment indicated areas that required strengthening and recommended expansion of facilities to provide rapid diagnostic services.

Capacity Building of laboratory Personnel:

National level training programs are organized for laboratory personnel. The details of the training courses conducted in 2019 are given in the table below. A total of 354 laboratory staff from across the country were trained at the National level.

Training Course	No. of Batches	No. of Personnel trained
First and Second line LPA	4	48
Comprehensive Training Course for Laboratory Personnel	6	67
External Quality Assessment for Sputum Smear Microscopy	4	70
Liquid Culture & DST	2	19
Preventive Maintenance and Minor repair Binocular Microscopes	1	22
DST for Pyrazinamide	4	54
Second line LPA interpretation	4	74

Meetings and Workshops:

Recent developments are deliberated and performance of the National Reference Laboratories reviewed during the NRL Coordination Committee Meetings. Two NRL CC meetings were held in January and June 2019 respectively. A road map development workshop was organized in March 2019, for addressing recommendations of the third party assessment of the laboratory network. Technical issues and recommendations potentially impacting and necessitating policy decisions are taken up in the National Technical Expert Group (Diagnosis). Meeting of the NTEG was held in April 2019. Recommendations by the NTEG were worked upon and deliberated in the subcommittee meeting held subsequently.

Guidelines developed:

The following technical guidelines were developed and hosted in the web portal.

- Guidelines for condemnation & replacement of TB Lab equipment- available on National TB Elimination Programme web site.
- Health & safety Guidelines for staff/ workers involved in the transport of sputum
- Servicing SOPs of key lab equipment (BSC, AHU, Centrifuge, Autoclave)
- Updated Technical Specification for TB Laboratory Consumables

Newer Initiatives

Scaling up CBNAAT EQA

Quality assurance for CBNAAT had been limited only to instrument guided internal controls.

The programme division, with support from FIND India and CDC had 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, Bangalore. In 2019, 664 CBNAAT machines across 622 sites (public and private) participated in the Panel Testing exercise conducted. Analysis of EQA data showed 651 (98%) out of 664 machines have satisfactory proficiency scores (80% or more). All sites in the country are being covered in next phase of Panel Testing.

TrueNAT:

TrueNAT, an indigenous diagnosis platform was validated and field feasibility studies were conducted under the aegis of ICMR, which recommended its use of for diagnosis of TB and for detecting resistance to 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.

Rapid Communication from WHO on "Molecular assays as initial tests for the diagnosis of tuberculosis and rifampicin resistance", issued in January 2020 states that:

- The performance of TrueNAT assays shows comparable accuracy with Xpert for sequential rifampicin resistance detection.
- The TrueNAT assays also show comparable accuracy to the TB-LAMP® assay as replacement tests for sputum smear microscopy.

Augmenting laboratory capacity:

Scaling up Culture and DST laboratory network to 125 laboratories has been envisaged in National Strategic Plan (2017-2025). A network of 81 TB C&DST Laboratories certified by National TB Elimination Programme are currently providing diagnostic services. 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. These laboratories are in preparatory phase for undertaking Proficiency testing for certification.

Under the current grant from Global fund 20 TB Culture & DST Laboratories are being established across the country. Establishment of these 20 laboratories is being supported by FIND, India. Further, 8 TB Culture & DST Laboratories have been sanctioned through State PIP.

Laboratory Information Management System (LIMS):

Programme Division with the support of implementing partner FIND, has developed and is rolling out a Laboratory Information Management System (LIMS) to establish uniformity in laboratory processes across the network to 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 National TB Elimination Programme Network. The software installation is complete at all sites and training of laboratory staff is being carried out. The process of integration with NIKSHAY is underway.

Genome Sequencing Facilities:

Whole Genome Sequencing facilities have been established at 5 sites namely, NTI Bangalore, NITRD New Delhi, NDTBC, New Delhi, GMC

& Sir JJ Group of Hospitals, Mumbai and IRL-STDC, Ahmedabad. In addition, 1 Pyro sequencing facility was established at IRL Guwahati. These machines will initially aid in sentinel surveillance for drug resistance and would further be leveraged to delineate molecular epidemiology, determine hot spots and to study transmission dynamics. Capacity building of laboratory staff to perform sequencing and analysis of data is underway.

NABL accreditation of laboratories under National TB Elimination Programme:

As part of the quality assurance mechanism, TB C&DST laboratories are being supported to achieve the prestigious National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation. 5 laboratories *viz.,* NTI Bangalore, IRL Bangalore, IRL Ahmedabad, IRL-Vizag and TB C& DST Laboratory-Raichur have initiated preparations for NABL accreditation elevan laboratories had been accredited in the previous year, these include 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 1 C & DST Laboratory (SMS Medical College Jaipur). FIND India, provided technical assistance to the laboratories in strengthening Quality Management System (QMS) documentation and implementation following strict adherence to ISO 15189 standards.

Stake holder meeting for laboratories preparing for NABL Accreditation, NTI, Bangalore

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 National TB Elimination Programme. This included two-day TOTs at Bangalore and Agra. Microbiologists from 16 Culture & DST laboratories participated in the ToT course at the NTI, Bangalore 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, Bangalore 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.

Streamlining laboratory services

Laboratories over the years have been supported with consumables, equipment maintenance and human resource by the implementing partner-FIND, India, using grants under the Global Fund. These activities are being transitioned to make the laboratories self-reliable. The following activities have been carried out:

- **Supply of laboratory consumables**

Consumables for CBNNAT, LPA (first and second line) as well as Liquid culture and DST are procured by Central TB Division and provided to the entire network of laboratories under National TB Elimination Programme.

- **Equipment maintenance**

Maintenance contract has been engaged centrally for all CBNAAT machines and is valid for three years (till 2022). Maintenance of all MGIT 960 equipment used for Liquid Culture have been covered under central contract for the current year and additional three-year contracts are being processed. States and UTs are provided budget through their PIP, for maintenance of all other equipment as well as for the local procurement of non-proprietary consumables required by the laboratories.

- **Human Resource**

Five additional positions of Senior Laboratory Technicians have been sanctioned for IRLs as well as C& DST laboratories in accordance to the norms and basis for costing in the NSP. The qualification and experience requirement for laboratory staff have been revised and made more inclusive and increase competition for wider range of eligible candidates. Provision of further increase in positions commensurate with workload has also been made. States also have the operational expenses if the laboratory staff is outsourced.

Networks for Optimized Diagnosis to End TB (NODE-TB)

Assessment of the Networks for Optimized Diagnosis to End TB (NODE-TB) is being carried out through FIND India in Assam, Bihar and Karnataka. This will establish a dataset which will inform and guide the programme in network planning and in optimizing the placement of existing and new diagnostic technologies as well as in designing efficient sample referral mechanisms.

E-training content development

A comprehensive set of e-training modules has been developed for TB diagnostic tests including sputum microscopy, Liquid Culture and DST, LPA and GeneXpert besides related modules on biosafety and equipment maintenance. These will be used for induction as well as refresher training of laboratory staff. 426 pages of multimedia content and 22 procedural videos feature in the training modules. The e-training contents are hosted at Swasth e-Gurukul site of WHO India.

❑

Active Case Finding

CHAPTER 4

Active Case Finding in State Rajasthan

Active Case Finding

CHAPTER 4

Active Case Finding (ACF) 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 consequences, and adverse social and economic effects of the disease.

Active TB Case Finding activities began under National TB Elimination Programme in 2017. In 2019 a total of about 27.74 crore population has been screened yielding 62,958 additional TB cases were diagnosed. Mobile TB Diagnostic Van (80) has been provided to each State for active TB case finding which enables reaching the hard to reach areas for early detection of TB. During Jan – Dec 2019, 32 State/UTs have carried out ACF activities at different time periods in the districts level.

Active Case Finding in Meghalaya

Active case Finding in Tripura

ACF in hard to reach area (Karnataka)

ACF in Bihar

ACF in Meghalaya

Miking for ACF in Auto Rikshow

Treatment Services under National TB Elimination Programme

CHAPTER 5

Hon'ble Minister of Health and Family Welfare is offering drug course of 'All oral longer regimen' to the first patient initiated on treatment on the occasion of launch of 'THDJ campaign' on 25th September 2019

Treatment Services under National TB Elimination Programme

CHAPTER 5

National TB Elimination Program (NTEP) envisages to reach every TB patient for free provision of diagnosis and evidence-based treatment. During 2019, out of the notified TB patients, 94% of TB patients were initiated on TB treatment. As per the current policy, to provide appropriate regimen based on the Drug Susceptibility Test (DST), Universal DST is being offered to notified TB patients (including private sector TB patients) to assess the presence of Rifampicin resistance at the time of TB diagnosis. Based on the DST result, further tests are offered as per the integrated DR TB algorithm, to rule out resistance to other drugs. During 2019, 58% of total notified TB patients were offered UDST. The real challenge in universal drug susceptibility lies with private sector which program is addressing through rigorous engagement of private healthcare providers and by establishment of mechanism like domestic budgeted Patient Provider Support Agency (PPSA) as link between private sector patient/provider and National TB Elimination Programme. As per the result of DST, appropriate change in the regimen is made as per the guidelines for PMDT in India.

1. Treatment of Drug Sensitive TB

Patient once diagnosed for TB, standard first line anti TB regimen in the form of Fixed Dosage Combination (FDC) is provided to the patients immediately after diagnosis, usually from the center where the diagnosis was made or patient is being transferred to the appropriate health facility for treatment initiation especially when place of diagnosis is different than the place of the TB patient's residence (eg. Mobile or migrant population). Digital surveillance system NIKSHAY allows for tracking of TB patients referred or transferred out from one health unit to another one within different geographical locations.

National TB Elimination Programme has expanded free access of anti-TB drugs to the patient seeking care in private sector through various mechanisms including PPSA. For patients who are unaware about nearest diagnostic or therapeutic facility, National TB Elimination Programme utilizes services of call center for patient guidance and linkage with appropriate public health facility for early patient management. (Toll free TB helpline number under National TB Elimination Programme: 1800-11-6666)

Free medical check-up with labourers in Nagaland

Policy decision on change in weight band for FDCs:

As per the recommendations of the Technical Expert Group (NTEG) on Treatment of TB and Technical expert group on Paediatric TB, weight categories for use of FDCs in adult are revised

to ensure optimal dosage for the patients in each weight categories as recommended by WHO.

The revised weight bands for standard first line regimen for TB in adults is as given below:

Weight Category (2019)	Number of Tablets (FDCs)	
	Intensive Phase - 4FDC (HRZE) 75/ 150/ 400/275	Continuation Phase -3FDC (HRE) 75/150/275
25-34	2	2
35-49	3	3
50-64	4	4
65-75	5	5
>75Kg*	6	6

*patients >75 kg may receive 5 tablets/day if they do not tolerate this dose

Policy decision to expand the age group to be treated with paediatric dosage

A TB patient up to 18 years of age & weight <39 kg receive treatment as per the dosages prescribed for children. It is a general guiding principle for treatment of both drug sensitive and drug resistant TB.

Performance and Achievement in 2019 (Drug Sensitive TB)

For the first time in the history of TB program implementation, total TB case notification during 2019 has crossed 24 lakhs which include 6.79 lakh cases notified from the private sector and 17.3 lakh notified from the public sectors. Among the above, 16.8 (94%) and 5.9 (95%) patients were initiated on treatment in public and private sector respectively.

During 2019, 1088 private health facilities had used 58,330 4 FDC and 91,159 3 FDC blisters of free drugs for private sector TB patients treatment. The 'free provision of diagnostic and drugs' is expected to reduce the out of pocket expenditure among TB patient and their families.

During 2018, 15,66,623 TB patients in Public Sector and 4,82,894 TB patients in Private Sector have been initiated on first line standard treatment, of which, treatment outcome has been reported in NIKSHAY online portal for 96% (Public Sector) and 78% (Private sector) TB patients respectively. Overall treatment success rate of 81% has been accomplished among the total initiated on treatment, with in public and private sector have reported 84% and 71% respectively. Among 9,61,203 microbiologically confirmed pulmonary TB patients initiated on treatment during 2018, overall 67% cure rate was observed.

Death rate and lost to follow-up rate have remained unchanged at 4% with 1% failure rate. One percentage of patient has reported change in the regimen as treatment outcome for their first line treatment.

Various ICT enabled adherence monitoring mechanisms was offered in the country to TB patients during 2019 - 99 DOTS (2,65,020), MERM (7272) and ZMQ (199).

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 Line Probe Assay (LPA) was introduced in 2009 and subsequently CBNAAT in 2012 and both

technology got scaled up to 64 LPA labs, 1180 CBNAAT sites and 350 TrueNAT sites till the end of 2019.

With the aim to bring drug resistant TB treatment close to TB patient's residence, DRTB treatment services are decentralized to district DRTB centers by implementation of Guidelines for PMDT in India 2017. By the end of 2019, 711 DR TB centres have been made functional which include 154 Nodal DR TB centres to offer decentralized DR-TB treatment services. This decentralization will empower districts to enable the "test and treat approach" to minimize delays in diagnosis and treatment, reduce cost of travel and expedite early care of MDR/RR-TB patients within their respective district.

Major initiatives and policy decisions for drug resistant TB:

- **Introduction of injection free regimen for MDR RR TB patients in 2019**

National TB Elimination Programme has envisaged to have injection free regimen for all TB patients (including Drug Resistant TB patients). After implementation of all oral H mono/poly DR TB regimen, all oral longer regimen was introduced during 2019. As per the recommendations of National Technical Expert Group (NTEG) on Treatment of TB, all Multi Drug Resistant /Rif Resistant (MDR RR) TB patients those who are not eligible for Shorter MDR TB regimen, an all oral longer regimen have to be prescribed as per the Guidelines for Programmatic Management of Drug Resistant Tuberculosis(PMDT) in India-2019 (Pre-final text). Appropriate modification in the drug composition of all oral regimen, based on the DST result, is being carried out to ensure appropriate regimen is prescribed to the MDR RR TB patient. After introduction of all oral longer regimen, the sole regimen which contains injectables is Shorter MDR TB regimen and rest all are injection free regimen even for XDR TB patients.

- **Expansion of Delamanid use in 6 to 17 yrs of age group**

After successful implementation in initially selected 7 States/UT's (Chandigarh, Kerala, Karnataka, Lakshadweep, Orissa, Punjab & Rajasthan) for adult MDR RR TB patients, the access has been expanded to the rest of the states in the country especially for the eligible patients in 6 to 17 years of the age-group. 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.

- **Gazette notification on mandatory provision of DR TB services in all medical colleges**

Gazette notification has been issued by Government of India on 27th June 2019 regarding amendment (2019) in 'Minimum Standard Requirement for 50/100/150 MBBS Admissions Annually Regulation, 1999' which specify that "Every College should have Anti-Retroviral Treatment (ART) Centre and facility for management of MDR-TB at the time of 4th renewal for admission of 5th Batch of MBBS students". As per this amendment each Medical College at the time of 4th renewal for admission of 5th batch of MBBS students, the institutes will need facility for management of MDR TB patients.

Performance and Achievement in 2019 under PMDT (Drug resistant TB)

During 2019, 66,255 MDR/ RR TB cases were diagnosed and 56,569 (85%) of them were put on treatment, of which, 40,397 (71%) of patients were initiated on shorter MDR TB regimen at the time of diagnosis of MDR or RR. National TB Elimination Programme has seen improvement over 2018 (79% were put on treatment and only 35% were initiated on shorter MDR TB regimen). H mono/poly patients diagnosed were 16,067 and put on treatment were 13231 (82%).

Based on the second line DST results and other eligibility criteria, 5774 (39%) were initiated on newer drug containing regimen out of 14911 MDR TB patients found eligible for newer drug containing regimen; majority were initiated on Bedaquiline (5513 patients) while 264 on Delamanid containing regimen.

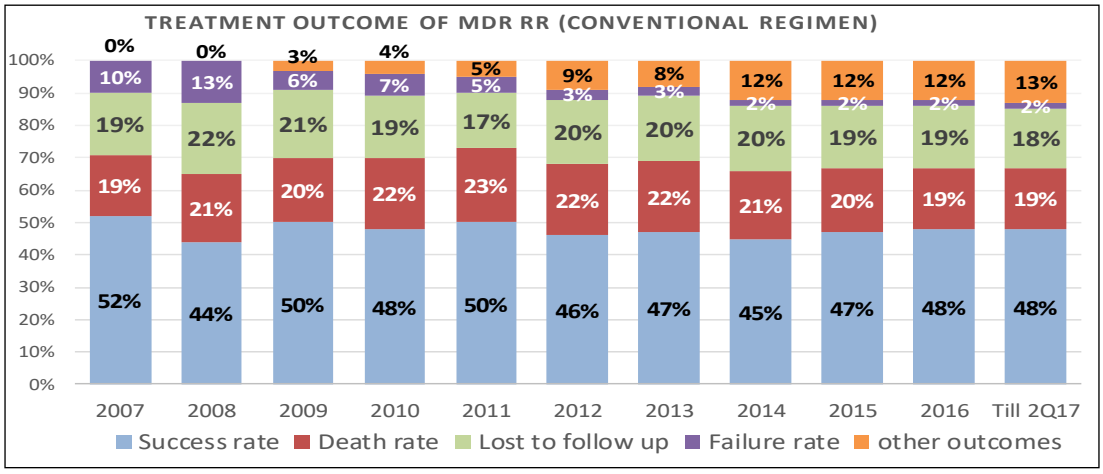
Till the end of 2019, Guidelines for PMDT in India 2019 (Pre-final text) has been rolled out in 8 states where 1738 patients enrolled on all oral longer regimen.

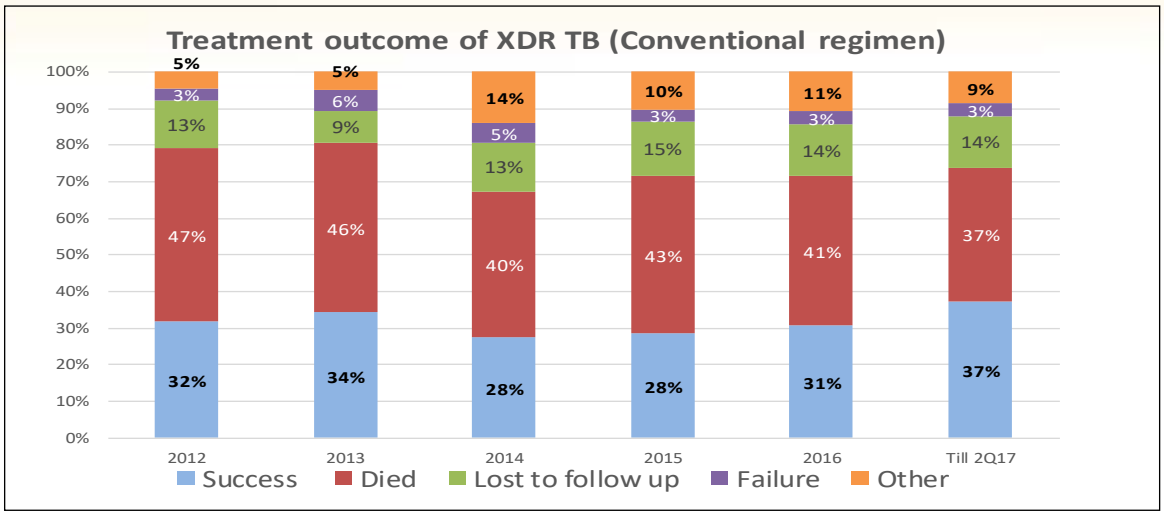
Smear negative status at 4th month for the patients initiated on shorter regimen during (3Q18 to 2Q19) was reported up to 59% while for patients on H mono/poly regimen it was 78% for same period.

Treatment outcome of patient initiated on DS TB (New / Retreatment), shorter MDR TB and H mono/poly regimen during 2018 is placed in table below.

Type of case/ regimen	No. of patients enrolled on treatment in 2018	Success rate	Death rate	Lost to follow up	Failure rate	Regimen changed	Not evaluated
DS TB (New/ Retreatment)	2049517	81%	4%	4%	0.7%	0.8%	10%
Shorter MDR TB	16311	60%	11%	13%	2%	12%	2%
H mono/poly	6189	76%	7%	12%	2%	2%	1%

Trend of treatment outcomes of patients enrolled on conventional MDR RR TB and Conventional XDR TB regimen is described in charts below.





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

The Saksham Project of Tata Institute of Social Sciences (TISS) has been providing psycho-social counselling to DR-TB patient and caregivers through Saksham DR-TB counsellors, based on the social structural approach to disease prevention and control in Mumbai, Maharashtra, Gujarat, Karnataka and Rajasthan. The Saksham Project is currently in the second phase of Global Fund Grant and has a network of 214 professionally trained 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 socio-economic 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.

In 2019, Saksham DR-TB counsellors have counselled 93% of the patients within 15 days of diagnosis for early treatment initiation. Understanding the importance of involving caregivers as partners in treatment completion, 90% of the registered patients' caregivers were also registered and counselled. Within initial 3 months of treatment, each patient received 1 treatment initiation counselling session. Saksham counsellors are alert about any instances of treatment interruptions and out of the total treatment interruption instances, 77% patients were counselled and were retrieved back on regular treatment. With social protection scheme linkage being one of the major thrusts of Saksham counsellors, they have successfully linked 3536 patients and their household members to various government schemes and arranged nutrition support service to 1694 patients through private donors and NGO's.

Challenges and Way Forward:

Significant achievement has been observed under National TB Elimination Programme in last couple of years on various front, however, the country continues to face major challenges in rapid reduction in incident TB cases. National TB Elimination Programme misses 10% of

estimated DS-TB and 50% of estimated DR-TB cases. National TB Elimination Programme would like to address the following challenges and areas with focussed interventions:

- Increase access to molecular diagnostics upfront for TB detection for the presumptive TB patient including patient seeking care in private sector. A major hindrance in detection of DS/DR-TB patients is poorly established specimen collection and suboptimal transportation systems, which adversely affect National TB Elimination Programme's universal drug susceptibility test (UDST) coverage as well as first-and second-line DST. There are efforts being made to link sputum transport with India Postal services, however, many innovative interventions are required at ground level to address the existing gap.

- Individual Patient tracking post-referral or post-transfer of the patients for TB treatment initiation, both in public and private sector, is one of the major areas where the programme is missing significant proportion of patients to be initiated on treatment once notified to National TB Elimination Programme. Migration, mobile population and border areas require strong surveillance system with rapid actionable intelligence for reducing initial loss to follow up patients.

- A set of the services are to be offered under the umbrella of Public Health Action following TB notification especially for the private notified TB patients: With rapid improvement of TB notification, there is a need for addressing human resource capacity, efficiency of existing public health system, and better coordination as well as feedback mechanisms between public and private sector are essential. Review of these activities at all level are also essential to support new patient support system initiative like PPSA.

- Realtime monitoring of TB patient's treatment adherence is essential to offer on time patient counselling and treatment continuation if the patient missed any dosage. Remote and digital adherence monitoring has to be backed up by the physical visit to the patients as per National TB Elimination Programme program guidelines.

- To check early identification of side effects of anti-TB drugs: To assist patient in constant treatment adherence during entire duration of treatment, monthly clinical follow up and periodic counselling are needed. It also helps in identifying & managing adverse drug reactions (ADRs) and establishing linkages with higher referral centres to manage them continue to be suboptimal. Active Drug Safety Monitoring and Management (aDSM) has helped the program to build its capacity in managing and reporting ADRs, however, there is a need to strengthen a DSM systems at the district and block levels.

- Effective utilization of patient wise information being capture under Nikshay by the providers for a patient management in addition to the purpose

of reporting: Optimum utilization of call centre (Nikshay Sampark) services to reach out to the patients for dissemination of essential information and to their provider for pending task, are some important intervention programme is planning for.

- Addressing social determinants of TB like poverty, malnutrition, ventilation, stigma & belief:
- Linkages with social schemes and the Nikshay Poshan Yojana will be beneficial to promote patients adherence to treatment.

Creative for Social Media Nikshay Sampark

❑

CHAPTER 6

Adopation of girl having TB by Hon'ble Governor Uttar Pradesh

TB Co-morbidities

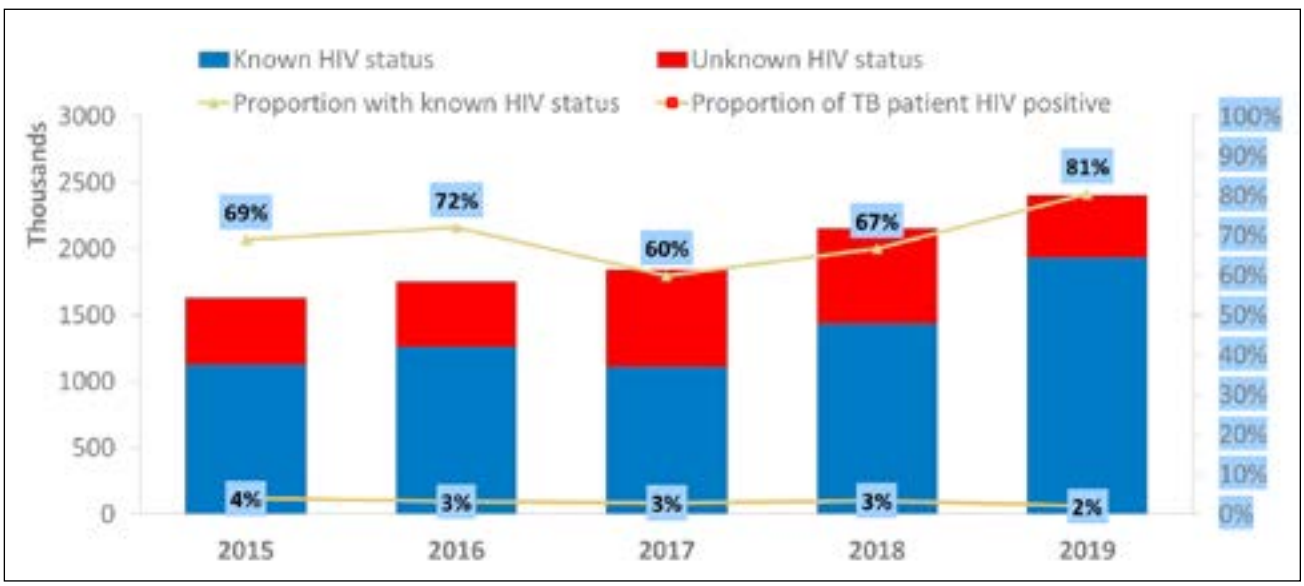
CHAPTER 6

TB HIV Collaborative Activities:

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 twenty-one times at higher risk of developing TB. TB-HIV co-infection results in higher mortality rates and nearly 25% of all deaths among PLHIV are estimated to be due to TB. The TB-HIV collaborative framework is being successfully implemented since 2001 and learning from the success of this initiative has been expanded to form TB-comorbidity committees at all levels. The HIV co-infection rate among incident TB patients is estimated to be 3.4%. Total 92,000 HIV- associated TB patients have been estimated annually. By numbers, India ranks 2nd 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 9,700 people die every year among TB/HIV co-infected patients.

The Single window delivery of TB and HIV services is being successfully implemented for all People Living with HIV in the ART centers, where in intensified case-finding through screening all ART centre attendees for TB, offering rapid molecular testing to symptomatic and ICT adherence-based daily FDC anti-tuberculosis treatment, Tuberculosis therapy for TB prevention and Airborne Infection control activities in HIV care settings are being carried out.

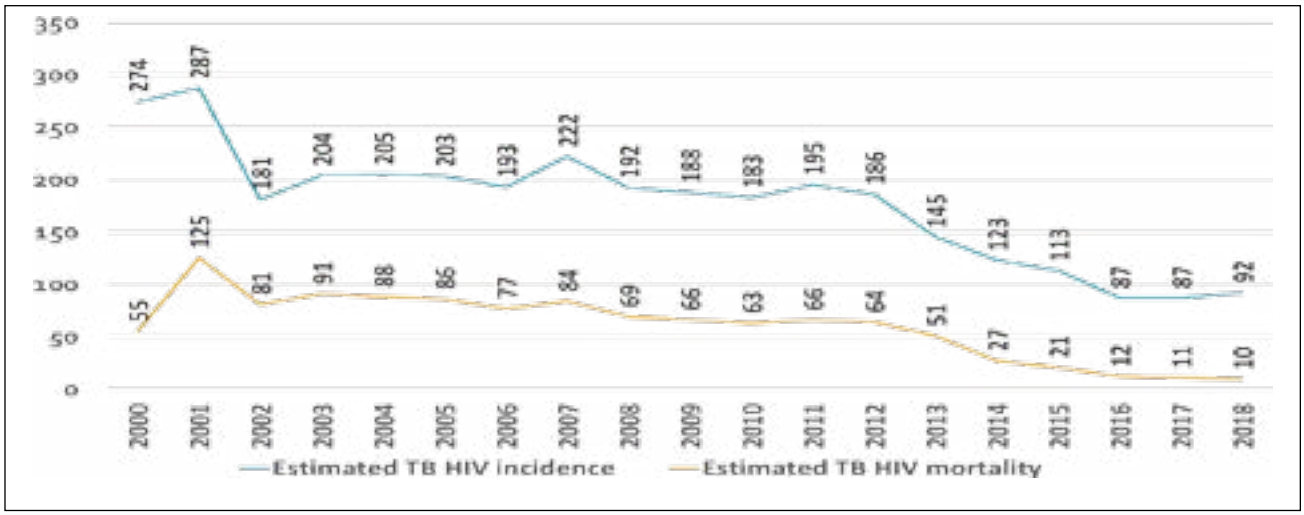


Progress

Over 93% of PLHIV visiting the ART centers every month were interviewed about any existing TB symptoms, nearly 2.4 lakh PLHIV were given access to rapid molecular testing via CBNAAT for TB diagnosis, more than 46,000

TB/HIV patients were initiated on daily drug regimen across the country and nearly 4 lakh PLHIV were initiated on TB preventive therapy in 2019. These interventions along with the joint collaborative activities helped in reducing TB related fatalities by 85% (baseline2010) among People Living with HIV (PLHIV) thereby meeting the 2020 END TB target.

Annual trend of TB-HIV burden for India (2001-2018)



Year wise treatment outcome of TB HIV co-infected patients 2010-2018

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	778	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%
2018	36510	73%	11%	1%	5%	8%	1%

TB-Diabetes:

Background

As a consequence of urbanization as well as socio-economic development, there has been an escalating epidemic of Diabetes Mellitus (DM) with a prevalence of 7.8%. of population

be Diabetic Available evidence and modeling studies indicate that nearly 20% of all TB cases in India also suffer from DM. Diabetes triples the risk of TB. Diabetes can worsen the clinical course of TB, and TB can worsen blood sugar control in people with diabetes.

The National TB Elimination Programme (erstwhile Revised National TB Control Programme) and the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) have jointly developed a 'National Framework for Joint TB-Diabetes Collaborative Activities' in 2017. The framework aims to reduce morbidity and mortality due to TB and diabetes through prevention, bi-directional screening for early diagnosis and prompt management of TB and Diabetes, Accordingly, all TB patients need to be screened for Diabetes by testing for Blood sugar, and Diabetic patients attending Diabetic clinics should be asked for symptoms of Tuberculosis during each visit.

Achievement

As a result of the implementation of TB-Diabetes collaborative framework, nearly 72% of the Designated Microscopy centers under National TB Elimination Programme are now co-located in Diabetes screening facility. Between April 2019 to September 2019, 11% of the NCD clinic attendees under NPCDCS have been screened for Tuberculosis, as compared to 6% in Apr18-Mar19. Among those screened for TB, referral for TB testing have increased from 13% in Apr18-Mar19 to 14% in Apr-Sept 2019. The performance has improved across most States. In 2019, among the notified TB patients under RNTCP, 64% had their Blood sugar screened. Among all TB patients screened, 7% were TB-Diabetes co-morbid and 52% among these were linked to Diabetic treatment.

TB-Tobacco

Background

India is the second-largest tobacco consumer in the world and the third-largest producer of tobacco after China and Brazil (FAO, 2005). 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.

The use of smokeless tobacco is much more prevalent than smoking tobacco. The prevalence of smokeless tobacco use (26%) is almost twice the prevalence of smoking tobacco (14%). Five **percent** of adults use both, smoking as well as smokeless tobacco. The prevalence of tobacco use (both smoking and smokeless forms) is higher in rural areas as compared to urban areas. The women use mainly the chewing forms of tobacco (smokeless). A study conducted in 2004 using health care data from **the** National Sample Survey Organization (NSSO), estimated that the Tobacco - attributable cost of TB was three times higher than the expenditure on overall TB control in the country.

National TB Elimination Programme 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 the establishment of collaboration mechanism, identification of tobacco users among TB patients and the provision of brief advice, TB symptom screening among all **Tobacco cessation setups** and linkage to services and awareness generation activities. 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). The programme has set up TB-comorbidity committee at National, State and District levels on the lines of TB-HIV committee to build the capacity of all stakeholders, establish and streamline recording & reporting mechanisms and strengthen the collaboration.

Progress

Under National TB Elimination Programme nearly 57% of the notified TB patients had their Tobacco usage status known and 14% (1,92,107) were found to be tobacco users. Among those using tobacco, 24% (46,515) were linked to Tobacco cessation centres, in addition to brief advise being provided to all TB patients.

The TB Tobacco cessation service programme is being implemented in all States/UTs of the country with focused activities in 2 districts in each of the 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). In these districts, 83% of the Tobacco cessation centre attendees were screened for TB symptoms and 9% were referred for TB testing.

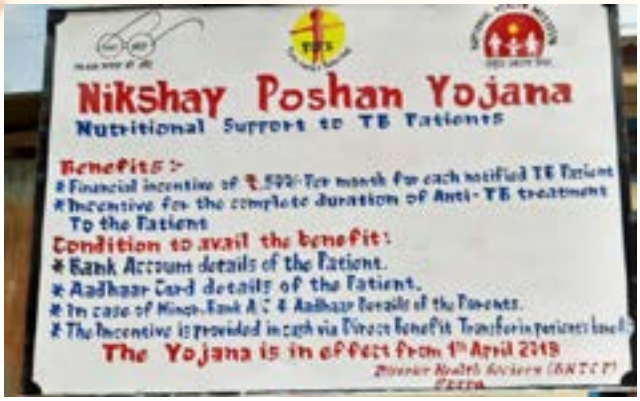
TB-Nutrition

Background

Undernutrition is a strong risk factor for developing TB and contributes to an estimated 55% of annual TB incidence in India. It is known to adversely affect the immune system, fasten the progress of disease from infection and predispose to poor outcomes. The catabolic effect of TB results in weight loss and wasting, worsening the malnutrition. So, considering that malnutrition can increase the vulnerability to the disease, optimum nutrition support is important for a patient with TB.

WHO has made nutrition screening, assessment and management as integral components of TB treatment and care because of the clear bidirectional causal link between undernutrition and active TB. An adequate diet, containing all essential macro- and micronutrients, is necessary for the well-being and health of all people, including those with TB infection or TB disease.

Celebration of Poshan Maah at Anganavadi (Karnataka)



Wall Painting on Nikshay Poshan Yojana in Arunachal Pradesh

Studies have shown that patients who receive food supplements during TB treatment tend to gain more weight compared with those not receiving food supplement. Undernutrition is an important modifiable risk factor for TB at the population level. From earlier days to recent times, nutritional supplements to TB patients have not only shown weight gain, but also shorten time to sputum conversion, higher cure rate and lower relapses.

WHO in their recent guidelines (Dec-2013) framed five key principles to follow on nutrition: (1) All people with active TB should receive TB diagnosis, treatment and care according to WHO guidelines and international standards of care (2) An adequate diet, containing all essential macro- and micronutrients, is necessary for the well-being and health of all people, including those with TB infection or TB disease (3) Because of the clear bidirectional causal link between undernutrition and active TB, nutrition screening, assessment and management are integral components of TB treatment and care (4) Poverty and food insecurity are both causes and consequences of TB, and those involved in TB care, therefore, play an important role in recognizing and addressing these wider socioeconomic issues (5) TB is commonly accompanied by comorbidities such as HIV, diabetes mellitus, smoking and alcohol or substance abuse, which have their own nutritional implications and these should be fully considered during nutrition screening, assessment and counselling.

In order to address this significant risk factor, the "Guidance document on nutritional care & support for patients with TB in India" was developed by Central TB Division and released on the occasion of World TB Day 2017.

Achievement

Government of India has committed 600 crore INR for the provision of nutritional support of Rs. 500 per month as Nikshay Poshan Yojana to all TB patients to all TB patients through direct benefit transfer into the bank account of the beneficiary. Nearly 38 lakh beneficiaries have been paid incentives totalling more than Rs 553 crores till December 2019.

In order to facilitate the implementation of the technical aspects of the nutritional assessment and appropriate supplementation, the Nutrition-TB App (N-TB app) has been developed by CTD with the support of various organizations/partners. It is a tool for health care workers to calculate BMI of TB patients, know how to counsel patients and choose the appropriate food items as per their BMI and to improve BMI while on treatment and later.

The Central TB Division, MoHFW, GoI is collaborating with the National Nutrition Mission in carrying out awareness activities on effects of Nutrition on TB and vice versa, as part of the Poshan Pakhwada from 08th to 22nd March and Poshan Maah celebrations in September. Various awareness activities using mass-, mid- and social media, community meetings, Joint sensitization programs, exhibitions and rallies had been carried out in

Awareness on Goverment Incentives in Arunachal Pradesh

Celebration of Poshan Maah at TU GAJENDRAGADA

all States of the country.

TB and Gender

Background

Gender differences and inequalities play a significant role in how men and women access and receive healthcare in the public and private sectors.

Although more men are affected by TB, women experience the disease differently. Gender is a significant influencer of the epidemiology, risk factors, probability of diagnosis, access to health care, treatment adherence and overall impact of TB on communities.

India is one of the first countries to adopt the Communities, Rights and Gender Tools developed by the Stop TB Partnership. This is in line with the programs efforts to engage civil society 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.

Interacting with TB patient

Interaction with School Girls on TB at Koppal, Karnataka

Progress

National TB Elimination Programme has developed a National Framework for Gender-Responsive approach to TB in India to adopt and implement a gender-responsive approach to TB in India. The framework aims for equitable, rights-based TB services for women, men and transgender persons by adopting a gender-specific programmatic approach at all levels and to mobilize, empower and

engage women, men and transgender persons in the TB response at the health system and community levels. The programme would be building the capacity of all stakeholders in the implementation of the framework and ensuring its monitoring. Moreover, the budget for NTEP includes gender component and nearly 36% allocation under gender budget for the programme.

TB and Pregnancy

Background

Women of reproductive age group (15-49 year) bear a significant burden of TB in India and globally. India had an estimated 44,500 pregnant women with TB in 2011 and contributed to 20.6% of the global burden of TB among pregnant women.

TB among pregnant women can adversely affect the health of the mother, fetus, neonate, and their children with a wide spectrum of short and long-term implications. TB in pregnancy could have serial and sequential effects: repeated reproductive failure, fetal ill-health, preterm delivery, and TB of the newborns and infants, leading to high maternal and perinatal morbidity and mortality.

Awareness drive among pregnant women at Primary Health Center

Progress

National TB Elimination Programme and Maternal Health division has developed a framework with strategies to reduce morbidity and mortality due to TB in pregnant women and newborns through prevention, screening for early detection and prompt management of TB in pregnant women and achieve optimum at natal and perinatal outcomes. The programme would be training all health care workers in effective implementation of the framework.

Childhood Tuberculosis:

Background

Paediatric Tuberculosis (TB) is one of the ten major causes of mortality globally among children (population age less than 15 years). Globally, in 2018, an estimated 11 lakh children became ill with TB and 2,50,000 children died of TB (including children with HIV associated TB). In India, about 3,42,000 incident cases of paediatric TB are estimated to occur every year accounting for 31% of **the** global burden and 13% of the overall TB burden in the country.

Awareness to prevent Childhood TB at School

Guidelines on Paediatric TB management in India have been updated with the support of **the** Indian Academy of Paediatrics and other stakeholders. Recently, the Central TB Division has signed a Memorandum of understanding with Indian Academy of Paediatrics (IAP) in October 2019 to build capacity in Public and Private sector through 300 district level **training** and to notify TB cases and offer public health action for TB case management in children less than six **years** of age.

Progress

The proportion of paediatric TB cases registered under National TB Elimination Programme has been constantly increasing in the past five years. In 2019, a total of 1,51,286 paediatric TB patients (only 44% of estimated) were notified in India, which included new and relapse paediatric TB patients.

Trend of Paediatric TB cases out of all New TB cases under National TB Elimination Programme

Contact Tracing and Chemoprophylaxis

Under the programme, contact screening is undertaken as a regular activity to augment intensified case finding efforts across the country. All household members who are contacts of the family member suffering from active TB disease are screened for TB and the children less than 6 years of age among those are provided isoniazid (INH) chemoprophylaxis once active TB has been ruled out amongst them. Widespread implementation of this activity is being done with support from the general health system. Reverse contact tracing with the Paediatric index TB case is carried out to identify the source of infection.

Nearly 4 lakh household contacts <6 years were screened for TB as part of household contact investigation in 2019. Among the child household contacts nearly 4.2 lakhs contacts (78%) of TB cases aged less than 6 years were offered preventive therapy in 2019.

❑

Supervision, Monitoring & Evaluation

CHAPTER 7

Hon'ble Minister of State invited for the talk on TB in New India Sankalp at Doordarshan on 12th February 2020

Supervision, Monitoring & Evaluation

CHAPTER 7

Introduction

Regular monitoring and review of the programme interventions is an essential component to control the disease. Supervision and monitoring activities 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 collection and analysis of data (information) to determine programme performance. Monitoring and Evaluation are required to better manage policy, programme, and project implementation better. Program Indicators are essential part of a monitoring and evaluation system. 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 all 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
- UDST status
- Treatment adherence/ compliance of the patient
- TB comorbidity status
- Treatment outcome
- Direct Benefit Transfer of Nikshay Poshan Yojana, Tribal patient incentive to private provider

For Supervision and Monitoring, 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. Regular program performance review of the State program managers by the Senior Officials of the MoHFW [Secretary – Health, SS & DG (National TB Elimination Programme & NACP), JS (National TB Elimination Programme), DDG-TB]
6. Special Central team visits to provide supportive supervision and technical assistance in implementing special interventions
7. NRL and IRL visits by CTD officials
8. State and District Review meetings to monitor Program Performance
9. District TB officers (DTOs) review

List of Monitoring &Supervision activities undertaken during the year 2019:

Activity	Number
Joint Monitoring Mission	1
Regional review meeting – National TB Elimination Programme	4
Central Internal Evaluations	7
Lab supervisory visits	4
States supervisory visits for programme review with DTOs	4
TB Comorbidity supervisory visits to States	8

Joint Monitoring Mission:

The Joint Monitoring Mission is conducted once in every 3 years by WHO along with Central TB Division, MoHFW with the aim to assess the Programme's effectiveness to TB prevention and control to identify the gaps in the implementation of the present Programme and to make recommendations for needed improvements in the Programme's implementation as well as for future strategic planning of TB prevention and control activities.

The 7th Joint monitoring Mission was conducted between 11th to 22nd November, 2019 (12 Days) with around 207 participants from World Health Organization, USAID, Global Fund, The Union, World Bank, Bill & Melinda Gates Foundation, other International and National experts from technical agencies, developmental agencies, national institutes, medical colleges civil society and community organizations.

The team visited 11 districts in 6 States identified gaps and provided solutions to address the gaps and to improve the performance of the State in moving towards to TB Elimination in the State and Country to the top echelons of the State and Country.

Number of Countries participated	10
Number of days of mission	12
Number of States visited	6
Number of Districts visited	11
Number of participants	207

Recommendations:

1. Mount the TB elimination campaign with high level accountability
2. Provide urgent reinforcements to the existing workforce, with commensurate financial support
3. Rapidly scale-up quality private provider engagement
4. Move to full community participation and ownership
5. Invest in TB surveillance Units to enable data for action
6. Deploy new precision diagnostic tools for accelerated progress
7. Support patients throughout treatment, using a people-centered approach
8. Re-design and pursue targeted active case finding and contact investigation
9. Deploy and evaluate ambitious plans to implement TB preventive treatment (reach 5 million/yr by 2021)
10. Invest in research to develop new tools, and deploy

Regional 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, 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.

Regional Review Meeting West Zone

Regional Review Meeting North Zone

Regular monitoring of the States is being done through review meeting planned at both the State and the Central level. In addition to the annual one-time review meeting of all the states which was being done at the national level involving the State TB officers, Directors – STDC, IRL/ NRL microbiologists and WHO consultants, Regional level review meetings have been initiated so that focussed and concerted attention can be given and appropriate action can be planned. All States have been grouped under the 5 regions namely North, East, North east, West & South. In order to suggest solutions to the administrative and financial issues faced by the States, a special session with the Mission Directors (NHM) of all participating States/ UTs under the chair of Special secretary/ Joint secretary was done to resolve administrative issues .

Name of the Region	Number of States/ UTs	Date of the event
West	7	January 2019
East	5	March 2019
North	8	April 2019
North East	8	May 2019

State TB Score

The Central TB Division assesses the States' achievements and performance are compared with 9 key indicators using the State TB Score. The States are grouped into 3 categories viz: Union Territories, Population less than 50 lakhs & population more than 50 lakhs.

STATE TB SCORE INDICATORS
TOTAL SCORE 100

Indicator	Numerator	Denominator	Weightage
% of target TB notification achieved	Total notified	target	20
% of TB notified patients with known HIV status	Known HIV status	Total notified	10
% of eligible TB notified patients with UDST done	Tested for Rifampicin	70% of total notified	10
Treatment Success Rate	Successful outcome	Notified 12 months prior	15
% of eligible beneficiaries paid under Nikshay Poshan Yojana	Payment made	Eligible beneficiaries	10
% of diagnosed MDR patients initiated on treatment	Put on treatment	Total diagnosed MDR RR	15
% of eligible contact children (< 6 years) given chemoprophylaxis	Initiated on chemoprophylaxis	Children <6 year- those who are initiated on TB treatment	5
% of eligible PLHIV given IPT	Initiated on IPT	No. of PLHIV among whom active TB has been ruled out	5
% of expenditure amongst the approved ROP of the State (FY 2019-20)	Expenditure in PFMS	ROP for reporting period	10

The best performing States under each category was identified and rewarded during the "TB Harega Desh Jeetega" campaign launched by Hon'ble Health Minister on 25th September 2019.

The Best Performance award was given to the following States/ UTs:

- Himachal Pradesh
- Gujarat
- Tripura
- Sikkim
- Puducherry
- Daman & Diu

Central Internal Evaluations

Internal Evaluation forms an integral component of National TB Elimination Programme 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 Central Internal 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.

States in which CIE has been Conducted	Month	Date
Uttar Pradesh	Jan	14-18
Rajasthan	Mar	25-29
Maharashtra	May	6 to10
Bihar	July	1 to5
Madhya Pradesh	Aug	26-30
Chandigarh	Aug	21-23
West Bengal	Dec	9 to 13

DTO Review Meeting

In addition to the Central Internal Evaluations, a two-day intense review of the States was done to provide guidance to the States.

Review Meeting of DTOs in Jharkhand

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.

States in which DTO review meeting was chaired by CTD	Month	Date
Bihar	July	04 & 05
Gujarat	August	01 & 02
Tamil Nadu	September	12 & 13
Uttar Pradesh	December	17

Data Validation Protocols

Nikshay, National TB Elimination Programmes IT based information/ patient management system, has addressed the information/ data related challenge by becoming a comprehensive record of all patients' TB related information, including Direct Benefit Transfers, implemented across the country for providers in all sectors and constantly aligning itself with the latest changes in guidelines and operational processes.

Nikshay takes up the load of internal data validation at the time of data entry by the user; using a number of protocols and algorithms. Efforts are also underway to collect data directly from electronic devices and external portals which would further minimize erroneous data from entering the system. Reports are calculated automatically based on data entered into the system. Thus, validation is required only at the data source.

Data Validation protocols are being developed so as to ensure data accuracy among the recorded data. ❑

CHAPTER 8

Joint Secretary (NTEP), DDG (TB) and Addl. DDG (TB) addressing Health Journalist in Media Sensitization Workshop on 12th February 2020

Nikshay & TB Surveillance

CHAPTER 8

The Nikshay Ecosystem: Patient and Information Management System

Introduction

Information Communication Technology (ICT) plays a key role in delivering good quality and timely information which is critical for effective program management. In the endeavour to End TB by 2025, several components of the program have been fast-tracked for the benefit of the patients. The National Strategic Plan (NSP) 2017 and the Revised Technical and Operational Guidelines 2016 are significant for the rapid uptake of new strategies, diagnostic tools and treatment regimen. This fast-tracking of programme components has led to an exponential increase in quantity and complexity of information that the program requires to manage. Nikshay is the National TB information system which addresses this requirement by being a one-stop solution to manage information of patients and monitor program activity and performance throughout the country.

In the paper-based transmission of information, a systematic delay was present (even up to more than a year) for data to reach higher reporting levels such as Centre and State.

In 2012, the first effort was made to obtain case-based information of all TB Notified (~Treatment initiated) cases. Thus, Nikshay (Hindi: Ni-Kshay; Ni meaning end of or without, and Kshay meaning TB) was born. Nikshay digitised the TB register which was maintained at the Tuberculosis Unit level (TU), for all TB cases initiated on treatment within the TU. This allowed patient wise granular information to be available at all levels of the higher reporting hierarchy and use it simultaneously for monitoring and evaluation. Later in 2014, Culture and Drugs Susceptibility Testing (CDST) and Drug Resistant Tuberculosis (DRTB) registers were also included as DRTB related components. The same year a digitised private sector notification register was also developed.

Nikshay achieved national scale-up and adoption in 2016. This system allowed program managers at any level to access individual patient-level information and verify them on-demand while being located anywhere. At the time, while Nikshay was an upgrade over the earlier aggregate system, data entry was still delayed as input was centralised at TU level, individual persons could not be tracked over many episodes of TB, and patient movement between TUs at any level resulted in duplication of work. The system also was unable to track records of all TB Diagnosed cases in time.

In 2018, leveraging the latest ICT tools and incorporating on going developments in the program since 2012, a new upgraded version of Nikshay was built. This third-generation TB information system, Nikshay V2, integrates the earlier discrete data sets of the public and private sector, DSTB and DRTB cases and an inbuilt integration of ICT based adherence technology into one single patient management system capable of tracking a patient throughout the life Cycle journey approach using the Person-Episode concept.

In addition, the system also has the ability to assess eligibility of various government monetary and in-kind benefits and make transactions of benefits through Public Financial Management System (PFMS), a Central Government Finance management payment engine. This version also allowed data entry from the point of care at the Peripheral Health Institutions (PHI) level and further decentralised access points to individual treatment and care providers who support patients directly. To improve access, the mobile app android version is made available on Google Play Store for download. This new version, dubbed Nikshay Version 2 has had a rapid countrywide roll out in September 2018.

Functions and Use of Nikshay

The Nikshay serves as a National TB Patient Information management tool for all sectors and for all types of patients. Programme staff manages information of each patient throughout the patient lifecycle related to

a. Testing (Diagnosis & follow up)
b. Treatment initiation
c. Public health action (Contact tracing, comorbidities)
d. Adherence monitoring
e. Outcomes
f. Transfer and referral for testing

It acts as a Surveillance tool under National TB Elimination Programme: The entire TB care cascade referral for testing & notification, outcome declaration and all drop out events, are tracked and monitored.

It helps in Digital Adherence monitoring. ICT based self-adherence reporting can be monitored through the system.

Nikshay performs Direct Benefit Transfers. For the provision of Government benefits to the patients, according to eligibility, various schemes get transferred to relevant beneficiaries through integration with Public Financial Management System (PFMS)

It helps in the management of staff, health facilities and reporting hierarchy.

It is like an MIS Reporting tool. Based on various monitoring parameters, Nikshay supports the attainment of various milestones in the patient

lifecycle (e.g. Universal Drug Susceptibility offered is counted when a molecular resistance test for the Rif is added to a patient) and shows various reports to the program managers at TU, District, State and National level.

Nikshay provides a National Data repository of TB information for advanced analytics: Since the Nikshay Dashboard contains a wealth of data concerning each TB patient, it provides an unlimited potential for analysis of data and generating insights into TB epidemiology and program functioning.

Ensuring Data Quality through data transaction systems

The transaction data model enables iterative collection of information by the users who generate it at the point of generation. The actors in the system are lined up in such a way that the next iteration of information requires validation/agreement within users about existing data and update for the next user to act on. Data is validated and corrected by the users themselves through the interface within certain rules and framework, leading to an organic increase in the quality of data.

In addition to such organic data validation and self-correction, there is another layer of data validation at the supervisory layer which involves external data validation with original information sources such as patients or labs themselves.

Interoperable Modular systems

Each module in Nikshay deals with a certain function in the patient management process (such as person registration by enrolment, Test request and result, Treatment initiation, adherence monitoring, Direct Benefit Transfers, Infrastructure management, Staff management, integration with the Aadhaar system of the UIDAI, reporting and dashboards). This constitutes an ecosystem of intercommunicating applications/ modules. An additional interoperability layer also permits advanced interaction with other MIS and related information systems in use. For example, the Nikshay APIs allows an external Hospital Information/ Medical Records to send TB notification information to Nikshay automatically. The system also provides flexibility to different modes of program implementation such as, multiple simultaneous reporting hierarchies (administrative hierarchy, DRTB Treatment hierarchy, laboratory hierarchy, partner's hierarchy), initiation of surveillance at either presumptive TB or from Diagnosis, centralised data entry at TU with backdated entries or fully decentralised entry by staff who generate the information on real-time basis. The System interface is designed in a way that users need minimal training to use it and required training material is available on the website /mobile app itself.

Add on Internal Applications:

Nikshay is the core application/ information system that manages the patient flow and the infrastructure (HF, reporting hierarchy, staff) data. Add-on special applications have been created to manage other specific components of the program. Examples of such applications are the *Nikshay Aushadhi* (for drugs and logistics), LIMS (for CDST lab-specific information management) and the *Nikshay Sampark* (Customer Relationship Management- application for TB call Centres).

Nikshay Aushadhi

The Nikshay Aushadhi will manage the information of the entire supply chain from Centre to the final dispensing to the patient, along with the workflows of indent, drug request and the functions of procurement, forecasting etc.

Current Scale of the Nikshay Ecosystem

The Nikshay database now holds records of about 8 million people who were diagnosed or tested between 2017 and 2019.

Through the Nikshay system about $850,000 worth of Direct Benefit Transfers is processed to TB patients every week.

Data entry delay has been reduced from an average of 70 Days (registration- date of diagnosis) to 20 days for TB notification.

The Nikshay Sampark system caters to pan India users across 36 states/UTs, 722 administrative units, 763 National TB Elimination Programme Districts (having 1972 users) and about 200,000 Public/Private Health Facilities, totalling to about 500,000 users. Daily over 60,000 users log into the system either through the mobile or web application.

Current Challenges

Change management: Managing the change in field conditions from the earlier concept of paper-based reporting to real-time electronic information transactions and automated reporting/ analytics is an on-going process. CTD is routinely engaging the users with training material and training programs to escalate the data entries.

Connectivity: Although most health facilities and areas are connected, the quality of connectivity in remote regions of the country is still improving. Although only limited bandwidth is required, users must be online while they are accessing Nikshay. This limitation is expected to be addressed with an offline information management feature for some components of Nikshay.

The Rapid change in technological standards: Technology standards have been in a constant state of flux. In order to leverage the maximum potential of latest technologies, Nikshay itself has to be constantly updated.

The continuous evolution of technical requirements by the program: The program itself has been evolving. To ensure that patients get state-of-the-art care, the latest developments in TB are rapidly adopted by the program. Nikshay needs to be constantly updated in order to keep pace with policy changes.

Future Vision

The program envisions a real time, paperless electronic case record and surveillance system running across the country.

Artificial Intelligence applications for evidence driven, context specific/ locally applicable decision making based on programmatic data analysis

Increased use of spatial data and information from IOT (Internet of Things) devices.

Provide support to other countries to develop such systems and improve the global standards in TB surveillance.

❑

Direct Benefits Transfer (DBT)

CHAPTER 9

Promotion of Direct Benefit Transfer and Active Case Findings drive at State level

Direct Benefits Transfer (DBT)

CHAPTER 9

Introduction

Direct Benefit Transfer (DBT) is a major reform agenda of the Government of India, entailing targeted delivery of benefits to citizens through the effective use of technology. Through DBT, benefits for any government scheme gets directly transferred into the bank accounts of the beneficiary, thus providing efficiency ,effectiveness, transparency and accountability for each transaction.

The following DBT schemes of National TB Elimination Programme are being implemented:

- Nikshay Poshan Yojana (NPY)
- Incentive to Treatment Supporters/ DOTS Providers
- Notification incentive to Private Providers
- Incentives to informants for referring presumptive cases to public sector facilities
- Transport incentive to Tribal TB patients

National Tuberculosis Elimination Programme is one of the first health programs in India to use DBT to transfer monetary benefits to eligible patients and providers at scale.

Nikshay Poshan Yojana

Government of India's National Strategic Plan for Tuberculosis Elimination (2017 - 2025) is committed to providing direct benefit transfer (DBT) for all TB patients in order to support their nutrition needs and help address the financial burden of tuberculosis for the affected households.

The scheme called "Nikshay Poshan Yojana" was introduced in April 2018 by the National TB Elimination Programme (National TB Elimination Programme), Ministry of Health and Family Welfare (MoHFW), Government of India. Guidelines and training have been successfully completed on the implementation of the scheme by MoHFW in all States. The scheme is financed by the Government of India, with partial financing provided through a World Bank loan. The DBT provides Rs 500 per month to notified TB and MDR-TB patients for the duration of their treatment. Overall financing for the DBT is estimated at (figure) for 2019.

This scheme is aimed at providing financial support to TB patients for their nutrition. The TB patients taking treatment from both, Public Sector facilities and Private sector providers are eligible to receive incentives under this scheme.

Beneficiary	All notified TB patients for the duration of treatment
Objective	To provide financial incentive for nutritional support to TB patients at the time of notification.
Benefit Amount	Rs 500 for a treatment month, paid in instalments of up to Rs1000 as an advance.

Incentive to Treatment Supporters/DOTS Providers

Beneficiary	Community Treatment Supporters who support patients during treatment till successful treatment (Cured or Treatment completed.)
Objective	To provide honorarium to the treatment supporters for supporting TB patients
Benefit Amount	• INR 1,000 as a one-time payment on update of outcome for Drug sensitive patients • INR 2,000 on completion of Intensive phase (IP) and INR 3,000 on completion of continuous phase (CP) of treatment or total INR 5000 for Drug resistance TB.

Notification incentive to Private Providers

Incentives to Private sector Providers for notification of TB patients

Beneficiary	Private Providers (Private Practitioner, Hospital, Laboratory and Chemist) who notify TB patients to National TB Elimination Programme.
Objective	To provide financial incentives for notification, follow-up till outcome of TB patients who are diagnosed/treated by the beneficiaries.
Incentive Amount	INR 500 as a one-time payment on notification. INR 500 to Private Practitioner or Hospital for updating the patient's treatment Outcome.

Incentives to informants for referring presumptive cases to Public Sector Facilities

Beneficiary	Any member of the community or civil society organization including ASHAs who contribute to National TB Elimination Programme's case detection.
Objective	To provide financial incentives for referring presumptive cases for free detection services in the public sector.
Benefit Amount	INR 500 as a one-time payment on referral of presumptive cases to public sector health facility; who gets diagnosed with TB.

Transport Incentive to Tribal TB patients:

Beneficiary	All Notified TB patients from Notified Tribal areas
Objective	To provide financial support for transportation.
Benefit Amount	INR 750 as a one-time payment at the time of notification.

Progress

Progress of DBT transactions for all the four schemes from 01 Jan 2019 to 31st Dec 2019 (Source: PFMS)

Scheme	Total Beneficiary	Total Amount Paid (Rs.)
NikshayPoshan Yojana	2886701	5221237092
Treatment Supporter	258102	523597117
Private Provider	5077	38382760
Tribal Patient Support	79038	59906564

Progress/Steps Taken for DBT under National TB Elimination Programme:

- NIKSHAY, the online case-based and web-based application is very handy online DIGITIZED database of TB patients which is available at TB Unit, district, state-wise and accessible at the National level.
- NIKSHAY is further modified to capture bank account details and provides all information Which 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.
- DBT module is active for all the four schemes viz. NikshayPoshan Yojana, Treatment Supporter, Private Provider and Tribal Patient Support. Payments are made directly via NIkshay-PFMS interface for all the eligible beneficiaries.

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.

❑

Budgeting and Finance

CHAPTER 10

Hon'ble Minister of Health and other dignitaries during TB Harega Desh Jeetega Campaign launch on 25th September 2019

Budgeting and Finance

CHAPTER 10

National TB Elimination Programme (formerly known as Revised National Tuberculosis Control Programme) is centrally sponsored scheme under NHM to implement the programme activities as envisaged under NSP 2017-25 as per National TB Elimination Programme guidelines.

The Procedures for the financial management are being followed as per the manuals and guidelines available on the program website (Financial Manual for National TB Elimination Programme.). The financial management and 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. 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 Central Medical Services Society (CMSS), an autonomous society under MoHFW, Govt. of India approved by the Cabinet and in line with it, all decisions on procurement is taken by the CMSS without any reference to the MoHFW. All fund releases for commodity advances for approved contracts are routed through the Integrated Finance Division (IFD) and processed by the Drawing and Disbursing office (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 National TB Elimination Programme:

(Rs. In crores)

Description	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Budget Requested	1358.00	1300.00	1000.00	2200.00	4115.00	3525.00	13498.00
Budget Estimates/ approved Budget	710.15	640.00	640.00	1840.00	3140.00	3333.21	10303.36
Total Releases to States	373.87	483.19	533.17	871.36	907.65	550.22*	3719.46
Total Expenditure	639.94	639.86	677.78	2759.44	2237.79	2443.81*	9398.62

*till 6thJanuary 2020

Donor and External Aided Financing for National TB Elimination Programme:

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 National TB Elimination Programme 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 National Tuberculosis Elimination 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. The approved budget under the grant includes the 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 National TB Elimination Programme 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 National Tuberculosis Elimination 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): National TB Elimination Programme Technical Support Networks (TSN) is one of vital components, and is providing high end technical assistance at national, state and district levels. The approved budget under this activity is USD 3.78 Million.

3. Tibetan Voluntary Health Association (TVHA): The project involves Active Case Finding in Tibetan Refugee Community in India, 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 is region 19 Blocks under Sunderban belt, comprising portions of North and South 24 Parganas. The Approved Budget allocated for this project is USD 0.37 Million.

WORLD BANK

For more than 20 years, the World Bank has partnered with the Government of India (GOI) on tuberculosis (TB) control through three International Development Association (IDA) grants and credits. The Bank's support of India's TB control efforts has facilitated scale-up of: Directly Observed Treatment Therapy (DOTS) nationwide (1998-2006); services to poor and high-risk populations—including tribal groups, people living with HIV, and children—and initiation of multi drug resistant

(MDR) TB services (2006-2012); and universal access to diagnostics and quality TB care (2012-2017). World Bank engagement has complemented GOI financing for the National Strategic Plan (NSP) for TB and provided technical and implementation support to the National Tuberculosis Elimination Programme (National TB Elimination Programme).

Accelerating Universal Access to Early and Effective Tuberculosis Care

"Accelerating Universal Access to Early and Effective Tuberculosis Care," the last World Bank IDA project, supported the GOI's expanded diagnostic capacity and utilization of quality diagnosis and treatment services for people suffering from TB across 624 districts. Under the project, a pilot for treatment of drug-sensitive TB patients operationalized a daily regimen of fixed-dose combination drugs in Bihar, Himachal Pradesh, Kerala, Maharashtra, and Sikkim. A total of 239,816 drug sensitive TB patients in these five states were administered the daily regimen therapy either through a community-based DOTS, a facility-based DOTS provider, or a family member. Following the remarkably successful pilot, in 2017 the National TB Elimination Programme deployed a fixed-dose combination daily regimen in all 36 states and union territories. Having achieved its results indicators, the project concluded with an overall implementation progress rating of "Satisfactory."

Program towards Elimination of Tuberculosis (PTETB)

International Bank for Reconstruction and Development (IBRD) Under World Bank supports the project "Program Towards Elimination of Tuberculosis (PTETB)"—for USD 400 million from 2019 to 2024—supports the National TB Elimination Programme NSP's goal to achieve a rapid decline in the burden of TB, morbidity, and mortality while working towards the elimination of TB in India by 2025. Applying the Bank's Program-for-Results (P for R) instrument, the PTETB was approved by the World Bank Board in March 2019 and began implementation in August 2019. The PTETB targets the states of Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. These nine high TB burden states contribute 62% of the gap in private sector notification (based on NSP targets). In aggregate, the nine states represent 70% of the estimated private TB treatment nationwide. The GOI's prioritization of these states will intensify implementation of high impact TB prevention and care interventions at scale—with a strong private sector focus.

The PTETB supports the GOI to implement newest and most innovative interventions of the NSP (2017-25), with a focus on four NSP results areas: 1) Private Sector Engagement; 2) Patient Management and Support; 3) MDR-TB; and 4) Institutional Capacity and Information Systems. The PTETB is an example of innovative financing, with a USD 40 million loan-buy-down grant from the Global Fund to the GOI.

In the project's first year, the Central TB Division (CTD) made substantial progress and achieved all prior results Disbursement Linked Indicators (DLIs) for USD 40 million. The prior results are rolling out of national guidelines for partnership; development of four DBT modules (Nikshay Poshan Yojana, Tribal Population, Private Providers, and Treatment Supporters);and establishment of deduplication and reconciliation mechanisms between Nikshay and the Public Financing Management System (PFMS). Results were

verified by project Independent Verification Agencies (IVAs) Ernst and Young and the WHO.

During the Tripartite Meeting in December 2019 at Bhopal, the Department of Economic Affairs (DEA), Ministry of Finance, commended the National TB Elimination Programme for its progress in rolling out the project. In addition, the DEA recommended: 1) that the CTD intensify engagement with the nine states to initiate and scale up innovative project activities; 2) for Ministry of Health and Family Welfare (MOHFW) management to expedite the establishment of both National and State Technical Support Units (TSUs), and strengthen National TB Elimination Programme staffing so that the National TB Elimination Programme skills matches with NSP technical focus areas.

The Central TB Division in collaboration with the State TB Cells and the World Bank Team, conducted state engagement workshops in Tamil Nadu and Karnataka. These workshops provided states with technical support in preparing state level action plans. The Bank also provided technical support to the CTD via the Joint Monitoring Mission 2019, and to the National TB Elimination Programme via development of "TB Harega Desh Jeetega" communication and advocacy materials. "TB Harega Desh Jeetega" is a campaign launched by Dr. Harsh Vardhan, Union Minister for Health and Family Welfare, GOI to End TB from India.

❑

Procurement & Supply Chain Management

CHAPTER 11

Dr. K. S. Sachdeva DDG (TB) addressing the delegates about programme acheivement on 25th September 2019

Procurement & Supply Chain Management

CHAPTER 11

The National Tuberculosis Elimination Programme (NTEP) of the Ministry of Health and Family Welfare has maintained 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 National TB Elimination Programme.

The Procurement and Supply Chain (PSM) Management Unit in the Central TB Division (CTD) caters to the procurement and logistics functions at the Central level. The unit is led by the Joint Director (TB) and is supported by a team comprising Consultants supported by the Government of India (GOI) and by the World Health Organization (WHO).

This critical activity of Procurement of Anti-TB drugs and diagnostics for PAN India requirement 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. The procurement of nearly about 50% of Second Line Drugs is supported by the Global Fund as per the grant agreement and is done through the Global Drug Facility (GDF/ UNOPS).

Current strategies

Availability of Anti TB drugs:

The Programme ensures the procurement of adequate anti-TB drugs based on the stock availability, its requirement, treatment regimens, patient enrollments, lab scale-up and many other factors. Drugs are procured through CMSS and the Global Drug Facility (GDF) supported by the Global Fund. The programme division constantly monitors the procurement processes and relevant progress to ensure that all procurements materialize and are delivered in the desired timeframe as per the programme need.

TB –HIV Collaboration

To ensure implementation of Isoniazid Preventative Therapy (IPT), Tab Isoniazid and Tab. Pyridoxine was procured through the Global Drug Facility (GDF) and distributed to all the States in the year 2019. The programme was able to materialize the procurement of these drugs through CMSS and supplies will start from 1Q 2020.

CBNAAT Cartridges:

The Programme has implemented the policy on Universal DST. Accordingly, about 1,180 CBNAAT machines are in place and provide services across the country. To ensure availability of adequate CBNAAT cartridges, approx. 30 lakh (3 million) cartridges were procured in the year 2019. Further, orders have been placed for the procurement of about 33 lakhs (3.3 million) cartridges for the year 2020 through CMSS.

Procurement of Digital X-Ray:

To strengthen the diagnostic capacity at district levels for better management and treatment

of TB patients, the programme division has initiated the procurement of 395 Digital X-Ray machines for prioritized districts (one machine per district) using Domestic budget and Global Fund funding in the year 2019.

Procurement of Tablet Computers:

20,000 Tablet computers have been provided to Pharmacists of SDSs, DTCs, TB Units and Periphery field staff such as STSs, STLSs and High load DMCs (Designated Microscopy Centre) to facilitate real-time data entry for the implementation of National TB Elimination Programme software i.e. Nikshay, Nikshay Aushadhi and other digital initiatives.

Additionally, the programme division has commenced the procurement of about 10,000 tablet computers which will be provided especially to DMCs and Lab Technicians.

Mobile Diagnostic Vans:

The programme has procured 45 Medical Mobile Vans and distributed the same to states in the year 2018 to support the diagnosis of TB and MDR-TB in the high risk population through Active Case Finding. These mobile vans have been installed with CBNAATs along with other essentials like a generator, refrigerator, UPS, printer, air-conditioner, etc. States have started using the services of these mobile diagnostic vans for strengthening diagnostics facilities, especially in rural high-risk population areas.

Nikshay Aushadhi:

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

Nikshay Aushadhi has been implemented up to State Drug Stores, District and TUs (Tuberculosis Unit) levels. The programme has implemented the PHI module across the country from 1Q-2019 onwards. This completes the entire cycle of National TB Elimination Programme supply chain mechanism

Mobile Van with Diagnostic equipments

digitalization and will facilitate in providing real-time data of inventory management from across the country.

Mobile App: -To further strengthen drug inventory through an online mechanism and to make it more accessible and user-friendly, an android based mobile app for Nikshay-Aushadhi has also been developed. To ensure a smooth, streamlined and successful implementation of Nikshay Aushadhi application at all levels across the country, a dedicated helpdesk has been placed at the central level. The helpdesk team ensures facilitating recording and reporting correctness of the drug inventories by states and enables remote troubleshooting of the technical issues faced by states.

Training & Capacity Building:

6 National Level Trainings on Supply Chain Management and Nikshay Aushadhi were conducted over the period of 3 months for State-level master trainers in year 2019. The Central teams made periodical visits to the states to review and assess the implementation of Nikshay Aushadhi and other PSM related activities. The states which have already been visited are Bihar, Maharashtra, Chandigarh, Uttar Pradesh, West Bengal, Rajasthan, Madhya Pradesh and Chhattisgarh.

Newer initiatives

TrueNAT (Chip-based Real-Time micro PCR Tests): To further strengthen and scale-up diagnostic facilities by offering molecular testing to presumptive TB and MDR-TB cases in select groups, the programme is in the process of procuring about 1,512 machines of TrueNAT.

Expansion of Bedaquiline: Use of Bedaquiline under the programme has been expanded from 5 states to the entire country in the year 2018. Donation of 22,000 patient courses through GDF supported by USAID is being supplied to states as per the requirement and utilization. Procurement of an additional 30,760 patient courses of BDQ has been initiated through CMSS.

Expansion of Delamanid: Delamanid (DLM) was piloted in the country through a Conditional Access Programme (CAP) in the states of Karnataka, Kerala, Chandigarh, Punjab, Odisha, Lakshadweep and Rajasthan. The donation for 400 patient courses of Delamanid from Otsuka through Mylan was received and supplied to the above states based on their requirement. Procurement of 1384 patient courses of DLM has been initiated through CMSS.

Implementation of the all-oral regimen – Recent WHO Guidelines has prompted the use of the all-oral regimen. The programme has secured all drugs to implement the all- oral regimen. Procurement of drugs through CMSS and GDF has commenced and drugs have started reaching the warehouses. The all-oral regimen is being implemented in a phased manner.

Challenges in Procurement & Supply Chain Management:

Frequent Change in treatment regimen

Ongoing changes in treatment guidelines of 2nd line TB patients following WHO guidelines have resulted in some procurement challenges for forecasting and quantitative assessment of requirement of anti TB drugs especially for DST

guided regimen. However, despite challenges, the programme is making 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 are also being observed by the Programme. Accordingly, programme division is routinely reviewing and monitoring Nikshay Aushadhi implementation with the support of Nikshay Aushadhi help desk, respective state authorities and periodic video conferencing (VCs) etc. Further, state authorities have been requested to ensure the full transition to Nikshay Aushadhi software at all levels across the state within a fixed timeframe.

❑

Advocacy, Communication & Social Mobilization

CHAPTER 12

Sufi Dance performances during India Mahasabha, The 50th Union World Conference on Lung Health

Advocacy, Communication & Social Mobilization

CHAPTER 12

12.1 Background

Advocacy, Communication & Social Mobilization (ACSM) is an important pillar in the National TB Elimination Programme (National TB Elimination Programme) as proposed in National Strategic Plan (NSP 2017-2025). ACSM refers to a set of interventions that are used to improve tuberculosis (TB) elimination, 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 puts forward issues related to TB elimination on the public agenda, generates demand and favourably changes knowledge, attitudes, behaviours and practices across a wide section of the population at national level.

An issue-based, target group specific and integrated Advocacy, Communication and Social Mobilization (ACSM) strategy is helping to bring TB to the centre of public discourse in India. In turn, this is helping generate demand for National TB Elimination Programme services, facilitating early diagnosis, timely treatment initiation and treatment completion. Forging partnerships with multiple stakeholders including healthcare providers, corporates, NGOs, CBOs, community groups, local self-governments (PRIs) etc. is also helping improve provision of care for TB patients.

For greater administrative and political commitment, various initiatives are being undertaken by National TB Elimination Programme across the country directly by the programme or through the support of partners.

12.2 Current Status and Implementation Strategies

The programme's main focus is on implementing a well-synchronized ACSM plan to link the campaign across National, States, Districts and Blocks and ensure mass dissemination of National TB Elimination Programme services at all levels. The "TB Mukt Bharat" active case finding campaigns, which are massive, repetitive, intensive, persuasive, and enjoy community commitment from the panchayat, districts and states, have become center-stage in the programme. Strategic ACSM has 3 separate components advocacy, communication and community engagement. Some of the noteworthy developments are:

a. There has been a significant movement on the ACSM front with a high visibility media campaign involving Mr Amitabh Bachchan, India's biggest film star and an ex-TB patient, as the TB brand ambassador. This has made a big impact on conveying the message on TB to the public at large.

b. Substantial efforts have been made towards capacity building of programme managers, state IEC officers and communication facilitators in ACSM with dedicated national, regional and state level ACSM training and workshops.

c. Engaging diverse stakeholders specifically political and administrative at national, state, district and panchayat is underway.

d. Ensuring civil society partnerships from groups such as Lions Club, Rotary clubs, Self Help Groups, Faith Based Organizations and the Media (print, TV, radio, digital) is an important strategy in the programme.

e. Establishing inter-sectoral coordination through formal engagement models amongst different ministries are in the pipeline.

f. Media advocacy has been intensified with the programme routinely and openly sharing information about TB and by engaging academia / subject matter experts to share scientific studies and information with the media.

g. The programme has also designed effective online and social media strategies for TB to engage with the public through Facebook and Twitter.

h. A pan India communication campaign, "TB Harega Desh Jeetega' has been launched. Ambassadors (celebrities/ influencers etc.) at regional level are being increasingly engaged to increase visibility in some States.

i. Empowering patient advocates from TB communities (affected community, cured patients, caretakers) are being encouraged and provided platforms to speak up/ voice their concerns.

12.3.1 Highlights of Media Campaign at National Level (2019)

"TB Harega Desh Jeetega Campaign" was launched by the Hon'ble Minister of Health & Family Welfare on 25th September 2019 showcasing highest level of commitment and implementation

Mention of TB in the Hon'ble Prime Minister's "Independence Day Speech" and "Mann Ki Baat" has gained tremendous popularity among the general population.

An 'Opinion –Editorial on 4th January 2020 in Indian Express on TB by Hon'ble Minister of Health & Family Welfare was published.

High Profile engagements:

Central TB Division has published "*A Handbook on TB for Elected Representatives*" in two languages English and Hindi especially to engage elected representatives proactively to make their constituencies TB-Free. Progress on TB is being regularly reviewed by State Ministers of Health on a quarterly basis.

Issued Letters from MoHFW

- A Letter from Hon'ble HFM to all Hon'ble Governors of State and Lt. Governors of UTs.
- A Letter from Hon'ble HFM to all Hon'ble Members of Parliament to provide leadership to the TB elimination efforts.
- A letter from Special Secretary (H) on Guidance on all key areas of TB Harega Desh Jeetega.

Mass Media Campaign:

- Audio campaign during the India-Bangladesh Cricket Series from November 03, 2019 to November 26, 2019 was broadcasted over 25 FM Rainbow stations, 88 Local Radio Stations, 9 Multi Channel Stations and 14 FM Transmitters. Two radio spots - PM_JAY Hindi and TB (Direct Benefit Transfer) along with the tagline "TB Harega Desh Jeetega" of 5 seconds at the start and end of match innings

- The month of september is celebrated as Poshan Maah during which audio and video spots on the nutritional support to TB patients through the NikshayPoshan Yojana (Direct Benefit Transfer) were screened across the country.

New Partnerships for developing & dissemination of IEC

- Karnataka Health Promotion Trust (KHPT) has joined hands with the Central TB Division for developing new IEC materials on TB.
- India HIV/AIDS Alliance has signed an agreement with the Central TB Division to create awareness on TB using its social media channels such as Facebook, Twitter, YouTube and Instagram.

Participation in National & International level Exhibitions:

Exhibition and release of new set of outdoor creatives on TB during the launch of "TB Harega Desh Jeetega" campaign by Hon'ble Minister of Health & Family Welfare on 25th September 2019 at Pravasi Bhartiya Kendra, New Delhi.

Participation in the 26th Perfect Health Mela" held from 18th-20th October 2019 at Jawahar Lal Nehru Stadium under the theme of "Fit India". The event had 25,000 visitors with representation from 2 Medical Colleges, 8 Nursing Colleges, 65 Hospitals. Consultations were held with 65 Doctors, 7092 patients, 2950 college students and 3500 school students. The event reached out to approximately 250 million people through Doordarshan, AIR FM and Print Media.

The Central TB Division organized a meeting "India Mahasabha" at the 50th Union World Lung Health Conference at Hyderabad on the 31st of October 2019 with the Vice President of India, Shri M. Venkaiah Naidu as the Chief Guest. Delegates from more than 130 countries participated in the conference to End TB.

A special platform was provided for showcasing best practices in Community Participation in Spreading Awareness on TB at the 50th Union World Lung Health Conference, in Hyderabad from 29th October – 2nd November 2019.

National Capacity Building Workshop of State IEC officers

A National Capacity Building Workshop was organized from 6th - 8th June 2019 at National Tuberculosis Institute (NTI), Bangalore with following objectives in which 33 State IEC officers participated :

- Formulation of strategy to reduce stigma and discrimination on TB
- Involving Media personnel for wide coverage of TB related news.
- Identify major barriers, constraints of IEC programme
- Strategy to engage community for demand generation of TB services.

Social Media Campaign:

DDG-TB twitter handle has been operational since September 2017 for creating mass awareness about tuberculosis through social media. More than **2,600 tweets have been posted** till date with 1500 followers.


Inauguration of
Health Camp


Dr. K. S. Sachdeva
Visit India International Trade Fair 2019 at Pragati Maidan, New Delhi at Health Pavilion, Hall Number 7E.
@MoHFW_INDIA @PMOIndia @drharshvardhan @AshwiniKChoubey @AS_RNTCP @iamvikaschwl @NHPINDIA @AyushmanNHA @NITIAayog @StopTB @LucicaDitiu @WHO @UNICEF
#TBHaregaDeshJeetega


The Union Conference
"I'm hoping that by being a passionate #TB advocate in the entertainment industry I can help to make the changes needed. I've nothing but admiration for courage of #TB survivors. You're so brave and your voices are so important." #UnionAmbassador @ClaireAhrolan #UnionConf #EndTB


The Union Conference
As Focus Moves to #TB Prevention, Who Will Treat India's 2.69 Mn Patients? thewire.in/health/india-t... via @TheWireScience via #UnionMediaScholar @AnooBhu #tuberculosis #lunghealth #EndTB #India


Dr. K. S. Sachdeva
Hon'ble Member of Parliament Dr. Sanjay Jaiswal (West Champaran) speaking in MoHFW- GCAT- WHOSERO meeting to engage more private sector for achieving the Target to #EndTB2025. #TBHaregaDeshJeetega @MoHFW_INDIA @drharshvardhan @AshwiniKChoubey @AS_RNTCP @iamvikaschwl @PMOIndia


TEJ TB Elimination Jharkhand
All India Radio Hazaribag is fighting for the cause,fighting to End TB by creating awareness on air #TBChampions of TEJ @faiz_vbu11 & @SpeakTB team after returning from @UnionConference discussing to EndEmergency
Tune in 102.1 FM 11th October 9.15pm
@NHM_JHARKHAND @yukti_shiksha

12.4 Challenges

Peripheral health staff who deal with all programmes at field level tends to give less attention to TB ACSM due to priority issues. Although coverage by the auxiliary health workers, mainly the female health workers (Anganwadi Workers and Accredited Social Health Activists) is considerable, their involvement in TB ACSM is relatively limited as a result of competing priorities such as maternal and child health, nutrition, malaria and other social issues.

There is sub-optimal coordination between the TB ACSM and IEC management to establish a cohesive and integrated management structure to coordinate programme activities.

12.5 Way Forward

Implement and achieve the objectives listed under 'TB HaaregaDeshJeetega' Campaign:

- Community Engagement
- Advocacy & Communication

- Health & Wellness Centers and TB
- Inter-Ministerial Collaboration
- Private sector Engagement
- Corporate sector Engagement
- Latent TB Infection Management
- Orient Parliamentarians, Members of Legislative Assemblies on TB and promote monitoring on the DISHA Dashboard (a national data platform where officials at all levels can monitor progress of 42 National Flagship programmes)
- Increase budgetary provisions (presently only 3%) and launch a National TB Campaign engaging ambassadors at regional level to increase visibility
- Engage with diverse stakeholders esp. elected representatives, civil society and establish inter-sectoral coordination
- Empower and engage with the TB community - Patient reported score cards on TB care services; establish a mechanism for real time feedback from civil society and community monitoring groups to key health officials and participation in planning
- Focus on prevention (cough hygiene/ etiquette)
- Design campaigns to combat stigma/ myths
- Display of IEC material on TB in all Government Buildings

❑

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

CHAPTER 13

National level Training of Trainers (TB Champions)

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

CHAPTER 13

Background:

Community-led response for TB has been incorporated under the National Strategic Plan (2017-25) as one of the key strategies to reach the unreached and to support TB patients through their treatment and recovery phase. Many populations are vulnerable to TB for reasons that include poverty, literacy, awareness, living conditions and occupational hazards. These include overcrowding and poor ventilation in houses, malnutrition, smoking, stress, social deprivation and poor social capital.

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 policies, programmes and practices, more patient sensitive.

Efforts are being made under the National TB Elimination Programme (National TB Elimination Programme) to actively engage various stakeholders including civil society and community in programme planning and design, service delivery, monitoring and in advocacy. These include Elected Representatives and local self-governments, Civil Society Organizations, industries, etc and TB affected communities.

Anti stigma campaign in State Jharkhand

Awareness on TB among School Children (Meghalaya)

Engaging with TB Affected Communities:

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). While there are existing strategies under National TB Elimination Programme such as workplace policies, support for transportation of patient/sample, involving private sector in service delivery, and advocacy and communication to increase awareness and mitigate stigma.

It is very well established that affected communities could play a vital role in enhancing effectiveness of these strategies and bridge in gaps. Communities, especially those who have

to go through the experience of fighting TB, have the unique advantage of being close to their peers, understanding of the issues as well as the ability to communicate and articulate their needs. Thus, community engagement as a strategy is critical for the country's aim of Ending TB by 2025.

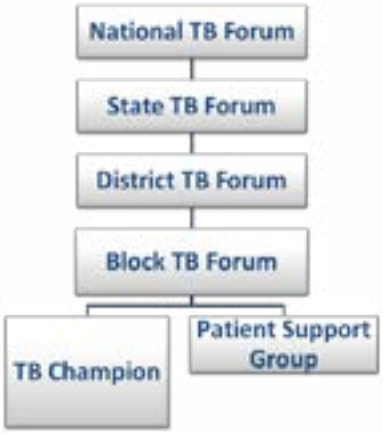
The Programme promoted community-based interventions for awareness creation and stigma reduction, screening and referral, treatment adherence support, etc under the ACSM strategy. The same is being enhanced through active engagement with TB affected communities through various interventions.

Institutional mechanisms for a community-led response to TB:

TB Forums at National, State and District levels provide an institutional platform to include community as an important stakeholder under the programme to improve the quality of TB services and making them patient-centric. The forums have representation from people affected by TB, elected representatives, policy makers, civil society organisations/NGOs, and programme managers. Creation of community-led TB forums of people affected by TB at the sub-district and village level, is also being facilitated.

TB Forums have the mandate to:

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



TB Forums have already been constituted in all States with District TB Forums formed in 700 (99%) districts. Most of the States and Districts also reported convening their meetings and discussing various issues. Moving forward, the Programme plans to set broader agendas for discussion and monitoring of action taken on the decisions made in the meetings of TB Forum at various levels.

Handkarchief Rally in Kerala

School activities in Gir Somnatah

Community meeting with Self health group at Bharuch district of Gujarat

Sensitization meeting by THALI TOUCH Agent

Comminty Meeting in Meghalaya

Nukad Natak in Meghalaya

Key Community Engagement Activities:

Various models of engagement of TB affected communities are being implemented in the country and includes the capacity building and engagement of TB survivors as TB Champions, establishment of peer support groups, community led mentoring and grievance redressal services, community feedback through patient score cards, etc.

- A national level standardised training curriculum has been developed (with support of the REACH Project) for capacity building of TB Survivors and enabling them to become TB Champions
- 304 TB survivors have undergone training as TB Champions (through the REACH project) in 6 States. An additional 100 TB survivors were trained as TB Champions using state specific modules in Telangana
- A national level ToT on Empowering TB Survivor to TB Champion module was conducted in October 2019. 38 Trainers from 11 States (not covered by the REACH project) were trained
- Sensitization of the State Nodal Officers and Programme Officers was conducted
- The model of involving TB survivors in Telangana was presented during the 6th National Summit on Good and Replicable Practices and Innovations in Public HealthCare systems in India held at Gandhinagar, Gujarat in November 2019
- Two regional review meetings (North & South Zones) on Community Engagement were held.

❑

CHAPTER 14

Flag off the National TB Prevalence Survey Van by Hon'ble minister of Health & Family Welfare

Research

CHAPTER 14

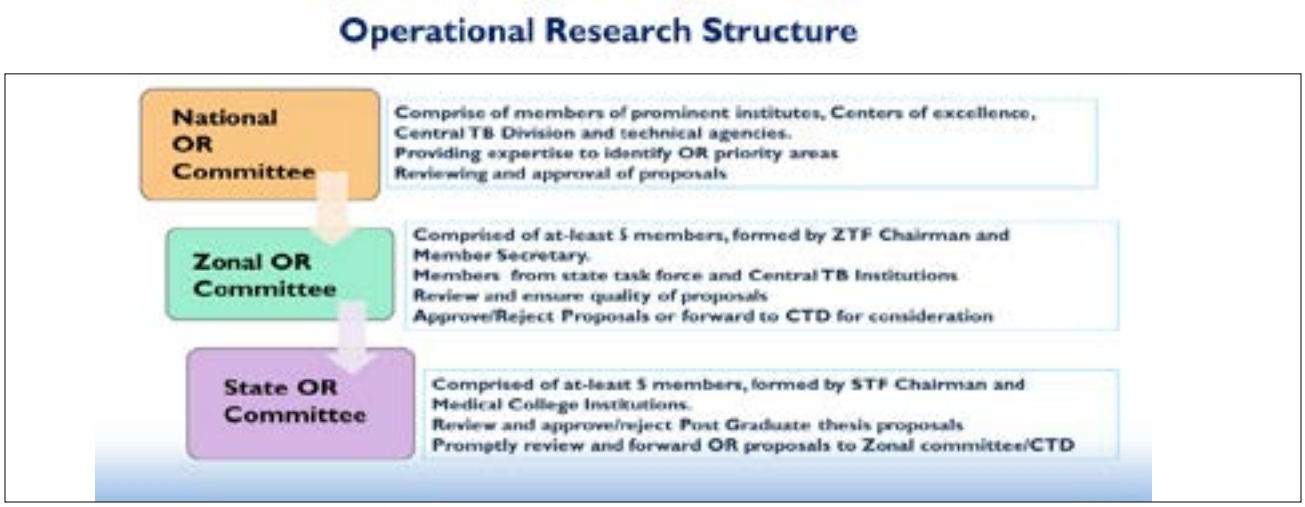
Introduction:

The National TB Elimination Programme (NTEP) is periodically bringing in changes in policies, treatment algorithms and programme management practices based on global scientific evidence and in-country operational research evidence. The programme seeks to better leverage the enormous technical expertise and resources existing within the programme and across the many medical colleges, institutions and agencies.

Operational Research (OR) aims to improve the quality, effectiveness, efficiency and accessibility of the elimination efforts. To promote and support OR, a Research Cell has been constituted at CTD to coordinate the National Expert Committee on Operational Research comprising of 14 individual and institutional members. This Committee provides technical guidance to CTD on OR and helps identify OR priority areas for commissioned research. Apart from that, there are Zonal and State OR committees who identify priority areas for research as relevant to their zone/state, based on the national research agenda.

Research Priorities of National TB Elimination Programme

National TB Elimination Programme (NTEP) has updated its Research Priorities in 2020. Some of the newer research priorities which were uploaded in the Website (tbcindia.nic.in) were:



- TB prevalence survey in special groups, tribal, migrants, slums, paediatric population etc. and study of its unique dynamics (epidemiological factors).
- Point of care diagnostic tests to confirm extra pulmonary TB (EPTB).
- Nontuberculous Mycobacterium (NTM) diagnosis. Proportion of NTM disease among treatment non-responders. Studies that assess the diagnostic algorithms and treatment regimens for NTM.
- Studies on biomarkers of TB for diagnosis; prognosis and cure or its attribution to cell mediated immune status.
- Identify hot spots for TB transmission– Using molecular epidemiological methods.
- Cost effective technologies to disinfect Hospital /OPD ambient airborne TB infection and its monitoring and control.
- Drug resistance (Hospital or community) surveillance and monitoring. Conventional (INH; Rifampicin) as well as Newer (Bedaquiline; Delamanid etc). Multicentric study to be preferred.
- Studies on baseline INH resistance in community and its relevance in relation to INH prophylaxis.
- Yoga- Ayurveda intervention studies to see if there is any beneficial effects of Yoga / Ayurvedic regime along with conventional drug treatment for better –earlier treatment outcomes and amelioration of drug induced effects.

Detail research priorities of NTEP is available @http://www.tbcindia.nic.in

Efforts of National TB Elimination Programme to promote OR have resulted in success and most of the studies are linked to the main priorities of TB elimination. A list of studies that contributed to policy decisions are as below:

S.r. No.	Policy Decisions taken under National TB Elimination Programme	Research References (Annexure 11.2 Table I)
1	Early diagnosis of TB cases with 2 weeks cough (instead of 3 weeks) duration and 2 sputum samples (instead of 3) examination	1,2,3
2	Revision in diagnostic algorithm (Introduction of pre-Xpert screening using chest X-ray in early diagnosis of smear negative pulmonary tuberculosis)	4,5,6,7,8
3	Enhance case finding with upfront Xpert MTB/RIF for diagnosis of TB among PLHIV & pediatric patients	9.10,
4	Transition from intermittent to daily treatment regimen	11 , 12, 13, 14, 15, 16
5	Introduction of daily regimen to TB -HIV co infected patients	17,18
6	Follow up sputum examination at in mid-CP is discontinued	19
7	Reduction of follow up sputum examination – From two to one	20
8	Option of having a family member provide DOT for children with TB	21
9	Evidence generated on impact of nutrition on TB treatment outcome	22
10	HIV testing of all TB patients	23
11	CPT and ART to all TB-HIV patients	24
12	Enhance case finding among PLHIV by screening patients with four symptom complex	25
13	HIV testing for presumptive TB patients in high HIV prevalent states was implemented	26, 27,28
14	Bidirectional screening Diabetics are included in the high risk categories for regular screening Testing of DM among all TB patients	29,30,31

S.r. No.	Policy Decisions taken under National TB Elimination Programme	Research References (Annexure 11.2 Table I)
15	Burden of DR-TB in country estimated and PMDT services rolled out	32
16	Roll out of Line Probe Assay for diagnosis of Drug Resistant TB in country	33
17	Use of Xpert MTB/RIF testing for decentralized diagnosis of MDR-TB	34
18	PMDT guideline revised : One sputum specimen required for follow-up cultures during MDR Patients	35
19	Study finding incorporated for revision of National Guideline on Partnership	36,37,38

Financial Norms for Operational Research:

- Proposals up to Rs 2 lakh – Appraised and approved by State OR Committee
- Proposal up to Rs. 5 Lakhs – Appraised and approved by the Zonal OR Committee
- Proposal above Rs 5 lakhs – Appraised and approved through the National Operational Research Committee
- Provision of Rs 30,000 grant to Post-Graduate students for thesis on National TB Elimination Programme

OR Workshop in Karnataka:

Each year the Karnataka State OR committee invites research proposals from medical college faculty for National TB Elimination Programme funding. These proposals are reviewed by subject experts across the country and scored based on their merits. The committee then selects the proposals based on their scores and programme priorities of the state. The principal investigator and one co-investigator from the selected projects undergo a four days 'protocol development workshop' wherein the protocols are reviewed and refined by a team of WHO SORT-IT (Sustainable Operational Research Training Initiative) trained facilitators. A team of senior and junior mentors are assigned to two mentees for capacity building and hand holding during research. Post data collection, usually spanning 9-10 months, a similar four days 'scientific paper writing workshop' is held to analyze the data and complete manuscript writing. These are then published in peer reviewed scientific journals.

So far Karnataka has conducted three OR cycles of 'protocol development workshops' for a total of 40 research projects (OR1 - 8, OR2 - 14 and OR3 - 18). The first paper writing workshop resulted in 7 out of 8 papers from the first OR1 cycle published . The projects from the OR2 cycle have completed data collection and a paper writing workshop is scheduled in February 2020. The projects from OR3 cycle are at various stages of data collection. The OR4 cycle has started in December 2019 and the state is seeking fresh research proposals.

India TB Research Consortium

In order to maximize India's response to TB elimination, the Ministry of Health & Family Welfare and Indian Council of Medical Research (ICMR) decided to create India TB Research Consortium (ITRC). The aim of the consortium is to advance technology by harnessing interdisciplinary expertise, and focus on building and strengthening scientific capabilities to accelerate development of new diagnostics, new and improved vaccines, immunotherapies and drugs for TB.

ITRC is collaborating with all relevant stakeholders in TB research including other Ministries from the Govt. of India, Non-

Governmental National and International Organizations, Trusts and Industries as funding and non-funding partners. ITRC activities are mainly focused in four thematic areas: Therapeutics, Diagnostics, Vaccines and Implementation Research to develop efficacious and cost effective new tools as per national priorities, ensure proper and efficient spending and channelization to the most promising leads, and minimize duplication of efforts.

A detailed landscape analysis of research in each of the 4 areas was done to identify translational research leads. Most advanced leads were shortlisted and Clinical trials/ implementation research studies have been planned.

BRICS TB Research Network

BRICS countries (Brazil, India, China, Russia and South Africa) have established a collaborative TB Research Network. The network promotes and conducts collaborative scientific and operational research along with development and innovations on diagnostics, vaccines, drugs, regimens, infection control and patient service delivery mechanisms commonly applicable in all these countries for effective TB control and management. National TB Elimination Programme is working closely with the other BRICS countries.

Since 2017, five BRICS TB Research Network Meetings were held and the VI TB Reserch Network (TBRN) Meeting was hosted by India on 4th& 5th November 2019.

VI BRICS TB Research Network Meeting 4th & 5th November 2019

VI BRICS TB Research Network Meeting 4th & 5th November 2019

Human Resources

CHAPTER 15

Hon'ble CM of Jharkhand, Shri Hemant Soren requested to provide leadership o the State's TB Elimination activities

Human Resources

CHAPTER 15

The health workforce is one of the key building blocks of any health programme. Proper management of human resources is critical in providing a high quality of health care. One of the major challenge is to the ensure optimum utilization of human resources to maintain and expand case detection and management of tuberculosis.

India's National Strategic Plan to eliminate TB (2017-25) aims to build and strengthen enabling policies, empowered institutions, capable human resources and financial resources to. It envisages restructuring of the National TB Elimination Programme management and implementation, substantially augment Human Resource (HR) and related reforms while scaling up Technical Assistance at national and state levels. For states, new positions have been proposed to increase technical staff at STDC and additional staff for expansion of TB laboratories. In the districts, around 3000 additional posts have been proposed to meet the manpower required to handle increased workload and newer activities.

A Health Systems Strengthening (HSS) approach is being implemented for service delivery under the National Health Mission (NHM) which includes integrating National TB Elimination Programme with other existing NHM programme at the block and district level. This is critical for expansion of services to insure universal access and long-term sustainability of the programme. However, integration also poses several challenges, especially as the public health system remains weak in some states and districts. Shortage of trained manpower and inadequate retention and carrier growth path are some of the problems hindering TB programme implementation.

However, with the additional investments being made in the programme, structural and human resource deficits are expected to be met. Critical components like laboratories, drug stores and laboratories, have also been included to be a part of Public Health Standards established for each level of health institution. In addition, ASHA workers will facilitate enhanced outreach activities. The Mission envisages to fill in the gaps in the existing programmes with respect to infrastructure and service delivery.

A trained and competent workforce is critical for establishing a successful healthcare system. To cater focused, directed and managed training become an essential component of the comprehensive strategy for TB elimination. especially to cater to complex and demanding care required in MDR/ XDR TB cases and other comorbidities.

Better alternatives for the imparting health program knowledge with skills and in-service training of healthcare workers are being explored under 'Digital India' and various other initiatives to ensure that the workforce is aware of and prepared to meet the country's present and future needs.

The size and complexity necessitate focused training delivery relevant to the particular

trainee category. New instructions need easy integration and quick penetration to the periphery while maintaining the desired quality standards.

Development of e-learning methodologies provides the opportunity to train participants in a self-paced manner on an e-learning platform as well as augment classroom sessions while simultaneously incorporating evaluation and assessment of the training. The training content has been revised and modular training re-introduced in the programme. Currently modular training is being conducted at NTI (Bengaluru), NITRD (New Delhi) and STDC Gujarat. National institutes in different regions are being approached to conduct training for National TB Elimination Programme and general health system staff.

Apart from the e-training modules, the STDCs themselves are being strengthened. The STDCs act as resource centres for translating content to the vernacular and adding content as per local needs at the State level. The STDCs will continue to act as centres for final certification of successful completion of National TB Elimination Programme training. These steps not only help in rapidly filling the gap in untrained staff but 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.

National TB Elimination Programme is developing different resource pools for various thematic areas and experts are being utilized for capacity building measure in the country to expedite roll out of new policy decisions on ground. ECHO plateform is being used for frequent interaction between National TB Elimination Programme and state program managers as well as state and district program managers. These interactive sessions ensure quick resolution of queries on ground and helps in addressing challenges faced by district or state in implementation.

❑

Partnerships

CHAPTER 16

Hon'ble Minister of State addressing the International & National delegates during India Mahasabha The 50th Union World Conference on Lung Healh

Partnerships

CHAPTER 16

Private Sector Engagement

To realize India's vision of Universal Health Coverage (UHC), it is imperative to partner and engage with the private healthcare sector in the country. Going with the same vision, the National TB Elimination Programme has adopted an approach wherein services provided by the private sector are leveraged to ensure that every TB patient in the country gets timely diagnosis and appropriate treatment. Also patient support service like counselling and NIKSHAY Poshan Yojana (NPY), can be offered to private sector TB patients.

Notification of TB patients from the Private Sector:

The Programme has always tried to in leverage private sector through collaborations with Non-Governmental entities, medical colleges and corporate sector. The concerted efforts over the years, particularly in the recent past, have reaped rich dividends and in 2019, the country has, for the first time, seen more than 6.8 lakhs TB patients notified from the private sector- an increase of approximately 35% from the 5.03 lakhs private sector notification in 2018.

Many factors are responsible for this increase in notification:

- Mandatory notification of TB patients from the private sector, including penalizing non-notification through Sections 269 and 270 of the Indian Penal Code (IPC).
- Provision of free diagnostics and treatment services.
- Extending public health action to notified TB patients from private sector such as Universal Drug Susceptibility Testing (UDST), co-morbidity testing, Nikshay Poshan Yojana, treatment adherence and nutritional counselling and contact tracing.
- Monitoring of private drug sales through Schedule H1 monitoring and incentive to chemists for TB patient notification
- Private sector engagement through Patient Provider Support Agency (PPSA) supported by Project JEET, as well as through domestic resources.
- Incentives to private providers for notification as well as reporting treatment outcomes.
- Making provision for Notification through National TB Elimination Programme's Call Centre, Nikshay Sampark where a health provider, or the patient can call 1800-11-6666 for notification.
- Private Health facilities/private


भारत का राजपत्र
The Gazette of India

providers are being mapped and registered in the Nikshay portal to enable easier notification, reduced gap in TB notification and better surveillance.

While this increase in TB notification is heartening, it is yet not saturating the private sector. Given the quantum of private sector health care in India- ranging from lone healthcare provider clinics to multi-speciality hospitals- the National Strategic Plan (2017-25) sets a target of 54% contribution from the private sector to the total TB notification for the year 2019. Despite the unprecedented increase in notification in 2019, the private sector TB notification could reach only 28% of the total TB notification in the country, with a lot of ground remaining to be covered.

The Programme is also cognizant of the fact that increased notification is only the first step. It needs to be ensured that each of these notified patients receive appropriate treatment, drug susceptibility testing, testing for co-morbidities, adherence support and all other public health action offered to the patients in the public sector.

With this view, the Programme has revamped its approach to engaging private agencies by releasing a revised "Guidance Document on Partnerships" in late 2019, which will come into effect from the beginning of Financial Year 2020-2021.

This guidance introduces output-based contracting as one of the contracting methods, wherein service providers (private sector agencies) are paid for the results (notifications, volume of testing, achievement of quality of care measures, etc) rather than for inputs (staffing costs, computers, transportation, etc). The Guidance doesn't prescribe specific costs for each service, rather allows the states to determine costs based on market-based competition and gives due consideration to technical competence of the service providers.

Key features of a partnership option under the Revised Guidance:

1. Quality of Care as per Standards of TB Care in India (STCI)

It is essential to ensure that private-sector patients have access to the same quality of diagnostics, drugs and community-based services as public-sector patients with minimum out-of-pocket expenditure. Therefore, all service providers should provide services aligned as per the latest guidelines on diagnosis and treatment and STCI.

2. Needs-based

For partnerships to be effective, each state or district must design partnership options based on the local needs, capacity of the public health system and availability of competent service providers. The accountability and responsibility of ensuring that services are provided remain with National TB Elimination Programme even if a partnership option is leveraged. More than one partnership option can be explored based on the needs identified.

3. Patient-centric

Patient should be at the centre of every

partnership option. Enough linkages must be ensured in the cascade of care and no partnership option should be a standalone mechanism to address a short-term gap. "Bundling options" may be adopted to design practical and outcome-oriented partnerships.

4. Competitive and performance-based approach

Service Providers who will be able to deliver high-quality services at prices commensurate with market rates must be chosen and not simply the 'lowest cost bidder' as has traditionally been the norm. Payments must be made through "output/performance-based" mechanism.

Engagement of NGOs and Private Providers through National Guideline on Partnerships

In 2019, programme continued to use the existing 22 Schemes prescribed under the National Partnership Guidelines (2014) to help the states expand services through partnership with NGOs and Private Providers.

Through these efforts, 794 NGOs and Private Provider engagements were made countrywide across the 22 schemes. State-wise and scheme wise information on these collaborations is placed at the end of this report in Annexure 12.

Support by Developmental Partners

1. International Union Against TB & Lung Diseases (The Union)

Project Axshya

Funded by the Global Fund, The Union's Project Axshya supports India's national TB prevention and care programme to enhance access to diagnosis and treatment for TB among vulnerable and marginalized groups in 128 districts in 14 states across in India.

The key activities which are being undertaken by the project are enlisted below:

- Active case finding among key affected populations
- Organising health camps in congregate settings.
- Fast tracking presumptive TB patients in high case load hospitals
- Active surveillance through village level volunteers in identified villages.
- Empowering TB patients through patient charter.
- Supporting roll out of Public Financial Management Software (PFMS) for facilitating recording of expenditure and direct beneficiary transfer (DBT) in 22 states.

Working in partnership with 5 sub-recipient partners, over 200 local NGOs and nearly 2000 community volunteers The Union through Project Axshya's various innovative interventions, during January 2018- September 2018, has made the following achievements:

- Reached out to over 16.5 million households from various vulnerable and marginalised communities.
- Facilitated identification and testing of over 445,300 presumptive TB cases.

- ~ 319029 sputum samples collected and transported.
- Facilitated diagnosis and treatment initiation of 64341patients.
- Sensitised nearly 14600 TB patients including 5543 (38%) women on their rights and responsibilities through patient charter.

Progress related to programmatic indicators (Jan – Sep 2018)

Indicators	Target	Achievement	% of achievement
Number of notified cases of TB (all forms)	52,570	64,341	122%
Number of TB cases notified among the KAP (subsets of all notified cases)	47313	63459	134%
Treatment success rate- percentage of TB cases successfully treated among all TB cases registered for treatment during Jan-September 2018	85% (12077/14208)	77% (9802/12733)	91%

Major achievements under PFMS are:

- Increase in expenditure filing under PFMS from 95% to 100% in all districts of states supported by The Union.
- 82% of the total expenditure under National TB Elimination Programme in the FY 2019-20 has been through PFMS.
- Increase in disbursement of NPY benefits from 56% to 73% eligible beneficiaries.
- Capacity building in PFMS for all the incumbent National TB Elimination Programme finance personnel
- Timely reporting of DBT progress in the DBT Bharat Portal of Govt. of India in all 'The Union' supported states.

OR Training 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 supported by The Global Fund since 2011. Module 3 of the 5th OR training course that was inaugurated on 20th August 2018was conducted from 22-26 April 2019 at NITRD.

2. Karnataka Health Promotion Trust (KHPT)

KHPT is a not-for-profit health organization which designs and implements patient-centric innovations across the continuum of care,

engaging stakeholders in the community, public health facilities and the private sector, to work towards ending TB. KHPT implements the United States Agency for International Development (USAID) funded Tuberculosis Health Action Learning Initiative (THALI) and the Joint Effort for Elimination of Tuberculosis (JEET), funded by the Global Fund (GFATM), as a sub-recipient to FIND.

Tuberculosis Health Action Learning Initiative is implemented across 24 districts in 3 states - Karnataka (KHPT), Telangana and Andhra Pradesh (TB Alert India) - covering a population of 67.9 million.

Innovations in Community Engagement and Patient Support

- KHPT and TBAI engaged with existing and fully-functional **Community Structures,** including women's self-help groups, labor unions, faith-based organizations and youth associations that reach or represent vulnerable populations in different geographies- to enable them to play a catalytic role in driving the health and TB agenda within communities.
- **A Differentiated Care Model** was developed to prioritize patients for care based on the following categories: age >60 years, living alone without family support, alcohol use, previously treated patients, DR TB, HIV TB, and Diabetic TB.
- Facilitated formation of Patient Support Groups which meet once a month at health facilities to share their experiences and avail additional care and support services.

Achievements of these innovations are given in the table below:

Community Structure engagement (June –Dec 2019)	
Number of Community Structures identified	388
Number of presumptive referrals from Community Structures	1506
Number of TB patients identified	141
Differentiated Care Model	
Number of TB patients identified under DCM category (Jan –Dec 2019)	6814
% of DCM patients with successful treatment outcome (Jan-March 2019 , Karnataka)	80%
Patient Support Groups	
Proportion of DMCs conducting Patient Support Groups meetings every month (June – Dec 2019)	91.60% (152 out of 166 DMCs)
Cumulative number of TB patients attended Patient Support Group meetings	2879

KHPT partners with state in counselling initiative for TB frontline staff:

KHPT trained 63 health education officers as

master trainers, using a counselling training module and job aids developed to aid frontline workers in counselling TB patients. These master trainers facilitated cascade trainings for 515 National TB Elimination Programme staff, including 252 TB Health Visitors (TBHVs), 227 Senior Treatment Supervisors (STS), 27 Public Private Management (PPM) Coordinators, 6 DR-TB Counsellors, and 3 District Program Supervisors in all 30 districts of Karnataka.

The success of this year-long initiative, which has the potential to be scaled up at national level, was made possible by phenomenal administrative support from state National TB Elimination Programme officials and KHPT's technical expertise.

E-learning module: diagnosis& management of TB for health care providers

An e-learning module developed by St. John's Medical College, Bengaluru, and KHPT under THALI was launched in August 2019 by Dr Manjula, former State TB Officer and Additional Project Director, Karnataka State AIDS Prevention Society. This course is for healthcare providers, both public and private, to take a self-paced, easy-to-navigate course on diagnosis and management of drug sensitive TB.

KHPT designs communication materials for 'TB Harega Desh Jeetega' campaign:

The Central TB Division released a set of communication materials developed by KHPT at the launch of the 'TB Harega, Desh Jeetega' campaign in New Delhi in September 2019. KHPT contributed a set of 12 posters, which were designed to provide essential information through engaging and colourful visuals. KHPT also supported the editing and design of a handbook on TB for elected representatives.

Private Sector engagement:

KHPT is implementing the JEET project to improve private sector TB notification through hub-and-spoke model in three National TB Elimination Programme districts of Bengaluru City, Bengaluru Urban and Bengaluru Rural covering a population of 112 lakhs.

Number of Hubs established	Number of spokes linkages	Facilities sensitized at least once	Facilities registered by project	CMEs conducted	Samples transported	Total Notification claimed (2019)
48	730	5693	2967	17	5297	8937

Private sector TB notifications contributed to 32% of total TB notifications in the three districts.

3. Saksham (TISS)

Saksham Pravaah, a Tata Institute of Social Sciences project, supported by the Global Fund for AIDS, TB and Malaria in partnership with the Central TB Division (CTD), Ministry of Health and Family Welfare, has been providing psychosocial counselling to DR-TB patient and caregivers through Saksham DR-TB counsellors, based on the social structural approach to disease prevention and control in Mumbai, Maharashtra, Gujarat, Karnataka and Rajasthan. Currently there are 214 professionally trained counsellors on board across the 4 states.

In 2019, Saksham DR-TB counsellors have counselled 93% of the patients within 15 days of diagnosis for early treatment initiation. Among the DR TB patients initiated on treatment by National TB Elimination Programme during

the year more than 95% were registered for counselling services. Understanding the importance of involving caregivers as partners in treatment completion, 90% of the registered TB patients' caregivers were also registered and counselled. Within initial 3 months of treatment, each patient received 1 treatment initiation counselling session and an average of 2.2 priority based follow up counselling sessions. Saksham counsellors are alert about any instances of TB treatment interruptions and out of the total treatment interruption instances, 77% patients were counselled and were retrieved back on regular treatment. With social protection scheme linkage being one of the major thrusts of Saksham counsellors, they have successfully linked 3536 patients and their household members to various government schemes and arranged nutrition support service to 1694 patients through private donors and NGO's. Saksham's 2019 achievements are summarized below:

Sr. No.	Indicator	Expected achievement	Saksham achievement	
1	Proportion of diagnosed DR-TB patients subjected to pre-treatment initiation counselling within 15 days of diagnosis	>90%	19343/20805	93%
2	Proportion of diagnosed DR-TB patients initiated on treatment within the same quarter (out of 1)	>95%	15253/19343	79% (End of quarter diagnosed patients are initiated in the subsequent quarter)
3	Average no. of counselling sessions conducted for one patient during initial 3 months of treatment	Average/ Mean 1 to 1.5	43560/19462	2.2 average follow up sessions + 1 initiation counselling session for each patient
4	Proportion of DR-TB patients whose family caregivers registered for counselling services	80%	16692/18655	90%
5	Total no. of patients linked to social support schemes	>80%	3536	Additionally, 1694 patients were linked to nutrition support schemes through private donors and NGO's.

Sr. No.	Indicator	Expected achievement	Saksham achievement	
6	No. of counselling sessions conducted for DS-TB patients		19109	
7	No. of patients offered counselling sessions focussing on tobacco/ alcohol de addiction	100%	20379/20379	100%
8	Proportion of patients who are counselled before deciding them as loss to follow up during a quarter.	100%	1538/1644	94%. [Currently 208 are untraceable and 60 have died. 542 were retrieved on treatment through counselling within same quarter]
9	Total no. of patients counselled who have reported interruption of treatment or missed doses before declaring them as lost to follow up		8597	6594 (77%) were retrieved on treatment through counselling within the same quarter
10	Proportion of patients who had successfully completed their treatment without interruption or interruption period less than7 days in IP/CP	>90%	2914/4955	59%
11	No. of districts covered in the country		180	
12	No. of counsellors in place	>95%	214/214	100%
13	Number of Regional DR-TB coordinators are in place on the last day of reporting quarter	>95%	1/1	100%

4. SAATHII

Catalyzing Paediatric TB Innovations (CaP-TB project)

Catalyzing Paediatric TB Innovations (CaP-TB project) is a four year (Oct 2017 – Sept 2021) multi-country Paediatric TB initiative supported by UNITAID and Elizabeth Glaser Paediatric AIDS Foundation (EGPAF) with SAATHII acting as the implementing partner in India to enable rapid scale-up of paediatric TB services across private health sector through evidence generation. The project joins hands with Indian Academy of Paediatrics (IAP) for joint ownership, training of its member Paediatricians on practicing national guidelines and standards of TB care, ensuring notification of paediatric TB positives and their treatment outcomes.

The following are the key project outputs by end of 2019:

- Supported the Central TB Division (CTD) in conducting a one-day National level ToT on "National TB Elimination Programme Updated Pediatric TB Guidelines 2019" in collaboration with Indian Academy of Paediatrics where 138 participants were trained.
- Conducted three state level ToTs during June-July 2019 training 214 members followed by district level Continuing Medical Education (CME) trainings during August to December 2019.
- Total of 726 IAP members participated in a quiz on the Paediatric TB Guidelines, as part of a World TB activity 2019.
- Following up on private sector mapping and Nikshay registration of facilities in CaP TB implementation districts.
- CaP TB project got the necessary approvals for evidence generation through the paediatric TB implementation model of hub and spoke sites and the rest of the paediatric practitioners are being established as Referral Sites for linkages with private hub and spokes or government facilities. The intervention activities began across all districts in the CaP TB sites starting July-Aug 2019, including the support to CaP TB sites for sample collection, sample packaging and transportation, and linkages with National TB Elimination Programme for Nikshay reporting, paediatric TB FDC drug supply, and outreach tracking.
- A total of 2081 Paediatric Presumptive TB and 609 Paediatric TB cases were identified and reported in Nikshay. Out of these, 60% were tested microbiologically and CXR was done for 56% of the presumptive TB cases. A total of 609 paediatric TB cases were identified. Contact tracing was undertaken for all Paediatric TB index case households from April 2019 onwards. Contact tracing has been completed for 59% of the eligible index TB case households with around 850 household members screened including 77 under-6yr old children. A total of 56 children were found eligible for preventive therapy, out of which 10 children were initiated on IPT. Nearly all (98.7%) of the paediatric TB cases in the CaP TB implementation districts were reported in Nikshay, and the DBT

details were collected and updated for 57% of the cases with 35% of the cases also receiving the DBT benefits.

- CaP TB team took up Ahmednagar district of Maharashtra for the public sector intervention model, a district of excellence for paediatric TB management

5. Global Health Strategies

Global Health Strategies (GHS) uses expertise in policy research and communications to enable evidence-based solutions on issues of public health importance. Supported by the Bill & Melinda Gates Foundation on its work toward TB elimination, GHS works to raise public discourse and build awareness on tuberculosis (TB) in India, through audience-specific materials and communications strategies.

In the last few years, GHS has worked closely with and supported the Central TB Division to raise public discourse and build awareness on tuberculosis (TB) in India through audience-specific materials and communications strategies. That has also helped in garnering attention of all key stakeholders toward the initiatives introduced by the Government of India and the action taken to prevent, manage and control the spread of TB in the country.

1. Building ownership of the TB program among elected leaders and influencers:

In line with the NSP, GHS developed a dashboard/checklist to assist Members of Parliament (MPs) and Members of Legislative Assembly (MLAs) in tracking progress of the TB program in their respective constituencies. The dashboard, developed in consultation with the CTD and the WHO, includes over 20 key indicators and provides an overview of the program in a specific district. In 2019, over 10 MPs and MLAs utilized the dashboard which helped them understand the prevailing challenges faced by the district TB officers.

TB Dashboard for District Review					
No. of notification of TB patients of the district in 2017		1000		Section header	NO DATA ENTRY is required, these will automatically calculate based on data entered
No. of notification of TB patients of the district in 2018		1000		Enter Data in these cells	
No. of DR-TB patients notified in 2018		50		Qualitative Question	
Notification target of the District for 2019		1500			
Population of the District		1000000			
Data from <placeholder for date> to <placeholder for date>			Notification Rates (per 100000 population)		
Notifications			District	State	National
No. notified TB cases		500	Notification Rate	Notification Rate	160
No. of public sector notifications		300	60% of total TB cases notified	% of Total Notified	74.84%
No. of private sector notifications		200	40% of total TB cases notified	% of Total Notified	25.16%
No. of paediatric TB patients		25	5% of total TB cases notified	% of Total Notified	6.17%
No. of HIV-TB patients		25	5% of total TB cases notified	% of Total Notified	3.40%
No. of DR-TB patients		25	5% of total TB cases notified	% of Total Notified	2.70%
Case Detection					
Number of people identified as vulnerable (for active case finding exercise)		500000	50% of total district population		
No. of people screened under active case finding exercise in 2019		250000	25% of total district population		
No. of patients identified via active case finding		100	4% of the screened		
No. of patients tested for DR-TB		250	50% of total TB cases notified		
No. of TB patients for whom contact tracing was done		300	60% of total TB cases notified		
Private Sector Engagement					
No. of private sector providers mapped		50			
No. of private sector providers notifying cases		30	60% of private providers mapped		
No. of private providers who have received DBT for notifying cases		15	50% of private providers notifying cases		
No. of private providers who participated in CMEs (or any other function of the PPSA/lite scheme)		15	30% of private providers mapped		
Social Support to TB Patients					
No. of public sector patients enrolled in NPY		240	80% of total public sector notifications		
No. of public sector patients who have received atleast 1 NPY payment		180	60% of total public sector notifications	NPY: Nikshay Poshan Yojna	
No. of private sector patients enrolled in NPY		100	50% of total private sector notifications		
No. of private sector patients who have received atleast 1 NPY payment		80	40% of total private sector notifications		
Any other Social support benefit offered to patients		N	If yes, please provide number of beneficiaries and details of social support benefit		

GHS engaged and sensitized over 50 MLAs from high burden states.

MLA roundtable in Patna, Bihar chaired by Bihar's Health Minister, Mr. Mangal Pandey

- *Community Engagement and Leadership Development Model*for TB in Nakha block of Lakhimpur Kheri district in Uttar Pradesh engaging over 100 community leaders including the district MP, MLAs, Gram Pradhans, school principals, religious leaders and other public influencers, covering all 73 panchayats in the block.

Promoting accurate and nuanced reportage on TB by organizing media sensitization workshops supported the State TB Offices in three target states – Maharashtra, Rajasthan and UP.

Supported CTD in creating awareness through social media, particularly by utilizing the TB Harega Desh Jeetega campaign handles on Twitter and Facebook

6. Global Coalition Against TB

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.

Meeting at the Union Conference on Lung Health in Hyderabad: In partnership with the Ministry of Health and Family Welfare, and the World Health Organization's Regional Office for South East Asia, the GCAT organized a meeting on the sidelines of the 50th Union Conference on Lung Health in Hyderabad, comprising of two panel discussions - Harnessing Political Ownership of the TB Program and Strengthening Inter-Sectoral Coordination for a Patient Centric Approach to TB Care. The meeting brought together a diverse set of stakeholders and saw MPs and the President, GCAT talk about their experiences in supporting their district TB officers and highlighted potential collaborations between various stakeholders that may be established at the national and state level to provide additional social support to TB patients. Mr. Vikas Sheel, Joint Secretary in-charge of TB in the MoHFW highlighted the government's effort in building a multi-sectoral approach towards TB care.

*GCAT Expert Group Meeting i*n March 2019, brought together 11 public health specialists under the umbrella of the GCAT and provided recommendations that were presented to the Ministry of Health and Family Welfare's leadership.

The India Health Fund, an initiative by the Global Fund and the Tata Trusts, partnered with the GCAT to organize the 'TB Quest' awards ceremony.

Active Engagement with Global Fund representatives.

7. Foundation for Innovative and New Diagnostics (FIND)

Foundation for Innovative New Diagnostics (FIND) in partnership with the Central TB Division continues to complement the Government of India's efforts in ending TB. In 2019, FIND has undertaken the following activities:

Establishing and supporting culture and DST laboratories:

- Under the ongoing Global Fund Grant, FIND is establishing 20 culture and DST laboratories across the country in two phases. In 2019, establishment of 10 labs has been undertaken of which 4 have been validated and handed over to the sites. The remaining labs are in advanced stage and will be handed over in early 2020. Preparation for establishing another 10 labs in phase was initiated.
- Supported the entire network of 62 TB labs by providing required consumables and reagents. In addition, maintenance services (both preventive and break down) were provided for nearly 3500 essential lab equipment during this period.
- Supported the organization of three Regional National TB Elimination Programme review meetings (Jan 2019 at Mumbai; Mar 2019 Raipur; Apr 2019 at Chandigarh) for regular review of the laboratory performance at the Regional level.
- Provided HR for the entire CDST lab network, under GoI funding, which included nearly 350 laboratory personnel. Through this support FIND facilitated conduct of over 150,000 liquid cultures and over 160,000 DSTs including first and second line LPA and liquid DST.

Scaling up CBNAAT EQA in India

- Working with National TB Institute Bangalore (NTI) to scale up Cartridge Based Nucleic Acid Amplification Test External Quality Assurance (CBNAAT EQA) in a phased manner across the country in CDC PATH funded project. With technical support of CDC Atlanta, NTI and FIND have developed in-country capacity to manufacture proficiency testing (PT) panels for CBNAAT EQA at International Center for Excellence in Laboratory Training (ICELT)-NTI. PT panels were sent to participating sites and results were released for 664 CBNAAT machines across 622 sites from public and private sector in May 2019. Analysis of EQA data showed 651 (98%) out of 664 machines have satisfactory proficiency scores (80% or more).

E-training content development

FIND under the USAID funded Challenge TB project developed a comprehensive set of e-training modules for induction and refresher training of laboratory staff for TB diagnostic tests including sputum microscopy, Liquid Culture and DST, LPA and GeneXpert besides related modules on biosafety and equipment maintenance. The e-training contents are hosted at WHO's Swasth E-Gurukul site.

Laboratory Information Management System (LIMS):

After piloting and installation of LIMS hardware in 2018, onsite demonstration trainings were carried out at all TB C&DST Labs for implementation by FIND and KPMG across 55 sites. LIMS software is available offline, designed to provide results of the patients and to track sample flow and various testing levels. Besides providing various data analytics, it also monitors human resource availability, their training, equipment maintenance (breakdown, preventive services), sample storage and bio medical waste management, with a call centre service to resolve hardware and software related issues. LIMS-Nikshay integration is ongoing and will help reduce efforts in reporting by the laboratories.

Preparing TB laboratories for NABL accreditation using customized NABL TB SLMTA approach

FIND, under the CDC-PATH supported project, is strengthening Quality Management System (QMS) at TB Laboratories using a customized NABL-TB SLMTA approach for NABL (ISO 15189) accreditation.

NATIONAL TB ELIMINATION PROGRAMME-World Bank Workshop (left) and National Consultation (right)

Stakeholders meeting for preparing identified TB Laboratories towards NABL accreditation using a customized TB SLMTA Approach on 22nd Feb 2019 at NTI Bangalore

Five sites (NTI Bangalore, C&DST TB lab Raichur, IRL Bangalore, IRL Visakhapatnam, IRL Ahmedabad) were supported for NABL preparatory activities. After initial assessment, these labs were mentored through a series of workshops and onsite mentoring to strengthen documentation and quality implementation. All labs have successfully completed their internal audits by external NABL auditors and plan to apply for NABL accreditation in Jan-Feb 2020.

Additionally, technical support was provided to 11 TB-CDST Labs for maintenance of NABL accreditation. As part of this support, mentoring visits were conducted to guide labs in implementation and strengthening of QMS.

Technical assistance to states/ institutes for upgrading C-DST Labs using state funds FIND, with support from Janssen is providing technical assistance and guidance for upgrading the TB C&DST laboratories work in Maharashtra (3 sites), Tamil Nadu (2 sites) and Himachal Pradesh(2 sites) using state/ institute funds. These seven labs are expected to be functional in 2020.

Networks for Optimized Diagnosis to End TB (NODE-TB):

FIND with support from BMGF is undertaking an analysis for network optimization for TB diagnostics (NODE-TB) in India, focusing on informing implementation of India's NSP 'Detect' pillar, which seeks to diagnose all TB cases with an emphasis on reaching TB patients seeking care from private providers and undiagnosed TB in high risk populations.

This work will establish a dataset in India which will inform and guide the programme in network planning and optimization and will include scenarios to optimize the placement of existing and new diagnostic technologies and design efficient sample referral mechanisms. This will include certain optimization scenarios on a pan-India basis, while other scenarios and more in-depth analysis will be conducted in three selected states (Assam, Bihar and Karnataka).

JEET (Joint Effort for Elimination of Tuberculosis)

FIND, is one of the three partners implementing JEET project across six states in 21 PPSA & 73 PPSA lite districts. The states include Andhra Pradesh, Telangana, Karnataka, Punjab, Chandigarh, West Bengal & Himachal Pradesh. Project has catalyzed private sector engagement by deploying Hub & spoke model of private health care providers engagement, conducting CME trainings, supporting sample transport & linkages with DST facilities, active patient follow-ups ensuring complete cascade of TB care.

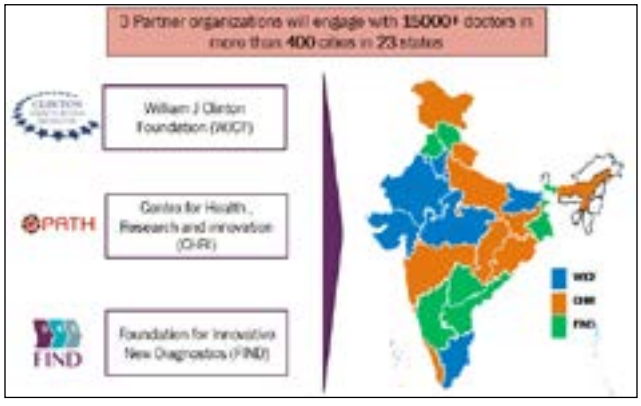
Overall, more than 56,417 patients' notifications have been facilitated in FIND project geography during Jan – Sep 2019 with help from JEET project supported interventions and all of 30,374 TB patients from PPSA districts are being actively followed up for treatment adherence.

8. Joint Effort for Elimination of TB (JEET)

As highlighted in the National Strategic Plan (NSP), the current scale of private sector engagement is insufficient relative to its

size and contribution to TB care, therefore, engaging with private sector practitioners is crucial in achieving universal access to quality diagnosis and treatment for TB. There are gaps across the patient care cascade on account of under reporting, diagnostic delays, unsupported treatment and catastrophic out of pocket expenditure to patients. These challenges have made it difficult for program to effectively engage with the private sector for reducing gap in case notification and improved treatment rate.

The total budgetary support from Global Fund is



about $38 Million for three consortium partners from Jan 2018 – Mar 2021 to successfully achieve the project objectives and goal. JEET (Joint Effort for Elimination of Tuberculosis) project aims for intensive engagement with the private sector to achieve universal access to quality diagnosis and treatment for TB and help the nation in achieving its NSP targets of TB elimination with key objectives as to;

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

2. Facilitate nationwide access to National TB Elimination Programme approved affordable TB diagnostics for patients seeking care in the private sector through public and private lab network for increased notifications and 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 to achieve 1.6 million notifications over three years of its implementation and facilitate successful outcomes of 70% among the cases notified from private sector.

The Joint Effort for Elimination of TB (JEET) is being implemented in 478 districts across 24 states. Overall, more than 4.5 lakh cases have been notified in 2019 from JEET PPSA sites alone, contributing to nearly 34% of the total private sector notification in the country. At the consortium level, JEET has been successful in implementing quite a few activities, like mapping of health facilities across the country, amplifying & replicating best practices, technical review and support from Nikshay portal, support for roll-out of PIP scheme in PPSA lite districts and operational research to study patient care, diagnosing and behavioural practices.

9. PATH

Institutionalize sustainable private-sector engagement project supported by Bill and Melinda Gates Foundation:

PATH has been instrumental in supporting The Global Fund's intervention of 'Joint Effort for Elimination of TB' (JEET) and also supporting the Central TB Division to scale-up and institutionalize PPSAs. Additionally, PATHs interventions have sought to create framework to facilitate

decision making (at the national and at state level) and push for strategic contracting as a sustainable mechanism for private-sector engagement within National TB Elimination Programme.

1. Engagement with National Technical Working Group for Private Sector engagement and key Stakeholders

   The Central TB Division recognized the need to revamp and revise the PPM guidelines to keep with the times and to suit the increased programmatic needs in lines line with the elimination goals. After the CTD constituted the National Technical Working Group and designed the ToR for the group, PATH supported the division in a series of steps:

   - Literature review and landscaping output-based contracting through private sector.
   - Facilitating series of consultation meetings with national and international experts and stakeholders to seek feedback and inputs on how the program could devise new approaches for private sector engagement,
   - Drafting , reviewing and designing the "Guidance Note on Partnerships" which covered important topics like needs assessment frameworks, new and updated partnership options, performance –based payment systems and establishing Technical Support Units Development of a costing tool to help states governments and potential partners to estimate the costs of operationalizing a PPSA.

2. Technical Support to States to procure public-sector funded Patient Provider Support Agency(PPSA) States are taking more interest and stewardship to implement PPSA. To support and sustain this momentum, PATH has been working with CTD, other Development Partners in the following areas:

   - Supporting the state to plan and budget the PPSA in the Programme Implementation Plan (PIP)
   - Collaborated with CTD and other development partners to form a PPSA Core team who played a very hand-on role to support states to prepare RFP documents and through the bidding process.

State-level PPSA workshops – Andhra Pradesh (left) and Karnataka (right)

NATIONAL TB ELIMINATION PROGRAMME-World Bank Workshop (left) and National Consultation (right)

3. Workload Assessment Study: CTD recognizes how program staff and their ability to perform well are critical to achieve the TB elimination goal by 2025. To generate evidence on how the program could improve National TB Elimination Programme staffing norms, on a request from CTD, PATH supported a "Rapid Workload Assessment Study for National TB Elimination Programme". The study gathered and analysed data around time for tasks and workloads. The study has proposed a list of recommendations that CTD is reviewing in detail.

4. Evaluation of Mumbai PPSA: In 2018, Municipal Corporation of Greater Mumbai (MCGM) spearheaded the integration of the PPSA from a donor run program into the public health system. After one and a half year of operations, the program evaluated the program with support from WHO and PATH.

5. In 2019, PATH was instrumental in layering HIV screening and DR-TB linkages services for TB patients diagnosed within the PPSA network. The learnings from pilot projects in 10 wards of Mumbai were used to develop Standard Operating Procedures (SOP) and training modules which supported the scale-up throughout the city.

6. Operationalization of India's first DR-TB centre in the private sector in India to provide access to Bedaquiline (BDQ): PATH supported and coordinated with MCGM and Hinduja hospital to set up a DR-TB treatment centre that now offers access to BDQ for patients in the private sector as well. In the program, access to these drugs is offered exclusively to patients registered in the DR-TB program. With the inauguration of this centre, the program is looking to ensure that every deserving patient is treated with newer drugs free of cost.

PATH in consultation with CTD is developing a PPSA Costing Tool and Manual along with a Needs Assessment Tool which is in final stages of completion.

Key achievements:

Led by CTD, PATH and other partners facilitated the preparation of bid documents (Request for proposals) for most of the states who received approvals in PIP(19-20). Jharkhand, Mumbai and Gujarat have brought an agency on board, and in other states the process is at various stages.

2. Release of the Partnership Guidance Document: The Union Minister for Health and Family Welfare released the "Guidance Document to Implement Partnerships" on 16th November 2019 at the Good Replicable and Innovative Practices Workshop under National Health Mission (NHM). PATH coordinated very closely with the CTD at every stage of the formulation of the guidelines. To develop the revised guidelines, a series of workshops and consultation meetings with national and international experts were held.

Partnership Between Hinduja and MCGM

Launch of Guidance Document by Honourable Health and Family Welfare Minister

Global Health Security Agenda (GHSA) project supported by Centre for Disease Control:

The Global Health Security Agenda (GHSA) project through PATH intended to establish a "test and refer" model for patients with DR-TB in Mumbai's private health care sector.

The existing Patient Provider Support Agency (PPSA) project offers free chest X-rays followed by Cartridge Based Nucleic Acid Amplification Tests (CBNAAT) at the public sector laboratory, to all the presumptive cases of TB through the engaged private providers.

The project supports patients seeking care in the private sector from the time of diagnosis with resistance right up to being linked to the nearest health post as per the patient's domicile ward for treatment continuation. PATH Treatment Coordinators (TC) are mapped to the District TB Centre of his/her allocated ward and regularly communicate with the Senior DOTS Plus TB-HIV Supervisors (SDPS) to provide information and keep track of patient's treatment and migratory status. All patients registered under the project receive adherence support and home visits administered through the TCs. Follow up tests,

as stipulated by DOTS plus guidelines, are conducted at the public sector DR-TB centres.

The project is currently implemented in seven geographically contiguous and densely populated wards in the western suburbs of Mumbai – H/East, H/West, K/East, K/West, P/North, P/South (spanning Bandra, Andheri and Malad suburbs) along with L ward (spanning Kurla suburb). Activities have been expanded to R, N, S, T wards after approval from the National TB Elimination Programme in the reporting year (PY4) through the Patient provider Support Agency (PPSA) NGOs.

The C&DST tests are transitioned to the public sector by October 2019. In the first quarter of year 2020 the project will be fully transitioned to the public sector including the PTE testing to the PPSA NGOs.

Peer Group Session under GHSA project

TB REACH supported by Stop TB – TB REACH:

In Nagpur city, PATH implemented private public intervention with 'Make in India' technologies under TB REACH wave 6 grant funded by Stop TB. The intervention includes artificial intelligence (AI) to screen chest X-Rays of presumptive TB patients to accelerate diagnosis of private sector patients and confirm the patients with abnormal findings using NAAT test in the form of TrueNAT placed in public sector hospital. Out of the 175 patients were detected through the intervention, 151 were screened positive by AI.

Based on the learnings and experiences gathered from the Nagpur experience, the MCGM recognized the value of installing an AI mechanism for X-Ray diagnostics. The Corporation has proposed and opened a tender to invite agencies to partner with them for the scale up of AI in public sector facilities.

10. India Health Fund

India Health Fund (IHF) seeded by Tata Trusts, with a commitment of US $15 million over 3 years, and strategic support from The Global Fund, has been aiming at accelerating innovations towards elimination of Tuberculosis (TB) since 2017. It is incorporated as Confluence for Health Action and Transformation Foundation, as a section 8 company registered under the Companies Act 2013.

In 2019. IHF engaged intensively on analysis of underlying factors contributing to the burden of TB in India. IHF conducts a nationwide call for proposals known as 'Quest' for innovations wherein innovators social entrepreneurs

working towards disruptive solutions are invited to address the curated problem statements.

In February 2019, IHF launched the Quest for Innovations towards Eliminating Tuberculosis (TB Quest 2.0) at the Sixth Pre-Replenishment Meeting of The Global Fund. Through a robust screening and evaluation of proposals from entrepreneurs and innovators promising projects were selected for support. To ensure a smooth transition from the laboratories to markets for these innovations, IHF brings together a team of scientists, public health professionals and medical practitioners who guide and mentor the innovators in their journey.

5. Winners of the TB Quest were awarded grants in a ceremony held on December 16, 2019 in New Delhi.

Today, IHF has curated and invested in a diverse portfolio of innovations that address TB – with focus areas in diagnostics, screening, drug adherence, and airborne infection control. For instance,

- CisGEN Biotech Discoveries Private Limited has come up with a point-of-care diagnostic kit, with a potential to detect animal TB to prevent transmission from animal to humans.
- Qure.ai has developed an AI-driven solution to capture analog chest x-rays by using deep learning technology for rapid identification of presumptive TB cases and averting delay in diagnosis.
- Valetude Primus Healthcare Private Limited (VPH) has developed an immuno-magnetic cell capture technology, which can be used at the community level to supplement Sputum Smear Microscopy (SSM) to diagnose TB.
- The Centre for Health Research and Innovation (CHRI) is creating an ecosystem for faster diagnosis and treatment initiation for TB patients through Molbio Diagnostics Private Limited's Truelab Real Time quantitative micro-Polymerase Chain Reaction system and focusing on its execution at district and sub-district level.
- For improving TB treatment adherence, Sensedose Technologies Private Limited has developed the TB Monitoring Encouragement Adherence Drive (TMEAD), which is an Internet of Things (IoT) based medicine dispenser that aims at leveraging the power of physical alarm based and digital notification based reminders to make sure patients never forget to take medicines.

In 2019 IHF signed MoUs with the Central TB Division (CTD), Government of India, Tata Trusts, The Global Fund, The Stop TB Partnership and most recently with the National Institute for TB and Respiratory Diseases (NITRD), Delhi. IHF also worked very closely with civil society organizations, TB Patients and Survivors and research institutions.

IHF was an active participant at The Global Fund's Sixth Replenishment Conference, held in Lyon, France, in October 2019, where it showcased its projects through an exhibition and also engaged in policy discussions related to need for higher funds to eliminate the disease.

At the 50th Union World Conference Lung Health, held in Hyderabad in November 2019, IHF co-organized a satellite Session with Sanofi and The Union – titled *Managing Latent Tuberculosis Infection (LTBI): A Way Forward*. The key objectives of this session were to understand the graveness of LTBI scenario in India (programmatic and immunological) and call for urgent action and explore opportunities for public-private partnerships to address LTBI.

In November 2019, IHF was invited to present on its unique aggregator model on enabling and funding innovations in TB at the VI BRICS TB Research Network Meetings.

IHF will be striving to look at wider areas of gaps and problems affecting TB and continuously scout for solutions that can fast-track the process of achieving zero mortality and finally elimination.

11. 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 in ten countries. In India, the STRIDES team has undertaken a set of activities to strengthen Liquid Culture (LC) laboratories and the diagnostics network for DR TB.

As a follow-up to the two-day training of trainers (ToT) at NTI Bangalore and JALMA Agra in 2018, this year the STRIDES team conducted skill assessment of laboratory staff at 10 Culture and Drug Susceptibility Testing (C-DST) laboratories to assess the skill level of laboratory staff pertaining to LC & DST from August 2019 to September 2019. Using the findings of these assessments, a targeted two-day hands-on training was conducted at each of the ten laboratories to strengthen the knowledge and practices for LC and DST from November 2019 to January 2020.

Additionally, in August 2019, a meeting was held at NTI Bangalore to discuss findings from the on-site lab assessments conducted at four labs in 2018, and action plans were developed with short, medium and long term actions. In order to conduct similar assessments across public sector laboratories, a standardized LC lab assessment checklist was developed in consultation with the National TB Elimination Program (National TB Elimination Programme). The STRIDES team plans to use the checklist to undertake assessments of more public sector LC labs in 2020.

In January 2019, the STRIDES project team organized a training and demonstration of the EpiCenter/TB-eXiST data management system at NTI Bangalore. In August 2019, after six months of demonstration, structured

feedback was collected from NTI Bangalore on the utility of the system for public sector LC & DST laboratories. The feedback was shared with the National TB Elimination Programme for their consideration.

The team also undertook an assessment of specimen referral system (SRS) for TB testing in Mumbai. Based on the findings, an action plan was developed with National TB Elimination Programme to address the gaps identified. As a follow up, site visits in Delhi, Bangalore and Bhubaneshwar were conducted to explore use of barcodes and other real time tracking mechanisms to improve specimen logistics with the aim of measuring and reducing the Turnaround Time (TAT) from sample collection to result availability, thereby allowing faster initiation of treatment for TB patients.

12. SHOPS Plus- Sustaining Health Outcomes through the Private Sector Plus

USAID supported project for the period January1 to December 31, 2019, with Implementing partners: Abt Associates Inc. and Population Services International (PSI)

SBCC Activities of SHOPS Plus

To reduce stigma and discrimination associated with TB. the project supported National TB Elimination Programme's SBCC plan for stigma reduction. SHOPS Plus conducted a multi-fold methodology study including desk research, focus group discussions, in-depth interviews, and technical discussions to gain an understanding into how people respond to persons with TB, and how stigma affects those affected.

Based on the learnings, a communications strategy was developed to improve behavioural norms aimed at mitigating stigma and discrimination faced by persons with TB, and the strategy in turn led to the development of 2 TV commercials ('*Family Photo*' and '*Last bench*'), 2 radio spots, and 3 out-of-home creatives for an anti-stigma campaign by the national program. These creatives were launched by the Dr Harsh Vardhan, Hon. Union Minister for Health and family Welfare at the TB Harega Desh Jeetega Campaign launch on September 25 2019.

SHOPS Plus Activities in Madhya Pradesh (MP)

- Through partner, PSI, activated the integration of TB detection and treatment support activities using the National Urban Health Mission (NUHM) platform in five cities: Jabalpur, Ujjain, Gwalior, Rewa and Sagar. SHOPS Plus facilitated development of city action plans for integrating TB activities with the NUHM activities, and institutionalized mechanisms for monitoring progress through the Urban Health Common Coordination Committee (UHCCC) at the state level. Urban Primary Health Centers (UPHC) were activated to provide TB screening,

diagnosis, and treatment services. SHOPS Plus coached and mentored 644 NUHM frontline workers to carry out TB screening, referral and treatment adherence support, reaching 140,000 households in urban slum pockets, identifying 15,604 presumptive TB cases, and contributing to 1,535 TB patients being diagnosed and linked with TB treatment.

- SHOPS Plus, in collaboration with CTD, co-designed a mechanism for delivery of free FDC drugs, diagnostic services, and treatment adherence support, to TB patients treated by private health care providers, through an e-pharmacy in MP. SHOPS plus forged a partnership with Medlife International Private Limited, the largest online pharmacy in India, to demonstrate doorstep delivery of free TB drugs and diagnosis to private patients. The Government of MP approved implementation of this mechanism in three cities: Bhopal, Indore, and Jabalpur. In December 2019, the initial month of implementation, 100 private presumptive TB patients were provided sputum collection and transportation, and 20 TB patients were provided free FDC drugs through the e-pharmacy platform.

- SHOPS Plus, in collaboration with the Government of MP, facilitated the development of a MP state specific strategic plan for TB elimination. This action plan, based on the NSP for TB Elimination: 2017-2025, was launched in November 2019 by the Chief Minister of Madhya Pradesh.

13. Southern Health Improvement Samity (SHIS)

Some key sub-populations in the country have remained somewhat "unreached" to National TB Elimination Programme and are not diagnosed early enough in their course of their disease. Such key populations are often found in the most geographically hard-to-reach areas such as the riverine forest regions of Sunderbans. Here, against the backdrop of insufficient primary care infrastructure, the largely marginalized residents of these areas suffering from TB symptoms often gravitate towards Non-Formal Health providers (NFHP's) mainly for symptomatic relief. This population finds the proximity and flexi-timing of the NFHPS as a big advantage. Thus, NFHPs are often the first point of contact with the TB patients even though they have no medical qualifications.

Southern Health Improvement Samity (SHIS) found that engaging with the NFHPs will help identify the TB symptomatic, early in the course of their symptoms, with the use of mobile (app) technology.

Sputum samples collected from these presumptive TB cases are tested using National TB Elimination Programme guidelines and patients diagnosed with TB are put on standard National TB Elimination Programme regimen promptly. With the help of NFHPs, a very large portion of population which was outside the benefits of early standardized TB care are now within grasps of symptomatic identification and treatment completion, which is mitigating the suffering and economic burden of protracted TB disease on the patients and their families and at the same time cutting short the period of spread of TB infection from them.

SHIS is currently implementing the said innovative programme in 19 blocks of Sunderban delta region, comprising of North and South 24 Parganas District of West Bengal.

The project was started from April 2018 as Sub Recipients of Global Fund under Central TB Division. During the implementation phase of January 2019 to December 2019, SHIS was able to identify 946 TB Patients, 9 MDRTB cases and 3 TB/HIV co-infected cases and 11 HIV reactive cases.

SHIS has achieved its overarching objective to develop a model, whereby SHIS engages with the NFHPs on behalf of National TB Elimination Programme, so that people with symptoms of TB reporting to these grassroots-level providers can be identified early in the course of their symptoms and put on treatment without any delay.

NFHPs delivering TB medication to patients in the Sunderbans

14. Clinton Health Access Initiative

The Clinton Health Access Initiative (CHAI) and its affiliate William J Clinton Foundation (WJCF) have been providing technical, strategic, operational and analytical support to address India's TB burden through multiple initiatives at state and central level.

- **Joint Effort for Elimination of Tuberculosis (JEET):**
  - Through the Global Fund supported JEET project, WJCF is engaged in furthering the ambitious vision articulated in the National Strategic Plan of effectively engaging the private sector in significantly improving access to care and treatment for TB. The program aims to improve TB notifications, and, broaden access to quality diagnosis and optimal FDCs in the states of Delhi, Haryana, Bihar, Rajasthan, Gujarat, Madhya Pradesh and Tamil Nadu.
  - WJCF leads Patient Provider Support Agencies (PPSAs) in 15 cities and works in close collaboration with National TB Elimination Programme in 135 districts through a lighter touch engagement.

- Since operations began in early 2018, over 10,800 private sector providers were enrolled in the program and 61,963 TB patients notified.
- More than 16,000 people benefitting from free GeneXpert testing through JEET.
- In addition, over 9,620 patients in the private sector received more optimal Fixed Dose Combination (FDCs) medications free of cost through National TB Elimination Programme.
- More than 40,000 patients received counselling by a trained treatment supporter under the program.
- Conducted over 300 Continued Medical Education (CMEs) seminars to disseminate National TB Elimination Programme's standardized treatment guidelines and educate providers.
- Closely supports enhancement to the Nikshay platform through mobile application for providers and patient support.
- Supported design, development and dissemination of appropriate IEC material in the form of flyers, visual aids, posters, educational videos etc.

Building State Capacities in engagement with the Private Sector and Scaling Up Direct Benefits Transfer:

- CHAI, with the support of BMGF, is assisting accelerated scale-up through capacity building of National TB Elimination Programme staff across the full spectrum of activities required for undertaking PPSAs. Under this initiative, CHAI conducted workshops across 14 states. These were attended by the STOs, state National TB Elimination Programme staff and concerned District TB Officers, along with state NHM representatives responsible for finance and procurement of services. These efforts are expected to catalyse states' efforts to undertake output-based contracting wherein private implementation agencies will be contracted to effectively scale up engagement with the private sector.
- Preparing systems and building capacity to support Direct Benefit Transfers (DBT) to incentivise participation of private sector and to provide nutritional support to the patients. Efforts include developing operational guidelines, streamlining processes, improving reach and effectiveness of implementation, setting up robust program monitoring and evaluation systems, training National TB Elimination Programme staff and private agency partners and sensitizing the public and private sector to drive timely disbursement.

TB Free Chennai Initiative (TFCI)

CHAI has been supporting the Greater Chennai Corporation-led TFCI that aims to improve timely detection and appropriate treatment of TB cases

- A CHAI staffed Technical Support Group (TSG) works in close collaboration with the Greater Chennai Corporation in ideation, strategy, procurement, M&E, and operations related to several active case-finding (ACF) interventions being implemented under TFCI

- Facilitated the procurement of seven mobile diagnostic units (MDUs) fitted with digital x-ray machines, which have been screening individuals in high risk areas of Chennai such as urban slums since January 2019. More than 80,000 individuals were screened in 2019 with case-finding increasing from less than ~13 per 100,000 from routine campaign-mode to >500 per 100,000 screenings under the revised methodology.

- Conducting a pilot project in nine urban slums areas to refine ACF efforts through mapping of "hotspot" areas of symptom prevalence and evaluation of risk-profiles of individuals (vulnerability mapping) for intensive monitoring and follow-up.

- These efforts were supplemented by a large-scale prospective study supported by the Surgo Foundation among ~85,000 households used behavioural science and machine learning. to yield insights on care-seeking pathways, predictors of care-seeking, attitudes and beliefs, socio-behavioural segments of care-seekers, influences and health information channels etc. Critical insights from the study are being used to address risk perception and increase care-seeking among key segments such as employed men through direct communication via digital and physical channels.

Increasing Market and Public health Outcomes Through Scaling up Affordable Access Models of Short Course Preventive Therapy for TB (IMPAACT4TB)

- To support CTD's efforts in expanding coverage of Tuberculosis Preventive Therapy, CHAI is working with the program division and ICMR network of institutes to demonstrate the feasibility of short course preventive regimen containing Isoniazid and Rifapentine given once weekly for three months (3HP) among People living with HIV and child contacts of sputum positive pulmonary TB patients in India under routine programmatic settings, the adverse drug events of the and effectiveness of 3HP on TB incidence and mortality over a 12-month follow-up period.

- The UNITAID funded project is a four-year long multi-country project that aims to introduce a new way to tackle latent TB infection (LTBI) by identifying and providing new, shorter treatment options for people with LTBI. IMPAACT4TB will prioritize short-course TB preventive therapy for people living with HIV and children under five enrolling close to 8,000 patients across 4 states (Delhi, Odisha, Maharashtra and Tamil Nadu).

Additional Areas: CHAI has been piloting an operational model to effectively link the private sector patients diagnosed with resistance to Rifampicin to National TB Elimination Programme DR-TB centres. The key objectives of this project are to ensure early diagnosis and initiation of appropriate

15. Tibetan Voluntary Health Association (TVHA)

- Tibetan Voluntary Health Association

signed Memorandum of Understanding (MOU) for the New Global Fund Grant (2018 -2021) in April 2018 with CTD. Under the new agreement, it was decided to expand the project reach to all the established Tibetan refugee settlements covered by 33 TVHA health facilities in India. The activities under the new grant include:

1. Comprehensive TB case detection and management in a Primary Care health facility setting.
2. Capacity building/training
3. Active Case Finding (ACF) in schools and monasteries
4. Community Outreach
5. Supervision and Monitoring by regional and central TB program manager of TVHA
6. Networking with National TB Elimination Programme officers at the PHC, district and state level & Review Meeting
7. Advocacy and Social & Behaviour Change Communication

This year under Global fund funding, TVHA carried out the following activities besides routine outreach work and screening for TB.

Trainings

- Eleven medical officers and TB program officers and seven laboratory technicians working under TVHA hospital and health centres received training on the Technical & Operational Guidelines (ToG) in January 2019 to stay abreast with the guidelines for Tuberculosis control and to enhance the knowledge and skills of laboratory technicians in sputum smear microscopy.
- In September 2019, TVHA (through Central TB Division) in collaboration with National AIDS Control Organization organized two days training on HIV /AIDS, pre and post HIV test counselling, PPTCT and TB HIV services for 17 Tibetan staff nurses/ANMs including 9 TB nurses under Global Fund. It was coordinated through NACO, facilitated by Saksham Prerak project of Tata Institute of Social Science (TISS), and Delhi State AIDS Control Society (Delhi SACS). Basics of HIV/AIDS including Syphilis, TB and other co-infections, PPTCT interventions, pre and post-test communication, TB-HIV collaborative activities were discussed.
- Since earlier assessments showed high TB prevalence among students and monks, TVHA conducted Active Case Finding in 22 schools by trained doctors and nurses.

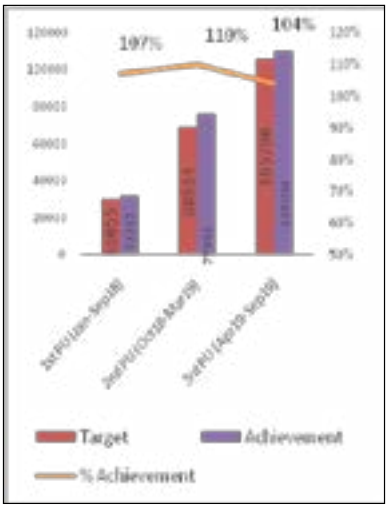
16. CHRI (Centre for Health Research and Innovation):

CHRI, an affiliate to PATH is implementing the "JEET" project in 10 states and 203 districts. The project is being funded through The Global Fund Grant. During 2019, which is the second year of implementation, JEET expanded services to 30 PPSAs and 173 PPSA lite districts. The staff under the JEET project is around 943 including National, State and district teams which work in coordination with the National TB Elimination Programme staff.

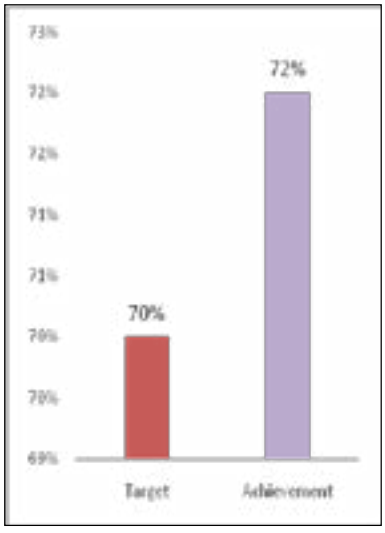
JEET contributed in notifying more than 2,14,000 cases in year 2019 and engaging more than 8000 new private practitioners under the Project and linking them to National TB Elimination Programme. JEET project is also heavily contributing to Direct Benefit Transfers to the private providers and patients

being done by National TB Elimination Programme, by collecting the Bank account details of these patients and submitting to the District TB Officers. JEET has reported 72% successful treatment amongst notified private sector patients which is a major achievement for this year.

Notification



Treatment Success (Jan-Sep''18)



17. Challenge TB (CTB)

The USAID supported Challenge TB (CTB) project was led by The Union and implemented by a consortium of The Union, PATH and KNCV/FIND in India. In its implementation period of 5 years (2014-2019), it has not only achieved its goals but has also been catalytic in changing the landscape of TB services in the country. CTB worked together with National TB Elimination Programme and provided critical support in advocacy, private sector engagement, improving working conditions for TB patients, improving access to molecular diagnostics in private sector and among children, rolling out new drugs and regimen. CTB also introduced digital solutions for training, treatment adherence, and learning management in the country. CTB's work with corporates, civil society organizations, research and academic institutions, media and celebrities and parliamentarians provided TB a national platform and garnered the highest level of political commitment. The project in its life has been successful in contributing to policy and practice, generating evidence, scaling up the best practices, and successfully transitioning the activities. The project was a trendsetter in terms of raising the profile of TB control in the country. The project's efforts contributed to Prime Minister Mr. Narendra Modi launching the "Mission TB Free India by 2025", five years ahead of the global target. The Union continues to support a PMDT unit at CTD, support implementation of new drugs and regimen, scale up universal DST and institutionalize corporate sector engagement through Corporate TB Pledge.

USAID supported Challenge TB (CTB) Significant Achievements

CTB Initiatives	Population Coverage / Duration	Achievements
Call to Action	Pan-India reach (2014-17)	Government of India (GoI) developed the National Strategy Plan to eliminate TB from India by 2025. GoI doubled the annual budget from 2015-16 to 2017-18. Out of 3,029,164 TB patients, 1,961,104 notified TB patients receiving the benefits of the Direct Benefit Transfer scheme of GoI as on June 30, 2019.
Support DR-TB / Shorter Treatment Regimen	Pan-India reach (2016-19)	4,122 patients put on Bedaquiline, 184 on DLM, 20,691 on Shorter Treatment Regimen (STR) since October 2016. STR and new drugs; BDQ & DLM scaled up nationally.
Assessments	2015-2019	CTB conducted the assessment of TB care and management services in Tibetan settlement in India; Supported TB Laboratory diagnostic Network assessment and carried out a Need assessment for ending TB in North Eastern states of India
E-training Module/ Contents	2018-19	PMDT, Laboratory, ADR Management Toolkit, Patient Support System Toolkit, E-training Module for Paediatric initiative, were developed. It is expected that these modules would be uploaded at World Health Organization (WHO) supported e-Swashthya Gurukul for easy reference.
Critical support in infrastructure and services	2018-19	CTB provided 2 16 module Gx machines, 420 ECGs machines, 11 GeneXpert machines, 1500 MERM boxes, supported 5 Whole Genome Sequencing (WGS) sites, and transitioned 10 Paediatric CTB sites to the CTD.
TB Workplace Policy framework	2018-19	CTB with the InternationalLabour Organization (ILO) developed TB Work-place policy framework in close coordination MoLE and MoHFW. The policy framework would be applicable for more than 4000 employer organizations in the Public and Private sector.
Corporate TB Pledge	2019	58 Corporates were mobilized to seek their commitment and contribution in achieving the national goal of TB elimination.
Multi-sectoral framework on TB	2018-19	CTB facilitated in the development of the multi-sectoral framework and MoHFW signed an MoU with Ministry of Defence and Ministry of Railway for sensitization, identification, facilitation, and treatment of TB patients.

18. ECHO India:

Project ECHO (Extension for Community Healthcare Outcomes) is a movement to demonopolize knowledge and amplify the capacity to provide best practice care and reduce health disparities for underserved people all over the world. It is a guided practice model that links expert specialist teams at an academic institution (hub) with primary care clinicians/healthcare workers (HCW) in local communities (spokes).

Project ECHO was started in USA in 2003 to meet local healthcare needs for Hep-C. Globally, the ECHO platform operates in more than 38 countries, covering more than 70 complex medical conditions/ diseases and in India ECHO is a signed partner of the Govt of India as well as several State Govts. The ECHO Community in India includes more than 25 academic institutions and has over 50 cities participating with focus on 20+ areas.

Key highlights in 2019 of TB ECHO project:

- Ministry of Health and Family welfare signed the MOU with ECHO India on 29th July 2019 as part of all institutions/programs under the umbrella of MoHFW can work with ECHO India without the need for separate MoUs and avail the benefits of this platform.
- Implementation of TB ECHO project to be started in five states of India: Assam, Bihar, Gujarat, Karnataka and Uttar Pradesh.

ECHO India will support in setting up Hubs in these states and will support the state in commencing the ECHO model of care for TB.

- Projects are ongoing in the state of Delhi and Gujarat
- Visit to Uttar Pradesh, Bihar & Karnataka conducted in 2019:
  - Meeting with state TB officers and consultants
  - Strategic planning discussion on ECHO program
  - Training for all concerned representatives of the state
  - Feasibility study for starting an ECHO
- Visit to Gujarat and Assam is in the pipeline.

- NITRD TB ECHO for 13 Medical Colleges in North India: NITRD runs TB ECHO session for all these 13 medical colleges located in the state of Himachal Pradesh, Uttarakhand, UP, Delhi, Punjab and Haryana. Real time issues are presented by one of the residents and expert from NITRD provides recommendations for the case. Also, as per the requirement/need topics have been included in the curriculum. Didactic is also presented by NITRD Expert.

NITRD TB ECHO for North India Medical College

- **NITRD TB ECHO for ASHA in South Delhi:** This is a unique program for knowledge sharing on tuberculosis by ECHO clinic and has been overwhelmingly successful. The clinic involves 06 Dispensaries in Delhi and all the ASHAs are addressed regarding TB in their respective area. Session is being attended by more than 100 ASHAs. One of the ASHAs presents a case, which includes medical, social, psychological, economical issues. DTO/Microbiologist, STS and STLS located at the hub provide resolution for the presented case.

- **Other ongoing Projects**: ECHO India has been closely working with CTD even before the MoU with the platform being used for 'video conferencing' with states for knowledge sharing, dissemination of updates, programmatic reviews.
  - NITRD TB tele-ECHO sessions conducted with a focus on DR-TB and TB-HIV management. These sessions are attended by 30-35 centres with 150 participants joining the clinic every week, including the State TB Training and Demonstration Centre (STDC) New Delhi, DTO's Delhi, DRTB Centres Delhi, The State TB Control Office (STO) Delhi. The clinic also sees international participation from ECHO Institute, USA, Cameroon and URC West Africa.

- STDC Gujrat conduct monthly TB ECHO session for the state of Gujrat. Apart from clinical issues, STDC Gujrat uses the platform in programmatic discussion also. Session is being attended by more than 36 centres with approx. 72 participants.

In view of the success achieved in capacity building of DTOs, medical officers, ASHAs, and health service providers through the ECHO Model at Delhi & Gujarat – ECHO India now plans to replicate the same practices at Assam, Bihar & Karnataka, which are considered endemic states for TB.

With ever-growing support from academic institutions and the Central/State Govts, ECHO India aims to start several new capacity building programs around the country thus supporting the Prime Minister's vision of eliminating the menace of TB through the National TB Elimination Programme.

❑

Best Practices &Success Stories

CHAPTER 17

Launch of System for TB Elimination in Private Sector (State Kerala)

JHARKHAND

Case study of a tuberculosis patient from East Tundi District

Mr. JaidevTudu from Singraidih, East Tundi, Dhanbad is a male aged about 40 years who resides with his wife and 5 children in a rural location. He is only 7th passed and a daily wage labor and single earner of his family. Before 2019 he was a farmer who experienced crop failure for three consecutive years. Due to this he was deeply in debt and was going bankrupt. His parents were not alive and he did not have any financial support from any means.

The patient was found with very serious condition in his house. When interviewed by District coordinator it was found that he was in fever (102 degree), persistent coughing and was physically very weak and was bed-ridden. Blood pressure was around 50/70 and a weight about 20 KG at the time of first visit at his house with the help of SahiyaSohni Devi.

During conversation with him it was found that he is the only earning member of his family and due to the unknown decreasing health status he was unable to do any work hence the economic condition of his family was decreasing day by day.

Due to the poor economic condition he admitted that he is unable to provide basic education to their children. He also admitted that he can only afford 1-2 meals per day by his efforts.

It was by the help of District who interacted with the Sahiya of the community and motivated her to call 108 ambulance services immediately. Next day with the help of STS he got admitted in 'Patliputra Medical College and Hospital, Dhanbad' and the doctors team of PMCH, Dhanbad took committed care of him, recommended several tests including sputum test. During IPD of 2 days he was found AFB:3+ and thereafter the treatment was started immediately.

After 3 days he was released from the hospital with recommendation to start ATT in his IPD referral slip. He got the medicines of TB from Govindpur CHC. He was counseled for the benefit of taking continuous medicines as well as its side effects with the information about what to do if any adverse condition were met. Advised sputum follow-up after 2 month of IP phase.

After 6 months he was again followed by Districted coordinator to know about his health condition. He is now progressively getting better in his health condition and willing to go to work to earn the bread and butter for his family again.

Jaidev Tudu: 1st day at his home with Sahiya

JaidevTudu at PMCH dhanbad with 108 Ambulance support system.

Jaidev Tudu after CP Phase: Cure

Jaidev Tudu after CP Phase: Cure

NAGALAND

3. Success story of a College girl from Peren District-

Zailu, 20 years, is a beautiful young lady and a college student from Jalukie, Peren, Nagaland who was diagnosed with TB. She was given treatment by the National TB Elimination Programme team and has been successfully treated.

Zailu, came to the hospital (CHC Jalukie) on April 2019 with the complain of cough and severe weakness. She was beautiful and looked healthy and fine but since symptoms suggested a presumptive TB case, her spot sputum sample was collected. She did produce a good quality sample and her sputum was tested positive so out DTO initiated her treatment after counseling after which she was referred for HIV testing. Her HIV tested negative. Her sputum was sent to CBNAAT for DST testing and

fortunately drug resistance was not detected. She was made to take 3 pills a day for 6 months. She says throughout her TB treatment journey her family has been very supportive. On some days she would get lazy to take the pills but her elder sister who has been her treatment supporter was always there to encourage her and would not let her go until she takes the pills. Also the visit of the supervisor and health workers to her house moved her and made her to think if other people are so much concerned about my health why shouldn't I give effort after all I who is going to be benefited.

She had so many friends with whom she was hesitant to share about her disease at first but she remembered the counseling she got from DTO who told her not to be shy but instead create awareness to others as an educated student. She decided to share about her TB disease to her friends and told how the drugs are working positively on her health. The disease didn't have any bad impact on her relationship with her friends who knew well that TB is curable. She had faced some rejections from her friend's parents and neighbours. During the last Phase of her treatment, her will to fight the disease became stronger and she was taking the pills regularly. Her follow up sputum was negative and so was her last sputum result.

She says she never thought that the free drugs supplied from government hospital will be this effective. She is feeling healthy and is free of TB disease. She is ready to help and is willing to become a treatment supporter of any TB patient in the future.

Her treatment journey exemplifies how a very unsuspecting, apparently healthy and fit looking college girl got the TB infection. Her fear of being isolated from her friends, the courage she gained because of the proper counseling and support of the health workers and her family members..

MIZORAM

4. Story of a housewife working as a Voluntary DOT Provider

Mrs. Lalchhandami, a Voluntary DOT Provider is a housewife who resides in Lawngtlai Bazar, Lawngtlai, Mizoram. She has been a successful National TB Elimination Programme worker since 2003. She had given successfully DOTS treatment to her 142 patients since 2003. In 2019, 15 patients were given DOTS successfully and 5 patients are still on DOTS therapy by her.

She was honoured as 'Best Voluntary DOTS Provider Award' jointly by DTC & Christian Medical Association of India at World TB Day, 2015.

KERALA

5. Implementing TB Elimination Mission Through Local Self-Government stewardship in Kerala, India

Incident TB notification is decreasing in Kerala against a backdrop of high case finding efforts. The state government has launched a Mission for TB Elimination in January 2018 through community ownership and social mobilization.

Local self-governance [LSG] is a form of democratic decentralisation. It implies transference of the power to rule to the lowest rungs of the political order. Rural LSGs cater to a population of 10000 to 25000 and urban bodies cater to 30000 to 100000. Kerala TB Elimination Mission is being implemented through the LSG Bodies with a theme "My TB free [name of LSG]". TB Elimination taskforces chaired by the head of the LSG are formed in all the 1034 LSG bodies. The LSG Task Force plans and implements local activities mobilizes resources, monitor self, adopts mid-course correction and reports to the district task force. Provisions are made from National TB Elimination Programme budget for quarterly meetings of taskforce, mapping of TB vulnerabilities of all citizens under the LSG, ACSM, house-hold airborne infection control and active case finding. For social and nutritional support of patients, budgetary provisions are made from LSG bodies' own funds.

Of the 1034 LSG Heads, 1021 (98.7%) were sensitised on TB Elimination Mission. Among the LSG bodies, 951 (92%) formed TB Elimination Task Forces. Vulnerability mapping was done in 7428886 (87%) households. Nutritional support projects for TB patients worth INR27,25,711 was implemented from LSGs own fund. Treatment Support Groups were formed in 334 (36%) LSGs. TB

messages reached 7428886 / 8560731 (87%) households in the state. Each LSG plans for TB Vulnerability reduction including tobacco cessation and indoor air pollution control.

6. Private Sector Engagement for Public Health: Experiences from 'Unite for Healthy Ernakulam' initiative

Ernakulam district is the industrial capital of Kerala state, India. Nearly 70% of the populations reside in urban areas. Around 40% of secondary and tertiary care private facilities in the state are in Ernakulam. There was a felt need by the district administration for engaging private sector in public health initiatives.

Intiatives

- Unite for Healthy Ernakulam is a public health movement under the stewardship of District Administration where many programs – ImmuniseErnakulam, TB Free Ernakulam, Communicable Disease Control - were brought under one umbrella campaign. DPMSU, NHM Ernakulam prepared the plan, advocated and is implementing the campaign.
- Private hospitals were engaged to (1) ensuring Standards of TB care to all patients through STEPS (System for TB Elimination in Private Sector) implementation (2) report Communicable diseases for IDSP (Integrated Disease Surveillance Project), (3) reporting of vaccination and (4) ensure participation in reducing Maternal and Infant Mortality
- Private sector was involved with due respect to them from planning to implementation, monitoring and review.
- Consortium of private hospital managements formed in cochin city facilitated by IMA for TB was scaled up to entire district with broadened scope
- 76 major private hospitals were mapped
- Nodal officers for public health (staff nurse/ PRO) have been nominated by each private hospital management.
- For effective implementation of private hospital engagement in the district, all the private hospitals were divided in to four zones with each zone facilitated by a medical college. There are four medical colleges in Ernakulum district and each medical college were given charge of 15-20 private hospitals for facilitating and capacity building.
- Staff posted to four medical colleges under National TB Elimination Programme [National TB Elimination Programme MO, TB HV, LT], community medicine departments of medical colleges, and NHM PROs of Urban areas were pooled as one bigger team - 'PRIVATE SECTOR ENGAGEMENT TEAM'. Each team (total four teams based at medical colleges) are spending 2 days a week for visiting the private hospitals allotted to them, so that all hospitals are regularly visited at least on a monthly basis.
- Periodic trainings are being given to nodal officers of private hospitals in zone wise meetings by the four medical colleges
- Public sector has provided specimen transportation for TB molecular tests and drugs to treat TB to all private hospitals.

- A mobile based application was developed based on inputs from the private hospitals for reporting of immunisation and communicable diseases. Nodal officers were also trained in NIKSHAY – the management information system of National TB Elimination Programme to document TB patient related information on a real time basis.

- Quarterly review of activities by each hospital are being conducted by private hospital consortiums.

CB NAAT utilisation by private sector improved three times [314 in 2018 (Jan-Sep) to 1084 in 2019. Data Source: CB NAAT monthly reports], TB Notification improved by 32 % [642 in 2018(Jan-Sep) and 844 in 2019. Data Source: Nikshay], Universal DST doubled [184 in 2018 (Jan-Sep) to 354 in 2019 Data Source: Nikshay], better HIV testing among TB patients [384 in 2018 (Jan-Sep) to 642 in 2019] and an evident compartment shift from private drugs to program drugs [Out of total notified 71% have received National TB Elimination Programme drugs] was observed.

73 private hospitals started regular reporting of communicable diseases. These cases were sent to concerned local public health authorities on a real time basis for public health actions enabling picking up of early warning signals pf outbreaks.

The efforts were also evident in lowering case fatality during dengue outbreak, managing diphtheria outbreaks, strengthening surveillance during Nipah outbreak and improved coverage for Measles Rubella Vaccination campaign.

Lessons Learnt: Treating private sector as partners and involving them from planning is a better incentive than financial incentives, as far as public health is concerned.

Engaging private hospitals with a comprehensive public health package can lead to resource minimisation with better efficiency.

Sustainability: The model has no additional financial or human resource implications. It simply tried optimising the already existing resources with better convergence. So, itself it is sustainable with proper administrative commitment.

Scalability & Replicability: The model could be locally customised to any setting. It relies on convergence of National Health Programs, resource optimisation [National TB Elimination Programme HR used for better engagement] and social responsibilities [Medical Colleges, IMA, Private hospitals]. It is a win-win-win-win scenario for Public, Private, Medical Colleges and Society, so itself easily replicable.

Conclusion: Low cost locally customised private sector engagement models with good administrative commitment is feasible and is beneficial to the society. This also leads to resource optimisation and better convergence with all National Health Programs.

7. Pediatric Nodal DRTB at Grant Government Medical College, Sir J.J. Group of Hospitals, Mumbai, Maharashtra(First Medical College run Pediatric DRTB Centre in Maharashtra)

The Department of Pediatrics at Grant Government Medical College, Sir J.J. Group of Hospitals, Mumbai started a first dedicated

Success Story JJ Drtb Centre Pediatric

Pediatric Nodal Drug Resistant Centre run by Medical college in State with separate 4 bedded indoor facility (Air Borne infection complaint) for Pediatric DRTB Cases inFebruary 2019. In 2019,55pediatric DRTB caseshave been initiated on treatment including Delanamid. Multispecialty services and advanced investigations such as Bronchoscopy, Image Guided (Ultrasonography/CT) biopsies, CT scans, MRI scans, etc are available free of cost. In house, JJ Culture and DST laboratory (National TB Elimination Programme certified) facilitates all diagnostic tests as per new PMDT 2019 guidelines.Dedicated Counselloris available for counselling of caretakers of all DRTB patients.This has been possible under the leadership ofDr. Pallavi Saple,Dean;Dr. Nita R. Sutay,Head of Department andDr. Sushant Mane, Associate Professor (Nodal Officer) in the Pediatric Department of JJ Hospital.

8. STEPS: an innovative STEP for engaging private sector to End TB in Kerala

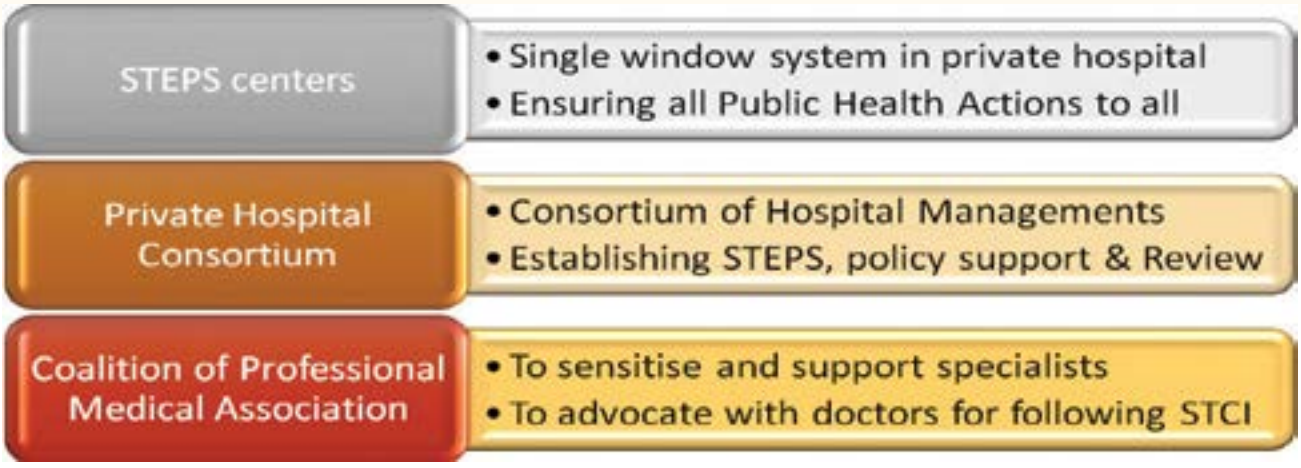
Approximately half of the TB patients in India seek care from private sector. Concerted efforts by the National TB Program are going on to get all these cases notified. In addition, leaks in TB care cascade were identified in the country.

Kerala, the southern Indian state has estimated that a third of their estimated TB cases avail care from private sector. To ensure high standards of TB care to all citizens of the state, the state government has designed a locally appropriate TB Elimination strategy for patients reaching private sector titled STEPS (System for TB Elimination in Private Sector).

Intervention

System for TB Elimination in Private Sector (STEPS) in Kerala is envisioned as collective efforts by public and private sector for the benefit of the society. It has three major interventions

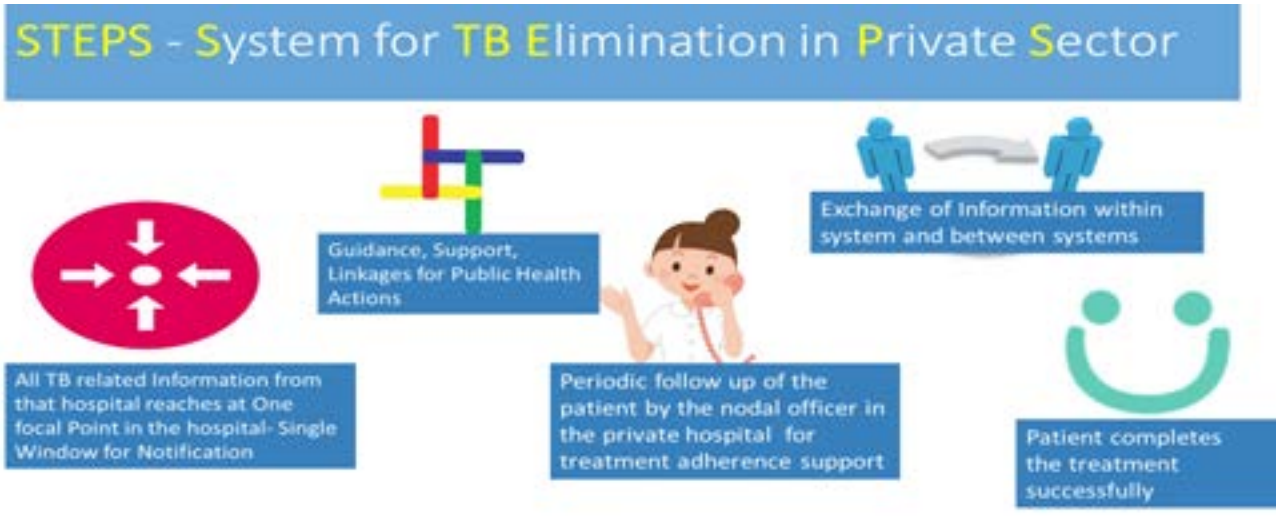
- System for TB Elimination in Private Sector (STEPS) centres is being organized as a single window for notification, linkage for public health actions and treatment adherence support in every private hospital.
- To support STEPS, consortium of private hospitals is being formed with state and district levels.
- To sensitize and support specialist practitioners for TB notification, a coalition of professional medical associations is



being organised with state and district level under the patronage of Central and State Governments and Indian Medical Association. Current chair of state coalition is Academy of Critical Care and Pulmonary Medicine.

Concept of STEPS centres: STEPS is a single-window in a private health facility serving as a nodal centre to systematically track every TB patient diagnosed by in-house clinical departments, units and clinicians, notify them to National TB Elimination Programme, follow them up during the entire treatment and report treatment outcomes to National TB Elimination Programme in the most patient centric way so that each patient receives highest standards of TB care from the health facility of his choice, protecting the dignity and confidentiality. It is based on social responsibility of the private sector blended well with profitable customer care services.

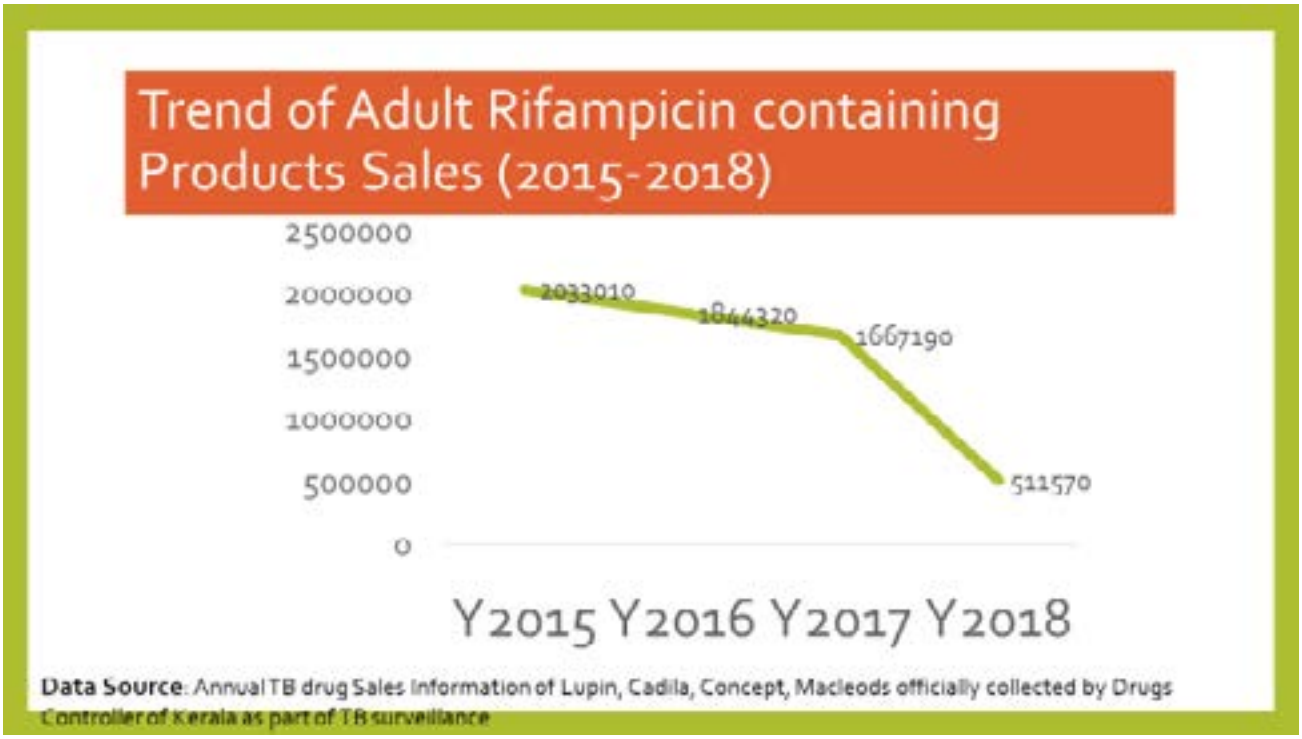
Model: A nodal person (STEPS lead) at the centre and contact persons (STEPS link) in each in-house unit are linked in a hub and spoke model. Patients are counselled and supported during test, diagnosis, treatment initiation and ensuring all public health actions. STEPS Lead notifies cases to Nikshay. Specimen collection



and transportation for cost-free CBNAAT test, Anti-tuberculosis drugs, domestic Airborne infection control kits, patient incentives and ICT based treatment monitoring are provided by National TB Elimination Programme at the private hospital.

Fig 1. Thematic Representation of STEPS centres

Results: STEPS centres are established in 318 health facilities. Health facilities that established STEPS have reported 100% notification verified through their MRD and pharmacy data. The overall notification from private hospitals [Enrolled/diagnosed] improved from 5106 in entire 2018 to 5040 [Jan-Sep 2019]- a 31% increase in notification from private sector [Data Source: Notification Register in Nikshay]



STEPS also led to an evident compartment shift from private anti TB regimen to National TB Elimination Programme regimen leading to 2000 additional cases put on National TB Elimination Programme regimen, which is 70% of all notified cases from private sector. The drug sales data officially collected by drugs controller showed a dramatic decline in the sale of anti-TB drugs from 16 Lakh Rifampicin Units to 5 Lakhs Rifampicin Units after establishment of STEPS.

This also led to improvement is microbiological confirmation of cases [From 32% to 41%], Universal DST [from 16% to 41%] , providing Direct Benefit Transfer to patients reaching private sector [from 51% to 67%] and HIV screening status [from 42% to 71%] among patients reaching private sector.

Lessons Learnt: Treating private sector as partners and involving them from planning is a better incentive than financial incentives, as far as public health is concerned. This will be beneficial for the society in terms of ensuring universal access, reducing out of pocket expenditure and improving standards of care.

Sustainability: The model has no additional financial or human resource implications. It simply tried optimising the already existing resources. It fosters customer loyalty between patient and private hospital without interfering in business. So, itself it is sustainable.

Scalability & Replicability: The model could be locally customised to any setting. It relies on social responsibility of private sector blended with profitable customer care services and realisation of the Government about its actual role to serve the entire citizens. It is a win-win-win scenario for Public, Private and Society, so itself easily replicable.

Conclusion: Low cost locally customised private sector engagement models with good administrative commitment is feasible and is beneficial to the society. STEPS is a low-cost patient centric strategy by Government which helped to Improve STCI among patients reaching private sector, Reduce Out of Pocket Expenditure to patients reaching private sector & Strengthen the health system to ensure Universal access to TB care. STEPS will also lead the way for establishing 'System for Total Engagement of Private Sector' for all National Health Programs other than TB.

9. Airborne Infection Control Kit promotes household infection control practices in Kerala, India :

A number of initiatives have been adopted for Infection Control (IC) in health care settings. However, limited work has been done to reduce the risk in patients' households. The national guide-

lines on airborne Infection control in India briefly mention community IC, including a suggestion to counsel patients and family members on cough etiquette and respiratory hygiene. Approximately 20% of all incident TB cases in Kerala state, India has a clear history of household contact with TB.

An air borne infection control kit containing five reusable and washable clothed masks, a

spittoon and a litre of disinfectant solution is being provided to all patients at the time of diagnosis of TB along with education material to use the kit.Health worker educates the patient on infection control processes. During house visits, the health worker ensures that patient uses the materials and observes cough etiquette. The entire kit costs INR 150. Kerala state is providing the kit to all notified TB patients. Proportion of patients received AIC kit and proportion of patients observed to be AIC compliant are being monitored regularly by the program.

During routine internal evaluations, the state has observed that the proportion of patients following cough etiquette at household level improved from 60% to 90% after the introduction of AIC kit. On initial assessment, the intervention seems simple, feasible and acceptable to the community. Support to TB patient for cough etiquette and safe disposal of sputum in the form of AIC kit seems to have improved the household IPC practices.

10. Handkerchief Revolution

TB and serious respiratory illnesses like influenza, respiratory syncytial virus (RSV), whooping cough, and severe acute respiratory syndrome (SARS) are spread by Coughing or sneezing. A camping aimed at behaviour change communication for good cough etiquettes titled "Hand Kerchief Revolution" has been launched by Kerala National TB Elimination Programme team. The campaign in being conducted in collaboration with Department of Education at schools. Children will be taught cough hygiene and advised to use a handkerchief routinely to cover cough.

11. 'Care after TB Cure' in routine program setting: Experiences from a pilot intervention in Kerala, India

The National TB Elimination Program (National TB Elimination Programme), India recommended following up of all patients who completed anti TB treatment till 24 months.

Intervention: Thiruvananthapuram district, Kerala, India has piloted the tuberculosis patient follow up program - 'Care after Cure' in which patient follow up is attempted through camp approach. Patients who completed six months after successful declaration of anti TB treatment were requested to attend one of the several camps as per their convenience. Clinical evaluation, random blood sugar testing, tobacco cessation services and spirometry evaluation were provided in the camp. Sputum testing, chest x ray and culture

services were made available for those who were symptomatic.

Results and Lessons learnt: 202 out of 450 eligible individuals attended the camps till date. Of them, 16 (7.9%) were identified as presumptive TB and underwent complete testing for TB. Four (1.9%) were diagnosed to have recurrent TB. Of the 24 patients who were found to have diabetes at the beginning of anti TB treatment, 18 had poorly controlled blood sugars (RBS >200mg/dl) on follow up after cure. Additionally, 21 (10%) were found to have high blood sugar values on follow up (RBS >200mg/dl). Of them, 64 out of 79 users quit tobacco during anti TB treatment. Four of them restarted using tobacco. Out of 29 well performed spirometry, 15 restrictive, 5 mixed and 2 obstructive patterns were seen. Co-morbidity especially diabetes among TB patients need to be screened more frequently and managed more efficiently.

KARNATAKA

12. State wide Counselling skills training for TB Program Staff - Karnataka

Tuberculosis, in addition to being the world's top infectious killer, is very much a social disease, the effect and experience of which is determined by social factors. Patients not only have to deal with side-effects over the months-long course of treatment, but often have to face stigma from their families, friends and colleagues who fear that they will get infected or be ostracized for interacting with a TB patient. This stigma often leads the patients to stop taking treatment in the absence of a network of social support. Underlying mental health problems, including depression and anxiety, also affect TB treatment adherence.

The Karnataka state National TB Elimination Programme in 2019 implemented a state-wide counselling intervention spanning TB program staff in all 30 districts. The objective was to capacitate staff with counselling skills to help elicit family support, and empower patients and caregivers were to deal with stigma for a better treatment experience. State TB officials partnered with NGO partner Karnataka Health Promotion Trust (KHPT), which provided technical expertise and developed a counselling module and communication aids. The intervention integrated KHPT's approach to prioritized patient care on the basis of a risk and needs assessment. This approach, called the Differentiated Care Model, identified six categories of patients most vulnerable to developing TB including HIV-TB patients, previously-treated patients, TB patients with diabetes, people living alone, those consuming alcohol and the elderly, and provides each category a tailored package of care and support services including counselling.

The counselling intervention was rolled out in two phases:

Phase I: Training of Trainers

Phase II: Rollout trainings

The training focused on:

- Communication in counselling- both verbal and non-verbal
- Counselling skills including active listening, empathizing, paraphrasing, summarizing and assuring confidentiality
- Documentation of counselling sessions
- Understanding barriers to adherence

and counselling to ensure treatment adherence

- Stigma and its effects on TB and adherence
- Refresher on basics of TB
- Creating linkages to services for TB patients

515 National TB Elimination Programme staff, including 252 TB Health Visitors (TBHVs), 227 Senior Treatment Supervisors(STS), 27 Public Private Management (PPM) Coordinators, 6 DR-TB Counsellors, and 3 District Program Supervisors were trained across the state.

The Karnataka state National TB Elimination Programme combined the strengths of state machinery with the technical expertise of NGO partners to develop a model counselling training intervention that can be scaled up to the national level in a time and resource-efficient manner. The state plans to integrate supportive supervision plans into the model and develop counselling training for frontline workers moving forward.

12. School based activity :-

One school girl Nilogal (village/Kustagi/Koppal) after attending the school awareness conducted by srivenkatesh STS Kustagi, Koppal District brought her father with presumptive symptoms. Her mother diagnosed as Microbiological confirmed TB and started treatment.

13. Publicity through Bus Branding :-

As new initiative TB awareness through Bus branding has proved one of the most powerful ways to reach large number of people. Karnataka state Health & Family Welfare Dept's Troll free No. 104 has got number of calls from public to get information about TB.

1. **Awareness through TB Champion :-**

In Koppal district cured DRTB patient Sri. Mareppa selected as TB Champion. After his completion of treatment he has started to conduct awareness program to sensitize the public about TB through drams and skit. It helped to reduce the stigma in public.

2. **Marathon and Jatha :-**TB Marathon and Jathahas been conducted in the time of World TB day 2019 in all over the state and around 50000 members participated. It increased the general public & youth's involvement in program.

❑

Multi-sectoral Convergence

CHAPTER 18

MoU signing between MoHFW & Ayush (18.07.2019)

Multi-sectoral Convergence

CHAPTER 18

MULTI-SECTORAL CONVERGENCE FOR TUBERCULOSIS ELIMINATION

In the context of health, the term multisectoral is usually used to refer to sectors of the economy and related parts of government, that influence health and need to be engaged by the health sector to address health issues.Globally, there is a paradigm shift to equity, inclusion and rights-based developmental approach with health and wellbeing as an integral part.

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). The government is building a national movement through a multi-sectoral and community led approach to eliminate Tuberculosis by 2025, five years ahead of the global target.

The plan aims to initiate preventive and promotive approaches and proposes potentially transformative interventions such as engagement with private sector health care providers, inter-ministerial partnerships, and corporate sector engagement. A Multi-Sectoral Engagement can mainstream TB patients 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

To strengthen the efforts towards Tuberculosis-free India by 2025, the Ministry of Health & Family Welfare (MoHFW) has undertaken an inter-ministerial coordination initiative with various Union Ministries and Departments. These efforts have yielded significant results in the form of Memorandum of Understandings (MoUs) being signed on 18th July,2019 with three Ministries namely, Ministry of AYUSH, Ministry of Defence and Ministry of Railways. Focused activities envisaged under the MoU covers joint planning for working with AYUSH organisations and professional bodies, and promoting adjuvant use of evidence-based AYUSH interventions for TB control and management.

MoU signing between MoHFW & MoRail (18.07.2019)

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 TB services outside of public health facilities
2. Reaching out to larger number of populations with information on prevention and TB care related services
3. Build capacity of functionaries in all departments to address TB prevention 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

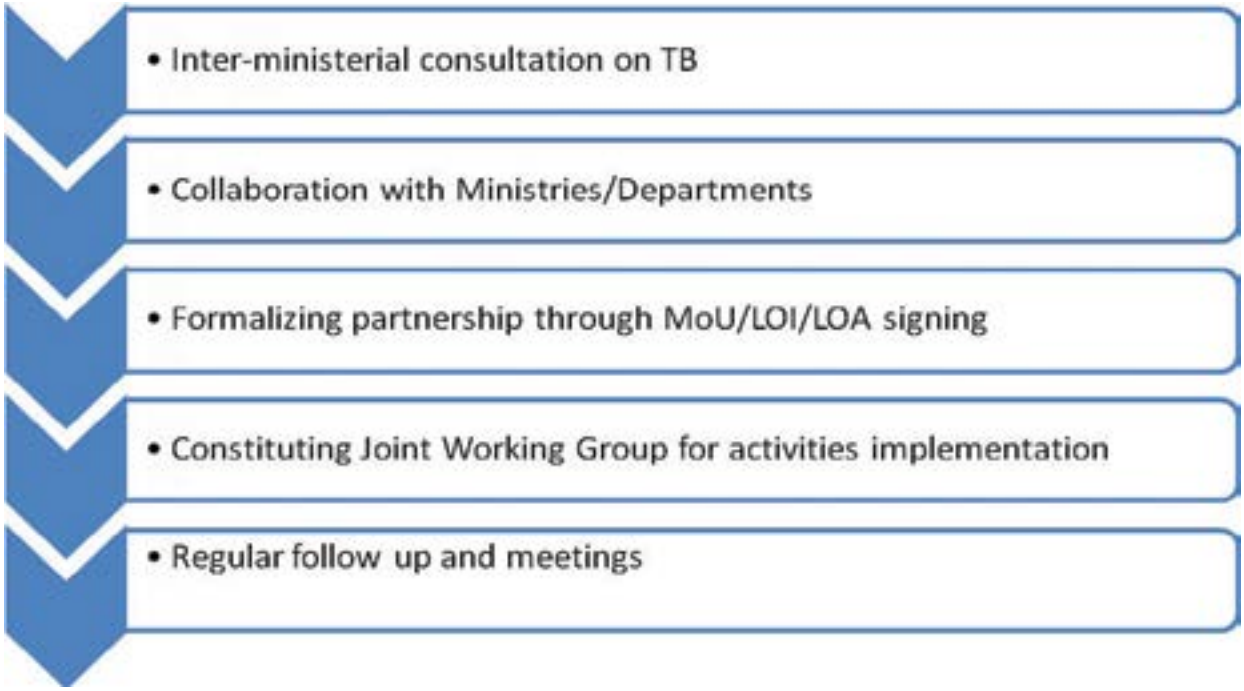
Different Ministries targeted for efforts for TB elimination by 2025

- Ministry of Labour and Employment
- Ministry of Railways
- Ministry of Home Affairs
- Ministry of Defence

- Ministry of AYUSH
- Ministry of Tribal Affairs
- 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, and

PSUs under the Ministries with Health Facilities.

Process of collaboration with different Ministries



Scope of Collaboration

1. TB care services in health infrastructure

Provide TB diagnostic and treatment services as per NTEP 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 National TB Elimination Programme lab

2. Socio-economic support and 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 workplace settings
- Mass awareness on infection prevention
- Training of staff on infection prevention and cough hygiene
- Adequate ventilation in all settings
- Decongestion measures in congregate settings
- Enabling environment for practicing preventive measures – availability of spittoons, tissues, adequate disposal measures

4. Awareness generation and communication

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

5. TB prevention and care at workplace

- To promote awareness on TB prevention, screening and treatment across workplaces
- To advocate for and facilitate an environment that minimizes and

prevents TB transmission at workplaces

- To support and ensure early and free diagnosis of TB across workplaces
- To facilitate and ensure access to free TB drugs and adherence for the workforce
- To advocate and facilitate astigm a free environment for accessing TB associated services at workplaces
- To ensure care and support services for the workforce after the completion of treatment

6. Corporate Social Responsibility Support for TB

TB specific initiatives/projects through CSR activities

- 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 vans
- Support for linkages to diagnosis/ treatment
- Technology support
- Adoption of district/village/ward for TB elimination
- Nutrition support to TB patients
- Livelihood support

Developments under Inter-Ministerial Collaboration

- The second meeting of Inter-Ministerial Coordination for TB was held under the Chairmanship of the Secretary, Health & Family Welfare, Government of India on 04th Oct 2019 at Nirman Bhawan, New Delhi, in which 20 Ministries of the Govt of India participated.
- The objective of the meeting was to update the status and scope of collaboration with other ministries and to discuss on initiatives undertaken or planned by the various ministries for an accelerated response towards End TB.
- For expansion of TB services in existing health facilities, the Ministry of Health and Family Welfare will support the Ministries for establishment of TB diagnostic and treatment services or linkages of services to the nearby public sector health facilities under the health department. Any Ministry with health services can avail of free diagnostic tests for their patients including CBNAAT and TruNAT,the latest rapid molecular diagnostic tests available under National TB Elimination Programme

The following Ministries have engaged with the Ministry of Health &Family Welfare under National TB Elimination Programme:

1. ECHS, Ministry of Defense

A MoU has been signed with ECHS, Ministry of Defense to facilitate National TB Elimination Programme services through ECHS polyclinics. ECHS has more than 450 policlinics throughout the country. Creations of NIKSHAY login IDs as PHI for all ECHS polyclinics are under process for integrating the National TB Elimination Programme services with ECHS polyclinics.

2. Ministry of AYUSH

A MoU has been signed with Ministry of AYUSH to facilitate work with AYUSH organizations and professional bodies, and promoting adjuvant use of evidence- based AYUSH interventions for TB control and management. A Technical Working Group (TWG) has been constitutedto facilitate research collaboration and best practices of AYUSH healthcare and build up capacities for TB-free workplaces and communities. to draw a road map and plan of Action for improved coordination and collaboration with Ministry of AYUSH.

3. Ministry of Railways

A MoU has been signed with Ministry of Railways to integrate National TB Elimination Programme services with Indian Railways' extensive network of hospitals and clinics throughout the country. Mapping and integration of services are ongoing as per the Action Plan.

4. Ministry of Panchayati Raj

National TB Elimination Programme will integrate strategies for TB free Panchayat/ Village through special gram sabhas under the Gram Panchayat Development Plan (GPDP). Inclusion of monitoring indicators in MoRD's 'DISHA' portal has been initiated to enable a holistic review by State and District DISHA Committees leading to speedier efficient implementation.

5. Ministry of Labour and Employment

A Joint Policy Framework to address TB, related co-morbidities and HIV in the World of Work has been developed. All States/UTs have been requested to draw up and implement a workplace policy appropriate for their conditions. The MoU is in the process of getting signed.

6. Department of Post

The TB Sample Transport Network has been widened through postal services for specimen transportation from peripheral health facilities to TB diagnostic laboratories. This will help expand drug susceptibility testing services.

7. Department of Financial Services

Financial assistance for nutrition support under Nikshay Poshan Yojna is provided to each TB patient for entire duration of treatment through the Public Financial Management System (PFMS), the platform for e-payment of subsidy under Direct Benefit Transfer (DBT).

8. Department of Home

National TB Elimination Programme is collaborating with the Dep. of Home for HIV-TB interventions in prisons and other closed settings.

9. Public Sector Undertakings (PSUs)

A National Consultation Workshop of PSUs for a TB Free India was organized on December 4th 2018 with representations from 22 major PSUs. Subsequent discussions have led to identification of Nodal Officers and preparation of Action Plans. Formal engagements through LOA/I's are ongoing.

Engagement with the Corporate Sector

- A non-financial MoU has been signed with

Confederation of Indian Industries (CII) which will help in the uptake of National TB Elimination Programme policies in more than 1000 organisations that are a part of the confederation. Collaborations are being pursued with Medanta, GAIL, ONGC, Tata Trust etc.

- A 'Corporate DR-TB Consortium' is being planned where 60 signatories are expected to sign the Corporate TB Pledge. The Consortium will influence CSR funds spent on TB related activities. Corporate Hospitals too are expected to be part of this consortium. ❑

1. Summary of Program Performance

1.1 Presumptive TB Cases examination

State	Population (Lakhs)	Presumptive TB Cases examination			
		Microscopy	Molecular Tests (NAAT)	Total	Rate
Andaman & Nicobar Islands	3.9	4225	1597	5822	1498
Andhra Pradesh	521.9	52292	349980	402272	771
Arunachal Pradesh	16.2	11169	4005	15174	937
Assam	346.2	169824	37774	207598	600
Bihar	1224.3	467796	68502	536298	438
Chandigarh	11.6	23159	6998	30157	2600
Chhattisgarh	295.4	236887	64857	301744	1021
Dadra & Nagar Haveli	4.6	7040	540	7580	1661
Daman & Diu	3.3	4031	3799	7830	2373
Delhi	187.9	180967	74687	255654	1361
Goa	15.4	15585	3081	18666	1212
Gujarat	687.2	892169	85461	977630	1423
Haryana	289.7	241814	60886	302700	1045
Himachal Pradesh	74.3	167751	59938	227689	3066
Jammu & Kashmir	146	95893	30178	126071	864
Jharkhand	387.6	232345	31526	263871	681
Karnataka	676.9	841485	145884	987369	1459
Kerala	343.3	426368	76974	503342	1466
Lakshadweep	0.7	660	145	805	1218
Madhya Pradesh	830.6	543246	75000	618246	744
Maharashtra	1241.4	924156	209779	1133935	913
Manipur	30.8	9639	5901	15540	505
Meghalaya	35.9	25596	9151	34747	968
Mizoram	12.5	6944	8237	15181	1214
Nagaland	20.7	11572	6557	18129	876
Odisha	458.4	354987	59228	414215	904
Puducherry	14.7	26838	4989	31827	2168
Punjab	296.3	186885	42511	229396	774
Rajasthan	786.6	578753	75620	654373	832
Sikkim	6.6	7806	6649	14455	2190
Tamil Nadu	803.7	951155	182838	1133993	1411
Telangana	372.2	314403	53971	368374	990
Tripura	39.3	39557	6270	45827	1166
Uttar Pradesh	2287.8	1806374	175618	1981992	866
Uttarakhand	114.7	94441	13376	107817	941
West Bengal	989.6	1224621	137469	1362090	1376
India	**13576.6**	**11178433**	**2179976**	**13358409**	**984**
Data Source: Annexure M & CBNAAT/ TrueNAAT Monthly indicator sheet					

1.2 TB Cases & Paediatric cases notification

State	TB patients notified			TB case notification rate			Paediatric TB patients notified		
	Public	Private	Total	Public	Private	Total	Public	Private	Total
Andaman & Nicobar Islands	580	7	587	149	2	151	24	0	24
Andhra Pradesh	76486	22383	98869	147	43	189	2310	1410	3720
Arunachal Pradesh	2901	37	2938	180	2	182	391	3	394
Assam	40646	8023	48669	117	23	141	1362	378	1740
Bihar	77955	44716	122671	64	37	100	4628	8428	13056
Chandigarh	6483	543	7026	559	47	606	507	20	527
Chhattisgarh	31746	11972	43718	107	41	148	1361	932	2293
Dadra & Nagar Haveli	893	44	937	196	10	205	48	7	55
Daman & Diu	474	86	560	147	27	173	32	1	33
Delhi	79859	28123	107982	425	150	575	9166	1836	11002
Goa	1937	473	2410	126	31	157	66	10	76
Gujarat	104696	54462	159158	152	79	232	4358	4610	8968
Haryana	51471	22526	73997	178	78	255	2684	1290	3974
Himachal Pradesh	15834	1612	17446	213	22	235	635	85	720
Jammu & Kashmir	10914	946	11860	75	6	81	699	91	790
Jharkhand	43626	13006	56632	113	34	146	1699	1463	3162
Karnataka	72112	19591	91703	107	29	135	3370	1539	4909
Kerala	20731	4886	25617	60	14	75	918	555	1473
Lakshadweep	15		15	23	0	23	2	0	2
Madhya Pradesh	139111	48296	187407	167	58	226	11926	5926	17852
Maharashtra	144120	83228	227348	116	67	183	7625	6350	13975
Manipur	1993	560	2553	65	18	83	82	31	113
Meghalaya	4803	725	5528	134	20	154	312	131	443
Mizoram	2905	39	2944	234	3	237	210	4	214
Nagaland	4100	694	4794	199	34	233	294	47	341
Odisha	49009	4603	53612	107	10	117	2078	402	2480
Puducherry	4534	72	4606	309	5	314	125	7	132
Punjab	44008	14196	58204	149	48	196	2554	865	3419
Rajasthan	122852	52366	175218	156	67	223	5397	5268	10665
Sikkim	1409	23	1432	215	4	218	58	2	60
Tamil Nadu	82668	28177	110845	103	35	138	2483	3316	5799
Telangana	51059	20596	71655	137	55	192	1670	736	2406
Tripura	2716	45	2761	69	1	70	42	0	42
Uttar Pradesh	326305	160080	486385	143	70	213	15393	16045	31438
Uttarakhand	19783	6277	26060	173	55	227	972	448	1420
West Bengal	85186	25482	110668	85	26	111	2365	1150	3515
India	**1725920**	**678895**	**2404815**	**127**	**50**	**177**	**87869**	**63417**	**151286**
TB Patients Notification is based on notification by diagnosing PHI.									

1.3 Notified TB Patients - Characteristics

State	Gender			Type of Case		Site of disease		Basis of Diagnosis	
	Male	Female	Trans Gender	New	Prev Treat	Pulm	Extra Pulm	Micro Conf	Clinic Diag
Andaman & Nicobar Islands	348	239		504	48	342	245	325	262
Andhra Pradesh	65972	32772	125	85006	10519	80556	18313	56252	42617
Arunachal Pradesh	1570	1363	5	2395	388	1946	992	1485	1453
Assam	32576	16052	41	42570	5047	35739	12930	23189	25480
Bihar	79647	42905	119	109010	10706	100166	22505	53692	68979
Chandigarh	3975	3036	15	6111	799	3266	3760	3075	3951
Chhattisgarh	28678	14999	41	39704	3423	33183	10535	17890	25828
Dadra & Nagar Haveli	566	371		773	147	520	417	410	527
Daman & Diu	360	200		448	99	427	133	220	340
Delhi	57778	50108	96	91835	12405	49512	58470	50676	57306
Goa	1449	958	3	2157	205	1308	1102	1278	1132
Gujarat	103820	55239	99	126977	27321	122969	36189	64731	94427
Haryana	45587	28330	80	63473	9030	51035	22962	41858	32139
Himachal Pradesh	11005	6421	20	14854	2099	11375	6071	11701	5745
Jammu & Kashmir	6925	4909	26	10605	1105	6999	4861	6010	5850
Jharkhand	39060	17517	55	52156	3592	48999	7633	26820	29812
Karnataka	59199	32409	95	78705	10021	64346	27357	53957	37746
Kerala	17140	8464	13	23492	1775	16476	9141	15164	10453
Lakshadweep	11	4		15	0	12	3	8	7
Madhya Pradesh	119530	67695	182	166453	17169	145361	42046	74408	112999
Maharashtra	128933	98208	207	196037	19838	153421	73927	107022	120326
Manipur	1620	930	3	2270	259	1633	920	1410	1143
Meghalaya	3290	2232	6	4742	469	3224	2304	3114	2414
Mizoram	1668	1274	2	2504	340	1441	1503	1558	1386
Nagaland	2826	1962	6	4163	551	3173	1621	2313	2481
Odisha	35757	17792	63	48178	4683	38138	15474	30113	23499
Puducherry	3217	1383	6	3667	504	3073	1533	3293	1313
Punjab	33811	24315	78	50841	6220	41171	17033	31784	26420
Rajasthan	117009	58051	158	152313	18466	128883	46335	88674	86544
Sikkim	795	637		1078	144	953	479	845	587
Tamil Nadu	76815	33905	125	96956	10680	85068	25777	66246	44599
Telangana	44498	27071	86	62708	7022	56470	15185	39814	31841
Tripura	2084	677		2468	267	2126	635	1942	819
Uttar Pradesh	293521	192421	443	426539	45897	375414	110971	208408	277977
Uttarakhand	15394	10636	30	22870	2616	17930	8130	11825	14235
West Bengal	74875	35725	68	96206	11496	77761	32907	72265	38403
India	**1511309**	**891210**	**2296**	**2090783**	**245350**	**1764416**	**640399**	**1173775**	**1231040**

1.4 Patient Transfer Status

State	Patients notified	Transfer Out	Transfer In	Net TB Patients Notified		
				Total	Public	Private
Andaman & Nicobar Islands	587	9	35	613	601	12
Andhra Pradesh	98869	714	1749	99904	75931	23973
Arunachal Pradesh	2938	26	112	3024	2974	50
Assam	48669	507	603	48765	43055	5710
Bihar	122671	656	4401	126416	80294	46122
Chandigarh	7026	3828	359	3557	3471	86
Chhattisgarh	43718	272	345	43791	32723	11068
Dadra & Nagar Haveli	937	386	21	572	494	78
Daman & Diu	560	149	46	457	379	78
Delhi	107982	11536	1296	97742	71414	26328
Goa	2410	149	83	2344	1883	461
Gujarat	159158	3805	818	156171	103012	53159
Haryana	73997	3432	4169	74734	54841	19893
Himachal Pradesh	17446	415	957	17988	16933	1055
Jammu & Kashmir	11860	100	164	11924	11156	768
Jharkhand	56632	327	1127	57432	44696	12736
Karnataka	91703	2742	936	89897	72990	16907
Kerala	25617	485	516	25648	22223	3425
Lakshadweep	15	0	1	16	16	
Madhya Pradesh	187407	3842	3946	187511	146677	40834
Maharashtra	227348	4296	1514	224566	148422	76144
Manipur	2553	5	99	2647	2277	370
Meghalaya	5528	220	81	5389	4772	617
Mizoram	2944	6	53	2991	2931	60
Nagaland	4794	101	89	4782	4075	707
Odisha	53612	723	398	53287	49279	4008
Puducherry	4606	3020	77	1663	1657	6
Punjab	58204	1400	2733	59537	45911	13626
Rajasthan	175218	2557	2764	175425	123004	52421
Sikkim	1432	23	60	1469	1438	31
Tamil Nadu	110845	1012	3680	113513	85495	28018
Telangana	71655	1044	871	71482	49334	22148
Tripura	2761	11	277	3027	3015	12
Uttar Pradesh	486385	4388	17759	499756	355347	144409
Uttarakhand	26060	1880	1043	25223	19882	5341
West Bengal	110668	1198	2082	111552	94566	16986
India	**2404815**	**55264**	**55264**	**2404815**	**1777168**	**627647**

Net TB Patients – TB Notified patients that are currently in the facility/ District/ State whom are accounted after transferred out and transferred in patients.

1.5 Treatment Initiation among notified TB patients & Tribal Notified patients

State	TB patients put on treatment			Tribal TB Patients Notified		
	Public	Private	Total	Public	Private	Total
Andaman & Nicobar Islands	556 (93%)	10 (83%)	566 (92%)	67	0	67
Andhra Pradesh	74664 (98%)	23821 (99%)	98485 (99%)	13659	2305	15964
Arunachal Pradesh	2925 (98%)	49 (98%)	2974 (98%)	2627	31	2658
Assam	41070 (95%)	5227 (92%)	46297 (95%)	8183	839	9022
Bihar	74639 (93%)	45223 (98%)	119862 (95%)	831	4	835
Chandigarh	3343 (96%)	63 (73%)	3406 (96%)			
Chhattisgarh	32397 (99%)	10892 (98%)	43289 (99%)	13865	2050	15915
Dadra & Nagar Haveli	486 (98%)	78 (100%)	564 (99%)	912	45	957
Daman & Diu	376 (99%)	78 (100%)	454 (99%)			
Delhi	62364 (87%)	17524 (67%)	79888 (82%)			
Goa	1704 (90%)	448 (97%)	2152 (92%)			
Gujarat	99970 (97%)	52707 (99%)	152677 (98%)	20326	5701	26027
Haryana	50658 (92%)	18577 (93%)	69235 (93%)			
Himachal Pradesh	16566 (98%)	952 (90%)	17518 (97%)	414	1	415
Jammu & Kashmir	10620 (95%)	732 (95%)	11352 (95%)	783	39	822
Jharkhand	43506 (97%)	12651 (99%)	56157 (98%)	25627	7462	33089
Karnataka	69591 (95%)	15167 (90%)	84758 (94%)	3596	319	3915
Kerala	21724 (98%)	3246 (95%)	24970 (97%)	1030	158	1188
Lakshadweep	16 (100%)		16 (100%)	16	0	16
Madhya Pradesh	139235 (95%)	39279 (96%)	178514 (95%)	34007	6922	40929
Maharashtra	140986 (95%)	70985 (93%)	211971 (94%)	16180	3309	19489
Manipur	2169 (95%)	363 (98%)	2532 (96%)	1137	217	1354
Meghalaya	4208 (88%)	607 (98%)	4815 (89%)	4852	729	5581
Mizoram	2556 (87%)	45 (75%)	2601 (87%)	2941	42	2983
Nagaland	4013 (98%)	707 (100%)	4720 (99%)	4153	704	4857
Odisha	48231 (98%)	3749 (94%)	51980 (98%)	21049	1334	22383
Puducherry	1586 (96%)	4 (67%)	1590 (96%)			
Punjab	43501 (95%)	12865 (94%)	56366 (95%)	7	1	8
Rajasthan	108872 (89%)	50079 (96%)	158951 (91%)	18871	3705	22576
Sikkim	1397 (97%)	30 (97%)	1427 (97%)	94	0	94
Tamil Nadu	82635 (97%)	26557 (95%)	109192 (96%)	1134	74	1208
Telangana	47662 (97%)	21769 (98%)	69431 (97%)	8550	3537	12087
Tripura	2886 (96%)	10 (83%)	2896 (96%)	289	0	289
Uttar Pradesh	331344 (93%)	138880 (96%)	470224 (94%)	4149	553	4702
Uttarakhand	19007 (96%)	4850 (91%)	23857 (95%)	52	0	52
West Bengal	91401 (97%)	15429 (91%)	106830 (96%)	7	6	13
India	**1678864 (94%)**	**593653 (95%)**	**2272517 (94%)**	**209408**	**40087**	**249495**

Treatment initiation status is calculated amongst TB notified patients currently in the State.
A few States inspite of NOT having Tribal districts may have Tribal patients due to a patient getting Transferred IN after getting notified from a Tribal District.

1.6 Gender-disaggregated data on TB notification, Treatment outcomes and Human resources under NTEP

	TB case notification & Treatment initiation (2019)			Treatment outcome (patients notified in 2018)			Human Resources	
	Notified TB patients	Pediatric TB patients	Treatment initiation (%)	Notified TB patients	Treatment success rate	Death rate	State-level	District-level
State/UT	M / F / TG	M / F / TG	M / F / TG	M / F / TG	M / F / TG	M / F / TG	M / F / TG	M / F / TG
Andaman & Nicobar Islands	348 / 239 / 0	12 / 12 / 0	93% / 94% / NA	324 / 199 / 0	88% / 88% / NA	2% / 3% / NA	57% / 43% / 0%	59% / 41% / 0%
Andhra Pradesh	65972 / 32772 / 125	1863 / 1853 / 4	98% / 99% / 99%	61456 / 29118 / 106	90% / 93% / 100%	5% / 3% / 4%	78% / 22% / 0%	NA / NA / NA
Arunachal Pradesh	1570 / 1363 / 5	182 / 211 / 1	99% / 99% / 100%	1598 / 1299 / 3	80% / 84% / 100%	3% / 1% / 0%	67% / 33% / 0%	86% / 14% / 0%
Assam	32576 / 16052 / 41	805 / 933 / 2	95% / 95% / 100%	27904 / 13751 / 21	82% / 85% / 100%	4% / 3% / 5%	84% / 16% / 0%	93% / 7% / 0%
Bihar	79647 / 42905 / 119	7877 / 5163 / 16	95% / 96% / 92%	68201 / 37866 / 122	73% / 75% / 100%	3% / 2% / 5%	NA / NA / NA	NA / NA / NA
Chandigarh	3975 / 3036 / 15	227 / 297 / 3	93% / 95% / 93%	1755 / 1464 / 3	85% / 91% / 100%	3% / 2% / 0%	NA / NA / NA	NA / NA / NA
Chhattisgarh	28678 / 14999 / 41	1206 / 1086 / 1	99% / 99% / 100%	26836 / 13652 / 39	83% / 85% / 100%	4% / 3% / 0%	81% / 19% / 0%	87% / 13% / 0%
Dadra & Nagar Haveli	566 / 371 / 0	21 / 34 / 0	96% / 97% / NA	346 / 214 / 0	94% / 93% / NA	4% / 2% / NA	88% / 13% / 0%	44% / 56% / 0%
Daman & Diu	360 / 200 / 0	15 / 18 / 0	99% / 99% / NA	269 / 123 / 0	80% / 87% / NA	3% / 2% / NA	67% / 33% / 0%	33% / 67% / 0%
Delhi	57778 / 50108 / 96	4300 / 6688 / 14	79% / 83% / 86%	38208 / 33665 / 54	69% / 75% / 100%	2% / 1% / 0%	50% / 50% / 0%	62% / 38% / 0%
Goa	1449 / 958 / 3	37 / 39 / 0	90% / 94% / 100%	1346 / 893 / 1	68% / 73% / 100%	4% / 2% / 0%	33% / 67% / 0%	34% / 66% / 0%
Gujarat	103820 / 55239 / 99	4655 / 4311 / 2	97% / 98% / 99%	98123 / 50474 / 98	80% / 85% / 100%	5% / 3% / 3%	44% / 56% / 0%	56% / 44% / 0%
Haryana	45587 / 28330 / 80	1690 / 2280 / 4	92% / 93% / 91%	38597 / 23335 / 49	81% / 85% / 100%	5% / 2% / 2%	33% / 67% / 0%	NA / NA / NA
Himachal Pradesh	11005 / 6421 / 20	351 / 365 / 4	97% / 98% / 100%	10319 / 6271 / 5	88% / 90% / 100%	5% / 3% / 0%	56% / 44% / 0%	63% / 37% / 0%

	TB case notification & Treatment initiation (2019)			Treatment outcome (patients notified in 2018)			Human Resources	
	Notified TB patients	Pediatric TB patients	Treatment initiation (%)	Notified TB patients	Treatment success rate	Death rate	State-level	District-level
Jammu & Kashmir	6925 / 4909 / 26	375 / 432 / 1	95% / 96% / 96%	6883 / 4989 / 18	80% / 85% / 100%	3% / 2% / 0%	NA / NA / NA	NA / NA / NA
Jharkhand	39060 / 17517 / 55	1723 / 1434 / 5	98% / 98% / 100%	33601 / 15047 / 21	83% / 84% / 100%	3% / 2% / 10%	83% / 17% / 0%	88% / 12% / 0%
Karnataka	59199 / 32409 / 95	2514 / 2385 / 10	94% / 95% / 96%	51988 / 26866 / 64	77% / 84% / 100%	7% / 4% / 9%	48% / 52% / 0%	79% / 21% / 0%
Kerala	17140 / 8464 / 13	737 / 735 / 1	97% / 98% / 92%	16359 / 8205 / 8	87% / 91% / 100%	5% / 3% / 13%	35% / 65% / 0%	50% / 50% / 0%
Lakshadweep	11 / 4 / 0	1 / 1 / 0	100% / 100% / NA	16 / 7 / 0	69% / 100% / NA	0% / 0% / NA	33% / 67% / 0%	24% / 76% / 0%
Madhya Pradesh	119530 / 67695 / 182	9894 / 7938 / 20	95% / 96% / 96%	98391 / 54339 / 116	79% / 85% / 100%	3% / 2% / 1%	NA / NA / NA	NA / NA / NA
Maharashtra	128933 / 98208 / 207	6102 / 7863 / 10	94% / 94% / 93%	110191 / 80908 / 195	80% / 83% / 100%	4% / 3% / 6%	56% / 44% / 0%	67% / 33% / 0%
Manipur	1620 / 930 / 3	50 / 63 / 0	96% / 96% / 100%	1851 / 1006 / 5	78% / 83% / 100%	3% / 2% / 0%	54% / 46% / 0%	61% / 39% / 0%
Meghalaya	3290 / 2232 / 6	226 / 217 / 0	89% / 91% / 67%	2576 / 1880 / 3	75% / 76% / 100%	4% / 2% / 0%	39% / 61% / 0%	45% / 55% / 0%
Mizoram	1668 / 1274 / 2	97 / 117 / 0	87% / 89% / 100%	1490 / 1085 / 1	87% / 89% / 100%	2% / 2% / 0%	75% / 19% / 6%	64% / 35% / 1%
Nagaland	2826 / 1962 / 6	167 / 174 / 0	99% / 99% / 100%	2568 / 1754 / 0	78% / 79% / NA	2% / 3% / NA	44% / 56% / 0%	52% / 48% / 0%
Odisha	35757 / 17792 / 63	1202 / 1277 / 1	98% / 97% / 94%	32789 / 15466 / 52	88% / 90% / 100%	6% / 4% / 12%	NA / NA / NA	NA / NA / NA
Puducherry	3217 / 1383 / 6	59 / 73 / 0	92% / 95% / 67%	1003 / 539 / 0	82% / 93% / NA	8% / 2% / NA	44% / 56% / 0%	51% / 49% / 0%
Punjab	33811 / 24315 / 78	1393 / 2014 / 12	94% / 95% / 90%	30346 / 21825 / 46	82% / 86% / 100%	5% / 4% / 4%	69% / 31% / 0%	60% / 40% / 0%

	TB case notification & Treatment initiation (2019)			Treatment outcome (patients notified in 2018)			Human Resources	
	Notified TB patients	**Pediatric TB patients**	**Treatment initiation (%)**	**Notified TB patients**	**Treatment success rate**	**Death rate**	**State-level**	**District-level**
Rajasthan	117009 / 58051 / 158	5871 / 4783 / 11	90% / 92% / 89%	102553 / 49897 / 97	76% / 79% / 100%	3% / 2% / 4%	91% / 9% / 0%	93% / 8% / 0%
Sikkim	795 / 637 / 0	25 / 35 / 0	98% / 98% / NA	775 / 565 / 0	86% / 83% / NA	3% / 2% / NA	71% / 29% / 0%	54% / 46% / 0%
Tamil Nadu	76815 / 33905 / 125	3104 / 2727 / 4	96% / 97% / 97%	70187 / 30837 / 77	83% / 88% / 100%	5% / 3% / 6%	69% / 31% / 0%	NA / NA / NA
Telangana	44498 / 27071 / 86	1020 / 1383 / 3	97% / 97% / 99%	32425 / 18845 / 47	89% / 92% / 100%	4% / 3% / 4%	73% / 27% / 0%	74% / 26% / 0%
Tripura	2084 / 677 / 0	28 / 14 / 0	96% / 97% / NA	2024 / 678 / 0	86% / 92% / NA	5% / 3% / NA	87% / 13% / 0%	95% / 5% / 0%
Uttar Pradesh	293521 / 192421 / 443	15779 / 15632 / 27	94% / 95% / 95%	249307 / 156707 / 298	77% / 82% / 100%	4% / 2% / 4%	74% / 26% / 0%	94% / 6% / 0%
Uttarakhand	15394 / 10636 / 30	588 / 832 / 0	94% / 95% / 100%	12416 / 8134 / 11	83% / 88% / 100%	4% / 2% / 0%	60% / 40% / 0%	83% / 17% / 0%
West Bengal	74875 / 35725 / 68	1575 / 1935 / 5	96% / 96% / 94%	69037 / 31953 / 43	83% / 85% / 100%	5% / 3% / 5%	64% / 36% / 0%	87% / 13% / 0%
INDIA	**1511309 / 891210 / 2296**	**75771 / 75354 / 161**	**94% / 95% / 94%**	**1304058 / 743856 / 1603**	**80% / 84% / 100%**	**4% / 3% / 4%**	**61% / 39% / 0%**	**72% / 28% / 0%**

Source: Nikshay, except for Human resources (data compiled from State/UTs); NA- Not applicable / Not available

2. TB – Comorbidities

2.1 TB – HIV

State	TB patients with known HIV status (%)			TB-HIV co-infected patients		
	Public	Private	Total	Diagnosed	Put on ART*	Put on CPT*
Andaman & Nicobar Islands	479 (80%)	4 (33%)	483 (79%)	6 (1%)	3 (50%)	0 (0%)
Andhra Pradesh	74310 (98%)	22132 (92%)	96442 (97%)	6373 (7%)	6372 (100%)	6335 (99%)
Arunachal Pradesh	2633 (89%)	41 (82%)	2674 (88%)	2 (0%)	2 (100%)	0 (0%)
Assam	33175 (77%)	1436 (25%)	34611 (71%)	376 (1%)	300 (80%)	345 (92%)
Bihar	66398 (83%)	19261 (42%)	85659 (68%)	1987 (2%)	1615 (81%)	1476 (74%)
Chandigarh	3349 (96%)	43 (50%)	3392 (95%)	271 (8%)	252 (93%)	269 (99%)
Chhattisgarh	31569 (96%)	8700 (79%)	40269 (92%)	543 (1%)	532 (98%)	543 (100%)
Dadra & Nagar Haveli	491 (99%)	78 (100%)	569 (99%)	0 (0%)	0 (0%)	0 (0%)
Daman & Diu	370 (98%)	70 (90%)	440 (96%)	0 (0%)	0 (0%)	0 (0%)
Delhi	47621 (67%)	3486 (13%)	51107 (52%)	1518 (3%)	1397 (92%)	1517 (100%)
Goa	1809 (96%)	344 (75%)	2153 (92%)	74 (3%)	68 (92%)	71 (96%)
Gujarat	98552 (96%)	39475 (74%)	138027 (88%)	3390 (2%)	3223 (95%)	3369 (99%)
Haryana	48683 (89%)	11662 (59%)	60345 (81%)	664 (1%)	544 (82%)	563 (85%)
Himachal Pradesh	16687 (99%)	990 (94%)	17677 (98%)	151 (1%)	147 (97%)	151 (100%)
Jammu & Kashmir	9696 (87%)	542 (71%)	10238 (86%)	28 (0%)	27 (96%)	24 (86%)
Jharkhand	38595 (86%)	4339 (34%)	42934 (75%)	341 (1%)	306 (90%)	299 (88%)
Karnataka	68625 (94%)	10180 (60%)	78805 (88%)	5549 (7%)	5349 (96%)	5519 (99%)
Kerala	19638 (88%)	2299 (67%)	21937 (86%)	264 (1%)	234 (89%)	263 (100%)
Lakshadweep	16 (100%)	(0%)	16 (100%)	0 (0%)	0 (0%)	0 (0%)
Madhya Pradesh	121875 (83%)	21073 (52%)	142948 (76%)	1532 (1%)	1449 (95%)	1530 (100%)
Maharashtra	140282 (95%)	56416 (74%)	196698 (88%)	8444 (4%)	7994 (95%)	8246 (98%)
Manipur	1487 (65%)	164 (44%)	1651 (62%)	123 (7%)	113 (92%)	115 (93%)
Meghalaya	3344 (70%)	124 (20%)	3468 (64%)	135 (4%)	126 (93%)	119 (88%)
Mizoram	2544 (87%)	31 (52%)	2575 (86%)	321 (12%)	301 (94%)	308 (96%)
Nagaland	3434 (84%)	415 (59%)	3849 (80%)	369 (10%)	360 (98%)	353 (96%)
Odisha	48237 (98%)	3782 (94%)	52019 (98%)	715 (1%)	662 (93%)	705 (99%)
Puducherry	1630 (98%)	5 (83%)	1635 (98%)	30 (2%)	30 (100%)	30 (100%)
Punjab	43441 (95%)	11434 (84%)	54875 (92%)	950 (2%)	860 (91%)	928 (98%)
Rajasthan	106786 (87%)	25745 (49%)	132531 (76%)	1769 (1%)	1733 (98%)	1766 (100%)
Sikkim	1318 (92%)	17 (55%)	1335 (91%)	3 (0%)	2 (67%)	2 (67%)
Tamil Nadu	79612 (93%)	9973 (36%)	89585 (79%)	3742 (4%)	3453 (92%)	3728(100%)
Telangana	45725 (93%)	18131 (82%)	63856 (89%)	2391 (4%)	2258 (94%)	2104 (88%)
Tripura	2251 (75%)	5 (42%)	2256 (75%)	19 (1%)	19 (100%)	19 (100%)
Uttar Pradesh	319302 (90%)	63880 (44%)	383182 (77%)	3119 (1%)	2925 (94%)	2835 (91%)
Uttarakhand	16518 (83%)	2670 (50%)	19188 (76%)	254 (1%)	196 (77%)	220 (87%)
West Bengal	88260 (93%)	8244 (49%)	96504 (87%)	1288 (1%)	1175 (91%)	1269 (99%)
India	**1588742 (89%)**	**347191 (55%)**	**1935933 (81%)**	**46741 (2%)**	**44027 (94%)**	**45021 (96%)**

*- Source of data – NACP Monthly Progress Reports

2.2 Provider initiated testing and counselling among presumptive TB cases, notified TB patients and Paediatric TB patients

State	Presumptive TB Cases			Paediatric TB Patients		
	Examined	With known HIV status*	HIV positive cases among tested*	Notified	With known HIV status	HIV positive patients among tested
Andaman & Nicobar Islands	4225	855 (20%)	5 (1%)	24	20 (83%)	(0%)
Andhra Pradesh	52292	48632 (93%)	5817 (7%)	3720	3494 (94%)	68 (2%)
Arunachal Pradesh	11169	160 (1%)	0 (0%)	394	335 (85%)	1 (0%)
Assam	169824	8856 (5%)	38 (0%)	1740	1089 (63%)	7 (1%)
Bihar	467796	42898 (9%)	2287 (5%)	13060	7211 (55%)	69 (1%)
Chandigarh	23159	8369 (36%)	33 (0%)	527	469 (89%)	10 (2%)
Chhattisgarh	236887	25311 (11%)	457 (2%)	2293	1992 (87%)	22 (1%)
Dadra & Nagar Haveli	7040	3636 (52%)	12 (0%)	55	54 (98%)	1 (2%)
Daman & Diu	4031	1521 (38%)	19 (1%)	33	33 (100%)	(0%)
Delhi	180967	22908 (13%)	164 (1%)	11002	6241 (57%)	43 (1%)
Goa	15585	12240 (79%)	88 (1%)	76	73 (96%)	(0%)
Gujarat	892169	570130 (64%)	2193 (0%)	8968	7158 (80%)	89 (1%)
Haryana	241814	149752 (62%)	1895 (1%)	3974	3289 (83%)	30 (1%)
Himachal Pradesh	167751	23563 (14%)	23 (0%)	720	701 (97%)	1 (0%)
Jammu & Kashmir	95893	8720 (9%)	10 (0%)	808	692 (86%)	2 (0%)
Jharkhand	232345	39370 (17%)	153 (0%)	3161	1733 (55%)	16 (1%)
Karnataka	841485	488361 (58%)	7610 (2%)	4909	3821 (78%)	113 (3%)
Kerala	426368	26356 (6%)	124 (0%)	1473	1122 (76%)	6 (1%)
Lakshadweep	660	3 (0%)	0 (0%)	2	2 (100%)	(0%)
Madhya Pradesh	543246	274626 (51%)	3197 (1%)	17854	12381 (69%)	65 (1%)
Maharashtra	924156	503186 (54%)	8914 (2%)	13973	11634 (83%)	213 (2%)
Manipur	9639	0		113	68 (60%)	4 (6%)
Meghalaya	25596	1064 (4%)	9 (1%)	442	201 (45%)	1 (0%)
Mizoram	6944	526 (8%)	113 (21%)	214	184 (86%)	4 (2%)
Nagaland	11572	0		341	264 (77%)	7 (3%)
Odisha	354987	0		2480	2384 (96%)	13 (1%)
Puducherry	26838	13256 (49%)	65 (0%)	132	116 (88%)	1 (1%)
Punjab	186885	58412 (31%)	503 (1%)	3419	3199 (94%)	19 (1%)
Rajasthan	578753	298671 (52%)	1287 (0%)	10665	7555 (71%)	44 (1%)
Sikkim	7806	0	NA	60	57 (95%)	(0%)
Tamil Nadu	951155	813965 (86%)	3191 (0%)	5835	3043 (52%)	41 (1%)
Telangana	314403	197197 (63%)	6138 (3%)	2406	2099 (87%)	45 (2%)
Tripura	39557	457 (1%)	1 (0%)	42	25 (60%)	(0%)
Uttar Pradesh	1806374	545131 (30%)	1212 (0%)	31434	21476 (68%)	100 (0%)
Uttarakhand	94441	12101 (13%)	98 (1%)	1420	999 (70%)	14 (1%)
West Bengal	1224621	223083 (18%)	607 (0%)	3500	2768 (79%)	24 (1%)
India	**11178433**	**4423316 (40%)**	**46263 (1%)**	**151269**	**107982 (71%)**	**1073 (1%)**

* Data source for HIV status among presumptive TB cases: Annexure M reports
In Andhra Pradesh, the presumptive TB cases with known HIV status is more than the presumptive TB cases tested because, the numerator also includes presumptive TB cases tested by TrueNAAT test which is not included in the denominator.

2.3 Intensified TB case finding activities in ICTC Centres

State	ICTC attendees (excl. pregnant women)	Clients attending ICTC Centres		
		Referred for TB testing	Diagnosed with TB	Put on treatment
Andaman and Nicobar	18791	177 (1%)	41 (23%)	0 (0%)
Andhra Pradesh	902047	89432 (10%)	6106 (7%)	5970 (98%)
Arunachal Pradesh	16051	1026 (6%)	184 (18%)	7 (4%)
Assam	147677	8807 (6%)	1060 (12%)	484 (46%)
Bihar	401763	36959 (9%)	7876 (21%)	681 (9%)
Chandigarh	93556	505 (1%)	79 (16%)	4 (5%)
Chhattisgarh	273049	19746 (7%)	831 (4%)	515 (62%)
Dadar and Nagar Haveli	26758	111 (0%)	16 (14%)	16 (100%)
Daman and Diu	8556	186 (2%)	73 (39%)	39 (53%)
Delhi	411573	16541 (4%)	484 (3%)	299 (62%)
Goa	34843	1141 (3%)	23 (2%)	18 (78%)
Gujarat	1084147	106079 (10%)	5035 (5%)	4276 (85%)
Haryana	544713	22276 (4%)	2978 (13%)	370 (12%)
Himachal Pradesh	130110	5872 (5%)	190 (3%)	65 (34%)
Jammu and Kashmir	48845	477 (1%)	44 (9%)	5 (11%)
Jharkhand	230448	20976 (9%)	2702 (13%)	538 (20%)
Karnataka	1689135	146789 (9%)	5252 (4%)	4820 (92%)
Kerala	530002	19534 (4%)	187 (1%)	135 (72%)
Lakshadweep				
Madhya Pradesh	551547	37167 (7%)	2512 (7%)	1798 (72%)
Maharashtra	2848406	276248 (10%)	14198 (5%)	12369 (87%)
Manipur	80297	4555 (6%)	27 (1%)	17 (63%)
Meghalaya	22624	268 (1%)	26 (10%)	10 (38%)
Mizoram	36936	1964 (5%)	71 (4%)	38 (54%)
Nagaland	62915	3407 (5%)	212 (6%)	108 (51%)
Odisha	474844	38371 (8%)	1756 (5%)	1264 (72%)
Pondicherry	86016	2831 (3%)	61 (2%)	51 (84%)
Punjab	484758	23641 (5%)	1587 (7%)	789 (50%)
Rajasthan	829483	57243 (7%)	2413 (4%)	1440 (60%)
Sikkim	10081	155 (2%)	64 (41%)	7 (11%)
Tamil Nadu	3406828	264400 (8%)	5936 (2%)	5207 (88%)
Telangana	589628	46055 (8%)	2346 (5%)	2049 (87%)
Tripura	42330	1437 (3%)	70 (5%)	4 (6%)
Uttar Pradesh	1287807	84620 (7%)	8958 (11%)	4176 (47%)
Uttarakhand	104811	4435 (4%)	221 (5%)	112 (51%)
West Bengal	996168	42976 (4%)	1692 (4%)	886 (52%)
India	**18507543**	**1386407 (7%)**	**75311 (5%)**	**48567 (64%)**

2.4 Intensified TB case finding activities in ART centre

State	PLHIV attending ART centre	PLHIV screened for TB	PLHIV with presumptive TB	PLHIV referred for TB diagnosis test	PLHIV tested for TB	PLHIV diagnosed with TB	PLHIV microbiologically confirmed	PLHIV eligible for IPT (As of Jan19)	PLHIV initiated on IPT (Jan-Dec2019)
Andaman & Nicobar Islands	783	783 (100%)	16 (2%)	16 (100%)	16 (100%)	2 (13%)	2 (100%)	85	45 (53%)
Andhra Pradesh	1465577	1368437 (93%)	112563 (8%)	59705 (53%)	55771 (93%)	4701 (8%)	3434 (73%)	136235	84888 (62%)
Arunachal Pradesh	644	421 (65%)	34 (8%)	34 (100%)	34 (100%)	3 (9%)	0 (0%)	105	14 (13%)
Assam	51502	51439 (100%)	1141 (2%)	981 (86%)	577 (59%)	225 (39%)	50 (22%)	4121	607 (15%)
Bihar	480576	434773 (90%)	34966 (8%)	24012 (69%)	11338 (47%)	1622 (14%)	801 (49%)	47625	8460 (18%)
Chandigarh	34004	33434 (98%)	771 (2%)	683 (89%)	597 (87%)	85 (14%)	43 (51%)	4441	982 (22%)
Chhattisgarh	111762	108567 (97%)	5924 (5%)	5924 (100%)	4781 (81%)	367 (8%)	323 (88%)	7494	1748 (23%)
Delhi	250825	239529 (95%)	5803 (2%)	3803 (66%)	2455 (65%)	1198 (49%)	489 (41%)	21652	1186 (5%)
Goa	25711	25223 (98%)	660 (3%)	439 (67%)	400 (91%)	21 (5%)	17 (81%)	2259	1595 (71%)
Gujarat	599808	587805 (98%)	28448 (5%)	25883 (91%)	25524 (99%)	2940 (12%)	1346 (46%)	20491	24346 (119%)
Haryana	77042	69363 (90%)	1331 (2%)	1326 (100%)	1012 (76%)	736 (73%)	548 (74%)	14982	6213 (41%)
Himachal Pradesh	41087	40567 (99%)	714 (2%)	714 (100%)	705 (99%)	76 (11%)	54 (71%)	1841	854 (46%)
Jammu & Kashmir	28321	28321 (100%)	206 (1%)	206 (100%)	204 (99%)	71 (35%)	34 (48%)	320	362 (113%)
Jharkhand	110894	103146 (93%)	1385 (1%)	1371 (99%)	1320 (96%)	307 (23%)	206 (67%)	5895	3867 (66%)
Karnataka	1240131	1202432 (97%)	64659 (5%)	62736 (97%)	57560 (92%)	4205 (7%)	2451 (58%)	73894	23727 (32%)
Kerala	112959	107673 (95%)	6452 (6%)	2595 (40%)	2212 (85%)	234 (11%)	107 (46%)	9857	3982 (40%)

State	PLHIV attending ART centre	PLHIV screened for TB	PLHIV with presumptive TB	PLHIV referred for TB diagnosis test	PLHIV tested for TB	PLHIV diagnosed with TB	PLHIV microbiologically confirmed	PLHIV eligible for IPT (As of Jan19)	PLHIV initiated on IPT (Jan-Dec2019)
Madhya Pradesh	216841	198402 (91%)	15139 (8%)	12784 (84%)	9832 (77%)	958 (10%)	456 (48%)	20294	28228* (139%)
Maharashtra	2009115	1858677 (93%)	125768 (7%)	85645 (68%)	74098 (87%)	7070 (10%)	3255 (46%)	210686	38282 (18%)
Manipur	114498	110161 (96%)	1391 (1%)	573 (41%)	517 (90%)	122 (24%)	69 (57%)	12454	1123 (9%)
Meghalaya	17108	16669 (97%)	208 (1%)	208 (100%)	103 (50%)	38 (37%)	35 (92%)	2522	260 (10%)
Mizoram	56954	56954 (100%)	531 (1%)	524 (99%)	424 (81%)	129 (30%)	93 (72%)	9167	478 (5%)
Nagaland	62465	57945 (93%)	792 (1%)	776 (98%)	732 (94%)	278 (38%)	122 (44%)	6447	1123 (17%)
Odisha	148645	139308 (94%)	5542 (4%)	5529 (100%)	5305 (96%)	388 (7%)	271 (70%)	12164	8873 (73%)
Pondicherry	12575	11098 (88%)	267 (2%)	267 (100%)	267 (100%)	28 (10%)	10 (36%)	350	153 (44%)
Punjab	251354	242353 (96%)	4658 (2%)	3481 (75%)	3163 (91%)	644 (20%)	503 (78%)	31324	14120 (45%)
Rajasthan	300143	283765 (95%)	21759 (8%)	14800 (68%)	14179 (96%)	1465 (10%)	861 (59%)	22342	6595 (30%)
Sikkim	1655	1655 (100%)	14 (1%)	14 (100%)	14 (100%)	3 (21%)	3 (100%)	173	1 (1%)
Tamil Nadu	1047873	994151 (95%)	47986 (5%)	43609 (91%)	41987 (96%)	3502 (8%)	2175 (62%)	68290	36123 (53%)
Telangana	687263	513738 (75%)	70981 (14%)	16863 (24%)	14619 (87%)	2000 (14%)	1586 (79%)	88256	50976 (58%)
Tripura	10600	10060 (95%)	772 (8%)	235 (30%)	204 (87%)	9 (4%)	5 (56%)	1091	297 (27%)
Uttar Pradesh	644745	638565 (99%)	12849 (2%)	12524 (97%)	12161 (97%)	1944 (16%)	964 (50%)	45746	13759 (30%)
Uttarakhand	27638	24160 (87%)	1096 (5%)	847 (77%)	416 (49%)	238 (57%)	79 (33%)	4022	1104 (27%)
West Bengal	301093	291238 (97%)	5070 (2%)	5047 (100%)	4184 (83%)	589 (14%)	428 (73%)	21745	21832 (100%)
India	**10542191**	**9850812 (93%)**	**579896 (6%)**	**394154 (68%)**	**346711 (88%)**	**36198 (10%)**	**20820 (58%)**	**908370**	**386203 (43%)**

Source: NACP – Monthly Progress Reports
*Data under validation

2.5 TB-Diabetes

State	TB Patients notified			TB patients with known DM status (%)			TB Patients diagnosed with Diabetes among tested (%)			TB- DM patients initiated on Anti-diabetic treatment (%)		
	Public	Private	Total	Public	Private	Total	Public	Pri-vate	Total	Public	Private	Total
Andaman & Nicobar Islands	601	12	613	376	2	378 (62%)	40		40 (11%)	28		28 (70%)
Andhra Pradesh	75931	23973	99904	66871	16223	83094 (83%)	6637	1406	8043 (10%)	4275	799	5074 (63%)
Arunachal Pradesh	2974	50	3024	1274	9	1283 (42%)	36		36 (3%)	16		16 (44%)
Assam	43055	5710	48765	22353	800	23153 (47%)	1650	66	1716 (7%)	567	41	608 (35%)
Bihar	80294	46122	126416	48396	16474	64870 (51%)	2140	683	2823 (4%)	775	110	885 (31%)
Chandigarh	3471	86	3557	3212	38	3250 (91%)	244	2	246 (8%)	97	1	98 (40%)
Chhattisgarh	32723	11068	43791	29560	5592	35152 (80%)	2279	128	2407 (7%)	1076	31	1107 (46%)
Dadra & Nagar Haveli	494	78	572	485	77	562 (98%)	23	8	31 (6%)	13	5	18 (58%)
Daman & Diu	379	78	457	338	67	405 (89%)	20		20 (5%)	10		10 (50%)
Delhi	71414	26328	97742	41669	5977	47646 (49%)	3228	727	3955 (8%)	1458	277	1735 (44%)
Goa	1883	461	2344	1640	45	1685 (72%)	275	12	287 (17%)	174	1	175 (61%)
Gujarat	103012	53159	156171	97639	36476	134115 (86%)	5285	1947	7232 (5%)	3245	1144	4389 (61%)
Haryana	54841	19893	74734	44225	9535	53760 (72%)	3353	478	3831 (7%)	1673	255	1928 (50%)
Himachal Pradesh	16933	1055	17988	16412	977	17389 (97%)	1126	39	1165 (7%)	749	25	774 (66%)
Jammu & Kashmir	11156	768	11924	7595	389	7984 (67%)	384	21	405 (5%)	141	7	148 (37%)
Jharkhand	44696	12736	57432	28118	2909	31027 (54%)	1228	179	1407 (5%)	488	46	534 (38%)
Karnataka	72990	16907	89897	63902	7269	71171 (79%)	7368	883	8251 (12%)	4490	288	4778 (58%)
Kerala	22223	3425	25648	19045	2097	21142 (82%)	5513	571	6084 (29%)	3531	331	3862 (63%)

State	TB Patients notified			TB patients with known DM status (%)			TB Patients diagnosed with Diabetes among tested (%)			TB- DM patients initiated on Anti-diabetic treatment (%)		
	Public	Private	Total	Public	Private	Total	Public	Pri-vate	Total	Public	Private	Total
Lakshadweep	16		16	16		16 (100%)	3		3 (19%)	3		3 (100%)
Madhya Pradesh	146677	40834	187511	103484	18039	121523 (65%)	4395	475	4870 (4%)	1713	194	1907 (39%)
Maharashtra	148422	76144	224566	122853	47075	169928 (76%)	7219	2101	9320 (5%)	3827	771	4598 (49%)
Manipur	2277	370	2647	891	18	909 (34%)	83	1	84 (9%)	37	1	38 (45%)
Meghalaya	4772	617	5389	2864	106	2970 (55%)	126	4	130 (4%)	46		46 (35%)
Mizoram	2931	60	2991	1692	5	1697 (57%)	73	1	74 (4%)	33		33 (45%)
Nagaland	4075	707	4782	1276	178	1454 (30%)	51	8	59 (4%)	22	5	27 (46%)
Odisha	49279	4008	53287	44638	3007	47645 (89%)	3469	210	3679 (8%)	1869	98	1967 (53%)
Puducherry	1657	6	1663	1627	2	1629 (98%)	398		398 (24%)	385		385 (97%)
Punjab	45911	13626	59537	42004	10781	52785 (89%)	4151	683	4834 (9%)	1876	257	2133 (44%)
Rajasthan	123004	52421	175425	91382	20815	112197 (64%)	2578	411	2989 (3%)	1366	141	1507 (50%)
Sikkim	1438	31	1469	1283	18	1301 (89%)	92	1	93 (7%)	40		40 (43%)
Tamil Nadu	85495	28018	113513	73441	6255	79696 (70%)	15449	1156	16605 (21%)	9072	418	9490 (57%)
Telangana	49334	22148	71482	24358	7740	32098 (45%)	1493	241	1734 (5%)	761	103	864 (50%)
Tripura	3015	12	3027	1499	1	1500 (50%)	247	1	248 (17%)	115	1	116 (47%)
Uttar Pradesh	355347	144409	499756	184680	28243	212923 (43%)	9093	1054	10147 (5%)	3261	269	3530 (35%)
Uttarakhand	19882	5341	25223	7502	382	7884 (31%)	563	36	599 (8%)	196	15	211 (35%)
West Bengal	94566	16986	111552	81201	8028	89229 (80%)	9461	985	10446 (12%)	5926	501	6427 (62%)
India	**1777168**	**627647**	**2404815**	**1279801**	**255649**	**1535450 (64%)**	**99773**	**14518**	**114291 (7%)**	**53354**	**6135**	**59489 (52%)**

2.6 TB - Tobacco

State	TB Patients Notified			TB patients with know Blood Glucose Status %			TB- Diabetes Co-morbid patients			TB-DM patients linked to diabetic treatment		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Andaman & Nicobar Islands	601	12	613	378	2	380 (62%)	46	1	47 (12%)	19	1	20 (43%)
Andhra Pradesh	75931	23973	99904	64126	16841	80967 (81%)	11710	1386	13096 (16%)	2398	196	2594 (20%)
Arunachal Pradesh	2974	50	3024	1490	11	1501 (50%)	211		211 (14%)	92		92 (44%)
Assam	43055	5710	48765	22479	792	23271 (48%)	7309	105	7414 (32%)	1170	8	1178 (16%)
Bihar	80294	46122	126416	45734	12537	58271 (46%)	6415	729	7144 (12%)	1222	34	1256 (18%)
Chandigarh	3471	86	3557	3161	36	3197 (90%)	358	2	360 (11%)	78		78 (22%)
Chhattisgarh	32723	11068	43791	26206	3693	29899 (68%)	8338	375	8713 (29%)	4577	52	4629 (53%)
Dadra & Nagar Haveli	494	78	572	473	69	542 (95%)	49	8	57 (11%)	29	6	35 (61%)
Daman & Diu	379	78	457	319	40	359 (79%)	50	1	51 (14%)	17		17 (33%)
Delhi	71414	26328	97742	31849	5102	36951 (38%)	2315	255	2570 (7%)	585	20	605 (24%)
Goa	1883	461	2344	1379	24	1403 (60%)	80		80 (6%)	9		9 (11%)
Gujarat	103012	53159	156171	92323	34723	127046 (81%)	15607	3514	19121 (15%)	4433	303	4736 (25%)
Haryana	54841	19893	74734	38050	7397	45447 (61%)	2678	498	3176 (7%)	793	100	893 (28%)
Himachal Pradesh	16933	1055	17988	14489	827	15316 (85%)	2036	63	2099 (14%)	741	24	765 (36%)
Jammu & Kashmir	11156	768	11924	6612	356	6968 (58%)	469	24	493 (7%)	156	3	159 (32%)
Jharkhand	44696	12736	57432	27940	1387	29327 (51%)	4443	81	4524 (15%)	1143	21	1164 (26%)
Karnataka	72990	16907	89897	56450	5009	61459 (68%)	10755	381	11136 (18%)	2610	39	2649 (24%)
Kerala	22223	3425	25648	17068	1772	18840 (73%)	2898	150	3048 (16%)	1843	109	1952 (64%)
Lakshadweep	16		16	16		16 (100%)	1		1 (6%)	1		1 (100%)
Madhya Pradesh	146677	40834	187511	82599	12674	95273 (51%)	11703	897	12600 (13%)	1843	118	1961 (16%)

State	TB Patients Notified			TB patients with know Blood Glucose Status %			TB- Diabetes Co-morbid patients			TB-DM patients linked to diabetic treatment		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
Maharashtra	148422	76144	224566	111844	35018	146862 (65%)	13982	1395	15377 (10%)	3341	254	3595 (23%)
Manipur	2277	370	2647	910	19	929 (35%)	288	8	296 (32%)	45		45 (15%)
Meghalaya	4772	617	5389	3017	129	3146 (58%)	1110	77	1187 (38%)	238	6	244 (21%)
Mizoram	2931	60	2991	1907	4	1911 (64%)	750		750 (39%)	245		245 (33%)
Nagaland	4075	707	4782	2419	177	2596 (54%)	440	45	485 (19%)	70	9	79 (16%)
Odisha	49279	4008	53287	39704	2804	42508 (80%)	8337	283	8620 (20%)	2253	81	2334 (27%)
Puducherry	1657	6	1663	1588	3	1591 (96%)	340		340 (21%)	288		288 (85%)
Punjab	45911	13626	59537	37746	8689	46435 (78%)	1824	107	1931 (4%)	336	7	343 (18%)
Rajasthan	123004	52421	175425	78941	19326	98267 (56%)	6486	957	7443 (8%)	1192	194	1386 (19%)
Sikkim	1438	31	1469	981	15	996 (68%)	148	2	150 (15%)	10		10 (7%)
Tamil Nadu	85495	28018	113513	67099	5845	72944 (64%)	13406	557	13963 (19%)	3355	75	3430 (25%)
Telangana	49334	22148	71482	20362	6666	27028 (38%)	2771	199	2970 (11%)	843	39	882 (30%)
Tripura	3015	12	3027	1308	2	1310 (43%)	281	1	282 (22%)	10	1	11 (4%)
Uttar Pradesh	355347	144409	499756	180949	18712	199661 (40%)	22401	1250	23651 (12%)	3177	136	3313 (14%)
Uttarakhand	19882	5341	25223	8991	358	9349 (37%)	1119	34	1153 (12%)	352	10	362 (31%)
West Bengal	94566	16986	111552	69701	6563	76264 (68%)	16500	1068	17568 (23%)	4885	270	5155 (29%)
India	**1777168**	**627647**	**2404815**	**1160608**	**207622**	**1368230 (57%)**	**177654**	**14453**	**192107 (14%)**	**44399**	**2116**	**46515 (24%)**

3 Treatment Outcome:

3.1 Treatment outcome of TB patients notified in 2018 (Public Sector)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Andaman & Nicobar Islands	503	231	145 (63%)	443 (88%)	12 (2%)	4 (1%)	17 (3%)	6 (1%)	21 (4%)
Andhra Pradesh	64460	39784	28558 (72%)	57629 (89%)	3350 (5%)	363 (1%)	1280 (2%)	834 (1%)	1004 (2%)
Arunachal Pradesh	2892	1144	895 (78%)	2360 (82%)	59 (2%)	44 (2%)	167 (6%)	72 (2%)	190 (7%)
Assam	37640	18234	12582 (69%)	32201 (86%)	1504 (4%)	213 (1%)	1476 (4%)	177 (0%)	2069 (5%)
Bihar	65862	41206	26111 (63%)	52921 (80%)	1598 (2%)	414 (1%)	3172 (5%)	379 (1%)	7378 (11%)
Chandigarh	3150	1460	972 (67%)	2772 (88%)	90 (3%)	19 (1%)	95 (3%)	23 (1%)	151 (5%)
Chhattisgarh	29923	14490	11760 (81%)	26756 (89%)	1309 (4%)	193 (1%)	641 (2%)	165 (1%)	859 (3%)
Dadra & Nagar Haveli	506	204	172 (84%)	472 (93%)	18 (4%)	3 (1%)	2 (0%)	5 (1%)	6 (1%)
Daman & Diu	355	101	72 (71%)	287 (81%)	11 (3%)	3 (1%)	34 (10%)	10 (3%)	10 (3%)
Delhi	62678	26984	15702 (58%)	48089 (77%)	1174 (2%)	482 (1%)	2655 (4%)	784 (1%)	9494 (15%)
Goa	1733	1048	534 (51%)	1379 (80%)	70 (4%)	19 (1%)	70 (4%)	21 (1%)	174 (10%)
Gujarat	101975	54749	41640 (76%)	86082 (84%)	5613 (6%)	1095 (1%)	3072 (3%)	1450 (1%)	4663 (5%)
Haryana	48274	29769	21687 (73%)	41172 (85%)	2009 (4%)	558 (1%)	1626 (3%)	371 (1%)	2538 (5%)
Himachal Pradesh	15482	9816	6564 (67%)	13799 (89%)	627 (4%)	70 (0%)	237 (2%)	123 (1%)	626 (4%)
Jammu & Kashmir	10975	5776	3966 (69%)	9179 (84%)	275 (3%)	73 (1%)	230 (2%)	43 (0%)	1175 (11%)
Jharkhand	38469	21177	15736 (74%)	34251 (89%)	1066 (3%)	206 (1%)	896 (2%)	151 (0%)	1899 (5%)
Karnataka	65306	42024	29063 (69%)	52728 (81%)	4408 (7%)	556 (1%)	3311 (5%)	691 (1%)	3612 (6%)
Kerala	21239	12210	9990 (82%)	18882 (89%)	1057 (5%)	215 (1%)	450 (2%)	175 (1%)	460 (2%)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Lakshadweep	19	10	5 (50%)	18 (95%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (5%)
Madhya Pradesh	120273	55240	39554 (72%)	105690 (88%)	4096 (3%)	921 (1%)	4281 (4%)	551 (0%)	4734 (4%)
Maharashtra	131388	64121	44268 (69%)	107678 (82%)	5961 (5%)	895 (1%)	5233 (4%)	1665 (1%)	9956 (8%)
Manipur	2212	1114	702 (63%)	1766 (80%)	62 (3%)	10 (0%)	64 (3%)	16 (1%)	294 (13%)
Meghalaya	3972	2159	1328 (62%)	3145 (79%)	142 (4%)	35 (1%)	97 (2%)	55 (1%)	498 (13%)
Mizoram	2526	1018	619 (61%)	2239 (89%)	53 (2%)	15 (1%)	45 (2%)	12 (0%)	162 (6%)
Nagaland	3574	1570	1392 (89%)	3117 (87%)	73 (2%)	19 (1%)	130 (4%)	12 (0%)	223 (6%)
Odisha	45747	26346	21026 (80%)	40598 (89%)	2474 (5%)	178 (0%)	1407 (3%)	244 (1%)	846 (2%)
Puducherry	1521	938	720 (77%)	1303 (86%)	92 (6%)	23 (2%)	53 (3%)	7 (0%)	43 (3%)
Punjab	42965	24248	16429 (68%)	36646 (85%)	1984 (5%)	256 (1%)	1605 (4%)	231 (1%)	2243 (5%)
Rajasthan	109124	65229	43384 (67%)	89525 (82%)	3800 (3%)	694 (1%)	3726 (3%)	526 (0%)	10853 10%)
Sikkim	1313	708	416 (59%)	1120 (85%)	31 (2%)	6 (0%)	6 (0%)	13 (1%)	137 (10%)
Tamil Nadu	74972	50810	38116 (75%)	63882 (85%)	3802 (5%)	507 (1%)	2867 (4%)	1153 (2%)	2761 (4%)
Telangana	41007	26616	20540 (77%)	36905 (90%)	1692 (4%)	327 (1%)	731 (2%)	364 (1%)	988 (2%)
Tripura	2698	1814	1435 (79%)	2356 (87%)	127 (5%)	17 (1%)	63 (2%)	15 (1%)	120 (4%)
Uttar Pradesh	307914	174396	113960 (65%)	256485 (83%)	11475 (4%)	2210 (1%)	13635 (4%)	2634 (1%)	21475 (7%)
Uttarakhand	16630	8465	5894 (70%)	13982 (84%)	649 (4%)	107 (1%)	733 (4%)	200 (1%)	959 (6%)
West Bengal	87346	58719	44499 (76%)	75441 (86%)	4323 (5%)	684 (1%)	2729 (3%)	949 (1%)	3220 (4%)
India	**1566623**	**883928**	**620436 (70%)**	**1323298 (84%)**	**65086 (4%)**	**11434 (1%)**	**56836 (4%)**	**14127 (1%)**	**95842 (6%)**

*Not evaluated - (includes Pre-treatment loss of follow up)

3.2 Treatment outcome of TB patients notified in 2018 (Private Sector)

State	TB patients Notified	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Andaman & Nicobar Islands	20	18 (90%)	0 (0%)	0 (0%)	1 (5%)	0 (0%)	1 (5%)
Andhra Pradesh	26220	24722 (94%)	286 (1%)	99 (0%)	718 (3%)	36 (0%)	359 (1%)
Arunachal Pradesh	8	4 (50%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	4 (50%)
Assam	4036	2402 (60%)	58 (1%)	14 (0%)	34 (1%)	14 (0%)	1514 (38%)
Bihar	40327	25195 (62%)	979 (2%)	163 (0%)	1850 (5%)	174 (0%)	11966 (30%)
Chandigarh	72	56 (78%)	4 (6%)	0 (0%)	1 (1%)	1 (1%)	10 (14%)
Chhattisgarh	10604	7122 (67%)	94 (1%)	54 (1%)	147 (1%)	15 (0%)	3172 (30%)
Dadra & Nagar Haveli	54	53 (98%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)
Daman & Diu	37	36 (97%)	0 (0%)	0 (0%)	1 (3%)	0 (0%)	0 (0%)
Delhi	9250	3474 (38%)	193 (2%)	17 (0%)	698 (8%)	30 (0%)	4838 (52%)
Goa	507	191 (38%)	1 (0%)	1 (0%)	0 (0%)	1 (0%)	313 (62%)
Gujarat	46720	35833 (77%)	823 (2%)	156 (0%)	3134 (7%)	166 (0%)	6608 (14%)
Haryana	13709	9909 (72%)	275 (2%)	56 (0%)	976 (7%)	21 (0%)	2472 (18%)
Himachal Pradesh	1113	917 (82%)	34 (3%)	1 (0%)	27 (2%)	1 (0%)	133 (12%)
Jammu & Kashmir	915	594 (65%)	3 (0%)	2 (0%)	12 (1%)	1 (0%)	303 (33%)
Jharkhand	10200	6322 (62%)	97 (1%)	17 (0%)	366 (4%)	30 (0%)	3368 (33%)
Karnataka	13612	10248 (75%)	460 (3%)	72 (1%)	359 (3%)	38 (0%)	2435 (18%)
Kerala	3333	2794 (84%)	106 (3%)	12 (0%)	49 (1%)	15 (0%)	357 (11%)

State	TB patients Notified	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Madhya Pradesh	32573	18475 (57%)	220 (1%)	147 (0%)	1805 (6%)	43 (0%)	11883 (36%)
Maharashtra	59906	47895 (80%)	1153 (2%)	383 (1%)	2310 (4%)	1434 (2%)	6731 (11%)
Manipur	650	515 (79%)	10 (2%)	1 (0%)	23 (4%)	2 (0%)	99 (15%)
Meghalaya	487	234 (48%)	3 (1%)	2 (0%)	23 (5%)	1 (0%)	224 (46%)
Mizoram	50	17 (34%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)	32 (64%)
Nagaland	748	278 (37%)	22 (3%)	1 (0%)	28 (4%)	10 (1%)	409 (55%)
Odisha	2560	2105 (82%)	48 (2%)	6 (0%)	77 (3%)	7 (0%)	317 (12%)
Puducherry	21	19 (90%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (10%)
Punjab	9252	6861 (74%)	371 (4%)	32 (0%)	535 (6%)	60 (1%)	1393 (15%)
Rajasthan	43423	27762 (64%)	378 (1%)	244 (1%)	2494 (6%)	62 (0%)	12483 (29%)
Sikkim	27	13 (48%)	1 (4%)	0 (0%)	0 (0%)	0 (0%)	13 (48%)
Tamil Nadu	26129	21400 (82%)	281 (1%)	76 (0%)	568 (2%)	61 (0%)	3743 (14%)
Telangana	10311	9369 (91%)	158 (2%)	23 (0%)	99 (1%)	13 (0%)	649 (6%)
Tripura	4	3 (75%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (25%)
Uttar Pradesh	98398	64218 (65%)	1949 (2%)	569 (1%)	7390 (8%)	186 (0%)	24086 (24%)
Uttarakhand	3931	3544 (90%)	41 (1%)	9 (0%)	188 (5%)	5 (0%)	144 (4%)
West Bengal	13687	9120 (67%)	248 (2%)	53 (0%)	293 (2%)	61 (0%)	3912 (29%)
India	**482894**	**341718 (71%)**	**8296 (2%)**	**2210 (0%)**	**24206 (5%)**	**2489 (1%)**	**103975 (22%)**

The UT of Lakshadweep didn't notify any patient in the Private Sector during the year 2018.
* Not evaluated - (includes Pre-treatment loss of follow up)

3.3 Treatment outcome of TB patients notified in 2018 (Total)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Andaman & Nicobar Islands	523	240	146 (61%)	461 (88%)	12 (2%)	4 (1%)	18 (3%)	6 (1%)	22 (4%)
Andhra Pradesh	90680	45051	30580 (68%)	82351 (91%)	3636 (4%)	462 (1%)	1998 (2%)	870 (1%)	1363 (2%)
Arunachal Pradesh	2900	1146	896 (78%)	2364 (82%)	59 (2%)	44 (2%)	167 (6%)	72 (2%)	194 (7%)
Assam	41676	18989	12825 (68%)	34603 (83%)	1562 (4%)	227 (1%)	1510 (4%)	191 (0%)	3583 (9%)
Bihar	106189	43139	27131 (63%)	78116 (74%)	2577 (2%)	577 (1%)	5022 (5%)	553 (1%)	19344 (18%)
Chandigarh	3222	1481	975 (66%)	2828 (88%)	94 (3%)	19 (1%)	96 (3%)	24 (1%)	161 (5%)
Chhattisgarh	40527	15790	12250 (78%)	33878 (84%)	1403 (3%)	247 (1%)	788 (2%)	180 (0%)	4031 (10%)
Dadra & Nagar Haveli	560	223	175 (78%)	525 (94%)	18 (3%)	3 (1%)	2 (0%)	5 (1%)	7 (1%)
Daman & Diu	392	101	72 (71%)	323 (82%)	11 (3%)	3 (1%)	35 (9%)	10 (3%)	10 (3%)
Delhi	71928	29158	15767 (54%)	51563 (72%)	1367 (2%)	499 (1%)	3353 (5%)	814 (1%)	14332 (20%)
Goa	2240	1123	536 (48%)	1570 (70%)	71 (3%)	20 (1%)	70 (3%)	22 (1%)	487 (22%)
Gujarat	148695	58346	42366 (73%)	121915 (82%)	6436 (4%)	1251 (1%)	6206 (4%)	1616 (1%)	11271 (8%)
Haryana	61983	33329	23569 (71%)	51081 (82%)	2284 (4%)	614 (1%)	2602 (4%)	392 (1%)	5010 (8%)
Himachal Pradesh	16595	9997	6680 (67%)	14716 (89%)	661 (4%)	71 (0%)	264 (2%)	124 (1%)	759 (5%)
Jammu & Kashmir	11890	6015	4045 (67%)	9773 (82%)	278 (2%)	75 (1%)	242 (2%)	44 (0%)	1478 (12%)
Jharkhand	48669	21938	16076 (73%)	40573 (83%)	1163 (2%)	223 (0%)	1262 (3%)	181 (0%)	5267 (11%)
Karnataka	78918	45422	29990 (66%)	62976 (80%)	4868 (6%)	628 (1%)	3670 (5%)	729 (1%)	6047 (8%)
Kerala	24572	13121	10407 (79%)	21676 (88%)	1163 (5%)	227 (1%)	499 (2%)	190 (1%)	817 (3%)
Lakshadweep	19	10	5 (50%)	18 (95%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (5%)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Madhya Pradesh	152846	57357	40526 (71%)	124165 (81%)	4316 (3%)	1068 (1%)	6086 (4%)	594 (0%)	16617 (11%)
Maharashtra	191294	79039	47125 (60%)	155573 (81%)	7114 (4%)	1278 (1%)	7543 (4%)	3099 (2%)	16687 (9%)
Manipur	2862	1325	726 (55%)	2281 (80%)	72 (3%)	11 (0%)	87 (3%)	18 (1%)	393 (14%)
Meghalaya	4459	2193	1329 (61%)	3379 (76%)	145 (3%)	37 (1%)	120 (3%)	56 (1%)	722 (16%)
Mizoram	2576	1035	619 (60%)	2256 (88%)	53 (2%)	15 (1%)	45 (2%)	13 (1%)	194 (8%)
Nagaland	4322	1636	1416 (87%)	3395 (79%)	95 (2%)	20 (0%)	158 (4%)	22 (1%)	632 (15%)
Odisha	48307	27094	21252 (78%)	42703 (88%)	2522 (5%)	184 (0%)	1484 (3%)	251 (1%)	1163 (2%)
Puducherry	1542	940	722 (77%)	1322 (86%)	92 (6%)	23 (1%)	53 (3%)	7 (0%)	45 (3%)
Punjab	52217	25797	16652 (65%)	43507 (83%)	2355 (5%)	288 (1%)	2140 (4%)	291 (1%)	3636 (7%)
Rajasthan	152547	73737	45801 (62%)	117287 (77%)	4178 (3%)	938 (1%)	6220 (4%)	588 (0%)	23336 (15%)
Sikkim	1340	722	419 (58%)	1133 (85%)	32 (2%)	6 (0%)	6 (0%)	13 (1%)	150 (11%)
Tamil Nadu	101101	56642	40304 (71%)	85282 (84%)	4083 (4%)	583 (1%)	3435 (3%)	1214 (1%)	6504 (6%)
Telangana	51318	29195	22929 (79%)	46274 (90%)	1850 (4%)	350 (1%)	830 (2%)	377 (1%)	1637 (3%)
Tripura	2702	1814	1435 (79%)	2359 (87%)	127 (5%)	17 (1%)	63 (2%)	15 (1%)	121 (4%)
Uttar Pradesh	406312	185658	115935 (62%)	320703 (79%)	13424 (3%)	2779 (1%)	21025 (5%)	2820 (1%)	45561 (11%)
Uttarakhand	20561	9106	6031 (66%)	17526 (85%)	690 (3%)	116 (1%)	921 (4%)	205 (1%)	1103 (5%)
West Bengal	101033	63294	45509 (72%)	84561 (84%)	4571 (5%)	737 (1%)	3022 (3%)	1010 (1%)	7132 (7%)
India	**2049517**	**961203**	**643221 (67%)**	**1665016 (81%)**	**73382 (4%)**	**13644 (1%)**	**81042 (4%)**	**16616 (1%)**	**199817 (10%)**

*Not evaluated - (includes Pre-treatment loss of follow up)

3.4 Treatment outcome of TB patients notified in 2018 (New cases – Public Sector)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Andaman & Nicobar Islands	448	194	128 (66%)	397 (89%)	11 (2%)	4 (1%)	16 (4%)	5 (1%)	15 (3%)
Andhra Pradesh	55544	32776	23920 (73%)	50218 (90%)	2709 (5%)	265 (0%)	962 (2%)	562 (1%)	828 (1%)
Arunachal Pradesh	2560	926	742 (80%)	2119 (83%)	47 (2%)	41 (2%)	135 (5%)	51 (2%)	167 (7%)
Assam	32901	15458	10913 (71%)	28272 (86%)	1281 (4%)	172 (1%)	1196 (4%)	114 (0%)	1866 (6%)
Bihar	56614	34853	22487 (65%)	45854 (81%)	1286 (2%)	334 (1%)	2584 (5%)	237 (0%)	6319 (11%)
Chandigarh	2708	1155	775 (67%)	2395 (88%)	75 (3%)	15 (1%)	69 (3%)	21 (1%)	133 (5%)
Chhattisgarh	26843	12420	10338 (83%)	24261 (90%)	1102 (4%)	144 (1%)	487 (2%)	106 (0%)	743 (3%)
Dadra & Nagar Haveli	425	167	142 (85%)	397 (93%)	14 (3%)	3 (1%)	2 (0%)	3 (1%)	6 (1%)
Daman & Diu	278	71	51 (72%)	228 (82%)	8 (3%)	1 (0%)	25 (9%)	6 (2%)	10 (4%)
Delhi	53381	20653	11900 (58%)	41249 (77%)	841 (2%)	346 (1%)	1964 (4%)	471 (1%)	8510 (16%)
Goa	1534	896	472 (53%)	1252 (82%)	62 (4%)	13 (1%)	48 (3%)	17 (1%)	142 (9%)
Gujarat	79036	38316	30902 (81%)	68866 (87%)	3802 (5%)	590 (1%)	1970 (2%)	678 (1%)	3130 (4%)
Haryana	39670	22882	17139 (75%)	34317 (87%)	1500 (4%)	377 (1%)	1201 (3%)	221 (1%)	2054 (5%)
Himachal Pradesh	13224	7837	5238 (67%)	11869 (90%)	497 (4%)	53 (0%)	183 (1%)	86 (1%)	536 (4%)
Jammu & Kashmir	9477	4538	3081 (68%)	7922 (84%)	214 (2%)	43 (0%)	162 (2%)	34 (0%)	1102 (12%)
Jharkhand	34138	18456	14020 (76%)	30544 (89%)	899 (3%)	169 (0%)	752 (2%)	109 (0%)	1665 (5%)
Karnataka	55381	33931	24333 (72%)	45796 (83%)	3558 (6%)	351 (1%)	2376 (4%)	497 (1%)	2803 (5%)
Kerala	19591	10932	9111 (83%)	17533 (89%)	939 (5%)	181 (1%)	381 (2%)	145 (1%)	412 (2%)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Lakshadweep	18	9	5 (56%)	18 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Madhya Pradesh	103522	44020	32611 (74%)	91971 (89%)	3246 (3%)	665 (1%)	3442 (3%)	341 (0%)	3857 (4%)
Maharashtra	111409	51729	37019 (72%)	93091 (84%)	4499 (4%)	614 (1%)	3778 (3%)	1208 (1%)	8219 (7%)
Manipur	1919	910	583 (64%)	1534 (80%)	49 (3%)	7 (0%)	51 (3%)	11 (1%)	267 (14%)
Meghalaya	3513	1842	1139 (62%)	2782 (79%)	123 (4%)	27 (1%)	82 (2%)	37 (1%)	462 (13%)
Mizoram	2252	836	514 (61%)	2002 (89%)	46 (2%)	12 (1%)	37 (2%)	11 (0%)	144 (6%)
Nagaland	3095	1244	1134 (91%)	2725 (88%)	59 (2%)	13 (0%)	95 (3%)	6 (0%)	197 (6%)
Odisha	40102	22102	18163 (82%)	36063 (90%)	2029 (5%)	133 (0%)	1040 (3%)	164 (0%)	673 (2%)
Puducherry	1321	767	616 (80%)	1160 (88%)	75 (6%)	17 (1%)	30 (2%)	5 (0%)	34 (3%)
Punjab	36764	19100	13271 (69%)	31786 (86%)	1533 (4%)	184 (1%)	1255 (3%)	149 (0%)	1857 (5%)
Rajasthan	88709	48542	32893 (68%)	73749 (83%)	2660 (3%)	459 (1%)	2807 (3%)	309 (0%)	8725 (10%)
Sikkim	1164	610	355 (58%)	989 (85%)	27 (2%)	4 (0%)	4 (0%)	9 (1%)	131 (11%)
Tamil Nadu	63926	41433	31934 (77%)	55460 (87%)	3020 (5%)	322 (1%)	2072 (3%)	793 (1%)	2259 (4%)
Telangana	34104	20912	16702 (80%)	31160 (91%)	1271 (4%)	172 (1%)	491 (1%)	211 (1%)	799 (2%)
Tripura	2388	1556	1238 (80%)	2097 (88%)	105 (4%)	14 (1%)	47 (2%)	12 (1%)	113 (5%)
Uttar Pradesh	259848	140832	94752 (67%)	219278 (84%)	8953 (3%)	1685 (1%)	10901 (4%)	1624 (1%)	17407 (7%)
Uttarakhand	13791	6432	4582 (71%)	11697 (85%)	507 (4%)	76 (1%)	593 (4%)	124 (1%)	794 (6%)
West Bengal	76121	49218	38362 (78%)	66683 (88%)	3561 (5%)	483 (1%)	2024 (3%)	714 (1%)	2656 (3%)
India	**1327719**	**708555**	**511565 (72%)**	**1137734 (86%)**	**50608 (4%)**	**7989 (1%)**	**43262 (3%)**	**9091 (1%)**	**79035 (6%)**

*Not evaluated - (includes Pre-treatment loss of follow up)

3.5 Treatment outcome of TB patients notified in 2018 (Previously Treated cases – Public Sector)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Andaman & Nicobar Islands	55	37	17 (46%)	46 (84%)	1 (2%)	0 (0%)	1 (2%)	1 (2%)	6 (11%)
Andhra Pradesh	8916	7008	4638 (66%)	7411 (83%)	641 (7%)	98 (1%)	318 (4%)	272 (3%)	176 (2%)
Arunachal Pradesh	332	218	153 (70%)	241 (73%)	12 (4%)	3 (1%)	32 (10%)	21 (6%)	23 (7%)
Assam	4739	2776	1669 (60%)	3929 (83%)	223 (5%)	41 (1%)	280 (6%)	63 (1%)	203 (4%)
Bihar	9248	6353	3624 (57%)	7067 (76%)	312 (3%)	80 (1%)	588 (6%)	142 (2%)	1059 (11%)
Chandigarh	442	305	197 (65%)	377 (85%)	15 (3%)	4 (1%)	26 (6%)	2 (0%)	18 (4%)
Chhattisgarh	3080	2070	1422 (69%)	2495 (81%)	207 (7%)	49 (2%)	154 (5%)	59 (2%)	116 (4%)
Dadra & Nagar Haveli	81	37	30 (81%)	75 (93%)	4 (5%)	0 (0%)	0 (0%)	2 (2%)	0 (0%)
Daman & Diu	77	30	21 (70%)	59 (77%)	3 (4%)	2 (3%)	9 (12%)	4 (5%)	0 (0%)
Delhi	9297	6331	3802 (60%)	6840 (74%)	333 (4%)	136 (1%)	691 (7%)	313 (3%)	984 (11%)
Goa	199	152	62 (41%)	127 (64%)	8 (4%)	6 (3%)	22 (11%)	4 (2%)	32 (16%)
Gujarat	22939	16433	10738 (65%)	17216 (75%)	1811 (8%)	505 (2%)	1102 (5%)	772 (3%)	1533 (7%)
Haryana	8604	6887	4548 (66%)	6855 (80%)	509 (6%)	181 (2%)	425 (5%)	150 (2%)	484 (6%)
Himachal Pradesh	2258	1979	1326 (67%)	1930 (85%)	130 (6%)	17 (1%)	54 (2%)	37 (2%)	90 (4%)
Jammu & Kashmir	1498	1238	885 (71%)	1257 (84%)	61 (4%)	30 (2%)	68 (5%)	9 (1%)	73 (5%)
Jharkhand	4331	2721	1716 (63%)	3707 (86%)	167 (4%)	37 (1%)	144 (3%)	42 (1%)	234 (5%)
Karnataka	9925	8093	4730 (58%)	6932 (70%)	850 (9%)	205 (2%)	935 (9%)	194 (2%)	809 (8%)
Kerala	1648	1278	879 (69%)	1349 (82%)	118 (7%)	34 (2%)	69 (4%)	30 (2%)	48 (3%)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not* evaluated
Lakshadweep	1	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)
Madhya Pradesh	16751	11220	6943 (62%)	13719 (82%)	850 (5%)	256 (2%)	839 (5%)	210 (1%)	877 (5%)
Maharashtra	19979	12392	7249 (58%)	14587 (73%)	1462 (7%)	281 (1%)	1455 (7%)	457 (2%)	1737 (9%)
Manipur	293	204	119 (58%)	232 (79%)	13 (4%)	3 (1%)	13 (4%)	5 (2%)	27 (9%)
Meghalaya	459	317	189 (60%)	363 (79%)	19 (4%)	8 (2%)	15 (3%)	18 (4%)	36 (8%)
Mizoram	274	182	105 (58%)	237 (86%)	7 (3%)	3 (1%)	8 (3%)	1 (0%)	18 (7%)
Nagaland	479	326	258 (79%)	392 (82%)	14 (3%)	6 (1%)	35 (7%)	6 (1%)	26 (5%)
Odisha	5645	4244	2863 (67%)	4535 (80%)	445 (8%)	45 (1%)	367 (7%)	80 (1%)	173 (3%)
Puducherry	200	171	104 (61%)	143 (72%)	17 (9%)	6 (3%)	23 (12%)	2 (1%)	9 (5%)
Punjab	6201	5148	3158 (61%)	4860 (78%)	451 (7%)	72 (1%)	350 (6%)	82 (1%)	386 (6%)
Rajasthan	20415	16687	10491 (63%)	15776 (77%)	1140 (6%)	235 (1%)	919 (5%)	217 (1%)	2128 (10%)
Sikkim	149	98	61 (62%)	131 (88%)	4 (3%)	2 (1%)	2 (1%)	4 (3%)	6 (4%)
Tamil Nadu	11046	9377	6182 (66%)	8422 (76%)	782 (7%)	185 (2%)	795 (7%)	360 (3%)	502 (5%)
Telangana	6903	5704	3838 (67%)	5745 (83%)	421 (6%)	155 (2%)	240 (3%)	153 (2%)	189 (3%)
Tripura	310	258	197 (76%)	259 (84%)	22 (7%)	3 (1%)	16 (5%)	3 (1%)	7 (2%)
Uttar Pradesh	48066	33564	19208 (57%)	37207 (77%)	2522 (5%)	525 (1%)	2734 (6%)	1010 (2%)	4068 (8%)
Uttarakhand	2839	2033	1312 (65%)	2285 (80%)	142 (5%)	31 (1%)	140 (5%)	76 (3%)	165 (6%)
West Bengal	11225	9501	6137 (65%)	8758 (78%)	762 (7%)	201 (2%)	705 (6%)	235 (2%)	564 (5%)
India	**238904**	**175373**	**108871 (62%)**	**185564 (78%)**	**14478 (6%)**	**3445 (1%)**	**13574 (6%)**	**5036 (2%)**	**16807 (7%)**

*Not evaluated - (includes Pre-treatment loss of follow up)

3.6 Treatment outcome of TB – HIV Coinfected patients notified in 2018 (Total)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Reg-imen Change	% Not evaluated
Andaman & Nicobar Islands	2	1	0 (0%)	2 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Andhra Pradesh	6623	3826	1902 (50%)	5400 (82%)	696 (11%)	46 (1%)	250 (4%)	93 (1%)	138 (2%)
Arunachal Pradesh	3	1	0 (0%)	0 (0%)	1 (33%)	0 (0%)	1 (33%)	1 (33%)	0 (0%)
Assam	168	57	24 (42%)	119 (71%)	19 (11%)	2 (1%)	6 (4%)	4 (2%)	18 (11%)
Bihar	1007	457	165 (36%)	701 (70%)	58 (6%)	2 (0%)	47 (5%)	11 (1%)	188 (19%)
Chandigarh	33	8	5 (63%)	18 (55%)	5 (15%)	0 (0%)	1 (3%)	4 (12%)	5 (15%)
Chhattisgarh	416	228	119 (52%)	295 (71%)	41 (10%)	1 (0%)	12 (3%)	2 (0%)	65 (16%)
Dadra & Nagar Haveli	9	1	1 (100%)	9 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Daman & Diu	2	2	1 (50%)	1 (50%)	1 (50%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Delhi	587	218	83 (38%)	386 (66%)	33 (6%)	1 (0%)	40 (7%)	13 (2%)	114 (19%)
Goa	45	31	7 (23%)	27 (60%)	5 (11%)	0 (0%)	1 (2%)	0 (0%)	12 (27%)
Gujarat	2914	1178	586 (50%)	1986 (68%)	416 (14%)	30 (1%)	240 (8%)	27 (1%)	215 (7%)
Haryana	519	288	166 (58%)	398 (77%)	36 (7%)	4 (1%)	17 (3%)	5 (1%)	59 (11%)
Himachal Pradesh	150	91	34 (37%)	121 (81%)	17 (11%)	1 (1%)	1 (1%)	1 (1%)	9 (6%)
Jammu & Kashmir	44	18	5 (28%)	22 (50%)	4 (9%)	1 (2%)	1 (2%)	3 (7%)	13 (30%)
Jharkhand	203	104	60 (58%)	157 (77%)	16 (8%)	1 (0%)	6 (3%)	3 (1%)	20 (10%)
Karnataka	4554	2587	1381 (53%)	3198 (70%)	728 (16%)	35 (1%)	316 (7%)	40 (1%)	237 (5%)
Kerala	236	101	56 (55%)	165 (70%)	39 (17%)	4 (2%)	5 (2%)	5 (2%)	18 (8%)
Lakshadweep	2	2	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (100%)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Reg-imen Change	% Not evaluated
Madhya Pradesh	860	387	251 (65%)	703 (82%)	71 (8%)	3 (0%)	33 (4%)	2 (0%)	48 (6%)
Maharashtra	7799	3073	1398 (45%)	5354 (69%)	969 (12%)	49 (1%)	548 (7%)	73 (1%)	806 (10%)
Manipur	147	69	27 (39%)	106 (72%)	12 (8%)	2 (1%)	13 (9%)	1 (1%)	13 (9%)
Meghalaya	67	23	9 (39%)	44 (66%)	10 (15%)	0 (0%)	6 (9%)	1 (1%)	6 (9%)
Mizoram	288	85	37 (44%)	238 (83%)	13 (5%)	1 (0%)	9 (3%)	0 (0%)	27 (9%)
Nagaland	196	75	63 (84%)	155 (79%)	15 (8%)	0 (0%)	7 (4%)	1 (1%)	18 (9%)
Odisha	659	325	178 (55%)	524 (80%)	76 (12%)	2 (0%)	30 (5%)	7 (1%)	20 (3%)
Puducherry	29	14	11 (79%)	18 (62%)	4 (14%)	0 (0%)	3 (10%)	1 (3%)	3 (10%)
Punjab	640	354	197 (56%)	486 (76%)	69 (11%)	1 (0%)	34 (5%)	5 (1%)	45 (7%)
Rajasthan	1001	638	345 (54%)	700 (70%)	91 (9%)	5 (0%)	49 (5%)	2 (0%)	154 (15%)
Sikkim	10	3	1 (33%)	10 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Tamil Nadu	2423	1458	837 (57%)	1746 (72%)	263 (11%)	16 (1%)	143 (6%)	34 (1%)	221 (9%)
Telangana	1703	1239	796 (64%)	1407 (83%)	183 (11%)	5 (0%)	40 (2%)	14 (1%)	54 (3%)
Tripura	33	23	15 (65%)	26 (79%)	2 (6%)	0 (0%)	2 (6%)	0 (0%)	3 (9%)
Uttar Pradesh	1849	946	412 (44%)	1277 (69%)	147 (8%)	10 (1%)	101 (5%)	32 (2%)	282 (15%)
Uttarakhand	108	46	27 (59%)	79 (73%)	14 (13%)	0 (0%)	7 (6%)	2 (2%)	6 (6%)
West Bengal	1181	696	347 (50%)	886 (75%)	142 (12%)	7 (1%)	37 (3%)	17 (1%)	92 (8%)
India	**36510**	**18653**	**9546 (51%)**	**26764 (73%)**	**4196 (11%)**	**229 (1%)**	**2006 (5%)**	**404 (1%)**	**2911 (8%)**

The TB – HIV Coinfected patients as reported in Nikshay for the year 2018 is taken. This may differ from the TB _ HIV Coinfected patients reported by NACO which is 49,047 for the year 2018

3.7 Treatment outcome of Paediatric TB patients notified in 2018 (Total)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not evaluated
Andaman & Nicobar Islands	34	5	2 (40%)	30 (88%)	2 (6%)	0 (0%)	0 (0%)	0 (0%)	2 (6%)
Andhra Pradesh	3691	571	354 (62%)	3533 (96%)	40 (1%)	9 (0%)	31 (1%)	15 (0%)	63 (2%)
Arunachal Pradesh	421	81	65 (80%)	366 (87%)	3 (1%)	8 (2%)	11 (3%)	8 (2%)	25 (6%)
Assam	1655	446	264 (59%)	1400 (85%)	32 (2%)	7 (0%)	40 (2%)	3 (0%)	173 (10%)
Bihar	10851	1225	918 (75%)	7697 (71%)	118 (1%)	42 (0%)	434 (4%)	21 (0%)	2539 (23%)
Chandigarh	218	52	33 (63%)	205 (94%)	3 (1%)	0 (0%)	1 (0%)	0 (0%)	9 (4%)
Chhattisgarh	2283	293	195 (67%)	1974 (86%)	26 (1%)	12 (1%)	32 (1%)	2 (0%)	237 (10%)
Dadra & Nagar Haveli	27	6	4 (67%)	25 (93%)	1 (4%)	0 (0%)	0 (0%)	0 (0%)	1 (4%)
Daman & Diu	12	1	1 (100%)	11 (92%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (8%)
Delhi	7923	1823	843 (46%)	6231 (79%)	49 (1%)	42 (1%)	175 (2%)	50 (1%)	1376 (17%)
Goa	83	28	7 (25%)	66 (80%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	17 (20%)
Gujarat	8788	1013	737 (73%)	7670 (87%)	144 (2%)	39 (0%)	259 (3%)	37 (0%)	639 (7%)
Haryana	3346	1023	806 (79%)	2971 (89%)	23 (1%)	22 (1%)	80 (2%)	9 (0%)	241 (7%)
Himachal Pradesh	674	211	131 (62%)	626 (93%)	7 (1%)	2 (0%)	3 (0%)	2 (0%)	34 (5%)
Jammu & Kashmir	867	173	120 (69%)	768 (89%)	7 (1%)	3 (0%)	9 (1%)	2 (0%)	78 (9%)
Jharkhand	2794	477	331 (69%)	2306 (83%)	23 (1%)	14 (1%)	75 (3%)	3 (0%)	373 (13%)
Karnataka	4407	606	439 (72%)	3974 (90%)	49 (1%)	18 (0%)	84 (2%)	14 (0%)	268 (6%)
Kerala	1561	112	151 (135%)	1492 (96%)	9 (1%)	1 (0%)	12 (1%)	0 (0%)	47 (3%)

State	TB patients Notified	Micro Conf TB	Cure Rate	Success Rate	Death Rate	Treatment Failure Rate	% Lost to follow up	% Regimen Change	% Not evaluated
Lakshadweep	4		NA	4 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Madhya Pradesh	13693	1107	988 (89%)	12398 (91%)	116 (1%)	62 (0%)	374 (3%)	11 (0%)	732 (5%)
Maharashtra	12600	2366	1086 (46%)	10649 (85%)	135 (1%)	59 (0%)	276 (2%)	145 (1%)	1336 (11%)
Manipur	139	36	13 (36%)	116 (83%)	0 (0%)	1 (1%)	7 (5%)	1 (1%)	14 (10%)
Meghalaya	398	81	46 (57%)	290 (73%)	6 (2%)	2 (1%)	10 (3%)	2 (1%)	88 (22%)
Mizoram	229	35	10 (29%)	217 (95%)	1 (0%)	1 (0%)	2 (1%)	0 (0%)	8 (3%)
Nagaland	351	58	52 (90%)	277 (79%)	3 (1%)	1 (0%)	9 (3%)	1 (0%)	60 (17%)
Odisha	2247	451	363 (80%)	2082 (93%)	50 (2%)	5 (0%)	47 (2%)	2 (0%)	61 (3%)
Puducherry	67	13	7 (54%)	62 (93%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	5 (7%)
Punjab	2981	815	577 (71%)	2721 (91%)	35 (1%)	4 (0%)	71 (2%)	10 (0%)	140 (5%)
Rajasthan	9476	1497	1110 (74%)	7563 (80%)	87 (1%)	63 (1%)	383 (4%)	7 (0%)	1373 (14%)
Sikkim	89	34	19 (56%)	77 (87%)	1 (1%)	0 (0%)	0 (0%)	2 (2%)	9 (10%)
Tamil Nadu	5029	472	433 (92%)	4598 (91%)	27 (1%)	14 (0%)	72 (1%)	8 (0%)	310 (6%)
Telangana	1799	499	458 (92%)	1690 (94%)	25 (1%)	8 (0%)	12 (1%)	6 (0%)	58 (3%)
Tripura	54	17	16 (94%)	50 (93%)	2 (4%)	1 (2%)	0 (0%)	0 (0%)	1 (2%)
Uttar Pradesh	25078	4438	2836 (64%)	20179 (80%)	282 (1%)	145 (1%)	1026 (4%)	69 (0%)	3377 (13%)
Uttarakhand	1121	186	132 (71%)	1037 (93%)	6 (1%)	4 (0%)	23 (2%)	6 (1%)	45 (4%)
West Bengal	3341	935	587 (63%)	2925 (88%)	56 (2%)	13 (0%)	67 (2%)	19 (1%)	261 (8%)
India	**128331**	**21186**	**14134 (67%)**	**108280 (84%)**	**1368 (1%)**	**602 (0%)**	**3625 (3%)**	**455 (0%)**	**14001 (11%)**

4. PMDT:

4.1 Case Finding – UDST testing & MDR patients management

State	DR-TB Centres	TB Patients notified			UDST Tested			MDR/RR patient diagnosed			MDR/ RR put on treatment (%)	MDR/ RR put on Shorter MDR Regimen	MDR/RR put on All Oral Regimen
		Public	Private	Total	Public	Private	Total	Public	Private	Total			
Andaman & Nicobar Islands	2	601	12	613	300 (50%)	3 (25%)	303 (49%)	37	0	37	33 (89%)	28 (85%)	1 (3%)
Andhra Pradesh	13	75931	23973	99904	64511 (85%)	10410(43%)	74921 (75%)	2210	68	2278	2039 (90%)	1871 (92%)	63 (3%)
Arunachal Pradesh	6	2974	50	3024	1383 (47%)	6(12%)	1389 (46%)	189	1	190	146 (77%)	109 (75%)	0 (0%)
Assam	24	43055	5710	48765	26537 (62%)	1100 (19%)	27637(57%)	884	33	917	747 (81%)	688 (92%)	2 (0%)
Bihar	32	80294	46122	126416	46599 (58%)	10316(22%)	56915 (45%)	3808	434	4242	3093 (73%)	2564 (83%)	72 (2%)
Chandigarh	1	3471	86	3557	1961 (56%)	51 (59%)	2012 (57%)	111	0	111	56 (50%)	36 (64%)	0 (0%)
Chhattisgarh	24	32723	11068	43791	23932 (73%)	2168 (20%)	26100 (60%)	420	23	443	373 (84%)	358 (96%)	6 (1%)
Dadra & Nagar Haveli	1	494	78	572	422 (85%)	33 (42%)	455 (80%)	20	0	20	20 (100%)	17 (85%)	4 (20%)
Daman & Diu	0	379	78	457	308 (81%)	14 (18%)	322 (70%)	19	0	19	13 (68%)	9 (69%)	2 (11%)
Delhi	28	71414	26328	97742	37047 (52%)	5283 (20%)	42330 (43%)	2409	77	2486	2140 (86%)	1758 (82%)	184 (7%)
Goa	2	1883	461	2344	1374 (73%)	31 (7%)	1405 (60%)	46	2	48	43 (90%)	24 (56%)	0 (0%)
Gujarat	39	103012	53159	156171	80535 (78%)	16113(30%)	96648 (62%)	3701	261	3962	3450 (87%)	2558 (74%)	735 (19%)
Haryana	19	54841	19893	74734	33976 (62%)	4516(23%)	38492 (52%)	1903	175	2078	1739 (84%)	1510 (87%)	22 (1%)
Himachal Pradesh	15	16933	1055	17988	13020 (77%)	393 (37%)	13413 (75%)	307	19	326	302 (93%)	267 (88%)	11 (3%)
Jammu & Kashmir	12	11156	768	11924	7605 (68%)	309 (40%)	7914 (66%)	180	3	183	134 (73%)	122 (91%)	2 (1%)
Jharkhand	26	44696	12736	57432	25093 (56%)	1977 (16%)	27070 (47%)	1022	31	1053	956 (91%)	445 (47%)	15 (1%)
Karnataka	33	72990	16907	89897	54956 (75%)	4549 (27%)	59505 (66%)	1935	119	2054	1764 (86%)	1566 (89%)	161 (8%)

State	DR-TB Centres	TB Patients notified			UDST Tested			MDR/RR patient diagnosed			MDR/ RR put on treatment (%)	MDR/ RR put on Shorter MDR Regimen	MDR/RR put on All Oral Regimen
		Public	Private	Total	Public	Private	Total	Public	Private	Total			
Kerala	15	22223	3425	25648	13825 (62%)	1333 (39%)	15158 (59%)	234	24	258	249 (97%)	173 (69%)	37 (14%)
Lakshadweep	0	16		16	15 (94%)		15 (94%)	0	0	0			
Madhya Pradesh	47	146677	40834	187511	82208 (56%)	10638 (26%)	92846 (50%)	3725	184	3909	3356 (86%)	2908 (87%)	1 (0%)
Maharashtra	64	148422	76144	224566	118126 (80%)	40142 (53%)	158268 (70%)	8497	2124	10621	9837 (93%)	3257 (33%)	72 (1%)
Manipur	7	2277	370	2647	1337 (59%)	128 (35%)	1465 (55%)	70	16	86	64 (74%)	46 (72%)	0 (0%)
Meghalaya	7	4772	617	5389	2958 (62%)	55 (9%)	3013 (56%)	316	5	321	281 (88%)	212 (75%)	0 (0%)
Mizoram	7	2931	60	2991	1562 (53%)	34 (57%)	1596 (53%)	130	0	130	129 (99%)	82 (64%)	4 (3%)
Nagaland	3	4075	707	4782	2420 (59%)	57 (8%)	2477 (52%)	142	2	144	119 (83%)	94 (79%)	4 (3%)
Odisha	30	49279	4008	53287	38915 (79%)	2116 (53%)	41031 (77%)	669	14	683	595 (87%)	538 (90%)	1 (0%)
Puducherry	1	1657	6	1663	1221 (74%)	2 (33%)	1223 (74%)	12	0	12	12 (100%)	8 (67%)	2 (17%)
Punjab	21	45911	13626	59537	28670 (62%)	2062 (15%)	30732 (52%)	913	27	940	814 (87%)	601 (74%)	65 (7%)
Rajasthan	38	123004	52421	175425	80753 (66%)	8446 (16%)	89199 (51%)	4146	106	4252	3662 (86%)	2651 (72%)	64 (2%)
Sikkim	5	1438	31	1469	1158 (81%)	15 (48%)	1173 (80%)	238	0	238	223 (94%)	180 (81%)	3 (1%)
Tamil Nadu	32	85495	28018	113513	68963 (81%)	7780 (28%)	76743 (68%)	1723	190	1913	1630 (85%)	1378 (85%)	85 (4%)
Telangana	29	49334	22148	71482	42073 (85%)	13569 (61%)	55642 (78%)	1852	165	2017	1836 (91%)	1718 (94%)	38 (2%)
Tripura	2	3015	12	3027	2444 (81%)	6 (50%)	2450 (81%)	32	0	32	31 (97%)	24 (77%)	0 (0%)
Uttar Pradesh	77	355347	144409	499756	222811 (63%)	23841 (17%)	246652 (49%)	14415	2064	16479	13661 (83%)	10306 (75%)	15 (0%)
Uttarakhand	6	19882	5341	25223	9394 (47%)	1262 (24%)	10656 (42%)	716	25	741	483 (65%)	171 (35%)	26 (4%)
West Bengal	35	94566	16986	111552	69906 (74%)	6024 (35%)	75930 (68%)	2914	118	3032	2539 (84%)	2120 (83%)	41 (1%)
India	**703**	**1777168**	**627647**	**2404815**	**1208318 (68%)**	**174782 (28%)**	**1383100 (58%)**	**59945**	**6310**	**66255**	**56569 (85%)**	**40397 (71%)**	**1738 (3%)**

4.2 MDR/ RR with Additional Resistance Patients diagnosis & treatment

State	MDR/RR with Additional Resistance diagnosed			MDR/RR with Additional Resistance put on treatment	MDR/RR with Additional Resistance put on Newer Drug containing Regimen			No. of MDR/RR + FQ/SLI put on All Oral Regimen
	FQ Resistance	SLI Resistance	Total FQ/SLI resistance		Bedaquilline	Delamanid	Total	
Andaman & Nicobar Islands	7	1	8	6 (75%)	4	2	6 (75%)	0 (0%)
Andhra Pradesh	174	24	198	114 (58%)	91	1	92 (46%)	17 (9%)
Arunachal Pradesh	8	1	9	5 (56%)	2	0	2 (22%)	0 (0%)
Assam	69	13	82	51 (62%)	28	2	30 (37%)	1 (1%)
Bihar	765	42	807	526 (65%)	226	11	237 (29%)	36 (4%)
Chandigarh	21	0	21	13 (62%)	8	3	11 (52%)	0 (0%)
Chhattisgarh	38	7	45	35 (78%)	29	0	29 (64%)	3 (7%)
Dadra & Nagar Haveli	4	0	4	3 (75%)	2	0	2 (50%)	2 (50%)
Daman & Diu	7	0	7	5 (71%)	5	0	5 (71%)	0 (0%)
Delhi	531	35	566	473 (84%)	331	12	343 (61%)	87 (15%)
Goa	7	4	11	10 (91%)	7	0	7 (64%)	0 (0%)
Gujarat	1008	52	1060	883 (83%)	675	27	702 (66%)	335 (32%)
Haryana	143	22	165	104 (63%)	79	0	79 (48%)	8 (5%)
Himachal Pradesh	54	1	55	33 (60%)	17	2	19 (35%)	1 (2%)
Jammu & Kashmir	10	2	12	3 (25%)	3	0	3 (25%)	0 (0%)
Jharkhand	115	4	119	106 (89%)	74	2	76 (64%)	2 (2%)
Karnataka	294	29	323	208 (64%)	132	23	155 (48%)	78 (24%)
Kerala	27	3	30	22 (73%)	12	6	18 (60%)	13 (43%)

State	MDR/RR with Additional Resistance diagnosed			MDR/RR with Additional Resistance put on treatment	MDR/RR with Additional Resistance put on Newer Drug containing Regimen			No. of MDR/RR + FQ/SLI put on All Oral Regimen
	FQ Resistance	SLI Resistance	Total FQ/SLI resistance		Bedaquilline	Delamanid	Total	
Madhya Pradesh	686	89	775	514 (66%)	263	3	266 (34%)	1 (0%)
Maharashtra	2649	217	2866	2354 (82%)	772	39	811 (28%)	35 (1%)
Manipur	4	1	5	2 (40%)	0	0	0 (0%)	0 (0%)
Meghalaya	49	6	55	46 (84%)	44	0	44 (80%)	0 (0%)
Mizoram	15	2	17	16 (94%)	12	1	13 (76%)	1 (6%)
Nagaland	8	1	9	7 (78%)	7	0	7 (78%)	2 (22%)
Odisha	58	1	59	50 (85%)	36	10	46 (78%)	1 (2%)
Puducherry	1	2	3	3 (100%)	2	0	2 (67%)	1 (33%)
Punjab	153	17	170	109 (64%)	62	18	80 (47%)	29 (17%)
Rajasthan	860	78	938	545 (58%)	242	37	279 (30%)	22 (2%)
Sikkim	43	1	44	32 (73%)	9	0	9 (20%)	1 (2%)
Tamil Nadu	126	18	144	83 (58%)	43	3	46 (32%)	26 (18%)
Telangana	168	30	198	141 (71%)	129	0	129 (65%)	3 (2%)
Tripura	3	0	3	2 (67%)	2	0	2 (67%)	0 (0%)
Uttar Pradesh	2894	302	3196	1902 (60%)	810	0	810 (25%)	4 (0%)
Uttarakhand	98	10	108	47 (44%)	41	0	41 (38%)	3 (3%)
West Bengal	434	42	476	365 (77%)	250	14	264 (55%)	9 (2%)
India	**11531**	**1057**	**12588**	**8818 (70%)**	**4449**	**216**	**4665 (37%)**	**721 (6%)**

4.3 XDR – TB Patients & H – Mono/ Poly Resistance TB Patients diagnosis & Management

State	XDR-TB patients		XDR-TB Patients initiated on newer drug containing regimen			XDR-TB Patients put on All Oral Regimen	H-Mono/Poly resistance patients diagnosed	H-Mono/Poly resistance patients put on treatment
	Diagnosed	Put on treatment	Bedaquilline	Delamanid	Total			
Andaman & Nicobar Islands	No XDR – TB Patient Diagnosed						1	1 (100%)
Andhra Pradesh	16	11 (69%)	7	0	7 (44%)	2 (13%)	1739	1461 (84%)
Arunachal Pradesh	No XDR – TB Patient Diagnosed						10	9 (90%)
Assam	6	5 (83%)	4	0	4 (67%)	0 (0%)	179	139 (78%)
Bihar	163	107 (66%)	61	2	63 (39%)	9 (6%)	152	116 (76%)
Chandigarh	1	0 (0%)	0	0	0 (0%)	0 (0%)	39	33 (85%)
Chhattisgarh	13	11 (85%)	11	0	11 (85%)	2 (15%)	277	243 (88%)
Dadra & Nagar Haveli	No XDR – TB Patient Diagnosed						2	2 (100%)
Daman & Diu	1	1 (100%)	1	0	1 (100%)	0 (0%)	3	3 (100%)
Delhi	57	53 (93%)	38	2	40 (70%)	7 (12%)	797	705 (88%)
Goa	No XDR – TB Patient Diagnosed						26	24 (92%)
Gujarat	115	96 (83%)	77	4	81 (70%)	29 (25%)	1492	1362 (91%)
Haryana	34	31 (91%)	23	0	23 (68%)	2 (6%)	166	126 (76%)
Himachal Pradesh	3	3 (100%)	2	0	2 (67%)	0 (0%)	214	208 (97%)
Jammu & Kashmir	1	1 (100%)	0	0	0 (0%)	0 (0%)	18	18 (100%)
Jharkhand	24	20 (83%)	18	0	18 (75%)	0 (0%)	61	49 (80%)
Karnataka	45	26 (58%)	18	1	19 (42%)	12 (27%)	1481	1203 (81%)
Kerala	8	8 (100%)	4	2	6 (75%)	3 (38%)	149	140 (94%)

State	XDR-TB patients		XDR-TB Patients initiated on newer drug containing regimen			XDR-TB Patients put on All Oral Regimen	H-Mono/Poly resistance patients diagnosed	H-Mono/Poly resistance patients put on treatment
	Diagnosed	Put on treatment	Bedaquilline	Delamanid	Total			
Lakshadweep	No DR – TB Patient Diagnosed							
Madhya Pradesh	85	65 (76%)	58	0	58 (68%)	0 (0%)	936	711 (76%)
Maharashtra	670	619 (92%)	304	16	320 (48%)	9 (1%)	1438	1306 (91%)
Manipur	No XDR – TB Patient Diagnosed						18	16 (89%)
Meghalaya	22	21 (95%)	18	2	20 (91%)	0 (0%)	41	39 (95%)
Mizoram	No XDR – TB Patient Diagnosed						5	5 (100%)
Nagaland	2	2 (100%)	2	0	2 (100%)	0 (0%)	7	7 (100%)
Odisha	7	7 (100%)	6	0	6 (86%)	0 (0%)	227	211 (93%)
Puducherry	1	1 (100%)	1	0	1 (100%)	1 (100%)	71	70 (99%)
Punjab	22	18 (82%)	12	5	17 (77%)	2 (9%)	475	416 (88%)
Rajasthan	127	100 (79%)	52	5	57 (45%)	11 (9%)	1407	873 (62%)
Sikkim	10	10 (100%)	5	0	5 (50%)	0 (0%)	1	1 (100%)
Tamil Nadu	15	11 (73%)	6	0	6 (40%)	1 (7%)	2565	2187 (85%)
Telangana	49	40 (82%)	35	0	35 (71%)	4 (8%)	850	647 (76%)
Tripura	1	1 (100%)	1	0	1 (100%)	0 (0%)	62	55 (89%)
Uttar Pradesh	666	517 (78%)	212	0	212 (32%)	2 (0%)	764	556 (73%)
Uttarakhand	34	32 (94%)	28	0	28 (82%)	0 (0%)	117	78 (67%)
West Bengal	125	101 (81%)	60	6	66 (53%)	9 (7%)	277	211 (76%)
India	**2323**	**1918 (83%)**	**1064**	**45**	**1109 (48%)**	**105 (5%)**	**16067**	**13231 (82%)**

4.4 H – Mono/Poly Regimen patients smear conversion status of 4th month

State	Patients registered on H mono/poly regimen In 3Q18 to 2Q19 (A)	Out of (A),patients smear-positive at the end of 4th month	Out of (A), patients smear-negative at the end of 4th month	Out of (A), patients smear-unknown at the end of 4th month	Out of (A), patients died at the end of 4th month	Out of (A), patients lost to follow up at the end of 4th month	Out of (A), patients declared as regimen change at the end of 4th month
Andaman & Nicobar Islands	1	0	1	0	0	0	0
Andhra Pradesh	1257	48	1031	43	45	70	20
Arunachal Pradesh	7	0	6	1	0	0	0
Assam	90	1	71	8	0	10	0
Bihar	58	2	37	7	4	6	2
Chandigarh	25	1	23	0	0	1	0
Chhattisgarh	188	3	160	15	5	4	1
Dadra & Nagar Haveli	2	0	1	1	0	0	0
Daman & Diu	4	0	4	0	0	0	0
Delhi	644	16	503	35	21	59	10
Goa	25	1	19	2	1	1	1
Gujarat	1229	97	887	71	85	72	17
Haryana	185	7	145	8	6	14	5
Himachal Pradesh	177	1	152	17	5	2	0
Jammu & Kashmir	20	0	18	0	2	0	0
Jharkhand	31	0	27	2	0	1	1
Karnataka	854	13	670	44	40	75	12
Kerala	105	5	84	2	7	7	0
Lakshadweep	0	0	0	0	0	0	0

State	Patients registered on H mono/poly regimen In 3Q18 to 2Q19 (A)	Out of (A),patients smear-positive at the end of 4th month	Out of (A), patients smear-negative at the end of 4th month	Out of (A), patients smear-unknown at the end of 4th month	Out of (A), patients died at the end of 4th month	Out of (A), patients lost to follow up at the end of 4th month	Out of (A), patients declared as regimen change at the end of 4th month
Madhya Pradesh	660	19	481	62	33	53	12
Maharashtra	788	21	575	89	36	57	10
Manipur	6	2	3	0	0	1	0
Meghalaya	25	0	16	5	3	1	0
Mizoram	8	0	5	3	0	0	0
Nagaland	3	0	3	0	0	0	0
Odisha	189	1	157	6	8	15	2
Puducherry	78	6	56	3	1	11	1
Punjab	348	5	266	32	15	23	7
Rajasthan	588	19	441	40	23	34	31
Sikkim	0	0	0	0	0	0	0
Tamil Nadu	2233	73	1803	55	91	197	14
Telangana	421	8	351	27	9	19	7
Tripura	27	0	22	0	0	4	1
Uttar Pradesh	262	7	211	10	8	18	8
Uttarakhand	43	4	30	4	1	4	0
West Bengal	145	10	115	17	7	6	5
India	**10726**	**370**	**8374**	**609**	**456**	**765**	**167**
Patients registered during 3Q18 to 2Q19 are taken							

4.5 Shorter MDR Regimen patients' Smear Conversion Status at the end of 4th month

State	Patients registered on Shorter MDR TB patients in 3Q18 to 2Q19 (B)	Out of (B), no. of patients smear-positive at the end of 4th month	Out of (B), no. patients smear-negative at the end of 4th month	Out of (B), no. of patients smear-Unknown at the end of 4th month	Out of (B), no. of patients died at the end of 4th month	Out of (B), no. of patients lost to follow up at the end of 4th month	Out of (B), no. of patients declared as regimen change at the end of 4th month
Andaman & Nicobar Islands	21	1	16	0	1	0	3
Andhra Pradesh	1772	86	1274	67	134	124	87
Arunachal Pradesh	108	1	77	10	3	15	2
Assam	581	46	332	62	65	51	25
Bihar	1475	54	810	183	95	132	201
Chandigarh	37	2	23	1	4	2	5
Chhattisgarh	322	10	188	33	43	33	15
Dadra & Nagar Haveli	16	0	8	4	1	0	3
Daman & Diu	10	1	2	2	0	2	3
Delhi	1760	51	901	209	77	175	347
Goa	35	0	12	3	0	2	18
Gujarat	2419	106	1266	210	134	246	457
Haryana	1283	32	875	51	115	146	64
Himachal Pradesh	250	1	175	22	18	13	21
Jammu & Kashmir	124	4	98	5	7	10	0
Jharkhand	181	6	132	11	4	17	11
Karnataka	1508	50	843	93	164	175	183
Kerala	191	4	122	16	20	12	17
Lakshadweep	0	0	0	0	0	0	0

State	Patients registered on Shorter MDR TB patients in 3Q18 to 2Q19 (B)	Out of (B), no. of patients smear-positive at the end of 4th month	Out of (B), no. patients smear-negative at the end of 4th month	Out of (B), no. of patients smear-Unknown at the end of 4th month	Out of (B), no. of patients died at the end of 4th month	Out of (B), no. of patients lost to follow up at the end of 4th month	Out of (B), no. of patients declared as regimen change at the end of 4th month
Madhya Pradesh	2573	143	1395	314	211	329	181
Maharashtra	2610	96	1275	342	177	201	519
Manipur	36	5	24	4	1	2	0
Meghalaya	224	12	120	41	22	17	12
Mizoram	71	5	51	7	4	1	3
Nagaland	88	3	59	9	7	7	3
Odisha	367	3	254	23	30	31	26
Puducherry	10	0	9	1	0	0	0
Punjab	560	15	303	64	51	64	63
Rajasthan	1969	56	1111	213	171	180	238
Sikkim	172	4	105	6	15	10	32
Tamil Nadu	1343	57	957	31	104	156	38
Telangana	1437	54	1039	96	103	91	54
Tripura	23	0	16	2	2	2	1
Uttar Pradesh	5178	286	2923	462	413	441	653
Uttarakhand	57	0	37	10	3	1	6
West Bengal	2429	119	1564	151	171	178	244
India	**31240**	**1313**	**18396**	**2758**	**2370**	**2866**	**3535**

4.6 Treatment Outcome of MDR/ RR TB Patients initiated on Shorter regimen during 2018

State	Registered	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Regimen Change (%)	Not Evaluated (%)
Andaman & Nicobar Islands	9	4 (44%)	8 (89%)	0 (0%)	0 (0%)	0 (0%)	1 (11%)	0 (0%)
Andhra Pradesh	1163	527 (45%)	786 (68%)	156 (13%)	3 (0%)	145 (12%)	62 (5%)	11 (1%)
Arunachal Pradesh	60	26 (43%)	43 (72%)	2 (3%)	2 (3%)	12 (20%)	1 (2%)	0 (0%)
Assam	353	135 (38%)	214 (61%)	57 (16%)	17 (5%)	45 (13%)	17 (5%)	3 (1%)
Bihar	541	217 (40%)	304 (56%)	60 (11%)	6 (1%)	89 (16%)	77 (14%)	5 (1%)
Chandigarh	28	13 (46%)	15 (54%)	4 (14%)	0 (0%)	2 (7%)	6 (21%)	1 (4%)
Chhattisgarh	175	64 (37%)	110 (63%)	30 (17%)	1 (1%)	31 (18%)	3 (2%)	0 (0%)
Dadra & Nagar Haveli	13	6 (46%)	6 (46%)	3 (23%)	0 (0%)	1 (8%)	2 (15%)	1 (8%)
Daman & Diu	5	0 (0%)	0 (0%)	0 (0%)	2 (40%)	0 (0%)	1 (20%)	2 (40%)
Delhi	1253	461 (37%)	627 (50%)	94 (8%)	45 (4%)	181 (14%)	277 (22%)	29 (2%)
Goa	23	7 (30%)	9 (39%)	0 (0%)	0 (0%)	3 (13%)	10 (43%)	1 (4%)
Gujarat	1536	603 (39%)	792 (52%)	132 (9%)	90 (6%)	186 (12%)	297 (19%)	39 (3%)
Haryana	847	362 (43%)	569 (67%)	99 (12%)	6 (1%)	119 (14%)	48 (6%)	6 (1%)
Himachal Pradesh	180	103 (57%)	135 (75%)	19 (11%)	1 (1%)	7 (4%)	14 (8%)	4 (2%)
Jammu & Kashmir	72	45 (63%)	49 (68%)	7 (10%)	5 (7%)	6 (8%)	1 (1%)	4 (6%)
Jharkhand	95	45 (47%)	69 (73%)	7 (7%)	1 (1%)	14 (15%)	3 (3%)	1 (1%)
Karnataka	1104	345 (31%)	583 (53%)	157 (14%)	24 (2%)	174 (16%)	139 (13%)	27 (2%)
Kerala	106	56 (53%)	69 (65%)	18 (17%)	2 (2%)	7 (7%)	10 (9%)	0 (0%)

State	Registered	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Regimen Change (%)	Not Evaluated (%)
Lakshadweep	0	0	0	0	0	0	0	0
Madhya Pradesh	1385	504 (36%)	844 (61%)	151 (11%)	47 (3%)	235 (17%)	98 (7%)	10 (1%)
Maharashtra	1295	415 (32%)	682 (53%)	127 (10%)	22 (2%)	158 (12%)	268 (21%)	38 (3%)
Manipur	28	17 (61%)	23 (82%)	1 (4%)	1 (4%)	2 (7%)	0 (0%)	1 (4%)
Meghalaya	172	62 (36%)	119 (69%)	15 (9%)	7 (4%)	21 (12%)	8 (5%)	2 (1%)
Mizoram	37	21 (57%)	28 (76%)	3 (8%)	1 (3%)	1 (3%)	4 (11%)	0 (0%)
Nagaland	49	7 (14%)	30 (61%)	6 (12%)	1 (2%)	9 (18%)	2 (4%)	1 (2%)
Odisha	226	89 (39%)	138 (61%)	34 (15%)	6 (3%)	25 (11%)	18 (8%)	5 (2%)
Puducherry	7	6 (86%)	7 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Punjab	346	134 (39%)	185 (53%)	34 (10%)	1 (0%)	55 (16%)	58 (17%)	13 (4%)
Rajasthan	577	293 (51%)	378 (66%)	59 (10%)	7 (1%)	59 (10%)	58 (10%)	16 (3%)
Sikkim	143	68 (48%)	84 (59%)	18 (13%)	3 (2%)	6 (4%)	30 (21%)	2 (1%)
Tamil Nadu	928	472 (51%)	593 (64%)	115 (12%)	30 (3%)	148 (16%)	39 (4%)	3 (0%)
Telangana	810	442 (55%)	574 (71%)	89 (11%)	4 (0%)	85 (10%)	51 (6%)	7 (1%)
Tripura	17	10 (59%)	11 (65%)	3 (18%)	0 (0%)	3 (18%)	0 (0%)	0 (0%)
Uttar Pradesh	1027	346 (34%)	605 (59%)	125 (12%)	7 (1%)	150 (15%)	130 (13%)	10 (1%)
Uttarakhand	3	1 (33%)	2 (67%)	0 (0%)	0 (0%)	0 (0%)	1 (33%)	0 (0%)
West Bengal	1698	538 (32%)	1037 (61%)	168 (10%)	53 (3%)	178 (10%)	223 (13%)	44 (3%)
India	**16311**	**6444 (40%)**	**9728 (60%)**	**1793 (11%)**	**395 (2%)**	**2157 (13%)**	**1957 (12%)**	**286 (2%)**

4.7 Treatment Outcome of H-Mono/Poly TB Patients initiated on treatment during 2018

State	Registered	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Regimen Change (%)	Not Evaluated (%)
Andaman & Nicobar Islands	No H-Mono/ Poly Patient diagnosed in 2018							
Andhra Pradesh	811	370 (46%)	656 (81%)	61 (8%)	1 (0%)	88 (11%)	2 (0%)	3 (0%)
Arunachal Pradesh	4	2 (50%)	3 (75%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Assam	34	12 (35%)	25 (74%)	0 (0%)	1 (3%)	7 (21%)	0 (0%)	1 (3%)
Bihar	22	10 (45%)	11 (50%)	5 (23%)	0 (0%)	5 (23%)	1 (5%)	0 (0%)
Chandigarh	30	24 (80%)	24 (80%)	1 (3%)	0 (0%)	2 (7%)	0 (0%)	3 (10%)
Chhattisgarh	84	59 (70%)	76 (90%)	4 (5%)	1 (1%)	1 (1%)	0 (0%)	2 (2%)
Dadra & Nagar Haveli	No H-Mono/ Poly Patient diagnosed in 2018							
Daman & Diu	1	1 (100%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Delhi	549	359 (65%)	416 (76%)	23 (4%)	7 (1%)	79 (14%)	13 (2%)	11 (2%)
Goa	12	6 (50%)	7 (58%)	1 (8%)	1 (8%)	2 (17%)	0 (0%)	1 (8%)
Gujarat	496	268 (54%)	332 (67%)	49 (10%)	34 (7%)	59 (12%)	18 (4%)	4 (1%)
Haryana	172	91 (53%)	127 (74%)	11 (6%)	3 (2%)	25 (15%)	3 (2%)	3 (2%)
Himachal Pradesh	114	79 (69%)	98 (86%)	11 (10%)	1 (1%)	1 (1%)	0 (0%)	3 (3%)
Jammu & Kashmir	16	12 (75%)	15 (94%)	1 (6%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Jharkhand	14	7 (50%)	9 (64%)	0 (0%)	0 (0%)	3 (21%)	2 (14%)	0 (0%)
Karnataka	542	282 (52%)	393 (73%)	55 (10%)	11 (2%)	63 (12%)	13 (2%)	7 (1%)
Kerala	52	33 (63%)	37 (71%)	4 (8%)	3 (6%)	6 (12%)	2 (4%)	0 (0%)

State	Registered	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Regimen Change (%)	Not Evaluated (%)
Lakshadweep	No H-Mono/ Poly Patient diagnosed in 2018							
Madhya Pradesh	326	190 (58%)	267 (82%)	16 (5%)	4 (1%)	31 (10%)	6 (2%)	2 (1%)
Maharashtra	399	194 (49%)	292 (73%)	40 (10%)	6 (2%)	42 (11%)	8 (2%)	11 (3%)
Manipur	8	3 (38%)	7 (88%)	0 (0%)	0 (0%)	0 (0%)	1 (13%)	0 (0%)
Meghalaya	23	10 (43%)	17 (74%)	2 (9%)	0 (0%)	3 (13%)	1 (4%)	0 (0%)
Mizoram	4	2 (50%)	3 (75%)	0 (0%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)
Nagaland	No H-Mono/ Poly Patient diagnosed in 2018							
Odisha	135	86 (64%)	108 (80%)	10 (7%)	1 (1%)	11 (8%)	3 (2%)	2 (1%)
Puducherry	45	29 (64%)	31 (69%)	2 (4%)	2 (4%)	10 (22%)	0 (0%)	0 (0%)
Punjab	209	142 (68%)	168 (80%)	18 (9%)	4 (2%)	11 (5%)	3 (1%)	5 (2%)
Rajasthan	181	104 (57%)	141 (78%)	11 (6%)	1 (1%)	20 (11%)	6 (3%)	2 (1%)
Sikkim	4	1 (25%)	1 (25%)	2 (50%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)
Tamil Nadu	1,524	915 (60%)	1123 (74%)	84 (6%)	30 (2%)	252 (17%)	18 (1%)	17 (1%)
Telangana	249	139 (56%)	200 (80%)	19 (8%)	1 (0%)	19 (8%)	6 (2%)	4 (2%)
Tripura	1	1 (100%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Uttar Pradesh	66	22 (33%)	51 (77%)	4 (6%)	0 (0%)	7 (11%)	4 (6%)	0 (0%)
Uttarakhand	16	10 (63%)	13 (81%)	2 (13%)	0 (0%)	1 (6%)	0 (0%)	0 (0%)
West Bengal	51	18 (35%)	36 (71%)	8 (16%)	5 (10%)	9 (18%)	3 (6%)	4 (8%)
India	**6,194**	**3481 (56%)**	**4689 (76%)**	**445 (7%)**	**117 (2%)**	**759 (12%)**	**113 (2%)**	**85 (1%)**

4.8 Treatment Outcome of MDR/ RR – TB patients put on Conventional MDR TB regimen during the period 3Q16 to 2Q17

State	MDR/RR-TB patients put on Conventional MDR TB regimen	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Pts who were declared with outcome like Switch to XDR regimen, stopped due to ADR, Transferred out etc., (%)
Andaman & Nicobar Islands	45	12 (27%)	21 (47%)	17 (38%)	3 (7%)	4 (9%)	0 (0%)
Andhra Pradesh	776	229 (30%)	403 (52%)	175 (23%)	9 (1%)	154 (20%)	35 (5%)
Arunachal Pradesh	210	52 (25%)	119 (57%)	16 (8%)	0 (0%)	63 (30%)	12 (6%)
Assam	432	147 (34%)	226 (52%)	84 (19%)	6 (1%)	80 (19%)	36 (8%)
Bihar	1935	644 (33%)	1026 (53%)	350 (18%)	54 (3%)	363 (19%)	142 (7%)
Chandigarh	58	32 (55%)	35 (60%)	4 (7%)	2 (3%)	8 (14%)	9 (16%)
Chhattisgarh	244	51 (21%)	129 (53%)	51 (21%)	1 (0%)	60 (25%)	3 (1%)
Delhi	1524	467 (31%)	716 (47%)	193 (13%)	12 (1%)	314 (21%)	289 (19%)
Goa	37	25 (68%)	27 (73%)	3 (8%)	1 (3%)	4 (11%)	2 (5%)
Gujarat	2019	594 (29%)	834 (41%)	385 (19%)	135 (7%)	334 (17%)	331 (16%)
Haryana	750	265 (35%)	390 (52%)	175 (23%)	16 (2%)	132 (18%)	37 (5%)
Himachal Pradesh	268	116 (43%)	186 (69%)	35 (13%)	3 (1%)	22 (8%)	22 (8%)
Jammu & Kashmir	117	50 (43%)	70 (60%)	24 (21%)	2 (2%)	14 (12%)	7 (6%)
Jharkhand	375	99 (26%)	199 (53%)	54 (14%)	2 (1%)	97 (26%)	23 (6%)
Karnataka	861	231 (27%)	386 (45%)	232 (27%)	17 (2%)	149 (17%)	77 (9%)
Kerala	249	106 (43%)	145 (58%)	47 (19%)	4 (2%)	34 (14%)	19 (8%)
Madhya Pradesh	1667	524 (31%)	822 (49%)	337 (20%)	64 (4%)	381 (23%)	63 (4%)

State	MDR/RR-TB patients put on Conventional MDR TB regimen	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Pts who were declared with outcome like Switch to XDR regimen, stopped due to ADR, Transferred out etc., (%)
Maharashtra	8116	1700 (21%)	3399 (42%)	1230 (15%)	111 (1%)	1481 (18%)	1895 (23%)
Manipur	45	22 (49%)	29 (64%)	4 (9%)	1 (2%)	10 (22%)	1 (2%)
Meghalaya	289	93 (32%)	158 (55%)	42 (15%)	8 (3%)	59 (20%)	22 (8%)
Mizoram	55	21 (38%)	34 (62%)	7 (13%)	6 (11%)	7 (13%)	1 (2%)
Nagaland	87	15 (17%)	48 (55%)	12 (14%)	1 (1%)	23 (26%)	3 (3%)
Orissa	342	138 (40%)	193 (56%)	63 (18%)	2 (1%)	50 (15%)	34 (10%)
Puducherry	14	7 (50%)	8 (57%)	1 (7%)	3 (21%)	2 (14%)	0 (0%)
Punjab	526	186 (35%)	284 (54%)	82 (16%)	10 (2%)	86 (16%)	64 (12%)
Rajasthan	2245	639 (28%)	1068 (48%)	565 (25%)	29 (1%)	387 (17%)	196 (9%)
Sikkim	253	156 (62%)	172 (68%)	37 (15%)	4 (2%)	27 (11%)	13 (5%)
Tamil Nadu	1170	291 (25%)	466 (40%)	261 (22%)	19 (2%)	331 (28%)	93 (8%)
Telangana	831	408 (49%)	467 (56%)	200 (24%)	5 (1%)	121 (15%)	38 (5%)
Tripura	24	10 (42%)	12 (50%)	3 (13%)	0 (0%)	9 (38%)	0 (0%)
Uttar Pradesh	6981	1532 (22%)	3514 (50%)	1372 (20%)	95 (1%)	1243 (18%)	757 (11%)
Uttarakhand	320	105 (33%)	172 (54%)	53 (17%)	4 (1%)	71 (22%)	20 (6%)
West Bengal	1756	527 (30%)	910 (52%)	292 (17%)	64 (4%)	310 (18%)	180 (10%)
India	**34621**	**9494 (27%)**	**16668 (48%)**	**6406 (19%)**	**693 (2%)**	**6430 (19%)**	**4424 (13%)**
Data from Daman-Diu & Dadra Nagar Haveli is included in Gujarat: Lakshadweep is included in Kerala for treatment outcome report.							

4.9 Treatment Outcome of XDR – TB patients put on conventional XDR – TB regimen during the period 3Q16 to 2Q17

State	XDR-TB patients put on Conventional XDR TB regimen	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Patients who were declared with outcome like stopped due to ADR, Transferred out etc.,
Andaman & Nicobar Islands	2	0 (0%)	0 (0%)	2 (100%)	0 (0%)	0 (0%)	0 (0%)
Andhra Pradesh	33	7 (21%)	14 (42%)	9 (27%)	1 (3%)	7 (21%)	2 (6%)
Arunachal Pradesh	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)
Assam	17	5 (29%)	9 (53%)	4 (24%)	0 (0%)	2 (12%)	2 (12%)
Bihar	107	19 (18%)	30 (28%)	48 (45%)	2 (2%)	22 (21%)	5 (5%)
Chandigarh	1	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)
Chhattisgarh	1	0 (0%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Delhi	150	42 (28%)	63 (42%)	48 (32%)	1 (1%)	23 (15%)	15 (10%)
Goa	2	1 (50%)	1 (50%)	1 (50%)	0 (0%)	0 (0%)	0 (0%)
Gujarat	187	33 (18%)	49 (26%)	80 (43%)	20 (11%)	14 (7%)	24 (13%)
Haryana	12	3 (25%)	3 (25%)	7 (58%)	0 (0%)	0 (0%)	2 (17%)
Himachal Pradesh	11	3 (27%)	6 (55%)	4 (36%)	1 (9%)	0 (0%)	0 (0%)
Jammu & Kashmir	2	0 (0%)	0 (0%)	2 (100%)	0 (0%)	0 (0%)	0 (0%)
Jharkhand	13	3 (23%)	5 (38%)	7 (54%)	0 (0%)	1 (8%)	0 (0%)
Karnataka	41	10 (24%)	13 (32%)	20 (49%)	1 (2%)	3 (7%)	4 (10%)
Kerala	12	3 (25%)	4 (33%)	4 (33%)	0 (0%)	3 (25%)	1 (8%)

State	XDR-TB patients put on Conventional XDR TB regimen	Cure Rate (%)	Success Rate (%)	Death Rate (%)	Failure (%)	Loss to follow up (%)	Patients who were declared with outcome like stopped due to ADR, Transferred out etc.,
Madhya Pradesh	71	16 (23%)	23 (32%)	32 (45%)	4 (6%)	12 (17%)	0 (0%)
Maharashtra	839	155 (18%)	303 (36%)	260 (31%)	19 (2%)	121 (14%)	136 (16%)
Manipur	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)
Meghalaya	26	6 (23%)	8 (31%)	12 (46%)	2 (8%)	3 (12%)	1 (4%)
Mizoram	0	NA	NA	NA	NA	NA	NA
Nagaland	2	0 (0%)	1 (50%)	0 (0%)	0 (0%)	1 (50%)	0 (0%)
Orissa	25	7 (28%)	11 (44%)	7 (28%)	0 (0%)	3 (12%)	4 (16%)
Puducherry	1	0 (0%)	0 (0%)	1 (100%)	0 (0%)	0 (0%)	0 (0%)
Punjab	30	8 (27%)	10 (33%)	14 (47%)	0 (0%)	4 (13%)	2 (7%)
Rajasthan	192	35 (18%)	94 (49%)	66 (34%)	6 (3%)	21 (11%)	5 (3%)
Sikkim	16	6 (38%)	6 (38%)	7 (44%)	0 (0%)	2 (13%)	1 (6%)
Tamil Nadu	33	8 (24%)	15 (45%)	10 (30%)	2 (6%)	4 (12%)	2 (6%)
Telangana	14	1 (7%)	2 (14%)	7 (50%)	1 (7%)	1 (7%)	3 (21%)
Tripura	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)
Uttar Pradesh	516	86 (17%)	173 (34%)	238 (46%)	12 (2%)	75 (15%)	18 (3%)
Uttarakhand	7	1 (14%)	4 (57%)	3 (43%)	0 (0%)	0 (0%)	0 (0%)
West Bengal	215	49 (23%)	80 (37%)	83 (39%)	8 (4%)	25 (12%)	19 (9%)
India	**2581**	**507 (20%)**	**928 (36%)**	**976 (38%)**	**81 (3%)**	**348 (13%)**	**248 (10%)**

Data from Daman-Diu & Dadra Nagar Haveli is included in Gujarat: Lakshadweep is included in Kerala for treatment outcome report.

5 Private Health Facilities:

5.1 Private Health Facilities Registration Status

State	Hospitals	Laboratories	Chemists	Health Facilities Registered
Andaman & Nicobar Islands	3	0	0	3
Andhra Pradesh	5418	607	5991	12016
Arunachal Pradesh	27	0	2	29
Assam	1241	299	917	2457
Bihar	5802	397	160	6359
Chandigarh	130	27	7	164
Chhattisgarh	1813	319	3774	5906
Dadra & Nagar Haveli	67	10	0	77
Daman & Diu	27	3	0	30
Delhi	4210	379	48	4637
Goa	648	32	0	680
Gujarat	12671	621	5532	18824
Haryana	2511	485	2658	5654
Himachal Pradesh	565	265	0	830
Jammu & Kashmir	658	388	85	1131
Jharkhand	2012	149	753	2914
Karnataka	16859	1687	9324	27870
Kerala	7612	1556	9	9177
Madhya Pradesh	8316	632	1120	10068
Maharashtra	34236	2175	1171	37582
Manipur	97	35	113	245
Meghalaya	117	32	18	167
Mizoram	48	15	0	63
Nagaland	40	12	73	125
Odisha	1890	212	363	2465
Puducherry	28	3	10	41
Punjab	2627	422	110	3159
Rajasthan	3770	319	791	4880
Sikkim	40	22	0	62
Tamil Nadu	18732	2513	3298	24543
Telangana	5147	741	1414	7302
Tripura	55	141	2	198
Uttar Pradesh	16969	1467	774	19210
Uttarakhand	496	99	204	799
West Bengal	7263	2040	4253	13556
India	**162145**	**18104**	**42974**	**223223**

5.2 Private Health Facilities that have notified at least ONE TB case during the year 2019

State	Hospitals	Laboratories	Chemists	Health Facilities Notified
Andaman & Nicobar Islands	1	0	0	1
Andhra Pradesh	1053	384	70	1507
Arunachal Pradesh	4	0	1	5
Assam	326	261	47	634
Bihar	1511	214	14	1739
Chandigarh	23	21	1	45
Chhattisgarh	614	168	36	818
Dadra & Nagar Haveli	8	0	0	8
Daman & Diu	3	1	0	4
Delhi	892	272	0	1164
Goa	48	12	0	60
Gujarat	3368	475	7	3850
Haryana	799	285	55	1139
Himachal Pradesh	82	88	0	170
Jammu & Kashmir	78	113	10	201
Jharkhand	507	83	156	746
Karnataka	1388	856	418	2662
Kerala	228	434	0	662
Madhya Pradesh	1826	410	84	2320
Maharashtra	4867	1443	23	6333
Manipur	11	22	1	34
Meghalaya	8	22	0	30
Mizoram	11	3	0	14
Nagaland	23	2	10	35
Odisha	344	103	34	481
Puducherry	0	3	0	3
Punjab	540	206	34	780
Rajasthan	1276	271	42	1589
Sikkim	1	5	0	6
Tamil Nadu	2348	669	170	3187
Telangana	1048	432	453	1933
Tripura	1	18	0	19
Uttar Pradesh	4496	1058	62	5616
Uttarakhand	171	73	10	254
West Bengal	1183	1727	284	3194
India	**29087**	**10134**	**2022**	**41243**

5.3 TB Cases Notified by the Private Health Facilities during the year 2019

State	Hospitals	Laboratories	Chemists	TB Patients Notified
Andaman & Nicobar Islands	7	0	0	7
Andhra Pradesh	13360	8326	697	22383
Arunachal Pradesh	37	0	0	37
Assam	3176	4398	449	8023
Bihar	41229	3305	182	44716
Chandigarh	82	459	2	543
Chhattisgarh	9230	2530	212	11972
Dadra & Nagar Haveli	44	0	0	44
Daman & Diu	75	11	0	86
Delhi	17086	11037	0	28123
Goa	441	32	0	473
Gujarat	46288	8160	14	54462
Haryana	16033	6163	330	22526
Himachal Pradesh	1003	609	0	1612
Jammu & Kashmir	454	458	34	946
Jharkhand	9202	873	2931	13006
Karnataka	10686	7543	1362	19591
Kerala	1633	3253	0	4886
Lakshadweep	0	0	0	0
Madhya Pradesh	39755	5804	2737	48296
Maharashtra	54124	28968	136	83228
Manipur	239	316	5	560
Meghalaya	115	610	0	725
Mizoram	24	15	0	39
Nagaland	506	10	178	694
Odisha	2681	1802	120	4603
Puducherry	0	72	0	72
Punjab	8814	3637	1745	14196
Rajasthan	43993	6810	1563	52366
Sikkim	1	22	0	23
Tamil Nadu	22147	3824	2206	28177
Telangana	12348	5746	2502	20596
Tripura	2	43	0	45
Uttar Pradesh	133937	25276	867	160080
Uttarakhand	3723	2510	44	6277
West Bengal	7286	16451	1745	25482
India	**499761**	**159073**	**20061**	**678895**

6 Active Case Finding

State	Estimated Population (Lakhs)	Vulnerable Population Mapped (%)	Population screened amongst mapped vulnerable population (%)	Presumptive TB cases tested out of those screened (%)	TB cases diagnosed among tested (%)
Andaman & Nicobar	3.9	50,000 (13%)	5,990 (12%)	490 (8.2%)	86 (17.6%)
Andhra Pradesh	521.9	1,42,36,544 (27%)	23,24,610 (16%)	15,162 (0.7%)	2,595 (17.1%)
Arunachal Pradesh	16.1	50,383 (3%)	34,923 (69%)	1,035 (3.0%)	25 (2.4%)
Assam	346.1	1,87,472 (1%)	44,886 (24%)	4,212 (9.4%)	190 (4.5%)
Bihar	1224.3	1,13,17,455 (9%)	67,66,737 (60%)	3,32,052 (4.9%)	3,333 (1.0%)
Chhattisgarh	11.6	2,95,00,000 (100%)	1,01,85,550 (35%)	14,252 (0.1%)	709 (5.0%)
Dadra & Nagar Haveli	295.3	2,17,575 (48%)	4,22,321 (194%)	597 (0.1%)	24 (4.0%)
Daman & Diu	4.6	3,22,434 (100%)	2,70,290 (84%)	294 (0.1%)	8 (2.7%)
Delhi	3.2	4,57,453 (2%)	2,47,669 (54%)	6,122 (2.5%)	467 (7.6%)
Goa	187.9	1,02,563 (7%)	83,621 (82%)	314 (0.4%)	1 (0.3%)
Gujarat	15.3	2,04,69,660 (30%)	1,58,33,566 (77%)	90,318 (0.6%)	1,998 (2.2%)
Haryana	687.2	1,33,24,275 (46%)	15,68,642 (12%)	12,763 (0.8%)	215 (1.7%)
Himachal Pradesh	289.7	18,17,691 (24%)	18,13,396 (100%)	41,643 (2.3%)	1,449 (3.5%)
Jammu & Kashmir	74.3	12,08,111 (8%)	93,010 (8%)	3,667 (3.9%)	141 (3.8%)
Jharkhand	145.9	5,57,20,950 (144%)	4,49,20,834 (81%)	34,147 (0.1%)	3,902 (11.4%)
Karnataka	387.6	1,93,35,483 (29%)	2,99,157 (2%)	2,53,601 (84.8%)	4,841 (1.9%)
Kerala	676.9	7,75,000 (2%)	1,33,949 (17%)	2,274 (1.7%)	47 (2.1%)
Lakshadweep	343.3	70,177 (106%)	0 (0%)	NA	NA
Maharashtra	0.7	9,51,63,760 (77%)	8,75,68,441 (92%)	2,11,750 (0.2%)	9,737 (4.6%)
Meghalaya	830.5	1,25,103 (3%)	57,683 (46%)	997 (1.7%)	16 (1.6%)
Mizoram	1241.3	29,298 (2%)	22,304 (76%)	573 (2.6%)	12 (2.1%)
Nagaland	30.8	21,179 (1%)	11,151 (53%)	1,061 (9.5%)	40 (3.8%)
Odisha	35.8	57,92,098 (13%)	22,10,783 (38%)	64,045 (2.9%)	1,272 (2.0%)
Puducherry	12.4	46,709 (3%)	46,709 (100%)	245 (0.5%)	4 (1.6%)
Punjab	20.6	36,12,160 (12%)	23,92,039 (66%)	10,319 (0.4%)	312 (3.0%)
Rajasthan	458.4	1,48,22,610 (19%)	1,05,51,160 (71%)	85,159 (0.8%)	3,243 (3.8%)
Sikkim	14.7	43,817 (7%)	20,044 (46%)	689 (3.4%)	12 (1.7%)
Tamil Nadu	296.2	74,36,669 (9%)	26,80,756 (36%)	40,703 (1.5%)	2,542 (6.2%)
Telangana	786.6	75,60,886 (20%)	23,28,711 (31%)	31,583 (1.4%)	2,117 (6.7%)
Tripura	6.6	7,73,231 (20%)	55,808 (7%)	55,808 (100.0%)	84 (0.2%)
Uttar Pradesh	803.7	7,10,11,915 (31%)	6,84,29,974 (96%)	4,28,042 (0.6%)	20,807 (4.9%)
Uttarakhand	373.3	2,48,771 (2%)	1,77,699 (71%)	2,433 (1.4%)	72 (3.0%)
West Bengal	39.3	1,68,86,918 (17%)	1,57,56,571 (93%)	3,00,103 (1.9%)	2,657 (0.9%)
India	**2287.7**	**39,27,38,350 (29%)**	**27,73,58,984 (71%)**	**20,46,453 (0.7%)**	**62,958 (3.1%)**
The States/ UT of Chandigarh, Madhya Pradesh & Manipur have not conducted separate ACF activity					

7 Patient Home Visits by Field Staff

State	Public Sector		Private Sector		Total	
	TB Patients initiated on treatment	Home Visits done by field Staff	TB Patients initiated on treatment	Home Visits done by field Staff	TB Patients initiated on treatment	Home Visits done by field Staff
Andaman & Nicobar Islands	556	414 (74%)	10	2 (20%)	566	416 (73%)
Andhra Pradesh	74664	48392 (65%)	23821	6737 (28%)	98485	55129 (56%)
Arunachal Pradesh	2925	619 (21%)	49	0 (0%)	2974	619 (21%)
Assam	41070	22222 (54%)	5227	552 (11%)	46297	22774 (49%)
Bihar	74639	31706 (42%)	45223	8047 (18%)	119862	39753 (33%)
Chandigarh	3343	3112 (93%)	63	29 (46%)	3406	3141 (92%)
Chhattisgarh	32397	16310 (50%)	10892	557 (5%)	43289	16867 (39%)
Dadra & Nagar Haveli	486	486 (100%)	78	78 (100%)	564	564 (100%)
Daman & Diu	376	282 (75%)	78	0 (0%)	454	282 (62%)
Delhi	62364	18383 (29%)	17524	7491 (43%)	79888	25874 (32%)
Goa	1704	1435 (84%)	448	25 (6%)	2152	1460 (68%)
Gujarat	99970	85636 (86%)	52707	28360 (54%)	152677	113996 (75%)
Haryana	50658	31388 (62%)	18577	6270 (34%)	69235	37658 (54%)
Himachal Pradesh	16566	14095 (85%)	952	738 (78%)	17518	14833 (85%)
Jammu & Kashmir	10620	5585 (53%)	732	249 (34%)	11352	5834 (51%)
Jharkhand	43506	16677 (38%)	12651	333 (3%)	56157	17010 (30%)

State	Public Sector		Private Sector		Total	
	TB Patients initiated on treatment	Home Visits done by field Staff	TB Patients initiated on treatment	Home Visits done by field Staff	TB Patients initiated on treatment	Home Visits done by field Staff
Karnataka	69591	52798 (76%)	15167	5538 (37%)	84758	58336 (69%)
Kerala	21724	13219 (61%)	3246	1243 (38%)	24970	14462 (58%)
Lakshadweep	16	14 (88%)		(0%)	16	14 (88%)
Madhya Pradesh	139235	66671 (48%)	39279	9004 (23%)	178514	75675 (42%)
Maharashtra	140986	98269 (70%)	70985	27276 (38%)	211971	125545 (59%)
Manipur	2169	878 (40%)	363	10 (3%)	2532	888 (35%)
Meghalaya	4208	2962 (70%)	607	40 (7%)	4815	3002 (62%)
Mizoram	2556	1091 (43%)	45	19 (42%)	2601	1110 (43%)
Nagaland	4013	885 (22%)	707	108 (15%)	4720	993 (21%)
Odisha	48231	38946 (81%)	3749	2296 (61%)	51980	41242 (79%)
Puducherry	1586	1586 (100%)	4	4 (100%)	1590	1590 (100%)
Punjab	43501	26392 (61%)	12865	6590 (51%)	56366	32982 (59%)
Rajasthan	108872	55153 (51%)	50079	12496 (25%)	158951	67649 (43%)
Sikkim	1397	751 (54%)	30	1 (3%)	1427	752 (53%)
Tamil Nadu	82635	71231 (86%)	26557	5278 (20%)	109192	76509 (70%)
Telangana	47662	14158 (30%)	21769	2895 (13%)	69431	17053 (25%)
Tripura	2886	1750 (61%)	10	2 (20%)	2896	1752 (60%)
Uttar Pradesh	331344	133166 (40%)	138880	20620 (15%)	470224	153786 (33%)
Uttarakhand	19007	7153 (38%)	4850	117 (2%)	23857	7270 (30%)
West Bengal	91401	71380 (78%)	15429	7589 (49%)	106830	78969 (74%)
India	**1678864**	**955200 (57%)**	**593653**	**160594 (27%)**	**2272517**	**1115794 (49%)**

8 Contact Tracing and Isoniazid Chemoprophylaxis in Household Contacts < 6 years

State	Children in the household	Screened	Presumptive symptomatic cases identified	Presumptive symptomatic cases tested	TB Cases diagnosed	TB Cases Treated	Children Eligible for Isoniazid Chemoprophylaxis	Eligible children given Isoniazid Chemoprophylaxis
Andaman & Nicobar Islands	163	123	4	4	2	2	161	151 (94%)
Andhra Pradesh	10756	7843	239	143	77	40	10716	7842 (73%)
Arunachal Pradesh	489	270	15	8	8	8	481	401 (83%)
Assam	11987	7999	292	156	56	43	11944	10336 (87%)
Bihar	33716	24313	874	385	216	186	33530	27774 (83%)
Chandigarh	887	795	17	13	4	4	883	852 (96%)
Chhattisgarh	12594	7678	325	175	110	49	12545	8681 (69%)
Dadra & Nagar Haveli	173	173	9	9	0	0	173	172 (99%)
Daman & Diu	124	116	4	4	3	3	121	75 (62%)
Delhi	12045	6450	194	77	52	40	12005	10502 (87%)
Goa	258	201	4	3	2	2	256	249 (97%)
Gujarat	46561	38567	1430	737	193	150	46411	37946 (82%)
Haryana	21668	17120	344	164	122	115	21553	17231 (80%)
Himachal Pradesh	3766	3222	217	192	68	68	3698	3268 (88%)
Jammu & Kashmir	2643	2142	203	164	57	52	2591	2150 (83%)
Jharkhand	9830	6128	357	233	187	172	9658	7957 (82%)
Karnataka	20207	16090	924	604	363	348	19859	14703 (74%)
Kerala	4592	3825	285	215	89	76	4516	3746 (83%)
Lakshadweep	12	12	0	0	0	0	12	9 (75%)

State	Children in the house-hold	Screened	Presumptive symptomatic cases identi-fied	Presumptive symptomatic cases tested	TB Cases diagnosed	TB Cases Treated	Children Eligible for Isoniazid Chemoprophy-laxis	Eligible children given Isoniazid Chemoprophy-laxis
Madhya Pradesh	54480	31863	2120	1416	803	480	54000	47471 (88%)
Maharashtra	45558	33318	1881	1224	454	383	45175	36726 (81%)
Manipur	533	209	13	10	7	6	527	473 (90%)
Meghalaya	1984	1590	28	19	12	12	1972	1648 (84%)
Mizoram	558	258	26	23	19	19	539	413 (77%)
Nagaland	637	302	29	23	19	19	618	566 (92%)
Odisha	14935	12630	402	294	255	247	14688	11243 (77%)
Puducherry	237	236	4	4	1	1	236	236 (100%)
Punjab	13525	7542	181	82	36	27	13498	11723 (87%)
Rajasthan	34060	24562	1634	1185	681	249	33811	27666 (82%)
Sikkim	413	43	3	3	3	2	411	380 (92%)
Tamil Nadu	11973	9305	674	512	187	143	11830	8749 (74%)
Telangana	5861	3560	222	108	86	50	5811	4011 (69%)
Tripura	612	495	31	26	9	9	603	582 (97%)
Uttar Pradesh	124363	99714	1690	737	373	320	124043	86453 (70%)
Uttarakhand	3553	2358	29	10	6	6	3547	2711 (76%)
West Bengal	34260	28305	846	450	131	88	34172	22547 (66%)
India	**540013**	**399357**	**15550**	**9412**	**4691**	**3419**	**536594**	**417643 (78%)**

9. Lab Performance

9.1 Molecular diagnostic tests using CBNAAT

STATE	CBNAAT Machines	Tests performed	MTB Detected	Rif-Resistance Detected	Paediatric Testing			EP-TB Testing			Private Samples Testing		
					Tests performed	MTB Detected	Rif-Resistance Detected	Tests performed	MTB Detected	Rif-Resistance Detected	Tests performed	MTB Detected	Rif-Resistance Detected
Andaman & Nicobar Islands	5	2052	416	68	268	7	0	143	36	3	12	7	2
Andhra Pradesh	44	186025	27709	1709	5920	196	13	11187	1171	88	15885	3989	256
Arunachal Pradesh	12	8442	1612	268	543	48	3	493	111	30	178	53	6
Assam	31	64321	19512	1026	3514	415	13	3302	381	20	5153	1048	65
Bihar	71	150927	39877	4546	7539	1164	224	5292	879	149	24213	6813	922
Chandigarh	3	8047	1610	164	2676	231	15	2657	411	37	2	1	0
Chhattisgarh	29	87737	17016	523	4192	321	5	6067	649	38	6950	1260	46
Dadar & Nagar Haveli	2	2400	578	19	136	22	1	315	80	3	42	10	0
Daman & Diu	3	4184	390	27	233	9	2	152	40	4	22	6	0
Delhi	32	128325	44185	4226	24321	3470	329	35713	7463	760	7012	1756	186
Goa	3	6872	1306	46	1108	10	0	2046	217	7	69	26	1
Gujarat	61	195845	52530	2956	10925	1040	76	14930	2846	234	23002	8001	715
Haryana	27	99464	37000	2341	6875	1155	88	5219	1094	74	9679	3413	285
Himachal Pradesh	16	73700	11333	342	4207	382	93	8278	1225	41	2336	621	17
Jammu & Kashmir	16	36849	5910	218	2471	225	3	4234	435	16	1337	176	9
Jharkhand	37	70169	22746	1294	2373	451	110	2601	412	22	6334	1636	116
Karnataka	65	201162	46961	2110	16309	802	159	21865	2572	201	20796	4163	221

STATE	CBNAAT Machines	Tests performed	MTB Detected	Rif-Resistance Detected	Paediatric Testing			EP-TB Testing			Private Samples Testing		
					Tests performed	MTB Detected	Rif-Resistance Detected	Tests performed	MTB Detected	Rif-Resistance Detected	Tests performed	MTB Detected	Rif-Resistance Detected
Kerala	22	91218	13598	333	7075	61	2	10650	969	39	14277	1724	38
Lakshadweep	1	274	10	0	2	0	0	0	0	0	0	0	0
Madhya Pradesh	72	222789	63340	4684	14002	1417	96	17027	2749	191	15392	4853	385
Maharashtra	115	392985	88699	12880	29850	2492	542	62662	10534	2064	67921	16923	3051
Manipur	10	7450	1358	94	452	18	4	635	70	2	222	46	5
Meghalaya	8	12266	2677	325	2059	165	33	1033	215	39	893	116	12
Mizoram	9	10223	1484	184	1185	40	6	1615	132	19	982	108	11
Nagaland	10	8371	2385	186	495	65	2	313	85	2	411	136	6
Orissa	41	94835	28813	818	4519	424	15	12160	1388	58	9948	1805	54
Pondicherry	2	8412	1234	57	1371	30	2	3027	359	12	57	23	0
Punjab	30	79275	28146	1050	3164	640	19	8322	1356	33	3953	1098	52
Rajasthan	59	177770	74816	5004	12829	1605	96	21441	2699	188	11765	4698	410
Sikkim	8	7515	1120	324	328	6	1	691	98	27	3	0	0
Tamil Nadu	60	279078	62625	3082	15541	830	202	14629	1932	77	21566	4704	160
Telangana	30	148414	33473	2170	7404	423	28	5971	857	65	16457	4189	282
Tripura	7	8431	1880	42	513	10	0	298	33	3	326	40	0
Uttar Pradesh	147	422187	178454	16689	22102	4281	423	21957	4102	556	39239	15949	2294
Uttarakhand	14	21361	9654	681	744	189	12	5603	1001	81	734	333	33
West Bengal	78	210913	64423	3255	10938	759	63	17970	2465	210	12140	2533	181
India	**1180**	**3530288**	**988880**	**73741**	**228183**	**23403**	**2680**	**330498**	**51066**	**5393**	**339308**	**92257**	**9821**

9.2 Line Probe Assay

State	First Line - Line Probe Assay					Second Line - Line Probe Assay					
	Samples Tested	Susceptible to both Isoniazid & Rifampicin	Resistant to both Isoniazid & Rifampicin	Resistant To Rifampicin	Resistant To Isoniazid	Samples Tested	Susceptible to both FQ & SLI	Resistant to both FQ & SLI	Resistant FQ	Resistant SLI	Resistant to Mono Low level Kanamycin
Andaman & Nicobar Islands	70	51	13	0	4	56	18	3	18	1	2
Andhra Pradesh	18671	15638	129	76	1484	2310	1846	14	191	24	1
Arunachal Pradesh	453	382	2	2	16	79	45	1	16	0	0
Assam	4929	4202	15	5	281	815	530	12	107	16	1
Bihar	6386	5703	114	28	283	3088	1117	319	1455	23	2
Chandigarh	1111	970	79	10	52	119	77	4	37	1	0
Chhattisgarh	7114	6529	82	21	354	721	532	27	134	10	1
Dadra & Nagar Haveli	24	13	5	3	0	12	8	0	1	0	0
Daman & Diu	72	53	5	0	6	15	10	0	5	0	0
Delhi	19690	15149	1793	230	1369	4550	2585	189	1305	62	41
Goa	138	127	0	0	8	23	18	0	5	0	0
Gujarat	20436	16007	967	482	1533	7213	3864	250	1806	92	11
Haryana	11167	9846	77	4	561	1554	929	39	250	3	1
Himachal Pradesh	5911	5262	68	30	244	572	423	6	78	2	2
Jammu & Kashmir	1004	696	27	10	25	88	56	3	16	0	0
Jharkhand	3233	2682	82	21	125	582	261	39	155	7	4
Karnataka	33889	30614	267	96	1858	4485	2983	60	583	45	10
Kerala	2710	2137	146	38	164	313	261	2	41	0	0
Madhya Pradesh	24467	21564	208	101	1518	4351	2707	109	1089	48	4

State	First Line - Line Probe Assay					Second Line - Line Probe Assay					
	Samples Tested	Susceptible to both Isoniazid & Rifampicin	Resistant to both Isoniazid & Rifampicin	Resistant To Rifampicin	Resistant To Isoniazid	Samples Tested	Susceptible to both FQ & SLI	Resistant to both FQ & SLI	Resistant FQ	Resistant SLI	Resistant to Mono Low level Kanamycin
Maharashtra	35457	28813	2753	450	2292	12248	5536	1241	4327	274	256
Manipur	355	270	8	3	27	79	47	0	10	2	0
Meghalaya	1065	954	32	1	46	209	116	12	47	5	4
Mizoram	365	281	2	1	18	103	64	0	18	0	0
Nagaland	325	276	6	2	13	74	54	1	9	0	0
Odisha	13271	10281	27	11	227	752	519	12	132	7	0
Puducherry	1133	797	15	2	86	96	72	1	8	3	0
Punjab	11827	10278	132	38	506	1100	821	30	224	23	2
Rajasthan	39800	35121	226	142	1904	6377	3939	178	1752	51	4
Sikkim	146	50	86	0	6	114	43	8	52	0	1
Tamil Nadu	41894	35965	212	123	2925	4826	3881	56	325	74	8
Telangana	13817	7673	60	34	613	1413	627	23	160	28	6
Tripura	1147	967	3	0	73	116	85	0	11	2	0
Uttar Pradesh	14382	11189	612	157	1221	10728	4006	949	4527	109	100
Uttarakhand	2305	1839	28	5	155	536	250	38	146	3	5
West Bengal	7518	6565	309	121	332	3031	1601	256	944	92	21
India	**346282**	**288944**	**8590**	**2247**	**20329**	**72748**	**39931**	**3882**	**19984**	**1007**	**487**

9.3 List of Certified Labs under NTEP

S.No	State	IRL / C-DST Laboratory	NRL/IRL/C&DST/NGO/MC and PVT labs	LC FLDST	LC SLDST	FL LPA	SL LPA	LJ FLDST
1	Andaman & Nicobar	RMRC, Port Blair	ICMR TB CDST Laboratory	-	-	-	-	Certified
2	Andhra Pradesh	DFIT, Nellore	NGO TB CDST Laboratory	-	-	Certified	Certified	Certified
3	Andhra Pradesh	SVIMS, Tirupati	Medical College	-	-	-	-	Certified
4	Andhra Pradesh	IRL, Visakhapatnam	IRL	Certified	Certified	Certified	Certified	
5	Andhra Pradesh	RDT Hospital Bathalapalli	NGO TB CDST Laboratory			Certified	Certified	
6	Arunachal Pradesh	IRL-Naharlagun	IRL					Certified
7	Assam	RMRC, Dibrugarh	ICMR TB CDST Laboratory	-	-	-	-	Certified
8	Assam	IRL, Guwahati	IRL	Certified	Certified	Certified	Certified	
9	Bihar	IRL, Patna	IRL	Certified	Certified	Certified	Certified	
10	Bihar	JLNMCH, Bhagalpur	Medical College	Certified	Certified	Certified	Certified	
11	Bihar	DFIT, Darbhanga	NGO TB CDST Laboratory	-	-	Certified	Certified	
12	Chandigarh	PGIMER Chandigarh	Medical College	Certified	Certified	Certified	Certified	Certified
13	Chhattisgarh	IRL Raipur	IRL	Certified	Certified	Certified	Certified	Certified
14	Delhi	NRL NITRD	NRL	Certified	Certified	Certified	Certified	Certified
15	Delhi	IRL NDTB Delhi	IRL	Certified	Certified	Certified	Certified	Certified
16	Delhi	AIIMS - Medicine	IRL	Certified	Certified	Certified	Certified	Certified
17	Delhi	AIIMS - Laboratory Medicine	Medical College			Certified		
18	Goa	IRL Goa	IRL	-	-	-	-	Certified
19	Gujarat	IRL Ahmadabad	IRL	Certified	Certified	Certified	Certified	Certified
20	Gujarat	MPSMS, Jamnagar	Medical College	Certified	Certified	Certified	Certified	Certified
21	Gujarat	Microcare, Surat	Pvt TB CDST Laboratory	-	-	Certified	-	Certified
22	Gujarat	Schmaka TeKnology, PVT, LTD, Vadodara,Gujarat	Pvt TB CDST Laboratory	_	_	Certified	_	
23	Haryana	IRL Karnal	IRL	-	-	Certified	Certified	Certified
24	Himachal Pradesh	IRL Dharampur	IRL	-	-	Certified	Certified	Certified
25	Himachal Pradesh	TB C-DST Laboratory, Tanda	Medical College	-	-	-	-	
26	Jammu &Kashmir	IRL Jammu	IRL	-	-	-	-	Certified
27	Jammu & Kashmir	IRL Srinagar	IRL	-	-	Certified	Certified	Certified
28	Jharkhand	IRL Ranchi	IRL	Certified	-	Certified	Certified	Certified

S.No	State	IRL / C-DST Laboratory	NRL/IRL/C&DST/NGO/MC and PVT labs	LC FLDST	LC SLDST	FL LPA	SL LPA	LJ FLDST
29	Karnataka	NRL NTI	NRL	Certified	Certified	Certified	Certified	Certified
30	Karnataka	IRL, Bangalore	IRL	Certified	Certified	Certified	Certified	
31	Karnataka	KIMS, Hubli	Medical College	Certified	Certified	Certified	Certified	Certified
32	Karnataka	GMC, Raichur	Medical College	Certified	-	Certified	Certified	
33	Karnataka	KMC Manipal	Pvt TB CDST Laboratory			Certified		
34	Kerala	IRL Thiruvananthapuram	IRL	Certified	Certified	Certified	Certified	Certified
35	Kerala	GMC Kozikode	Medical College			Certified		
36	Madhya Pradesh	NRL BMHRC	NRL	Certified	Certified	Certified	Certified	Certified
37	Madhya Pradesh	IRL Indore	IRL	Certified	Certified	Certified	Certified	Certified
38	Madhya Pradesh	Choitram Hospital, Indore	Pvt TB CDST Laboratory	-	-	-	-	Certified
39	Madhya Pradesh	NIRTH, Jabalpur	ICMR TB CDST Laboratory	-	-	Certified	Certified	Certified
40	Madhya Pradesh	GRMC Gwalior Medical Collge	Medical College			Certified		
41	Maharashtra	IRL Nagpur	IRL	Certified	Certified	Certified	Certified	Certified
42	Maharashtra	IRL Pune	IRL	Certified	Certified	Certified	Certified	Certified
43	Maharashtra	JJ Hospital, Mumbai	Medical College	Certified	Certified	Certified	Certified	Certified
44	Maharashtra	MGIMS, Wardha	Medical College	-	-	-	-	Certified
45	Maharashtra	Metropolis, Mumbai	Pvt TB CDST Laboratory	Certified	-	Certified		
46	Maharashtra	SRL, Mumbai	Pvt TB CDST Laboratory	Certified	Certified	-	-	
47	Maharashtra	Infexn, Thane	Pvt TB CDST Laboratory	Certified	Certified	Certified	Certified	
48	Maharashtra	PD. Hinduja, Mumbai	Pvt TB CDST Laboratory	Certified	Certified	Certified	Certified	
49	Maharashtra	GTB, Sewree, Mumbai	Medical College	Certified	Certified	Certified	Certified	
50	Maharashtra	GMC Aurangabad	Medical College	Certified	certified	Certified	Certified	Certified
51	Maharashtra	K. J. Somaiah Hospital, Mumbai	Pvt TB CDST Laboratory	-	-	-	-	
52	Maharashtra	BJMC, Pune	Medical College	-	-	-	-	certified
53	Maharashtra	Thyrocare lab Navi Mumbai	Pvt TB CDST Laboratory	Certified	Certified	Certified	Certified	
54	Maharashtra	Military Hospital Pune	Pvt TB CDST Laboratory			Certified		
54	Maharashtra	Aspira Path Lab, Navi Mumbai	Pvt TB CDST Laboratory	Certified				
54	Meghalaya	Nazerath, Shillong	Pvt TB CDST Laboratory			Certified	Certified	
56	Odisha	NRL RMRC	NRL	Certified	Certified	Certified	Certified	Certified

S.No	State	IRL / C-DST Laboratory	NRL/IRL/C&DST/NGO/MC and PVT labs	LC FLDST	LC SLDST	FL LPA	SL LPA	LJ FLDST
57	Odisha	IRL Cuttack	IRL	Certified	Certified	Certified	Certified	Certified
58	Puducherry	IRL Puducherry	IRL	Certified	Certified	Certified	Certified	Certified
59	Punjab	IRL Patiala	IRL	Certified	Certified	Certified	Certified	Certified
60	Rajasthan	IRL Ajmer	IRL	Certified	Certified	Certified	Certified	Certified
61	Rajasthan	SMS Jaipur	Medical College	Certified	Certified	Certified	Certified	Certified
62	Rajasthan	DMRC, Jodhpur	ICMR TB CDST Laboratory	-	-	-	-	Certified
63	Rajasthan	SNMC, Jodhpur	Medical College	-	-	Certified	Certified	
64	Sikkim	IRL Gangtok	IRL	-	-	-		Certified
65	Tamilnadu	NRL NIRT	NRL	Certified	Certified	Certified	Certified	Certified
66	Tamilnadu	IRL Chennai	IRL	Certified	Certified	Certified	Certified	Certified
67	Tamilnadu	CMC, Vellore	Pvt TB CDST Laboratory	-	-	-	-	Certified
68	Tamilnadu	Shankar Nethralaya, Chennai	Pvt TB CDST Laboratory	Certified	-	-	-	
69	Tamilnadu	GMC, Madurai	Medical College	Certified	Certified	Certified	Certified	
70	Telangana	IRL Hyderabad	IRL	Certified	Certified	Certified	Certified	Certified
71	Telangana	BPHRC, Hyderabad	NGO TB CDST Laboratory	Certified	Certified	Certified	NA	Certified
72	Uttar Pradesh	NRL JALMA	NRL	Certified	Certified	Certified	Certified	Certified
73	Uttar Pradesh	IRL Lucknow	IRL	Certified	Certified	Certified	Certified	Certified
74	Uttar Pradesh	BHU, Varanasi	Medical College	Certified	Certified	Certified	Certified	
75	Uttar Pradesh	IRL, Agra	IRL	Certified	Certified	Certified	Certified	
76	Uttar Pradesh	AMU, Aligarh	Medical College			Certified	Certified	
77	Uttar Pradesh	Subharti Medical College, Meerut	Pvt TB CDST Laboratory			Certified		
78	Uttarakhand	IRL Dehradun	IRL	-	-	Certified	Certified	Certified
79	West Bengal	IRL Kolkata	IRL	Certified	Certified	Certified	Certified	Certified
80	West Bengal	SRL,Kolkata	Pvt TB CDST Laboratory	Certified	-	-	-	
81	West Bengal	NBMC Siliguri	Medical College	Certified		Certified	Certified	

10. Human Resource

10.1 State Level - Programme Staffing Status in 2019

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

State	State TB Officer		Epidemiologist (APO)		MO – State TB Cell		TB-HIV Coordinator		PPM Coordinator		DR TB Coordinator	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Kerala	1	1	1	1	1	1	1	0	1	1	1	0
Lakshadweep	1	1	0	0	0	0	0	0	0	0	0	0
Madhya Pradesh	1	1	1	1	1	0	1	0	0	1	1	0
Maharashtra	1	1	2	1	1	0	1	1	1	1	1	0
Manipur	1	1	1	1	1	1	1	0	1	1	1	1
Meghalaya	1	1	1	1	1	1	1	1	1	1	1	1
Mizoram	1	1	0	0	1	1	1	1	1	1	0	0
Nagaland	1	1	1	1	1	1	1	1	1	1	0	0
Odisha	1	1	1	1	1	1	1	1	1	0	1	1
Puducherry	1	1			1	1	1	1				
Punjab	1	1	1	1	1	1	1	1	0	0	0	0
Rajasthan	1	1	2	0	2	0	1	0	1	1	1	0
Sikkim	1	1	1	1	1	1	1	0	1	0	1	0
Telangana	0	1	1	0	1	0	1	0	1	0	1	1
Tamil Nadu	1	1	1	0	1	1	1	0	1	1	1	0
Tripura	1	1	1	1	1	1	0	0	0	0	0	0
Uttar Pradesh	1	1	2	2	2	0	2	1	2	1	2	0
Uttarakhand	1	1	1	0	1	0	0	0	0	0	0	0
West Bengal	1	1	2	1	1	0	2	0	2	2	2	0
India	**32**	**35**	**35**	**22**	**36**	**19**	**32**	**16**	**26**	**20**	**22**	**9**

State	State IEC Officer		State Accountant		Technical Officer-Proc. and Logistics		Data Analyst		DEO-STC		Secretarial asst.	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar Islands	1	1	1	1	0	0	1	0	1	1	1	0
Andhra Pradesh	1	1	1	1	1	1	1	1	1	1	1	1
Arunachal	1	1	1	1	1	0	0	0	1	1	1	1
Assam	1	1	1	1	1	0	1	1	1	1	1	1
Bihar	1	1	1	0	1	1	0	0	1	1	1	0
Chandigarh	1	1	1	1	0	0	0	0	1	1	1	1
Chhattisgarh	1	0	1	1	0	0	0	0	1	1	1	0
Dadra & Haveli	1	1	1	1	0	0	0	0	1	1	1	1
Daman & Diu	1	0	1	1	0	0	0	0	1	1	0	0
Delhi	1	1	1	1	1	0	1	0	1	1	1	1
Goa	1	1	1	1	1	1	0	0	1	1	1	1
Gujarat	1	1	1	1	1	0	0	0	1	1	1	1
Haryana	1	1	1	1	1	1	1	0	1	1	1	1
Himachal Pradesh	1	1	1	1	0	0	0	0	1	1	1	0
Jammu & Kashmir	2	1	2	2	2	1	0	0	2	2	2	2
Jharkhand	1	1	2	1	1	1	1	0	1	1	1	0
Karnataka	1	1	2	2	1	1	1	1	2	2	1	0
Kerala	1	1	1	1	0	0	0	0	1	1	1	1
Lakshadweep	1	1	0	0	0	0	0	0	1	0	0	0

State	State IEC Officer		State Accountant		Technical Officer-Proc. and Logistics		Data Analyst		DEO-STC		Secretarial asst.	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Madhya Pradesh	1	0	1	1	1	0	1	0	1	1	1	1
Maharashtra	1	1	3	2	1	1	2	1	2	2	2	2
Manipur	1	1	1	1	1	0	0	0	1	1	1	1
Meghalaya	1	0	1	1	1	1	1	1	1	1	1	1
Mizoram	1	1	1	1	0	0	0	0	1	1	1	1
Nagaland	1	1	1	1	1	1	0	0	1	1	1	1
Odisha	1	0	1	1	0	0	0	0	1	1	1	1
Puducherry	1	1	1	1					1	1	1	1
Punjab	0	0	1	1	0	0	0	0	1	1	0	0
Rajasthan	1	1	1	1	1	1	1	1	2	1	2	1
Sikkim	1	0	1	1	1	0	1	1	1	1	1	1
Telangana	1	1	1	0	1	0	1	1	1	0	1	0
Tamil Nadu	1	1	2	1	1	1	1	0	2	1	1	0
Tripura	1	1	1	1	1	1	1	1	1	0	1	1
Uttar Pradesh	2	2	2	2	2	2	2	1	2	2	1	1
Uttarakhand	1	1	1	1	0	0	0	0	1	1	1	0
West Bengal	2	1	2	2	1	0	2	2	2	1	1	1
India	**38**	**30**	**43**	**38**	**25**	**15**	**20**	**12**	**43**	**37**	**36**	**26**

10.2 STDC - Programme Staffing Status in 2019

State	Pharmacist - SDS		Store Assistant - SDS		Director (STDC)		MO - STDC	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar Islands	1	1	0	0	0	0	1	1
Andhra Pradesh	1	1	0	0	0	0	1	1
Arunachal	1	1	0	0	0	0	1	1
Assam	1	1	0	0	0	0	1	1
Bihar	2	1	2	2	14	7	2	1
Chandigarh	1	1	0	0	0	0	1	1
Chhattisgarh	1	1	0	0	2	0	1	1
Dadra & Haveli	1	1	0	0	0	0	1	1
Daman & Diu	0	0	0	0	0	0	0	0
Delhi	2	0	1	1	1	1	2	0
Goa	1	1	0	0	0	0	1	1
Gujarat	1	1	1	0	6	6	1	1
Haryana	1	1	0	0	0	0	1	1
Himachal Pradesh	1	1	1	1	1	1	1	1
Jammu & Kashmir	2	2	1	0	0	4	2	2
Jharkhand	2	1	1	1	1	1	2	1
Karnataka	1	0	0	0	0	0	1	0
Kerala	1	1	1	1	2	2	1	1
Lakshadweep	0	0	0	0	0	0	0	0

State	Pharmacist - SDS		Store Assistant - SDS		Director (STDC)		MO - STDC	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Madhya Pradesh	1	1	1	1	1	1	1	1
Maharashtra	8	2	3	3	6	6	8	2
Manipur	1	1	1	1	0	0	1	1
Meghalaya	1	1	0	0	0	0	1	1
Mizoram	1	1	0	0	0	0	1	1
Nagaland	1	1	0	0	0	0	1	1
Odisha	1	0	1	1	1	1	1	0
Puducherry	1	1	1	1	5	5	1	1
Punjab	0	0	1	1	1	1	0	0
Rajasthan	4	2	1	1	4	4	4	2
Sikkim	1	1	1	1	1	0	1	1
Telangana	1	1	1	1	1	1	1	1
Tamil Nadu	3	2	1	1	0	0	3	2
Tripura	1	1	0	0	0	0	1	1
Uttar Pradesh	8	2	1	1	5	2	8	2
Uttarakhand	2	1	1	1	1	0	2	1
West Bengal	4	2	1	1	3	2	4	2
India	**60**	**36**	**23**	**21**	**56**	**45**	**60**	**36**

10.3 IRL- Programme Staffing Status in 2019

State	Microbiologist (IRL)		Microbiologist (EQA)		Senior Lab. Tech.		Technical Officer		Lab Technicians		Data Entry Operator		Lab Attendant	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar Islands	1	1	1	1	1	1	0	0	1	1	1	1	0	0
Andhra Pradesh	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Arunachal	1	1	0	0	1	1	0	0	1	1	1	1	1	1
Assam	1	1	1	0	1	1	1	0	1	1	1	0	0	0
Bihar	1	0	1	0	5	1	0	1 (FIND)	0	0	1	1	0	0
Chandigarh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chhattisgarh	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	2	1	2	0	2	1	0	0	0	0	2	1	0	0
Goa	1	1	1	0	1	1	0	0	0	0	1	1	0	0
Gujarat	1	1	1	1	1	1	3	3	14	12	2	2	7	7
Haryana	1	1	1	1	1	1	0	0	1	1	1	1	2	0
Himachal Pradesh	1	1	1	0	3	1	1	1	5	2	1	1	1	1
Jammu & Kashmir	2	2	1	0	2	2	2	0	1	1	2	2	0	0
Jharkhand	1	1	1	0	1	1	1	1	4	2	1	1	1	1
Karnataka	2	2	2	0	2	2	0	0	1	1	2	2	7	6
Kerala	1	1	1	1	1	1	2	2	8	4	2	1	3	3
Lakshadweep	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Madhya Pradesh	1	1	1	1	1	1	1	0	1	0	1	0	1	0

State	Microbiologist (IRL)		Microbiologist (EQA)		Senior Lab. Tech.		Technical Officer		Lab Technicians		Data Entry Operator		Lab Attendant	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Maharashtra	2	1	2	1	3	3			8	5	3	2	0	0
Manipur	1	1	1	1	1	1	0	0	4	1	1	1	2	2
Meghalaya	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mizoram	0	0	0	0	1	1	0	0	0	0	1	1		
Nagaland	0	0	0	0	0	0	0	0	13	13	11	11	0	0
Odisha	1	1	1	1	1	0	1	1	3	3	2	2	2	2
Puducherry	1	1	1	1	1	1	0	0	0	0	1	1		
Punjab	1	0	1	1	1	0	0	0	0	0	1	0	0	0
Rajasthan	1	1	1	1	5	1	4	4	3	18	2	2	8	1
Sikkim	1	1	1	0	1	1	0	0	2	1	1	1	1	1
Telangana	1	0	1	0	1	0	0	0	0	0	1	0	0	0
Tamil Nadu	0	0	3	2	1	1	0	0	13	9	2	0	6	0
Tripura	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uttar Pradesh	4	4	2	1	2	2	0	0	9	8	4	2	3	3
Uttarakhand	1	1	1	0	1	1	1	1	5	5	1	1	3	3
West Bengal	3	4	1	0	1	0	2	1	16	13	2	2	1	1
India	**36**	**32**	**33**	**16**	**45**	**29**	**19**	**14**	**116**	**103**	**53**	**42**	**49**	**32**

10.4 CDST - Programme Staffing Status in 2019

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	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar Islands												
Andhra Pradesh	2	2	0	0	9	9	2	2	6	6	2	2
Arunachal	1	1	0	0	1	1	0	0	0	0	4	4
Assam	0	0	0	0	0	0	0	0	0	0	0	0
Bihar	2	1	0	0	15	0	4	0	0	0	0	0
Chandigarh	1	1	1	0	0	0	1	0	2	1	2	1
Chhattisgarh	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	1	0	0	0	1	0	1	0	0	0	0	0
Goa	0	0	0	0	0	0	0	0	0	0	0	0
Gujarat	2	2	1	1	0	0	1	0	13	13	8	8
Haryana	1	1										
Himachal Pradesh	2	0	0	0	3	0	2	0	4	0	0	0
Jammu & Kashmir	2	2										
Jharkhand	1	1	1	0	2	0	1	0	2	0	1	0
Karnataka	2	2	0	0	3	3	1	1	5	5	2	2
Kerala	1	1	0	0	0	0	1	1	2	2	2	2
Lakshadweep	0	0	0	0	0	0	0	0	0	0	0	0
Madhya Pradesh	2	1	0	0	0	0	3	0	2	1	4	2
Maharashtra	9	5	0	0	3	3	2	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	Sanctioned	In Place	Sanctioned	In Place
Manipur	0	0	0	0	0	0	0	0	0	0	0	0
Meghalaya	0	0	0	0	0	0	0	0	0	0	0	0
Mizoram												
Nagaland	No CDST labs											
Odisha	1	1	0	0	0	0	0	0	0	0	0	0
Puducherry	1	1					1	1	4	4	1	1
Punjab	0	0	0	0	0	0	0	0	0	0	0	0
Rajasthan	3	3	2	2	3	3	3	2	6	6	2	2
Sikkim	0	0	0	0	0	0	0	0	0	0	0	0
Telangana	1	0	0	0	1	0	1	0	0	0	0	0
Tamil Nadu	1	1	0	0	3	3	1	0	0	0	0	0
Tripura	1	1	0	0	1	1	1	1	0	1	0	2
Uttar Pradesh	8	7	0	0	12	4	8	2	4	0	4	0
Uttarakhand	0	0	0	0	0	0	0	0	0	0	0	0
West Bengal	2	1	0	0	0	0	0	0	10	4	0	0
India	**46**	**35**	**5**	**3**	**57**	**27**	**32**	**10**	**60**	**42**	**28**	**24**

10.5 DRTB Centre level – Programme Staffing Status 2019

State	Senior MO – DRTB Centre		Counsellor – DRTB Centre		SA – DRTB Centre	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar Islands	1	1	1	1	1	1
Andhra Pradesh	9	4	9	6	13	8
Arunachal	2	1	0	0	2	1
Assam	5	2	4	2	3	3
Bihar	9	5	46	0	9	6
Chandigarh	1	1	0	0	1	1
Chhattisgarh	4	1	4	3	4	4
Dadra & Haveli	0	0	0	0	0	0
Daman & Diu	0	0	0	0	0	0
Delhi	4	2	4	0	4	4
Goa	1	0	1	1	1	1
Gujarat	5	5	5	5	5	5
Haryana	2	0	3	2	3	0
Himachal Pradesh	3	1	4	0	3	2
Jammu & Kashmir	2	2	0	0	2	2
Jharkhand	5	2	5	1	5	2
Karnataka	8	5	6	4	6	6
Kerala	2	2	0	0	2	2

State	Senior MO – DRTB Centre		Counsellor – DRTB Centre		SA – DRTB Centre	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Lakshadweep	0	0	0	0	0	0
Madhya Pradesh	9	3	9	3	9	0
Maharashtra	19	13	18	8	22	9
Manipur	1	0	1	1	2	2
Meghalaya	2	1	2	2	2	2
Mizoram	1	1	1	1	1	1
Nagaland	2	2	2	2	2	2
Odisha	4	4	4	2	4	2
Puducherry	1	0			1	1
Punjab	3	3	0	0	3	1
Rajasthan	7	2	7	6	6	6
Sikkim	1	0	1	0	1	1
Telangana	7	2	7	0	7	6
Tamil Nadu	8	4	13	7	8	6
Tripura	1	1	1	1	1	1
Uttar Pradesh	23	15	23	18	23	18
Uttarakhand	2	1	2	2	2	2
West Bengal	9	6	9	8	9	8
India	**154**	**89**	**183**	**83**	**158**	**116**

10.6 District level - Programme Staffing Status in 2019

State	District TB Officer		District Program Coordinator		MO – DTC		MO-TC		Senior DR TB – TBHIV Supervisor		District PPM Coordinator	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar Islands	3	3	3	2	3	2	6	4	3	3	0	0
Andhra Pradesh	13	9	13	12	5	1	225	225	13	12	13	11
Arunachal	14	14	0	0	14	6	14	6	17	14	0	0
Assam	27	27	0	0	10	0	350	156	27	26	27	23
Bihar	38	37	38	0	38	18	544	486	38	24	38	0
Chandigarh	1	1	0	0	0	0	4	4	1	1	0	0
Chhattisgarh	27	27	27	24	11	5	155	155	27	25	27	25
Dadra & Haveli	0	0	1	0	0	0	0	0	1	1	0	0
Daman & Diu	0	0	0	0	1	0	0	0	1	1	0	0
Delhi	25	25	25	0	12	8	38	30	27	23	25	0
Goa	2	2	0	0	0	0	6	6	2	2	2	2
Gujarat	36	12	35	34	44	42	306	306	38	38	35	34
Haryana	22	22	21	13					21	19	21	15
Himachal Pradesh	12	12	10	0	5	1	74	74	12	11	0	0
Jammu & Kashmir	14	14	14	14	14							
Jharkhand	24	24	24	14	8	0	206	192	24	21	24	13
Karnataka	31	31	33	32	12	3	0	0	33	33	33	32
Kerala	14	14	0	0	14	14	73	72	14	13	6	3
Lakshadweep	0	0	0	0	0	0	0	0	0	0	0	0
Madhya Pradesh	51	51	51	26	22	11	228	183	51	40	51	0
Maharashtra	79	79	34	19	17	11			84	77	79	69
Manipur	16	11	0	0	3	1	13	13	9	9	9	9
Meghalaya	7	6	7	6	1	0	24	24	7	7	7	1
Mizoram	8	8							8	8	8	6
Nagaland	11	11	0	0	2	2	0	0	11	11	2	2

State	District TB Officer		District Program Coordinator		MO – DTC		MO-TC		Senior DR TB – TBHIV Supervisor		District PPM Coordinator	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Odisha	31	31	31	28	9	5	0	0	31	28	31	25
Puducherry	1	1			1	1	7	6	1	1		
Punjab	22	22	0	0	3	3	134	134	22	21	0	0
Rajasthan	34	34	34	25	36	32	283	263	34	30	34	30
Sikkim	5	5	4	3	3	0	5	3	5	4	4	4
Telangana	11	8	11	8	5	3	171	171	11	11	31	19
Tamil Nadu	31	31	35	31	20	14	461	461	36	34	35	31
Tripura	8	8	0	0	1	1	0	0	0	0	0	0
Uttar Pradesh	75	75	75	68	14	7	993	661	89	83	89	77
Uttarakhand	13	13	13	10	13	3	95	95	13	12	0	0
West Bengal	36	31	28	24	20	11	418	366	48	41	28	24
India	**691**	**648**	**516**	**367**	**339**	**194**	**4605**	**3913**	**708**	**644**	**608**	**455**

10.7 Medical College - Programme Staffing Status in 2019

State	MO – Medical College		LT – Medical College		TBHV-Medical College	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Andaman & Nicobar Islands	3	3	0	0	1	0
Andhra Pradesh	22	10	22	21	22	17
Arunachal	0	0	0	0	0	0
Assam	6	4	6	6	6	6
Bihar	11	6	11	6	9	6
Chandigarh	2	2	2	2	2	2
Chhattisgarh	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	7
Goa	1	0	1	1	1	1
Gujarat	17	16	26	26	19	19
Haryana	9	1	5	4	9	8
Himachal Pradesh	7	6	7	7	7	1
Jammu & Kashmir	5	5	5	5	5	5
Jharkhand	3	3	3	3	3	3
Karnataka	54	41	6	1	44	43
Kerala	19	16	25	22	24	24
Lakshadweep	0	0	0	0	0	0
Madhya Pradesh	13	8	13	10	13	12
Maharashtra	41	25	41	37	41	34

State	MO – Medical College		LT – Medical College		TBHV-Medical College	
	Sanctioned	In Place	Sanctioned	In Place	Sanctioned	In Place
Manipur	2	1	2	2	2	2
Meghalaya	1	1	1	1	1	1
Mizoram						
Nagaland						
Odisha	6	6	7	7	7	7
Puducherry	4	3	9	8	10	8
Punjab	9	8	9	8	9	8
Rajasthan	6	2	8	5	8	6
Sikkim	1	0	1	1	1	1
Telangana	23	5	23	11	23	3
Tamil Nadu	41	27	49	32	51	34
Tripura		1		1	2	2
Uttar Pradesh	36	19	40	29	36	29
Uttarakhand	0	0	4	4	4	2
West Bengal	15	9	15	12	15	13
India	**367**	**232**	**351**	**273**	**385**	**298**

11 Research:

11.1 Operational Research Projects Funded by Global Fund Grant (2018-2021)

S. No.	Study Title	PI	Status
1	Prevalence of Microbiologically Positive Pulmonary Non-tuberculous Mycobacteria (NTM) including Species Information under the National TB Elimination Programme, India.	Dr Shripad Patil, NJIL&OMD,AGRA,	On going
2	Prevalence and Determinants for TB Disease among Contacts of TB Patients, A bi-directional Study.	Dr. Mamta Arora, NJIL&OMD,AGRA	On going
3	Strengthening Mechanisms for TB Death Reporting under the Revised National Tuberculosis Control Programme (National TB Elimination Programme) and the Registrar General of India.	Dr. Avi Kumar Bansal, NJIL & OMD, AGRA	Ongoing
4	Sentinel Surveillance for measuring the TB Burden and trends in High Risk Group for TB.	Dr Srinivas B M. NIRT-ICMR	On going
5	Effectiveness of 12 dose Rifapentine–Isoniazid in preventing Tuberculosis among household contacts of patients diagnosed with Tuberculosis under programmatic conditions in India– a feasibility study.	Dr. Pradeep A Menon, NIRT-ICMR	Ongoing

11.2 Research with Impact on Diagnostic Services

Sr No.	Evidence	Authors	Policy/ implementation
1	Comparison of cough of 2 weeks and 3 weeks to improve detection of smear-positive tuberculosis cases among out-patients in India, IJTLD, 2005, 9(1), 61-68	Santha T, Garg R,Chandrasekhran V,Selvakumar N, Sisodia RS, Perumal M, Sinha SK, Singh RJ, Chavan R, Ali F, Sarma SK, Sharma KM, Jagtap RD, Frieden TR, Fabio L, Narayanan PR	**Early identification of TB cases through 2 weeks of cough 2 sputum examination**
2	Increased yield of smear positive pulmonary TB case by screening patients with >2weeks cough compared to >3 weeks cough and adequacy of 2 sputum smear examinations for diagnosis, IJTLD 2008, 55: 77-83	Thomas A1, Chandrasekaran V, Joseph P, Rao VB, Patil AB, Jain DK, Chowdhary D, Saibabu, Mahapatra S, Devi S, Wares F, Narayanan PR.	
3	Diagnosis of tuberculosis under National TB Elimination Programme: examination of two or three sputum specimens. Indian J Tuberculosis 2001(48):13–16.	Rohit Sarin1, S. Mukerjee, Neeta Singla and P.P. Sharma	
Research with Impact on Diagnostic Services			
4	Implementation efficiency of a diagnostic algorithm in sputum smear-negative presumptive tuberculosis patients. Int J Tuberc Lung Dis. 2014 Oct;18(10):1237-42. doi: 10.5588/ijtld.14.0218.	Chadha, V. K.; Praseeja, P.; Hemanthkumar, N. K.; Shivshankara, B. A.; Sharada, M. A.; Nagendra, N.; Padmesh, R.; Puttaswamy, G.; Magesh, V.; Thomas, B.; Kumar, P.3	**Revision in diagnostic algorithm (Introduction of pre-Xpert screening using chest X-ray in early diagnosis of smear negative pulmonary tuberculosis)**
5	Are registered sputum smear-negative tuberculosis patients in Karnataka, India, diagnosed by national algorithm? Int J Tuberc Lung Dis. 2014 Dec;18(12):1491-5. doi: 10.5588/ijtld.14.0216.	Chadha, V. K.; Praseeja, P.; Hemanthkumar, N. K.; Shivshankara, B. A.; Sharada, M. A.; Nagendra, N.; Padmesh, R.; Puttuswamy, G.; Ahmed, J.; Kumar, P.	
6	Role of pre-Xpert® screening using chest X-ray in early diagnosis of smear-negative pulmonary tuberculosis. Int J Tuberc Lung Dis. 2014 Oct;18(10):1243-4. doi: 10.5588/ijtld.14.0141.	Somashekar, N.; Chadha, V. K.; Praseeja, P.; Sharada, M. A.; Chandrakala, G. R.; Srivastava, R.; Kumar, P.; Japananda, Swami	
7	Impact of awareness drives and community-based active tuberculosis case finding in Odisha, India. Int J Tuberc Lung Dis. 2014 Sep;18(9):1105-7. doi: 10.5588/ijtld.13.0918.	D. Parija,* T. K. Patra,† A. M. V. Kumar,‡ B. K. Swain,† S. Satyanarayana,‡ A. Sreenivas,* V. K. Chadha,§ P. K. Moonan,¶ and J. E. Oeltmann	
8	A descriptive study of tuberculosis case finding in private health care facilities in a South Indian district. Int J Tuberc Lung Dis. 2014 Dec;18(12):1455-8. doi: 10.5588/ijtld.14.0228.	Chadha, V. K.; Praseeja, P.	

Sr No.	Evidence	Authors	Policy/ implementation
Research with Impact on Diagnostic Services			
9	Enhancing TB case detection: experience in offering upfront Xpert MTB/RIF testing to pediatric presumptive TB and DR TB cases for early rapid diagnosis of drug sensitive and drug resistant TB. PLoS One. 2014 Aug 20;9(8):e105346. doi: 10.1371/journal.pone.0105346. eCollection 2014.	Raizada N, Sachdeva KS, Nair SA et al.	**Enhance case finding with upfront Xpert MTB/RIF for diagnosis of TB among PLHIV, pediatric patients**
10	Catching the missing million: experiences in enhancing TB & DR-TB detection by providing upfront Xpert MTB/RIF testing for people living with HIV in India. PLoS One. 2015 Feb 6;10(2):e0116721. doi: 10.1371/journal.pone.0116721. eCollection 2015.	Neeraj Raizada, 1,* Kuldeep Singh Sachdeva, 2 Achuthan Sreenivas, 3 ShubhangiKulsange, 1 RadheyShyam Gupta, 2 Rahul Thakur, 1 Puneet Dewan, 3 Catharina Boehme, 4 and ChinnambeduNainarappanParamsivan	
Research with Impact on Treatment Services			
11	DOTS for TB relapse in India: A Systematic Review. Lung India. 2012. 29(2).	Gulrez shah Azhar	**Decision on transitionfrom intermittent to daily regimen**
12	Predictors of relapse among pulmonary tuberculosis patients treated in a DOTS programme in a DOTS programme in South India. International Journal of Tuberculosis and Lung Diseases 2005;9(5):556-561	A. Thomas, P. G. Gopi, T. Santha, V. Chandrasekaran, R. Subramani, N. Selvakumar, S. I. Eusuff, K. Sadacharam, P. R. Narayanan	
13	Treatment Outcome and 2 ½ years Follow Up Status of New Smear Positive Patients Treated Under National TB Elimination Programme. Indian Journal of Tuberculosis 2004; 51:199-208	Sophia Vijay, Jaganatha P S V. N. Saroja	
14	Assessment of Long-term Outcome among New Smear Positive Pulmonary TB Patients Treated with Intermittent Regimen under National TB Elimination Programme – A Retrospective Cohort Study. Natl J Community Med 2013; 4(2):189-194.	Paresh Dave, Kiran Rade, Bhavesh Modi, Rajesh Solanki, Pradip Patel1, Amar Shah, Bhavin Vadera	
15	Drug resistance in tuberculosis in India. Indian J Med Res. 2004 Oct;120(4):377-86.	Paramasivan CN, Venkataraman P	
16	Surveillance of drug-resistant tuberculosis in the state of Gujarat, India - Int J Tuberc Lung Dis. 13(9):1154–1160	Rajeswari Ramachandran S Nalini V Chandrasekar P V Dave	

Sr No.	Evidence	Authors	Policy/ implementation
Research with Impact on Treatment Services			
17	Efficacy of a 6-month versus 9-month Intermittent Treatment Regimen in HIV-infected Patients with Tuberculosis. A Randomized Clinical Trial. Am J Respir Crit Care Med. 2010 Apr 1;181(7):743-51. doi: 10.1164/rccm.200903-0439OC. Epub 2009 Dec 3.	Soumya Swaminathan, Gopalan Narendran, Perumal Venkatesan, Sheik Iliayas1, Rameshkumar Santhanakrishnan,Pradeep Aravindan Menon, Chandrasekharan Padmapriyadarsini1, Ranjani Ramachandran, PonnurajaChinnaiyan,MohanaraniSuhadev, Raja Sakthive, and Paranji R. Narayanan	**Introduction of Daily regimen to TB with HIV patients**
18	Impact of HIV Infection on the Recurrence of Tuberculosis in South India. J Infect Dis. 2010 Mar;201(5):691-703. doi: 10.1086/650528.	Sujatha Narayanan, Soumya Swaminathan, Philip Supply, Sivakumar Shanmugam, Gopalan Narendran, Lalitha Hari, Ranjani Ramachandran, Camille Locht, Mohideen Shaheed Jawahar, Paranji Raman Narayana	
19	Sputum smear microscopy at two months into continuation-phase: should it be done in all patients with sputum smear-positive tuberculosis? PLoS One. 2012;7(6):e39296. doi: 10.1371/journal.pone.0039296. Epub 2012 Jun 19.	Mohit PadamchandGandhi, Ajay M. V. Kumar, ManojNandkishorToshniwal, Raveendra H. R. Reddy, John E. Oeltmann, Sreenivas Achuthan Nair, Srinath Satyanarayana, Puneet Kumar Dewan, and Shamim Mannan	**Follow up sputum examination at in mid-CP is discontinued**
20	Can Follow-Up Examination of Tuberculosis Patients Be Simplified? A Study in Chhattisgarh, India. PLoS ONE 7(12): e51038. doi:10.1371/journal.pone.0051038	Debashish Kundu, * Ajay M. V. Kumar, Srinath Satyanarayana, Puneet Kumar Dewan,SreenivasAchuthan Nair, KshitijKhaparde, Priyakanta Nayak, Rafael Van den Bergh, Marcel Manzi, Donald A. Enarson, Madhav Rao Deshpande, 4 and SachinChandraker	**Follow up sputum examination – Two samples to one sample**
21	Family DOT for children with TB: a non-inferiority cluster randomized trial under National TB Programme in Gujarat, India	Paresh Vamanrao Dave,#1,‡ Amar Niranjan Shah,#2,‡* Pankaj B. Nimavat,#1,‡ Bhavesh B. Modi,1 Kirit R. Pujara,1 Pradip Patel,1 Keshabhai Mehariya,1 Kiran Vaman Rade,2 Soma Shekar,3 Kuldeep S. Sachdeva,4 John E. Oeltmann,5,‡ and Ajay M. V. Kumar	**Option of having a family member provide DOT for children with TB**
22	Nutritional Status of Adult Patients with Pulmonary Tuberculosis in Rural Central India and Its Association with Mortality. PLoS ONE 8(10): e77979. doi:10.1371/journal.pone.0077979	Anurag Bhargava, Madhuri Chatterjee, Yogesh Jain, Biswaroop,Chatterjee, Anju Kataria, Madhavi Bhargava, Raman Kataria, Ravi D'Souza, Rachna Jain, Andrea Benedetti, Madhukar Pai, Dick Me	**Evidence generated on impact of Nutrition on TB treatment outcome**
Research with impact on TB-HIV Services			
23	HIV Seroprevalence among Tuberculosis Patients in India, 2006–2007. PLoS ONE. 2008; 3(8): e2970.	Neeraj Raizada, Lakbir Singh Chauhan, Ajay Khera, JotnaSokhey, D. Fraser Wares, SuvanandSahu, Rahul Thakur, and Puneet Kumar Dewan,	**HIV testing of all TB patients**

Sr No.	Evidence	Authors	Policy/ implementation
24	Linking HIV-infected TB patients to cotrimoxazole prophylaxis and antiretroviral treatment in India. PLoS One. 2009 Jun 22;4(6):e5999. doi: 10.1371/journal.pone.0005999.	Neeraj Raizada, Lakbir Singh Chauhan, B. Sai Babu, Rahul Thakur, Ajay Khera, D. Fraser Wares, SuvanandSahu, D. Bachani, B. B. Rewari, and Puneet K. Dewan	**CPT and ART to all TB-HIV patients**
25	Diagnosis & treatment of tuberculosis in HIV co-infected patients. Indian J Med Res 134, December 2011, pp 850-865	Padmapriyadarsini C1, Narendran G, Swaminathan S.	**Enhance case finding among PLHIV by screening patients with four symptom complex**
26	HIV testing in people with presumptive tuberculosis: time for implementation. Lancet Respir Med. 2013 Mar;1(1):7-9. doi: 10.1016/S2213-2600(12)70050-4. Epub 2012 Oct 24.	Ajay MV Kumar Devesh Gupta Radhe S Gupta Srinath Satyanarayana Nevin Wilson Rony Zachariah et al	**HIV testing for presumptive TB patients in high HIV prevalent states was implemented**
27	HIV prevalence among persons suspected of tuberculosis: Policy implications for India. J Acquir Immune DeficSyndr. 2012 Apr 1;59(4):e72-6. doi: 10.1097/QAI.0b013e318245c9df.	B Naik, A Kumar, K Lal, S Doddamani	
28	Feasibility and Effectiveness of Provider Initiated HIV Testing and Counseling of TB Suspects in Vizianagaram District, South India. PLoS One. 2012;7(7):e41378. doi: 10.1371/journal.pone.0041378. Epub 2012 Jul 23.	S Achanta, AMV Kumar, SB Nagaraja, J Jaju	
Research with Impact on TB-Diabetes Services			
29	Prevalence of Diabetes and Pre-Diabetes and Associated Risk Factors among Tuberculosis Patients in India, PLOS ONE. 2012 7(7); e41367	V Viswanathan, S Kumpatla, V Aravindalochanan	**Bidirectional screening Diabetics are included in the high risk categories for regular screening Testing of DM among all TB patients**
30	High Diabetes Prevalence among Tuberculosis Cases in Kerala, India, PLOS ONE, 2012. 10 (7); e46502	S Balakrishnan, S Vijayan, S Nair, J Subramoniapillai	
31	Screening of patients with tuberculosis for diabetes mellitus in India. Tropical Medicine & International Health, 18: 636–645. doi: 10.1111/tmi.12084	Kumar A, Jain DC, Gupta D, Satyanarayana S, Kumar AM, Chadha SS, Wilson N, Nagaraja SB, Shah AN, Naik B, Yoele D, Syed IF, Achanta S, Sharma SK, Soneja M, Krishnappa D, Prakash BC, Ravish S, Ranganath TS, Chauhan MC, Dave PV, Narayanaswamy MV, Suryakanth M, Bhist A, Sinha UC, Dayal R	

Sr No.	Evidence	Authors	Policy/ implementation
Research with impact on PMDT services			
32	Surveillance of drug-resistant tuberculosis in the state of Gujarat, India - Int J Tuberc Lung Dis. 13(9):1154–1160.	Ramachandran R1, Nalini S, Chandrasekar V, Dave PV, Sanghvi AS, Wares F, Paramasivan CN, Narayanan PR, Sahu S, Parmar M, Chadha S, Dewan P, Chauhan LS	**Burden of DR-TB in country estimated and PMDT services rolled out**
33	A Multi-Site Validation in India of the Line Probe Assay for the Rapid Diagnosis of Multi-Drug Resistant Tuberculosis Directly from Sputum Specimens	Neeraj Raizada, K. S. Sachdeva, D. S. Chauhan, Bharti Malhotra, Kishore Reddy, P. V. Dave, Yamuna Mundade, Pranav Patel, Ranjani Ramachandran, Ram Das, Rajesh Solanki, Douglas Fraser Wares, SuvanandSahu,	**Roll out of Line Probe Assay for diagnosis of Drug Resistant TB in country**
34	Use of Xpert MTB/RIF in Decentralized Public Health Settings and Its Effect on Pulmonary TB and DR-TB Case Finding in India. PLoS ONE 10(5): e0126065. doi:10.1371/journal.pone.0126065	Kuldeep Singh Sachdeva, Neeraj Raizada, Achuthan Sreenivas, Anna H. van'tHoog, Susan van den Hof, Puneet K. Dewan, Rahul Thakur, R. S. Gupta, ShubhangiKulsange, Bhavin Vadera, AmeetBabre, Christen Gray, Malik Parmar	**Use of Xpert MTB/ RIF testing for decentralized diagnosis of MDR-TB**
35	Is One Sputum Specimen as Good as Two during Follow-Up Cultures for Monitoring Multi Drug Resistant Tuberculosis Patients in India?	Sharath BuruginaNagaraja, Ajay M. V. Kumar, Kuldeep Singh Sachdeva, RanjaniRamachandran,Srinath Satyanarayana, Avi Bansal, Malik Parmar, Sarabjit Chadha, Sreenivas Nair, Ashok Kumar, Sven GudmundHinderaker, Mary Edginton, Puneet K. Dewan	**PMDT guideline revised : One sputum specimen required for follow-up cultures during MDR Patients**
Research with impact on engagement of all care providers			
36	From Where Are Tuberculosis Patients Accessing Treatment in India? Results from a Cross-Sectional Community Based Survey of 30 Districts. PLoS ONE 6(9): e24160. doi:10.1371/journal.pone.0024160	Srinath Satyanarayana, Sreenivas Achutan Nair, Sarabjit Singh Chadha,Roopa Shivashankar, Geetanjali Sharma, Subhash Yadav, Subrat Mohanty, Vishnuvardhan Kamineni, Nevin Charles Wilson, Anthony David Harries, Puneet Kumar Dewan	**Study finding incorporated for revision of National Guideline on Partnership**
37	Source of previous treatment for re-treatment TB cases registered under the National TB control Programme, India, 2010. PLoS One. 2011;6(7):e22061. doi: 10.1371/journal.pone.0022061. Epub 2011 Jul 21.	Kuldeep Singh Sachdeva,Srinath Satyanarayana, Puneet Kumar Dewan, Sreenivas Achuthan Nair,Raveendra Reddy, Debasish Kundu, Sarabjit Singh Chadha,Ajay Kumar Madhugiri Venkatachalaiah, Malik Parmar, Lakhbir Singh Chauhan	
38	Mismanagement of Tuberculosis in India: Causes, Consequences, and the Wayforward. Hypothesis 2011, 9(1): e7.	Anurag Bhargava, Lancelot Pinto, and Madhukar Pai	

12 State-wise and Partnership Option-wise details (FY 2019-20)

State	No. of Collaborations	ACSM at Community	ACSM for Youth	ACSM for PRI	DMC	DMC cum Treatment Centre	Culture & DST Services	DR TB Centre	Corporate Hospital/ clinics involvement	TB Control in Urban Slums	Referral 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	TB Unit Model	Nodal Agency for Capacity Building	Capacity Building for Operational Research	Packing & Transportation of TB Drugs
Andaman & Nicobar Islands	0																						
Andhra Pradesh	14						2	1											5	6			
Arunachal Pradesh	0																						
Assam	11	1				9									1								
Bihar	11				11																		
Chandigarh	0																						
Chhattisgarh	7				5														2				
Dadra & Nagar Haveli	0																						
Delhi	50					4												46					
Daman & Diu	0																						
Goa	1									1													
Gujarat	58	25		1	4	**13**				15													
Haryana	0																						
Himachal Pradesh	25				24										1								
Jammu & Kashmir	3	2			1																		
Jharkhand	10	1	1	1	4										2					1			
Karnataka	26		2	2	7	**3**	4	2							1				4	1			

State	No. of Collaborations	ACSM at Community	ACSM for Youth	ACSM for PRI	DMC	DMC cum Treatment Centre	Culture & DST Services	DR TB Centre	Corporate Hospital/ clinics involvement	TB Control in Urban Slums	Referral 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	TB Unit Model	Nodal Agency for Capacity Building	Capacity Building for Operational Research	Packing & Transportation of TB Drugs
Kerala	58	3		1	17	**29**			2						3			1	2				
Lakshadweep	0																						
Madhya Pradesh	19				4	**2**				2					3				5	3			
Maharashtra	97	5	3	2	25	**23**	6	7		1	1				13	1		6	3	1			
Manipur	2				1	**1**																	
Meghalaya	14	2				**6**	1					1			2			2					
Mizoram	6					**3**									3								
Nagaland	25	7			2						1				7	7	1						
Odisha	18	1			2	**4**				1									10				
Puducherry	1														1								
Punjab	12	1			1														10				
Rajasthan	53				1	**2**									2			48					
Sikkim	1	1																					
Tamil Nadu	21	2			12	**4**	1								2								
Telangana	5				2		1											1		1			
Tripura	1	1																					
Uttar Pradesh	0																						
Uttarakhand	6				4	1									1								
West Bengal	203				11	14	2	1		9					75	25	7		52	7			
Total	**757**	**51**	**6**	**7**	**138**	**118**	**17**	**11**	**2**	**29**	**2**	**1**	**0**	**0**	**117**	**33**	**8**	**104**	**93**	**20**	**0**	**0**	**0**

Team Central TB Division, New Delhi

Central TB Division

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