सत्यमेव जयते

GOVERNMENT OF INDIA

Central TB Divisioin
Directorate General of Health Services
Ministry of Health and Family Wefare, Nirman Bhawan, New Delhi - 110 108

TB INDIA 2011

Revised National TB Control Programme

ANNUAL STATUS REPORT

ON THE MOVE AGAINST TUBERCULOSIS

Transforming the Fight

TOWARDS ELIMINATION

NATIONAL RURAL HEALTH MISSION
राष्ट्रीय ग्रामीण स्वास्थ्य मिशन

आदर्श
पूरा करने की पक्की शपथ

Repositioning DOTS Logo

The focus of DOTS communication during the Stage-I of the communication was to create awareness about DOTS as the sure cure for TB.

DOTS provides a sure cure for tuberculosis and is available free of cost to the patient. But the entire strategy to combat tuberculosis becomes ineffective if the patient does not have the will and patience to complete the course, which spans to 6-8 months. The visual icon of DOTS represents this major communication shift.

The visual icon, when deciphered, presents a graphic of human anatomy divided in two parts – half red and half orange. While the orange part symbolizes the diseased state, the red represents healthy metabolism. On the other level, the icon suggests a transition from the state of tuberculosis to a healthy life, which is the very promise of DOTS.

Rationale for new Logo

Approach to the Creatives is Two-Pronged:

1. Continuity 2 Change

1. Building on Existing Foundation

Through a consistent communication for over last six years, a lot of awareness has been created about tuberculosis – about its cause, symptoms and cure, as well as various misconceptions and stigmas attached to it. The net outcome is that today people are more educated about the disease and less people fear it now than was the case a few decades ago. By generating confidence about DOTS as the sure cure for tuberculosis, the communication has ensured awareness that TB is not a death sentence and is curable.

While the expanse of awareness has widened to new scales and the communication has penetrated to deeper levels, there are still areas of tuberculosis education that remain untouched. TB as a challenge has now assumed a new dimension in the form of MDR-TB (and XDR-TB) and co-infection with HIV.

This needs a new thrust on the on the ongoing communication, building on the DOTS education that has been generated so far. It needs, at the same time, a strategic shift in the message to deal with these new complexities.

2. Change, with Continuity

To meet the emerging challenges regarding tuberculosis and its manifestations in the form of MDR TB, the communication has been taken to a new level. The message 'DOTS: Sure cure for TB' has been given a logical extension by saying;

'DOTS: Pura course, pakka ilaaj'.

The element of 'Hinglish' is to bring some freshness into a communication that has been around for a long time. The visual element in the old logo has been retained for the new one, as the old logo had already successfully established a connect with communities.

This new logo of RNTCP will be in use from World TB Day 2011.

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गुलाम नबी आज़ाद
GHULAM NABI AZAD

सत्यमेव जयते

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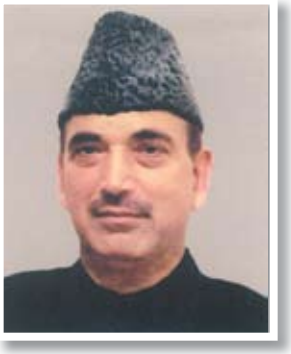
FOREWORD



India has the highest burden of Tuberculosis (TB) in the world, accounting for approximately one fifth of the global incidence – an estimated 2 million cases annually. TB is a curable and preventable disease and yet it causes significant morbidity and mortality, which is a cause of serious concern. The Revised National Tuberculosis Control Programme (RNTCP) has completed 13 years of its implementation with four years of full nation-wide coverage. Since its inception the programme has initiated over 12.6 million patients on treatment thus saving more than 2.2 million lives. RNTCP has definitely made strong strides towards achieving the Millennium Development Goals of relating to the prevalence and mortality due to TB by 2015 as compared to the 1990 levels. In 1997, when the programme was initiated, an estimated 5 lakh deaths occurred due to TB each year in the country, in 2010 estimated deaths stood at 2.8 lakh. Population surveys conducted by Tuberculosis Research Centre, Chennai, in a sub-district population in Tamil Nadu, show a 12% annual decline in prevalence of TB disease after implementation of RNTCP services. Since 2007 the programme is achieving the global targets of 70% case detection and 85% cure rates in new smear positive patients. These are encouraging trends for RNTCP as it steadily works towards achieving the Millennium Development Goals (MDGs) by 2015. The ultimate goal of the programme remains a "TB-free India", and clearly it is a long journey towards this goal.

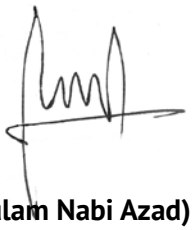
RNTCP is now moving beyond the objectives of 70% case detection rate and 85% cure rate in new smear positive patients, so that all TB patients have access to good quality diagnostic and treatment services. Further, the programme has initiated actions to address the challenges of Multi Drug Resistant-TB (MDR-TB) and TB-HIV co-infection. Though the key focus of the programme is to prevent the emergence of drug resistance by provision of quality DOT services, the management of Multi Drug Resistant-TB (MDR-TB) patients is considered as a 'standard of care' issue and is being undertaken in DOTS-plus services. The programme has established 19 accredited Culture and Drug Sensitivity Test laboratories including 4 National Reference Laboratories, 10 State level Intermediate Reference Laboratories and 5 other sector laboratories for the diagnosis and follow-up of MDR-TB patients. 29 such labs are in the process of being accredited. All such laboratories would also be equipped with some of the latest diagnostic tests such as the Line Probe Assay, liquid culture etc. The DOTS plus services which were initiated in 2007 in Gujarat and Maharashtra have now been scaled up to the states of Andhra Pradesh, Delhi, Haryana, Kerala, West Bengal, Tamil Nadu, Rajasthan, Daman-Diu, Orissa and Jharkhand. All states are expected to initiate DOTS-plus services by 2012. Till date 140 districts with over 287 million population has been covered with DOTS Plus services. Over 15700 MDR-TB suspects have been examined and over 2985 MDR-TB patients initiated on treatment up to Sep '10.

The other major challenge faced by the programme is TB-HIV co-infection. To address this challenge, RNTCP and National AIDS Control Programme (NACP) have jointly drafted 'The National TB-HIV framework', which articulates the policy of TB/HIV collaboration in the country. Coordination mechanism have been established at the National, State and District levels for regular monitoring and joint review of the collaborative activities. As per the frame work, all clients attending HIV care settings are to be screened for TB and all TB patients are to be offered HIV counseling and testing. This leads to early diagnosis of HIV-infected TB patients, who then are linked to RNTCP & NACP for treatment of TB and HIV care and support including ART (anti retroviral therapy) and CPT (co-trimaxozole preventive therapy). The TB/HIV collaborative activities have been hailed as successful by the joint monitoring mission conducted in 2009.

We have come a long way over the last thirteen years and the achievements of RNTCP make us really proud. But I would like to emphasize that the irrational and unsupervised use of first and second line anti-TB drugs for

the treatment of TB patients is threatening the progress made by the programme and needs to be actively discouraged. At the same time it is very essential that quality DOTS services are able to reach each and every TB patient in the country.

On the occasion of publication of the eleventh annual report of RNTCP, I would like to congratulate all those involved in TB control efforts across the country for all their hard work and commitment to achieve the goal of a TB-free India. I, in my personal capacity, and my Ministry are fully committed to support this noble mission of TB control efforts and urge all to continue your efforts with same vigour and zeal to achieve the goal.



(Gulam Nabi Azad)

March 2011

Union Minister for Health & Family Welfare

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MESSAGE

Tuberculosis, a disease that dates thousands of years, is a challenge in India even today, with high morbidity and mortality rates. Despite it being curable, the burden of TB bears heavy on our Nation in terms of lives lost in their prime and life stress on account of inability to work.

Being the managers of the largest TB control programme in the world, it is not accidental that India has the most diverse experience in this field. The Revised National Tuberculosis Control Programme has been innovative and community-responsive in its approach, as can be seen by the nation-wide recognition of "DOTS" representing a sure cure for TB.

In this moment I acknowledge the enormous management challenge the RNTCP faces, in particular with the scale up of services of DOTS Plus and TB-HIV services across the nation, along with the sustenance of an established DOTS programme. The rich technical capacity of the RNTCP and political commitment from the Government of India towards a "**TB-free India**," will ensure that the programme is able to overcome these challenges successfully.

I believe, serving for TB Control is a rare opportunity to serve the economically and socially disadvantaged and bring about a substantive social change in India. And as the programme moves towards its new objective of **Universal Access** for quality diagnosis and treatment of all TB patients, it will contribute to developing a healthy and economically productive population.

The Annual Report on TB Control Activities in India published every year, is a very important historical document for national and global TB control efforts. This report describes not just progress achieved in the previous year but showcases inspiring success stories from the community, and the way forward for the programme. The RNTCP Annual Report "TB India 2011" is in your hands.

I am privileged to be associated with the RNTCP and wish all success to this national programme, as well as the entire team committed to this noble cause.

K. Chandramouli

16/3/11

DR. R. K. SRIVASTAVA
M S (Ortho) D.N.B. (PMR)
DIRECTOR GENERAL

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Vision and Future of RNTCP: Universal Access - "Reaching the Unreached"

TB control efforts in India have achieved notable gains in the past decade. Since achieving national coverage in 2006, the twin objectives of RNTCP (70% case detection rate and 85% treatment success rate) have been achieved consistently for the past 4 years. Since its inception, the programme has initiated over 12.8 million patients on treatment, thus saving more than 2.3 million additional lives in comparison to earlier programme. Over the years, RNTCP has implemented most of the additional components of the WHO Stop TB strategy - including TB/HIV, management of drug resistant TB, engagement of NGO and Private sectors, Infection control and Operational Research. There is evidence on the effectiveness of the RNTCP DOTS programme on significantly decreasing the burden of TB in the community from the collaborative TRC/WHO MDP project area in Tiruvullar district, Tamil Nadu. There is an annual decline of 12.3% in prevalence and of 5.3% in ARTI since the implementation of RNTCP in 1999. National ARTI Survey conducted 2000-03 showed that the Annual Risk of TB Infection (ARTI) in the country has reduced from 1.7 to 1.5. Further impact studies are under progress. Recognizing the opportunity to accelerate TB control further, RNTCP is in the process of developing the next phase of the project for 2012-17.

The vision of the Government of India is for a "TB-free India" until it is no longer a major public health problem. To achieve this vision, the programme has now adopted the new objective of Universal Access for quality diagnosis and treatment for all TB patients in the community. This entails sustaining the achievements of the programme to date, and extending the reach and quality of services to all persons diagnosed with TB. In particular, by end-2015, the programme aims to achieve the following:

- Early detection and treatment of at least 90% of estimated TB cases in the community, including HIV-associated TB;
- Initial screening of all re-treatment smear-positive TB patients for drug-resistant TB and provision of treatment services for MDR-TB patients;
- Offer of HIV Counseling and testing for all TB patients and linking HIV-infected TB patients to HIV care and support;
- Successful treatment of at least 90% of all new TB patients, and at least 85% of all previously-treated TB patients;
- Extend RNTCP services to patients diagnosed and treated in the private sector.

The programme plans to achieve this by deploying new rapid diagnostics, expand services for management of MDR-TB, closely co-ordinate with NACO in achieving the TB-HIV national scale-up, strengthen urban TB control, strengthen PPM initiatives in addition to improving the quality of basic DOTS services and aligning with NRHM supervisory structures.

Dr. R. K. Srivastava

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PREFACE

The Central TB Division has been publishing the Annual Status Report on the Revised National TB Control Programme (RNTCP) and the same is released at the occasion of World TB Day on 24th March every year.

The main purpose of this Annual Status Report on RNTCP is to provide a comprehensive and up-to-date assessment of TB control activities in India and progress made at district, state and country level.

The Eleventh edition of "Annual Status Report on RNTCP 2011" provides an overview on the burden of the disease, programme implementation, state and district wise performance indicators and success during the calendar year 2010. It also provides updated information on recent advances in the programme. The Central TB Division whole heartedly appreciates the dedicated efforts made by the concerned authorities and functionaries of all the 35 States/ UTs as well as various experts towards facilitating the efficient implementation and achieving the objectives of RNTCP in our country.

The Central TB Division is also thankful for the invaluable contributions and collaboration of the multilateral & bilateral agencies and donors like Global Fund, World Health Organization, World Bank, USAID, BMGF, UNION, World Vision, FIND, PATH to name a few of the many other non-governmental agencies and institutions; in sharing their resources and expertise in helping RNTCP which is being recognized as one of the best disease Control programme not only in the country but also globally.

This Annual Status Report is a Reference Material on RNTCP. The information contained in the report will prove useful to policy makers, programme implementers, health administrators, researchers and academicians as well as to the community at large for providing better services for care and control of TB in our country. We at Central TB Division thank our esteemed readers for popularizing the document and solicit their suggestions and valuable comments for improving the future editions.

We are grateful to all the authorities, officers & staff of the Ministry of Health and Family Welfare and DteGHS, Govt. of India for their continued support to RNTCP for its efficient implementation. We also appreciate Dr. L.S. Chauhan, the former Deputy Director General (TB) who committedly steered the RNTCP till early February 2011.

(Dr. Ashok Kumar)
16th March 2011

Abbreviations

ACSM	Advocacy, Communication and Social Mobilisation
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
CBCI	Catholic Bishop's Conference of India
CDC	Centre for Disease Control and Prevention
CDR	Case Detection Rate
CGHS	Central Government Health Scheme
CHAI	Catholic Health Association of India
CHC	Community Health Centre
CII	Confederation of Indian Industries
CMAI	Christian Medical Association of India
CTD	Central TB Division
DALYs	Disability Adjusted Life Years
DDG	Deputy Director General
DFID	Department For International Development
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
DTCS	District TB Control Society
DTO	District Tuberculosis Officer
E	Ethambutol
EPTB	Extra-pulmonary Tuberculosis
EQA	External Quality Assessment
GMSD	Government Medical Store Depot
GoI	Government of India
H	Izoniazid
HBCs	High Burden Countries
HIV	Human Immuno Deficiency Virus
HRD	Human Resource Development
IAC	IEC Advisory Committee
ICB	International Competitive Bidding
ICELT	International Centre for Excellence in Laboratory Training
ICMR	Indian Council of Medical Research
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
ISTC	International Standards for Tuberculosis Care
IUALTD	International Union Against Tuberculosis and Lung Disease

JMM	Joint Monitoring Mission
KAP	Knowledge, Attitude and Practices
LT	Laboratory Technician
MDGs	Millennium Development Goals
MDP	Model DOTS Project
MDR-TB	Multi Drug Resistant TB
MIFA	Management of Information For Action
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
NRHM	National Rural Health Mission
NRL	National Reference Laboratory
NSN	New Smear Negative
NSP	New Smear Positive
NTF	National Task Force
NTI	National Tuberculosis Institute
NTP	National Tuberculosis Programme
NUHM	National Urban Health Mission
OR	Operational Research
OSE	On-Site Evaluation
PHC	Primary Health Centre
PHI	Peripheral Health Institution
PI	Protease Inhibitor
PLHIV	People Living with HIV and AIDS
PP	Private Practitioner
PPM	Public-Private Mix
ProMIS	Procurement Management Information System Software
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
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
TRC	Tuberculosis Research Centre
TU	Tuberculosis Unit
UHC	Urban Health Centre
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

Contents

RNTCP Overview 2010

- India is the highest TB burden country accounting for one fifth (21%) of the global incidence (Global annual incidence estimate is 9.4 million cases out of which it is estimated that 2 million cases are from India). India is 17th among 22 High Burden Countries in terms of TB incidence rate. (Source: WHO global TB report 2010).
- The Revised National TB Control Programme (RNTCP), based on the internationally recommended Directly Observed Treatment Short-course (DOTS) strategy, was launched in 1997 expanded across the country in a phased manner with support from the World Bank and other development partners.
- The objectives of the programme are to
  a. To achieve and maintain cure rate of at least 85% among New Sputum Positive (NSP) patients
  b. To achieve and maintain case detection of at least 70% of the estimated NSP cases in the community
- Current focus of the programme is on ensuring "universal access" to good quality early diagnosis and treatment for all TB patients from which ever provider they choose to seek care.
- The program is covering the entire nation since March 2006 reaching over a billion population (1164 million) in 632 districts/reporting units. In 2008 1.51 million patients were put on treatment and in 2009 1.53 million patients and in 2010 1.52 million patients have already been placed on treatment.
- Since its inception, the Programme has initiated more than 12.8 million patients on treatment, thus saving nearly 2.3 million additional lives.
- Since 2007 programme is achieving a treatment success rate of >85% and has consistently maintained the NSP case detection rate (CDR) of >70%. In 2010, RNTCP has achieved the NSP CDR of 71% and treatment success rate of 87% which is in line with the global targets for TB control.
- Monitoring, supervision and evaluation: All states are currently implementing the 'Supervision and Monitoring strategy' – detailing guidelines, tools and indicators for monitoring the performance from the PHI level to the national level. The quality program implementation is ensured by frequent Internal and external evaluations. The program is focusing on the reduction in the default rates among all new and retreatment cases and is undertaking steps for the same.
- Quality assured sputum smear microscopy facilities are available through more than 13000 sputum microscopy laboratories in the health system across the country. As a result, the suspect's examination has increased substantially form 397 per 100000 population per annum to 642 per 100000 population over the last 10 years, reaching out to the population.
- Quality assured, anti-TB drugs for the full course of treatment is provided to the patients through patient wise boxes. Decentralized treatment is provided through a network of more than

400,000 DOT providers, to provide treatment to the patients as near to their home as possible.

- The utilization of Pediatric patient wise boxes is on the increase ever since its introduction under the programme for the treatment of pediatric patients suffering from TB, since 2006. These boxes are designed according to the dosages used for different weight bands.

- The programme has now revised its categorization of patients from the earlier 3 categories (Cat I, Cat II and Cat III) to 2 categories (New and Previously treated cases) based on the recommendations of experts and endorsement by National Task Force for Medical colleges.

- Sound training materials have been developed for all categories of staff. The training materials are modular in content and a number of them have been recently revised keeping in view the new developments in RNTCP. Modular trainings ensures uniform standard and avoids possible subjectivity and bias of the trainers.

- To improve access to tribal and other marginalized groups the programme has developed a Tribal action plan which is being implemented with the following provisions:

  a. Provision of additional TB Units and DMCs in tribal/difficult areas

  b. Provision of TBHVs (peripheral health worker) for urban areas

  c. Compensation for transportation of patient & attendant in tribal areas

  d. Higher rate of salary to contractual staff posted in tribal areas

  e. Enhanced vehicle maintenance and travel allowance in tribal areas

  f. Studies to document utilization by marginalized groups

- Drug Resistance Surveillance (DRS) of Gujarat and Maharashtra, estimated the prevalence of Multidrug Resistant TB (MDR-TB) to be about 3% in new cases and 12-17% in retreatment cases. These surveys also indicate that the prevalence of MDR-TB is not increasing in the country.

- The programme is progressing in establishing a network of accredited Culture and Drug Susceptibility Testing (DST) Intermediate Reference Laboratories (IRLs) across the country in a phased manner for diagnosis and follow up of MDR TB patients. Currently 23 functional labs in the country, these include 4 NRLs (Tuberculosis Research Centre [TRC], Chennai, National Tuberculosis Institute [NTI], Bangalore, Lala Ram Swarup Institute of Tuberculosis and Respiratory diseases [LRS], Delhi and JALMA Institute, Agra) 12 State level IRLs (Gujarat, Maharashtra, Andhra Pradesh, Kerala, Delhi, West Bengal, Tamil Nadu, Rajasthan, Orissa, Jharkhand, Haryana and Puducherry). 7 other labs (BPRC-Hyderabad, PD Hinduja-Mumbai, CMC-Vellore, SMS-Jaipur, RMRCTe [ICMR]-Jabalpur, JJ Hospital-Mumbai, DFIT Nellore) more labs are in the process of accreditation in a phased manner.

- The RNTCP will be initiating the evaluation of the GeneXpert TB-RIF in line with the global consultation guidelines to gather evidence for use within the country in various settings including non-risk settings. This project has been funded by USAID Country mission with technical assistance from WHO India and will include 18 sub-district level settings.

- LAMP (Loop mediated isothermal amplification) is a manual NAAT that can be performed at microscopy level is currently undergoing validation by FIND in IGMS Wardha.

- The MDR TB services were initiated in 2007 in Gujarat and Maharashtra. Currently, 12 States namely Gujarat, Maharashtra, Andhra Pradesh, New Delhi, Haryana, Kerala, Tamil Nadu, Rajasthan, Daman & Diu, West Bengal, Orissa and Jharkhand are implementing DOTS Plus services. The states of Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Uttarakhand, Karnataka and Puducherry are preparing to initiate services shortly. The rest of the states will be covered in 2011.

- At the end of the 4th quarter of 2010 the MDR TB treatment services have been scaled up to cover ~ 287 million population in 139 districts across 12 states. Since the inception of DOTS Plus services in India, a total of 19178 MDR TB Suspects

have been examined for diagnosis; 5365 MDR TB cases have been confirmed and 3610 MDR TB cases have been initiated on Category IV treatment through 20 DOTS Plus Sites.

- The "National framework of Joint TB/HIV Collaborative activities" was revised in 2009 which establishes uniform activities at ART centres and ICTCs nationwide for intensified TB case finding and reporting, and set the ground for better monitoring and evaluation jointly by the two programmes with a new monitoring framework and revised reporting formats and mechanisms. The vision is to scale up Intensified TB-HIV package in the entire country by 2012.

  The year 2010 saw continued increase in the quantum of referrals between the programmes. In 2010, about 393,110 TB suspects (7.4% of all clients counseled) were referred from ICTCs to RNTCP and of them about 35,547 were diagnosed as having TB and provided TB treatment. In the same period, about 480,752 TB patients (59% of total TB patients registered in states implementing Intensified TB/HIV package) were tested for HIV and of them about 41,476 were diagnosed as HIV-infected and linked to HIV care and support including CPT and ART.

- Public Private Mix (PPM) activities: RNTCP has involved more than 1900 NGOs and more than 10,000 Private Practitioners. 150 Corporate Hospitals and 282 Medical Collages are implementing RNTCP

- The programme is having successful partnership with IMA, CBCI, PATH, The Union and World Vision India.

- Operational research (OR): OR agenda based on the RNTCP priority research areas has been developed and disseminated through www.tbcindia.org. Financial provisions simplified to facilitate and encourage research in TB. National level ARTI surveys, disease prevalence surveys, besides Drug Resistance Surveillance (DRS) and Knowledge Attitude & Practices (KAP) have been undertaken to monitor the impact of RNTCP and progress towards MDG and results are expected by middle of 2011. The program will be shortly under taking large multicentric study on risk factors of relapse.

- Impact of the programme:

  a. TB mortality in the country has reduced from over 42/100,000 population in 1990 to 23/100,000 population in 2010 as per the WHO Global TB Report 2009.

  b. The prevalence of TB in the country has reduced from 568/100,000 population in 1990 to 249/100,000 population by the year 2010 as per the WHO Global TB Report, 2010.

  c. The studies on ARTI and the prevalence of TB have been completed and are currently being analyzed; the results of this study are likely to be available by June 2011.

- ACSM:

  An effective advocacy, communication & social mobilization (ACSM) strategy is in place. As envisaged under the Stop TB Strategy ACSM plays a major role, in order to maintain high visibility of TB and RNTCP amongst policy makers, opinion leaders and community.

  a. Four regional level ACSM capacity building workshops were held by the program, wherein key functionaries in the field (STO, DTO, and implementing NGOs).

  b. The new R K Swamy BBDO has developed new TV and radio spots focusing on adherence to treatment and stigma reduction. New logo has also been designed '***Pura Course Pakka Ilaz***'.

  c. A training module for the private practitioners has been revised by Central TB division to update them on the technical and operational aspects of the programme. A patient information booklet (PIB) has been developed to help patient know about tuberculosis in simple terminology which is provided to private providers.

- Vision and Targets for RNTCP (2012-17):

  The vision of the Government of India is for a "TB-free India" with reduction of the burden of the disease until it is no longer a major public health problem. To achieve this vision, the programme has now adopted the new approach of Universal Access for quality diagnosis and treatment for all TB patients in the community. This entails sustaining the achievements of the programme

to date, and extending the reach and quality of services to all persons diagnosed with TB. In particular, by end-2015, the programme aims to achieve the following targets:

- Early detection and treatment of at least 90% of estimated TB cases in the community, including HIV-associated TB;
- Initial screening of all re-treatment smear-positive TB patients for drug-resistant TB and provision of treatment services for MDR-TB patients;
- Offer of HIV Counseling and testing for all TB patients and linking HIV-infected TB patients to HIV care and support;
- Successful treatment of at least 90% of all new TB patients, and at least 85% of all previously-treated TB patients;
- Extend RNTCP services to patients diagnosed and treated in the private sector.

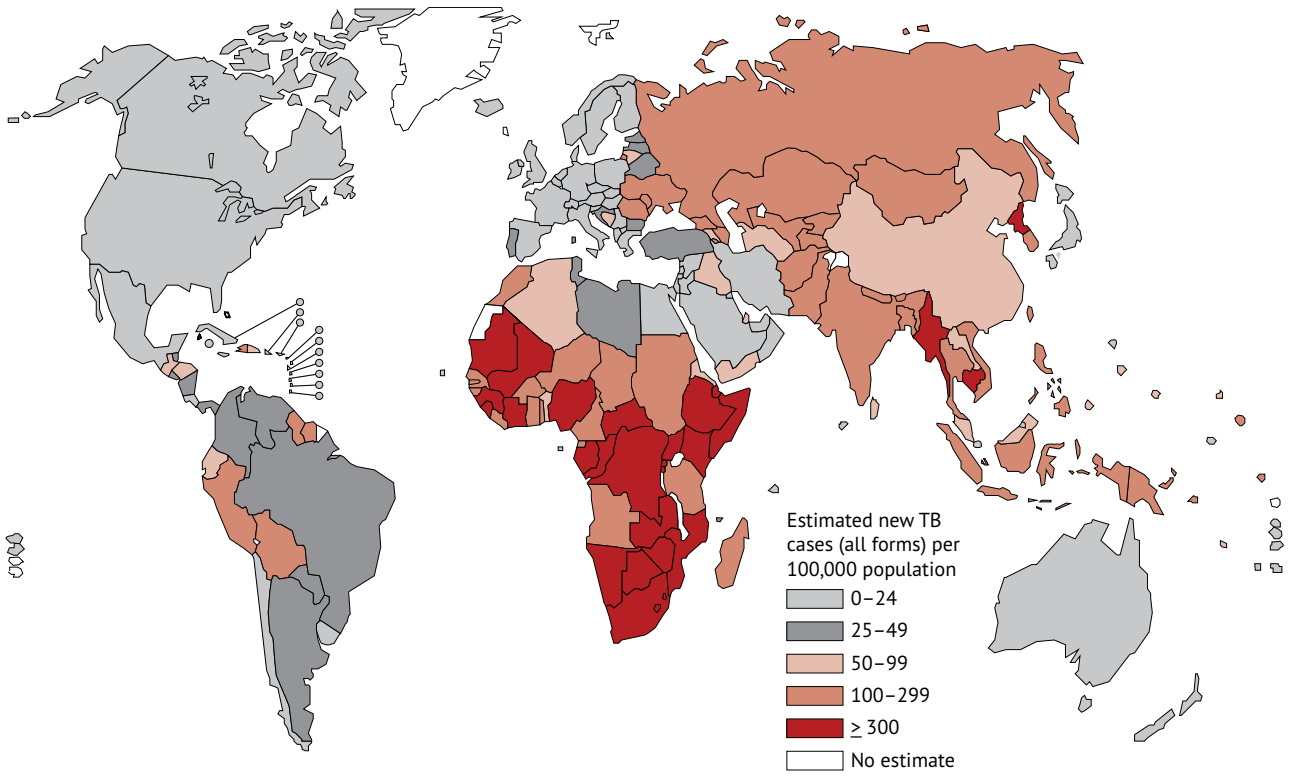
CHAPTER 1

Tuberculosis Burden

Global Scenario

Tuberculosis, or TB, is an infectious bacterial disease caused by Mycobacterium tuberculosis, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory TB disease. In healthy people, infection with Mycobacterium tuberculosis often causes no symptoms, since the person's immune system acts to "wall off" the bacteria. The symptoms of active TB of the lung are coughing, sometimes with sputum or blood, chest pains, weakness, weight loss, fever and night sweats. Tuberculosis is treatable with a course of antibiotics.[1] It is a disease of poverty affecting mostly young adults in their most productive years. The vast majority of TB deaths are in the developing world. Left untreated, each person with active TB disease will infect on average between 10 and 15 people every year and this continues the TB transmission.

Figure 1: Estimated TB incidence rates, by country, 2009



1 Health Topics, WHO-Geneva, http://www.who.int/topics/tuberculosis/en/accessed 10th Jan, 2011.

Overall, one-third of the world's population is currently infected with the TB bacillus. 5-10% of people who are infected with TB bacilli (but who are not infected with HIV) become sick or infectious at some time during their life. People with HIV and TB infection are much more likely to develop TB.[2] The risk for developing TB disease is also higher in persons with diabetes, other chronic debilitating disease leading to immune-compromise, poor living conditions, tobacco smokers etc.

Estimated Global TB Incidence, Prevalence and Mortality, 2009 (Source: WHO-Global TB Report, 2010)

In the year 2009, it is estimated that globally there were 9.4 million incident TB cases and there were 1.3 million TB deaths. The incidence rate, prevalence rate and mortality rate due to TB is highest in the WHO Africa region. However, in terms of the absolute number of incident and prevalence cases, South-East Asia Region has the highest TB burden globally contributing 35% to the global TB incidence.

There are 22 high burden countries which account for 80% of all estimated incident cases worldwide. The five countries that rank first to fifth in terms of number of incident cases in 2009 are India (2 million), China (1.3 million), South Africa (0.49 million), Nigeria (0.46 million) and Indonesia (0.43 million). India and China alone account for an estimated 35% of TB cases worldwide. There were an estimated 14 million prevalent cases of TB in 2009 equivalent to 164 cases per 100,000 populations. In terms of the percentage of total deaths, TB is ranked 7th in the world accounting for 2.5 percent of all deaths as per the WHO global burden of disease estimates for the year, 2004.

TB-HIV co-infection and drug resistant tuberculosis aggravate the TB situation globally. TB is a leading cause of death in HIV infected persons and HIV infection is the most potent risk factor for developing active TB disease from a latent TB infection. Of the 9.4 million incident cases in 2009, an estimated 1.1 million (12%) were HIV-positive. Of these HIV-positive cases, 78% were in the African region and 13% were in the South-East Asia region.

Globally, the emergence of Multi drug resistant TB (MDR-TB, defined as the disease caused by TB bacilli resistant to at least isoniazid and rifampicin, the two most powerful anti-TB drugs) and Extensively Drug resistant TB (XDR-TB, defined as MDR-TB that is also resistant to fluoroquinolones and injectable classes of second-line drugs) is a major threat to TB Control. Resistance to anti-TB drugs in populations is a phenomenon that occurs primarily due to poorly managed TB care such as inconsistent or partial treatment, when patients do not take all their medicines regularly for the required period because they start to feel better, because doctors and health workers prescribe the wrong treatment regimens, or because the drug supply is unreliable or erratic. There were an estimated 440,000 cases of multi-drug resistant TB (MDR-TB) in 2008 (range, 390,000–510,000). The 27 countries (15 in the European Region) that

TABLE 1: Estimated global epidemiological burden of TB, 2009

	Incidence[a]			Prevalence[b]		Mortality (excl. HIV)	
WHO region	No. in thousands	% of global total	Rate per 100,000 pop[c]	No. in thousands	Rate per 100,000 pop[c]	No. in thousands	Rate per 100,000 pop[c]
Africa	2,800	30%	340	3,900	450	430	50
The Americas	270	2.9%	29	350	37	20	2.1
Eastern Mediterranean	660	7.1%	110	1,000	180	99	18
Europe	420	4.5%	47	560	63	62	7
South-East Asia	3,300	35%	180	4,900	280	480	27
Western Pacific	1,900	21%	110	2,900	160	240	13
Global total	**9,400**	**100%**	**140**	**14,000**	**164**	**1,300**	**19**

a Incidence is the number of new cases arising during a defined period.
b Prevalence is the number of cases (new and previously occurring) that exists at a given point in time.
c Pop indicates population.

2 Tuberculosis Fact Sheet. Source: http://www.who.int/mediacentre/factsheets/fs104/en/index.html, accessed 10th Jan, 2011.

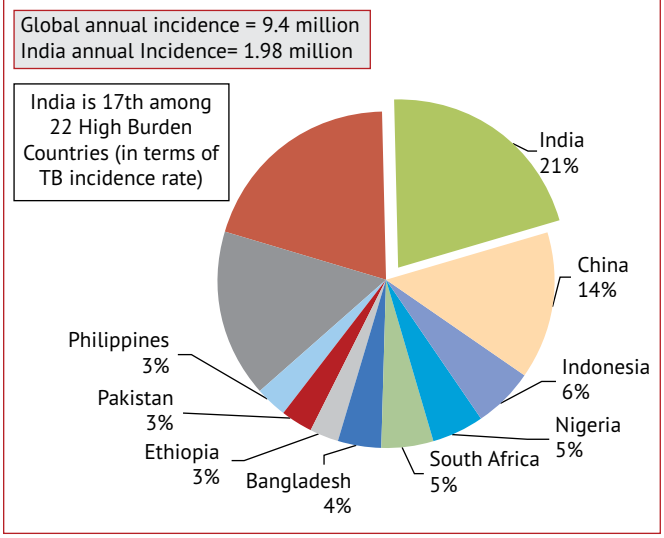
account for 85% of all such cases have been termed the 27 high MDR-TB burden countries. The four countries that had the largest number of estimated cases of MDR-TB in absolute terms in 2008 were China (100,000; range, 79,000–120,000), India (99 000; range, 79,000–120,000), the Russian Federation (38,000; range, 30,000–45,000) and South Africa (13,000; range 10,000–16,000). By July 2010, 58 countries and territories had reported at least one case of extensively drug-resistant TB (XDR-TB).

TB Burden in India

Though India is the second-most populous country in the world, India has more new TB cases annually than any other country. In 2009, out of the estimated global annual incidence of 9.4 million TB cases, 2 million were estimated to have occurred in India, thus contributing to a fifth of the global burden of TB. It is estimated that about 40% of Indian population is infected with TB bacillus. The incidence of TB in India is estimated based on findings of the nationwide annual risk of tuberculosis infection (ARTI) study conducted in 2000-2003. The national ARTI being 1.5%, the incidence of new smear positive TB cases in the country is estimated as 75 new smear positive cases per 100,000 population. The prevalence of TB has been estimated at 3.8 million bacillary cases for the year 2000, by an expert group of Govt. of India. However the recent estimate by WHO gives a prevalence of 3 million.

On a national scale, the high burden of TB in India is illustrated by the estimate that TB accounts for 17.6% of deaths from communicable disease and for 3.5% of all causes of mortality (WHO, 2004). More than 80% of the burden of tuberculosis is due to premature death, as measured in terms of disability-adjusted life years (DALYs) lost. WHO estimated TB mortality in India as 280,000 (23/100,000 population) in 2009. With RNTCP implementation, death due to TB has come down to half in the country. It was estimated that the TB mortality was over 5 million annually at the beginning of the revised national TB control programme (RNTCP). Data from specific surveys, however, suggest that case fatality rates prior to RNTCP were generally greater than 25%. In RNTCP era, case fatality has remained less than 5% for new cases registered under the programme.

Figure 2: India is the largest TB burden country accounting for one fifth of the global incidence



India's Progress towards Millennium Development Goals (MDGs) with respect to reduction in prevalence and mortality rate

The indicator 23 of the MDGs mentions that between 1990 and 2015 to halve prevalence of TB disease and deaths due to TB.

TABLE 2: Estimated burden of tuberculosis in India

	Number (Millions) (95% CI)	Rate Per 100,000 Persons (95% CI)
Incidence		
All cases (2009 WHO estimate)	2.0 (1.6-2.4)	168
Period Prevalence (2000 GoI estimate)		
AFB positive	1.7 (1.3–2.1)	165 (126–204)†
Bacillary*	3.8 (2.8–4.7)	369 (272–457)†
Prevalence, all cases (2009 WHO estimate)	3.0 (1.3-5.0)	249

* Defined as a person with at least one AFB smear positive by sputum microscopy, or at least one sputum culture positive for *M. tuberculosis*.

† Prevalence rate calculated from estimated number of persons with disease in 2000, divided by 2000 population estimate.

TB-related Millennium Development Goal

Goal 6 – to combat HIV/AIDS, malaria and other diseases.

Target 8 – to have halted by 2015 and begun to reverse the incidence of malaria and other major diseases, including tuberculosis.

Indicators for Target 8 to be used to evaluate the implementation and impact of TB control (Derived from Stop TB Strategy):

Indicator 23: Between 1990 and 2015, to halve the prevalence and death rates associated with tuberculosis; and

Indicator 24: by 2005, to detect 70% of new smear positive TB cases arising annually, and to successfully treat 85% of these cases.

With respect to the progress towards indicator 23, as per the recent WHO estimates, in the year 1990, the prevalence rate of TB in India was 338 per 100,000 populations (best estimates) and the mortality due to TB was 42 per 100,000 populations. In comparison, in the year 2009, the prevalence of TB in India was estimated to be 249 per 100,000 populations, and the mortality due to TB is 23 per 100,000 populations [WHO Global TB Report, 2010]. These estimate are derived based on mathematical and have its own inherent limitations. Government of India has undertaken nationally representative Annual Risk of TB Infection survey and TB Prevalence surveys in 7 sites of the country. The results of these surveys will be available during the mid 2011 and are expected to provide more realistic population based estimates.

As far as the progress towards indicator 24 is concerned, the country has achieved the targets on case detection and treatment outcomes, in the year 2007 onwards (after whole country coverage).

Impact of Other Determinants of TB Burden

WHO has suggested that the expected effect of improved diagnostic and treatment services may be negated by an increase in the prevalence of risk factors for the progression of latent TB to active disease in segments of the population. A population level increase in vulnerability may tend to increase incidence despite reductions in transmission achieved under the Stop TB strategy. Broadly described, these risk factors may be biomedical (such as HIV infection, diabetes, tobacco, malnutrition, silicosis, malignancy), environmental (indoor air pollution, ventilation) or socioeconomic (crowding, urbanization, migration, poverty).

The impact of these other determinants on TB epidemiology in India has yet to be fully understood. India is clearly experiencing an epidemic of diabetes, with an estimated 20-30 million diabetics in 2000, and an estimated 80 million diabetics by 2030. Diabetes has been shown to be an independent risk factor for tuberculosis in community based study from South India and multiple studies globally. Modeling has suggested that diabetes accounts for 14.8% of all tuberculosis and 20.8% of smear-positive TB. While the HIV epidemic in India appears to have peaked, the total number of persons living with HIV/AIDS remains high, and with time the level of immune deficiency and TB vulnerability may increase. Malnutrition remains highly prevalent in India, and will remain a significant factor for years to come. India is urbanizing at a fantastic pace, bringing larger numbers of persons into urban areas with documented higher rates of TB transmission. Tobacco use is highly prevalent in India, and has been suggested to be a potent contributor to TB-related mortality. The confluence of these and other risk factors could well influence the TB epidemiology in India.

TB/HIV Co-infection

The tuberculosis situation in the country is further affected by the emergence and spread of HIV among the population. India, the third highest HIV burden country, had an estimated 2.39 million (translating to a prevalence of 0.31%) people living with HIV/AIDS (PLHAs), about 1.2 lakh new HIV infections and 1.72 lakh deaths due to AIDS related causes in 2009. The worst affected states are Andhra Pradesh, Karnataka, Manipur, Maharashtra, Nagaland and Tamil Nadu. These six states account for about 57% of PLHA in India and are classified as High Prevalence States. Another three states namely Gujarat, Goa and Puducherry have been classified as Moderate HIV prevalence states.

This is the first time HIV incidence estimates have been calculated and the 6 high prevalence states accounts for only 39% of these infections indicating new pockets of transmission in low prevalence states, emphasizing the enormous challenge ahead. The HIV epidemic pattern in the country shows great variance but 2009 estimates indicate an overall decline in HIV prevalence and incidence.

Tuberculosis is one of the earliest opportunistic diseases to develop amongst persons infected with HIV. HIV infection is the most powerful risk factor for the progression of TB infection to TB disease. An HIV positive person has many times higher risk of developing TB disease in those infected with TB bacilli, as compared to an HIV negative person.

Although the TB epidemic in the country is predominantly driven by the non-HIV positive TB cases, TB mortality could well be influenced by the TB/HIV co-infection at least in certain districts in the country with high prevalence of HIV in TB patients. It has been estimated that in 2007, about 4.85% of the incident TB cases in India were HIV-positive.

MDR and XDR-TB

The emergence drug resistant TB, and particularly MDR-TB, has become a significant public health problem in a number of countries and an obstacle to effective TB control. A large scale population based survey in the state of Gujarat and Maharashtra has indicated multi drug resistance levels of 3% among new TB cases and 12-17% among previously treated TB patients. Though the rate of MDR-TB is relatively low in India, this translates into a large absolute number of cases, with an estimated annual incidence of 99,000 cases of MDR-TB in the country.

XDR-TB has been reported in India by isolated studies with non-representative and highly selected clinical samples. The magnitude of the problem remains to be determined due to the absence of laboratories capable of conducting quality assured second line DST. However, what is frightening is the potential threat of XDR-TB in India with unregulated availability and injudicious use of the second line drugs along with non-existence of systems to ensure standardized regimens and treatment adherence for MDR-TB outside the national programme. The problem of MDR and XDR-TB in India and across the world raises the possibility that the current TB epidemic of mostly drug susceptible TB will be replaced with a form of TB with severely restricted treatment options. If this happens it would jeopardize the progress made in recent years to control TB globally as well as in India and would also put at risk the plans to progress towards a world where TB ceases to be a public health problem.

Socio-economic Impact

Besides the disease burden, TB also causes an enormous socio-economic burden to India. TB primarily affects people in their most productive years of life with important socio-economic consequences for the household and the disease is even more common among the poorest and marginalized sections of the community. Almost 70% of TB patients are aged between the ages of 15 and 54 years of age. While two thirds of the cases are male, TB takes a disproportionately larger toll among young females, with more than 50% of female cases occurring before 34 years of age. The direct and indirect cost of TB to India amounts to an estimated $23.7 billion annually*. Studies suggest that on an average 3 to 4 months of work time is lost as result of TB, resulting in an average lost potential earning of 20-30% of the annual household income. This leads to increased debt burden, particularly for the poor and marginalized sections of the population. The vast majority (more than 90%) of the economic burden of TB in India is caused by the loss of life rather than by morbidity. This is due to the fact that TB mortality incurs a greater loss in the number of life-years per event than does TB morbidity - despite the fact that there are many more prevalent cases than deaths. A study on the economic impact of scaling up of RNTCP

in India in 2008 shows that on average each TB case incurs an economic burden of around US$ 12,235 and a health burden of around 4.1 DALYs. Similarly, a death from TB in India incurs an average burden of around US$ 67,305 and around 21.3 DALYs.

A total of 6.3 million patients have been treated under the RNTCP from 1997-2006. This has led to a total health benefit of 29.2 million DALYs gained including a total of 1.3 million deaths averted. In 2006, the health burden of TB in India would have risen to around 14.4 million DALYs or have been 1.8 times higher in the absence of the programme. The RNTCP has also led to a gain of US$ 88.1 billion in economic wellbeing over the scale-up period. In 2006, the gain in economic wellbeing is estimated at US$ 19.7 billion per annum - equivalent on a population basis to US$ 17.1 per capita. In terms of TB patients, each case treated under DOTS in India results in an average gain to patients of 4.6 DALYs and US$ 13,935 in economic wellbeing.

CHAPTER 2

Universal Access to TB Care "Reaching the Unreached"

"No one ever said this would be an easy fight. We are now at the start of a road that should take us towards the achievable goal of TB elimination"

Mario Raviglione, Director, WHO Stop TB Department

WHO Stop TB Strategy and Stop TB Plan

In 2001, the Stop TB Partnership launched the Global Plan to Stop TB 2001- 2005.

World Health Organization (WHO) in 2005 developed the Stop TB Strategy as an evidence-based approach to reducing the burden of TB. Subsequently in 2006, a more advanced plan for transforming these principles into action was issued: the Global Plan to Stop TB 2006-2015. Since then the Plan has garnered the world's confidence.

October 2010 the plan was updated with a focus on the final five years (2011-2015). Major reasons for an update were, a need to take into account actual progress made since 2006, to include the policy updates in ART and MDR-TB component, updates to estimates of epidemiological burden and trends, the importance of giving a higher profile to laboratory strengthening and the need to address the full spectrum of research (from fundamental to operational research).

The updated plan sets out what needs to be done to achieve the 2015 targets set within the context of the MDGs. To achieve these targets, the document depicts how to transform TB control in the years up to 2015 – through scaling up existing interventions for the diagnosis and treatment of TB and introducing new technologies, notably new diagnostic tests. Looking beyond the targets set for 2015, the Research and Development component of the plan shows what needs to be done to develop the new diagnostics, drugs and vaccines that are required to revolutionize the prevention, diagnosis and treatment of TB, as the foundation for the elimination of tuberculosis in the coming decades.

Governments around the world have voiced their commitment to its key principles of achieving universal access to high-quality TB care, reducing human suffering, reaching out to vulnerable populations, protecting human rights and supporting the development and use of new tools.

Addressing Stop TB Strategy Under RNTCP

RNTCP in Phase I (1997-2006) focused on high quality DOTS expansion in the country addressing the five primary components of the DOTS Strategy. RNTCP Phase II (2006-11) is in line with the new WHO Stop TB Strategy for TB control and covers all the activities proposed under the strategy. The RNTCP is collaborating with the National AIDS Control Programme (NACP) to address challenges of TB-HIV co-infection. RNTCP has developed guidelines for management of MDR-TB and has rolled out DOTS Plus services. By strengthening diagnostic and drug delivery systems, and by providing additional contractual staff, RNTCP continues to strengthen the general health system in the country. 'Practical Approach to Lung health' (PAL), a defined activity to strengthen health systems, is being piloted in the state of Kerala. In the area of involvement of all care providers, public as well as private, RNTCP has been a global leader. An effective advocacy, communication and social mobilisation (ACSM) strategy is in place, in order to maintain high visibility of TB and RNTCP amongst policy makers, opinion leaders and the community to sustain long term political and administrative commitment and greater community involvement. The international Union Against TB and Lung Disease (The Union) and World Vision under Round 9 TB Project supported by Global Fund for AIDS, TB and Malaria (GFATM) have launched intensified ACSM activities in 374 identified districts of the country.

With the active support of the Premier institutes in TB research like TB Research Centre, Chennai, National TB Institute, Bangalore and Lala Ram Swarup Institute of TB and Respiratory Diseases, Delhi, both fundamental and operational researches are taken up, which is again coherent with the Global Stop TB Plan 2011-2015.

RNTCP promotes operational researches by Post graduate students and faculty members of medical college through an inbuilt mechanism.

Political and Administrative Commitment

TB control program is one among The Government of India's top priority programs. This commitment comes as uninterrupted financial commitments, administrative support and human resource support. One of major initiative from the GoI in 2010 was the frequent review of the RNTCP by the Honorable Union Minister of Health and Family Welfare and Joint Secretary. These frequent reviews helped in ensuring sustained political commitment from the Individual States. More over this political commitment channeled resources in the states to sustain the program success.

Hon'ble Minister of Health and Family Welfare Govt of India addressing a review meeting of State Health Minsters and Secretaries being reviewed by Union Health Minister at Hyderabad

Hon'ble Minister of Health and Family Welfare Govt. of India while addressing a review meeting of State health secretaries, Mission Directors of NRHM and Directors of health services stated that his ministry has placed TB control at high priority and exhorted all states to give special attention to the TB control programme.

Good Quality Diagnosis Through Sputum Microscopy

Sputum microscopy continues to be the primary tool for detection of infectious. However in line with

the stop TB strategy the programme is exploring all possible avenues with newer and innovative technologies for early detection of TB including use of LED microscopes.

Uninterrupted Supply of Good Quality Drugs

RNTCP uses intermittent short-course chemotherapy (SCC) regimens to facilitate the direct observation of treatment. RNTCP ensures that there is no interruption in treatment due to shortage of drugs, once a person is diagnosed with TB. Sufficient anti-TB drugs in patient-wise boxes are made available at all the appropriate levels (Peripheral Health Institution/TB unit/District/State/National). The uninterrupted supply of drugs to each patient is made possible through the "patient-wise box." Patient-wise drug boxes (both adult and paediatric) are an innovation of RNTCP wherein a box of medications for the entire duration of the treatment is earmarked for every patient registered. This ensures the availability of the full course of medication to the patient the moment s/he is registered for treatment.

Patient-wise drug boxes have helped to improve patient care, adherence, drug supply and drug stock management. Under RNTCP, all sub-centres, primary health centres, community health centres, and other health facilities provide DOTS services to patients. Since TB patients may also seek treatment from private physicians, the government has taken initiatives to provide DOTS services through the private sector and through community volunteers.

Directly Observed Treatment

Directly observed treatment (DOT) is one of the key elements of the DOTS strategy. In DOT, an observer (health worker or trained community volunteer who is not a family member) watches and supports the patient in taking drugs. The DOT provider ensures that the patient takes the right drugs, in the right doses, at the right intervals, for the right duration.

DOT thus facilitate release free cure for TB and also helps to reduce development of drug resistance, because direct observation ensures adherence.

Systematic Monitoring and Accountability

RNTCP has a systematic monitoring mechanism which accounts for/tracks the outcome of every patient put on treatment. There is a standardized recording and reporting structure in place.The cure rate and other key indicators are monitored regularly at every level of the health system and regular supervision ensures quality of the programme. RNTCP shifts the responsibility for cure from the patient to the health system.

CHAPTER 3

RNTCP: Implementation Status and Activities in 2010

TB control efforts in India over the past decade have achieved notable gains. Whole country coverage under RNTCP was achieved in 2006. Since 2007, the bench marks of 70% new sputum smear positive case detection and 85% treatment success rate of such patients have been achieved. The program already has a strategic vision for TB control to achieve the TB-related UN Millennium Development Goals. Going by the trend in reduction in prevalence and mortality the program expect to achieve Millennium Development Goals by 2050. High quality implementation of RNTCP resulted from a sustained commitment from Government of India. However the programme is already responding to the emerging challenges like management of drug resistant TB, TB-HIV co-infection, migration, smoking and co-morbidities like Diabetes Mellitus. The program has recognized that all persons affected by TB deserve quality diagnosis and treatment for effective public health and equitable healthcare. Now the program is gradually shifting focus to ensure adequate TB care for all population groups. This would be achieved by increasing the access of TB services to marginalized groups in hard-to-reach areas with intensive monitoring, supervision and evaluation. One of the major policy decision taken by RNTCP in the year 2010 is to change the focus of the NSP case detection objective of at least 70% to the concept of universal access including good quality care for TB patients. Most of the states and districts have prepared universal access action plan in line with the universal access document.

Recognizing the opportunity to accelerate TB control further, RNTCP is in the process of developing the next phase of the project for 2012–2017, which seeks to achieve universal access for quality TB diagnosis and treatment for all TB patients in the community.

RNTCP Activities 2010

The Revised National Tuberculosis Control Programme (RNTCP) has incorporated all elements of the Stop TB strategy and already covered the entire country since March 2006. Since its inception, the Programme has initiated more than 12.8 million patients on treatment, thus saving nearly 2.3 million additional lives.

RNTCP review by JS (PH) Dr Rajendra S Shukla with State Health Secretaries and Director of Health Services at Bhopal

Pursue Quality DOTS Expansion and Enhancement

The TB control strategies started in India, with the establishment of the first open-air sanatorium during the year 1906 at Tilonia near Ajmer. The Tuberculosis Association of India was established in February 1939.

As a preventive measure, Bacillus Calmette Guerin (BCG) BCG was extensively used in most of the European countries in 1920s. BCG vaccination was introduced in India by 1948. The National Sample Survey (1955 to 1958) was an eye opener, which revealed that the problem of TB was uniformly distributed, both in the urban and rural population of the country. At that time, the standard treatment for TB in India, and throughout the world, called for isolation of TB patients in sanatoria. Thereafter, in 1962 a National TB Control Program was initiated under which District TB centers were established. The NTP created an extensive infrastructure for TB control, with a network of 446 District TB Centres and 330 TB Clinics. The idea was to set up a clinic where patients could come and collect their drugs.

In 1992, the Government of India, together with the World Health Organization (WHO) and the Swedish International Development Agency (SIDA), reviewed the NTP and concluded that the Programme suffered from:

- Inadequate budget and insufficient managerial capacity
- Shortage of drugs
- Less than 40% of patients completed the treatment
- Emphasis on x-ray diagnosis resulting in inaccurate diagnosis
- Poor quality sputum microscopy
- Multiplicity of treatment regimens.

The Government of India considering the recommendations of the Review Committee, evolved a revised strategy (Revised National TB Control Programme - RNTCP) with the goal of reducing TB burden to a level where it ceases to be a major public health problem. This strategy was based on the Directly Observed Treatment – Short Course (DOTS) recommended by WHO and adopted in over 200 countries currently. The RNTCP built upon the infrastructure already established by the NTP, whilst incorporating the five core elements of the DOTS strategy viz.

(i) government commitment to sustainable TB control; (ii) diagnosis through quality assured sputum-smear microscopy mainly among symptomatic patients reporting to health services; (iii) standardized short-course chemotherapy provided under proper case management conditions, including direct observation of treatment (DOT); (iv) a functioning drug supply system ensuring a regular, uninterrupted supply of quality assured essential anti-tuberculosis drugs; and (v) a recording and reporting system allowing assessment of treatment results from all patients registered.

Large scale expansion of the revised strategy was undertaken after the successful demonstration of its technical and operational feasibility from 1993–97 in the pilot sites covering a population of 2.35 to 20 million. Successful negotiation of a soft loan of USD 142 million with the World Bank, which was effective from 8th May 1997, supported implementation of RNTCP in 102 districts covering a population of 271 million and strengthening 203 SCC districts with a population of 447 million in a phased manner. In early 2002, the World Bank assisted TB control project was extended for another 2 years, within the same budgetary provision, to cover a population of 700 million. A further one year no-cost extension of the project was approved to cover the period from October 2004 to September 2005 to enable coverage of the whole country as per schedule. In addition, the RNTCP was also supported by the Danish International Development Assistance (DANIDA), the UK Department for International Development (DFID), the Global TB Drug Facility (GDF), the Global Fund for AIDS, Tuberculosis and Malaria (GFATM), and the United States Agency for International Development (USAID) to expand DOTS coverage. Full national wide coverage was achieved in March 2006, and this rapid large scale expansion was hailed by the Joint Monitoring Mission (JMM) 2006 as the fastest expanding DOTS programme

Joint Donour Mission visit to Kerala

in the world. The latest JMM 2009 commented *"The RNTCP is a leader in terms of its organization, its adoption/adaption of policy and periodic revision of strategy, its scale-up capacity, monitoring and evaluation systems, and results. It is committed to increase the epidemiological and social impact of its actions within a broader health and development agenda"*.

Consolidation and scale up of RNTCP: The first phase of the project saw the establishment of over 600 state and district TB control societies to facilitate decentralized programme planning and implementation. The programme has achieved all the proposed goals in terms of expansion of DOTS services, case finding and treatment success during the Xth Five Year Plan Period (2002–2007).

The RNTCP Phase II of the World Bank project has been approved by the CCEA for the period Oct 2006 to Sep 2011 for a total outlay of USD 256.9 million which includes credit from World Bank of USD 170 million and commodity assistance of anti-TB drugs from DFID through WHO for USD 62.5 million, and the balance by GoI.

TABLE 1: Year wise allocation for the 11th Five Year plan

Sl No.	Year	Actual Allocation as per Planning Commission (Rs. Crore)
1	2007–08	267.00
2	2008–09	275.00
3	2009–10	285.00
4	2010–11	300.00
5	2011–12	320.00
Total		**1447.00**

New financial norms in respect of certain expenditure heads have been approved by Cabinet Committee on Economic Affairs which have been implemented with effect from April 01, 2009.

However, to achieve the desired epidemiological impact where TB ceases to be a major public health

National Rural Health Mission Review and Thematic Workshop Chaired by Sujatha Roa

problem, it was essential to support the programme for the next 15-20 years.[1] In view of the above fact, the government had expressed its due commitment to support the programme as a 100% centrally sponsored programme for the coming 15-20 years, and sustainability of all activities of the programme has been ensured through continued financing of the phase II of RNTCP till Sept 2011, which has been approved by the 'Cabinet Committee on Economic Affairs'. This will consolidate, maintain and further improve the achievements of the first phase and enable India's progress towards achieving the TB-related Millennium Development Goal (MDG) targets.

World Bank Support

World Bank financing has supported RNTCP since it started expanding the coverage of DOTS over a decade ago, with a first credit of US$ 142 million in between 1997-2005 and a second credit of US$ 170 million in between 2006-12. The closing date of the second credit is March 2012 and an extension of three years (until March 2015) is proposed along with additional financing of US$ 396 million. The additional World Bank funding would also support the program in meeting its ambitious new Universal Access goals, adequately addressing the challenge of drug-resistant TB, and introducing and scaling-up innovations and new approaches. The World Bank financing would therefore focus on new challenges in areas including:

- health system improvements necessary for diagnosis and treatment of MDR-TB;
- public-private partnerships and contracting-out of services (including the necessary accreditation, contract management and quality-control systems);
- introduction and scale-up of new diagnostics;
- strengthening state-level capacity and integration with the primary health care system;
- improving capacity and results in lower-performing states and districts;
- performance-based financing and incentive systems; and
- impact evaluation.

1 The Government of India provides 100% grants-in-aid to the implementing agencies i.e. States/UTs besides free drugs. The programme is implemented through the general health infrastructure of the states. The States also provides some manpower resources.

Global Fund Support

The Global Fund has supported (by grants) DOTS expansion in India under different rounds. DOTS expansion in the 3 States of Chhattisgarh, Jharkhand, and Uttarakhand (56 million populations) was supported by grants for USD 8.78 million under Round 1 of GFATM from April 2003-September 2006. In addition, the Round 2 of GFATM supported DOTS expansion in 56 districts of Bihar and Uttar Pradesh with a population of 110 million for USD 29.10 million (April 2004 to March 2009). Round 4 of GFATM is supporting strengthening of RNTCP implementation in the states of Andhra Pradesh and Orissa w.e.f November 05 and January 2006 respectively for USD 26.63 million till March 2010. The programme has successfully obtained GFATM Rd 6 grant proposal for USD 24.3 million to continue support for strengthening RNTCP services in the 3 Round 1 project states (Chhattisgarh, Jharkhand, and Uttarakhand). All the GFATM grants involved innovative PPM projects to seek and strengthen involvement of NGO, private and corporate providers. The Rd 6 grant proposal has a substantial PPM component in the form of Indian Medical Association (IMA) sub-project for USD 3.87 million, with an objective to sensitize and enroll private practitioners in 167 districts across 6 states (Andhra Pradesh, Chandigarh, Haryana, Maharashtra, Punjab and Uttar Pradesh).

In order to consolidate and scale up the programme activities under Round 2 (which is ending in March 2009) and ensure alignment with all other existing GFATM TB grants (Round 4 and Round 6), the current RCC TB proposal against the expiring Round 2 grant envisages to consolidate all GFATM grants.

Under global fund round 9 one of the main agenda is to engage civil society partners to achieve the universal access.

TABLE 2: Year-wise allocation of global fund

Round	Period	Funds (in m USD)
1	2003 06	8.6
2	2004 - 09	29
4	2005 - 10	25.8
6	2006 - 11	26.24
RCC	2009 - 15	216
9	2010 - 15	199.54

Planning 12th Five Year Plan (2012-2017)

Universal Access: Reaching the Unreached – the New Vision of RNTCP

Over the years, RNTCP has implemented most of the additional components of the WHO Stop TB strategy – including TB/HIV, management of drug resistant TB, engagement of NGO and Private sectors, Infection control and Operational Research. Since its inception, the programme has initiated over 12 million patients on treatment, thus saving more than 2.2 million additional lives in comparison to earlier programme. Since achieving national coverage in 2006, the twin objectives of RNTCP (70% case detection rate and 85% treatment success rate) have been achieved consistently for the past 4 years. There is evidence on the effectiveness of the RNTCP DOTS programme on significantly decreasing the burden of TB in the community from the collaborative TRC/WHO MDP (Model DOTS Project) project area in Tiruvullar district, Tamil Nadu. There is an annual decline of 12.3% in prevalence and of 5.3% in ARTI since the implementation of RNTCP in 1999. National ARTI Survey conducted 200003 showed that the Annual Risk of TB Infection (ARTI) in the country has reduced from 1.7 to 1.5. The second National ARTI Survey (200709) and Disease Prevalence Survey (200709 in 7 sentinel sites) is under progress which will shed more light on the impact of RNTCP.

The vision of the Government of India is for a "TB-free India" with reduction of the burden of the disease until it is no longer a major public health problem. To achieve this vision, the programme has now adopted the new objective of Universal Access for quality diagnosis and treatment for all TB patients in the community. This entails sustaining the achievements of the programme to date, and extending the reach and quality of services to all persons diagnosed with TB. In particular, by end-2015, the programme aims to achieve the following targets:

- Early detection and treatment of at least 90% of estimated TB cases in the community, including HIV-associated TB;
- Initial screening of all re-treatment smear-positive TB patients for drug-resistant TB and provision of treatment services for MDR-TB patients;
- Offer of HIV Counseling and testing for all TB patients and linking HIV-infected TB patients to HIV care and support;
- Successful treatment of at least 90% of all new TB patients, and at least 85% of all previously-treated TB patients;
- Extend RNTCP services to patients diagnosed and treated in the private sector.

The programme plans to achieve this by deploying rapid diagnostics for the diagnosis of TB and DRTB, expand services for management of MDR-TB, strengthen urban TB control, strengthen PPM initiatives in addition to improving the quality of basic DOTS services and aligning with NRHM supervisory structures.

Synergies and convergence under NRHM: The National Rural Health Mission (NRHM) was launched in April 2005. The primary goal of the NRHM is to improve the availability of and access to quality health care by people, especially those residing in rural areas, and the poor and vulnerable groups. NRHM aims to carry out the necessary architectural correction in the basic health care delivery system of the country by increasing public expenditure on health, reducing regional imbalances in health infrastructure, pooling resources, integration of organizational structures, optimization of health manpower, decentralization and district management of health programmes, community participation and ownership of assets, and the induction of management and financial personnel into district health system. As part of the Mission, Indian Public Health (IPH) Standards have been defined for the minimum level of infrastructure, human resource, equipment and drugs/consumables needed for effective functioning of the health institution (primary, secondary and tertiary units). This large scale investment into the health system would have positive ripple effects on the overall functioning of the health system and the disease specific interventions, including TB.

The NRHM is an effort at integrating resources and optimizing the delivery of health services through an omni-bus approach, wherein the MoHFW seeks to adopt a sector-wide approach (rather than a programme-specific approach) and subsumes key national programmes such as the Reproductive and Child Health programme (RCH II), the National Disease Control Programmes (NDCP) and the Integrated Disease Surveillance Programme (IDSP).

RNTCP, as other national disease control programmes is an integral part of the NRHM and would continue to deliver its services under the umbrella State/District Health society created under NRHM. As RNTCP is being implemented through the general health system, NRHM would further help in strengthening delivery of DOTS services and increasing accountability of general health system. ASHA workers recruited under NRHM, are being trained for DOT provision and support to decentralize DOT services to the doorstep of the patients, thereby increasing patient convenience and thus compliance.

However, to meet the existing gap in infrastructure (for laboratory and drug store) and key human resource (laboratory technician/Medical officers/ IEC officer etc), the TB programme has been supplemented by provision of funds for improving infrastructure (up gradation of microscopy centers and drug stores) and additional staff to cover this gap and ensure decentralized diagnostic and treatment services, and strengthening supportive supervision and monitoring of all key programme activities. It is also submitted that TB related services (microscopy centres, drug stores and DOT centres) and personnel (LTs) have been included under the Public Health Standards. These inputs are proposed to be continued under the current project, till the public health system has been strengthened enough to at least absorb the critical requirements of the programme for diagnosis, treatment and monitoring of TB patients.

The National Rural Health Mission though integrates the various National Disease Control Programs and the Family welfare Programs at the executive level, it continues to maintain individual identity of projects/ programmes at the technical and financial level. As RNTCP is being funded and supported through the World Bank loan, and the Global Fund grants, the financial management and reporting of the project would continue to be independent (State/District RNTCP account), with the programme officer being an signatory to its management.

Case Detection through Quality Assured Bacteriology

A nationwide network of RNTCP quality assured designated sputum smear microscopy laboratories has been established, which provides appropriate,

affordable and accessible quality assured diagnostic services for TB suspects and cases. To meet the standards of internationally recommended diagnostic practices for TB, the programme provides the supply of quality reagents and equipment to the laboratory network. An in-built routine system has been designed, External Quality Assessment (EQA) for supervision and monitoring of the diagnostic systems by the Senior TB Laboratory Supervisor (STLS) of RNTCP locally and by the intermediate (state level) and national reference laboratory network for RNTCP at higher levels. Introduction of LED Fluorescent Microscopy is being phased in at high load centres and will be scaled up as per requirements at all levels.

Quality Assured Laboratory Services

RNTCP has established a nationwide laboratory network, encompassing over 13,000 designated sputum Microscopy Centers (DMCs), which are being supervised by Intermediate reference laboratories (IRL) at state level, and National Reference laboratories (NRL) & Central TB division at the national level. RNTCP aims to consolidate the laboratory network into a well-organized one, with a defined hierarchy for carrying out sputum microscopy with external quality assessment (EQA), in line with the new guidelines of WHO. RNTCP is gradually phasing in routine surveillance among the previously treated cases in states where PMDT has been initiated. Drug Resistance Surveillance (DRS), mycobacterium culture and Drug Susceptibility Testing (DST) are undertaken only among new cases in specific selected settings.

National Reference Laboratories (NRL)

The four NRLs under the programme are Tuberculosis Research Centre [TRC], Chennai, National Tuberculosis Institute [NTI], Bangalore, Lala Ram Swarup Institute of Tuberculosis and Respiratory diseases [LRS], Delhi and JALMA Institute, Agra. The NRLs work closely with the IRLs, monitor and supervise the IRL's activities and also undertake periodic training for the IRL staff in EQA, culture &DST activities.

Three microbiologists and four laboratory technicians have been provided by the RNTCP on a contractual basis to each NRL for supervision and monitoring of laboratory activities. The NRL microbiologist and laboratory supervisor/ technician visit each assigned state (Table 1) at least once a year for 2 to 3 days as a part of on-site evaluation under the RNTCP EQA protocol. Regular supervisory visits are undertaken by the NRL microbiologists to the IRLs to provide technical support for establishing quality assured C&DST services, including facility design for the introduction of newer diagnostic tools (liquid culture and molecular tests) for the rapid diagnosis of MDR TB in consultation with other technical agencies like FIND. NRLs also undertake periodic proficiency testing of the IRLs as part of the accreditation process under RNTCP.

The National RNTCP Laboratory Committee, constituted with microbiologists of the NRLs, CTD and WHO India representatives as members, works as a task force to guide laboratory related activities of the programme. This technical body advice RNTCP on key policy issues regarding the laboratory services of the TB Control Programme.

Intermediate Reference Laboratory (IRL)

One IRL has been designated in the STDC/Public Health Laboratory/Medical College of the respective state. The functions of IRL are overall supervision and monitoring of EQA activities of the districts, mycobacterial culture and DST including drug resistance surveillance (DRS) in selected states. The IRL ensures the proficiency of staff in performing smear microscopy activities by providing technical training to district and sub-district laboratory technicians and STLSs. The IRLs undertake on-site

BSL III laboratory at STDC, Hyderabad, Andhra Pradesh

TABLE 3: States assigned to NRLs for monitoring of laboratory activities

NRL	States and Union Territories (UTs) assigned for EQA	Total nos. of IRLs assigned	Total nos. of states/ UTs assigned	Nos. of districts in the states
TRC	Andhra Pradesh, Chhattisgarh, Goa, Gujarat & (Dadra Nagar Haveli, Daman & Diu), Kerala & (Lakshadweep), Sikkim, Tamil Nadu, Punjab & (Chandigarh), Puducherry, Andaman & Nicobar	10	11	150
LRS	Delhi, Arunachal Pradesh, Haryana, Manipur, Nagaland, Mizoram, Meghalaya, Tripura	4	8	93
NTI	Maharashtra, Orissa, West Bengal Rajasthan, Karnataka, Bihar, Madhya Pradesh, Jharkhand, Jammu and Kashmir	12	12	275
JALMA	Uttar Pradesh, Uttarakhand, Himachal Pradesh, Assam	5	5	118

evaluation and panel testing to each district in the state, at least once a year.

The 23 C&DST labs are accredited after undergoing the process of accreditation as per RNTCP guidelines to undertake C&DST activities for the diagnosis and follow up of MDR TB patients as part of the National Laboratory Scale up Plan. Till date 12 IRLs (Gujarat, Maharashtra, Andhra Pradesh, Delhi, Kerala, Tamil Nadu, West Bengal, Rajasthan, Orissa, Jharkhand, Haryana and Puducherry) have been accredited and are already undertaking C&DST for the MDR-TB patients from the respective states. 7 other labs such as Blue Peter Health Research Centre (BPHRC)-Hyderabad, PD-Hinduja Hospital Mumbai, Christian Medical College (CMC) Vellore, Sawai Maan Singh (SMS) Medical College-Jaipur, Regional Medical Research Centre (RMRCT) for Tribals (ICMR) – Jabalpur, Grant Medical College Sir JJ Hospital – Mumbai, Damien Foundation of India Trust (DFIT) –Nellore are also accredited by the program to perform C&DST for the MDR TB services.

Designated Microscopy Centre (DMC)

The most peripheral laboratory under the RNTCP network is the DMC which serves a population of around 100,000 (50,000 in tribal and hilly areas). At present, more than 13,000 DMCs are available and fully functional for conducting quality assured sputum smear microscopy.

External Quality Assessment for Smear Microscopy

A process has been established under RNTCP to assess the laboratory performance utilizing the RNTCP External Quality Assessment (EQA) guidelines and currently > 95% of the districts in the country are implementing quality assurance protocol. (Figure 1 & 2)

Recommendations of the annual supervisory visits to the states by the NRLs have focused on operational and technical problems of the laboratories and staff in conducting effective OSE visits to districts/diagnostic centres, panel testing of STLSs, operationalization of RBRC procedures and identifying and correcting DMCs with errors.

For capacity building of state level programme managers (STOs and STDC/IRL directors) in EQA, training is imparted to make them aware of their roles and responsibilities regarding issues such as setting up of IRLs, management and training of the human resources, conducting effective on site evaluations

Figure 1: External quality assessment activities of RNTCP

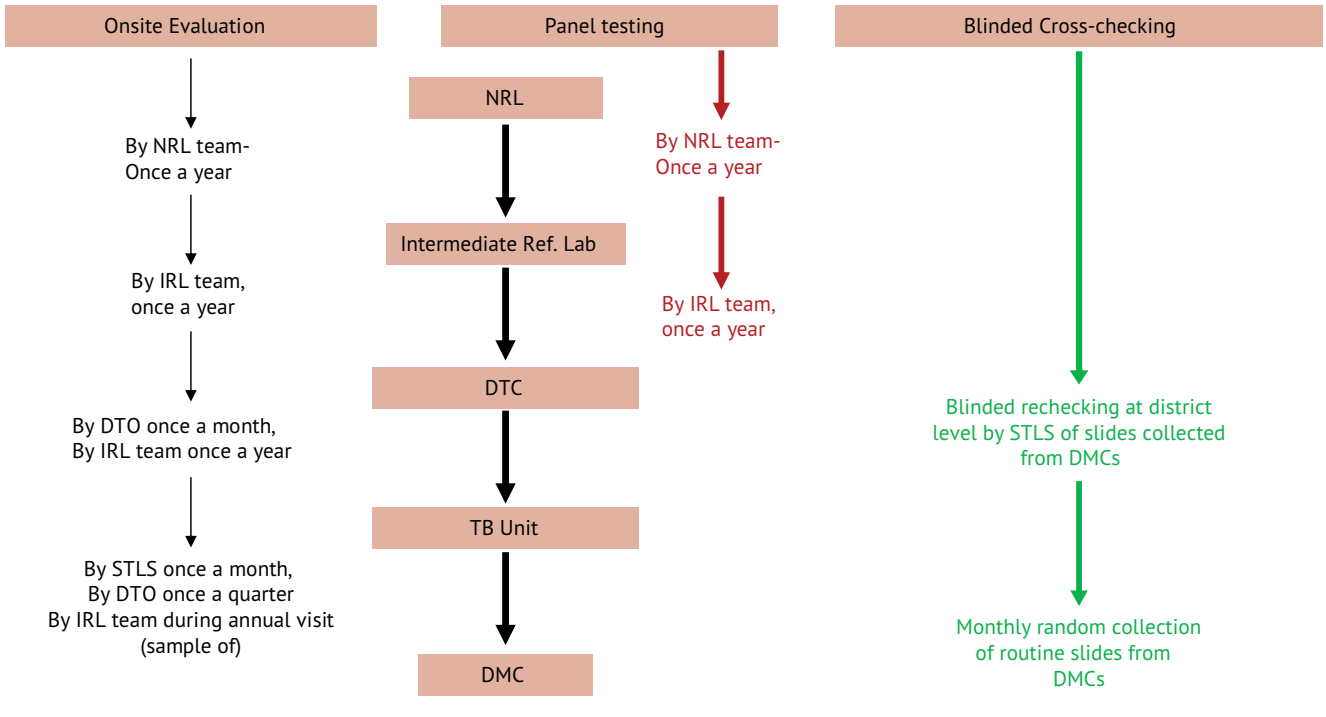
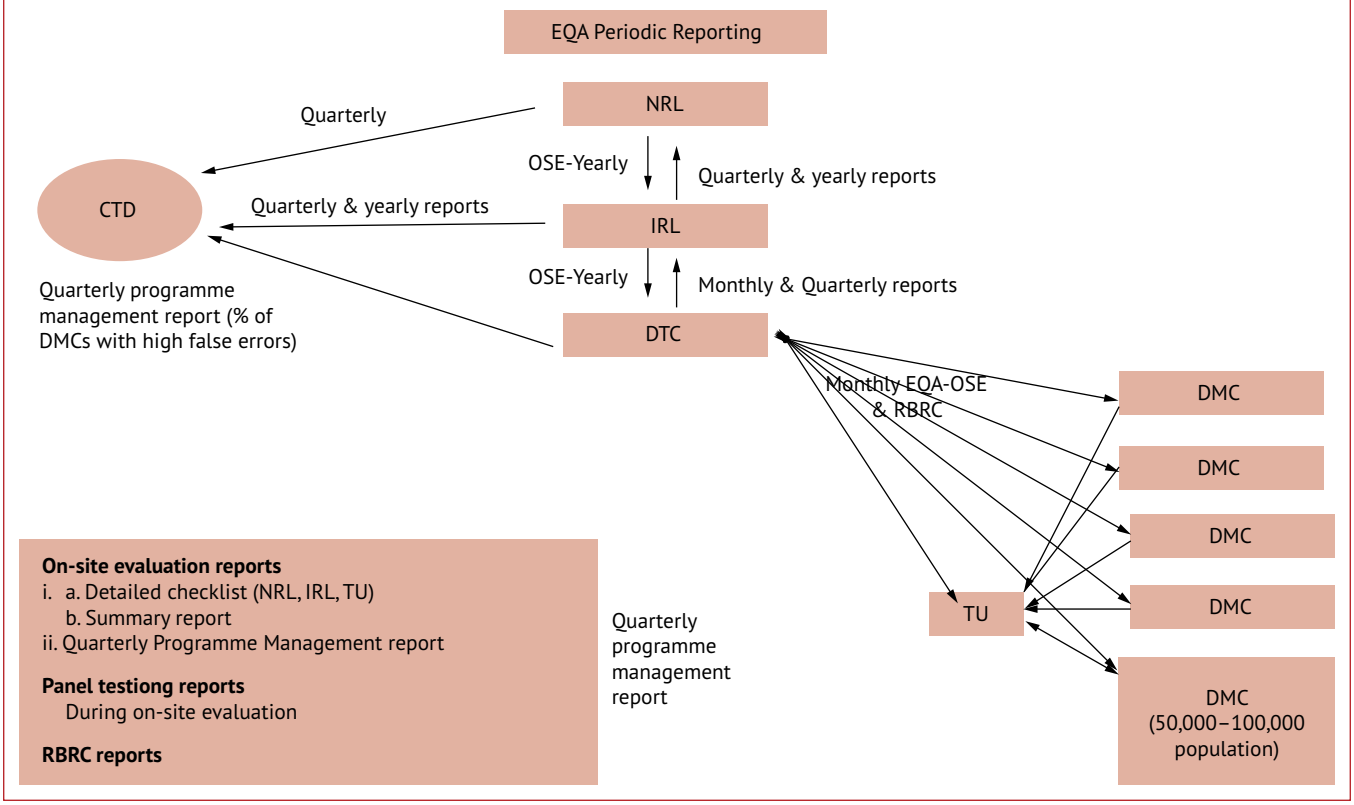


Figure 2: Reporting procedure



by the IRL staff at the DMC level, bio-medical waste management, airborne infection control measures and other operational and technical issues. A separate training, which focuses mainly on technical aspects of EQA protocol, is also provided to the microbiologists and lab technicians of the IRLs by the NRLs.

Establishment of C&DST labs

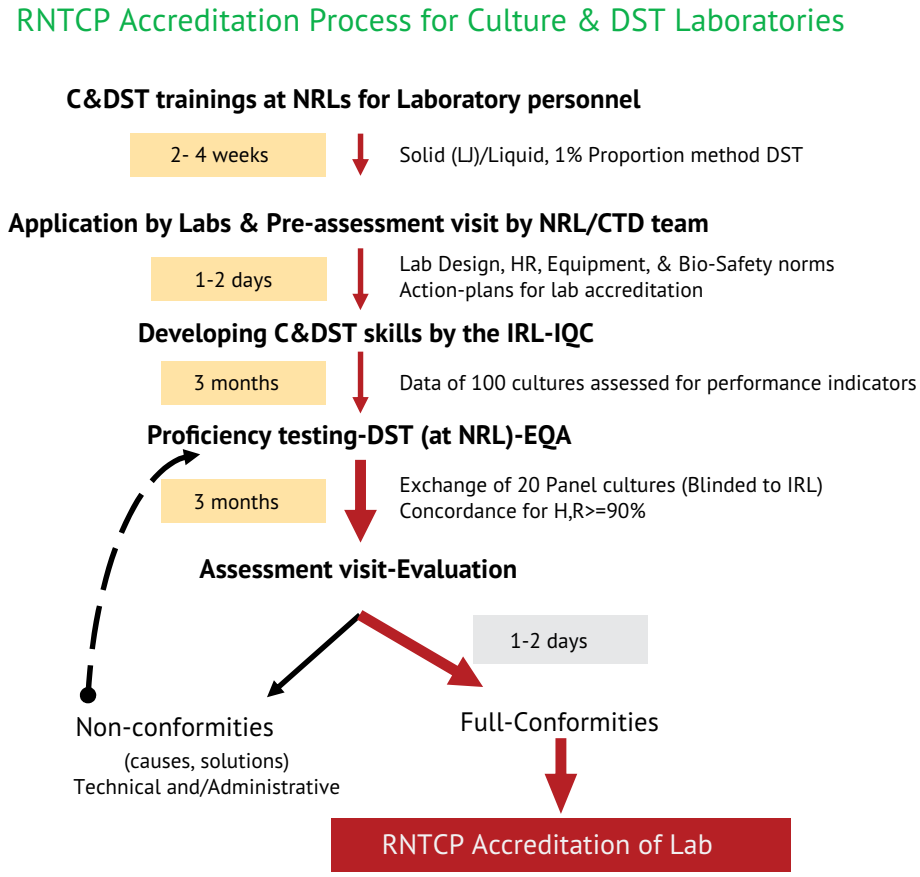
RNTCP has adopted a rigorous C&DST Laboratory accreditation procedure (see Figure 3) to provide accurate and reliable services for MDR TB diagnosis and follow-up of treatment. In order to meet demands of the programme, accreditation of C&DST laboratories both in Public and Private sectors is being pursued vigorously. Overall supervision is entrusted with the NRLs, to maintain uniformity in testing procedures NRLs are conducting Culture and DST trainings of 2-4 weeks duration for the Microbiologists and Laboratory technicians of the laboratories undergoing accreditation. The accreditation process has three main stages.

Stage 1. A pre-assessment visit of 1-2 days to the laboratories by the NRL/CTD team during which a laboratory is assessed for infrastructure facilities, qualified trained personnel, work-load requirements, SOPs (Standard Operating Procedures), technical procedures, bio-safety and infection control measures. Corrective actions recommended in case of deficiencies.

Stage 2. Laboratories are assessed for performance based on first 100 patient samples processed for Culture and DST. The indicators are - mainly - (a) rate of smear positive and culture negatives, and (b) rate of contamination (c) proficiency for setting-up correctly interpretable DST tests.

Stage 3. NRLs provide external blinded proficiency testing panel of 20 cultures for susceptibility testing for anti-TB drugs namely Isoniazid, Rifampicin, Ethambutol and Streptomycin. NRLs, would also retest 10 selected cultures provided by the IRLs. Accuracy of results is assessed based on sensitivity, specificity, and positive and negative predictive values for resistance and susceptibility. Accreditation is done on obtaining a proficiency of >90% for Isoniazid and Rifampicin. Regular annual proficiency testing is done to maintain the quality standards for DST. Separate proficiency schedule has also been developed for molecular based DST.

Figure 3: The C&DST laboratory accreditation process



Approx Time *(Minimum) for accreditation of a Conventional Lab: 6-7 months for new laboratories, and 4-5 months for already functioning laboratories after the submission of application

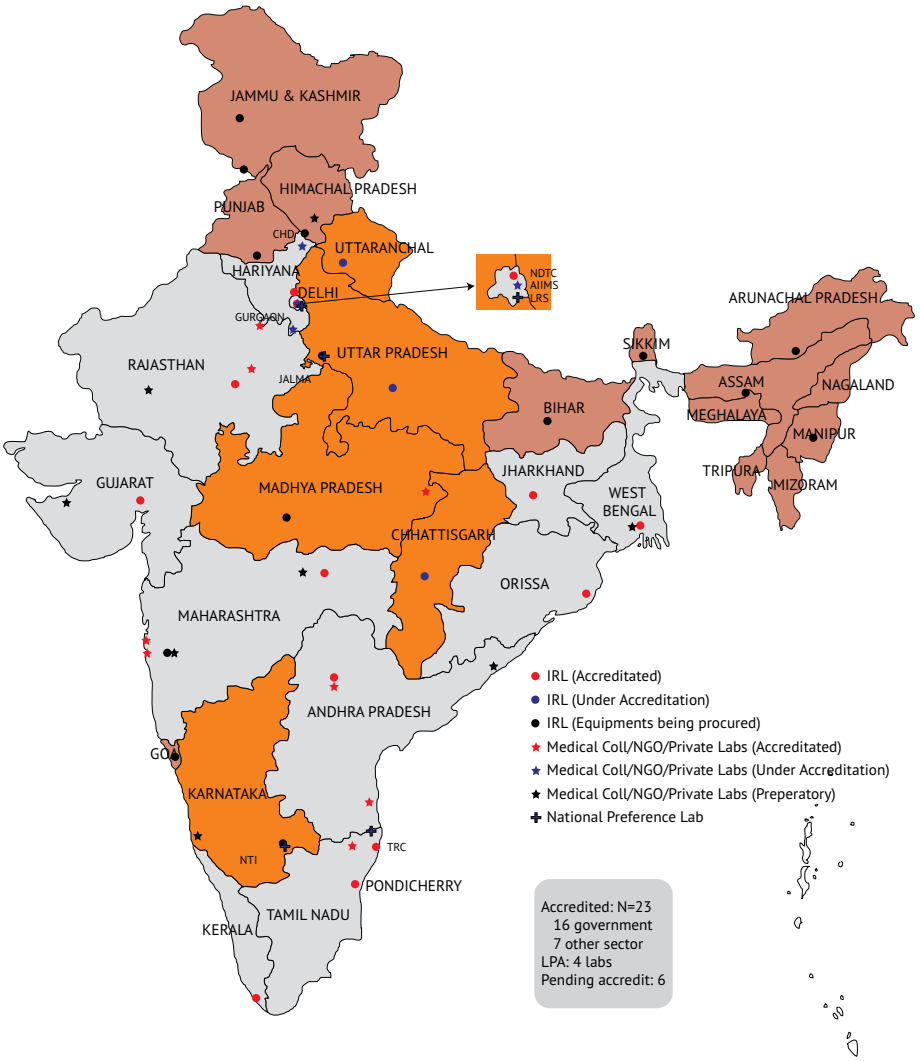
As per the recommendation of Joint Monitoring Mission (JMM) 2009, the process of establishing a National Laboratory Task force to accelerate the process of accreditation of C&DST labs across the country has been initiated. USAID has agreed to support this initiative through WHO-India.

Private Medical Colleges and NGO are increasingly providing C&DST services to enhance the programmes reach for MDR-TB diagnosis which includes Blue Peter Health Research Centre (BRHRC) Hyderabad, PD-Hinduja Hospital Mumbai, Christian Medical College (CMC) Vellore, Sawai Maan Singh (SMS) Medical College-Jaipur, Regional Medical Research Centre for Tribals (RMRCT ICMR) – Jabalpur, Grant Medical College Sir JJ Hospital – Mumbai, Damien Foundation of India Trust (DFIT) –Nellore and will shortly also include Choitram hospital (NGO of Indore).

Newer and Rapid technologies being introduced globally would enhance the diagnostic capacity for MDR-TB and cut short the turnaround times. Some of these technologies are now endorsed by WHO Strategic and technical advisory group for TB. RNTCP has initiated projects to validate & demonstrate large scale studies of newer TB diagnostic technologies in collaboration with Foundation for Innovative New Diagnostics (FIND), India. Molecular Line probe assay (LPA), Automated Liquid culture systems for C&DST, Capilia TB and LED Fluorescence microscopy are being validated in selected IRLs and NRLs. The results of these projects, specially the rapid MDR-TB test-LPA will guide the nationwide rollout of these technologies for MDR-TB diagnosis.

By 2012, the programme aims to provide universal access to laboratory based quality assured MDR diagnosis for all re-treatment TB cases on entry and new cases who have failed treatment and by 2015, the universal access to MDR diagnosis and treatment will be made available for all smear positive TB cases under RNTCP.

RNTCP Culture and DST Labs Network (February, 2010)



Drug Resistance Surveillance (DRS)

The prevalence of anti-TB drug resistance in the community can be taken as an indicator of the effectiveness of the TB control activities in the community over a period of time. RNTCP has adopted steps to measure this important indicator across the country. For determining the prevalence of anti-TB drug resistance among new and previously treated patients, state-wide DRS surveys are being conducted periodically by the programme. The state wide DRS surveys of Gujarat and Maharashtra were completed in 2007. The reports from these states showed the level of multi drug resistance TB amongst new cases is 2-3% and amongst re-treatment cases 12–17%. Currently, DRS survey is recently completed in Andhra Pradesh and ongoing in Uttar Pradesh. AP has completed the study with the report likely to be submitted in early 2011. The UP study is likely to be completed by mid 2011.

Introduction of Newer Tools

Introduction of Newer Tools for the PMDT has been implemented after an in-country validation and demonstration phase that was completed in 2010. Line probe Assay has been implemented in the IRLs of Ahmedabad (Gujarat), Hyderabad (Andhra Pradesh) and IRL Nagpur (Maharashtra) for the diagnosis of MDR TB patients in these states. In addition the IRLs of Trivandrum (Kerala), NDTB (Delhi), Kolkata (West Bengal), Cuttack (Orissa), Ajmer (Rajasthan), IRL Pune (Maharashtra), IRL Chennai (Tamil Nadu) will be initiating the LPA proficiency testing shortly and services will become available by end 2011. The introduction of all newer diagnostic tools is being supported by the EXPAND TB project (WHO GLI, UNITAID and FIND) and Global Fund Round 9, which is supporting the National Laboratory Scale up plan for 43 LPA and

Microbiologist performing LPA procedure

33 Liquid Culture units to provide an incremental capacity by 2014 of approximately > 160000 DSTs and > 220000 follow-up cultures.

Liquid Culture DST is available to the RNTCP through some of the private and corporate providers (NGO PP scheme for C and DST) like Hinduja hospital that is providing services for Mumbai City. In addition, these schemes will be extended to other areas with additional private laboratories like Quest and Super Religare from 2011 onwards.

The RNTCP will be initiating the evaluation of the GeneXpert TB-RIF in line with the global consultation guidelines to gather evidence for use within the country in various settings including non-risk settings. This project has been funded by USAID Country mission with technical assistance from WHO India and will include 18 sub-district level settings.

LAMP (Loop mediated isothermal amplification) is a manual NAAT that can be performed at DMC level and will be validated by FIND in Wardha Medical College of Maharashtra shortly.

FIND has also supported in establishing a National Training Centre (International Centre for Excellence in laboratory training) in the premises of the National Tuberculosis Institute, Bangalore which is one of the National Reference Laboratories of India. The training center will cater to the recurrent training needs of the laboratory staff that will man the 43 LPA and 33 liquid culture units to be established by 2014.

The infrastructure up gradation that is required for the introduction of newer tools is also being supported by PATH which is upgrading 15 labs for LPA and 8 labs for BSL III facility.

Laboratory personnel working on MGIT

TABLE 4: The Status of the functional and proposed Culture and DST laboratories in the country

S. No	NRL	S. No	State	Name of the Laboratory	Type*	Status
1	NRL	1	Delhi	LRS, Delhi	G	Accredited
2	NRL	2	Karnataka	NTI, Bangalore	G	Accredited
3	NRL	3	Tamil Nadu	TRC, Chennai	G	Accredited
4	NRL	4	Uttar Pradesh	JALMA, Agra	G	Accredited
5	JALMA	1	Assam	IRL Guwahati, Assam (Guwahati Medical College)	G	In process
6	JALMA	2	Himachal Pradesh	IRL Dharampur, Himachal Pradesh	G	In process
7	JALMA	3	Himachal Pradesh	Govt Medical College, Tanda	GM	In process
8	JALMA	4	Uttar Pradesh	IRL Lucknow, Uttar Pradesh (CSMMU, earlier KGMU)	G	In process
9	JALMA	5	Uttar Pradesh	IRL Agra, Uttar Pradesh	G	In process

S. No	NRL	S. No	State	Name of the Laboratory	Type*	Status
10	JALMA	6	Uttarakhand	IRL Dehradun, Uttarakhand	G	In process
11	LRS	1	Arunachal Pradesh	IRL Naharlagun, Arunachal Pradesh	G	In process
12	LRS	2	Chandigarh	PGI Chandigarh	GM	In process
13	LRS	3	Delhi	IRL Delhi (New Delhi TB Centre)	G	Accredited
14	LRS	4	Delhi	AIIMS, Delhi	GM	In Process
15	LRS	5	Haryana	IRL Karnal, Haryana (Public Health Laboratory)	G	Accredited
16	LRS	6	Manipur	IRL Imphal, Manipur	G	In process
17	NTI	1	Bihar	IRL Patna, Bihar	G	In process
18	NTI	2	J&K	IRL Jammu, J&K (Jammu Medical College)	G	In process
19	NTI	3	J&K	IRL Srinagar, J&K	G	In process
20	NTI	4	Jharkhand	IRL Ranchi, Jharkhand (Itki TB sanatorium)	G	Accredited
21	NTI	5	Karnataka	IRL Bangalore, Karnataka	G	In process
22	NTI	6	Karnataka	KIMS, Hubli	GM	In process
23	NTI	7	Madhya Pradesh	IRL Indore, Madhya Pradesh	G	In process
24	NTI	8	Madhya Pradesh	IRL Bhopal, Madhya Pradesh	G	In process
25	NTI	9	Madhya Pradesh	Choithram Hospital Indore	N	In process
26	NTI	10	Madhya Pradesh	Bhopal Memorial Hospital, Bhopal	G	In process
27	NTI	11	Maharashtra	IRL Nagpur, Maharashtra	G	Accredited
28	NTI	12	Maharashtra	IRL Pune, Maharashtra	G	In process
29	NTI	13	Maharashtra	JJ hospital Mumbai	GM	Accredited
30	NTI	14	Orissa	IRL Cuttack, Orissa	G	Accredited
31	NTI	15	Rajasthan	IRL Ajmer, Rajasthan	G	Accredited
32	NTI	16	Rajasthan	SMS Jaipur	GM	Accredited
33	NTI	17	West Bengal	IRL Kolkata, West Bengal	G	Accredited
34	TRC	1	A & N Islands	RMRC Port Blair	G	In process
35	TRC	2	Andhra Pradesh	IRL Hyderabad, Andhra Pradesh	G	Accredited
36	TRC	3	Andhra Pradesh	Govt Medical College, Vishakapatnam	GM	In process
37	TRC	4	Andhra Pradesh	BPHRC Hyderabad	N	Accredited
38	TRC	5	Andhra Pradesh	DFIT lab Nellore	N	Accredited
39	TRC	6	Assam	RMRC Dibrugarh	G	In process
40	TRC	7	Bihar	RMRC Patna	G	In process
41	TRC	8	Chhattisgarh	IRL Raipur, Chhattisgarh (Regional Leprosy Training and Research Institue)	G	In process
42	TRC	9	Goa	IRL Goa (GMC, Bambolim)	G	In process
43	TRC	10	Gujarat	IRL Ahmedabad, Gujarat	G	Accredited
44	TRC	11	Gujarat	Govt Medical College, Jamnagar	GM	In process
45	TRC	12	Gujarat	Govt Medical College, Surat	GM	In process
46	TRC	13	Gujarat	Microcare Lab, Surat	P	In process
47	TRC	14	Haryana	Quest Diagnostics, Gurgaon	P	In process

S. No	NRL	S. No	State	Name of the Laboratory	Type*	Status
48	TRC	15	Haryana	SRL, Gurgaon	P	In process
49	TRC	16	Kerala	IRL Thiruvananthapuram, Kerala	G	Accredited
50	TRC	17	Madhya Pradesh	RMRCT Jabalpur	G	Accredited
51	TRC	18	Maharashtra	PD Hinduja Hospital, Mumbai	P	Accredited
52	TRC	19	Maharashtra	SRL, Mumbai	P	In process
53	TRC	20	Orissa	RMRC Bhubaneswar	G	In process
54	TRC	21	Puducherry	IRL Puducherry	G	Accredited
55	TRC	22	Punjab	IRL Patiala, Punjab (Patiala Government Medical College)	G	In process
56	TRC	23	Sikkim	IRL Gangtok, Sikkim	G	In process
57	TRC	24	Tamil Nadu	IRL Chennai, Tamil Nadu (Institute of Thoracic Medicine)	G	Accredited
58	TRC	25	Tamil Nadu	CMC Vellore	P	Accredited
59	TRC	26	Tamil Nadu	Madurai Medical College	G	In process
60	TRC	27	Tamil Nadu	Global Hospital	P	In process

*' G' is Government, 'P' is Private, 'N' is NGO, 'M' is Medical college, 'GM' Government Medical college and 'PM' Private Medical college.

TABLE 5: The performance of eleven* RNTCP accredited Culture and DST laboratories serving the states in the country

Workload and DST results – report SPECIMENS processed on culture or DST, NOT PATIENTS

	Culture workload (from culture register)		DST workload and results (from DST register) [DST results summary combined all methods]					
Month	Diagnostic Sputum Specimens inoculated	Follow-Up Specimens inoculated	Solid DST Processed	LPA DST done	Total H+R Sens	Total H+R Res	Total H only Res	Total R only Res
January to June 2010	6541	6112	2503	635	840	1349	347	237

Performance indicators

	Numerator (No.)	Denominator (No.)	Percent
(1) Specimens (all) received within 7 days of sputum collection	11934	12416	96%
(2) Specimens (all) with cultures reported as *Mtb.* complex	5478	12280	45%
(3) Smear-positive diagnostic specimens reported as culture-positive	3700	4797	77%
(4) Specimens (all) with culture-contaminated results (by culture system)	674	12414	5%
(5) Specimens (all) with culture results reported as NTM	83	11698	1%
(6) Patients (with diagnostic specimens) with DST completed within the benchmark turn-around time (by culture system)	1318	2619	50%
(7) Patients (all) with final culture results reported to providers within 3 days of declaration of result	5423	6618	82%
(8) Patients with final DST results reported to providers within 3 days of declaration of result	1899	2329	82%

Procurement & Drug Logistics

Central Procurement

Procurement, Supply & Logistics Unit in Central TB Division (CTD) functioning under the supervision of a Chief Medical Officer is supported by a Procurement & Supply Management Consultant and an agency outsourced with the assistance from WHO for drug logistics management.

Contract to the newly selected procurement agency (M/s RITES Ltd.) was awarded by the Ministry of Health & Family Welfare (MoHFW) in January, 2010 to undertake procurements of various Programme Divisions of the MoHFW including RNTCP. The Procurement of 1st Line Anti TB Drugs (through World Bank & GFATM funding), 2nd Line Anti TB Drugs (through World Bank funding), Laboratory Equipment, MMR X Ray Rolls and Purified Protein Derivative (PPD) is presently being undertaken at the Central level.

Anti TB Drugs

An uninterrupted supply of good quality Anti TB Drugs is an essential component of DOTS strategy under RNTCP. Supplies of 2nd tranche each of 1st and 2nd Line Anti TB Drugs to various consignees for the procurement year 2009–10 have been completed during the year.

(a) First Line Anti TB Drugs

While procurement of Drugs for 500 million population of the country continued to be done by the Global Drug Facility (GDF) through financial support by DFID, for the rest of the population, the procurement of these drugs (both for World Bank and GFATM funded states) is done through International Bidding from 'WHO Pre-Qualified suppliers' only by the procurement agency of MoHFW (Govt. of India), following the World Bank procurement guidelines. Injection Streptomycin is procured through International Competitive Bidding.

Contracts were awarded by the previous procurement agency (UNOPS) for procurement of these Anti-TB Drugs for the year 2009–10. Procurement of these drugs for the year 2010-11 are being done by the new procurement agency M/s RITES Ltd.

State Drug Store at Patna (Bihar)

(b) Second Line Anti TB Drugs

The procurement of 2nd Line Anti TB Drugs for the World Bank funded states is continued to be done through International Competitive Bidding (ICB) by the procurement agency of MoHFW. RNTCP has taken similar measures, as described above for ICB for Inj Streptomycin, to procure good quality 2nd Line Anti TB Drugs. For the states funded by GFATM, these drugs are procured through Green Light Committee (GLC) of Stop TB Partnership.

Second line drugs boxes packed for IP and CP at SDS Nagpur

The 2nd Line Anti TB Drugs for 2350 patients under DOTS Plus were procured during the year 2009-10 by UNOPS for World Bank funded states (Assam, Delhi, Goa, HP, Jammu & Kashmir, Karnataka, MP, Gujarat, Maharashtra, Puducherry, Chandigarh, UP, Kerala). For

the year 2010-11, the procurement of the drugs for 3,450 patients for World Bank funded states (Assam, Delhi, Goa, HP, Jammu & Kashmir, Maharashtra, Puducherry,Chandigarh,Punjab) through International Competitive Bidding (ICB) by M/s RITES Ltd. is currently underway. Procurement of 2nd Line Anti TB Drugs for 800 patients for GFATM funded states (Andhra Pradesh, Chhattisgarh, Haryana, Jharkhand, Orissa and Uttarakhand) and 4,850 patients funded by UNITAID was also done through Green Light Committee (GLC) and Global Drug Facility (GDF) which are part of Stop TB Partnership. The supply of drugs procured during the year through GDF is in process.

Quality Assurance of 1st & 2nd Line Anti TB Drugs

Quality Assurance (QA) of Anti-TB Drugs has been accorded special importance by RNTCP and measures are taken at the time of procurement and also Post Procurement to maintain quality of Anti-TB Drugs.

(a) QA Measures at the Time of Procurement

1st line Anti-TB Drugs - Since 200809, procurement of 1st Line Anti-TB Oral Drugs has been limited to 'WHO Pre-Qualified suppliers' and pre-dispatch inspection and testing of all batches is done. Injection Streptomycin is procured through International Competitive Bidding (ICB) from WHO-GMP suppliers only, Joint Inspection for verification of WHO-GMP Certificates by a team under DCG(I) is ensured and pre-dispatch inspection of all batches is done.

2nd line Anti-TB Drugs: Procurement for the World Bank funded States is done through ICB by Procurement Agency of Ministry of Health & Family Welfare. For this procurement, WHO-GMP Certification is required, Joint Inspection for verification of WHO-GMP Certificates by a team under DCG(I) is ensured and pre-dispatch inspection of all batches is done. For GFATM funded states, procurement is done through Green Light Committee (GLC) and Global Drug Facility (GDF) of Stop TB Partnership from the "WHO Pre-Qualified suppliers" only.

(b) QA Measures Post Procurement

Drugs procured (both 1st& 2nd Line) are tested at an Independent Quality Assurance Laboratory selected by RNTCP. Every quarter, random samples of Anti-TB Drugs are drawn from one GMSD,one State Drug Store & 5 District Drug Stores and sent for testing to the independent QA Lab. The test reports are presented to a Committee headed by Drug Controller General (India). In addition to this, samples are also picked up randomly from the GMSDs, State Drug Stores & District Drug Stores by various Central and State Drug Inspection Authorities and send for testing. Based on the test reports, further necessary action is taken by the Programme.

Laboratory Equipment for Culture & DST for IRLs

RNTCP is in the process of establishing 14 more IRLs at Assam, Bihar, Goa, Himachal Pradesh, J&K (Jammu), J&K (Srinagar), Karnataka, Madhya Pradesh, Maharashtra (Pune), Manipur, Punjab, Sikkim, Uttar Pradesh and Arunachal Pradesh. The Contracts for all the remaining items of Lab. equipment for solid Culture & Drug Sensitivity Testing (DST) for establishing these IRLs in the country were awarded during the year, delivery of all the equipment has been completed and the installation of most of the equipment's has been done.

New Initiatives for Diagnosis of TB

RNTCP is linking development of MDR-TB diagnostic capacity to the expansion of MDR-TB treatment services under DOTS-Plus. During the year, the Programme has utilized the support provided by EXPANDx TB Project funded by UNITAID to accelerate the availability of rapid diagnosis of MDR-TB nationwide. Among the newer TB diagnostics approved by WHO, molecular Line Probe Assay (LPA) and Liquid Culture have already been implemented in STDC, Ahmedabad and STDC, Nagpur. A Memorandum of Understanding (MoU) was signed on 8th March 2010 between Ministry of Health & Family Welfare (GoI) and EXPANDx TB for technical assistance, supply of equipment & consumables for setting up of 40 identified LPA labs and 30 Liquid Culture labs. Based on this MoU and to facilitate training of the laboratory personnel from the identified sites, Foundation for Innovative New Diagnostics (FIND)

MoU between MoHFW, GoI and EXPANDx TB, a project funded by UNITAID, March 8, 2010. Dr L S Chauhan (DDG TB), Mr M K Mishra (US, MoHFW) and Dr Giorgio Roscigno (CEO, FIND Geneva)

in coordination with Central TB Division established International Centre for Excellence in Laboratory Training (ICELT) at NTI, Bangalore and supplied equipment & reagents to nine laboratories and the process of supply of these equipment's & consumable items to seven more laboratories is underway during the year 2010–11.

Decentralized Procurement

As a part of strengthening decentralized procurement, states have been repeatedly communicated to follow World Bank procurement guidelines strictly and the revised threshold limits for state/district level procurement of Goods/Works have again been communicated to them. An abbreviated document on state/district level procurement has been sent to all the states and districts for wider circulation. States are sending information about state/district level procurement through "Procurement Reporting Format" circulated to them earlier by CTD, at the end of every quarter through the email ID i.e. distprocurement@rntcp.org.

Capacity Building for Decentralized Procurement

A session on "Decentralized Procurement in TB II" was conducted for all the State TB Officers and RNTCP Medical Consultants by the Chief Medical Officer dealing with RNTCP Procurements in CTD in January, 2010, during the National Review Meeting of STOs and Consultants, held at Gurgaon (Haryana). During the year 2010, trainings on "Decentralized Procurement in TB II" were also conducted for State level officials in Punjab, Chandigarh, Maharashtra, Tamil Nadu by concerned officials from Central TB Division. Training on "Decentralized Procurement in TB II" was also conducted by Consultant (Procurement), CTD for the Accountants of all the States in February, 2010 at New Delhi.

Post Procurement Reviews

Six Post Procurement Reviews of the Contracts "below prior review threshold levels" at the Central level and in the States have been undertaken so far by World Bank Consultant in 21 states. Based on the reports of the Post Reviews, follow-up corrective actions are being taken by the concerned States. Action taken reports are sent by Central TB Division to the World Bank after each Review. Post Procurement Review of State/District level procurements are also being done during Central Internal Evaluation, Annual Financial Audit and visit to the States by officials from Central TB Division.

Procurement Management Information System (ProMIS) Software

The web based software (ProMIS) to streamline procurement systems, developed by Empowered Procurement Wing (EPW) of the MoHFW has addressed all the key components of International best practices in procurement and logistics. The various modules of the software include Forecasting, Planning, Bid Processing, Bid Evaluation, Supply Orders, Quality Assurance, Stocks, Inter warehouse transfers, Bills & Invoices etc. Live data entry by RNTCP for the procurement details of 1st line and 2nd line anti TB-drugs for the year 2009-10 has been completed.

Drug Logistics Management

Drug requirements, consumption and stock positions, both at State and district levels are monitored at the Central TB Division through the Quarterly Reports submitted by the districts. The 1st Line Anti-TB Drugs procured are stored at the six Government Medical Store Depots (GMSDs) across the country and issued to the States based on the Quarterly District Programme Management Reports and the monthly State Drug Stores (SDS) Reports. The States are required to maintain defined buffer stocks at each levels i.e., at the PHIs, TUs, DTCs & the SDS. The District Quarterly

Reports are analyzed in detail at CTD and any discrepancies arising are notified to the concerned districts & States for necessary corrections.

For long-term sustainability of the programme, decentralization of inventory management practices is very important. To ensure that the States are able to manage their drug logistics as per RNTCP guidelines, regular trainings & re-trainings on Drug Logistics Management were conducted by Central TB Division for the State & district level staff during the year. These trainings were imparted to State level officials, District TB Officers (DTOs), State and District level pharmacists alongwith respective RNTCP Medical Consultants. Such trainings were conducted for the officials in Madhya Pradesh, Kerala, Orissa, Maharashtra, Tamil Nadu, Puducherry, A & N Islands, Punjab and Chandigarh. In addition, all the RNTCP Medical Consultants were also sensitized to Drug Logistics Management practices during the Biannual National Review Meeting held at Gurgaon, Haryana in January, 2010. About 450 RNTCP officials/Consultants have been trained during the year on Drug Logistics Management. The DTOs are expected to further train their sub-district level staff involved in drug logistics in their respective districts.

To assess the impact of such trainings, CTD is also regularly re-visiting some of the States already trained. Jharkhand, Uttar Pradesh, Assam and Bihar were visited during the year by teams from CTD. Some improvements have been noticed but the lack of commitment by concerned officials at State and District levels is still seen as a major drawback. Some of the common observations noticed are:

1. Poor drug storage conditions & lack of infrastructure at the drug store
2. Lack of contracted transportation arrangements from SDS to district drug stores
3. No full time pharmacist/store-keeper at the SDS and no designated officer to monitor drug logistics activities in the states visited.
4. No system of trainings/re-trainings conducted by the states visited for Drug Logistics Management.

Logistics management of 2nd Line drugs is still a challenge under DOTS-Plus in RNTCP. Cycloserine and Ethionamide with a short- shelf life require continuous monitoring & regular Inter-State transfers to ensure maximum utilization and minimum expiry of these drugs. Currently, 10 States viz Andhra Pradesh,

Drug logistics training at STDC Pune.

Delhi, Haryana, Gujarat, Kerala, Maharashtra, Orissa, Rajasthan, West Bengal & Tamil Nadu have already implemented the DOTS-Plus programme in their respective States and more states are preparing to start the treatment services under DOTS-Plus during the next year. Training on 2nd line drug logistics is also being imparted during the regular trainings on Drug Logistics Management to State & district level staff. The same has been included in the Standard Operating Procedures (SOP) Manual for both State & District Drug Stores.

New Initiatives Undertaken during 2010

1. Injection Streptomycin vials & Kanamycin vials procured under RNTCP are now supplied along with Distilled Water vials, Syringes and Needles.
2. Guidelines for storage of 2nd line Anti-TB Drugs at SDS, DTC & TU levels were finalized during the year and have been circulated to all the States for their implementation.
3. State-wise Micro-planning exercise on Drug Logistics was undertaken during the year as part of expansion plan for DOTS-Plus under RNTCP.
4. Funds for appointment of an additional store-assistant for 2nd line Drugs at the State Drug Store level have been made available along with provision for additional funds for improvement in drug storage conditions at State & District Drug Stores.
5. Revision of Drug Logistics Management Module, which is part of Training Modules for State and District TB Officers, undertaken during the year.

Monitoring and Evaluation System

Routine monitoring of the performance of TB control is crucial. The main indicators to monitor DOTS implementation are the number of cases diagnosed and notified, and the percentage of patients who are successfully treated.

The RNTCP has a comprehensive system for regular supervision and monitoring at all levels – national, state, district and sub district. A robust recording and reporting system and a series of review meetings enables early corrections. RNTCP is a programme that is managed both from the technical as well as programmatic point of view. Since it has a set of complex diagnostic, treatment and follow-up modalities, the programme has an intensive and dynamic supervision and monitoring strategy. Dedicated supervisory staff, an intrinsic recording and reporting system and a set of monitoring indicators to cover all the related activities ensures that the programme has an inherent capacity to identify issues and proactively consider remedial measures.

The activities extensively monitored by RNTCP are:

1. **Programme indicators:** These are monitored on the basis of quarterly reports of programme Performance. Suitable feedback is sent to concerned states/districts.
2. **Logistics and quality control:** This is monitored through the information received from the procuring agency, suppliers, reports of Government Medical Store Depots (GMSD) and the quarterly reports from the States/Districts.
3. **Progress of training:** Information is received from the quarterly reports on training and the compiled reports from training institutions.
4. **Progress in filling up of key posts:** Information is received from quarterly reports and reports of supervisory visits.
5. **Expenditure and budget utilization:** This information is obtained from Statement of Expenditure (SOE), Utilization Certificate (UC), Audit Report (AR) and from reports of state and central level evaluations.

1. ACSM activities: It is ensured that the action plan on ACSM submitted by all the States/districts is put into practice as per the plan locally.

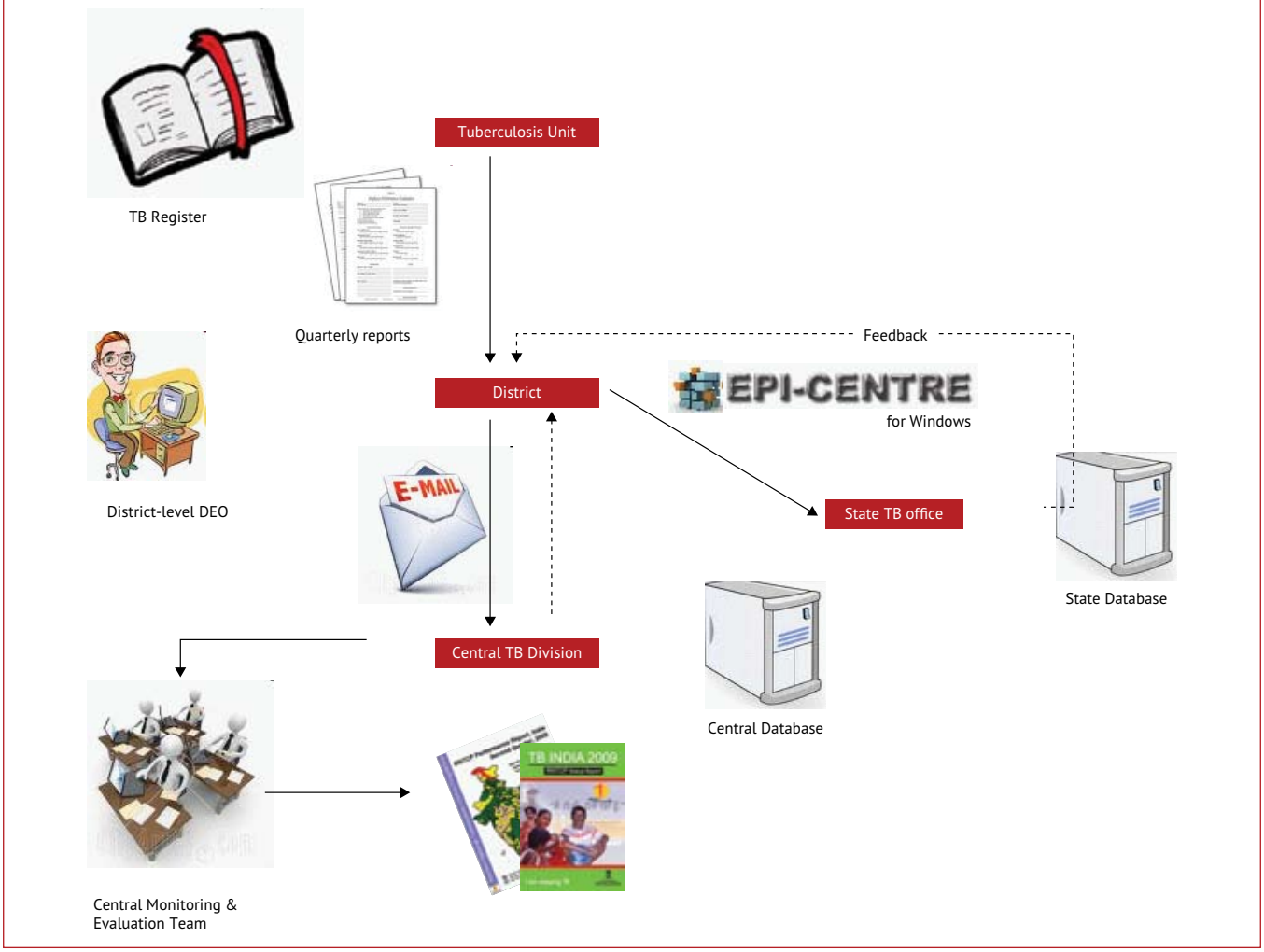
The process of monitoring broadly covers supervisory visits, review meetings at various levels and programme evaluation by different levels of health personnel. Measurable indicators for quality control, programme outcomes and operational effectiveness are the basis for programme monitoring.

1. **Analysis and Feedback on Routine Surveillance Data:** Surveillance data are received through the quarterly reports. An accurately compiled quarterly report provides base level information about the performance of the programme. Central TB Division analyzes these quarterly reports received from the States/Districts. Monitoring capacity at State level has been enhanced so that State TB Officers/Medical Officers-STC/STDC analyzes the quarterly reports and provides feedback to the districts within the state.

   Electronic Data Management system: RNTCP has an exceptionally successful system for timely collection, transmission, validation, analysis and feedback of programme surveillance data using electronic data management system. A 'DOS' based software 'EPICENTRE' was used for this till 2009 and a new software based on 'windows' has been successfully piloted and has replaced the existing 'DOS' based software from 1st quarter 2010.

2. **Supervisory visits and feedback:** Monitoring of the performance of the programme is mainly done by supervisory visits. Good supervision helps to increase the efficiency of the staff by updating their knowledge, perfecting their

Data Management System in RNTCP



skills and improving their attitudes towards work. RNTCP lays out clear responsibilities to the respective staff at all levels in relation to supervisory visits. Schedules of supervisory visits by the managers at different levels are as given below:

STS/STLS	STS to visit all the PHIs/DMC at least once in each month and STLS to visit all DMCs at least once a month.
MO-TC	To travel 7 days in a month on supervisory visits.
DTO	To travel about 20 days in a month and visit all the DMCs at least once in a month and all the PHIs at least once in a quarter.
STO	To visit each district at least twice a year.

STS/STLS,MO-TC and DTO record their observations in a tour diary, a supervisory check list and a supervision register placed in all RNTCP facilities. Supervisory visits encourage good practices of RNTCP as well as identify and correct inadequate performances. The contact details of the STS, STLS, MOTCs, DTOs and STOs of the country are available on the TB India website (www.tbcindia.org).

DTO Verifying records and reports during supervisory visits

3. **Regular review meetings:** RNTCP has a system for periodic review of the programme implementation activities at all levels. The level and the frequency of these meetings are as given in Table 6.

4. **Periodic in-depth evaluations:** Information and action points generated through periodic evaluations are an important tool for evaluation of the programme. States are conducting internal evaluation of 2 districts per quarter.

TABLE 6: Review Meetings

Level	Frequency of review
Peripheral Health Institutions (PHIs) & Designated Microscopy Centres (DMCs)	MO i/c PHI/DMC conducts a meeting of all the staff involved in RNTCP and reviews their activities weekly.
Tuberculosis Unit (TU)	MO-TC reviews the activities of STS/STLS at least fortnightly.
District Level	♦ DTO reviews the monthly activity reports of all MOTCs, STS and STLS within the district during monthly district level review meetings. ♦ CMO and DM also review the programme on a regular basis.
State Level	♦ State level review meetings are held every quarter and chaired by Secretary (Health)/DHS. ♦ STO also reviews the monthly activity reports of DTOs within the states. ♦ Recommendations of all the evaluations and the actions taken are discussed at the meeting.
National Level	CTD conducts review meetings of STOs twice in a year. All important issues covering technical performance, administrative and managerial issues, manpower resources, logistics and financial issues, are reviewed.

TABLE 7: Supervision, monitoring activities and tools under RNTCP for each level of programme implementation

Unit responsible (persons)	S & M activities	Tools
Central Unit (Deputy Director General (DDG)/ Chief Medical Officers (CMOs)/ WHO India team/NRL/CTD RNTCP-WHO Consultants)	♦ Undertake programme reviews with State TB officers at national level twice a year ♦ Conduct periodic review of RNTCP in the states with the DTOs during state level review meetings ♦ Conduct Central level internal evaluations of least 2 districts every month ♦ NRL team to visit IRL (for On-site evaluation and Panel testing) at least once every year	Programme reviews Annual programme report (National) 6-monthly programme review with State TB Officers (STOs) Quarterly and annual State reports District evaluation reports Monthly activity reports of STOs Monthly reports of RNTCP-WHO Consultants Report from medical college ZTFs
State TB Cell (STO/MO/STDC Director/IRL Microbiologists/ RNTCP-WHO Consultants)	♦ Visit all districts in the state at least once every 6 months ♦ Undertake state level internal evaluations of at least 2 districts every quarter ♦ IRL team to visit DTC at least once a year ♦ Conduct quarterly review meetings with the district TB officers at state level.	Annual programme report (State and districts) Quarterly programme review with District TB Officers (DTOs) Quarterly District/TU reports District evaluation reports Monthly activity reports/tour diaries of DTOs Tour diary of STO/supervision checklist Report from medical college STF
District TB Centre (District TB Officer/2nd MO DTC)	♦ Reserve 3-5 days in a week for field visits (between DTO and 2nd MO) ♦ Visit all TB units every month ♦ Visit all microscopy centres every quarter	Annual district report Quarterly TU reports Monthly programme review Monthly PHI reports Quality assurance report

Unit responsible (persons)	S & M activities	Tools
	♦ Visit the homes of at least 3 randomly selected NSP patients and their DOTS providers on every field visit day ♦ Visit to medical college if any, every month ♦ Conduct DTCS review meeting every quarter to be chaired by DM ♦ Conduct monthly review meeting at the DTC to be chaired by DM/CMO	Tour diary of DTO/supervision checklist Monthly activity reports of MOTCs, STS and STLS RNTCP TB register Supervision register Referral for treatment register Supervisory checklist
Medical Officers (TB Control)	♦ Reserve at least 7 days in a month for field visits ♦ Visit all microscopy centres every month ♦ Visit most of the participating private as well as public Peripheral Health Institutions (PHIs) every quarter ♦ Visit the homes of at least 3 randomly selected NSP patients along with their DOT providers on every field visit day ♦ Conduct fortnightly review meeting with STS/STLS	RNTCP TB regiser RNTCP Laboratory register Supervision register PHI monthly reports OSE QA reports of STLS Supervisory checklist
STLS	♦ Visit all the microscopy centres at least once every month. ♦ Conduct OSE at the DMC	Laboratory register OSE checklist
STS	♦ STS should visit all DMCs and PHIs at least once every month. The STS should visit all the smear positive patients within one month of starting treatment	TB register Laboratory register Treatment cards Referral for treatment register Supervisory checklist

In addition, internal evaluations are conducted by the central level with active participation of personnel from the states, Medical Colleges and NGOs.

During the year, the states have evaluated about 107 districts using a standardized format which covers the entire gamut of RNTCP services. The reports are disseminated amongst the DTOs to enable corrective actions to issues in their districts. Actions taken on the recommendations are regularly reviewed by the state. The central level has visited and intensively evaluated 5 states – evaluated 10 districts in addition to reviewing state level issues. The findings of the central level evaluations were discussed with the highest authorities of health and administration of

Central Internal Evaluation Assam


DOT provider visit during Internal Evaluations.

the state to enlist their active support for TB control activities in the state.

TB/HIV Collaborative Efforts

Scale-up TB-HIV Collaborative Activities

The interaction between HIV infection and tuberculosis (TB) is well documented. HIV-infection is among the strongest known risk factors for progression of latent TB infection to active disease. HIV-infected persons are many times more likely to develop TB than patients without HIV infection. Active TB disease is the most common opportunistic infection and the most common cause of death amongst HIV infected individuals.

India, the third highest HIV burden country, had an estimated 2.39 million (translating to a prevalence of 0.31%) people living with HIV/AIDS (PLHAs), about 1.2 lakh new HIV infections and 1.72 lakh deaths due to AIDS related causes in 2009. The nationwide estimated HIV seroprevalence among TB patients for 2007 was 4.85% (95% CI 4.12%–5.73%). The worst affected states are Andhra Pradesh, Karnataka, Manipur, Maharashtra, Nagaland and Tamil Nadu. These six states account for about 57% of PLHA in India and are classified as High Prevalence States. Another three states namely Gujarat, Goa and Ponducherry have been classified as Moderate HIV prevalence states. This is the first time HIV incidence estimates have been calculated and the 6 high prevalence states accounts for only 39% of these infections indicating new pockets of transmission in low prevalence states, emphasizing the enormous challenge ahead. The HIV epidemic pattern in the country shows great variance and 2009 estimates indicate an overall decline in HIV prevalence and incidence.

TB-HIV coordination activities are being implemented since 2001. Central TB Division (CTD) & National AIDS Control Organization (NACO) have revised the "National framework for Joint TB-HIV collaborative activities" in October 2009 which establishes uniform activities at ART centres and ICTCs nationwide for Intensified TB case finding and reporting, strengthens joint monitoring and evaluation with specified national TB/HIV programme indicators and performance targets.

All the WHO recommended TB/HIV collaborative activities have been incorporated in the national framework and include the following

1. Establish/Strengthen NACP-RNTCP coordination mechanisms at national, state and district levels.
2. Joint Monitoring and Evaluation including standardized reporting shared between the two programmes.
3. Training of the programme and field staff on TB/HIV using standard modules.
4. Scaling up of Intensified TB/HIV Package of Services across the country.
    a. Routine offer of HIV testing to TB patients
    b. Decentralized provision of Cotrimoxazole Prophylactic Treatment (CPT) for HIV-infected TB patients
    c. Linking of HIV-infected TB patients to NACP for HIV care and support (including antiretroviral treatment)
5. Activities to reduce the burden of TB among HIV-infected individuals
    a. Intensified TB case finding at ICTCs, ART and Community Care Centres (CCC)
    b. Implementation of feasible and effective infection control measures
6. Involvement of NGOs/CBOs and affected communities working with NACP and RNTCP for all activities on TB/HIV collaboration.
7. Operational research to improve the implementation and impact of TB/HIV collaborative activities.

Intensified TB-HIV Package

The Intensified TB-HIV package is being scaled up in a phased manner to cover the entire country by 2012. Intensified TB/HIV package of services have been rolled out in 29 states (6 high prevalence states and Goa, Mizoram, Puducherry in 2008, Delhi, Gujarat, Assam, Kerala, Punjab, Rajasthan, West Bengal, Orissa and Chandigarh in 2009 and 11 states namely Haryana, Himachal Pradesh, Uttarakhand, Jharkhand, Uttar Pradesh, Meghalaya, Sikkim, Tripura, Arunachal Pradesh, Chhattisgarh, Madhya Pradesh in 2010). Training in all the states where intensified TBHIV package has rolled out during 2010 is being completed and have started recording and reporting HIV status of TB patients, linking all HIV-infected TB patients for care and support including ART and CPT.

RNTCP has sanctioned a dedicated Senior "TB/HIV and DOTS-Plus supervisor" post in all the districts of the country to support the programme in these activities.

To address the issue of airborne infection control, which is particularly important for HIV care settings, a National Airborne Infection Control Committee (NAICC) was constituted in 2008, and has developed National Guidelines on Airborne Infection Control in health care and other settings. The Guidelines are now available for use nationwide, and NAICC has evaluated the operational feasibility and effectiveness of the guidelines, in the states of West Bengal, Gujarat and West Bengal.

The National Technical Working Group for TB/HIV acknowledges the evidence of IPT among PLHIV and has decided to pilot test the feasibility of its implementation in selected ART centres of the country before decision on nationwide scale-up. As per the recommendation of national TBHIV consultation at National AIDS Research Centre, Pune, it has been decided to collect efficacy data as well across all CD4 strata under programmatic conditions.

For HIV-infected TB patients requiring co-administration of ATT and ART with protease inhibitors (i.e. second-line ART or alternate first line ART containing PIs), Rifampicin should to be replaced by Rifabutin to avoid drug-drug interactions between rifampicin and PIs. States have been permitted by CTD to procure Rifabutin based on local requirement and use as per guidelines.

The year 2010 saw continued increase in the quantum of referrals between the programmes. In 2010, about 393,110 TB suspects (7.4% of all clients counseled) were referred from ICTCs to RNTCP and of them about 35,547 were diagnosed as having TB and provided TB treatment (Figure 4). In the same period, about 480,752 TB patients (59% of total TB patients registered in states implementing Intensified TB/HIV package) were tested for HIV and of them about

TOT Training in Intensified TB HIV package Arunachal Pradesh

Figure 4: ICF referral of ICTC clients for TB diagnostic evaluation, 2006–2010

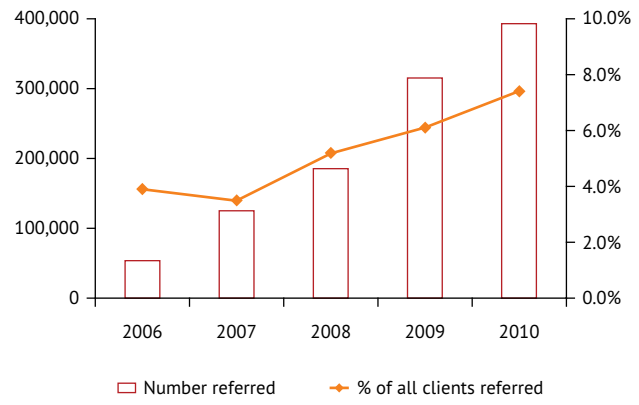


Figure 5: Trends in Number (%) of registered TB patients with known HIV status, 4q08–4q10

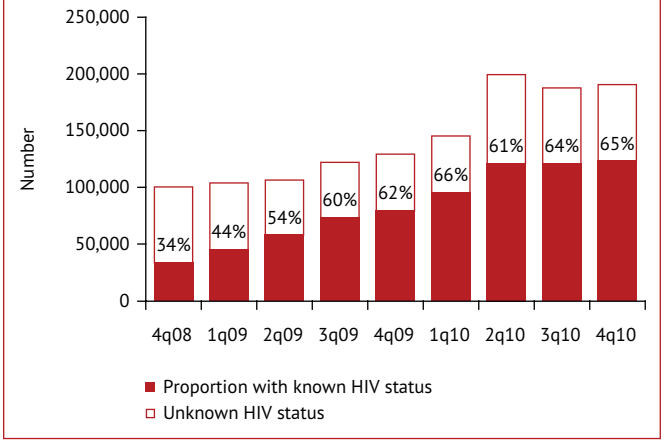


Figure 6: Number (%) of HIV-infected TB patients receiving CPT during TB treatment, 4q08–4q09

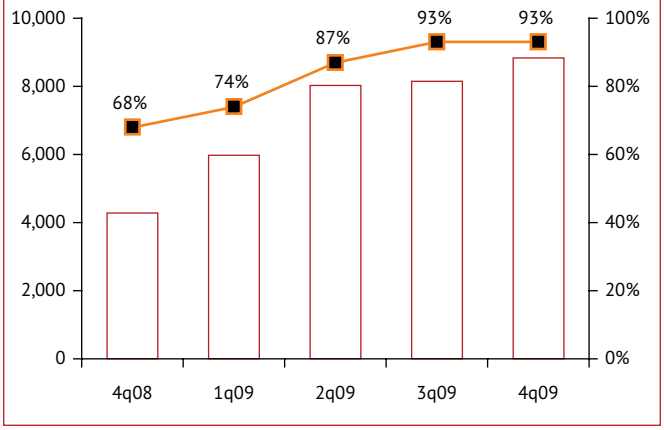
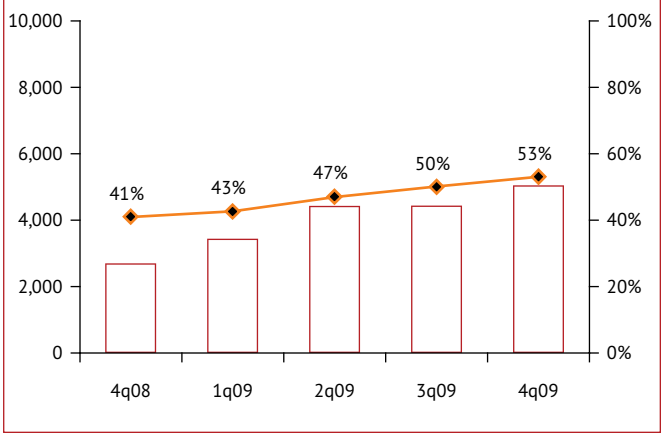


Figure 7: Number (%) of HIV-infected TB patients receiving ART during TB treatment, 4q08 – 4q09



41,476 were diagnosed as HIV-infected (Figure 5). Of these, about 88% received CPT and 49% received ART during TB treatment indicating the enormous challenge of linking to ART centres (Figure 6 and 7). The success of further scale-up would depend on the scale-up of HIV testing services (Facility integrated ICTCs and Whole blood testing). Unless all HIV-infected TB patients are linked to ART as early as possible, the high death rates documented among HIV-infected TB patients would continue. This is the greatest priority for both the programmes.

RNTCP-DOTS Plus - Programmatic Management of Drug Resistant TB

Prevalence of Drug Resistant TB in India

The emergence of resistance to drugs used to treat tuberculosis has become a significant public health problem in a number of countries and an obstacle to effective TB control. Drug resistant tuberculosis has frequently been encountered in India and its presence has been known virtually from the time anti-tuberculosis drugs were introduced for the treatment of TB. There have been a number of reports on drug resistance in India, but most studies were undertaken using non-standardized methodologies and biased or small samples, usually from tertiary level care facilities. To obtain a more precise estimate of Multi-Drug Resistant TB (MDR-TB) burden in the country, RNTCP carried out drug resistance surveillance (DRS) surveys in accordance with global guidelines at in selected states, Gujarat (56 million population) and Maharashtra (107 million) in 2005-2006 and Andhra Pradesh (81 million) in 2007-2008. The results of these surveys indicate prevalence of MDR-TB to be low i.e. less than 3% amongst new cases and 12-17% in re-treatment cases. These surveys also indicate that the prevalence of MDR-TB is stable in the country as the previous studies conducted by TRC, Chennai and NTI, Bangalore have shown a similar prevalence figures. To substantiate the findings of the earlier surveys, two more DRS surveys are presently ongoing in Western UP (85 million) and one is planned in Orissa in the near future. These surveys will be undertaken periodically to monitor and study the trend of prevalence of MDR in the community.

As per WHO Global TB Report 2010 and Multidrug and extensively drug-resistant TB (M/XDR-TB) – 2010 Global Report on Surveillance and Response, the estimated MDR TB cases emerging annually in India are reported to be 99,000 among incident total TB cases in India in 2008 (range 79,000 – 1,20,000) of which 55,000 were among incident new and relapse TB cases. However, based on the results of the recently undertaken DRS surveys, it is estimated that up to 50,000 detectable MDR cases emerge annually in the country that could be detected by drug-susceptibility testing of smear-positive patients currently notified under the RNTCP.

Emerging Threat of Second-line Anti-TB Drug Resistance and Extensively Drug Resistant TB (XDR-TB)

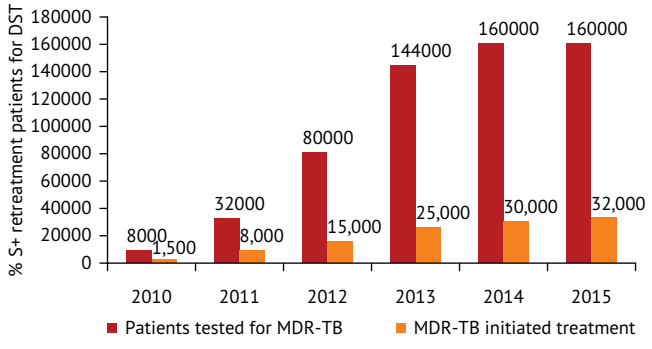
Extensively drug resistant TB (XDR-TB), subset of MDR-TB with resistance to second line drugs i.e. any fluoroquinolone and to at least 1 of the 3 second line injectable drugs (capreomycin, kanamycin and amikacin), has been reported in India. However, the extent and magnitude of this problem is yet to be determined. Results of the second line DST on MDR isolates from Gujarat DRS survey have shown that there is no XDR amongst new cases and the prevalence amongst re-treatment cases is 0.5%. The same survey, however, showed the finding of 24% (52/216) ofloxacin resistance among MDR-TB isolates, including 19% (7/37) among isolates from TB cases who had reported no previous history of MDR-TB treatment. The extent of fluoroquinolone resistance observed is of great concern, and may compromise MDR-TB treatment outcomes. Efforts to expand surveillance to second-line anti-TB drugs are underway.

RNTCP Response to the Challenge of Drug Resistant TB

The programme has developed a multi-faceted response plan to combat the challenge of drug resistant TB. The key focus of RNTCP is to prevent the emergence of drug resistance by providing quality DOTS diagnostic and treatment services, increasing the visibility and reach of the programme services and promoting adherence to International Standards of TB care by all healthcare providers. Indiscriminate and injudicious use of anti-TB drugs, especially outside the programme, is a significant contributor to the emergence of drug resistance TB. The programme has taken concrete steps to promote rational use of anti-TB drugs; these include the development of a guidance document, popularly called "The Chennai Consensus Statement", for healthcare providers on the prevention and management of drug resistance TB outside the programme settings. The programme through the aegis of professional medical associations and Medical Council of India is sensitizing, educating and urging healthcare providers on judicious use of anti-TB drugs. The intervention of drug regulatory authority of the country is being sought to strictly enforce sale of anti-TB drugs against valid prescription through a special directive.

Besides initiating and strengthening measures for prevention of drug resistance, the programme has simultaneously initiated diagnostic and treatment services for the management of MDR TB. These services which are considered "Standard of Care" by RNTCP were commenced in 2007 in identified districts in the states of Gujarat and Maharashtra. Over the last years these services have been expanded to 12 States. Despite the modest beginning, the programme has ambitious plans to rapidly scale up the DOTS Plus services in the country. It is envisioned that by the end of 2011 the MDR TB services will be introduced in all the states across the country in a phased manner. By 2012 it is aimed to extend drug susceptibility testing to all smear positive retreatment cases upon diagnosis, and all new cases who are smear-positive after first-line anti-TB treatment. By 2015 drug susceptibility testing will be made available to all smear positive cases registered under the programme. It is intended to be initiating MDR TB treatment at a rate of 30,000 MDR cases annually by the end of 2012. This is enabled by a nationwide laboratory scale up plan developed by the programme with an ambition to have 43 culture & DST laboratories (Solid & LPA techniques including Liquid Culture in 33 labs) in the public health sectors by 2015.

Plan for patients to be tested and treated for MDR-TB



*Based on RNTCP 2012 goal of MDR diagnosis for all S+ retreatment patients

RNTCP services for MDR TB and plans for scale-up have been the subject of extensive national and international review, including a joint mission of the WHO Green Light Committee (GLC) and Global Lab Initiative (GLI) in April 2010, and the RNTCP joint donor and partner mission of May 2010.

Key Activities During 2010

National DOTS Plus Scale up Micro-plan Developed

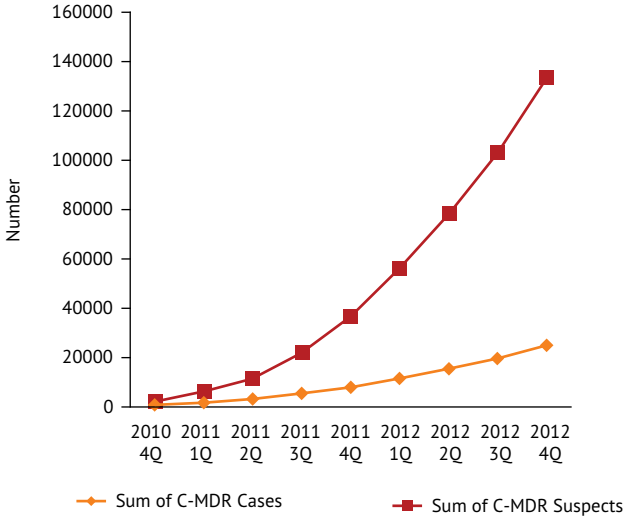
A series of state wise DOTS Plus scale-up micro-planning meetings were organized by CTD in November 2010, with 34 states at New Delhi. In these meetings, the key officials of each state revised their respective state micro-plans for rolling out DOTS Plus services in phased manner with the CTD team and aligned their state micro-plans and timelines with the planned resources of the national level including second line anti-TB drugs procurement, available laboratory capacity for diagnosis and follow up of MDR TB, and national laboratory scale up plan. All the states re-worked on their state DOTS Plus scale-up micro-plan with realistic timelines for completion of various preparatory activities to introduce and scale-up of DOTS Plus services in all the districts of the state in a phased manner. This meticulous micro-planning exercise clearly spelt out the demand and timelines for national trainings, central level DOTS Plus appraisals of states and laboratory capacity deficits in states where an external backup need to be arranged.

The national DOTS Plus scale-up micro-plan for the year 2011 and 2012 has been evolved by consolidating the state DOTS plus scale-up micro-plans. This national micro-plan was externally validated by a parallel analysis by experts from Clinton Health Access Initiative. The key outputs of the national micro-plan are as follows:

1. Drug quantity calculations were completed for the implementing state to ensure un-interrupted supply of second line anti-TB drugs, and immediate transfer of the requisite quantity of drugs was undertaken from CTD.
2. National MDR TB patient treatment capacity was concisely determined based on the quantities of various second-line drugs planned and their expected delivery timelines over two years for each state.
3. The scale-up of DOTS Plus activities with timelines was planned by geography and by criteria to prompt drug susceptibility testing, which is being scaled up nationwide in a phased manner as under:
   a. Criteria A: Failures of registered NSP and NSN, Failures and Non-Converters of registered S+ve RT, S+ve contacts of MDR TB cases registered for treatment
   b. Criteria B: All S+ve RT cases registered for treatment (Relapse, TAD, Failure and Others)
   c. Criteria C: All S+ve Cases (New and RT) registered for treatment
4. The numbers of MDR TB patients that can be initiated on treatment by states were determined using assumptions based on current national experience of MDR TB rates and rates of patients attritions from services applied to the annual RNTCP performance data by districts for the respective states. The decisions on clear timelines for rolling out services in districts by phases was carefully taken with a view of all preparatory activities like civil works, staffing, trainings and appraisals.
5. These enrollment plans of MDR TB Suspects and Cases were also carefully determined to ensure that these remain within the available laboratory capacity and the second-line drug supply envelope for the respective state over the next two years.
6. To scale up treatment services, against the 120 planned DOTS Plus Sites, 115 sites were identified across 34 states and timelines for their up gradation for airborne infection control and rolling out of services were determined.
7. National DOTS Plus training and appraisal needs to meet the scale-up plan for the states were also determined. A clear strategy to meet these demands for national trainings and appraisal demands under the scale-up plan has been developed by CTD. A core team of experts and consultants from national institutes and experienced states have been developed to support CTD in meeting the training and appraisal needs as per the scale-up micro-plan.

This national plan is being formally documented and the final version will be communicated to all states.

India: Enrollment Plan of MDR TB Suspects and Cases



Cumulative Plan for	2011–2012
MDR TB Suspects enrollment plan	1,33,830 suspects
MDR TB Cases enrollment plan	25,137 cases

Training Activities

National level DOTS Plus Trainings are conducted at LRS Institute, New Delhi; STDC, Ahmedabad, Gujarat and STDC, Hyderabad, Andhra Pradesh. As a felt need identified in the National DOTS Plus Scale-up Micro-plan, the 4th National DOTS Plus Training Center was strategically initiated at STDC, Trivandrum, Kerala where the 1st national training batch was organized under mentorship of CTD and STDC Ahmedabad in December 2010.

Secretary Health of Kerala inaugurating National DOTS Plus Training at Trivandrum, Kerala on 14th December 2010. STDC Trivandrum recognized as the 4th National DOTS Plus Training Centre

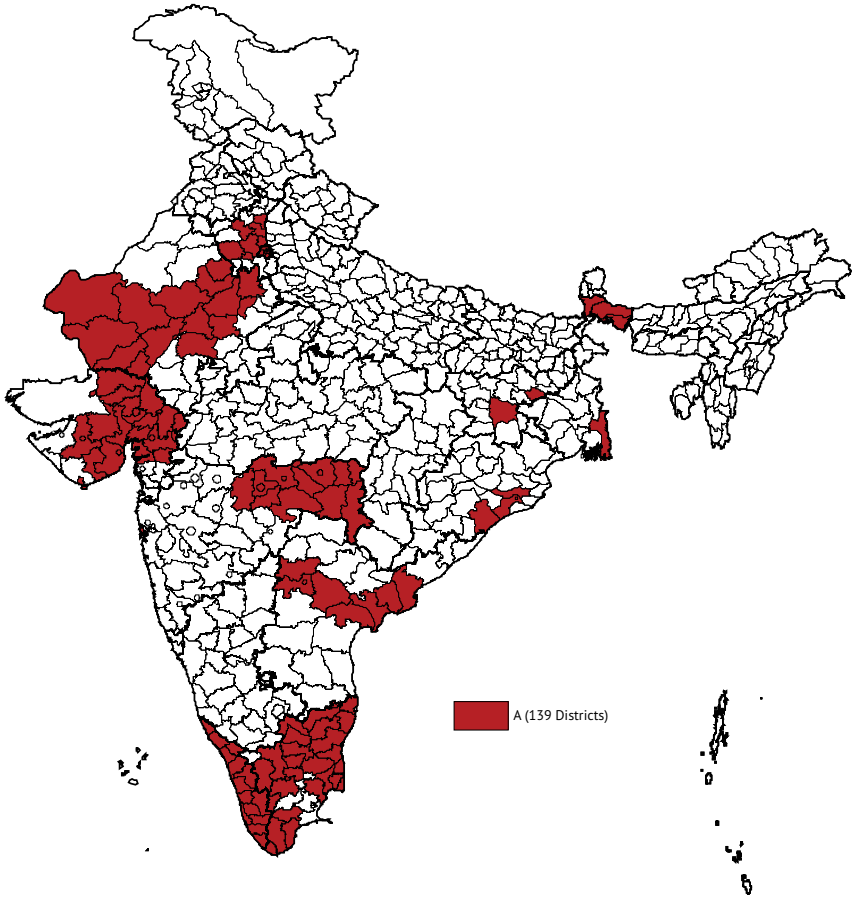
In 2010, National level DOTS Plus trainings were undertaken for the states of Karnataka, Madhya Pradesh, Uttar Pradesh, Uttarakhand, Chhattisgarh, Jharkhand, Jammu & Kashmir, Sikkim, Arunachal Pradesh, Puducherry, Andaman & Nicobar Islands, Andhra Pradesh (Phase IV and V), Delhi (Phase II) and Tamil Nadu (Phase V). As per the National DOTS Plus Scale-up micro-plan, the national trainings of state level trainers and 1st phase districts of the remaining states will be completed by end of February 2011.

National DOTS Plus Appraisals

In 2010, National level DOTS Plus appraisal system was introduced with the objective to ensure programme readiness and adequate quality of services in states and districts before initiating DOTS Plus services for MDR TB. These appraisals are being conducted nationwide by external teams of experts nominated by Central TB Division and MDR TB treatment services would be introduced after successful appraisals and corrective action against programme deficiencies.

In the year 2010 national DOTS Plus appraisals were undertaken for Maharashtra (7 districts, 2 DOTS Plus Sites and 3 Laboratories), Himachal Pradesh (2 districts, 2 DOTS Plus Sites and 2 Laboratories), Jharkhand (2 districts, 1 DOTS Plus Site and 2 Laboratories) and Madhya Pradesh (2 districts, 2 DOTS Plus Site and 3 Laboratories). The pace of appraisals is expected to greatly accelerate in 2011 to meet national service expansion needs.

DOTS Plus Coverage by Geography & Suspects Criteria - As on December 2010



Cumulative Status of DOTS Plus at the End of 2010

The MDR TB services were initiated in 2007 in Gujarat and Maharashtra. Currently, 12 States namely Gujarat, Maharashtra, Andhra Pradesh, New Delhi, Haryana, Kerala, Tamil Nadu, Rajasthan, Daman & Diu, West Bengal, Orissa and Jharkhand are implementing DOTS Plus services in some districts. The states of Himachal Pradesh, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Uttarakhand, Karnataka and Puducherry are preparing to initiate services shortly. The remaining states are preparing to initiate services in 2011.

At the end of the 4th quarter of 2010 the MDR TB treatment services have been scaled up to cover ~288 million population in 141 districts across 12 states. Since the inception of DOTS Plus services in India, a cumulative total of 19178 MDR TB Suspects have been examined for diagnosis; 5365 MDR TB cases have been confirmed and 3605 MDR TB cases have been initiated on Category IV treatment through 20 DOTS Plus Sites.

In the year 2010, 10025 MDR TB Suspects have been examined for diagnosis; 2967 MDR TB cases have been confirmed and 2178 MDR TB cases have been initiated on Category IV treatment. Two DOTS Plus Sites started functioning in the year 2010 namely Group of TB Hospitals, Mumbai and TB Sanatorium, Itki, Ranchi. MDR TB treatment services were initiated in Jharkhand since December 2010.

The following Table 8 summarizes the implementation status of DOTS Plus services for diagnosis and treatment of MDR TB in various states:

Out of the cumulative total of 984 MDR TB Cases registered for treatment 12-15 months earlier, 549 cases (56%) were reported to be alive, on treatment and culture negative at 12 months of treatment.

Regular reporting and analysis of TB treatment outcomes for programme improvement is an ongoing activity in RNTCP, and MDR TB treatment services are no different. The treatment outcomes of MDR TB for the initial pilot sites in Gujarat and Maharashtra have been reported. These are the first MDR TB treatment outcomes under RNTCP. These patients were generally heavily treatment experienced, chronic cases, and so expectations on treatment outcomes were limited. Out of the cumulative total of 137 MDR TB Cases registered for treatment 31-33 months earlier, 59 cases (43%) have been successfully completed treatment while 28 cases (20%) died, 21 cases (15%) failed and 29 cases (21%) defaulted treatment. Substantial improvements in policies and procedures have been implemented to reduce treatment default, affective 1 in 5 registered MDR TB case. Explanatory research is underway to understand the unacceptable failure rates, but early

TABLE 8: DOTS Plus Implementation Status and Progress – 2007 to 2010

State	Initiation of Diagnostic services	Initiation of Treatment Services	Number of Districts Implementing	MDRTB Suspects examined by C-DST	MDRTB cases diagnosed[$]	MDRTB cases initiated on treatment[#]
Andhra Pradesh	Jun 2008	Oct 2008	8/24	1721	588	425
Delhi	Sep 2008	Dec 2008	24/24	4504	1203	703
Gujarat*	Mar 2007	Aug 2007	21/30	3950	1277	942
Haryana	July 2008	Sep 2008	7/21	679	150	101
Jharkhand	Mar 2010	Dec 2010	2/24	82	8	3
Kerala	July 2008	Sep 2008	14/14	2199	369	262
Maharashtra	Mar 2007	Sep 2007	16/55	1643	604	376
Orissa	Sep 2009	Nov 2009	4/31	134	49	32
Rajasthan	Mar 2009	May 2009	15/32	2084	520	322
Tamil Nadu	Sep 2008	Jan 2009	25/31	722	145	174
West Bengal	Aug 2008	Dec 2008	5/19	1460	452	270
Grand Total			**141/658**	**19178**	**5365**	**3610**

* Daman & Diu had initiated 1 case of MDR TB in 2008 that was reported under Gujarat.

[$] Refers to number of cases whose C-DST results are reported up to 31st Dec 10, with many specimens received in 2010 still pending.

[#] Refers to MDR TB cases initiated on treatment as on 31st Dec 10. These numbers reflect different cohorts of patients and should not be directly compared with the numbers diagnosed.

results suggest poor outcomes have been strongly associated with pre-treatment ofloxacin resistance in this patient cohort. This analysis is being expanded to subsequent sites and cohorts to inform ongoing revision of programme policies and procedures.

Involvement of Private Sector, NGO's, Medical Colleges and Civil Society in DOTS Plus

RNTCP has made significant progress towards establishing successful partnership with private sector, non-government organizations, medical colleges and civil society partners under DOTS Plus in providing services to MDR TB cases in the implementing states. To date, 7 Culture and DST laboratories from these other sector institutes accredited and engaged under DOTS Plus for management of MDR TB viz. Blue Peter Research Centre-Hyderabad, PD Hinduja Hospital-Mumbai, CMC-Vellore, RMRCT (ICMR)-Jabalpur and DFIT- Nellore and laboratories from 2 premium medical colleges of India viz. SMS Medical College-Jaipur and Grant Medical College (JJ Hospital)-Mumbai. Moreover, 10 more laboratories from the other sector viz. PGIMER- Chandigarh, AIIMS-New Delhi, Quest Diagnostics-Gurgaon, 3 Super Religare Laboratories-Mumbai, Gurgaon & Kolkata, T Choitram – Indore, BMHRC – Bhopal, RMRC Port Blair & Dibrugarh are at the advanced stage of accreditation under RNTCP and their services are proposed to be utilized during rapid expansion phase. It is also noteworthy that 14 out of the 20 functional DOTS Plus Sites are located in Medical Colleges.

Under the Global Fund (Round 9) TB project, a group of NGO's are engaged under the leadership of 2 principle recipients viz. The Union and World Vision. They would extend support to RNTCP in 744 million population of the country in 374 selected districts to improve access to quality DOTS services and prevent emergence of drug resistance. They would also promote the adoption and implementation of Patient Centred Care for all TB patients including those with MDR-TB and HIV co-infection.

To promote treatment adherence under DOTS Plus, successful interventions of vocational rehabilitation

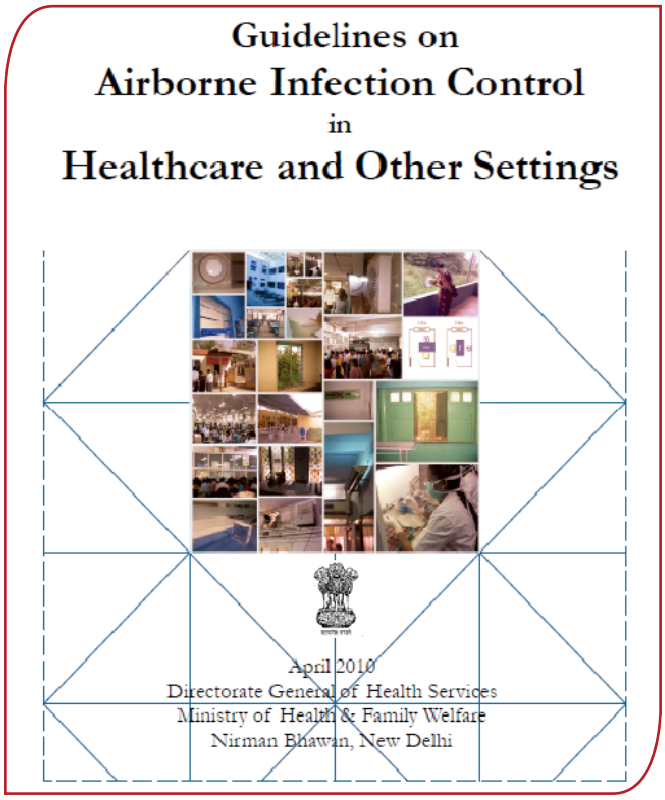
DR TB Training Ahmedabad

International training for Drug Resistant TB Consultants was conducted at Ahmedabad, Gujarat between 4-8 October 2010. National Consultants from >20 countries across the world participated. It was funded by USAID and organized by WHO with local support for field visits by Govt. of Gujarat. WHO SEARO has offered to develop Ahmedabad as one of the regional center of excellence for DR TB to support capacity building initiatives of various countries of South East Asia region.

of MDR TB patients has exhibited by two NGOs viz. Shree Hari Seva Trust, Ahmedabad and Shahyog Kushth Yagna Trust, Himmatnagar in Gujarat state with support of the Elli Lily Company as part of their corporate social responsibility with the objective to assist MDR TB cases to uplift their socio-economic status and regain their self-esteem. Various types of earning articles like sewing machines, bicycles, vegetable carts, Idli stall carts etc. that match the skill set and interest of the patients were distributed by Medical Superintendent, Civil Hospital Ahmedabad, Dr. M.M. Prabhakar, Dean B.J. Medical College, Ahmedabad. Dr. Bharat Shah, Nodal Officer-DOTS Plus, Dr. R.N. Solanki, Director STDC, Dr. Pradip Patel, and other dignitaries to the MDR Patients of Ahmedabad Municipal Corporation Area.

Airborne Infection Control

Airborne infection control measures are crucial for preventing spread of TB from person to person and also reducing the risk of spread of TB to health workers in institutional settings. This has greater significance in management of MDR TB cases and HIV infected individuals. These measures are expected to augment the TB control efforts currently undertaken by the programme through implementation of the STOP TB Strategy under RNTCP. Amidst the challenges of airborne infection control in India like high TB burden, high transmission of TB and other resp. diseases in health care facilities, concentration of vulnerable populations like PLHA, the scale of response and the coordination required; there also exists opportunities in India in terms of the massive health system strengthening investment underway, pandemic flu preparedness initiatives of the ministry through NCDC, growing awareness of infection



control importance and greater number of hospitals seeking accreditation.

In the absence of any existing national guidelines on airborne infection control the Medical College's National Task Force in 2007 had recommended that an "Infection Control Expert group" may be constituted to develop such guidelines which should be implemented in healthcare settings. This was endorsed by the DOTS Plus Committee in its 4th meeting in January, 2008. As a step towards this initiative, the National Airborne Infection Control Committee (NAICC) with representations from Medical Colleges, NCDC, NACO, CTD, WHO, Architects and PWD Engineers was established in 2008. The committee has developed draft National Guidelines on Airborne Infection Control in health care and other settings (April 2010) with the purpose of providing up-to-date information about recommended methods of reducing the risk of airborne infections in health care facilities. A "National Capacity Building Workshop on Air-borne Infection Control in India" was organized by RNTCP with support of CDC and WHO at LRS.

Institute, New Delhi from 20th – 24th October 2009 for National and State AIC Committee members. The NAICC identified the states of West Bengal, Gujarat and Andhra Pradesh to conduct the pilot testing of operational feasibility and effectiveness of the guidelines.

The provisional guidelines were circulated from CTD to all states in April 2010 with the purpose of prioritizing its implementation in high risk settings like MDR TB Wards (DOTS Plus Sites), TB Culture and DST Labs, ART Centres, Bronchoscopy Suits etc.

As part of this pilot, the following activities were undertaken by CTD and the 3 pilot states:

- A state airborne infection control committee (SAICC) was established to ensure smooth implementation and regular review of adoption and integration of the national AIC guidelines in hospital infection control plans of various health care facilities in the states.
- The states developed an action plan to implement the National Guidelines on Airborne Infection Control in 2010-11. Funds required for conducting the AIC pilot were made available through the NRHM Flexi-pool by the respective states.
- 35 health care facilities ranging from tertiary level institutes like Medical Colleges to primary level health centers and sub-centers spread across 13 districts were identified by the 3 states for this purpose. These included 7 Medical Colleges and 2 high end Private Hospitals as well as high risk settings like 10 ART Centres, 4 MDR TB wards, 7 Bronchoscopy Suits, 2 TB Culture and DST labs.
- A state level capacity building workshop on Airborne Infection Control was conducted for state, district and facility administrators included in the pilot in all 3 states between March '10 to July '10.
- Baseline health care facility risk assessments conducted by State teams with National-level facilitators to assess the prevailing infection control systems, IC human resources, administrative controls and practices, Environmental situation like room volumes and air exchange per hour, personal protective measures and ACSM efforts on AIC.
- Recommendations to improve airborne infection control measures provided to respective HCF administrators based on national AIC guidelines.
- Standard AIC Quarterly reporting on indicators developed from national AIC guideline were initiated from all states since 3Q10.

A parallel initiative to build capacity of the Architects and Engineers to adopt the principles of Airborne Infection Control in the design or renovation plan of health care facilities was also undertaken with support of WHO, PATH and USAID. A team of 4 Architects (1 from DGHS and 3 from Pilot States) were trained at an international training course for Architects and Engineers in "Building Design and Engineering

Health Care Facility AIC Risk Assessments conducted in 35 facilities of 3 states

Approaches to Airborne Infection Control" from 2nd – 13th August 2010 at Boston, MA, USA. The course was conducted by experts from Partners in Health and CDC Atlanta at Harvard School of Public Health. This was followed by an in-country training course in "Building Design and Engineering Approaches to Airborne Infection Control" for Architects and Engineers from 6 states viz. Gujarat, West Bengal, Andhra Pradesh, Maharashtra, Rajasthan and Karnataka; from 17th to 21st January, 2011 at Hyderabad, Andhra Pradesh with the support of PATH, USAID and WHO India. The 4 architects of India facilitated the training with support from external facilitators from Partners in Health, Boston and CDC Atlanta.

The progress made by India in establishing Airborne Infection Control systems and the initial results of the pilot implementation were presented at the at 41st Union World Conference on Lung Health at the International Congress Centre in Berlin, Germany, on 11-15 November 2010. The summary of the initial results of the pilot implementation based on the baseline facility risk assessments of 35 HCFs are as follows:

AIC workshop in Hyderabad

- Infection control systems in general are poorly developed.
- Airborne infection control component was absent from Hospital Infection Control Plans.
- Administrative controls uncommonly practiced
- About half of departments need minor renovation to achieve minimum environmental standards.
- AIC capacity building and systems development have resulted in early promising improvements.

The way forward in the pilot implementation of the National AIC Guidelines would be:

- Follow-up assessments to validate whether the recommendations were implemented.
- Revision of national guidelines based on feasibility and effectiveness of measures implemented.
- Integrate AIC into hospital accreditation and routine health system reporting (not TB).
- Implement integrated infection control training material for frontline HCW (RIPC).

The results of the pilot based on follow up assessments would determine the further expansion to the rest of the country.

Dr Puneet Dewan presenting pilot AIC (India) in Union World Conference, Germany

Contribute to Health System Strengthening

National Rural Health Mission (NRHM) was launched in April 2005, with a goal to improve the availability and access to quality health care by people, especially those residing in rural areas, and the poor and vulnerable groups. NRHM aims to carry out the

necessary structural correction in the basic health care delivery system of the country by increasing public expenditure on health, reducing regional imbalances in health infrastructure, pooling resources, integration of organizational structures, optimization of health manpower, decentralization and district management of health programmes, community participation and ownership of assets, and the induction of management and financial personnel into district health system. Indian Public Health Standards (IPHS) have been defined for the minimum level of infrastructure, human resource, equipment and drugs/ consumables needed for effective functioning of the health institution (primary, secondary and tertiary units). The large scale Health System strengthening exercise will definitely have long standing sustainable effects, than sector wide approach to each disease. Disease specific interventions like RNTCP will get better opportunities for integrating with the health system through NRHM.

Key NRHM Strategies

- The Accredited Social Health Activists (ASHA) programme is one major component of NRHM. Every village/large habitat will have a female ASHA chosen and accountable to the panchayat to act as the interface between the community and the public health system. ASHA would act as a bridge between the Auxiliary Nurse Midwife (ANM) and the village and be accountable to the Panchayat. She will be an honorary volunteer, receiving performance-based compensation for promoting universal immunisation, referral and escort services for Reproductive and Child Health (RCH), construction of household toilets, and other healthcare delivery programmes. Since its implementation ASHA is the closest health personal to the community. In the context of RNTCP ASHA have helped in decentralizing the DOT service to reach the door step of the patient which is evidenced by the tremendous increase in number of community DOT providers when compared to pre NRHM years.

ASHA working providing DOT

- Provision of untied funds and flexible financing is another component at all levels, from sub center to district hospital, empowering local health care providers and addressing many critical gaps in service delivery.
- The Health system strengthening by bridging the gaps of human resources, especially filling up of vacancies of Medical Officers, Laboratory Technicians and Peripheral Health Workers ensured seamless DOT service delivery.
- The untied funds and flexible utilization has added to infrastructure development, like laboratory strengthening, DOT centres and additional human resources.
- By forming registered societies at PHCs, CHCs and district hospitals, legal entities are created that have greater flexibility in discharge of their functions. Rate of utilization of these funds is increasing each year. These flexibilities have resulted in faster solutions to the local issues.
- Formation of Hospital Development Societies (Rogi Kalyan Samiti) in states with provision of untied funds to them for enabling facility development.
- Involvement of Panchayat standing committees members in District Health and Family Welfare Societies, Rogi Kalyan Samiti (RKS), the Village Health and Sanitation Committee (VHSC) and selection of ASHAs.
- Indian Public Health Standards (IPHS) formulated as valuable benchmark for facilitating states to reach desirable levels of both infrastructure and human resource. This has led to filling up of vacant existing positions and creation of new posts. Multi-skilling of the nurses and medical officers for specialist tasks is additional strategy taken up by few states.
- Setting up of an integrated State and District Health society with representation from all

programme divisions on financial management, monitoring and use of human resources.

- Decentralized district level planning through preparation of District Health Action Plans, which is based on specific health needs of the people. The state plan is a consolidation of district health plans.
- Setting up of district and state Programme Management Units (PMUs): To strengthen capacities for data collection, assessment and review for evidence based planning, monitoring and supervision, for strengthening management systems, finance management, logistic/procurement and infrastructure systems and inculcate management skills in health team for the techno-managerial role to be played by the respective district programme officers. Provision of Programme Management Units (PMUS) for all districts through recruitment of contractual Master in Business Administration (MBA), Chartered Accountants (CA), Masters in Computer Application (MCA) & Data Entry Operators (DEO) has been made.
- Improvement in Financial management procedures with the use of e-transfer for funds upto districts and induction of personnel with financial management skills.
- Another important intervention under NRHM is the provision of a Mobile Medical Unit (MMU) at District level for improved outreach services.
- Fourth Common Review Mission report elaborates about the NRHM Health System Strengthening initiatives like, nearly 8 lakh Accredited Social Health Activists (ASHAs) have been engaged; 1572 specialists, 8284 MBBS doctors, 26734 staff nurses, 53552 auxiliary nurse midwives (ANMs), 18272 Paramedics employed on contract basis and a total of 16338 Primary Health Centres (PHCs), Community Health Centres (CHCs), and other Sub District facilities have been made functional on 24 x 7 basis.

TB related objective of the Mission is "Prevention and control of communicable and non-communicable diseases, including locally endemic diseases" with expected outcome of "maintaining 85% cure rate through entire Mission period and also sustain planned case detection rate".

RNTCP is an integral part of the NRHM and would continue to deliver its services under the umbrella State/District Health society created under NRHM. As RNTCP is being integrated with the general health system, NRHM would further help in strengthening delivery of DOTS services and increasing accountability of general health system. ASHA workers recruited under NRHM, are being trained by RNTCP for DOT provision and support to decentralize DOT services to the doorstep of the patients, thereby increasing patient convenience and thus compliance. Additionally, in the context of Universal Access, the ASHA can be mobilized to identify chest symptomatics in the community and refer them for sputum examination. Further options of sputum collection and transportation to the nearest DMC by ASHA could be explored in the coming years.

Human Resource Development

Introduction

Human resources are central to all public health systems and a considerable share of resources allocated to public health goes towards them. Health workforce in adequate numbers, in proper places, and appropriately trained, motivated and supported are the backbone of an effective, equitable, and efficient public health care system.

As an important input to health programs, ensuring adequate numbers of health workforce is critical to achieve the ambitious target of Universal access in Revised National Tuberculosis Control Program (RNTCP). The program continuously focuses on issues around staffing and capacity building to address the newer challenges of Universal Access.

The program is conscious that isolated implementation of HR interventions may not yield results as RNTCP is a subsystem of the country's health workforce and is deeply integrated with the general health system. Increasing the numbers and competence of health workforce for the program is considered from the perspective of the larger health care system.

Significance and Goal of Human Resources in Revised National Tuberculosis Control Program

The program recognizes that human resources for health are among the most important resources in

program delivery and improving HR management of RNTCP staff will eventually impact program performance in a positive manner at the state and district levels. The development and maintenance of a competent workforce for TB control through well planned training and capacity building interventions is therefore key component of the activities of RNTCP.

The program consistently works with the state health systems to ensure that there are minimal staffing and skill gaps at all levels of the health system leading to roadblocks in achieving program objectives. Despite challenges related to compensation, working conditions, reward and motivational deficits which tend to stifle initiative and change, the program constantly endeavors to address key HR issues at the field level through advocacy and constant communication with the general health system and National Rural Health Mission (NRHM).

Human resource development (HRD) under RNTCP has adopted a holistic approach which includes management of personnel, while maintaining constant standards of training, leading to professional competence development in TB control activities that will benefit every patient being treated in the programme.

Who is the "Human Resources" for RNTCP?

Human resources for RNTCP are not limited to those posts established under RNTCP. Rather, it includes all those who deliver services for RNTCP with the aim of achieving program objectives related to diagnosis, treatment and management of Tuberculosis, including Contractual Staff and government staffs of general health systems, partner NGOs, Medical Colleges, institutions supporting the program, professional bodies advocating the cause of TB care et al. It also includes people who influence non-health actions with the aim of improving TB control initiatives.

The overall aim of Human Resource Development is to constantly strengthen the supervisory and managerial capacity of programme personnel and to ensure optimal utilisation of available staff to achieve maximum advantage for the programme.

Some of the strategies amongst others, adopted by the program to achieve this objective are:

- Encourage continuity of key staff such as STO, DTO and MO-TC through constant communication of program leadership with key decision makers at national and local levels.
- Systematic Training and Capacity building programs and initiatives implemented in conjunction with the general health system.
- Reinforcement of healthy contractual management practices through supervisory visits and Internal Evaluations.
- States are encouraged to plan human resource related activities in a systematic manner.

HRD Activities in RNTCP

RNTCP carries out the following activities in HRD:

Training and Capacity Building

Training and Capacity building is an integral part of RNTCP and structured training programs targeting specific audience are imparted on a regular basis by the program at National, State and district levels. Properly directed and managed training and follow up is an integral component of RNTCP. The concept of HRD is not just limited to organizing training courses but focuses on the larger issue of Health system strengthening through important component of Human Resources.

The programme has a mandate to ensure that at least 80% of key health personnel in place are trained. They include Medical Officer (MO), Senior Treatment Supervisor (STS), Senior TB Laboratory Supervisor (STLS) and Laboratory Technician (LT). These are continuous activities performed at state and district level.

Establish and Improve Existing Training Programs

Many staff involved in the program activities at different levels exercise considerable supervisory and managerial responsibilities; however they have acquired managerial expertise, mainly through "hands-on" experience. The program is attentive to this need and is looking at managerial capacity building initiatives including adding the Managerial skills module in the basic training pack for program managers who are primarily the State TB Officers/ District TB Officers and Medical Officers of the general health system.

RNTCP has developed a series of modular training courses with printed material for all levels of staff ranging from the State TB Officers to the community DOT providers. These trainings are conducted at various levels as under:

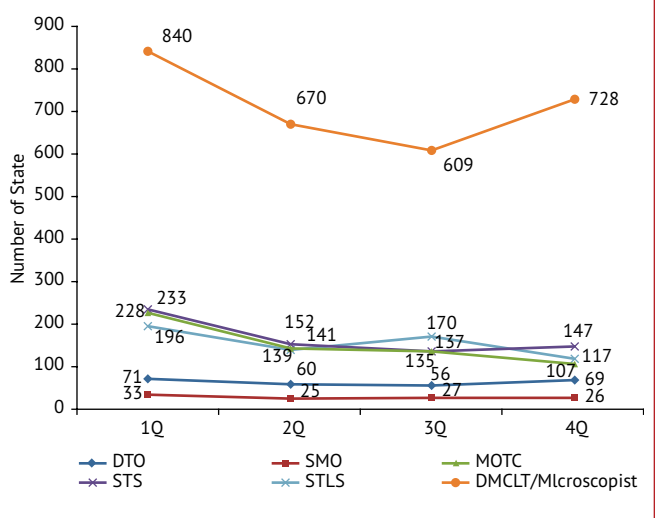
Level of Training	Staff Category trained
Central level	State TB Officers, District TB Officers, faculty of State TB and Demonstration Centers (STDC) and Master trainers.
State level (State Training and Demonstration Centers)	Medical Officer TB Control, STS and STLS
District	Medical Officers, LT, MPWs and Community DOT providers

There are four National level Institutes where training and research related activities for the program are undertaken. They are National Tuberculosis Institute (NTI), Bangalore, Karnataka, Tuberculosis Research Centre (TRC), Chennai, Tamil Nadu, Lala Ram Swaroop (LRS) Institute of TB and Respiratory Diseases, New Delhi and JALMA, Agra, Uttar Pradesh

In the context of training and capacity building, it is important to highlight that to date at least 750,000 people have been trained/retrained in RNTCP in various areas of the program. Apart from RNTCP contractual staff, staff from general health system, this includes staff from NACP, Medical colleges, NGOs and private practitioners.

Figure 8 depicts the total number of key staff trained in various areas of RNTCP in 2010 alone.

Figure 8: Key Staff trained/retrained during 2010



Key staff includes DTO, SMO, MOTC, STS, STLS, DMC-LTs

There are three tiers of training which address as different needs of the staff providing RNTCP services:

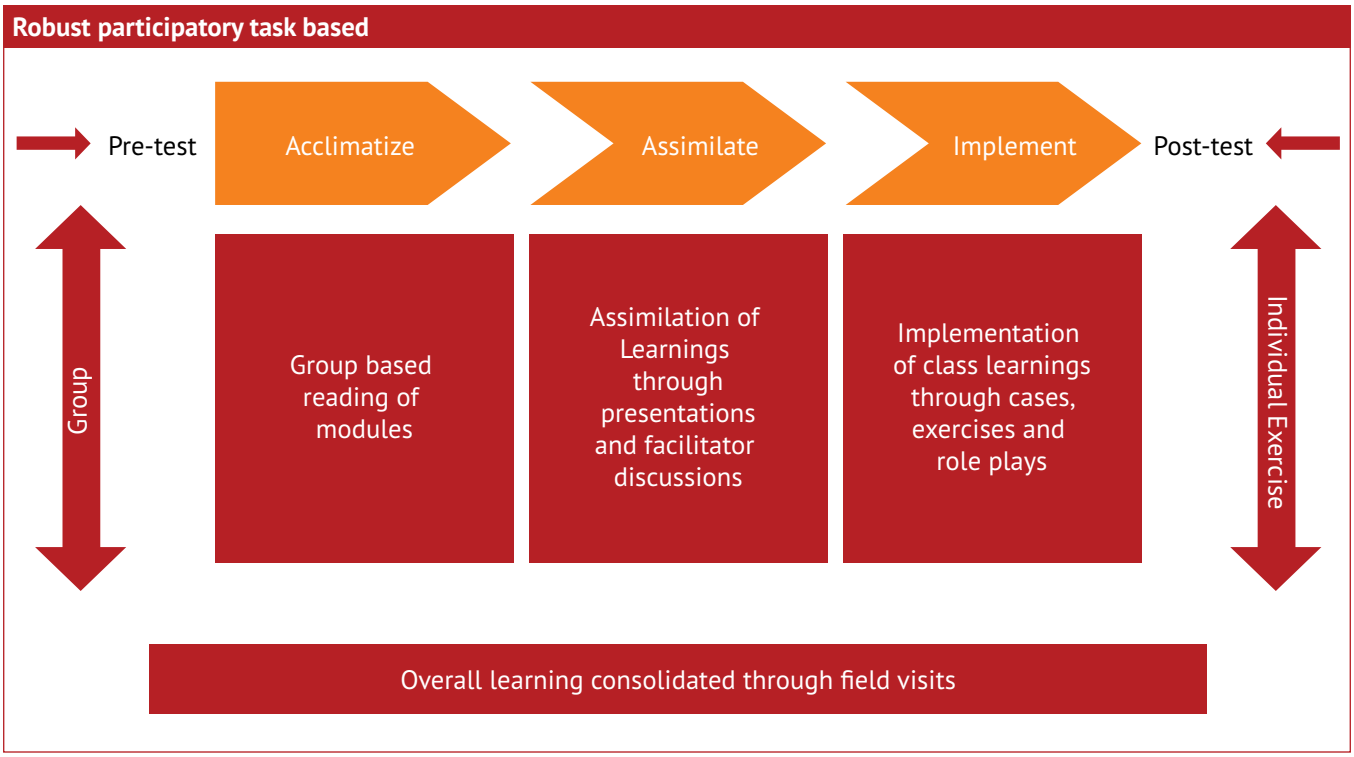
1. Initial RNTCP training: This includes all induction trainings in RNTCP of newly placed staff or replacement staff following staff turnover. It also includes the initial training of NGO and private practitioners on RNTCP, in addition to the basic modular trainings for Medical Officers, STS, STLS, LTs and MPWs.
2. Re-training: These trainings would be mainly for individuals who have already received initial RNTCP training, but during supervision have been identified as requiring re-training on basic RNTCP activities.
3. Updates on new activities and initiatives. As the RNTCP introduces new activities and initiatives, it is imperative that the field staff is updated on these areas. These updates are given mainly by utilizing time under routine activities like regular programme review meetings such as the monthly district level meeting of the DTO, MO-TCs, STSs and STLSs and the quarterly state level review meetings.

RNTCP Training Methodology

The overall learning methodology encourages participatory approach through:

- Reading of Modules
- Interactions among participants & facilitators
- Module based Presentations
- Problem based learning
- Group exercises
- Individual exercises
- Role plays
- Practical demonstrations
- Presentations
- Exposure to field situations

Basic Training Modules Used in the Program



1. Medical Colleges in RNTCP Training

Involvement of medical colleges in the Revised National Tuberculosis Control Programme (RNTCP) is a high priority. Continuing success of RNTCP requires involvement of all large health care providers including medical colleges. Professors of Medical Colleges have an important role in TB control as opinion leaders and trendsetters. By teaching and practicing DOTS they act as role models for practicing physicians. More than 350 faculty members from medical colleges across the country have been trained at National institutes as "Master Trainers" and they participate in State/ district level trainings.

2. Co-ordination of TB-related and HIV/ AIDS Training with the National AIDS Control Organization

Central TB Division, in collaboration with NACO, has developed a range of training packages which address the issues of TB-HIV. These training courses are targeted at various levels of health workforce from District Program Managers, MOs, VCTC counselors, and Peripheral field workers. Thus HIV/AIDS programme staff are being trained on RNTCP and vice versa. Training is also provided to NGOs who are involved in TB related and/or HIV/AIDS activities.

All TB-HIV training modules have been revised and updated and uploaded on the program website.

3. Managing Information for Action (MIFA)

The program produces invaluable data at all levels and it is essential to ensure that districts and states know how to analyze and utilize their data for improving the program. Trainings have been conducted in many states by the National level consultants and based on feedback received from states, the quality of trainings have also improved to make them more interactive and participatory. The number of trainings conducted for program managers at state and district levels and consultants from various states across the country have also increased. In the year 2010, one National level Training of Trainers (TOT) at NTI Bangalore and 2 state level trainings for DTOs, consultants and State staff were organized in Bihar and Chhattisgarh to equip them to leverage the strength of information to improve quality of data and reporting.

4. Training in Advocacy, Communication and Social Mobilization

Advocacy, Communication and Social Mobilization (ACSM) has crucial role in increasing the reach of services of the program by involvement of other sectors, civil society organizations, NGOs etc.,

creating conducive and patient friendly environment and also keeping the communities informed of the RNTCP services over the years, ACSM component has been strengthened yet there are areas that need attention, such as capacity of the states and districts to systematically plan and implement need based, locally appropriate activities. RNTCP conducted three training/workshop for Programme Managers in the states (State TB Officers and state IEC officers) to assess, plan and implement state specific need based ACSM activities. These trainings were conducted in 2010 and January 2011 by the media agency engaged by the program division. The trainings were conducted in Guwahati, Ranchi and Bhopal. Further, 3 additional trainings are proposed to be completed by March 2011.

The International Union against Tuberculosis and Lung Diseases (The Union) and World Vision have undertaken significant capacity building activities to strengthen the ACSM component of the program. under Global Fund Round 9.

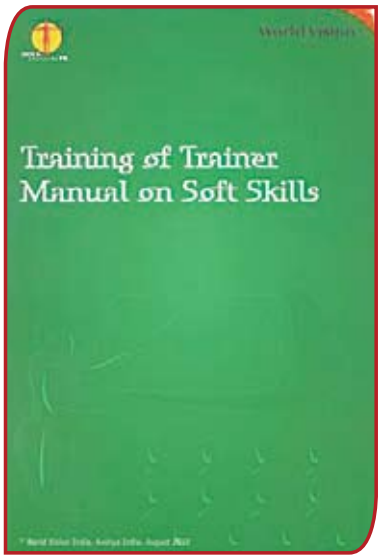
PATH has strengthened ACSM capacity in Andhra Pradesh, Maharashtra, Uttarakhand, Uttar Pradesh, Karnataka, and Madhya Pradesh, as well as among district level RNTCP staff including training workshops with medical consultants on ACSM and public private mix (PPM).

Soft Skills Training

World vision developed the content of the Soft Skills manual with the support of an external agency. This manual was then used as Trainers manuals for the Soft Skills and Rural health care providers' training. Key areas of soft skills training were Good communication skills, compassionate communication, body language, conflict resolution; effective information giving, anxiety management, time management and problem solving are few of the topics that were covered in four days training. These skills will allow health workforce to handle various concerns/situations of a TB patient and these could further enhance patient care.

New Initiatives and Future Plans-road Ahead

Issues related to HR need to be recognized in scope and complexity in the context of public health programs, it is therefore imperative that Human resources are planned more systematically on the basis of program needs rather than just posts available.



Going forward, the program plans to strengthen Human Resource initiatives to address the staffing, training and performance gaps arising consistently and have impact on program performance across the country.

Some of the key activities planned for the program in the coming years are as under:

Sensitization of 'Other' Sector

A large number of Private Practitioners (PPs) are being sensitized either through the Indian Medical Association (IMA) or at their institutions/clinics. Increased efforts are being made to ensure that the pre-service training for doctors, nurses, MPHS/MPW and Anganwadi Workers is consistent with RNTCP. Also activities directed at health care providers outside of the public sector are being strengthened.

Development of HRD Plan

In the broader context of Health System Strengthening, RNTCP is in the process of developing a comprehensive strategy for human resource development. As the program gets into its next phase with ambitious targets of universal access, MDR –Scale up and TB –HIV collaborative activities need for a comprehensive and integrated HRD plan is felt by the program. The HRD unit of Central TB Division is in the process of developing a blue print for the same and has convened a working group for wider consultation and participation from different stakeholders, to achieve this objective. The Plan is going to draw on the information collected through HRD survey in 2009. The survey captured key HR related issues confronting states. This qualitatively analyzed information is proposed to be utilized in framing the HRD Plan for RNTCP for 2012-2017.

Framework for Assessing Quality of Training

For many years RNTCP has been implementing training activities for health care workforce and managers involved in TB Control. However as experience with implementation of various training programs has increased so too has awareness of the need to pay additional attention to the quality of training, the need for better management of training programs and the need for on-going follow-up after training. In view of improving the quality of training and quantum of resources expended on training, a need was felt by the program to have a systematic mechanism of assessing the quality of training imparted. As a key activity undertaken in 2010, a framework has been designed to improve the overall quality of training in terms of delivery and impact. It is planned that the instrument designed for capturing information on the quality of training be pilot tested in 5 states and National Institutes before implementing it country-wide. This activity is likely to be concluded in Q2 of 2011.

All MOs refreshers training

RNTCP Human Resource Assessment for Program Expansion and Planning

The World Health Organization estimates, that there are a total of 59.2 million full time paid health workforce world-wide (World Health report 2006) Health service providers constitute about two-thirds of the global health workforce, while the remaining third consists of health management and support workers.

Health interventions need competent, motivated and supported health workforce for overcoming obstacles to achieving national TB control goals. A need was therefore, felt by the program to review the workload of select key staff categories to help the program plan for manpower in the new and more ambitious phase of RNTCP-III.

RNTCP's current workforce numbers are based on estimated workforce requirements derived through analysis of program design, population ratios, anticipated caseloads and assumptions about the time it takes to provide specific services. To date, the numbers and categories of services providers, supervisors and managers, has worked relatively well for the program.

However, in view of onward planning of Human Resources it was felt that some TB control staff members were under- utilized while others are already strained and that expanding the TB program, particularly the expansion of DOTS-Plus and implementation of TB-HIV collaborative activities, will exceed the capacity of current staff and could compromise the quality, performance and success of the program.

In an attempt to undertake information based decision making Central TB Division (CTD), Initiatives Inc. through its partnership in the USAID funded TB India Project, implemented by PATH, is conducting preliminary workload review for select staff categories (STS, STLS, DEO, and Part time accountant, IEC Officer) to gather the data needed for future planning.

It is proposed that Phase -2 of this workload review will entail a detailed review of the workload of all the remaining staff categories including roles of the public and private sectors, including workers at the community level (community health workforce and volunteers) and should inform the program on needs on re-skilling and up-skilling; as well as needs for ongoing training and support.

Revision of Job Descriptions

Program activities are undertaken by health workforce consisting of clinical (health related) and managerial (programmatic) staff at national, state and district levels. It is therefore imperative that job descriptions of staff are clear and well defined as the starting point to ensure that each member is undertaking activities that are relevant to the program and are in line with their skills and

competencies. An exercise to achieve this objective has been initiated by CTD so as to ensure that all RNTCP staff activities are monitored and supervised objectively.

In order to inform HR planning, a systematic analysis of the tasks and functions involved in program implementation- is also proposed

Engage all Health Care Providers

The health care providers in India can be broadly classified into public and non-public sectors. The public health sector includes health facilities under the central government and the state governments, and health facilities under other Ministries e.g. Railways, Labor, Defence etc. The non-public sector includes the private sector, non-governmental organizations (NGO) and the corporate sector. The public health departments of the state governments mainly cater to the primary health care and district level services, and RNTCP has been implemented through these departments in the respective states. The central government departments like railways, steel, ports, coal and mines have their own health care facilities spread across the country. Usually these facilities cater to a "captive population" who receive subsidized or free services from said facilities. The health facilities outside Ministry of Health (Other sectors), like Employees' State Insurance (ESI), Railways and Central Government Health Services (CGHS), as well as the Ministries of Defence, Steel, Coal, Mines, Petroleum and Natural Gas, Shipping, Power, Chemicals and Fertilizers, have been roped in

Figure 9: NGOs Status (State-wise) as per the 4th Quarter 2010 (States with less than 50 NGOs have not been shown)

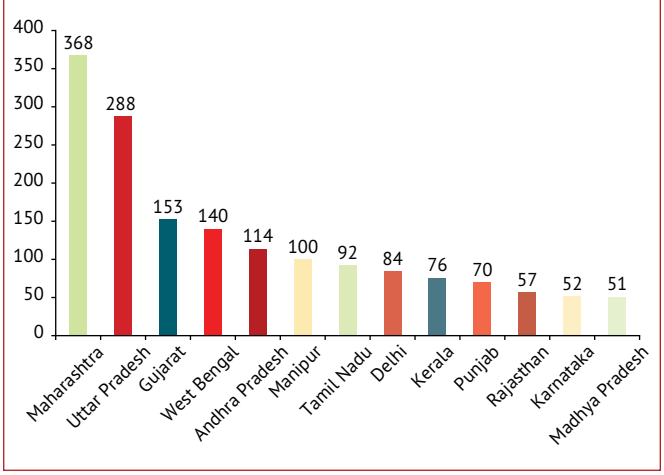
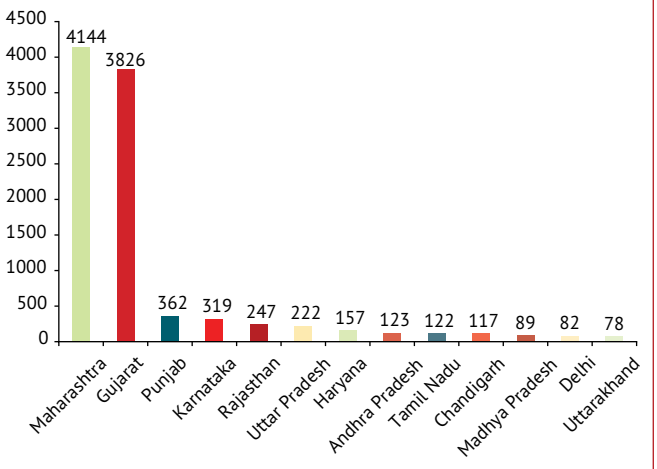


Figure 10: PP Status (State-wise) as per the 4th Quarter 2010 (States with less than 50 PPs have not been shown)



the programme and directives have been issued to their respective health facilities to adopt the 'DOTS Strategy'.

The Central TB Division has also actively interacted with the management of large corporate houses and advocated for their involvement in RNTCP activities.

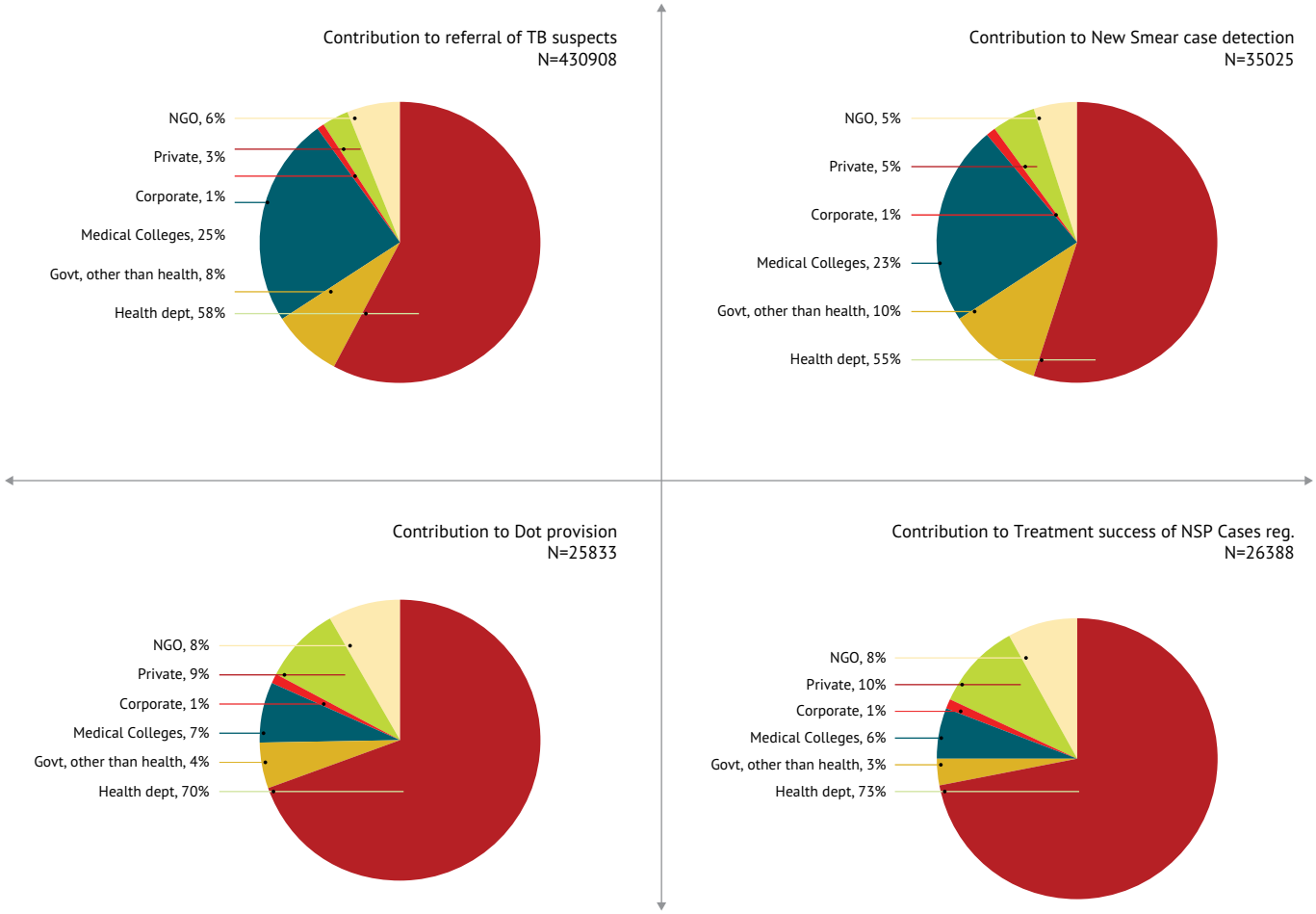
RNTCP has revised the NGO/PP Guidelines which have included newer schemes like Culture and DST in private labs, sputum collection centres and pick-up, slum scheme and TB HIV scheme. The schemes have been rolled out from 1st October 2008. Till date over 1900 NGOs and over 10,000 Private practitioners are involved in the revised schemes.

Intensified PPM Project

The Central TB Division runs the Intensified PPM Project in fourteen urban areas in the country to systematically undertake intensified PPM activities and to document the contribution of major categories of health providers to case detection and treatment under RNTCP.

The 14 sites are large urban areas in 14 different states: Thiruvananthapuram (Kerala), Chennai (Tamil Nadu), Bangalore (Karnataka), Bhopal (Madhya Pradesh), Bhubaneswar (Orissa), Ranchi (Jharkhand), Patna (Bihar), Kolkata (West Bengal), Pune-Mumbai (Maharashtra), Ahmedabad (Gujarat), Jaipur (Rajasthan), Lucknow (Uttar Pradesh), Chandigarh and New Delhi. The reporting focuses on the following four areas:

Figure 11: 14 intensified PPM Districts (1Q–4Q 2010): Contribution by different health sectors



1. Referral of TB suspects
2. New smear positive case detection
3. DOT provision to TB patients and,
4. Their treatment outcome.

Involvement of Medical Colleges in RNTCP

Medical colleges play an important role in supporting any health programme in India. Medical college faculties plays an important role in TB control as opinion leaders and trendsetters, teachers imparting knowledge and skills, partners in sustaining the programme by teaching and practicing DOTS and as role models for practicing physicians. Recognizing the significant role medical colleges can play, the RNTCP envisaged activities pertaining to training and teaching, service delivery, advocacy and operational research as priority areas for collaboration with the medical colleges.

Task Force

For effective implementation of the programme in medical colleges, the programme functions through a Task Force mechanism at the National, Zonal and State levels. By February 2006, State Task Forces were formed in 27 States/UTs with medical colleges. STF of Meghalaya state was established in 4th quarter 2009.

RNTCP has established seven nodal centers for medical college involvement across the country at:

1. AIIMS (New Delhi)
2. PGI (Chandigarh)
3. SMS Medical College (Jaipur)
4. LTM Medical College (Mumbai)
5. Guwahati Medical College (Guwahati)
6. CMC (Vellore)
7. R G Kar Medical College (Kolkata)

These nodal centers are actively involved in the Zonal Task Forces and in the National Task Force.

Zone	Dates	Venue	States	ZTF Chairperson	ZTF Member Secretary
North	November 2010 (8th and 9th)	Dehradun, Uttarakhand	UP, HR, JK, PB, HP, UACH, DL	Dr Rajendra Prasad, KGMC, Lucknow	STO UP
East	August (26th and 27th)	Kolkata, West Bengal	BI, WB, OR, CG, JH	Dr DP Dash, KIMS, Bhubaneswar, Orissa	STO Orissa
South	September (2nd and 3rd)	Chennai, Tamil Nadu	KA, AP, TN, KE, PO	Dr K Venu, Nalgonda, AP	STO Andhra Pradesh
West	October (20th and 21st)	Bhopal, Madhya Pradesh	MP, MH, RJ, GU, GA	Dr Khushwaha S, SSMC, Rewa, MP	STO Madhya Pradesh
North-East	30th September and 1st October	Guwahati, Assam	AS, SK, MN, TR, MG	Prof. N Tombi Singh, RIMS, Imphal, Manipur	STO Manipur

UP (Uttar Pradesh), HR (Haryana), JK (Jammu & Kashmir), PB (Punjab), HP (Himachal Pradesh), UACH (Uttarakhand), DL (Delhi), BI (Bihar), WB (West Bengal), OR (Orissa), CG (Chhattisgarh), JH (Jharkhand), KA (Karnataka), AP (Andhra Pradesh), TN (Tamil Nadu), KE (Kerala), PO (Pudcherry), MP (Madhya Pradesh), MH (Maharashtra), RJ (Rajasthan), GU (Gujarat), GA (Goa), AS (Assam), SK (Sikkim), MN (Manipur), TR (Tripura), MG (Meghalaya)

Zonal Task Force

Zonal task forces have been constituted in five zones of the country, catering to the medical colleges located in the north, south, east, west and north east zones of the country. Zonal Operational Research (OR) Committees have also been constituted under the ZTF of each of the 5 zones to facilitate, process, approve and monitor OR proposals from various medical colleges as per the RNTCP OR Agenda.

Status of Medical College Involvement

In India, out of the 302 medical colleges, 282 medical colleges are involved (formation of core committee, DMC and DOT Center) under RNTCP'. State OR Committees have also been constituted under the STF of each state in most of the states to facilitate, process and refer the selected OR proposals from various medical colleges in the state to the Zonal OR Committee.

The annual Zonal Task Force (ZTF) CME cum Workshops for the year 2010 for all the five zones were planned in the months of July-November 2010.

The details of the ZTF workshops held in 2010 and the new ZTF Chairpersons and Member Secretaries are as follows:

The National Task Force Workshop was held at Gandhi Medical College Hyderabad to review the status of involvement of medical colleges under RNTCP. The recommendations made in the workshops have guided the programme in strengthening the involvement of medical colleges.

At the national level, during the period from 1st July, 2009 to 30th June, 2010, more than 0.61 million TB suspects were examined at the medical colleges for diagnosis. Out of these, 92,071 smear positive TB cases were diagnosed and referred for treatment initiation at the DOT center nearest to the patient's residence. During the same period, 49,788 sputum smear negative TB cases and 81,140 extra-pulmonary TB cases have been diagnosed and either put on RNTCP treatment within the medical colleges or referred for treatment outside the medical college to the DOT center that is convenient to the patient. During the same period, 55 STF meetings, 77 medical college visits by STF and 90 medical colleges participated in Internal evaluation of the districts.

This year the NTF came up with recommendations on the following important topics:

1. Role of Medical Colleges in Scale up of Programmatic Management of Drug Resistant TB.
2. Developing Internal Evaluation protocol for Medical College evaluations.
3. Implementation of Universal Access for TB Care through Medical Colleges.
4. Zonal OR Committee Meeting.

The NTF also endorsed WHO treatment guidelines, RNTCP Project Implementation plan III concept note and the role of NTF in National strategic plan.

Leut. General Iqbal Sign Governor of Puduchery inaugurating South Zone ZTF

North east ZTF workshop in Guwahati

East Zone ZTF workshop in Kolkata

North Zone ZTF at Dehradun

RNTCP Operational Research Guidelines and priority topics on RNTCP OR agenda were revised and disseminated during the NTF and ZTF workshops held in 2010. All Zonal OR Committees met at-least once during this period and 31 OR proposals out of 41 OR proposals submitted were approved by the Zonal OR Committees. 65 PG theses on RNTCP were approved by various State OR Committees. There were 21 publications on RNTCP in peer reviewed indexed journals.

Furthermore, 201 workshops/CMEs/Seminars were conducted in medical colleges during the same period and 33 state level workshops/CMEs/Seminars were organized by State Task Force of various states.

Partnership of Civil Society Organizations in RNTCP

The Civil Society Organizations (CSOs) have been playing important role in the TB control and care of the country. Reaching difficult-to-reach and high risk population groups with key messages and services of TB control, improving referral of TB suspects from those groups to the RNTCP services, ensuring treatment adherence, retrieval of defaulters, capacity building and providing technical support to RNTCP and engaging private health sectors are some key activities CSOs are involved with. Their contribution to support the National Program is constantly being recognized and appreciated.

Partnership for Tuberculosis Control and Care in India

The "Partnership for Tuberculosis Care and Control in India" (the Partnership) brings together civil society across the country on a common platform to support and strengthen India's national TB control efforts. It seeks to harness the strengths and expertise of partners in various technical and implementation areas, and to empower affected communities, in TB care and control. The Partnership consists of technical agencies, non-governmental organizations,

Partnership meet

Director Health and Director NRHM on Project Launch in Meghalaya

community-based organizations, affected communities, the corporate sector, professional bodies and academia.

Since its inception in November 2008 the Partnership with the advisory Steering committee and the administrative and technical support of the Secretariat has made a lot of progress.

In 2010-11, the partnership held 3 steering committee meetings, 2 regional meetings, 4 working group meeting and 1 national level meeting for joint consultation on the recommendations of the civil societies for the RNTCP phase III planning. 21 new organizations have joined the partnership in its fight against TB making the list to 53. The Partnership publish and circulate quarterly newsletter "Partners speak" quarterly newsletter in 2010. Website: www.tbpartnershipindia.org

Project Axshya

Project Axshya (meaning TB free), funded by The Global Fund to Fight HIV-AIDS, TB and Malaria under Round 9, is an initiative which aims to improve access to quality TB care and control through a partnership between government and civil society. It will support India's national TB program to expand its reach; visibility & effectiveness, and engage community based organizations and providers to improve TB services, especially for women, children, marginalized, vulnerable and TB-HIV co-infected populations.

The Union and World Vision India (WVI) will implement the project through a national network of sub-recipients (SRs) – reputed non-governmental organisations (NGOs) with expertise in TB care and control, experience and trust in the communities they work with – across 374 districts in 23 states of India.

Indian Red Cross Society

Indian Red Cross Society (IRCS), an international humanitarian organization spread over 700 branches with a strength of 12 million volunteers across the country carried out the pilot TB project funded by USAID to cater 210 CAT II re-treatment cases in 6 districts of three states, Punjab, Uttar Pradesh, and Karnataka. Through this pilot project, IRCS, through its network of volunteers has reached more than

Honorable Minister of Health, Nagaland, Inaugurating Project Axshya in Kohima

The IRCS TB project being reviewed by Secretory General IRCS, Dr SP Agarwal

210 retreatment category-II TB patients during the year 2009-10 to provide care and support services in the form of assistance to the patients to access the treatment (Travel support and some small refreshment), monitoring the adherence to treatment through supportive supervision and motivation, educating and informing the family members of the patient regarding the importance of treatment adherence.

Partnership with Technical Agencies

WHO

Since the inception of RNTCP, WHO has provided comprehensive technical support to India for TB control activities, with the support of bilateral funding partners - primarily DFID and USAID. This technical support is primarily through (a) direct technical assistance to MoHFW Central TB Division, (b) support for operational research and epidemiologic assessment through the WHO collaborating Center Tuberculosis Research Centre Chennai, (c) District-level TA through a network of medical consultants, approximately 1 consultant per 10-15 million population, and (d) support for high-priority activities, such as drug procurement, involvement of medical colleges, laboratory development, and other operational research. The network of WHO-RNTCP medical consultants support quality programme planning and evaluation at State and District levels, and are expected to play a key role in helping RNTCP develop and deploy improved and innovative strategies to achieve Universal Access.

The Union

Under the Round 9 TB Project (Project Axshaya) three technical consultants have been hired by TB Union and positioned in Central TB Division to provide support to RNTCP.

PATH

PATH is providing support to RNTCP in strengthening IRLs, improving national and state capacity to provide high level expertise in airborne infection control, involving all care providers and segments of society in RNTCP TB control goals, strengthening Critical Advocacy Communication and Social Mobilization Interventions and monitoring and evaluation & supportive supervision.

FIND

Foundation for Innovative New Diagnostics (FIND) – India: FIND is an independent non-profit foundation based in Geneva, with offices in Uganda and India, FIND is a Product Development and Implementation Partnership (PDIP) devoted to developing and rolling out diagnostic tools for poverty-related diseases. All the forty three (43) public sector sites across the country as per the National laboratory scale up plan for newer diagnostics are being implemented by FIND for MDR diagnosis in phased manner. These are being supported by EXPANDx TB through FIND as one of the collaborating partners. During the first year of implementation of EXPAND-TB project in India, a wide range of activities have been initiated including the crucial components of laboratory needs assessment and preparedness, up gradation of infrastructure, supply of equipment and consumables, establishment of an International Centre of Excellence for Laboratory Training at NTI in Bangalore, for the national level training of staff.

Partnership with IMA

The RNTCP PPM IMA Project supported by round-6 of the GFATM has completed two years. The project is being implemented in 167 districts in the six states of Andhra Pradesh, Chandigarh, Maharashtra, Haryana, Punjab and Uttar Pradesh. The Project is being extended to another 10 States, namely Kerala, Tamil Nadu, Gujarat, Rajasthan, Uttarakhand, Chhattisgarh, Bihar, Jharkhand, West Bengal and Orissa under the Rolling Continuation Channel (RCC) Project of GFATM.

An innovative method to document the referrals made by Private Practitioners to RNTCP initiated in Andhra Pradesh (AP) in 2008 has been extended to other states.

Achievement of RNTCP PPM IMA Project

- Number of Review cum workshop held at National and state Level: 41
- Number Private Medical Practitioners reached through CME: 41354
- No. of Private providers trained in DOTS using RNTCP Module and International Standard of Care Guidelines: 5569
- No. of DOTs centers created: 2626
- No. of DMCs created: 59

Partnerships with Professional Associations

The 5th Consultative meeting of the Indian Medical Professional Associations' Coalition Against TB (IMPACT) was held at Mumbai on Sunday, April 3rd-4th, 2010. The new partners added to the existing coalition are:-

1. Association of Microbiologists of India
2. Indian Association of Pathologists and Microbiologists
3. Indian Association of Preventive and Social Medicine
4. Indian Public Health Association

The Indian Medical Association, Federation of Family Physicians' Association of India, National College of Chest Physicians (India) have endorsed the ISTC till date.

Partnership with FAITH based organisation

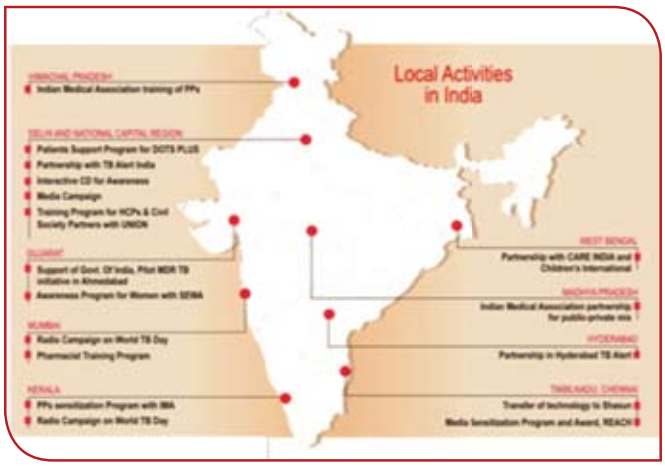
Catholic Bishop's Conference of India (CBCI)

CBCI CARD is implementing RNTCP in the Catholic Health Facilities of 19 states. In 2010, the State TB Project Coordinators (STPCs) have conducted 172 sensitization meetings covering more than 6100 people. They have also facilitated, along with the District TB Officers, 41 RNTCP trainings for about 925 personnel. In addition, public awareness was created on World TB Day through rallies, free refreshment stalls at prominent places, messages at railway stations, street plays and at Catholic Schools - essay, debate and painting competitions. The STPCs, as part of their routine activities have visited more than 900 Catholic Health Facilities and participated in more than 60 district level review meetings and all state level review meetings.

Lilly MDR TB Partnership

The Lilly MDR-TB Partnership operates in over 80 countries with more than 20 global Partners, and has increased its presence on the grassroots level. Today, over 40 local Partners collaborate and contribute to the ongoing battle against this disease.

Partner activities all have one thing in common – improved care for some of the world's most vulnerable people least able to combat this disease. They include providing access to medicines, transferring manufacturing technology, training health care workers, raising awareness, and supporting prevention and research, while providing support for communities and advocating for patients.



Partnership with Corporates

Confederation of Indian Industries (CII)

CII (Confederation of Indian Industries) has facilitated many industry engagements at various levels for TB control such as advocacy for more awareness, harnessing health facilities of the industry for setting up diagnostic and treatment centres etc..

As a part of advocacy, CII in collaboration with WEF, USAID and Elli Lilly MDR-TB Partnership recently organized four regional conferences on 'TB Management at Workplace and Beyond' in India, bringing together experts, academia, program managers and more than 120 corporate industries together across span India, to brainstorm on ways to scale up interventions for TB control.

CII regional conference on TB management at Workplace and Beyond in Chandigarh

Engaging People with TB and Affected Communities

Advocacy Communication Social Mobilization

ACSM is an important component of RNTCP. ACSM strategy has carefully addressed the communication needs and interventions as per the program objectives. Having established DOTS as a brand synonymous with TB control in India, based upon the findings of KAP survey conducted in 2009 the programme has now shifted its focus to adherence to treatment, reduction of stigma and addressing newer challenges while consolidating basic DOTS.

The term ACSM has three components – "Advocacy", "Communication" and "Social Mobilization" and within the context of RNTCP, ACSM refers to health communication in TB care and control. The term "IEC/ ACSM" is generally used inter-changeably, however, RNTCP uses ACSM as is being used globally in the Stop TB Strategy.

The goal of ACSM is to support TB control efforts for:

- Improving case detection and treatment adherence
- Widening the reach of services
- Combating stigma and discrimination
- Empowering people affected by TB
- Mobilizing political commitment and resources for TB.

ACSM activities aim at:

1. Creating awareness among people about the disease (signs and symptoms), diagnosis, and treatment in order to increase accessibility and utilization of services.
2. Engaging all care providers for providing standardized treatment in order to widen the scope for providing standardized, good quality treatment and diagnostic services to all TB patients in a patient-friendly environment from whichever healthcare facility they seek treatment from
3. Mobilize communities for engaging them in TB care, and to increase ownership of the program by the community
4. Advocacy to influence policy changes and sustain political and financial commitment

RNTCP has well defined communication strategy which clearly defines communication needs (objectives), communication players (target audiences) and communication channels, and activities (communication tools), roles and responsibilities at each level, i.e. Centre, State and District level. The program encourages need based ACSM strategy planning and implementation.

ACSM in Newer Initiatives like MDR-TB and TB/HIV

ACSM is currently addressing newer initiatives in the programme such as MDR TB and TB HIV. The primary target of ACSM activities is to prevent the emergence of MDR TB by ensuring good adherence to the DOTS regime through effective and motivational communication with TB patients. Advocacy with the care providers for promoting rational use of first and second line anti TB drugs is also an important area of the programme.

ACSM activities for MDR TB are based on the fact that patient has to undergo treatment for a longer duration than the basic DOTS, i.e. 24-27 months along with daily dose of injections for 6-9 months subjecting patients to side effects. Moreover, most of these patients have a previous history of default which can result in lack of motivation to complete treatment. Added to these is the stigma and discrimination by the family and society. The communication initiatives, additionally, aim to increase awareness on availability and utilization of DOTS Plus services of RNTCP. Motivational counseling of the patients and family members and education on cough hygiene and disposal of sputum are equally crucial to ensure

treatment adherence and further prevention of airborne transmission.

The empowerment of communities in the response to TB and TB/HIV is crucial. PLHIV networks are regularly provided TB education and treatment literacy information, so that TB can be suspected early whenever a community member suffers from persistent cough or unexplained illness. Particularly in HIV care settings, community volunteers make important contributions to TB screening among people living with HIV & AIDS, referral of the suspects to sputum microscopy centres and advocacy for improved TB infection control. Where possible, RNTCP includes PLHIV groups in social mobilization activities. The revised National TB/HIV frame work envisages RNTCP and NACP IEC materials, specifically, pictorial IEC on symptoms of TB and cough hygiene are displayed at all the HIV and TB care settings for providing education, care and support to PLHIV and TB patients. The scope for strengthening this collaboration has been identified in the ACSM strategy.

Important ACSM Activities during the Year

Contract with new media agency

Central TB Division signed a contract with M/s R K Swamy BBDO Private Limited on 15th March, 2010 to provide consulting services for Advocacy, Communication and Social Mobilization for its TB II project. The agency has submitted the work plan incorporating the suggestion made by CTD on 30th March 2010.

Formative research

The media agency of CTD conducted a planned field visit in the state of Delhi and Andhra Pradesh (Hyderabad) to understand better the RNTCP/ACSM programme including the challenges such as reasons for drug- default, communication barriers and continuing stigma & discrimination issues. This was followed by a communication needs assessment study on MDR-TB and TB-HIV to provide the key inputs to Central TB Division for developing better health communication strategies for the MDR-TB and TB-HIV patients. This was a qualitative study which had been conducted in states like Haryana, Assam, West Bengal, Tamil Nadu and Rajasthan among selected MDR-TB and TB/HIV patients, their family members and healthcare providers through the methodologies like in depth interview, FGDs (Focused Group Discussions) and desk review of documents and records. The experiences and learnings of the field visit and formative study have been utilized to develop new communication materials like TV, radio & digital spots, posters, flip charts and counseling tools for DOTS providers and treatment supervisors.

Mass media release

Central TB Division has released the mass media materials like TVC and radio of the previous campaign and they are being regularly telecast in popular TV and radio channels including the Internet.

Development of new TV and radio spots and digital media plan

The new TV, radio and digital spots are developed by CTD with a view to reinforcing the message of 'completion of full course of TB treatment to ensure the right treatment and cure' (*Pura Course Pucca Ilaj*) that is key to prevent the emergence of MDR TB and ensure cure for TB in TB/HIV co-infected cases. The new branding of the current DOTS logo with the campaign of '***Pura Course Pucca Ilaj***' will be officially launched and introduced into the program on World TB Day 2011 (March 24).

Media workshop

Central TB Division has conducted a regional level media workshop in January 2011 in Hyderabad to sensitize the press as well as the general public through the active involvement of the press in disseminating key messages about Tuberculosis and the National Tuberculosis Control Program of India. The workshop was attended by 38 journalists from the Southern region, Delhi and Uttar Pradesh.

ACSM training workshops

The participants of the workshops were State TB Officers, District TB Officers, IEC Officers, Communication Facilitators, WHO RNTCP Consultants and representative of CSO partner. The workshops were conducted through lectures, exercises (role plays), games, etc. for the team-building exercise.

Selected feature films that have good lessons for advocacy and social mobilization (Manthanand Ruka Huaek Faisla) were screened followed by Question Answers sessions with an objective to relate Advocacy and Social Mobilization and provide them with clues to translate the communication into the work methodologies. The teams used video-documentation, digital photography and a de-briefing session to document the learnings from the workshop. The review form was used as a concluding feedback from participants of the workshop. During the sessions, the participants shared important field experiences.

(ACSM Workshop in Bhopal)

Central TB Division conducted three regional ACSM training workshops:

Dates of the workshop	Venue of the workshop	States covered
8th to 10th Nov	Guwahati, Assam	Tripura, Sikkim, Nagaland, Mizoram, Meghalaya, Manipur, Assam & Arunachal Pradesh
25th to 27th Nov	Bhopal, Madhya Pradesh	Chhattisgarh, Madhya Pradesh & UP
10th to 12th Jan	Ranchi, Jharkhand	Bihar, Jharkhand, Orissa & West Bengal
21st to 23rd Feb	Chennai	AP, Karnataka, TN, Kerala, A & N Islands, Lakshadeep, Puducherry

ACSM Activities in Various States

ANDHRA PRADESH

TB NGO review meeting

TB exhibition

Starting TB rally

BIHAR

TB Forum in Schools

Teachers from selected schools were trained on TB and follow-up will be carried out to plan and execute TB awareness activities in school functions and programs. The teachers will function as nodal officers to push the TB messages in their respective schools. 150 teachers were oriented by a NGO in Bihar with

the help of state and district RNTCP officials and school TB forum has been established in 49 schools of the 6 districts of Bihar.

Training of the Community DOTS Providers

Over 200 Community DOTS Providers were trained on TB, treatment, follow-up and counseling in the 6 districts of Bihar with support and coordination of the district TB officers. New DOTS providers were sensitized while old ones found their knowledge enhance after the training. Participants shared experiences on problem solving, defaulter tracing, counseling etc.

Rally to Create TB Awareness with the Assistance from district Education Department

Rallies were organized at gram panchayet level involving school students and teachers to create TB awareness and its treatment with the support of District Education Officer.

School TB rally

CHHATTISGARH

State level TB workshop

GUJARAT

World TB Day 2010 at tribal district Dang

TB rally of Porbandar school children

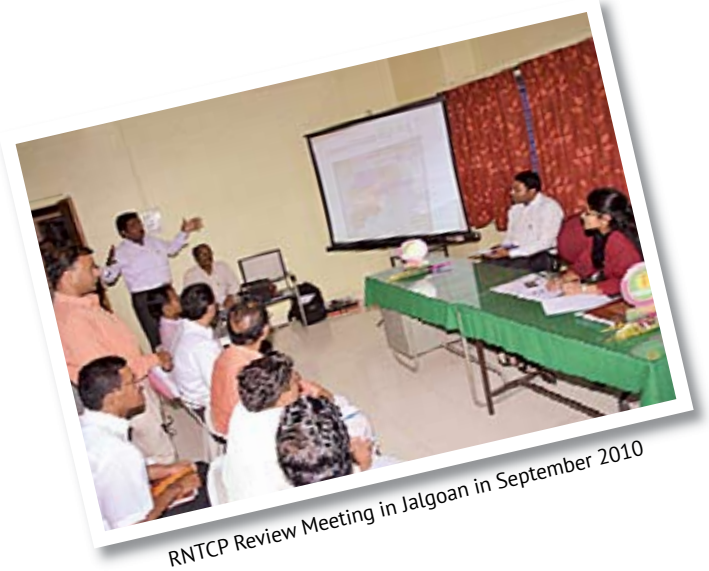
TB Pt. Home visit by MODTC

Urban slum meeting of RNTCP at Mehsana

MADHYA PRADESH

Inaugural ceremony of sensitization session on Tuberculosis and RNTCP on The World TB Day 24th March 2010 for the honorable members of Madhya Pradesh Legislative assembly

MAHARASTRA



RNTCP Review Meeting in Jalgoan in September 2010

MIZORAM

Sensitization Workshop for Religious Leaders

Mizoram State TB Control Society has organized Sensitization Workshop for Religious Leaders for different denominations like Catholic, Baptist, United Pentecostal Church, Presbyterian, Mizo Church and Salvation Army during 2010. Mizoram State TB Control Society has conducted Essay Writing Competition for High School and College Level on the occasion of World TB Day 2010.

Essay Writing Competition on TB

Mizoram State TB Control Society has conducted Essay Writing Competition for High School and College Level on the occasion of World TB Day 2010.

School awareness camp in Mizoram

TB stall in Arogya health mela in Aizwal

NAGALAND

Meeting with RNTCP NGOs

TB IEC in the hospital

Reaching patient at their place

PUNJAB

TB HIV Chetna rally in Mansa

Mass awareness campaign in Ralli

TAMIL NADU

Edu-clown

Edu-clown is an innovative street theatre program in Virudhunagar that integrates education and entertainment to create awareness and facilitate discussion on TB. A group of approximately 8 social workers, after conducting a need assessment study on TB in the illiterate populace culminate their findings into humorous script which is composed of 4-5 skits from TB symptoms like cough, weight loss to its prevention. By moving through village, the clowns entice a crowd and provoke audience participation through songs, folk dance, slogans and games. After the performance the clowns interact personally with the crowd and answer their queries on TB. The initiative has started from May 10 by a non-profit organization of Tamil Nadu.

TB awareness among the gypsy community of Tamil Nadu: A TB awareness camp was organized within a gypsy community in Kalaikuthunagar, Perumbakkam, Kancheepuram district in Tamil Nadu. The community people were not initially interested to participate in the TB awareness program. They could only be attracted by popular cine music and dance of the children and after that, they were told about TB and RNTCP.

TB Awareness campaign within the workers in 100 days' work scheme in Tamil Nadu

Ayyakudi Village

Perungalur Village

Intensive awareness camps to create awareness of TB in children in the rural village of Tamil Nadu

The camp was organized in Mangadu village at Vadakadu which conducted TB screening of 495 children (male 253, female 242), 109 males and 163 females. 74 children and 48 adults were referred for TB investigations and 2 male adult were found to be sputum positive pulmonary TB who received prompt ATT through DOTS.

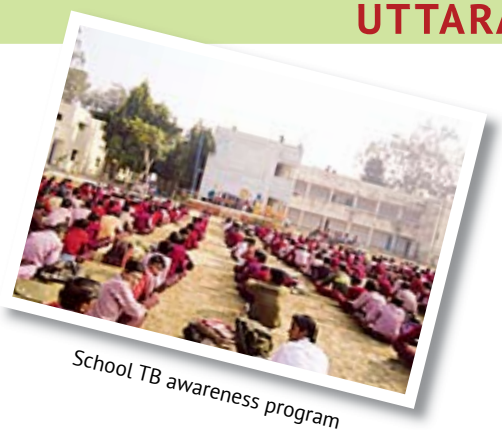
Observance of World TB Day 2010 in Thoothukudi District, Tamil Nadu

TB souvenir from the DTC

World TB Day Rally

TB quiz in the school

UTTARAKHAND



School TB awareness program

Gaon Kalyan Samiti/GKS Meeting

PATH- ACSM WORKSHOP

PATH provides technical assistance to support states in implementing ACSM activities as part of the RNTCP strategy. PATH has strengthened ACSM capacity in Andhra Pradesh, Maharashtra, Uttarakhand, Uttar Pradesh, Karnataka, and Madhya Pradesh, as well as among district level RNTCP staff including medical consultants on ACSM and public private mix (PPM). Additionally, the project has built the capacity of 115 TB project personnel from 39 civil society groups during a five-day workshop on ACSM and PPM in various parts of India.

ACSM workshop

LAUNCHING OF ROUND 9 ACSM PROJECTS

Round 9 TB Project supported by Global Fund for AIDS, TB and Malaria (GFATM) has been launched in 2010. The project has two components – strengthening the laboratory services for MDR-TB (Central TB Division, Ministry of Health & Family Welfare is the PR for the MDR-TB component) and supporting and strengthening the ACSM component of RNTCP in 374 districts of the country (International Union against Tuberculosis and Lung Diseases/IUTLD or TB Union and World Vision are PRs for the ACSM component of the project). The Round 9 ACSM project will be implemented by Sub Recipients and their implementing partners of TB Union and World Vision in close collaboration with state and district TB officials of RNTCP. The project will support activities like building capacities of the smaller and grassroot level NGOs and CBOs, state & district level PLHIV networks, rural healthcare providers on TB & RNTCP and strengthen their linkages with the district RNTCP program. The project will also provide assistance in facilitating sputum sample collection of the TB suspects from the hard-to-reach areas, retrieval of defaulters, motivating and helping the NGOs and private providers to adopt the RNTCP-NGO and RNTCP-private providers' schemes respectively.

THE REACH LILLY MEDIA AWARD

LOCAL MEDIA AWARD & FELLOWSHIPS – In the run-up to World TB Day 2010 on 24th March, the REACH-Lilly MDR-TB Partnership Media Awards were announced. These awards are presented to journalists who produce in-depth, relevant stories on Tuberculosis (TB), and have conveyed these to a wide audience. The purpose of the fellowships is to promote quality reporting on TB, and to increase awareness within Indian society. The award specifically acknowledges reporting in languages other than English.

Journalist being felicitated with REACH- Lilly MDR TB Partnership Award

Reaching out Tribal, Hard to Reach and Marginalized Population

It is envisaged that for consolidation of the TB control measures, needs of marginalized sections/special groups should be paid special attention. Special mechanisms to make services accessible, acceptable to the 'difficult to reach' sections of the society are envisaged. These include communication approaches that are particular to specific geographic areas (media-dark areas) or cultural/social contexts. These processes allow for flexibility and adaptation. Use of local medical practitioners for referral, provision for sputum collection centres, involvement of NGOs, and awareness generation about DOTS through culture specific local media are some of the initiatives taken up by the programme.

For Tribal Groups

The RNTCP Tribal action plan provides for special incentives to patients and DOT providers in identified tribal TB Units and districts. These incentives have contributed significantly to the considerable improvement in the case finding and treatment holding parameters of these districts.

RNTCP specifically monitors the programme performance in tribal, poor and backward districts, which is published in the quarterly RNTCP Performance Report.

Urban Slums

Urban slum-dwellers require intensive focus and support from the tuberculosis programme, as these populations often are not able to access timely diagnosis or complete the full duration of anti TB treatment, and hence are at risk of unfavourable treatment outcomes including deaths, defaults, failures and drug resistance. Under the revised PPM schemes, an 'Urban Slum Scheme' has been introduced to improve TB control activities. Any NGO/ Community based organization/Self help group/ Private practitioner with capacity and commitment to provide sustained support for at least 3 years is eligible for a support of Rs 50,000 per 20,000 slum population per annum.

The activities include:

- IEC activities in slum population for TB and service awareness.
- Counsel patients for diagnostic process completion, treatment initiation, treatment adherence, need to inform regarding pending migration, and default prevention.
- Collect detailed information regarding place of residence, home village, and other information helpful to locate patients in the case of migration.
- Facilitate sputum collection and transportation to DMCs, etc.

Prisons

India has about 1356 prisons/jails with a total capacity of 300,000 inmates. This includes 114 Central Jails, 313 District Jails, 830 Sub district Jails, 18 Women jails and 80 other jails. The current 384,753 jail inmates (Male: 368,824, Females: 15929) are constituted of 32% convicts, 67% under-trials, 0.8% detainees and 0.1% others.

Since RNTCP has been implemented by all health systems under the public sector, including prison hospitals and dispensaries, prison inmates are diagnosed and treated for tuberculosis according to the DOTS strategy. Sputum microscopy facilities (Designated Microscopy Centres –DMCs) have been established in select prison hospitals depending on availability of laboratory services and size of the inmate population. In other prisons, sputum collection centres have been linked to nearby DMCs, or TB suspects are referred to the nearest DMC in general health facilities for diagnosis. Moreover, screening for TB symptoms and signs are included in the routine health check-up of the inmates.

Gender

The programme take utmost care to adopt gender sensitive approaches to facilitate access and utilization of TB control services by both men and women. A constant feature of the RNTCP pulmonary TB case notifications is that more male patients are detected than female patients, with the ratio being 1.8:1. A number of community based epidemiological studies have consistently demonstrated that in all age groups, pulmonary TB is predominantly a male disease. Operational research studies have also shown that among the cases existing in the community, a significantly higher proportion of male cases, especially elderly males, are "missed" from

the case notifications, suggesting that generally males may have poorer access to TB services than females. However there is also concern for the lower notification than expected of elderly females to the programme. The complexity and the cost of getting a TB diagnosis can be high for both poor women and men. Repeated visits, travel costs, rigid service timings, and delays in test reports reduce poor women's and men's ability to access services. It is seen that there are gender-based issues both for male and females in relation to TB control activities. The provision of country-wide available and accessible TB services as close to the patients as possible, is an important first step in addressing this issue. RNTCP has made efforts to increase access to services for socially disadvantaged groups through community outreach services (ASHA workers and community DOTS providers) and provision of DOTS service providers of acceptable gender, caste and religion. A range of innovative and creative provisions for DOTS treatment at the community level has been evolved. With increased accessibility to RNTCP services, some of the gender-based issues will be addressed e.g. difficulty of working males to attend public health services for DOTS due to inconvenient opening hours addressed by DOTS provision via NGO or private sector health facilities, or by community volunteers. RNTCP has already taken steps to address some of the other gender-based issues. One such area was the lack of readily available gender based information from the routine programme health information management system. The recording/reporting system has been redesigned to collect stratified data by sex and has provided data on the proportions of males and females being registered under the programme and their treatment outcomes. Another area of programme activity that will address some of the gender-based issues is RNTCP ACSM strategy. The strategy encompasses efforts to encourage both men and women to report to health facilities if ill with symptoms of TB, and once diagnosed, to raise awareness amongst patients about the importance of completing treatment. Though intensified ACSM activities and greater accessibility of free, high quality

TB services, community members with symptoms of TB will be encouraged to report to the health facilities for examination and treatment. For poor women and men, dependent on low income earning livelihood strategies, RNTCP is pro-actively working to link such patients to existing social welfare schemes of State and Central Government, by creating awareness among patients regarding availability of such schemes for their utilization.

Migrants

RNTCP has developed mechanisms and strong referral linkage system in order that migrant populations have access to TB services. States have been using innovative mechanisms, like use of internet/email systems to communicate across districts, and organizing border district meetings to strengthen inter-district and inter-state referrals. These mechanisms would be further strengthened and monitored to ensure low default rate. All these efforts are expected to further strengthen access of standardized services to all migrants and working population.

Enable and Promote Operational Research

The RNTCP is based on global scientific and operational guidelines and evidence, and that evidence has continued to evolve with time. As new evidence became available, RNTCP has made necessary changes in its policies and programme management practices. In addition, with the changing global scenario, RNTCP is incorporating newer and more comprehensive approaches to TB control. To generate the evidence needed to guide policy makers and programme managers, the programme implemented measures to encourage operational research (OR).

Operational research under RNTCP aims to improve the quality, effectiveness, efficiency and accessibility (coverage) of the control efforts. Operational studies generally are of:

- low cost and limited staff time, because they should not deviate excessive resources from service delivery and disease reduction,
- short duration, because the results should be available rapidly to decide on programme changes if necessary,
- based on simple standard protocols, to be repeated in different environments, and
- giving priority to test solutions to identified problems and to develop new implementation methods to improve the programme.

The RNTCP operational research guidelines, pro-forma for submitting proposals and research agenda are available on the RNTCP web-site www.tbcindia.org.

RNTCP Operational Research Agenda

This scientific agenda, developed by the Central TB Division and partners, articulates opportunities to understand RNTCP weaknesses, develop solutions, and refine policies to better achieve the programme objectives. The agenda does not include basic science or clinical research. The RNTCP will promote and support research on these issues; which are of key relevance to guide interventions and to monitor and evaluate the impact of the programme; through collaboration with specialized institutions.

Priority 1 topics are defined as those issues which the programme has determined as immediate areas of importance, has committed to achieving the initiation or completion of research activities within 2 years, and will monitor and publicly report on successes and failures. Priority 2 topics are those of clear importance which the programme will look favorably for support. The RNTCP Operational Research Agenda is to be reviewed and updated periodically, and is not intended to include all possible areas of research importance. Proposals outside the agenda will be considered on merit.

To guide programme officers, researchers and partners seeking to develop operational research proposals, *Concept Notes* have been developed for priority topics to ensure that the rationale, key questions, and appropriate methodological approach is incorporated into the proposals. These concept notes are not binding, and are merely an attempt to proactively guide researchers to write proposals that will meet the needs of RNTCP.

Mechanisms for Operational Research

At the national level there is a National Standing Committee on operational research which provides technical guidance to CTD on the RNTCP OR, expertise to identify OR priority areas for commissioned research, guides CTD on commissioned research activities. This committee also reviews and technically approves proposals submitted by State/ Zonal OR Committees (with >15 lakhs budget) and by the National Institutes.

At the Zonal level (5 Zones), the Zonal OR committee review all OR proposals submitted which are of a budget of less than Rs 5 Lakhs, assess technical quality and programme relevance, and approve or deny proposals within 3 months of submission. Approved proposals are then directed to the States for release of money. If the proposals are of a budget of more than Rs 5 lakhs then after a technical review if the proposals are sound, then they is promptly forward them to CTD for consideration. These committees also monitor completion of OR proposals and disseminate results.

At the state level the state OR committees Review and approve/reject Post Graduate thesis proposals within 3 months of submission. This committee also promptly reviews and forwards OR proposals to Zonal OR committees, monitors the progress of approved proposals.

Major Activities

A National Standing Committee on Operations research meeting was held on 25th August, 2010 at LRS Institute of TB and Respiratory Diseases. East New operations research proposals received by Central TB Division were reviewed and recommended for funding.

The Zonal OR committees of all the zones met during the zonal task force workshops in their respective zones. They reviewed the OR protocols received within their respective zones.

A TB OR training project was undertaken by the The Union (as a part of the Global Fund Rd 9 activity) along with WHO-India, in consultation and approval from The Central TB Division, Ministry of Health and Family Welfare, Government of India and National TB Institute, Bangalore has designed a '1 year TB OR training project'. This project aims to develop the capacity of the professionals associated with RNTCP to undertake programmatically relevant operations research to generate appropriate evidence to enhance TB control efforts in the Country. This project is a collaborative activity and lead by The Union, South East Asia Regional Office (USEA), WHO-India, NTI, Bangalore and the US Centers for Disease Control and Prevention, Atlanta. The project consists of series of events; (1) training workshop on operational research design and protocol development, mentored by international and national OR experts, (2) mentored participant-conducted operational research projects,

Operational Research Workshop at NTI, Bangalore

(3) data analysis and scientific writing workshops with the support from National Tuberculosis Institute, Bangalore. A series of 3 workshops of 5-8 days duration is planned during the course of 1 year (Sept-2010- August, 2011).

The first workshop was held in September-2010, the second will be held in February/March, 2011 and the third in the months of July/August, 2011. In between the workshops, the participants are constantly mentored by the training faculty. The cost for holding the workshops, the project mentorship and a funding support for conducting the research will be borne by The Union, as a part of the Global Fund Round 9 India TB project within the budgeted amount under the OR training activity and any further requirement in financial resources will be supplemented by WHO-India.

The trainees for this workshop include the Consultants of WHO RNTCP Technical Assistance Project, the Programme Managers at the State and District level (STOs, DTOs, STDC officials), faculty from Medical Colleges, programme managers from the Global Fund Round 9 project and the Civil Society representatives (which includes representatives from NGOs, CBCI and IMA etc.,). The selection of the trainees (33 nos) was done competitively through an open call for applications, on the basis of a 500 word research concept notes submitted by the candidates/candidate groups. During the first workshop 17 OR protocols to answer the priority RNTCP research questions were developed. All 17 OR protocols developed during the project has been endorsed by Central TB Division for implementation, ethically approved by the Ethics committees of National TB Institute, Bangalore and The Ethics Advisory Group of The Union and a communication has been sent by Central TB Division to the respective State TB Offices to support their implementation.

List of Studies being undertaken by RNTCP

National Level

An assessment of source of previous treatment for re-treatment TB patients was undertaken by CTD. The results of the study showed that nearly half of the TB patients was previously treated in the non-RNTCP. This shows that although we have achieved a lot under the programme, much more efforts are needed to reach-out to all the TB patients in the country.

The following studies have been approved and funded by CTD and are presently underway:

1. Disease prevalence studies at 6 sites by the following institutes:
   a. NTI, Bangalore
   b. MGIMS, Wardha
   c. AIIMS, New Delhi
   d. PGIMER, Chandigarh
   e. JALMA, Agra
   f. RMRCT, Jabalpur
2. Zonal ARTI survey being coordinated by NTI, Bangalore

These two surveys have been completed and the results will be available by mid 2011.

3. A Study on Treatment of Genital Tuberculosis: A randomized controlled trial to compare the 6 months of Cat I treatment with 9 months of Cat I Treatment (extension for 3 months) in genital tuberculosis under RNTCP. (AIIMS, New Delhi)
4. A multi-centric study on treatment of abdominal tuberculosis (intestinal or peritoneal): A randomized controlled trial to compare the 6 months of Cat I treatment with 9 months of Cat I Treatment (extension for 3 months) in abdominal tuberculosis under RNTCP. (AIIMS, New Delhi)
5. Evaluation of the efficacy of thrice weekly DOTS regimen in TB pleural Effusion at six months. (AIIMS, New Delhi)
6. Utility of generic and disease specific health related quality of life instruments as outcome measures for tuberculosis patients treated under RNTCP at Chandigarh. (PGIMER, Chandigarh). This study has been completed.
7. "Socioeconomic implications and incidence of default amongst patients put on DOTS, Himachal Pradesh" under RNTCP. (IGMC, Shimla)
8. A study on the assessment of RNTCP strategy of FNAC diagnosis (at 2 weeks) and 6 months duration of treatment for peripheral tubercular lymphadenitis. (PGIMER. Chandigarh)

State Level: At the state level a total of 41 proposals have been reviewed by the Zonal OR committees during the period July' 08-June '09 and 31 studies have been approved and funded. More than 70 postgraduate theses have been approved during this period by the State OR Committees.

Revised Operational Research Agenda - Listing the Priority Research Areas Interventions to Improve Case Detection and Diagnosis

- Health seeking behavior and reasons for TB diagnostic delay in vulnerable populations, including tribal and urban slum dwellers.
- Pilot test of "2+2" (2 weeks cough and 2 sputum specimens) for TB suspect identification and diagnosis in high and low workload settings
- Yield of sputum-smear examination of EP cases at diagnosis, and predictive value of follow up sputum-smear examination in EP and smear negative cases
- Prevalence of cough > 2 weeks among OPD attendees, and smear microscopy outcomes among them
- Efficiency of alternative questions to identify TB respiratory suspects in local language (e.g. productive cough vs. cough)
- Interventions to Improve Microscopy
- Evaluation of the use of fluorescent smear microscopy in high-workload settings
- Operational and technical evaluation of lowcost battery-powered LED adaptation for binocular microscopes
- Effect of sputum collection centres on specimen quality, diagnostic access, and completion of follow-up sputum examinations
- Impact of one versus two sputum samples for follow-up sputum examination

- Effect of daily slide workload on laboratory technician proficiency (when does accuracy begin to suffer under programme conditions)
- EQA: Evaluation of quality of 1st level STLS reading of RBRC slides vs. a reference umpire's reading in the case of discordant slides
- EQA: Evaluation of the prevalence of scanty positive smears as a proxy indicator of the quality of smear microscopy activities

Interventions to Improve Treatment Outcomes

- Prospective, community-based long-term cohort study of patients registered and treated under RNTCP, evaluating multiple key treatment-related questions: Risk factors for death, default, and
- Impact of migration on treatment outcomes Impact of co-morbidity (diabetes, HIV infection) on treatment outcomes
- Impact of non-MDR drug resistance on treatment outcomes
- Incidence and risk factors for recurrent TB (relapse or re-infection)
- Risk factors for death after TB treatment
- Evaluation of patient reasons for initial default, and the effectiveness of interventions to prevent initial default
- Retrospective evaluation of risk factors for default in RNTCP category II treatment, and qualitative evaluation of patient and provider-reported determinants of TB treatment interruptions
- A cluster randomized controlled trial of innovative and cost-effective programme interventions to reduce default
- Impact on outcome and relapses of using a daily or partially intermittent treatment (two weeks daily) during the intensive phase of TB treatment) compared with fully-intermittent regimen, in patients with and without HIV infection
- Develop and test links of the TB programme with existing welfare schemes to improve case holding and treatment outcome
- Rapid retrospective evaluation of the impact of treatment interruptions on treatment outcomes
- Evaluation of family-DOTS in young pediatric TB patients using pediatric patient-wise boxes
- Evaluation of financial and non-financial incentives for DOTS providers and patients on DOTS provision, and patient adherence
- Reasons for delay in initiating treatment after diagnosis and the effect on treatment outcomes
- Impact on treatment outcome of prolonging the intensive phase in new TB patients smear positive at two months
- Impact on outcome and clinical response of prolonging the continuation phase in serious forms of extra-pulmonary TB

Interventions to Address TB-HIV

- Evaluation of the screening methods for TB case finding in antiretroviral treatment and Care and Support Centres.
- Reasons for loss of TB suspects referred from integrated counseling and testing centres to designated microscopy centres
- Reasons for non-initiation of ART and CPT for HIV-infected TB patients Incidence and mortality associated with TB among patients awaiting ART and on ART
- Causes for delay in treating HIV in TB patients, and effect of corrective actions
- Feasibility and cost-effectiveness of isoniazid preventive treatment for HIV-infected patients in ART centres
- Involvement of NGOs in TB-HIV interventions.
- Evaluation of the impact of infection control measures on the incidence of TB infection among health care workers

Interventions to Address Drug-resistant TB

- Prevalence of MDR-TB in Cat I failures, Cat II entry, and Cat II patients smear positive a 3 months, and association of MDR-TB with source of and past history of anti-TB treatment.

- Evaluation of innovative methods of community-based DOT provision for the delivery of RNTCP Category IV treatment
- Rapid case-control study for risk factors for fluoroquinolone resistance and XDR-TB among patients with MDR-TB.
- Use of second-line anti-TB drugs and MDRTB diagnostic and treatment practices among providers in urban areas (surveys)
- Sources of previous TB drug exposure for patients registered in RNTCP as re-treatment cases.
- Methods to improve sputum transportation for culture and DST
- Evaluation of the utility of rapid culture and DST methodologies in programme setting (high TB burden low income country)
- Slide culture to monitor response to treatment in patients on Category IV treatment

Interventions to Engage All Health Care Providers

- Evaluation of the quality of TB diagnosis and care among private sector physicians
- Marketing to private health providers – what messages change referral, diagnostic, and treatment behavior for TB?
- Evaluation of comparative results and effort required by the different RNTCP schemes to involve private practitioners
- Knowledge, attitudes and practices of providers of alternative systems of medicine
- Testing methods to involve providers of alternative systems of medicine in the referral of TB suspects
- Impact of PPM interventions on equity in access, diagnostic delay, and costs of care
- Effect of ISTC dissemination on knowledge, attitudes and practices of proper TB care among specialist physicians
- Contribution of medical colleges to TB case finding under RNTCP
- Testing methods to strengthen inter department coordination within medical colleges to improve referral for treatment

Improving Community Access to TB Services

- Qualitative (focus groups) and quantitative (pre-and post intervention) evaluation of the effectiveness of communication methods and messages to promote client demand
- Testing innovative interventions to increase public visibility of TB diagnosis and treatment facilities
- Efficacy and cost of innovative interventions to increase demand of persons with respiratory symptoms in PHC facilities
- Qualitative evaluation of the effectiveness of use of 'patients charter' and other tools to promote advocacy and involve local communities fight TB
- Test the appropriateness of the RNTCP training and information materials for general health staff and private practitioners
- Develop and test simple methods to evaluate the quality of RNTCP supervision and the usefulness of current instruments

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Changes in RNTCP Guidelines

Discontinuation of Cat III Regimen under RNTCP

Initially Category I regimen was provided to new smear positive PTB, 'seriously ill' new smear negative PTB and 'seriously ill' new extra-pulmonary TB (EPTB) cases and Category III to 'not seriously ill' new smear negative PTB and extra-pulmonary TB cases. However, the eligibility to Category I treatment category widened as RNTCP included:

- All new cases who were HIV infected irrespective of type of TB, site or severity
- All new cases of TB in pediatric cases except primary complex and minor forms of EPTB

This resulted in a marked decline in the number of patients being placed on Category III treatment. WHO treatment guidelines, 4th edition, 2009 recommended against the omission of Ethambutol in Intensive phase for new patients in view of the elevated levels of INH resistance among new patients and lack of testing for INH resistance among them.

In the light of these facts, and the recommendations of JMM 2009, meeting of National Experts (NTI, September 2009) and National Task Force for Medical colleges (October 2009), it has been decided to have only 2 first line TB treatment regimens in future and discontinue the 3-drug Cat–III regimen from the guidelines. Further, these regimens will be called regimen for "new" (Category I) and "previously treated" (Category II) cases.

Change in TB Suspect Definition Among HIV-infected Individuals

There is increased evidence globally that cough for 2 weeks alone is not a sensitive indicator of TB among HIV-infected people. Hence, it has been decided to change the definition of TB suspect among this group at high risk of developing TB. A combination of 4 symptoms will be used for screening – "**Any cough, any fever, night sweats and weight loss**". This combination was found to be highly sensitive and had high negative predictive value (about 97%) to rule out TB. Hence, if a HIV-infected person has any of the four symptoms, evaluation for TB and other respiratory diseases should be carried out. Also, it has been decided that chest radiography may be used upfront along with sputum microscopy among chest symptomatics without having to recourse to antibiotic trial. This is to minimize time loss in diagnostic evaluation and also to help diagnose other pulmonary diseases other than TB.

Rifabutin use among HIV-infected TB Patients on second Line ART/Alternate First Line with PI Based Regimen

The effectiveness of second-line antiretroviral therapy depends on the introduction of protease inhibitors (PIs) in the new regimen. However, there are significant drug interactions with the PIs and rifampicin. Consequently, the treatment options are limited for TB patients who require PI-based therapy or develop TB while on PIs. PIs cannot be used with rifampicin-containing regimens due to hepatic enzyme inducing capacity of rifampicin rendering PI levels sub-therapeutic. Therefore NACP and RNTCP have recommended the substitution of Rifabutin (which is equally effective but not affected by drug-drug interactions) for rifampicin for the duration of TB treatment. The dosage would be 150 mg thrice weekly. Technical specifications for procuring Rifabutin and operational guidelines are available on www.tbcindia.org/tbhiv

Revised categories

Treatment groups	Type of patient	Regimen	
		Intensive Phase (IP)	Continuation Phase (CP)
New (Cat I)	New Sputum smear-positive New Sputum smear-negative New Extra-pulmonary New Others	$2H_3R_3Z_3E_3$	$4H_3R_3$
Previously Treated (Cat II)	Smear-positive relapse Smear-positive failure Smear-positive treatment after default Others	$2H_3R_3Z_3E_3S_3$/ $1H_3R_3Z_3E_3$	$5H_3R_3E_3$

International Standards for TB Care

Standards for Diagnosis

Standard 1. All persons with otherwise unexplained productive cough lasting two-three weeks or more should be evaluated for tuberculosis.

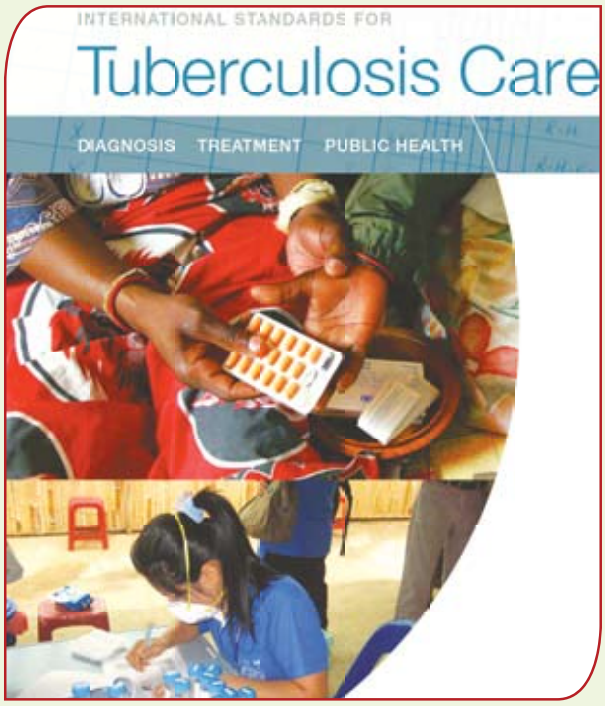
Standard 2. All patients (adults, adolescents, and children who are capable of producing sputum) suspected of having pulmonary tuberculosis should have at least two sputum specimens submitted for microscopic examination in aquality-assured laboratory. When possible, at least one early morning specimen should be obtained.

Standard 3. For all patients (adults, adolescents, and children) suspected of having extra pulmonary tuberculosis, appropriate specimens from the suspected sites of involvement should be obtained for microscopy, culture, and histopathological examination.

Standard 4. All persons with chest radiographic findings suggestive of tuberculosis should have sputum specimens submitted for microbiological examination.

Standard 5. The diagnosis of sputum smear-negative pulmonary tuberculosis should be based on the following criteria: at least two negative sputum smears (including at least one early morning specimen); chest radiographic finding consistent with tuberculosis; and lack of response to a trial of broad-spectrum antimicrobial agents. (*Note: Because the fluoroquinolones are active against M. tuberculosis complex and, thus, may cause transient improvement in persons with tuberculosis, they should be avoided.*) For such patients, sputum cultures should be obtained. In persons who are seriously ill or have known or suspected HIV infection, the diagnostic evaluation should be expedited and if clinical evidence strongly suggests tuberculosis, a course of antituberculosis treatment should be initiated.

Standard 6. In all children suspected of having intrathoracic (i.e., pulmonary, pleural, and mediastinal or hilar lymph node) tuberculosis, bacteriological confirmation should be sought through examination of sputum (by expectoration, gastric washings, or induced sputum) for smear microscopy and culture. In the event of negative bacteriological results, a diagnosis of tuberculosis should be based on the presence of abnormalities consistent with tuberculosis



on chest radiography, a history of exposure to an infectious case, evidence of tuberculosis infection (positive tuberculin skin test or interferon-gamma release assay), and clinical findings suggestive of tuberculosis. For children suspected of having extra pulmonary tuberculosis, appropriate specimens from the suspected sites of involvement should be obtained for microscopy and for culture and histopathological examination.

Standards for Treatment

Standard 7. Any practitioner treating a patient for tuberculosis is assuming an important public health responsibility to prevent on-going transmission of the infection and the development of drug resistance. To fulfil this responsibility the practitioner must not only prescribe an appropriate regimen, but also utilize local public health services and other agencies, when necessary, to assess the adherence of the patient and to address poor adherence when it occurs.

Standard 8. All patients (including those with HIV infection) who have not been treated previously should receive an internationally accepted first-line treatment regimen using drugs of known bio availability. The initial phase should consist of two months of isoniazid (INH), rifampicin (RIF), pyrazinamide (PZA), and ethambutol (EMB). The continuation phase should consist of isoniazid

International Standards for TB Care (Contd...)

and rifampicin given for four months. The doses of antituberculosis drugs used should conform to international recommendations. Fixed dose combinations (FDCs) of two (isoniazid and rifampicin), three (isoniazid, rifampicin, and pyrazinamide) and four (isoniazid, rifampicin, pyrazinamide, and ethambutol) drugs are highly recommended.

Standard 9. To assess and foster adherence, a patient-centered approach to administration of drug treatment, based on the patient's needs and mutual respect between the patient and the provider, should be developed for all patients. Supervision and support should be individualized and should draw on the full range of recommended interventions and available support services, including patient counseling and education. A central element of the patient-cantered strategy is the use of measures to assess and promote adherence to the treatment regimen and to address poor adherence when it occurs. These measures should be tailored to the individual patient's circumstances and be mutually acceptable to the patient and the provider. Such measures may include direct observation of medication ingestion (directly observed treatment or DOT) and identification and training of a treatment supporter (for tuberculosis and, if appropriate, for HIV) who is acceptable and accountable to the patient and to the health system. Appropriate incentives and enablers, including financial support, may also serve to enhance treatment adherence.

Standard 10. Response to therapy in patients with pulmonary tuberculosis should be monitored by follow-up sputum microscopy (two specimens) at the time of completion of the initial phase of treatment (two months). If the sputum smear is positive at completion of the initial phase, sputum smears should be examined again at 3 months and, if positive, culture and drug susceptibility testing should be performed. In patients with extra pulmonary tuberculosis and in children, the response to treatment is best assessed clinically.

Standard 11. An assessment of the likelihood of drug resistance, based on history of prior treatment, exposure to a possible source case having drug-resistant organisms, and the community prevalence of drug resistance, should be obtained for all patients. Drug susceptibility testing should be performed at the start of therapy for all previously treated patients. Patients who remain sputum smear-positive at completion of 3 months of treatment and patients who have failed, defaulted from, or relapsed following one or more courses of treatment should always be assessed for drug resistance. For patients in whom drug resistance is considered to be likely, culture and testing for susceptibility/resistance to at least isoniazid and rifampicin should be performed promptly. Patient counseling and education should begin immediately to minimize the potential for transmission. Infection control measures appropriate to the setting should be applied.

Standard 12. Patients with or highly likely to have tuberculosis caused by drug-resistant (especially MDR/XDR) organisms should be treated with specialized regimens containing second-line antituberculosis drugs. The regimen chosen may be standardized or based on suspected or confirmed drug susceptibility patterns. At least four drugs to which the organisms are known or presumed to be susceptible, including an injectable agent, should be used and treatment should be given for at least 18 – 24 months beyond culture conversion. Patient-centered measures, including observation of treatment, are required to ensure adherence. Consultation with a provider experienced in treatment of patients with MDR/XDR tuberculosis should be obtained.

Standard 13. A written record of all medications given, bacteriologic response, and adverse reactions should be maintained for all patients.

Standards for Addressing HIV Infection and other Co-morbid Conditions

Standard 14. HIV testing and counseling should be recommended to all patients with, or suspected of having, tuberculosis. Testing is of special importance as part of routine management of all patients in areas with a high prevalence of HIV infection in the general population, in patients with symptoms and/or signs of HIV-related conditions, and in patients having a history suggestive of high risk of HIV exposure. Because of the close relationship of tuberculosis and HIV infection, in areas of high HIV prevalence integrated approaches to prevention and treatment of both infections are recommended.

International Standards for TB Care (Contd...)

Standard 15. All patients with tuberculosis and HIV infection should be evaluated to determine if antiretroviral therapy is indicated during the course of treatment for tuberculosis. Appropriate arrangements for access to antiretroviral drugs should be made for patients who meet indications for treatment. However, initiation of treatment for tuberculosis should not be delayed. Patients with tuberculosis and HIV infection should also receive cotrimoxazole as prophylaxis for other infections.

Standard 16. Persons with HIV infection who, after careful evaluation, do not have active tuberculosis should be treated for presumed latent tuberculosis infection with isoniazid for 6-9 months.

Standard 17. All providers should conduct a thorough assessment for co-morbid conditions that could affect tuberculosis treatment response or outcome. At the time the treatment plan is developed, the provider should identify additional services that would support an optimal outcome for each patient and incorporate these services into an individualized plan of care. This plan should include assessment of and referrals for treatment of other illnesses with particular attention to those known to affect treatment outcome, for instance care for diabetes mellitus, drug and alcohol treatment programs, tobacco smoking cessation programs, and other psychosocial support services, or to such services as antenatal or well-baby care.

Standards for Public Health

Standard 18. All providers of care for patients with tuberculosis should ensure that persons who are in close contact with patients who have infectious tuberculosis are evaluated and managed in line with international recommendations. The determination of priorities for contact investigation is based on the likelihood that a contact: 1) has undiagnosed tuberculosis; 2) is at high risk of developing tuberculosis if infected; 3) is at risk of having severe tuberculosis if the disease develops; and 4) is at high risk of having been infected by the index case. The highest priority contacts for evaluation are:

- Persons with symptoms suggestive of tuberculosis
- Children aged <5 years
- Contacts with known or suspected immunocompromise, particularly HIV infection
- Contacts of patients with MDR/XDR tuberculosis

Other close contacts are a lower priority group.

Standard 19. Children <5 years of age and persons of any age with HIV infection who are close contacts of an infectious index patient and who, after careful evaluation, do not have active tuberculosis, should be treated for presumed latent tuberculosis infection with isoniazid.

Standard 20. Each health care facility caring for patients who have, or are suspected of having, infectious tuberculosis should develop and implement an appropriate tuberculosis infection control plan.

Standard 21. All providers must report both new and re-treatment tuberculosis cases and their treatment outcomes to local public health authorities, in conformance with applicable legal requirements and policies.

Annexure 1

Universal Access to TB Care

A Practical Guide for Programme Managers

One of the major policy decision taken by RNTCP in the year 2010 is to change the focus of the NSP case detection objective of at least 70% to the concept of universal access to good quality care for TB patients. There is now global consensus that the twin objectives of 70/85 alone is not enough to achieve adequate reduction of TB transmission and reduction in disease burden at the pace with which epidemiological impact is expected. Also, some studies suggest mortality remains higher than expected, including post TB-treatment mortality. One of the major reasons for death in TB patients is late diagnosis.

Today's missed smear negative case may be tomorrow's smear positive case. Hence it is extremely important for TB control programmes to focus on early and complete detection of all TB cases including smear positive and smear negative TB cases. This essentially means that more attention is to be paid to the processes involved in case detection and case holding and strategies to ensure that all TB patients have access to early case detection and effective treatment. RNTCP already have the policy in place for most of the activities for Universal Access to TB care, what is required is more of focused actions to achieve the desired results. There are possibilities for future policy developments in certain areas for which more evidence may be required from field level. The following discussion can be used by programme managers as a guide for better implementation of the concept of Universal access to TB care.

Universal Access to TB Care

All TB patients in the community to have access to early, good quality diagnosis and treatment services in a manner that is affordable and convenient to the patient in time, place and person. All affected communities must have full access to TB prevention, care and treatment, including women, children, elderly, migrants, homeless people, alcohol and other drug users, prison inmates, people living with HIV and other clinical risk factors, and those with other life-threatening diseases.

Specific actions by programme managers to achieve early and complete case detection, towards universal access to TB diagnosis and treatment.

1. Improve suspects identification (cough for two weeks or more, but if associated with other clinical risk factors (e.g. HIV) or contact of sputum positive patient, cough of any duration) in all out patient departments (OPD) and ensure diagnostic sputum microscopy for these patients.
2. Follow up of the sputum negative symptomatics with a course of antibiotic followed by repeat sputum examination and if required Chest X-Ray to diagnose smear negative TB. Avoid fluoroquinolones in chest symptomatics. Use of fluoroquinolones could result in symptomatic improvement in smear negative patients, which can lead to missing the diagnosis of smear negative TB. It is very important that during the patient counselling following the sputum smear result, Medical officer should tell the patient regarding the follow up, repeat sputum examination and Chest X-Ray so that the smear negative TB diagnosis is not missed.
3. Reduce initial defaulters. All TB patients, whether new or re-treatment, smear positive, negative or extrapulmonary, once diagnosed need to be started on treatment and registered. All TB patients need to be registered whether on DOTS or non-DOTS. Special attention to be given for referral and feedback mechanism already in place for RNTCP. Monitor inter-TU referrals at District level and Inter-district referrals at State level. Referral and feedback should be an important agenda item in every RNTCP quarterly review meeting at State level. Inter state referral and feedback needs to be monitored and strengthened with boarder state meeting. At national level about 12% of smear positive cases diagnosed are missing from registration, which comes to around one

lakh smear positive cases annually of which at least half of them could have been missed at inter-district/state referral. Identifying all diagnosed TB patients, starting them on treatment and registering them should be the priority.

To achieve this, following activities are crucial:

- Greater involvement of General Health system in TB control:
  - Sensitize Chief Medical Officers and other programme managers in the district regarding the importance of universal access to TB care and the steps required to achieve the same
  - Training/Sensitization of all Medical Officers and relevant paramedical staff (e.g. OP registration staff, door keeper to doctors chambers, nurse, etc.) to systematically identify TB suspects.
  - Monitor suspect identified and referred from PHIs and other treatment seeking points (both in public and private sector) for sputum smear microscopy. Give special attention to institutions with large turn over of OPD, as these are the places where chances for missing cases are more. Medical Officers of all OPDs including different specialities need to be sensitized on identification of TB suspect as the TB suspect may present to any speciality at any time.

4. Screening for TB among high risk groups:
   a. Contact investigation among the diagnosed smear-positive cases is to be systematically implemented and monitored, and offers a major opportunity for early case detection.
   b. HIV care centres
      i. Intensive TB case finding should be implemented in all facilities providing HIV care, like ICTCs, ART Centres, Care and support centres etc.
      ii. Train Medical Officers in the algorithum for diagnosis of TB in HIV positive patients.
      iii. Involve NGOs working with HIV programme in TB case finding activities.
   c. Diabetic patients
      i. Sensitize medical officers to intensively screen for TB in all diabetic patients at each visit.
      ii. Screening for TB cases in diabetic clinics
   d. Elderly patients
      i. Sensitize medical officers to search for TB in elderly people attending OPD, many of the TB suspects may not give the symptom of cough for 2 weeks or more, in such cases a high index of suspicion for TB with symptoms for fever, night sweats, loss of weight etc coupled with sputum examination and if required later Chest X-Ray would diagnose TB among these patients. Elderly people suffering from chronic lung diseases like COPD, also need to be routinely screened for TB, may require repeated sputum examinations during their visits.
      ii. Analyse health care seeking behaviour of patients, especially elderly women in areas with low TB case notification in that age group and plan strategies for improving the health care seeking behaviour. Participation of ASHA workers, women self help groups and other NGOs can be useful in these areas.
   e. Smokers
      i. TB control programme to actively associate with anti smoking programme.
      ii. Chronic smokers attending OPDs with respiratory symptoms to be screened for TB.
   f. Other High risk groups
      i. Malnutrition, patients with silicosis and other chronic diseases, need to be screened for TB.
5. Address accessibility issues at local level. Undertake detailed review on accessibility issues at District, TU and DMC levels and find out local accessibly issues and implement solutions. In order to identify issues hold periodic consultations with the authorities and leaders of different constituencies of the community (e.g. labour authorities, managers of labour intensive industries, authorities dealing

with migrants/prisons/health care providers in the private sector, tribals, slums, etc.)

6. Establish DMCs as per norm. Plan and implement need based sputum collection and transportation system.
   a. Ensure the designated microscopy centres are functional, are accessible to patients in time place and person. There should be provision for collection of sputum samples, even if the laboratory is closed after the working hours. Ensure Binocular microscopes are in good condition, and have AMC in place. A well established EQA system for sputum smear microscopy is essential. Special care should be taken regarding the quality of reagents and also that of sputum cup. An opaque sputum cup could be the root cause of low case detection; Laboratory Technician not able to visually examine sputum sample as the sputum cup is opaque, leading to low quality sample collected which could lead to poor smear preparation and ultimately missing cases.
   b. Sputum collection centers should be established in areas where DMC is not easily accessible to the patient. This accessibility problem may be geographical, social or with regard to timing of the DMCs.
7. Universal access to TB care in Medical Colleges.
   a. Use the State and Zonal Task force mechanism to further strengthen medical college involvement in RNTCP.
   b. Medical colleges need
      i. To develop a system of intense search for TB cases both in OPD and IPD.
      ii. Implement a rigorous system of tracking patients both within the institution and outside for diagnosis as well as treatment.
      iii. Strengthening of interdepartmental collaboration and monitoring mechanisms to ensure optimal contribution by all departments to TB case detection and treatment services.
8. ACSM as a tool for universal access to TB care
   a. Wide dissemination of information in the community regarding availability and location of TB care services including lists of DMCs and DOT centres.
   b. Use of local media, cured patients, NGOs, mobile phones, religious, political and other community leaders to spread the message on TB diagnostic and treatment facilities available.
   c. Focus advocacy and communication to all types of health care providers, so that TB suspects are identified by all types of providers and early diagnosis and proper care can be given to all TB patients.
9. Involve NGOs and Private Practitioners in the programme. Training practitioners in the other systems of health care is very important. Use International Standards of TB Care (ISTC) document for sensitizing private providers on standard diagnosis and treatment for TB. For formal training use RNTCP module for medical practitioners. Some important activities required from programme managers are listed below:
   - Line-listing of NGOs and PPs/ updating the line list
   - Steps for signing the relevant schemes
   - Active involvement of private sector through Global Fund IMA/CBCI projects and involving other professional groups including practitioners of AYUSH.
   - Involving all other health care sectors including Railways/ESI/Defence/other sectors like NTPC, Coal, Steel etc and other corporate sectors
   - Monitor PP and NGO involvement in all review meetings.
10. Improve the TB notification system by registering all cases treated under DOTS and non-DOTS (irrespective of the source of drugs and the regimen used) in the RNTCP TB register. Introduce a combination of regulations and peer pressure to notify and register all TB cases in the respective districts and states using the all possible avenues, e.g. local authorities, drug regulators, MCI, IMA, etc.
11. Conduct operational research to identify local barriers to early case detection, including care

seeking behavior, missed opportunities for diagnosis, etc.

12. Collaborate with the local authorities to implement pharmacovigilance for anti- TB drugs sold in the district/state with a view to develop locally innovative strategies for improvements in notification of TB cases and promotion of rational use of drugs.

Promising future opportunities for early and complete case detection for which many programme managers would be called to assist:

- Screening of all patients with TB risk factors, change of TB suspect definition in high risk groups to cough of any duration, or fever with night sweat etc.
- Intensive case finding in urban slums, and other high risk population groups
- Front-loading of sputum microscopy (2 spot while patient waits with a minimum gap between the two) with LED/FM microscopy

Universal Access to TB Treatment

Ensure all TB patients diagnosed are given pre-treatment counseling before starting treatment and DOT arranged at a place convenient to the patient.

1. Ensure the following activities
   a. Prompt visit of the health worker/DOT provider to the patient's home with a local strategy to deal with homeless and people on the move.
   b. DOT convenient to the patient in time, place and person, including special arrangements for elderly and immobile people, and for travel/migration of patients short/long term.
   c. DOT provider is trained and well motivated
   d. Prompt missed dose retrieval action are taken
   e. Follow up visits and sputum examinations are arranged in a timely, planned and patient-friendly manner.
   f. Any side effects of drugs are attended promptly
2. Facilitate care for any co-morbidities like HIV/ Diabetes etc
3. Provide counseling and a list of updated social welfare schemes to each patient put on treatment and provide the list of TB patients to the relevant social welfare authorities (Govt and NGO).

Annexure 2

Schemes for NGO and Private Providers for RNTCP Collaboration

Scheme	Eligibility	Functions of NGO	Role of RNTCP	Grant-in -aid
ACSM SCHEME **TB advocacy, communication and social mobilization**	♦ NGO with at least 2-3 years experience in social mobilization activities and grass root level activities ♦ Local presence and familiarity with local culture	♦ Community meetings ♦ Street plays /Puppet shows ♦ School activities such as essay competition, painting competition ♦ Sensitization of PRIs and SHGs ♦ Sensitization of DOT Providers/ TB support groups ♦ Patient Provider Meetings in the community ♦ Sensitization of religious groups/ faith healers	♦ Sharing of ACSM District plan with the NGO ♦ Provision of prototype material to the NGO/s	Rs 1,50,000 per 1 million population per year
SPUTUM COLLECTION SCHEME	♦ NGO/Private facility with or without an outpatient that is not a DMC ♦ In "underserved" areas (hard to reach, tribal area) ♦ Well ventilated open space for sputum collection	♦ Sputum collection from TB suspects referred from outpatients of the same facility and other facilities linked in the vicinity ♦ Sputum to be collected following RNTCP diagnostic and Follow-up guidelines ♦ Ensure timely transportation of sputa and timely communication of the results back to referring providers ♦ Standardized kits for transportation to be procured by the NGOs	♦ Identification of underserved areas and planning in collaboration with Sputum Collection Center and nearby DMC ♦ Arrange for sputum microscopy at DMC and timely transmission of results, treatment initiation and follow up ♦ Training of the concerned staff and provision of material including sputum cups	Rs 60,000 per annum, per centre

Scheme	Eligibility	Functions of NGO	Role of RNTCP	Grant-in -aid
TRANSPORT SCHEME **Sputum pick up and transport service**	NGO/CBO with outreach workers, or private organization with the capacity to transport sputum specimens as per RNTCP guidelines	♦ Coordinate with the assigned Sputum Collection Centres and the DMCs ♦ Transport samples safely to DMCs periodically ♦ Convey the results in dispatch lists and forms to the Sputum Collection Centres ♦ Maintain travel log book	♦ Proper plan and allocation of collection centers in collaboration with DMC MO-IC and external partners ♦ Training of the concerned staff and provision of materials listed ♦ Ensuring quality microscopy and timely transmission of results	Rs 24,000 per annum
DMC SCHEME **Designated Microscopy cum Treatment centre (A&B)**	♦ NGO or Private labs with adequate civil works ♦ Collective OPD of > 60 /day or 3-5 samples per day ♦ Trained Medical Officer & Laboratory Technician ♦ Functional Binocular Microscope	♦ To perform smear microscopy as per RNTCP guidelines ♦ Covered under EQA	♦ Training of concerned staff and provision of lab consumables ♦ Ensure quality assurance, supervise and monitor ♦ Approval for initiation and closure to be obtained from the STO	♦ Annual grant-in-aid of Rs. 1,50,000 If the DMC wishes to start a Treatment centre then it may be allowed but only Honorarium will be paid. No further administrative costs will be given ♦ Rs 25 per slide if only private lab
LT SCHEME **NGO to strengthen diagnostic services**	Any registered NGO with capacity and commitment to provide sustained support for at least 3 years	♦ NGO should give commitment to provide and sustain support for at least 3 years ♦ NGO to provide LTs in NGOs/ Govt DMCs with vacant LT post ♦ Ensure timely payment and monitor regularity of services	♦ Plan with NGO on areas that need strengthening in case detection activities ♦ Coordinate with NGO and STO ♦ Training and placement of LT at DMCs with vacant LT posts ♦ Ensure EQA, supervision and monitoring	As per existing RNTCP contractual LT salary, + 5% overhead and recruitment cost reimbursement equal to one month's salary

Scheme	Eligibility	Functions of NGO	Role of RNTCP	Grant-in -aid
CULTURE AND DST SCHEME **Providing QA culture & DST services**	♦ The lab should have adequate infrastructure, equipment and staff i.e. is an existing functioning mycobacterial culture and drug susceptibility laboratory ♦ Willingness for accreditation under existing RNTCP accreditation mechanism ♦ Willing to undergo routine QA & annual proficiency testing with RNTCP NRL ♦ Patients will not be charged for culture and DST conducted for RNTCP	♦ Maintain adequate infrastructure, equipment, consumables and staff ♦ Keep records and reports as per RNTCP procedures ♦ Co-ordinate with respective NRL and STO for QA and PT processes	♦ Ensure timely payment to laboratory on 6 monthly basis ♦ Co-ordinate with institution, respective DTOs and NRL in relation to service provision, training, supervision and QA ♦ Report progress of activities to CTD and State level DOTS-Plus Committee ♦ The necessary formats, records and reports will also be provided to the laboratory by the programme	♦ The fee payable for sputum smear, culture, species identification and drug susceptibility testing Rs.2,000/- per specimen ♦ For undertaking smear, culture and species identification will be Rs.400/- per specimen (in follow-up)
ADHERENCE SCHEME **Promoting treatment adherence**	♦ Any NGO registered under the Societies Registration Act, (1860) ♦ **Private Providers:** PP should preferably have undergone training in at least the RNTCP module for Private Practitioners, or at least staff from the clinic should have undergone RNTCP DOT provider module training	♦ Provision of Directly Observed Therapy to patients on RNTCP treatment ♦ Staff or volunteers of the NGO/PP provide counseling services to patients on RNTCP treatment ♦ Awareness generation ♦ Additional services Transportation of patient wise boxes and treatment cards from the PHIs to the DOT centers and vice versa	♦ Literature for training and orientation is given as available ♦ Medications are provided for the patients placed on treatment ♦ Sputum containers are provided for follow up examinations ♦ Formats (TB Treatment Cards, Identity Cards) as required	♦ Administrative and additional treatment support functions: Rs 40,000 for every 1 lakh population per annum ♦ **For DOT:** Cat 1, 2, and 3 patients: Rs250 to the individual volunteer for each patient cured or treatment completed Cat 4 patients: Rs 2500/- (Rs 1000 after completion of IP and Rs 1500 after completion of CP.) ♦ **For PP** Rs 400/- per patient successfully treated (Rs 250 +Rs 150)

Scheme	Eligibility	Functions of NGO	Role of RNTCP	Grant-in -aid
SLUM SCHEME	♦ Any NGO/Community based organization/Self help group/ Private practitioner with capacity and commitment to provide sustained support for at least 3 years	♦ IEC Activities with counseling of patients (Drug abusers, Migrants, patients with behavioral problems, alcoholism,) ♦ Sputum Collection & transportation ♦ DOT provision ♦ Default retrieval ♦ Linking with other health and social welfare facilities	♦ Training of NGO and Service providers ♦ Logistic Support ♦ Supervision, Monitoring and evaluation	50,000 per 20,000 population per annum
TU SCHEME	Any registered NGO/Private facility with a capacity to take up all RNTCP programme facilities in a population of 5 lakhs	♦ The NGO provides all RNTCP services earmarked for a Tuberculosis Unit with all programme implementation responsibilities ♦ The NGO must also coordinate closely with all public and other health facilities in the area ♦ NGO scrupulously maintains RNTCP records and submits quarterly reports to the District TB Officer in the prescribed manner and in a timely fashion	♦ The DHS provide technical orientation, guidance, and supervision ♦ Ensure good integration of the TU operated by the NGO with other TUs in the District. ♦ Include the staff of the TU in all regular meetings of nodal RNTCP implementing staff	♦ Start-up Activities (one-time assistance) Rs. 2,00,000 ♦ Annual assistance- Rs. 5,30,000
TB-HIV SCHEME	♦ The scheme would be offered only to NGOs undertaking NACP TI in commercial sex worker populations; MSM, IDUs, or running a Community Care Centre for HIV (20 bedded) ♦ Catering to at least 1000 target population	Comprehensive TB Care for High Risk Group - ♦ ICF ♦ Patient friendly approach for Diagnosis ♦ Organize for address verification through Out reach workers; ♦ Treatment provision, advocacy with PLHA networks for TB control	♦ Training of NGO and Service providers ♦ Provide Sputum cups, IEC material, and printed material (treatment cards, identity cards etc.). ♦ Provide supervision, monitoring and evaluation of NGO activities and patient care ♦ Provide honorarium for individual DOT providers as per RNTCP norms.	Rs 1,20,000 per NGO per 1000 Target Population(or 1 NACP –approved CCC)

CHAPTER 4

Success Stories from the States

ASSAM

RNTCP staffs saved her not only from TB but also from dangerous traditional healer

Shilpi Namasudra, a resident of Cibitabichia which is one of the most interior area of Cachar District of Assam was going through 'Tantrik' treatment for her chest problems till she was retrieved by the RNTCP staffs of DTC-MC during their field visit. When the RNTCP staffs met her for the first time her situation was grave. Initially, she refused our advice as she had been going through the spiritual treatment but after much persuasion she finally agreed and was found to be sputum positive. Her treatment started on the 14th Sept 09 and declared cured on 21st March 10. She was provided DOTS by the ASHA worker who stays near to her house.

Shilpi is now fully cured and leading a normal life. Her parents expressed their wholehearted thanks and gratefulness to the RNTCP staffs for saving their daughter's life.

ANDHRA PRADESH

Involving the pharmacists in RNTCP

The State TB Control Society, Andhra Pradesh has taken the initiative to strengthen the involvement of pharmacists in the TB control program and to develop a referral mechanism of TB symptomatic from these pharmacists, to bring TB care services more accessible to all, with technical support of PATH and funding by USAID. Initially the program is piloted in Ongole TB unit in Prakasam District, Andhra Pradesh. On 24th March 2010, a MoU was signed between District TB Control Society, Prakasam in the presence of Chairman & Collector, Prakasam district and the Ongole Retail Chemists & Druggist Association, Ongole. The document was also signed by the Assistant Director, Drug Control Office, Prakasam district.

In the initial round all the pharmacists of the Ongole were sensitized on the need for TB control. 79 pharmacists have given their consent to voluntarily participate in the TB control efforts and to refer any symptomatic to the nearest DMC. Later in a phased manner, all the pharmacists were trained on need for TB control, identification of symptomatic, filling up of the referral slips. Over the last two months 48 TB symptomatic were referred by these pharmacists and 42 have under gone sputum diagnosis and two were found affected by TB.

Pharmacists' sensitization in progress

IMA DMC contributing to TB diagnosis

Dr. Demudubabu is one of the senior practicing Practitioners of Visakhapatnam who showed interest in the RNTCP after being encouraged by IMA. He started a DMC in his nursing home under the PPM schemes.. Since then 350 patients were referred by him for Sputum examination; and 26 were found to be positive. Currently 40 Patients are taking treatment in his DOT Centre.

Dr.Rajasekhar is a senior General Physician at Narsipatnam, Visaskhaptnam District in Andhra Pradesh, has referred more than 50 cases for sputum examination to the DMC at Narsipatnam Hospital; and out of these more than 80% are positive cases, this was appreciated by GFATM Team from Geneva.

Inauguration of a DMC in Andhra Pradesh

BIHAR

Private doctors of Bihar involved in RNTCP

The Bhaglpur Model is an association of Private Practitioners of the Bhagalpur city of BIHAR, which has taken a unique initiative to start RNTCP approved DOTS Centre at each of the private clinic of the members of the organization. The Organization has 15 members. Till Date about 800 TB patients have been treated with DOTS with most of them got cured. Bhagalpur model is citing a good example of involvement of the private practitioners in the RNTCP.

Advocacy leading to change - TB forum

TB Forum is a group consisting of some advocates for the programme including local community leaders, representatives of NGO/CBO/cured patients/ PLWHA/senior citizens etc. This forum facilitates interaction with political and administrative leaders and supports the programme at field level. Jamui district of Bihar has recently formed one TB forum with the help of Project Axshya (Round 9 GFATM TB Project). The has been sensitizing the local people on TB and TB control programme One of the members of the forum being a local media person has been utilizing the platform of media to disseminate key TB messages in the community. The forum has been working in close collaboration with DTO and District Collector.

One immediate success story of this TB Forum was in providing some local persuasions at one Designated Microscopy Centre which was practically non-functional due to non-availability of the LT in the morning hours, when patients used to attend the OPD of the hospital. This problem was solved by two of the members of the forum, when they talked to the LT and convinced him to attend the DMC in the morning hours itself. Some of the members of the TB forum are facilitating to develop a system of getting railway concession forms for TB patients. These kind of local interventions would be very useful for the continuous progress of the programme.

CHHATTISGARH

Success story from Kanker

District Kanker is a role model district for the entire state in delivering basic RNTCP services and has been able to provide DOTS to the TB patients despite many challenges in this Tribal District. In the recently conducted validation of the outcome of all NSP & Re-treatment cases registered in 2009 in the TB register after triangulation with treatment card and lab registers, it was found that the difference between the outcome reported and outcome in the TB Register was minimum.

GUJARAT

Power of team work in RNTCP

Tinaben Bhikhubhai Rathod, resident of Pelad Buhari Taluka, Valod, Dist. Tapi, Gujarat was diagnosed extensive pulmonary TB with weight 24 kg only. Nobody expected her chances of survival. She was put on DOTS (low weight AKT boxes), monitored regularly by PHI staff, RNTCP staff & ICTC counselor of Valod TU and DTC Vyara. After 2 months her sputum sample was negative with 1 kg gain in her weight. She was declared completely cured after 9 months of treatment (May 2010) with 30 kg body weight. At present she is living a healthy life with her family.

Tinaben before treatment

Tinaben after treatment

Story a motivated and dedicated TBHV of Sapur, Rajkot

The TBHV has been working for last 7-8 months in the Sapur industrial belt located within the Rajkot city of Gujarat which is inhabited by many migrant workers, female sex workers and MSM (Male having sex with male). Within this short period of time the TBHV has developed good collaboration with the local private practitioners and one NGO that is implementing Targeted Intervention (TI) HIV prevention project with the local female sex workers and MSM as a partner of the Gujarat State AIDS Control Society (GSACS). He has been able to engage 6 of the local private practitioners in the RNTCP who regularly refer suspected TB cases to the local DMCs and also provide DOTS to the confirmed TB cases. His regular and planned visits to the private practitioners have greatly improved

his acceptance level to them within a short span of time. He has been also helping the TI implementing NGO to create TB awareness among the female sex workers and MSM within their project and refer the suspected TB cases among them to the DMC. In turn, he has been utilizing services of the counsellor of the TI project to counsel the TB patients under him and subsequently motivating them to visit the local Integrated Counselling and Testing Centre (ICTC) for HIV counselling and testing.

Success story from the DOTS Plus site of Vadodara

The first patient of DOTS Plus Site, Sonalben Rajesh Khangale, from the Vadodara Municipal Corporation (VMSS-Vadodara Mahanagar Seva Sadan), has successfully completed 10 months of treatment without any interruption. She has gained 7 kg weight (initial weight at the time of starting treatment was 39 kg which has now increased to 46 kg). Her sputum cultures have been consecutively negative from the third month onwards (the latest culture report of the 7th month being negative). We took this opportunity to call her to the DOTS Plus site Vadodara, to ask her about how she coped up during this period of treatment, especially taking into account her initial condition at the time of initiation of DOTS Plus treatment, wherein she could hardly even walk. Sonalben now goes to work from 9:00 AM to 5:00 PM, takes care of her children as well as does all the household chores. She came for the interview with her husband and also gave a pep-talk to the patients admitted at the DOTS Plus Site, to encourage them to adhere to the treatment.

Sonalben during initiation of DOTS plus treatment and after 10 months of DOTS plus treatment

JHARKHAND

Knowledge is power which translates into action

Mohar Lal Besara, a poor villager was suffering from cough with loss of weight and fever for many months. He was treated for his ailment by a local doctor but did not improve.

He was taken by his brother by bicycle to a nearby Govt. DMC where he was diagnosed as a TB patient. He then visited Missionary of Charity TB Hospital, Balidih in Bokaro District Jharkhand and was put on TB treatment.

On successful treatment under DOT he was cured. Now he has decided to become a DOT provider in the same Hospital. He provides DOT to the indoor patients of the same hospital and has the credit of curing many patients.

KARNATAKA

How Raju won over TB and became of the TB messenger of the community

DH Raju, is a 35-years old auto driver residing at NR colony, Kotithop, Tumkur, Karnataka.

In the early months of 2009 Raju started developing cough and fever and started feeling weak. After visiting few private doctors, he finally consulted the Nodal officer RNTCP was then referred by for sputum examination at DTC, Tumkur. His two sputum samples showed 3+ bacilli. When he was informed about disease he felt as if his world had collapsed. But the RNTCP staffs reassured him by saying that TB is fully curable and that he should not need to worry at all.

Raju followed DOTs correctly and regularly, and as the treatment progressed he started feeling better and subsequently he was cured. Today Raju has become a

TB messenger for RNTCP. He refers suspected cases from his friends and neighbors' circles for sputum examinations and he has been carrying a RNTCP poster in his auto. Now he is motivated enough to become the DOTS Provider to any TB patient in his locality.

KERALA

Mass TB awareness Campaign

State TB Cell, Kerala has done TB Awareness campaign 'TB AWARE PANCHAYATH' for a period of two weeks. 74 poorly performing panchayaths in terms of suspects' referral were identified from the entire state for the campaign which commenced from March 24th 2010 World TB Day. Trained ASHA workers, JHI, JPHN, visited entire houses in panchayaths and distributed leaflet containing information of TB along with sputum cups along with lab forms to the TB suspects. The campaign reached 4, 25,144 households covering a population of 20, 89,499. Most of the Panchayaths have taken many initiatives to make the campaign successful such as TB contest among the public, coming up with Newsletter exclusively for TB and projects for supporting TB patients with nutritional support. The fund for printing News letters, banners, gifts etc. was mobilized by the panchayath locally. The Hon'ble Minister for Health and social welfare declared 74 Panchayath as TB Aware Panchayath on 7th April 2010 on the occasion of World Health Day. On the same day she distributed mementos and Certificates to the Presidents of the involved Panchayths.

Minister for Health and Social Welfare Smt. Sreemathi Teacher, distributing certificates to TB Aware Panchayaths

MADHYA PRADESH

The patient during treatment in the hospital

She is leading normal life after treatment with her family

A young tribal woman from Chhata village of Mandla district of Madhya Pradesh had been brought to Benaras by a contractor for daily wage labor job. She fell seriously ill after sometime when her contractor dumped her in a private hospital near her place and left without intimating her family members about her illness. The woman was subsequently transferred to the medical college of Mandla by the efforts of the District Collector and District TB Officer. She was diagnosed with TB and weighing 19 kg only. She was immediately started TB treatment (low weight PWB) and kept admitted in the medical college for a month. After that a MPW was assigned to provide her DOT at her home.

The woman had gradually shown improvement and finally declared cured of TB after 8 months of treatment.

Currently her weight is 42 kg and she is leading a normal and healthy life with her family in the village.

MAHARASTRA

'TB wale Mullaji' of Nagpur

Falahi Dawakha is small charitable clinic located in Momimpura suburban locality of Nagpur Corporation run by Mr Mushtak Bhai for last 15 years. Mr Mushtak Bhai has remained a DOTS provider since 2003 and cured 319 TB patient so far. Because of his sincere efforts, many TB patients have been able to receive treatment free of cost at convenient location and timings. He regularly refers TB suspects to the nearest district microscopy centre (DMC). He has also organized a small TB skit that is being regularly staged in front of his clinic to create TB awareness among the clinic attendees. He is well known among locals as "TB wale Mullaji"

MAHARASTRA

Engaging pharmacists through Lilly MDR TB partnership

International Pharmaceutical Federation (FIP), SEAR Pharm Forum (FIP-WHO Forum of National pharmaceutical Associations of South East Asia) and Indian Pharmaceutical Association (IPA) with support of Lilly MDR TB partnership have launched a "DOTS TB Pharmacist Project" in Mumbai. The project involves private retail pharmacists (at the chemist shops) to deliver DOT services & thus TB patients can have easier access to the treatment. The project is being implemented with the help of local Chemist Associations & City/District TB authorities. Around 130 Pharmacists in Mumbai & Thane district are trained with the help of City TB authorities. The key role of pharmacists is Case detection, Case referral for diagnosis (sputum test), Awareness & counseling using TB information leaflets, developed in local languages and Provision of DOT medicines at the Pharmacy.

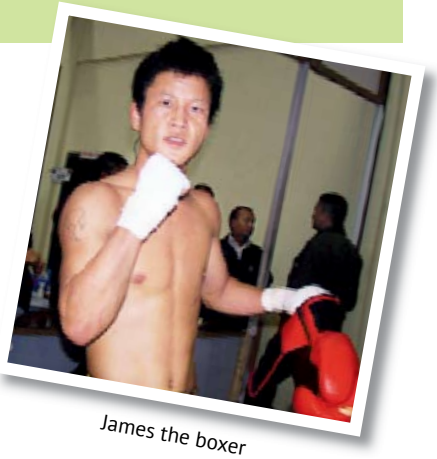
Retail Pharmacists offer TB DOTS at the chemist shops: Public-private Initiative in Mumbai

The project will be spread to 4 more cites in India & plans to engage around 500 more pharmacists by the end of 2011.

MIZORAM

Cured TB patient back to boxing ring

James Laltlanmawia is a 19 years old living in Maubawk, Aizawl. He developed TB and started TB treatment on 15th January 2010 and completed treatment on 16th July, 2010. LPS Cable which is very popular cable network in Mizoram has conducted Ayush LPS Pro-fight (Boxing) during October – November 2010. There were more than 500 boxers participated in the competitions and James is one of them in Light Fly weight category. He started practicing boxing when he was 13 years old. And he had gone till the semi- final level of the competition.



James the boxer

NAGALAND

DOTS provider of the hills who won heart of the people through her dedicated services

Miss Chekrozulu is a Community Volunteer serving as a DOT provider of Kohima town, Nagaland since 2007. Every year 15-20 registered TB patients take DOTS from her. She is sincere, diligent and fully dedicated to her work. No defaulter has been reported from her center till now. As a DOTS Provider she does initial home visit, provide DOTS and refers the suspected cases to DMC. The community people hold high respect to her for her continuous services to the ailing TB patients.

PUNJAB

Receptionist at private hospital of Amritsar doing wonderful work in RNTCP as DOTS provider

Rupinder Kaur a receptionist at Josan Hoapital of Amritsar has been working as a DOT Provider of Revised National Tuberculosis Control Programme since 2003. Only 10+2 educated, this young lady has given treatment to 432 patients since 2003 and she has not let any patient of her get defaulted. She has been rewarded by Honorable Health Minister Smt. Laxmi Kant Chawla in 2006.

'DOTS gives me the new life' - Gurvinder Singh, Patiala

'I was suffering from chronic cough. My sputum samples were tested at the government hospital and the doctors declared that I had been suffering from TB of lungs. I thought it was the end of my life. My DOTS was started at Govt. Chest and TB Hospital, Patiala. I came to know about TB and DOTS from my doctor. I followed each and every direction of my doctor and now, I am completely cured of TB. I want to extend a special word of thanks to the DTO, Dr Jawahar Joshi, the STS Bhupinder Kumar and Mr. Jagdish Rai. Without their valuable support and guidance, my recovery would have never been possible. It is my earnest appeal to all the people that don't be afraid of Tuberculosis, believe in DOTS. TB is completely curable disease if you follow DOTS.'

RAJASTHAN

The first government Medical College in the Country to get accreditation for Culture and DST

SMS Medical college,Jaipur is the first medical college in the government sector in the country to start culture & DST facility for diagnosis of drug resistant TB. The lab was accredited on 21st May 2010 by a central team from Central TB Division.

Dept of Microbiology was having the culture & DST facility (by L J Media) since many years but was not accredited under RNTCP. It was sheer dedication of Dr (Mrs) Bharti Malhotra, Associate Professor, Dept of Microbiology, and her team which led to accreditation and thus became the first government medical college in the country accredited for culture & DST activities.

Culture & DST Lab at dept of Microbiology, SMS Medical College, Jaipur

TAMIL NADU

Innovative approach to reduce defaulter rates

High defaulter rate among the TB cases was matter of deep concern in Pudukkottai of Tamil Nadu. One of the key reasons for high defaulter rate was migration of our poor TB patients to outside

Mega Mela in progress

places for livelihood. It was then decided to provide socioeconomic support for the TB patients. 133 TB patient were selected and linked to different socio-economic schemes of the government by inviting them and sensitizing them in the Mega mela.

The initiative was found to be effective to reduce the defaulter rates in Pudukkottai.

"A 'missed call' alert made DOTS not to be missed"

Mr. Tamilarasan, 45/M a patient from Pasuvanthanani PHC under Kadambur TU used to default often as he is an alcoholic and also adamant to take ATT. He was given repeated counselling by STS/STLS and MOTC on his sputum positive pulmonary TB and need to follow the DOTS regime without any change in his treatment seeking behaviour. Then the STS/STLS adopted special strategy to ensure his DOTS. They counselled the patient's 13 years old daughter and asked her to give a missed call from their mobile phone whenever her father will complete the DOTS on that day. During the intensified phase of treatment she used to make the call alert on Tuesday/Thursday/Saturday and in continuation phase, she used to make a call alert on every Saturday after completion of the weekly blister. If STS/STLS didn't receive a call alert, then immediate measure had been undertaken to prevent the defaulter for the same day. His daughter's dedication and motivation made him to take DOTS regularly and cured him from TB.

DOTS drove the ghost away

A young girl Muthumadathy who was diagnosed Pulmonary TB and started on ATT, was taken to nearby religious centre and labelled an "Ghost stricken girl". Her TB treatment was discontinued and the poor girl was tied to a pillar with a chain to drive the 'ghost' away from her. The STS & STLS met her patients, explained to them in details about the danger of discontinuation of TB treatment and finally convinced them to restart her treatment. The defaulted girl was brought back to the TB treatment. Now she is cured and healthy. Literally the GHOST IS DRIVEN AWAY by DOTS.

Multisectoral engagement in RNTCP – Supporting TB hoarding in the city

Public sector Involvement – BSNL

Private sector involvement – local jewellary shop

UTTAR PRADESH

Hindalco TB Unit

TTB Health Society Hindalco Jan Sewa trust and the CSR Head, Mr. Manoj Kumar Sinha signed the MoU with the Sonebhadra District TB Health Society and UP State Health Society

The Corporate Tuberculosis Unit is unique in its kind as it provides the tuberculosis treatment and sputum examination facility in a population of 5 lakhs through 05 DMCs- all in the private sector. This venture was supported by CII.

CBCI CARD Reach Out to Train Travellers in Uttar Pradesh

With an idea of reaching out to masses on World TB Day, a sensitization campaign was conducted by CBCI-CARD at Lucknow Railway Station with the approval of railway authorities. Messages on TB and free diagnostic & treatment services in Govt and Private sector was provided through the centralized announcement system of the Railwaysand leaflets. A Documentary film on RNTCP-DOTS was also screened through their visual system. Key TB messages were also conveyed through PA system at first class reception area.

WEST BENGAL

Story of a Private Practitioner Running DOT Centre in her Clinic Unit-I, West Bengal

"Running DOT centre did not lower the number of patients, rather added to private practice" These comments are from Dr Minakshi Bhattacharyya, (MBBS, and DTCD) a Chest Medicine specialist practicing in Kolkata. She joined RNTCP after signing an MOU with. DTO, consequent to her training in RNTCP for 5 days in 2007. She treated 21 patients so far in 4 years on DOTS since 2007 to 2010 with 84% treatment success rates.

Linking Poor TB patients with Social welfare schemes by CARE

A unique initiative to support the poor TB patients has been undertaken by CARE-India in West Bengal through the USAID-supported Project IMPACT (Initiative to Manage People Centered Alliances in Control of TB) in five districts of the state such s Howrah, Hugli, Bardhaman, Malda and Murshidabad. The project helped 1118 poor TB patients to be linked with various poverty alleviation schemes of the government. Some of those poor patients have been also assisted to receive financial and nutritional supplementation by the project. This initiative has been highly appreciated both at the state and national level. In the state level quarterly review meeting, the STO of West Bengal has requested DTOs of other districts and civil society partners of the state to replicate similar activities in the rest of the state.

Obituary

RNTCP Salutes these departed souls whose loving memory will be continue to strengthen the fight against TB

Susan May Bacheller

She was the TB Team Leader of USAID.

She cared deeply about her work and serving others as a public health/ development professional.

Susan's technical leadership, intellect and spirit inspired those she met and served. She was a driving force in the global effort to improve the health of millions of men, women and children around the world.

Dr K J R Murthy

A conscientious practicing chest physician himself, Dr Murthy and his team helped RNTCP to design and successfully implement the concept of Public-Private Mix DOTS in and around Mahavir Hospital in Hyderabad. The model he piloted has been adapted, replicated and scaled up elsewhere in India and in many other country settings. As a member of WHO's advisory bodies on TB and a founder member of the Stop TB Partnership's Subgroup on Public-Private Mix for TB Care and Control, he offered deep insights and expertise into furthering systematic engagement of private practitioners in TB control.

Dr Murthy with Mr Clinton

Mr Razil Sheikh

Razil was one the most dedicated and spirited TB treatment service providers within the huge workforce of RNTCP and had served the MDR TB patients at BJ Medical College & Civil hospital Ahmedabad for more than 5 years with utmost devotion and care. He played an exemplary role in establishing and sustaining the first DOTS-Plus site in the country in Gujarat.

CHAPTER 5

RNTCP Case Finding and Treatment Outcome Performance, 1999–2010

Every quarter, Central TB Division receives aggregate case-finding, programme management, sputum conversion, and treatment outcome information for patients registered under the programme from over 2,500 tuberculosis units nationwide. RNTCP follows the global method of cohort analysis for describing case finding and treatment outcomes. Timely data collection and dissemination are hallmarks of the RNTCP surveillance and data management systems. The data from the quarterly reports are analyzed and disseminated in the public domain as quarterly performance reports before the end of the subsequent quarter and as an annual report. For the purpose of describing the notification in this section, the data from the reports of the 4 quarters in a calendar year have been added and is presented in the form of annual data. Though the programme was formally initiated in the year 1997 and the quarterly reporting mechanism was in place since inception, the data presented below extend from the year 1999, when approximately about 10% of the country's population was covered onwards.

The rapid pace of DOTS expansion over the past decade complicates longitudinal data analysis in a number of ways. District-by-district scale-up of RNTCP services over several years changes the denominator of population covered every quarter. Basic demographic characteristics of implementing districts differed over the expansion years, as well as the expected evolution of services and TB epidemiology in areas implementing RNTCP over longer time periods.

For the purposes of this analysis, districts implementing RNTCP less than one year during the initial year of implementation were attributed to cover a population proportionate to the number of quarters that services were available. The rates presented in this section are all per 100,000 populations.

Sputum Microscopy Services and TB Suspect Examination

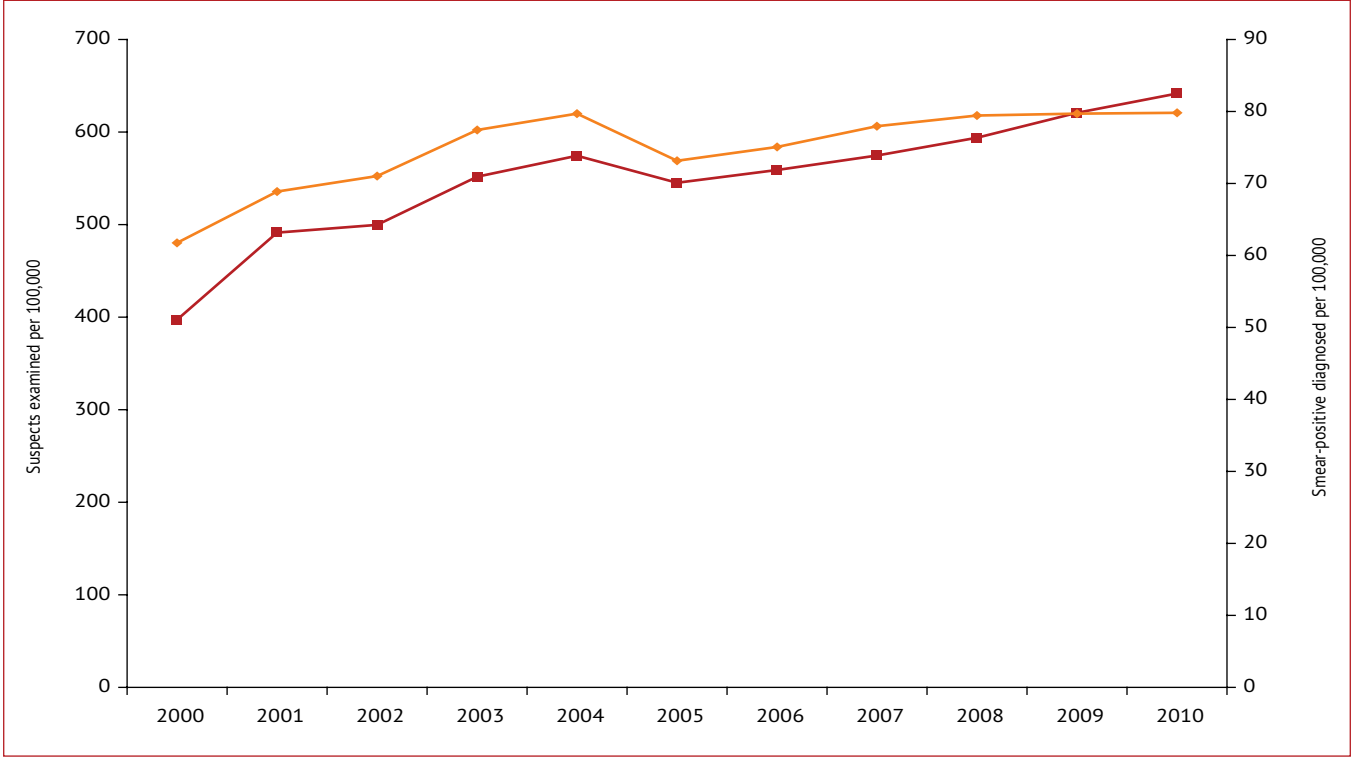
Over the 11 year analysis period, the population covered increased from 139 million to 1.18 billion population (**Table 1**). Smear microscopy services are reported independently of case notification results. As expected from service expansion, the absolute number of TB suspects examined by smear microscopy annually has increased manifold, from 0.96 million to 7.6 million. Over the same time period, the rate of TB suspect examination also increased by 50%, from 397 per 100,000 population covered by RNTCP services to 642 per 100,000 population covered. Similarly, the rate of sputum-positive cases diagnosed by microscopy has increased by 27%, from 62 to 80 per 100,000 population **[Figure 1].**

The average number of suspects examined for every sputum-positive case diagnosed has gradually increased about 1% per year, from 2001 to 2010, the number of suspects examined per smear-positive case diagnosed has increased by 10% from 7.04 to 8.04 suspects (**Figure 2**). Total and sputum-positive case notification is also shown in **Table 1.** An average difference of 11% [Range 8–15%] was observed between the rate of sputum-positive cases diagnosed and the sputum-positive case notification rate.

TABLE 1: Case finding activities and notification rates

		Sputum Microscopy Services				Case Notification			
	Total population of India covered under RNTCP (millions)	Suspects examined		Sputum-positive cases diagnosed		Total TB cases notified		Total sputum-positive cases notified	
Year		Number	Rate	Number	Rate	Number	Rate	Number	Rate
1999	139	n/a		n/a		133,918	96	61,103	44
2000	241	956,113	397	148,610	62	240,835	100	131,100	54
2001	417	2,046,039	491	286,789	69	468,360	112	252,878	61
2002	502	2,507,455	500	356,409	71	619,259	123	327,519	65
2003	717	3,955,395	552	555,250	77	906,638	126	473,378	66
2004	893	5,128,852	574	711,661	80	1,188,545	133	615,343	69
2005	1,042	5,684,860	545	762,619	73	1,294,550	124	676,542	65
2006	1,112	6,216,509	559	834,628	75	1,400,340	126	746,149	67
2007	1,128	6,483,312	575	879,741	78	1,474,605	131	790,463	70
2008	1,148	6,817,390	594	911,821	79	1,517,363	132	815,254	71
2009	1,164	7,247,895	623	930,453	80	1,533,309	132	825,397	71
2010	1,177	7,550,522	642	939062	80	1,522,147	129	831,429	71

Figure 1: Rate of TB suspects examined and all sputum-positive TB cases diagnosed, 2000–2010



Notification Rates of TB Cases

The estimated incidence of TB has been believed to be relatively stable over the past several years, or possibly declining at a modest rate. Taking the conservative position that incidence remains stable at 168 per 100,000 population, then the total estimated number of incident TB cases in India would rise with the population. Traditionally, only new and relapse cases are classified as new, though some argue that a proportion of 'treatment after default' have been recently treated in the private sector, and should be included as new. Taking again the conservative case that only new and relapse cases are truly 'incident', RNTCP has over the years of DOTS expansion has been able to diagnose a majority of estimated incident cases **(Figure 3).** There remains a consistent gap between estimated incident cases and diagnosed cases that has not been fully addressed.

Figure 2: Trend in the number of suspects examined per sputum-positive case diagnosed

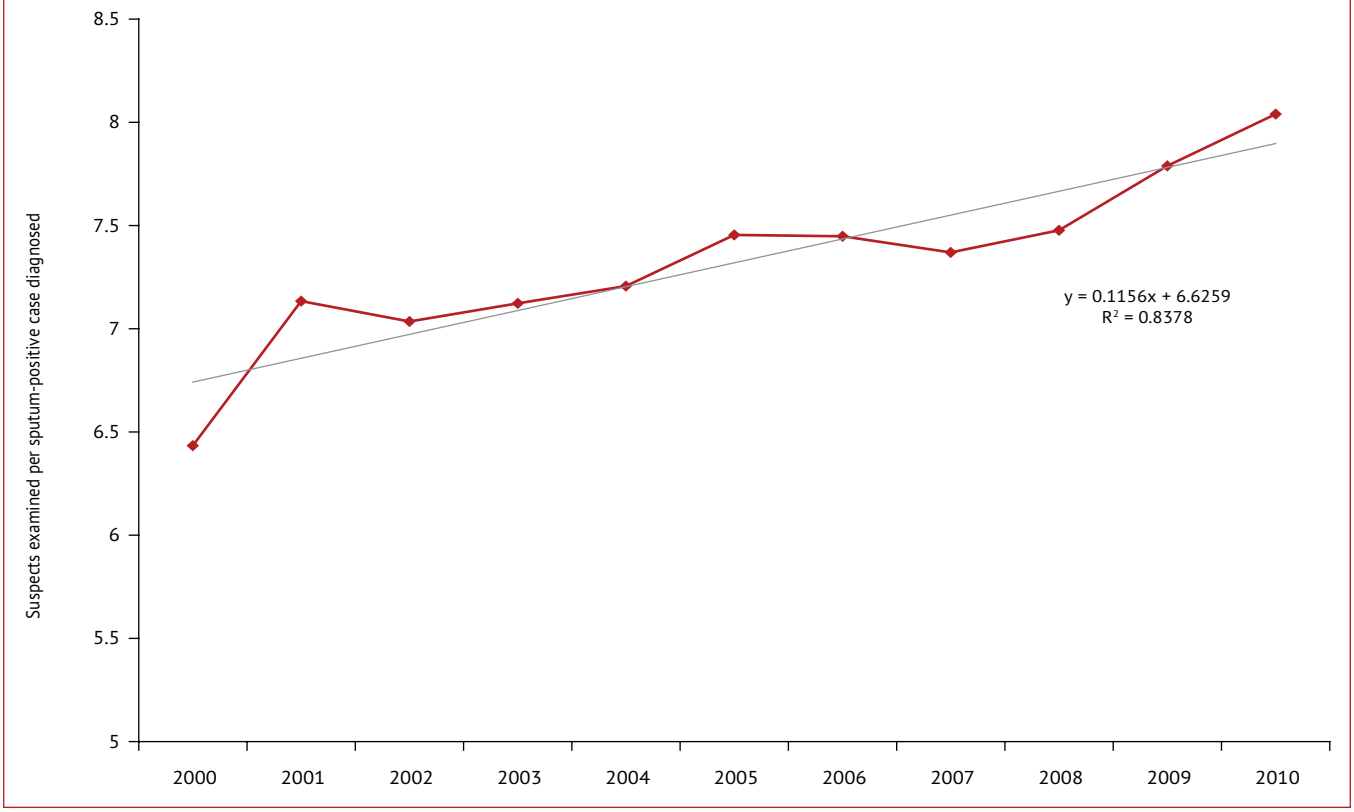
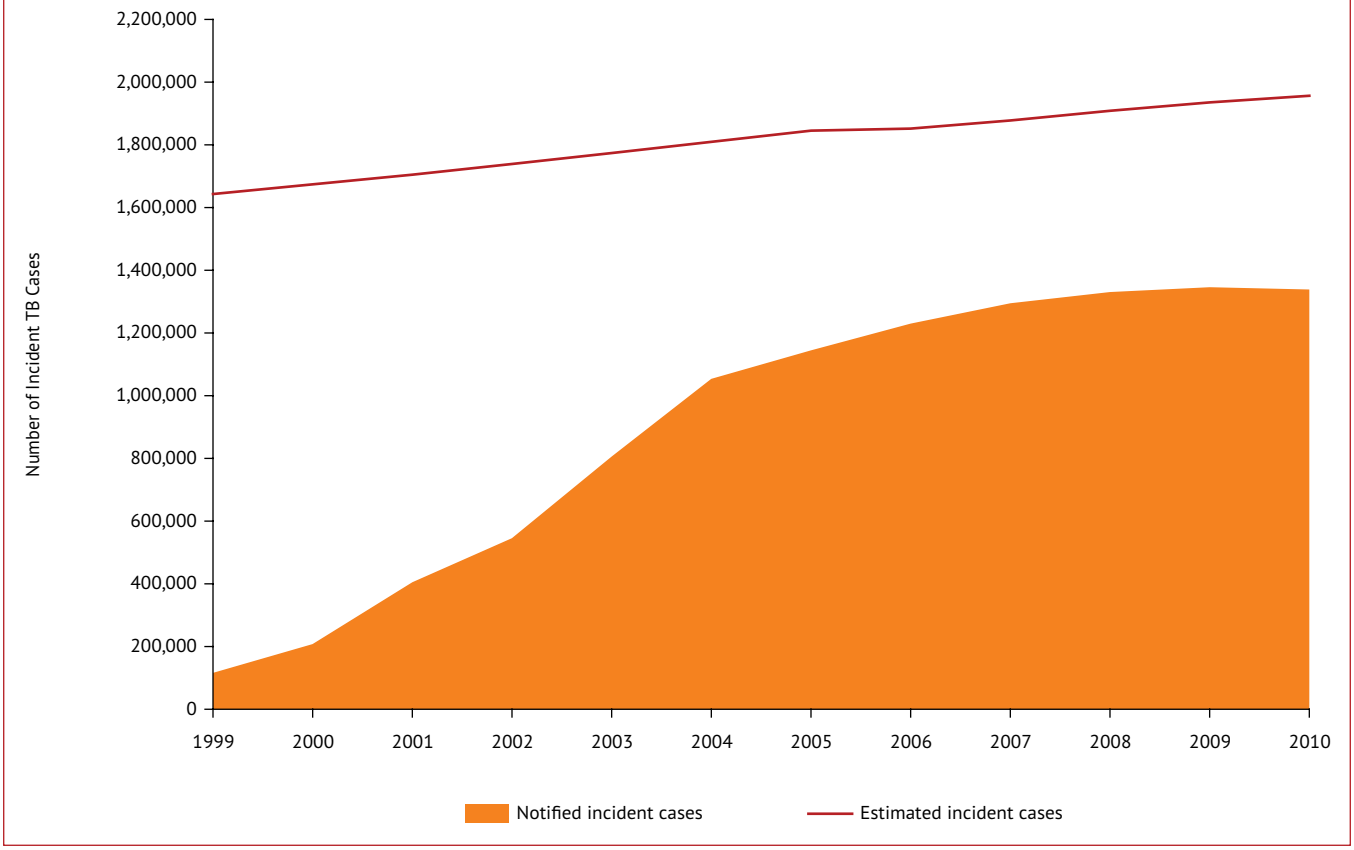


Figure 3: Estimated incident TB cases in India, and notified incident TB cases, 1999–2010



Overall, case notification has increased over the 11 year analysis period, and the notification rates of most types of TB cases has steadily increased or remained stable, with the exceptions of new smear-negative **(Table 2 and Figure 4)** and "treatment after default" **(Table 2 and Figure 5).** The total case notification rate has increased from 96 cases per 100,000 population in 1999 to 129 per 100,000 population in 2010 **(Table 1),** though the last 4 years case notification has been effectively flat**.** The NSP case notification rate has increased from 37 cases per 100,000 population in 1999 to 54 per 100,000 population in the year 2008, and has remained at 54/100,000 for the past 3 years. The NSN notification rates have shown a decreasing trend from 43 per 100,000 population in 2004 to 31 per 100,000 population in 2010 **(Table 2 and Figure 3)**, and continues to fall without clear explanation..

The notification rate of re-treatment cases has increased by 67% over the past 12 years, from 15 per 100,000 population in 1999 to 25 per 100,000 population in 2010. The increase in re-treatment notification rates appears to be driven largely by increases in the notification rates of the 'relapse' and 'others' types of re-treatment cases. The 're-treatment others' notification rate has almost doubled from 4 per 100,000 population in 1999 to 8 per 100,000 population in 2010. The notification rate of failure-type re-treatment cases has remained almost stable from 2002 onwards at the rate of 2 cases per 100,000 population. The "Treatment after default" notification rates have declined from 9/100,000 population in 2001 to 6/100,000 population in 2010 **(Table 2 and Figure 4).**

Figure 4: Total TB case notification, and the contribution of different types of TB cases, 1999–2010

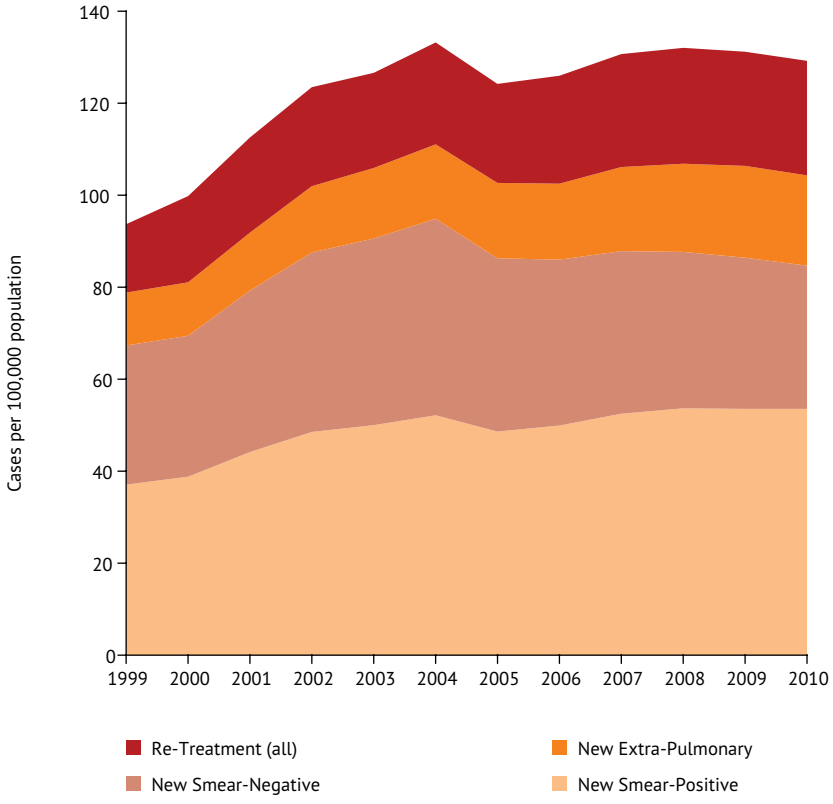


TABLE 2: Notification rates of different types of TB cases under RNTCP, 1999 – 2010. Number of cases (rate)

Year	Population covered (million)	New smear-positive		New smear-negative		New extra-pulmonary		Re-treatment Relapse		Re-treatment Treatment after Default		Re-treatment Failure		Re-treatment Others		TOTAL Case notification	
1999	139	51,627	(37)	42,180	(30)	16,015	(11)	7,334	(5)	9,326	(7)	1,401	(1)	5,541	(4)	133,918	(96)
2000	241	93,359	(39)	73,714	(31)	28,004	(12)	12,511	(5)	20,288	(8)	3,183	(1)	9,115	(4)	240,835	(100)
2001	417	183,970	(44)	146,145	(35)	52,373	(13)	23,122	(6)	38,400	(9)	6,195	(1)	18,450	(4)	468,360	(112)
2002	502	243,529	(49)	195,798	(39)	72,288	(14)	34,143	(7)	40,767	(8)	8,684	(2)	24,578	(5)	619,259	(123)
2003	717	358,490	(50)	291,062	(41)	109,777	(15)	46,577	(6)	54,353	(8)	11,560	(2)	35,983	(5)	906,638	(126)
2004	893	465,616	(52)	381,656	(43)	144,182	(16)	62,251	(7)	67,657	(8)	16,296	(2)	51,929	(6)	1,188,545	(133)
2005	1,042	507,089	(49)	392,679	(38)	170,783	(16)	75,054	(7)	72,021	(7)	17,710	(2)	59,845	(6)	1,294,550	(124)
2006	1,112	554,914	(50)	401,384	(36)	183,719	(17)	90,153	(8)	76,699	(7)	19,496	(2)	74,270	(7)	1,400,340	(126)
2007	1,128	592,262	(52)	398,707	(35)	206,701	(18)	96,781	(9)	77,397	(7)	19,012	(2)	83,746	(7)	1,474,605	(131)
2008	1,148	616,027	(54)	390,260	(34)	220,185	(19)	104,210	(9)	76,583	(7)	18,434	(2)	89,995	(8)	1,517,363	(132)
2009	1,164	624,617	(54)	384,113	(33)	233,026	(20)	108,361	(9)	73,549	(7)	18,870	(2)	88,976	(7)	1,533,309	(132)
2010	1,177	630,165	(54)	366,381	(31)	231,121	(20)	110,691	(9)	72,110	(6)	18,463	(2)	91,708	(8)	1,522,147	(129)

New Sputum-positive Case Notification

The number and rate of new sputum-positive cases (NSP) notified in the country has steadily increased for several years, and has remained stable at 54 per 100,000 population for the past 3 years **(Figure 6)**.

As a rate, the NSP case notification rates in the population covered under RNTCP has been consistently increasing, with the exception of the year 2005. Case notification has been increasing since whole-country RNTCP coverage in 2006, though at a slower rate than during the DOTS expansion period (**Figure 7**). From 1999–2004, an annual average 3.2 additional NSP cases were notified per 100,000 population. During the period 2005–2010, an annual average 1.0 additional NSP cases per 100,000 population were notified.

Treatment Outcomes of Notified TB Cases

Treatment outcomes of pulmonary sputum-positive cases notified under RNTCP is summarized in **Table 3**

Among NSP cases, the treatment success rate has been ≥ 85% since the year 2001. The death rate and failure rate has been about 5% and 2% respectively. The default rates has decreased from 9% for the cohort of TB patients registered in 1999 to 6% for the cohort of patients registered in 2009.

Among smear positive re-treatment cases the treatment success rate has been ≥ 68% since implementation. The death rate has been about 7% to 8%, failure rate about 6%. High default rates ≥ 15% has been an area of concern among the re-treatment cases.

The treatment success rate has been relatively less favorable among re-treatment TAD cases and failure cases **(Table 4)** when compared to the treatment success rate among other smear positive TB cases (NSP and relapse).

Death rates among re-treatment cases have been higher when compared to the death rates among new smear positive TB cases **(Table 3 and Table 4)**. Among re-treatment cases, the death rates among failure cases has been consistently higher by about 1-2% when compared to the death rates among other types of re-treatment cases.

Figure 5: Re-treatment TB case notification, and the contribution of different sub-types of re-treatment cases, 1999-2010

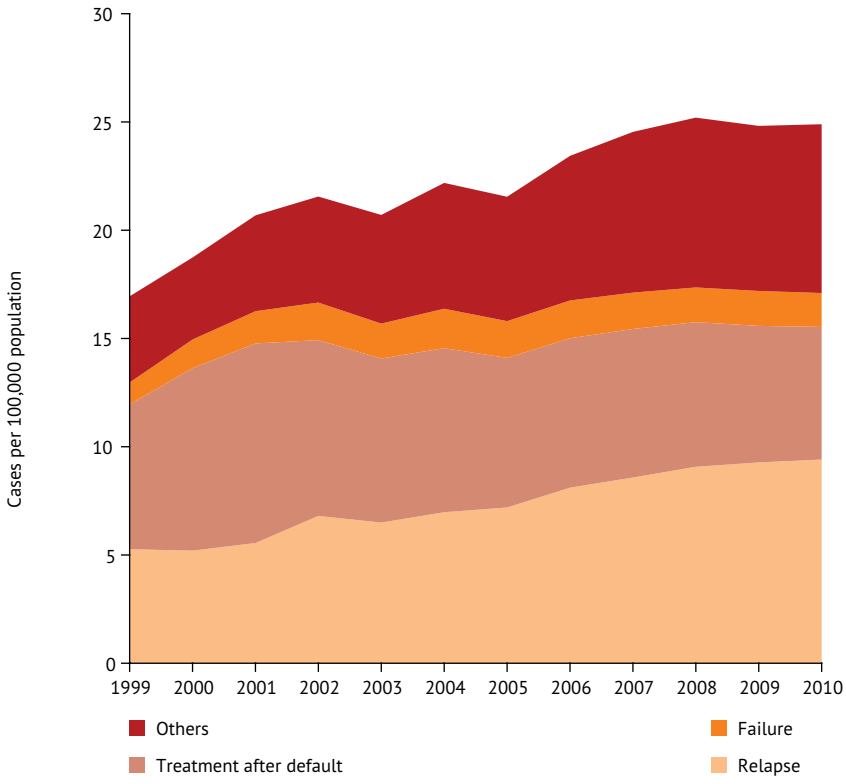


Figure 6: New smear-positive case notification rate, 1999-2010.

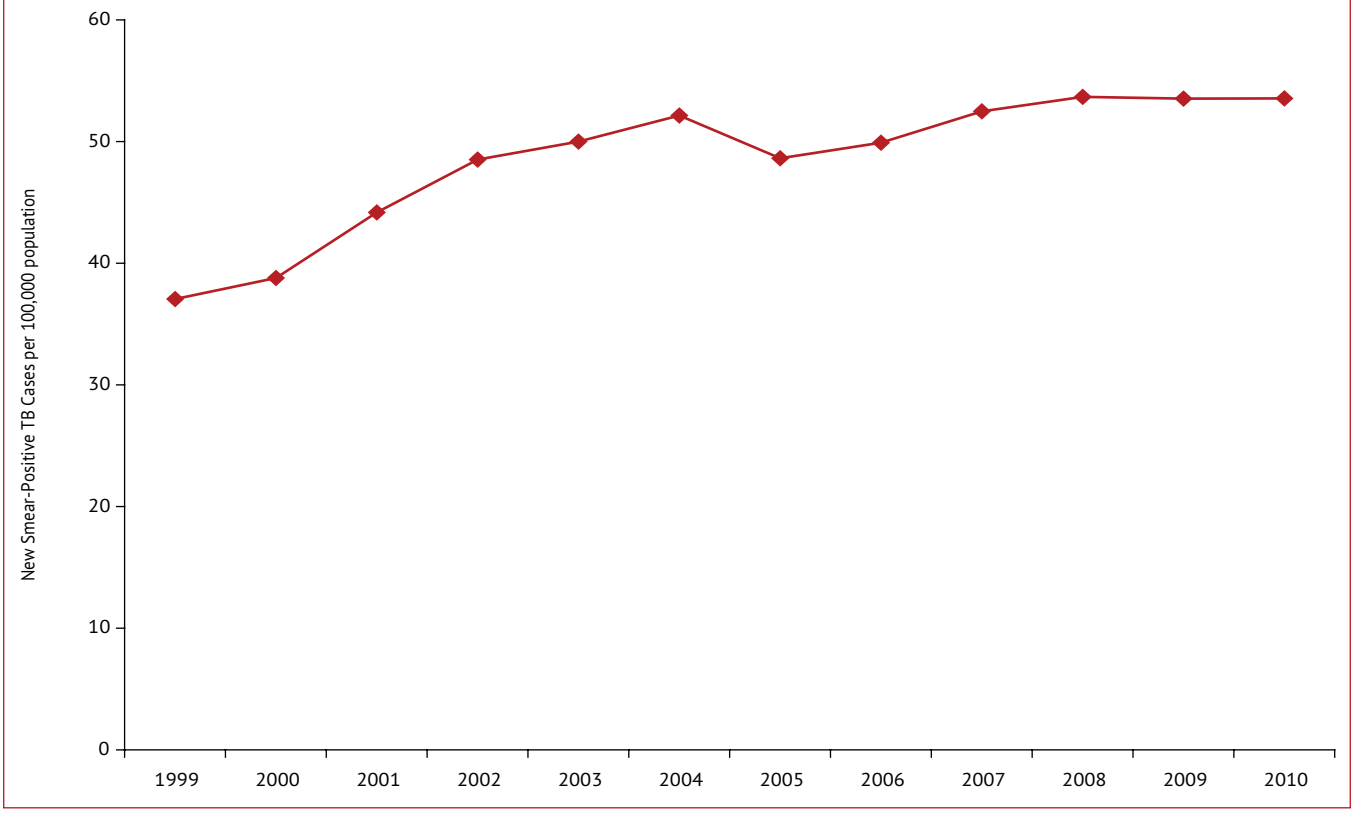
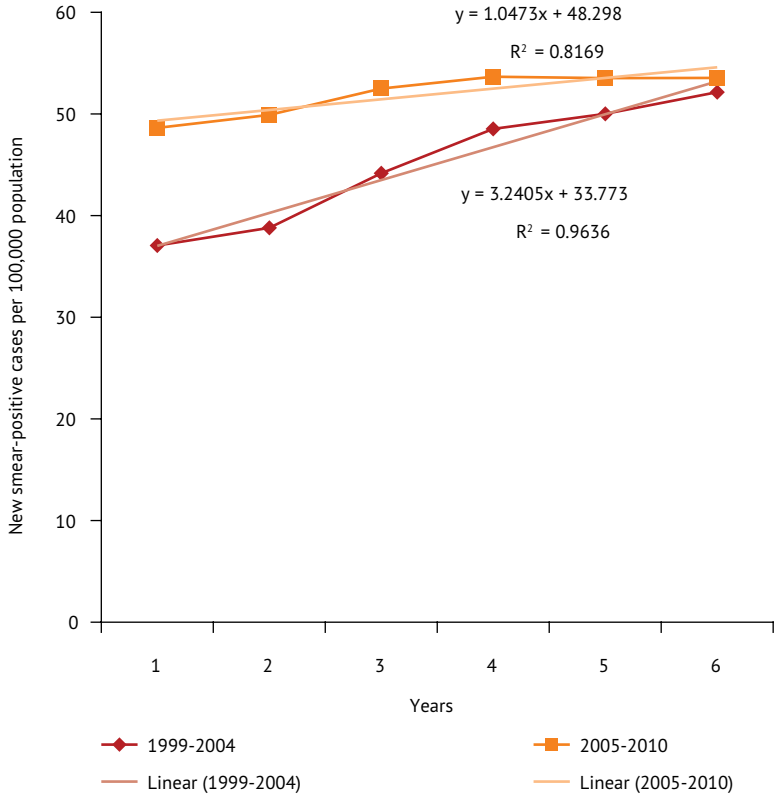


Figure 7: New sputum-positive notification rate, 1999–2010



Default rates among re-treatment cases have been consistently higher (more than twice) than the default rates among New Smear Positive TB cases. The default rates among TAD cases are higher than the default rates among other types of smear positive TB cases. The default rates among all types of TB cases have been showing a declining trend since 2005 onwards.

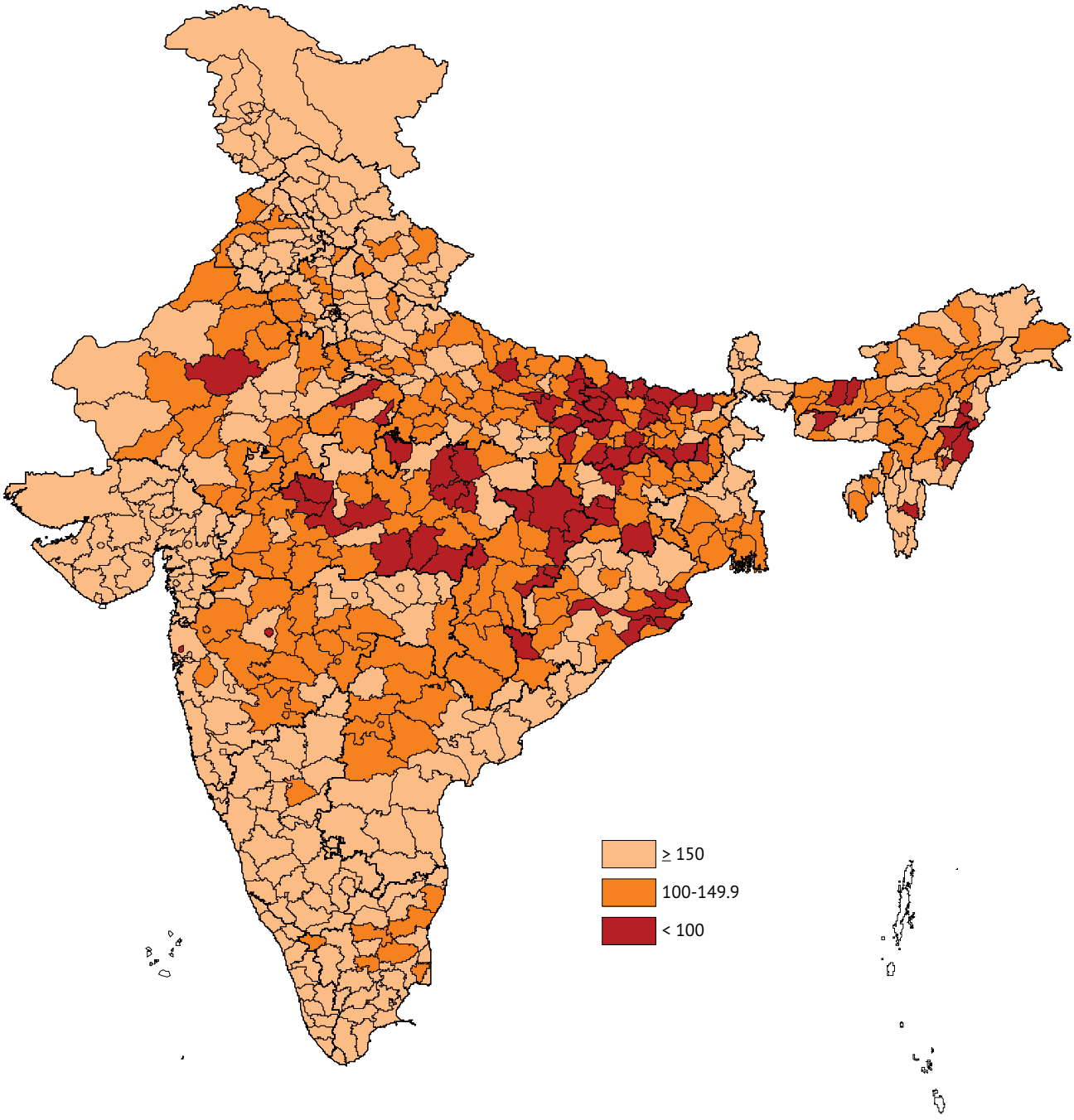
TABLE 3: Treatment outcomes among notified new TB cases, 1999–2009 (The year shown is the year of patient registration).

Year	New smear-positive				New smear-negative				New extra-pulmonary			
	Success	Death	Failure	Default	Success	Death	Failure	Default	Success	Death	Failure	Default
1999	82%	5%	3%	9%	85%	4%	1%	9%	91%	2%	0%	6%
2000	84%	4%	3%	8%	86%	3%	1%	9%	91%	2%	0%	7%
2001	85%	5%	3%	7%	86%	4%	1%	8%	91%	2%	0%	6%
2002	87%	4%	3%	6%	87%	4%	1%	7%	92%	2%	0%	5%
2003	86%	5%	2%	6%	87%	4%	1%	7%	92%	2%	0%	5%
2004	86%	4%	2%	7%	87%	4%	1%	8%	92%	2%	0%	5%
2005	86%	5%	2%	7%	87%	4%	1%	8%	91%	2%	0%	6%
2006	86%	5%	2%	6%	87%	4%	1%	8%	90%	3%	0%	5%
2007	87%	5%	2%	6%	87%	3%	1%	8%	91%	2%	0%	5%
2008	87%	4%	2%	6%	88%	3%	1%	7%	92%	3%	0%	4%
2009	87%	4%	2%	6%	88%	3%	1%	7%	92%	2%	0%	4%

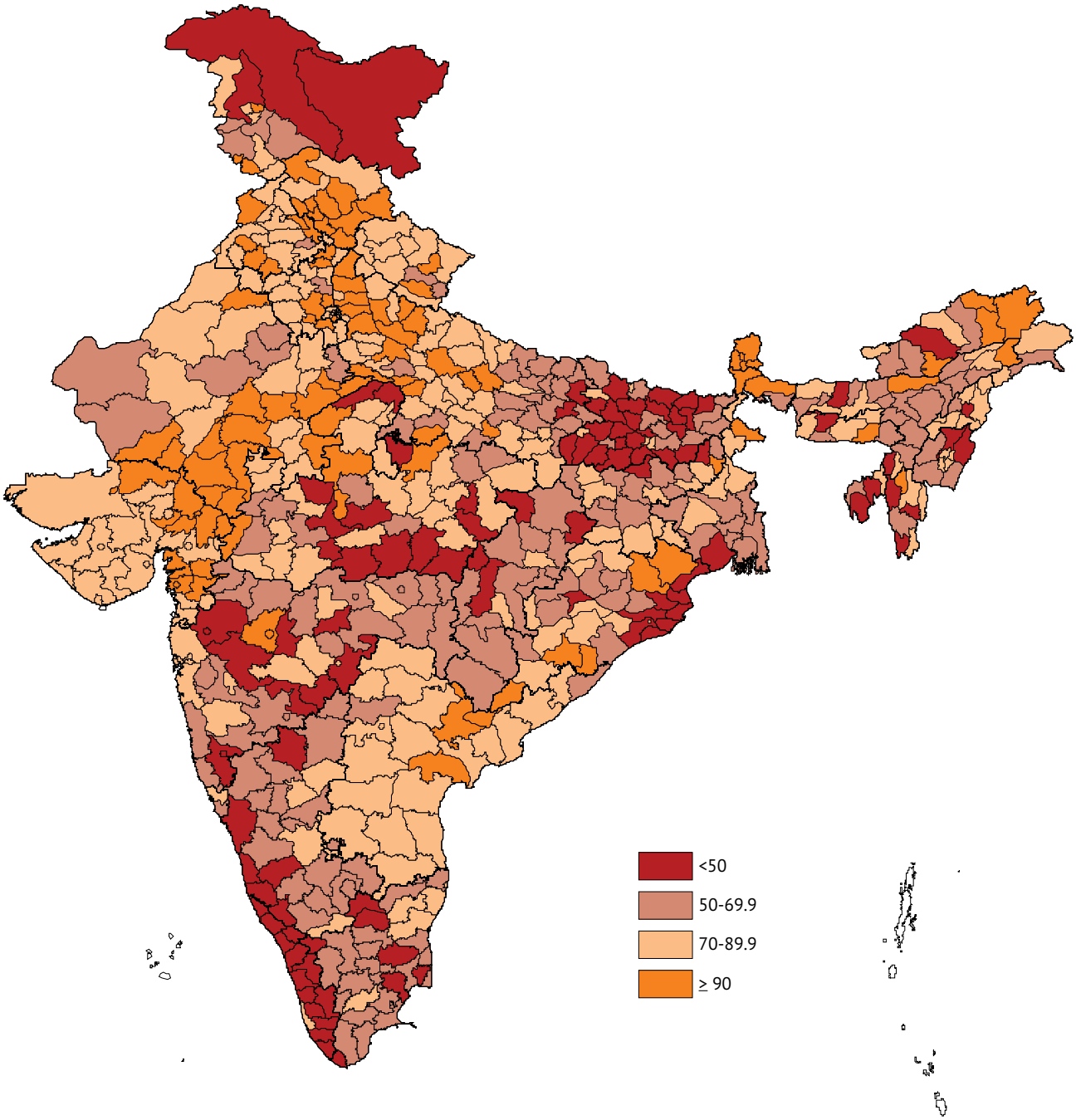
TABLE 4: Treatment outcomes among notified smear-positive re-treatment TB cases, 1999–2009 (The year shown is the year of registration)

Year	Relapse				Failure				Treatment after default				Total S+ Re-treatment			
	Success	Death	Failure	Default	Success	Death	Failure	Default	Success	Death	Failure	Default	Success	Death	Failure	Default
1999	73%	7%	6%	13%	61%	7%	13%	17%	65%	7%	6%	21%	68%	7%	6%	18%
2000	73%	7%	6%	14%	57%	9%	14%	19%	69%	7%	5%	17%	69%	7%	6%	16%
2001	74%	7%	6%	12%	59%	9%	15%	16%	71%	7%	5%	16%	71%	7%	6%	15%
2002	75%	7%	6%	12%	60%	8%	15%	16%	71%	7%	5%	16%	72%	7%	6%	14%
2003	75%	7%	5%	12%	60%	9%	14%	16%	69%	8%	5%	18%	70%	8%	6%	15%
2004	74%	7%	5%	13%	62%	8%	13%	16%	69%	7%	4%	18%	71%	7%	6%	16%
2005	73%	7%	5%	14%	59%	8%	14%	18%	67%	8%	4%	20%	69%	7%	6%	17%
2006	73%	7%	5%	14%	58%	9%	14%	18%	66%	8%	4%	19%	69%	8%	6%	16%
2007	74%	7%	4%	12%	60%	9%	13%	16%	68%	8%	4%	18%	70%	8%	5%	15%
2008	75%	7%	5%	12%	59%	9%	14%	16%	68%	8%	4%	17%	71%	8%	5%	14%
2009	75%	7%	5%	12%	58%	10%	16%	15%	68%	8%	4%	17%	71%	8%	6%	14%

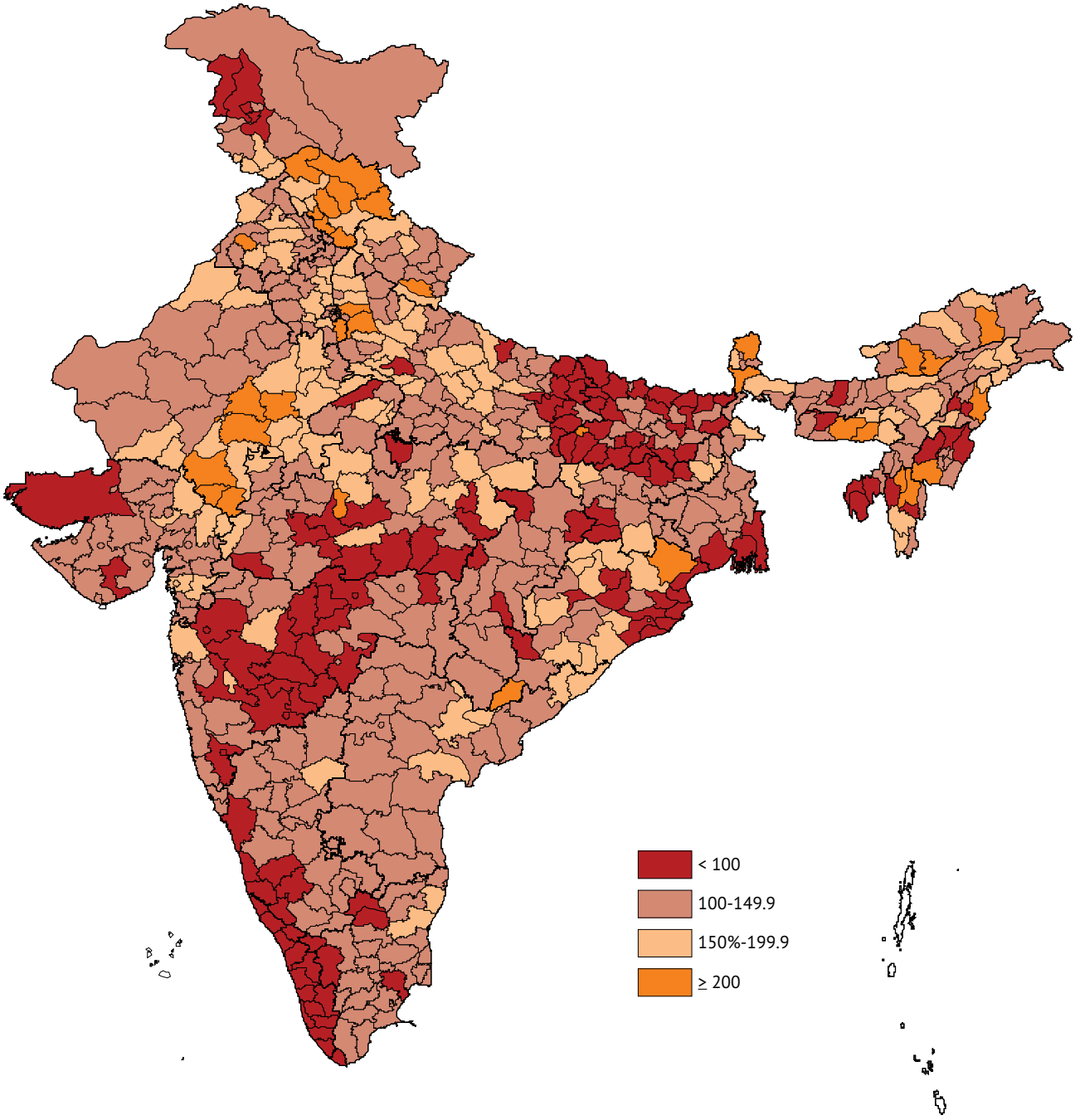
TB Suspects Examined per 100,000 Population per Quarter, by District, India, 2010



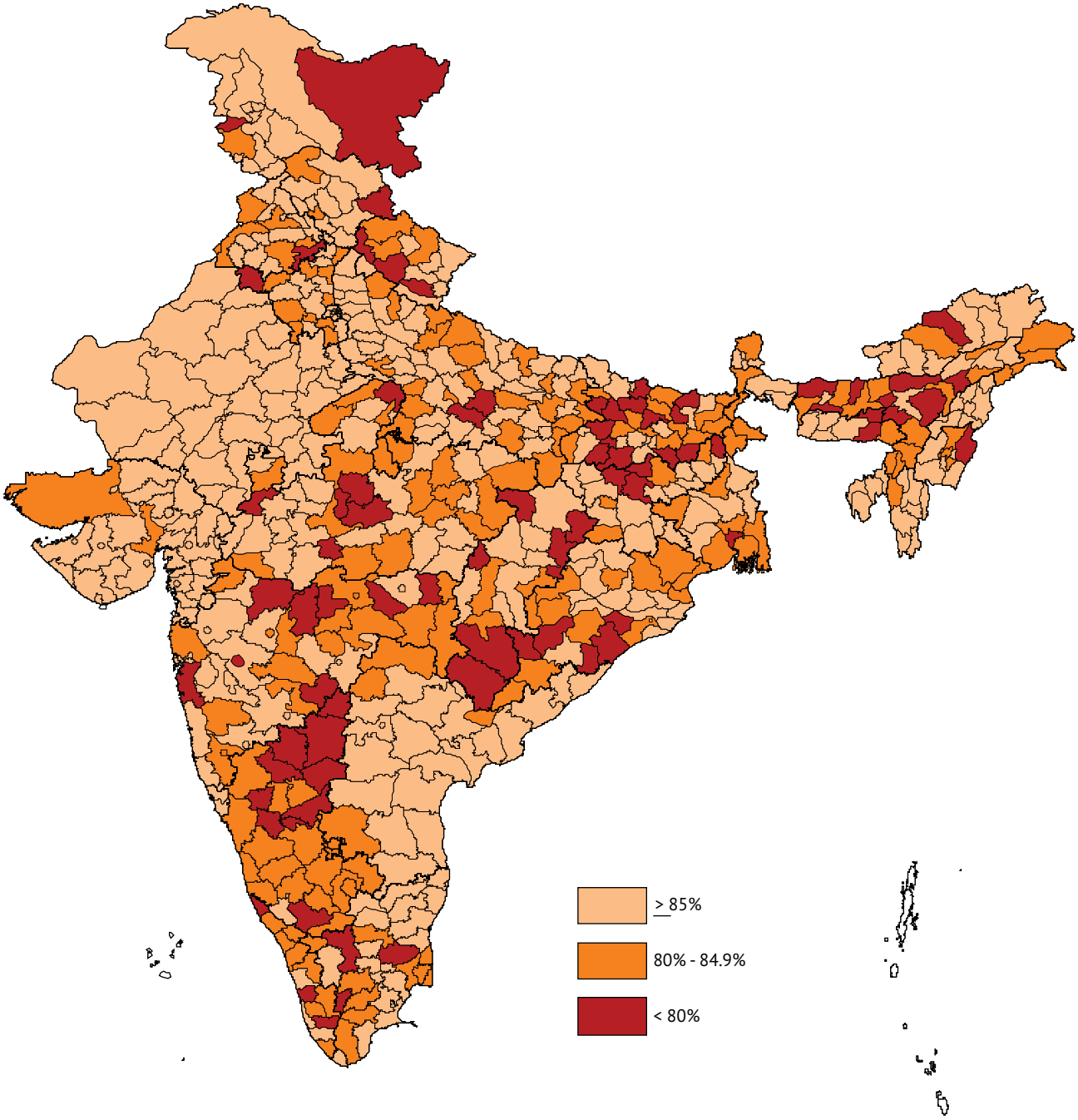
Annual Smear Positive Case Notification Rate (from CFR) by District, India, 2010



Annual Total Case Notification Rate, India, 2010



Cure Rate by District, India, Annual 2009



Performance of RNTCP Case Detection (2010), Smear Conversion (4th Quarter 2009 to 3rd quarter 2010), and Treatment Outcomes (2009)

State	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared to previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Andaman & Nicobar	5	3911	204	-10%	396	10	7%	83	77	804	168	59	41	46	22	19
Andhra Pradesh	840	560743	167	3%	78085	7	3%	93	77	114414	136	60	34	15	27	20
Arunachal Pradesh	12	10275	209	-9%	1093	9	-1%	89	83	2360	192	60	48	36	48	26
Assam	302	147642	122	0%	23125	6	-1%	77	67	39788	132	56	35	18	23	13
Bihar	964	366732	95	4%	45347	8	7%	47	42	78510	81	35	26	5	15	8
Chandigarh	14	15713	287	-15%	2272	7	-10%	166	96	2764	202	74	28	63	38	26
Chhattisgarh	239	107643	112	2%	13250	8	-1%	55	52	28658	120	46	45	16	13	7
D & N Haveli	3	2182	162	4%	291	7	17%	86	60	397	118	43	28	19	28	18
Daman & Diu	3	2532	244	-17%	239	11	-19%	92	47	293	113	32	27	22	31	17
Delhi	179	158627	221	-9%	23893	7	-3%	133	111	50476	281	76	48	92	64	39
Goa	17	14372	210	15%	1268	11	14%	74	58	2156	126	45	24	33	24	15
Gujarat	582	431756	185	4%	61131	7	5%	105	89	77839	134	63	15	17	39	28
Haryana	250	161430	161	-6%	23862	7	1%	95	80	36589	146	54	28	26	39	29
Himachal Pradesh	67	69133	257	5%	8285	8	6%	123	107	14179	211	76	36	50	48	34
Jammu & Kashmir	116	87080	188	13%	8673	10	-5%	75	71	13482	117	57	16	25	18	15
Jharkhand	310	150883	122	3%	22760	7	0%	73	67	39465	127	58	40	9	20	10
Karnataka	588	489077	208	9%	44357	11	8%	75	61	68655	117	46	25	22	23	16
Kerala	343	342043	249	12%	15040	23	15%	44	37	26255	77	32	18	18	9	7
Lakshadweep	1	395	132	65%	9	44	57%	12	12	13	17	12	4	0	1	1
Madhya Pradesh	710	349565	123	13%	52451	7	5%	74	63	87823	124	48	38	14	23	16
Maharashtra	1111	694931	156	5%	77159	9	7%	69	60	136135	123	47	27	22	26	14
Manipur	24	13332	138	0%	1429	9	-6%	59	53	3652	151	44	49	30	28	11
Meghalaya	26	20813	201	5%	2621	8	4%	101	81	4947	191	63	40	44	42	25
Mizoram	10	8333	210	-3%	666	13	17%	67	62	2310	233	47	60	75	51	19
Nagaland	22	14885	167	7%	1970	8	-8%	89	78	3904	176	62	42	37	34	19
Orissa	404	208420	129	-4%	29725	7	-2%	74	65	49869	123	55	29	22	17	11
Puducherry	13	20899	393	9%	2513	8	8%	189	58	1437	108	44	23	23	18	15
Punjab	274	178777	163	-1%	25392	7	-3%	93	83	40637	148	62	26	31	30	23
Rajasthan	668	402756	151	4%	71588	6	3%	107	92	112987	169	64	45	23	37	30
Sikkim	6	7342	303	-3%	771	10	-5%	127	116	1646	272	84	58	68	63	43
Tamil Nadu	670	681048	254	12%	45542	15	10%	68	61	82457	123	49	33	24	18	14
Tripura	36	20813	146	-5%	1943	11	-11%	54	50	2850	80	43	14	13	10	8
Uttar Pradesh	1973	1165379	148	-4%	175507	7	-2%	89	79	277245	141	62	37	17	24	18
Uttarakhand	98	72189	184	1%	10582	7	-3%	108	81	14754	151	56	33	25	36	27
West Bengal	887	568871	160	0%	65827	9	2%	74	66	102397	115	54	21	19	21	14
Grand Total	**11767**	**7550522**	**160**	**3%**	**939062**	**8**	**3%**	**80**	**69**	**1522147**	**129**	**54**	**31**	**20**	**25**	**17**

Performance of RNTCP (Contd...)

State	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients	3 month conversion rate of retreatment patients	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Andaman & Nicobar	63	9%	90%	81%	374	99%	334	89%	299	94%	127	16%	0%	NA	0%	NA	NA
Andhra Pradesh	4245	5%	92%	75%	59292	89%	64340	97%	44642	82%	94515	83%	77%	13%	10%	88%	35%
Arunachal Pradesh	269	15%	93%	77%	975	92%	1030	97%	816	88%	779	33%	8%	0%	0%	0%	NA
Assam	1503	5%	87%	66%	17993	87%	19185	93%	12169	77%	12880	32%	18%	1%	0%	84%	92%
Bihar	4745	7%	87%	72%	36139	87%	39596	96%	25676	78%	30906	39%	5%	3%	0%	21%	54%
Chandigarh	229	10%	91%	71%	1182	86%	1289	94%	722	73%	577	21%	66%	1%	1%	0%	0%
Chhattisgarh	1319	5%	88%	71%	11007	87%	12109	95%	7218	77%	12253	43%	2%	1%	0%	0%	100%
D & N Haveli	35	12%	90%	56%	186	90%	200	97%	121	89%	52	13%	27%	2%	1%	50%	0%
Daman & Diu	16	8%	73%	63%	96	76%	126	99%	71	97%	15	5%	56%	8%	4%	0%	33%
Delhi	5693	15%	89%	72%	18635	90%	20563	100%	16712	94%	3551	7%	58%	2%	1%	54%	60%
Goa	153	9%	91%	73%	876	85%	970	95%	677	94%	401	19%	91%	8%	7%	98%	65%
Gujarat	3624	7%	92%	70%	48181	91%	51949	98%	37618	89%	40879	53%	76%	4%	3%	87%	66%
Haryana	1730	6%	90%	73%	17929	87%	19091	92%	13618	82%	9090	25%	44%	2%	1%	27%	27%
Himachal Pradesh	584	5%	92%	80%	7143	96%	7254	98%	5380	90%	1734	12%	10%	2%	0%	0%	67%
Jammu & Kashmir	649	6%	93%	81%	7850	95%	7917	95%	6152	93%	938	7%	3%	4%	0%	0%	14%
Jharkhand	1825	6%	91%	78%	17201	82%	20182	96%	11760	70%	22193	56%	11%	4%	0%	8%	77%
Karnataka	4098	7%	87%	62%	30879	84%	35024	95%	20210	78%	28978	42%	82%	15%	12%	96%	57%
Kerala	3578	16%	84%	67%	11627	87%	12187	91%	9064	81%	16170	62%	24%	3%	1%	45%	83%
Lakshadweep	0	0%	86%	0%	10	100%	10	100%	8	0%	0	0%	0%	NA	0%	NA	NA
Madhya Pradesh	6142	9%	90%	69%	39645	87%	43360	95%	24392	75%	46996	54%	7%	2%	0%	44%	31%
Maharashtra	7392	7%	90%	68%	58745	86%	65224	95%	41954	79%	34865	26%	68%	11%	8%	85%	50%
Manipur	277	9%	89%	72%	1281	96%	1272	95%	910	82%	1975	54%	27%	19%	5%	50%	53%
Meghalaya	437	11%	83%	56%	1978	87%	2124	93%	1414	86%	3089	62%	12%	0%	0%	NA	NA
Mizoram	243	13%	88%	75%	635	97%	633	96%	564	87%	377	16%	47%	16%	8%	86%	47%
Nagaland	473	15%	93%	83%	1403	78%	1476	82%	1094	71%	1391	36%	41%	7%	3%	70%	49%
Orissa	2323	5%	88%	65%	22096	83%	25737	97%	15893	75%	28984	58%	3%	2%	0%	0%	18%
Puducherry	156	13%	88%	71%	650	82%	669	84%	666	95%	0	0%	78%	2%	1%	100%	88%
Punjab	2408	7%	90%	75%	21778	93%	23076	99%	15893	89%	8189	20%	40%	1%	1%	15%	62%
Rajasthan	4898	6%	92%	76%	52869	84%	60152	96%	41541	83%	14451	13%	2%	3%	0%	13%	25%
Sikkim	153	52%	88%	67%	729	95%	763	99%	549	103%	561	34%	3%	2%	0%	NA	NA
Tamil Nadu	6039	9%	91%	69%	33987	81%	40441	97%	26494	79%	21829	26%	84%	8%	7%	80%	58%
Tripura	55	2%	90%	76%	1367	75%	1777	98%	1185	77%	1376	48%	8%	3%	0%	42%	42%
Uttar Pradesh	15259	7%	91%	78%	142266	90%	156190	99%	113032	86%	187783	68%	5%	3%	0%	24%	44%
Uttarakhand	1019	9%	89%	73%	6992	86%	7941	97%	4956	83%	7868	53%	14%	1%	0%	33%	25%
West Bengal	4124	5%	88%	65%	47613	79%	56206	93%	39944	82%	26302	26%	27%	2%	1%	29%	31%
Grand Total	**85756**	**7%**	**90%**	**72%**	**721609**	**87%**	**800397**	**96%**	**543414**	**82%**	**662074**	**43%**	**34%**	**8%**	**3%**	**86%**	**49%**

Estimated New Smear Positive cases/lakh population based on ARTI data for North Zone (Chandigarh, Delhi, Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Uttar Pradesh, Uttarakhand) is 95; East Zone (Andaman & Nicobar, Arunachal Pradesh, Assam, Bihar, Jharkhand, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, West Bengal) is 75; South Zone (Andhra Pradesh, Karnataka, Lakshdweep, Puducherry, Tamil Nadu) is 75 and West Zone (Chhattisgarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan) is 80; Orissa is 85, Kerala is 50

1 Projected population based on census population of 2001 is used for calculation of case-detection rate. 1 lakh = 100,000 population

2 Smear positive patients diagnosed include new smear positive cases and smear positive retreatment cases

3 Total patients registered for treatment includes new sputum smear positive cases, new smear negative cases, new extra-pulmonary cases, new others, relapse, failure, TAD and retreatment others

Treatment Outcome of New Cases for 2009

Implementing states	New Smear Positive[1]							New Smear Negative[2]						New Extra Pulmonary[2]					
	Regist-ered	Cure	Comp-leted	Died	Failure	Defaulted	Trans out	Regist-ered	Comp-leted	Died	Failure	Defaulted	Trans out	Regist-ered	Comp-leted	Died	Failure	Defaulted	Trans out
Andaman & Nicobar	298	85.2%	1.0%	2.3%	1.3%	8.1%	2.0%	190	90.5%	2.6%	0.0%	6.8%	0.0%	203	88.2%	3.9%	0.5%	5.4%	2.0%
Andhra Pradesh	50014	86.6%	2.0%	5.0%	2.5%	3.5%	0.4%	29516	89.8%	4.3%	0.5%	4.6%	0.7%	12707	91.7%	3.1%	0.1%	3.4%	1.7%
Arunachal Pradesh	829	87.0%	1.0%	2.7%	2.9%	5.4%	1.1%	627	88.5%	3.0%	0.3%	8.0%	0.2%	395	93.2%	1.5%	0.0%	5.3%	0.0%
Assam	17105	81.4%	3.0%	4.4%	2.1%	8.6%	0.5%	11112	83.0%	3.6%	0.6%	12.3%	0.5%	5078	90.6%	2.2%	0.1%	6.4%	0.6%
Bihar	35257	80.5%	8.4%	3.0%	0.9%	6.5%	0.6%	26983	89.9%	1.8%	0.3%	7.2%	0.7%	5764	89.8%	1.8%	0.1%	4.0%	4.2%
Chandigarh	876	87.2%	0.2%	3.0%	2.5%	4.2%	2.9%	410	94.1%	1.7%	0.2%	1.2%	2.7%	777	97.4%	0.1%	0.1%	1.0%	1.3%
Chhattisgarh	10573	79.7%	7.0%	4.1%	1.2%	7.5%	0.6%	10576	87.2%	3.0%	0.3%	9.2%	0.4%	3521	93.3%	1.2%	0.0%	4.2%	1.3%
D & N Haveli	144	79.9%	0.0%	4.9%	4.2%	8.3%	2.8%	90	80.0%	3.3%	0.0%	11.1%	5.6%	76	92.1%	0.0%	0.0%	3.9%	3.9%
Daman & Diu	78	71.8%	3.8%	10.3%	1.3%	10.3%	2.6%	86	68.6%	3.5%	1.2%	25.6%	1.2%	39	82.1%	0.0%	0.0%	12.8%	5.1%
Delhi	14748	85.6%	0.1%	2.9%	4.4%	5.1%	1.8%	9144	92.4%	1.9%	0.9%	3.6%	1.2%	16694	96.5%	0.9%	0.1%	1.8%	0.7%
Goa	646	87.8%	0.3%	2.9%	3.9%	4.8%	0.2%	364	87.4%	6.0%	0.8%	5.2%	0.0%	540	94.8%	2.8%	0.2%	1.7%	0.2%
Gujarat	35200	87.9%	0.2%	4.2%	2.6%	4.3%	0.9%	10850	89.2%	4.4%	0.8%	5.1%	0.6%	10971	92.7%	2.9%	0.1%	3.4%	0.8%
Haryana	13788	84.5%	0.8%	4.7%	3.2%	6.4%	0.5%	7699	86.6%	3.7%	1.3%	8.1%	0.3%	6533	93.7%	1.7%	0.3%	4.2%	0.2%
Himachal Pradesh	5057	86.9%	2.1%	3.7%	2.9%	4.0%	0.4%	2375	89.8%	3.5%	1.1%	5.1%	0.4%	3223	93.5%	2.6%	0.2%	3.2%	0.4%
Jammu & Kashmir	6017	89.2%	1.3%	3.0%	1.0%	2.5%	3.0%	2159	89.9%	2.7%	0.6%	4.4%	2.4%	2981	91.6%	2.4%	0.2%	3.5%	2.2%
Jharkhand	17398	85.0%	4.9%	3.7%	1.2%	4.7%	0.6%	13196	90.9%	2.1%	0.4%	5.9%	0.7%	3260	93.1%	1.7%	0.2%	3.7%	1.3%
Karnataka	26633	79.5%	2.0%	6.7%	3.0%	7.7%	1.1%	14967	82.1%	7.2%	0.6%	8.5%	1.6%	12984	88.3%	4.8%	0.2%	4.7%	2.1%
Kerala	11612	82.6%	1.5%	4.7%	5.3%	5.2%	0.8%	5838	91.7%	3.0%	0.5%	4.0%	0.7%	6241	90.9%	2.9%	0.2%	4.5%	1.5%
Lakshadweep	8	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10	100.0%	0.0%	0.0%	0.0%	0.0%	4	100.0%	0.0%	0.0%	0.0%	0.0%
Madhya Pradesh	30858	85.2%	2.8%	4.2%	1.6%	5.1%	1.1%	26447	87.5%	2.3%	0.4%	8.7%	1.2%	9984	88.9%	1.9%	0.1%	5.2%	3.9%
Maharashtra	51874	84.4%	1.3%	5.8%	2.1%	5.3%	1.1%	33314	87.2%	4.4%	0.7%	6.5%	1.1%	25715	90.5%	3.4%	0.2%	4.7%	1.2%
Manipur	1069	84.5%	0.7%	3.5%	3.2%	7.0%	1.1%	1572	88.3%	2.6%	0.3%	8.5%	0.4%	766	91.1%	2.5%	0.0%	6.3%	0.1%
Meghalaya	1717	80.9%	1.7%	4.0%	5.0%	7.0%	1.4%	871	81.6%	7.8%	1.5%	7.6%	1.5%	1056	87.1%	5.9%	0.1%	6.3%	0.7%
Mizoram	576	89.1%	1.2%	3.0%	3.3%	3.1%	0.3%	757	91.5%	4.0%	0.5%	4.0%	0.0%	781	94.8%	2.4%	0.1%	2.7%	0.0%
Nagaland	1335	91.2%	0.5%	2.0%	3.4%	2.7%	0.1%	886	90.0%	3.3%	0.9%	5.6%	0.2%	662	97.0%	1.4%	0.2%	1.4%	0.2%
Orissa	23064	83.0%	3.8%	4.9%	1.3%	6.1%	0.8%	12918	86.5%	4.9%	0.4%	7.3%	1.0%	9573	90.8%	3.1%	0.1%	5.0%	1.0%
Puducherry	684	86.7%	0.3%	5.8%	2.8%	4.2%	0.1%	221	91.0%	7.2%	0.0%	1.8%	0.0%	279	93.2%	5.0%	0.0%	1.8%	0.0%
Punjab	15942	85.7%	1.9%	4.5%	2.2%	4.0%	1.7%	6892	88.0%	3.4%	1.0%	5.7%	2.0%	7745	94.4%	1.7%	0.1%	2.3%	1.5%
Rajasthan	40199	87.9%	1.6%	3.5%	2.0%	4.9%	0.2%	31034	89.6%	3.0%	1.0%	6.3%	0.1%	14474	93.6%	2.4%	0.2%	3.5%	0.2%
Sikkim	467	85.7%	0.2%	2.8%	9.6%	0.9%	0.9%	382	87.2%	5.5%	5.0%	1.6%	0.8%	434	93.3%	3.7%	0.7%	1.6%	0.7%
Tamil Nadu	32982	86.1%	0.8%	5.2%	1.6%	5.9%	0.4%	21968	91.9%	3.6%	0.3%	3.7%	0.4%	16654	95.0%	2.6%	0.0%	1.7%	0.7%
Tripura	1536	88.6%	1.0%	4.4%	2.3%	2.8%	0.8%	536	88.6%	6.9%	0.9%	3.4%	0.2%	446	88.8%	5.4%	0.0%	4.5%	1.3%
Uttar Pradesh	123063	85.7%	3.0%	3.7%	1.0%	5.8%	0.7%	77530	89.4%	2.2%	0.4%	7.3%	0.6%	33599	94.3%	1.3%	0.1%	3.6%	0.8%
Uttarakhand	5299	81.6%	3.2%	3.4%	2.4%	7.7%	1.8%	3358	86.5%	2.5%	0.7%	8.1%	2.2%	2247	93.8%	1.2%	0.0%	3.6%	1.4%
West Bengal	49173	84.2%	1.3%	4.1%	2.8%	6.8%	0.8%	19948	84.5%	5.6%	0.8%	8.0%	1.1%	17565	88.9%	3.6%	0.2%	4.9%	2.4%
Grand Total	**626119**	**84.9%**	**2.5%**	**4.3%**	**2.0%**	**5.6%**	**0.8%**	**384826**	**88.5%**	**3.4%**	**0.6%**	**6.8%**	**0.8%**	**233971**	**92.3%**	**2.5%**	**0.1%**	**3.8%**	**1.3%**

1 Treatment success for New Smear Positive is cured and treatment completed.
2 Treatment success for New Smear Negative and New Extra Pulmonary are treatment completed.

Outcome of Smear Positive Retreatment Cases for India 2009 (Excluding "Others")

Type of retreatment case	Cured	Success	Died	Failure	Defaulted	Transferred out	No. registered
Relapse	68.8%	75.0%	7.1%	4.9%	11.7%	1.2%	108708
Failure	51.1%	57.7%	9.7%	15.6%	15.5%	1.4%	18952
Treatment after default	60.2%	67.9%	8.2%	4.0%	17.3%	2.7%	73812
Total	**64.0%**	**70.8%**	**7.8%**	**5.6%**	**14.1%**	**1.7%**	**201472**

State-wise Outcome of Smear Positive Retreatment Cases 2009 (Excluding "Others")

Implementing states	Relapse							Failure							TAD						
	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out
Andaman & Nicobar	64	75.0%	79.7%	3.1%	1.6%	10.9%	4.7%	2	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	24	66.7%	4.2%	12.5%	0.0%	16.7%	0.0%
Andhra Pradesh	8042	71.7%	76.6%	8.5%	5.9%	8.3%	0.7%	1943	52.4%	5.1%	12.4%	17.4%	11.8%	0.9%	6406	66.0%	6.4%	9.8%	5.4%	11.0%	1.5%
Arunachal Pradesh	192	71.9%	75.0%	5.2%	13.0%	5.7%	1.0%	43	48.8%	4.7%	2.3%	30.2%	11.6%	2.3%	69	65.2%	11.6%	5.8%	7.2%	10.1%	0.0%
Assam	1989	56.1%	67.5%	7.6%	5.7%	18.7%	0.5%	401	41.1%	12.0%	10.2%	14.7%	21.2%	0.7%	1284	48.8%	9.0%	7.8%	4.5%	28.4%	1.5%
Bihar	2688	65.8%	81.9%	4.8%	2.9%	9.6%	0.8%	499	47.5%	17.0%	8.8%	10.2%	14.8%	1.6%	4003	64.4%	15.5%	5.1%	2.1%	11.9%	1.0%
Chandigarh	210	75.2%	75.2%	3.8%	10.0%	7.1%	3.8%	27	59.3%	0.0%	14.8%	7.4%	18.5%	0.0%	64	70.3%	1.6%	1.6%	3.1%	18.8%	4.7%
Chhattisgarh	846	64.2%	76.6%	6.4%	2.7%	13.7%	0.6%	188	41.0%	19.7%	9.0%	9.0%	20.7%	0.5%	607	48.3%	13.7%	9.1%	2.0%	23.6%	3.5%
D & N Haveli	27	63.0%	63.0%	11.1%	3.7%	18.5%	3.7%	4	0.0%	0.0%	25.0%	50.0%	25.0%	0.0%	14	28.6%	0.0%	7.1%	0.0%	64.3%	0.0%
Daman & Diu	18	66.7%	72.2%	0.0%	0.0%	27.8%	0.0%	0							8	62.5%	12.5%	12.5%	0.0%	0.0%	12.5%
Delhi	4336	74.4%	75.0%	6.0%	7.6%	9.6%	1.8%	745	49.9%	0.3%	9.8%	24.8%	12.5%	2.7%	2182	68.3%	0.6%	8.2%	6.4%	13.1%	3.3%
Goa	130	77.7%	78.5%	4.6%	6.2%	10.0%	0.8%	21	71.4%	4.8%	0.0%	19.0%	4.8%	0.0%	57	68.4%	1.8%	3.5%	10.5%	15.8%	0.0%
Gujarat	9636	69.0%	70.0%	8.5%	8.3%	12.3%	0.9%	1256	43.8%	1.3%	11.3%	24.0%	18.2%	1.4%	6371	64.1%	1.3%	8.7%	6.8%	17.3%	1.9%
Haryana	4164	70.6%	74.4%	7.0%	5.1%	13.0%	0.5%	859	55.4%	5.5%	7.5%	13.0%	17.8%	0.8%	2635	58.4%	7.4%	8.4%	4.1%	21.2%	0.5%
Himachal Pradesh	1711	75.0%	81.1%	7.5%	5.4%	5.6%	0.4%	240	55.4%	5.8%	6.3%	20.8%	11.7%	0.0%	251	57.0%	13.1%	8.4%	5.6%	14.7%	1.2%
Jammu & Kashmir	1193	78.5%	84.0%	4.7%	4.1%	5.7%	1.5%	90	60.0%	6.7%	3.3%	16.7%	8.9%	4.4%	324	70.1%	8.0%	4.6%	2.8%	8.3%	6.2%
Jharkhand	1324	68.8%	78.6%	7.1%	2.4%	9.7%	2.1%	247	54.7%	11.7%	9.3%	8.5%	13.8%	2.0%	1446	67.9%	9.2%	6.9%	2.4%	11.0%	2.6%
Karnataka	4161	60.1%	65.2%	10.4%	7.2%	15.3%	2.0%	1078	44.2%	4.5%	11.6%	16.5%	21.2%	2.1%	3883	43.2%	6.2%	11.7%	5.6%	27.6%	5.7%
Kerala	1255	68.4%	71.9%	8.4%	8.8%	9.6%	1.4%	655	66.7%	3.8%	5.0%	11.9%	11.1%	1.4%	667	45.1%	6.0%	9.9%	6.6%	29.1%	3.3%
Lakshadweep	0							0							0						
Madhya Pradesh	5306	63.5%	75.8%	5.9%	3.8%	12.2%	2.3%	1062	49.6%	12.1%	8.3%	14.6%	14.3%	1.1%	4552	51.0%	15.6%	8.5%	3.3%	17.4%	4.1%
Maharashtra	9559	63.3%	69.0%	9.3%	5.2%	14.9%	1.6%	1608	45.0%	4.7%	11.6%	17.0%	19.5%	1.9%	4606	57.0%	3.8%	10.6%	4.5%	21.5%	2.7%
Manipur	142	73.2%	73.9%	2.1%	12.7%	10.6%	0.7%	45	53.3%	6.7%	4.4%	17.8%	15.6%	2.2%	135	60.7%	5.2%	7.4%	8.1%	16.3%	2.2%
Meghalaya	277	52.3%	59.6%	6.9%	13.7%	15.5%	4.3%	156	31.4%	3.8%	12.2%	25.0%	24.4%	3.2%	147	40.8%	15.0%	9.5%	10.2%	23.1%	1.4%
Mizoram	149	76.5%	85.9%	4.7%	6.7%	2.7%	0.0%	24	62.5%	8.3%	4.2%	20.8%	4.2%	0.0%	19	52.6%	5.3%	5.3%	15.8%	21.1%	0.0%
Nagaland	215	84.7%	88.8%	2.3%	4.7%	3.7%	0.5%	77	66.2%	3.9%	5.2%	19.5%	3.9%	1.3%	133	72.9%	4.5%	6.8%	2.3%	13.5%	0.0%
Orissa	2058	59.6%	73.6%	8.1%	3.1%	14.6%	0.5%	384	48.4%	13.5%	8.6%	12.5%	16.1%	0.5%	1696	45.5%	14.2%	8.3%	3.4%	22.7%	5.8%
Puducherry	114	64.9%	67.5%	2.6%	11.4%	18.4%	0.0%	21	38.1%	4.8%	9.5%	19.0%	28.6%	0.0%	43	60.5%	2.3%	9.3%	4.7%	23.3%	0.0%
Punjab	4343	69.9%	78.5%	7.0%	3.8%	8.2%	2.5%	567	56.1%	9.0%	8.8%	10.9%	12.2%	3.0%	1404	58.8%	9.1%	8.9%	3.3%	14.1%	5.8%
Rajasthan	11174	72.7%	79.4%	5.9%	3.9%	10.6%	0.2%	1540	57.5%	8.9%	7.3%	10.5%	15.3%	0.3%	8270	67.5%	7.6%	7.0%	3.1%	14.4%	0.4%
Sikkim	147	66.0%	66.0%	8.2%	20.4%	4.8%	0.7%	49	34.7%	0.0%	20.4%	40.8%	2.0%	2.0%	32	59.4%	3.1%	15.6%	15.6%	6.3%	0.0%
Tamil Nadu	4921	64.5%	70.5%	9.0%	4.3%	15.4%	0.8%	799	43.6%	4.8%	14.0%	18.3%	17.8%	1.6%	3018	52.2%	7.2%	10.1%	3.5%	25.4%	1.6%
Tripura	184	71.2%	73.4%	4.3%	8.2%	13.6%	0.5%	53	73.6%	3.8%	3.8%	5.7%	13.2%	0.0%	24	66.7%	8.3%	0.0%	12.5%	12.5%	0.0%
Uttar Pradesh	19524	72.8%	80.0%	5.8%	2.4%	10.9%	0.8%	2249	57.9%	9.8%	9.1%	9.0%	13.0%	1.2%	14989	64.9%	8.7%	6.5%	2.2%	14.2%	3.5%
Uttarakhand	1583	64.9%	72.3%	4.7%	3.5%	14.7%	4.8%	155	49.7%	7.7%	10.3%	11.6%	20.0%	0.6%	863	60.5%	7.5%	8.1%	3.4%	15.1%	5.4%
West Bengal	7026	67.5%	71.7%	7.2%	6.4%	13.1%	1.6%	1865	50.0%	3.3%	8.8%	20.1%	15.5%	2.3%	3586	51.3%	5.2%	9.0%	5.6%	25.3%	3.7%
Grand Total	**108708**	**68.8%**	**75.0%**	**7.1%**	**4.9%**	**11.7%**	**1.2%**	**18952**	**51.1%**	**6.6%**	**9.7%**	**15.6%**	**15.5%**	**1.4%**	**73812**	**60.2%**	**7.7%**	**8.2%**	**4.0%**	**17.3%**	**2.7%**

Programme Infrastructure, Staffing and Training Status at the end of 4th Quarter 2010

Implementing states	Total no. of reporting units (Districts/DTC)	Implementing district details		Involvement of Other sectors			Number of key staff in position						In Place and trained in RNTCP	
		No. of TB Units	No. of DMCs	NGO	PP	Medical College	DTO	2nd MO	MO-TC	STS	STLS	LT	MO	Para Staff
Andaman & Nicobar	1	3	13	0	0	0	1	0	3	3	3	19	78%	83%
Andhra Pradesh	24	178	921	114	123	33	16	20	163	169	173	846	71%	87%
Arunachal Pradesh	13	13	32	18	0	0	13	1	6	13	13	42	70%	58%
Assam	23	68	340	40	18	3	23	4	53	65	66	422	78%	63%
Bihar	38	173	705	8	3	7	29	31	212	148	147	633	76%	82%
Chandigarh	1	3	17	6	117	2	1	1	3	3	5	17	100%	100%
Chhattisgarh	16	60	301	13	0	3	15	1	55	52	54	286	81%	88%
D & N Haveli	1	1	5	0	5	0	1	0	1	1	1	5	100%	100%
Daman & Diu	2	2	4	0	3	0	2	1	2	2	2	4	96%	100%
Delhi	24	35	204	84	82	6	24	15	22	44	40	192	95%	77%
Goa	2	4	20	5	16	1	2	0	4	4	4	20	100%	100%
Gujarat	30	138	729	153	3826	15	20	17	137	136	135	698	96%	91%
Haryana	21	45	223	9	157	4	18	9	46	45	39	217	79%	72%
Himachal Pradesh	12	41	168	4	42	2	12	3	35	40	40	210	79%	79%
Jammu & Kashmir	14	42	173	6	13	5	14	10	33	43	42	229	90%	81%
Jharkhand	24	70	294	35	15	3	23	14	55	69	70	395	82%	84%
Karnataka	31	125	647	52	319	39	28	7	124	119	122	625	81%	80%
Kerala	14	73	480	76	14	18	13	8	58	73	72	559	77%	67%
Lakshadweep	1	1	9	2	0	0	1	0	0	1	1	17	56%	100%
Madhya Pradesh	50	144	739	51	89	11	49	9	119	134	138	722	88%	84%
Maharashtra	55	263	1300	368	4144	41	52	52	247	249	250	1265	75%	84%
Manipur	9	13	52	100	12	2	9	5	3	13	17	53	75%	52%
Meghalaya	7	12	55	20	0	1	7	2	10	12	12	59	83%	69%
Mizoram	8	9	30	1	0	0	8	1	4	9	9	29	75%	92%
Nagaland	11	15	44	41	16	0	11	0	3	13	13	47	80%	64%
Orissa	31	108	546	35	2	6	31	10	102	107	94	515	87%	87%
Puducherry	1	4	22	4	4	8	1	1	4	5	5	22	71%	94%
Punjab	20	57	290	70	362	8	20	6	51	56	56	286	88%	71%
Rajasthan	32	150	824	57	247	8	33	8	129	148	147	797	86%	81%
Sikkim	4	5	20	4	1	1	4	0	4	5	5	20	84%	86%
Tamil Nadu	31	142	789	92	122	21	25	24	108	130	133	716	83%	94%
Tripura	4	10	53	3	0	2	4	2	8	9	10	60	95%	96%
Uttar Pradesh	71	391	1834	288	222	22	60	52	362	372	350	1941	75%	61%
Uttarakhand	13	30	144	15	78	4	13	5	22	28	28	151	63%	59%
West Bengal	19	189	841	140	11	11	18	11	178	186	188	962	82%	75%
Grand Total	**658**	**2617**	**12868**	**1914**	**10063**	**287**	**601**	**330**	**2366**	**2506**	**2484**	**13081**	**81%**	**80%**

District Performance of RNTCP Case Detection (2010), Smear Conversion (4th Quarter 2009 to 3rd Quarter 2010), and Treatment Outcomes (2009)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Andaman & Nicobar	Andaman & Nicobar Islands*	5	3911	204	-10%	396	10	7%	83	77	804	168	59	41	46	22	19
Andhra Pradesh	Adilabad*	27	11766	107	5%	2127	6	15%	77	75	3729	136	61	48	8	18	16
Andhra Pradesh	Anantapur	40	29123	180	-2%	4094	7	-2%	101	80	5586	138	64	30	18	26	18
Andhra Pradesh	Bhadrachalam	9	7303	211	1%	1271	6	-12%	147	126	1643	190	96	47	8	39	34
Andhra Pradesh	Chittoor	41	29352	177	10%	4217	7	11%	102	71	4987	120	56	23	17	24	16
Andhra Pradesh	Cuddapah	29	20736	182	0%	2303	9	5%	81	75	4176	146	52	43	14	37	25
Andhra Pradesh	East Godavari	54	40740	189	0%	4343	9	3%	80	70	7937	147	58	46	19	23	14
Andhra Pradesh	Guntur	49	40411	207	-7%	5807	7	-5%	119	93	8051	165	72	47	13	32	23
Andhra Pradesh	Hyderabad	41	43056	263	6%	6074	7	7%	149	77	6805	166	58	30	46	31	20
Andhra Pradesh	Karimnagar	39	21272	138	1%	2996	7	-2%	78	70	4221	109	51	26	7	25	21
Andhra Pradesh	Khammam	20	13710	173	5%	2636	5	7%	133	102	3148	159	75	35	10	39	31
Andhra Pradesh	Krishna	47	29304	157	6%	3915	7	6%	84	71	5792	124	55	32	12	25	18
Andhra Pradesh	Kurnool	39	24390	157	6%	3137	8	-1%	81	72	5774	148	56	46	15	30	20
Andhra Pradesh	Mahbubnagar	39	21699	140	4%	3089	7	2%	79	74	4555	117	58	25	10	24	19
Andhra Pradesh	Medak	30	12086	102	-1%	1835	7	13%	62	66	3229	109	50	23	14	22	17
Andhra Pradesh	Nalgonda	36	15750	110	0%	3316	5	1%	92	76	4188	117	53	21	13	28	25
Andhra Pradesh	Nellore	29	21255	180	3%	2926	7	4%	99	80	3997	136	60	34	10	31	24
Andhra Pradesh	Nizamabad	26	16478	159	18%	2140	8	-5%	82	79	3022	116	68	22	10	17	13
Andhra Pradesh	Prakasam	34	21867	161	14%	2627	8	8%	78	78	4509	133	62	38	6	27	19
Andhra Pradesh	Rangareddi	39	22370	144	1%	4103	5	-6%	106	85	5664	146	62	26	26	31	24
Andhra Pradesh	Srikakulam	28	18051	161	4%	2015	9	15%	72	67	4215	150	56	58	13	23	12
Andhra Pradesh	Visakhapatnam	42	32558	194	2%	3706	9	7%	88	74	5824	139	61	35	22	21	15
Andhra Pradesh	Vizianagaram	25	18799	189	3%	2374	8	5%	95	89	3760	151	71	30	23	27	19
Andhra Pradesh	Warangal	36	21472	150	-2%	3562	6	0%	99	72	3831	107	50	20	8	29	25
Andhra Pradesh	West Godavari	42	27195	162	11%	3472	8	9%	82	79	5771	137	61	36	12	29	19
Arunachal Pradesh	Changlang**	1	972	173	2%	57	17	12%	41	58	163	116	41	31	13	31	19
Arunachal Pradesh	Dibang Valley	1	608	235	1%	46	13	22%	71	99	94	145	70	28	6	42	34
Arunachal Pradesh	East Kameng*	1	527	205	50%	45	12	-6%	70	67	159	248	47	86	31	84	20
Arunachal Pradesh	East Siang*	1	807	205	-18%	94	9	-11%	96	111	230	234	80	70	33	51	36

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Andaman & Nicobar	Andaman & Nicobar Islands*	63	9%	90%	81%	86%	77%	374	99%	334	89%	299	94%	127	16%	0%	NA	0%	NA	NA
Andhra Pradesh	Adilabad*	103	3%	91%	70%	91%	79%	1988	94%	2126	100%	1434	85%	3621	97%	64%	6%	4%	99%	22%
Andhra Pradesh	Anantapur	188	4%	89%	70%	86%	63%	2906	87%	3265	98%	2113	77%	5021	90%	77%	11%	8%	86%	51%
Andhra Pradesh	Bhadrachalam	23	2%	89%	71%	93%	83%	807	72%	782	70%	375	49%	927	56%	36%	5%	2%	67%	33%
Andhra Pradesh	Chittoor	127	3%	91%	72%	86%	67%	2720	91%	2940	98%	1796	79%	4007	80%	75%	12%	9%	99%	66%
Andhra Pradesh	Cuddapah	94	3%	91%	67%	89%	75%	1743	79%	1996	90%	1302	75%	3136	75%	66%	10%	7%	99%	42%
Andhra Pradesh	East Godavari	330	5%	93%	82%	91%	76%	3474	90%	3858	100%	2847	85%	6784	85%	78%	22%	17%	97%	14%
Andhra Pradesh	Guntur	215	3%	93%	80%	90%	75%	4278	92%	4625	100%	3396	88%	6570	82%	71%	19%	13%	99%	44%
Andhra Pradesh	Hyderabad	512	9%	91%	66%	87%	61%	2857	89%	3005	94%	2201	90%	2815	41%	94%	7%	7%	56%	19%
Andhra Pradesh	Karimnagar	92	3%	91%	72%	89%	75%	2470	88%	2704	97%	1764	86%	3475	82%	70%	11%	7%	96%	40%
Andhra Pradesh	Khammam	67	3%	90%	84%	87%	78%	1817	86%	2065	98%	1378	79%	2877	91%	73%	5%	4%	94%	21%
Andhra Pradesh	Krishna	144	3%	91%	68%	88%	69%	3056	89%	3339	97%	2377	84%	3259	56%	75%	23%	17%	97%	35%
Andhra Pradesh	Kurnool	289	6%	91%	77%	86%	72%	2416	82%	2956	100%	1418	62%	5489	95%	64%	12%	7%	79%	43%
Andhra Pradesh	Mahbubnagar	158	4%	91%	77%	87%	74%	2731	91%	2931	98%	1806	71%	4290	94%	87%	5%	5%	99%	46%
Andhra Pradesh	Medak	213	8%	91%	58%	88%	64%	1748	89%	1852	94%	1217	74%	2855	88%	82%	8%	7%	90%	40%
Andhra Pradesh	Nalgonda	145	5%	90%	66%	89%	75%	2369	84%	2572	92%	1746	73%	3871	92%	88%	10%	8%	100%	37%
Andhra Pradesh	Nellore	90	3%	90%	67%	87%	63%	2185	89%	2444	99%	1555	77%	3996	100%	72%	17%	12%	58%	35%
Andhra Pradesh	Nizamabad	93	4%	91%	74%	86%	66%	1931	92%	2004	96%	1183	89%	2663	88%	55%	9%	5%	100%	53%
Andhra Pradesh	Prakasam	87	2%	93%	78%	88%	71%	2439	89%	2732	100%	2035	96%	4431	98%	91%	16%	14%	98%	45%
Andhra Pradesh	Rangareddi	291	7%	92%	75%	87%	73%	3149	94%	3315	99%	2331	90%	5114	90%	83%	12%	10%	99%	33%
Andhra Pradesh	Srikakulam	188	5%	94%	82%	92%	76%	1596	84%	1848	97%	1273	73%	3676	87%	80%	18%	14%	96%	22%
Andhra Pradesh	Visakhapatnam	333	7%	95%	85%	92%	80%	2939	92%	3158	99%	2591	91%	5161	89%	89%	11%	10%	67%	54%
Andhra Pradesh	Vizianagaram	250	8%	92%	81%	89%	77%	2029	90%	2215	98%	1661	85%	3479	93%	96%	9%	9%	60%	74%
Andhra Pradesh	Warangal	53	2%	91%	83%	88%	77%	2348	88%	2247	84%	2037	82%	3854	101%	76%	5%	4%	87%	61%
Andhra Pradesh	West Godavari	160	4%	96%	85%	94%	84%	3296	98%	3361	100%	2806	94%	3144	54%	74%	23%	17%	87%	16%
Arunachal Pradesh	Changlang**	5	4%	98%	85%	84%	85%	76	89%	81	95%	54	75%	91	56%	23%	0%	0%	NA	NA
Arunachal Pradesh	Dibang Valley	4	6%	96%	91%	98%	95%	67	100%	67	100%	74	100%	5	5%	41%	0%	0%	NA	NA
Arunachal Pradesh	East Kameng*	24	23%	89%	71%	93%	72%	31	72%	43	100%	22	71%	27	17%	10%	0%	0%	NA	NA
Arunachal Pradesh	East Siang*	24	13%	94%	73%	90%	63%	110	96%	106	93%	87	91%	66	29%	14%	0%	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Arunachal Pradesh	Lohit**	2	802	124	-24%	130	6	-13%	81	76	216	134	53	34	10	37	25
Arunachal Pradesh	Lower Subansiri*	1	544	124	-6%	31	18	49%	28	46	126	115	30	28	31	26	15
Arunachal Pradesh	Papum Pare*	1	3028	553	-19%	377	8	-21%	275	157	691	505	107	153	112	133	58
Arunachal Pradesh	Tawang*	0.4	322	206	-27%	26	12	-3%	67	74	74	190	49	38	44	59	31
Arunachal Pradesh	Tirap†	1	871	193	23%	80	11	54%	71	77	225	200	58	39	61	42	22
Arunachal Pradesh	Upper Siang*	0.4	375	252	12%	44	9	-25%	118	110	59	158	86	21	21	30	27
Arunachal Pradesh	Upper Subansiri*	1	448	181	-1%	58	8	20%	94	89	99	160	86	15	34	26	13
Arunachal Pradesh	West Kameng*	1	461	137	-25%	55	8	0%	66	66	98	117	57	21	24	14	8
Arunachal Pradesh	West Siang*	1	510	109	6%	50	10	42%	43	54	126	108	40	13	21	28	16
Assam	Barpeta	19	6460	87	-11%	901	7	-9%	48	48	1852	99	37	28	10	25	11
Assam	Bongaigaon	10	6050	147	3%	901	7	-7%	88	70	1209	118	59	27	8	23	12
Assam	Cachar	16	9017	138	-9%	1152	8	-4%	70	60	2413	148	54	50	32	11	7
Assam	Darrang	17	7767	114	-7%	1121	7	-8%	66	60	2011	118	52	33	15	18	10
Assam	Dhemaji	6	3008	117	9%	538	6	3%	83	77	849	132	63	36	10	22	16
Assam	Dhubri	19	7625	103	11%	1304	6	-4%	70	63	2288	124	50	40	4	30	15
Assam	Dibrugarh	13	7212	136	-10%	1533	5	-7%	115	83	2435	183	68	35	57	24	17
Assam	Goalpara	9	3921	105	-4%	662	6	-9%	71	67	1004	108	57	28	5	17	11
Assam	Golaghat	11	4959	116	11%	756	7	8%	71	66	1443	135	58	38	21	18	9
Assam	Hailakandi	6	3722	151	-2%	370	10	7%	60	58	687	112	49	29	16	17	11
Assam	Jorhat	11	5211	114	-1%	883	6	-1%	77	70	1548	135	58	31	26	19	12
Assam	Kamrup	29	16116	141	4%	2534	6	8%	89	70	4016	141	51	33	19	38	22
Assam	Karbi Anglong*	9	4100	111	-5%	603	7	5%	65	60	1537	167	53	74	13	25	9
Assam	Karimganj	11	5904	130	6%	579	10	15%	51	44	1190	105	38	35	17	15	8
Assam	Kokrajhar	11	4639	110	11%	925	5	4%	88	82	1315	125	72	28	3	21	11
Assam	Lakhimpur	10	4055	101	6%	639	6	16%	63	59	1024	102	50	25	10	17	10
Assam	Marigaon	9	4148	118	17%	588	7	-4%	67	63	1106	126	49	40	5	32	15
Assam	Nagaon	26	12433	118	7%	1743	7	4%	66	56	2952	112	49	37	10	16	8
Assam	Nalbari	13	4685	91	13%	729	6	-4%	57	58	1429	111	49	29	14	19	10
Assam	North Cachar Hills*	2	1205	143	-5%	154	8	-23%	73	65	280	133	52	40	9	32	17
Assam	Sibsagar	12	5543	116	-1%	872	6	-2%	73	69	1774	149	55	34	35	25	15

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Arunachal Pradesh	Lohit**	12	8%	91%	78%	84%	66%	119	94%	124	98%	107	91%	34	16%	0%	NA	0%	NA	NA
Arunachal Pradesh	Lower Subansiri*	25	26%	92%	78%	83%	71%	42	84%	50	100%	53	100%	28	22%	0%	NA	0%	NA	NA
Arunachal Pradesh	Papum Pare*	99	19%	95%	76%	93%	70%	220	97%	226	100%	177	97%	454	66%	2%	0%	0%	NA	NA
Arunachal Pradesh	Tawang*	5	10%	94%	90%	97%	100%	27	87%	27	87%	29	91%	9	12%	1%	0%	0%	NA	NA
Arunachal Pradesh	Tirap†	36	20%	87%	81%	82%	78%	77	86%	83	92%	57	77%	31	14%	0%	NA	0%	NA	NA
Arunachal Pradesh	Upper Siang*	6	13%	93%	45%	85%	75%	41	98%	41	98%	18	78%	6	10%	2%	0%	0%	NA	NA
Arunachal Pradesh	Upper Subansiri*	10	12%	83%	71%	74%	58%	44	72%	61	100%	41	98%	8	8%	43%	0%	0%	NA	NA
Arunachal Pradesh	West Kameng*	12	14%	94%	67%	93%	81%	55	100%	55	100%	36	56%	20	20%	0%	NA	0%	NA	NA
Arunachal Pradesh	West Siang*	7	8%	98%	84%	88%	67%	66	100%	66	100%	61	95%	0	0%	0%	NA	0%	NA	NA
Assam	Barpeta	41	3%	85%	60%	85%	49%	747	83%	897	100%	504	72%	143	8%	7%	1%	0%	0%	0%
Assam	Bongaigaon	43	4%	90%	61%	86%	58%	650	89%	646	88%	258	46%	155	13%	5%	5%	0%	0%	0%
Assam	Cachar	90	4%	89%	75%	85%	63%	883	88%	971	97%	630	73%	1343	56%	19%	3%	1%	63%	44%
Assam	Darrang	52	3%	87%	64%	85%	63%	923	87%	1036	98%	692	85%	823	41%	10%	0%	0%	0%	0%
Assam	Dhemaji	23	3%	89%	78%	85%	69%	467	91%	508	99%	321	82%	362	43%	32%	0%	0%	0%	0%
Assam	Dhubri	50	3%	90%	66%	88%	67%	963	80%	1029	86%	486	59%	1347	59%	19%	0%	0%	0%	0%
Assam	Dibrugarh	210	10%	93%	79%	87%	80%	1064	94%	1048	93%	861	89%	701	29%	49%	0%	0%	100%	0%
Assam	Goalpara	14	2%	88%	51%	81%	35%	596	93%	642	100%	379	90%	226	23%	6%	0%	0%	0%	0%
Assam	Golaghat	90	7%	89%	69%	86%	72%	663	92%	683	95%	480	86%	549	38%	70%	0%	0%	0%	0%
Assam	Hailakandi	23	4%	88%	83%	85%	63%	195	53%	341	93%	162	52%	183	27%	11%	1%	0%	0%	0%
Assam	Jorhat	105	8%	87%	63%	83%	62%	789	98%	808	100%	545	91%	306	20%	17%	2%	0%	0%	0%
Assam	Kamrup	85	3%	89%	70%	86%	59%	1842	89%	2005	97%	1295	80%	894	22%	12%	2%	0%	300%	350%
Assam	Karbi Anglong*	45	3%	83%	50%	79%	53%	519	90%	559	97%	203	46%	553	36%	10%	1%	0%	0%	0%
Assam	Karimganj	37	4%	91%	58%	86%	64%	444	86%	514	99%	318	69%	523	44%	25%	3%	1%	0%	0%
Assam	Kokrajhar	12	1%	83%	62%	79%	54%	707	81%	813	93%	505	83%	449	34%	27%	1%	0%	67%	100%
Assam	Lakhimpur	39	5%	92%	67%	87%	65%	550	91%	606	100%	448	84%	721	70%	9%	0%	0%	0%	0%
Assam	Marigaon	31	4%	75%	49%	62%	54%	482	86%	503	90%	169	73%	245	22%	12%	0%	0%	0%	0%
Assam	Nagaon	50	2%	90%	76%	89%	73%	1136	76%	1419	95%	1162	88%	765	26%	8%	3%	0%	0%	100%
Assam	Nalbari	29	2%	81%	62%	82%	60%	678	89%	766	100%	318	66%	495	35%	13%	0%	0%	0%	0%
Assam	North Cachar Hills*	3	1%	87%	66%	81%	58%	126	87%	138	95%	44	48%	68	24%	38%	2%	1%	0%	0%
Assam	Sibsagar	108	7%	87%	63%	83%	62%	687	83%	794	96%	405	64%	570	32%	10%	1%	0%	0%	100%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Assam	Sonitpur	19	11495	151	-2%	2057	6	-2%	108	95	3089	162	81	35	19	26	17
Assam	Tinsukia	13	8367	160	-15%	1581	5	-15%	121	99	2337	179	85	28	41	25	18
Bihar	Araria**	25	8004	81	26%	1047	8	1%	42	36	1707	69	31	25	2	10	5
Bihar	Arwal	7	3413	120	12%	419	8	19%	59	46	571	81	37	26	3	15	10
Bihar	Aurangabad-BI**	23	7831	84	13%	833	9	26%	36	33	1350	58	27	15	4	12	7
Bihar	Banka**	19	6125	82	-9%	598	10	18%	32	33	1358	73	29	26	2	16	4
Bihar	Begusarai**	27	12785	117	20%	1717	7	12%	63	58	3137	115	47	43	5	20	12
Bihar	Bhagalpur**	28	17100	151	-11%	1935	9	1%	68	57	3278	116	47	37	12	21	11
Bihar	Bhojpur**	26	7099	68	21%	812	9	-6%	31	27	1375	53	20	14	3	16	8
Bihar	Buxar	16	4943	76	15%	503	10	5%	31	30	885	54	22	15	2	14	9
Bihar	Darbhanga**	38	14715	96	5%	1895	8	3%	50	42	2870	75	32	12	16	15	11
Bihar	Gaya**	40	10840	67	35%	1372	8	33%	34	28	3487	87	23	41	6	15	5
Bihar	Gopalganj**	25	9097	91	4%	891	10	59%	36	36	1663	67	31	16	3	16	6
Bihar	Jamui**	16	4406	68	-8%	535	8	49%	33	32	1426	88	27	40	3	18	6
Bihar	Jehanabad**	10	4590	109	-11%	571	8	3%	54	50	1084	103	41	42	5	16	11
Bihar	Kaimur**	15	3508	59	-6%	525	7	-7%	35	33	966	65	23	20	1	20	11
Bihar	Katihar**	28	12474	112	22%	1980	6	11%	71	64	2439	88	53	13	4	17	12
Bihar	Khagaria**	15	5949	100	-14%	641	9	-1%	43	40	866	58	34	12	3	10	7
Bihar	Kishanganj**	15	6274	104	5%	824	8	2%	55	53	1151	76	44	12	5	16	10
Bihar	Lakhisarai**	9	4184	112	0%	336	12	13%	36	35	648	70	29	19	4	18	7
Bihar	Madhepura**	18	7731	109	21%	861	9	-2%	49	45	1082	61	35	12	2	12	10
Bihar	Madhubani**	42	16483	99	5%	2125	8	2%	51	45	2573	62	39	11	3	9	6
Bihar	Munger**	13	6655	126	17%	819	8	21%	62	60	1474	112	48	36	11	17	13
Bihar	Muzaffarpur**	44	18014	103	-3%	2303	8	-3%	53	47	5116	117	39	51	6	21	9
Bihar	Nalanda**	28	8847	80	28%	1146	8	14%	42	38	1768	64	34	20	3	6	4
Bihar	Nawada**	21	4922	58	6%	727	7	17%	35	33	1144	54	28	13	4	9	6
Bihar	Pashchim Champaran**	35	14477	102	1%	1885	8	7%	53	53	2433	69	47	10	3	9	6
Bihar	Patna	55	23080	105	-6%	3176	7	-5%	58	44	6082	111	35	38	14	24	10
Bihar	Purba Champaran**	46	10482	57	-8%	1387	8	8%	30	27	2220	49	24	17	2	5	3

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Assam	Sonitpur	175	7%	81%	59%	83%	65%	1721	92%	1362	73%	1019	79%	790	26%	9%	0%	0%	0%	0%
Assam	Tinsukia	148	7%	90%	76%	85%	70%	1161	87%	1097	82%	965	87%	669	29%	15%	1%	0%	0%	0%
Bihar	Araria**	112	8%	89%	65%	87%	71%	679	75%	865	95%	508	80%	257	15%	1%	0%	0%	NA	NA
Bihar	Arwal	34	7%	90%	86%	97%	100%	283	86%	330	100%	248	80%	266	47%	49%	2%	1%	0%	25%
Bihar	Aurangabad-BI**	80	7%	85%	65%	82%	66%	673	85%	794	100%	572	87%	787	58%	0%	NA	0%	NA	NA
Bihar	Banka**	37	3%	68%	66%	89%	90%	625	101%	440	71%	415	85%	79	6%	1%	0%	0%	NA	NA
Bihar	Begusarai**	268	10%	95%	88%	95%	92%	1480	92%	1599	100%	1132	82%	141	4%	0%	NA	0%	NA	NA
Bihar	Bhagalpur**	265	10%	89%	74%	88%	76%	1565	96%	1632	100%	1329	90%	609	19%	2%	13%	0%	NA	NA
Bihar	Bhojpur**	70	7%	77%	68%	77%	63%	557	77%	625	87%	307	86%	113	8%	0%	50%	0%	0%	0%
Bihar	Buxar	54	8%	94%	81%	91%	77%	439	88%	459	92%	332	74%	360	41%	0%	NA	0%	NA	NA
Bihar	Darbhanga**	352	15%	90%	77%	89%	73%	1543	94%	1634	100%	1143	93%	1897	66%	23%	3%	1%	7%	79%
Bihar	Gaya**	155	5%	76%	68%	95%	91%	823	74%	964	86%	535	65%	2358	68%	0%	0%	0%	NA	NA
Bihar	Gopalganj**	94	7%	87%	71%	93%	89%	876	95%	923	100%	1003	89%	1005	60%	0%	NA	0%	NA	NA
Bihar	Jamui**	77	7%	75%	64%	80%	71%	466	88%	520	98%	225	52%	411	29%	1%	14%	0%	NA	NA
Bihar	Jehanabad**	85	9%	87%	70%	88%	79%	466	86%	507	93%	377	80%	465	43%	3%	7%	0%	NA	NA
Bihar	Kaimur**	45	7%	81%	60%	83%	68%	455	90%	472	93%	297	80%	378	39%	0%	NA	0%	NA	NA
Bihar	Katihar**	110	6%	86%	66%	83%	71%	1504	83%	1807	100%	1327	100%	1918	79%	28%	2%	1%	NA	NA
Bihar	Khagaria**	61	8%	90%	65%	84%	80%	526	87%	608	100%	341	63%	90	10%	5%	7%	0%	NA	NA
Bihar	Kishanganj**	39	4%	92%	79%	89%	79%	708	88%	643	80%	384	61%	743	65%	30%	0%	0%	NA	NA
Bihar	Lakhisarai**	32	7%	81%	67%	91%	92%	292	89%	318	97%	261	83%	250	39%	54%	2%	1%	0%	100%
Bihar	Madhepura**	44	5%	92%	75%	94%	90%	773	97%	801	100%	455	85%	71	7%	21%	0%	0%	NA	NA
Bihar	Madhubani**	83	4%	88%	76%	89%	80%	1812	97%	1870	100%	1012	69%	213	8%	0%	NA	0%	NA	NA
Bihar	Munger**	154	12%	89%	74%	89%	87%	746	93%	801	100%	472	73%	571	39%	2%	9%	0%	NA	NA
Bihar	Muzaffarpur**	294	7%	89%	79%	88%	81%	1621	78%	1945	93%	900	57%	1583	31%	2%	0%	0%	NA	NA
Bihar	Nalanda**	115	7%	94%	77%	94%	88%	964	92%	1013	96%	699	85%	593	34%	0%	NA	0%	NA	NA
Bihar	Nawada**	51	5%	94%	86%	94%	80%	660	93%	685	97%	575	89%	1064	93%	6%	11%	1%	NA	NA
Bihar	Pashchim Champaran**	108	5%	94%	81%	95%	89%	1665	88%	1715	91%	1412	84%	1093	45%	2%	2%	0%	NA	NA
Bihar	Patna	586	12%	89%	67%	89%	74%	1977	81%	2238	91%	1270	67%	499	8%	0%	NA	0%	NA	NA
Bihar	Purba Champaran**	88	4%	92%	63%	92%	89%	1156	93%	1235	100%	1022	78%	79	4%	7%	7%	0%	100%	0%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Bihar	Purnia**	30	20151	170	-3%	2301	9	-5%	78	69	3276	111	56	32	4	19	13
Bihar	Rohtas	28	12424	109	2%	1405	9	3%	49	44	1762	62	37	11	2	12	8
Bihar	Saharsa**	18	7377	105	-1%	741	10	6%	42	38	1387	79	36	31	3	7	2
Bihar	Samastipur**	40	14192	89	4%	2294	6	-1%	58	53	4187	105	44	34	9	19	10
Bihar	Saran**	38	9069	60	4%	1164	8	6%	31	29	2099	56	23	16	4	13	6
Bihar	Sheikhpura**	6	2985	122	-2%	231	13	20%	38	28	593	97	26	42	2	17	3
Bihar	Sheohar	6	2402	100	12%	290	8	6%	48	44	766	128	33	54	8	32	12
Bihar	Sitamarhi**	31	12391	100	13%	1742	7	17%	56	54	2883	93	46	25	9	13	8
Bihar	Siwan	32	12518	99	-5%	1526	8	26%	48	45	3037	96	35	30	2	30	10
Bihar	Supaul**	20	6092	75	6%	561	11	-18%	28	27	1110	55	22	18	2	13	6
Bihar	Vaishali**	32	13103	104	11%	1229	11	20%	39	35	3257	103	27	50	5	22	9
Chandigarh	Chandigarh	14	15713	287	-15%	2272	7	-10%	166	96	2764	202	74	28	63	38	26
Chhattisgarh	Bastar*	15	6254	104	0%	888	7	-9%	59	50	1817	121	42	45	17	18	9
Chhattisgarh	Bilaspur-CG	23	11231	122	8%	1334	8	7%	58	51	2774	121	43	41	24	13	9
Chhattisgarh	Dantewada*	8	3787	114	0%	604	6	-10%	73	62	898	109	54	35	8	11	8
Chhattisgarh	Dhamtari	8	3731	115	11%	469	8	-4%	58	54	767	95	47	29	7	11	8
Chhattisgarh	Durg	32	14610	113	-9%	1432	10	2%	44	41	3548	110	37	44	21	8	6
Chhattisgarh	Janjgir	15	8377	138	47%	925	9	-9%	61	62	1900	125	55	51	8	11	7
Chhattisgarh	Jashpur*	9	1451	43	-30%	180	8	6%	21	25	572	67	23	31	6	4	3
Chhattisgarh	Kanker*	7	4477	149	6%	522	9	9%	70	68	932	124	62	42	10	11	6
Chhattisgarh	Kawardha**	7	2025	75	59%	228	9	-1%	34	33	445	66	28	22	7	9	5
Chhattisgarh	Korba	12	6203	133	-1%	673	9	17%	58	56	1692	145	50	53	28	15	7
Chhattisgarh	Koriya**	7	2518	93	-7%	245	10	10%	36	33	664	99	29	41	15	14	5
Chhattisgarh	Mahasamund	10	3783	96	10%	518	7	-10%	52	52	1166	118	47	48	13	10	6
Chhattisgarh	Raigarh-CG**	15	4797	82	-2%	847	6	-5%	58	54	1661	114	48	50	6	9	6
Chhattisgarh	Raipur	35	18272	132	-3%	2357	8	-2%	68	61	4450	129	52	42	20	14	9
Chhattisgarh	Rajnandgaon	15	7401	125	0%	995	7	-4%	67	68	2073	141	58	43	20	20	11
Chhattisgarh	Surguja†	23	8726	96	-2%	1033	8	1%	46	53	3299	145	47	70	9	19	6
D & N Haveli	Dadra & Nagar Haveli†	3	2182	162	4%	291	7	17%	86	60	397	118	43	28	19	28	18
Daman & Diu	Daman	2	1811	242	-8%	196	9	-23%	105	56	258	138	39	34	26	40	20

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Bihar	Purnia**	194	7%	88%	77%	91%	84%	1876	92%	2006	98%	1547	97%	2777	85%	13%	1%	0%	NA	NA
Bihar	Rohtas	82	6%	92%	80%	93%	84%	1192	93%	1275	100%	886	87%	859	49%	0%	NA	0%	NA	NA
Bihar	Saharsa**	50	4%	95%	92%	91%	95%	563	85%	662	100%	424	78%	778	56%	0%	NA	0%	NA	NA
Bihar	Samastipur**	290	8%	85%	71%	92%	84%	1843	86%	2139	100%	1182	77%	770	18%	0%	NA	0%	NA	NA
Bihar	Saran**	64	4%	77%	56%	74%	53%	1004	91%	1103	100%	543	84%	1257	60%	0%	NA	0%	NA	NA
Bihar	Sheikhpura**	40	8%	82%	47%	75%	72%	159	89%	168	94%	108	70%	342	58%	36%	2%	1%	NA	NA
Bihar	Sheohar	39	7%	86%	64%	85%	74%	191	72%	265	100%	134	86%	586	77%	0%	NA	0%	NA	NA
Bihar	Sitamarhi**	185	7%	80%	60%	80%	72%	1432	85%	1584	94%	686	57%	1798	62%	0%	71%	0%	NA	NA
Bihar	Siwan	100	5%	90%	86%	91%	81%	1288	90%	1419	100%	821	60%	1322	44%	1%	18%	0%	NA	NA
Bihar	Supaul**	28	3%	74%	69%	97%	94%	480	86%	556	100%	211	79%	1043	94%	0%	NA	0%	NA	NA
Bihar	Vaishali**	180	7%	87%	63%	88%	79%	777	68%	976	86%	581	63%	1481	45%	2%	5%	0%	NA	NA
Chandigarh	Chandigarh	229	10%	91%	71%	87%	73%	1182	86%	1289	94%	722	73%	577	21%	66%	1%	1%	0%	0%
Chhattisgarh	Bastar*	80	5%	77%	71%	72%	51%	681	89%	760	99%	280	114%	961	53%	16%	2%	0%	NA	NA
Chhattisgarh	Bilaspur-CG	177	7%	92%	67%	91%	72%	933	79%	1119	95%	663	69%	1892	68%	0%	NA	0%	NA	NA
Chhattisgarh	Dantewada*	37	5%	69%	48%	77%	53%	394	77%	454	89%	166	54%	206	23%	2%	0%	0%	NA	NA
Chhattisgarh	Dhamtari	25	4%	86%	62%	87%	67%	406	91%	448	100%	251	79%	533	69%	0%	NA	0%	NA	NA
Chhattisgarh	Durg	139	4%	87%	68%	85%	63%	1179	87%	1347	99%	871	73%	641	18%	0%	NA	0%	NA	NA
Chhattisgarh	Janjgir	93	5%	93%	90%	90%	84%	899	95%	946	100%	383	78%	1351	71%	0%	NA	0%	NA	NA
Chhattisgarh	Jashpur*	7	1%	69%	58%	81%	86%	120	55%	103	47%	49	34%	70	12%	0%	NA	0%	NA	NA
Chhattisgarh	Kanker*	21	2%	91%	83%	87%	76%	480	94%	512	100%	344	82%	401	43%	20%	0%	0%	NA	NA
Chhattisgarh	Kawardha**	22	6%	83%	69%	77%	63%	174	78%	214	96%	38	40%	173	39%	0%	NA	0%	NA	NA
Chhattisgarh	Korba	73	5%	93%	68%	90%	74%	593	89%	666	100%	579	85%	1251	74%	0%	NA	0%	NA	NA
Chhattisgarh	Koriya**	32	6%	88%	71%	80%	66%	200	88%	228	100%	137	80%	289	44%	0%	NA	0%	NA	NA
Chhattisgarh	Mahasamund	102	10%	90%	70%	84%	65%	494	95%	521	100%	248	71%	973	83%	0%	NA	0%	NA	NA
Chhattisgarh	Raigarh-CG**	48	3%	91%	76%	87%	83%	706	90%	784	100%	336	64%	113	7%	0%	NA	0%	NA	NA
Chhattisgarh	Raipur	190	5%	91%	73%	89%	68%	1990	93%	2069	97%	1495	82%	691	16%	0%	NA	0%	0%	100%
Chhattisgarh	Rajnandgaon	97	5%	90%	64%	86%	67%	925	91%	1011	100%	628	81%	1127	54%	0%	NA	0%	NA	NA
Chhattisgarh	Surguja†	176	6%	92%	85%	93%	82%	833	69%	927	77%	750	90%	1581	48%	0%	NA	0%	NA	NA
D & N Haveli	Dadra & Nagar Haveli†	35	12%	90%	56%	80%	47%	186	90%	200	97%	121	89%	52	13%	27%	2%	1%	50%	0%
Daman & Diu	Daman	9	5%	70%	60%	75%	72%	78	72%	108	99%	56	97%	11	4%	55%	8%	5%	0%	33%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Daman & Diu	Diu	0.7	721	249	-33%	43	17	5%	59	24	35	48	17	11	11	10	8
Delhi	BJRM Chest Clinic	5	4216	200	-14%	540	8	3%	102	105	1359	258	71	57	73	56	35
Delhi	BSA Chest Clinic	5	2987	142	5%	487	6	4%	92	91	1253	238	61	53	75	49	34
Delhi	CD Chest Clinic	5	3152	149	-13%	454	7	-16%	86	61	996	189	43	41	63	37	20
Delhi	DDU Chest Clinic	20	12409	155	-1%	1826	7	4%	91	90	4954	247	63	45	89	51	30
Delhi	GTB Chest Clinic	6	7929	313	-21%	1109	7	0%	175	121	2102	332	86	52	117	77	39
Delhi	Gulabi Bagh	11	6173	146	-8%	795	8	9%	75	64	1789	170	46	34	58	32	20
Delhi	Hedgewar Chest Clinic	5	4205	199	-4%	564	7	-4%	107	82	1128	214	59	28	78	48	26
Delhi	Jhandewalan	5	3656	173	-12%	577	6	1%	109	100	1395	264	65	38	86	73	39
Delhi	Karawal Nagar	6	5379	212	-1%	1065	5	-3%	168	167	2750	434	125	66	158	86	49
Delhi	Kingsway Camp	5	3906	185	-18%	610	6	6%	116	130	1686	320	87	65	89	77	47
Delhi	LN Chest Clinic	5	5893	279	-9%	774	8	-2%	147	75	1035	196	50	22	77	47	27
Delhi	LRS	11	7139	169	-11%	1017	7	-11%	96	80	1854	176	54	21	58	41	27
Delhi	MNCH Chest Clinic	11	5725	136	-13%	906	6	-8%	86	144	4092	388	95	72	124	97	56
Delhi	Moti Nagar	6	8328	329	8%	1122	7	-9%	177	106	1664	263	72	39	99	54	36
Delhi	Narela	6	6714	265	-3%	951	7	4%	150	109	1686	266	75	44	82	65	39
Delhi	NDMC	8	13438	398	-8%	1886	7	8%	223	68	1576	187	48	29	68	41	22
Delhi	Nehru Nagar	11	9587	227	-12%	1673	6	-10%	159	144	3719	353	98	65	106	80	52
Delhi	Patparganj	7	9401	318	-3%	1543	6	-11%	209	173	2748	372	116	45	121	90	62
Delhi	R.K.Mission	6	5813	230	-8%	962	6	-9%	152	130	1879	297	91	66	71	69	43
Delhi	RTRM Chest Clinic	11	8657	205	-9%	1259	7	-12%	119	104	2254	214	71	30	58	55	35
Delhi	SGM Chest Clinic	6	8274	327	-11%	1068	8	-4%	169	152	2859	452	102	114	134	101	54
Delhi	Shahdra	5	7487	355	-11%	1270	6	-1%	241	177	2440	463	123	68	170	101	64
Delhi	SPM Marg	5	3407	161	-20%	535	6	9%	101	87	1038	197	59	31	60	47	32
Delhi	SPMH Chest Clinic	5	4752	225	-11%	900	5	-1%	171	167	2220	421	103	45	158	115	72
Goa	North Goa	10	9851	255	10%	779	13	12%	81	58	1213	126	46	22	36	22	14

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Daman & Diu	Diu	7	25%	87%	80%	78%	100%	18	100%	18	100%	15	100%	4	11%	60%	5%	3%	NA	NA
Delhi	BJRM Chest Clinic	167	16%	90%	75%	87%	77%	416	74%	562	100%	519	100%	333	25%	17%	7%	1%	83%	67%
Delhi	BSA Chest Clinic	130	13%	86%	67%	82%	74%	462	92%	500	100%	379	100%	477	38%	68%	0%	0%	0%	100%
Delhi	CD Chest Clinic	117	15%	83%	67%	86%	68%	292	88%	330	100%	197	89%	34	3%	34%	0%	0%	0%	0%
Delhi	DDU Chest Clinic	546	14%	90%	72%	86%	70%	1616	87%	1864	100%	1513	100%	293	6%	83%	1%	1%	95%	40%
Delhi	GTB Chest Clinic	221	14%	88%	71%	87%	68%	735	93%	792	100%	678	93%	62	3%	38%	2%	1%	43%	29%
Delhi	Gulabi Bagh	194	13%	91%	77%	85%	71%	625	90%	698	100%	607	100%	0	0%	65%	2%	1%	100%	100%
Delhi	Hedgewar Chest Clinic	173	20%	87%	71%	82%	66%	422	94%	449	100%	317	91%	0	0%	99%	2%	2%	0%	67%
Delhi	Jhandewalan	152	15%	88%	69%	83%	69%	488	89%	548	100%	447	100%	60	4%	39%	3%	1%	75%	100%
Delhi	Karawal Nagar	379	17%	86%	67%	89%	73%	1081	98%	1102	100%	877	99%	0	0%	44%	1%	1%	15%	62%
Delhi	Kingsway Camp	158	12%	90%	72%	87%	75%	697	98%	705	99%	672	98%	94	6%	82%	2%	1%	75%	88%
Delhi	LN Chest Clinic	102	13%	91%	72%	90%	78%	312	76%	411	100%	372	100%	62	6%	80%	3%	2%	73%	86%
Delhi	LRS	155	11%	91%	70%	90%	74%	772	90%	858	100%	767	90%	0	0%	17%	2%	0%	50%	50%
Delhi	MNCH Chest Clinic	413	13%	86%	69%	84%	69%	1295	81%	1590	100%	1245	88%	0	0%	45%	2%	1%	13%	88%
Delhi	Moti Nagar	206	16%	90%	79%	85%	67%	637	93%	680	100%	522	99%	179	11%	49%	1%	1%	100%	33%
Delhi	Narela	208	16%	84%	72%	82%	67%	670	93%	676	94%	542	95%	35	2%	77%	3%	2%	29%	6%
Delhi	NDMC	121	10%	91%	75%	90%	75%	554	94%	592	100%	557	100%	0	0%	61%	4%	2%	88%	50%
Delhi	Nehru Nagar	364	13%	88%	71%	82%	67%	1430	90%	1584	100%	1340	84%	0	0%	50%	2%	1%	80%	47%
Delhi	Patparganj	342	16%	92%	70%	89%	70%	1076	82%	1318	100%	994	100%	4	0%	62%	1%	1%	13%	63%
Delhi	R.K.Mission	225	16%	92%	82%	86%	70%	821	97%	848	100%	644	100%	22	1%	90%	2%	2%	35%	80%
Delhi	RTRM Chest Clinic	225	13%	94%	81%	86%	76%	1077	96%	1082	96%	826	75%	785	35%	42%	2%	1%	50%	50%
Delhi	SGM Chest Clinic	335	15%	91%	68%	88%	71%	935	95%	987	100%	792	100%	0	0%	78%	1%	1%	100%	100%
Delhi	Shahdra	358	19%	86%	74%	83%	67%	969	98%	984	100%	767	100%	408	17%	62%	2%	1%	0%	0%
Delhi	SPM Marg	98	12%	85%	72%	81%	67%	466	97%	478	100%	406	98%	69	7%	57%	5%	3%	0%	0%
Delhi	SPMH Chest Clinic	304	19%	87%	69%	87%	71%	787	85%	925	100%	732	95%	634	29%	53%	2%	1%	14%	86%
Goa	North Goa	57	6%	93%	70%	87%	77%	506	87%	560	97%	378	94%	179	15%	91%	7%	6%	98%	67%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Goa	South Goa	7	4521	151	29%	489	9	20%	65	57	943	126	45	26	29	27	15
Gujarat	Ahmedabad	16	12250	195	17%	1665	7	21%	106	82	1920	122	57	11	14	39	27
Gujarat	Ahmedabad MC	51	33969	166	-4%	5812	6	0%	114	91	8906	174	58	19	43	53	34
Gujarat	Amreli	16	12541	196	5%	1353	9	6%	84	75	1550	97	58	7	8	23	19
Gujarat	Anand	21	15065	176	16%	2451	6	18%	115	94	2998	140	62	21	12	45	33
Gujarat	Banaskantha	29	18193	158	4%	3210	6	3%	111	93	3867	134	60	17	9	48	35
Gujarat	Bharuch	16	11424	181	8%	1761	6	4%	112	96	2014	128	72	12	12	31	25
Gujarat	Bhavnagar	28	18382	162	3%	2759	7	-8%	97	86	3477	122	58	12	14	38	30
Gujarat	Chhota Udepur	10	6385	152	0%	963	7	3%	92	92	1263	121	66	16	6	32	26
Gujarat	Dahod*	19	18792	250	-8%	2464	8	2%	131	119	3037	161	77	24	12	48	43
Gujarat	Gandhinagar	15	10783	175	0%	1404	8	1%	91	81	1783	116	59	9	14	34	23
Gujarat	Jamnagar	22	15787	179	3%	1798	9	7%	82	75	2545	116	55	5	24	31	21
Gujarat	Junagadh	28	19558	174	2%	2345	8	-4%	83	78	2821	100	61	6	7	27	20
Gujarat	Kachchh	18	12243	174	22%	1499	8	21%	85	74	1717	98	56	7	8	26	20
Gujarat	Kheda	23	15769	169	2%	2810	6	4%	121	101	3237	139	66	16	11	46	38
Gujarat	Mahesana	21	17315	205	3%	2048	8	7%	97	81	2380	113	59	10	12	31	22
Gujarat	Narmada	6	5697	241	6%	620	9	9%	105	100	788	133	76	15	11	32	25
Gujarat	Navsari	14	11603	205	7%	1314	9	5%	93	81	1849	131	60	19	18	33	22
Gujarat	Panch Mahals	23	17416	187	1%	3166	6	15%	136	126	3840	165	81	19	9	55	48
Gujarat	Patan	14	10930	201	4%	1453	8	1%	107	88	1674	123	61	13	10	39	28
Gujarat	Porbandar	6	4002	162	2%	478	8	-4%	77	75	809	131	62	32	12	25	14
Gujarat	Rajkot	36	27603	190	-1%	3096	9	2%	85	76	3983	110	60	10	16	23	18
Gujarat	Sabarkantha	24	16764	175	1%	2927	6	-2%	122	99	3822	159	63	28	12	55	38
Gujarat	Surat	16	15163	234	12%	2739	6	-1%	169	104	2446	151	76	15	21	39	29
Gujarat	Surat MC	33	27377	207	-3%	2880	10	20%	87	87	5503	167	61	19	41	46	28
Gujarat	Surendranagar	17	12713	182	5%	1988	6	0%	114	82	2009	115	56	11	15	33	26
Gujarat	The Dangs*	2	1900	221	4%	201	9	-4%	94	88	281	131	69	26	10	26	20
Gujarat	Vadodara	16	13285	203	12%	2046	6	1%	125	87	2095	128	60	17	14	37	28
Gujarat	Vadodara Corp	15	10629	177	5%	1681	6	18%	112	90	2117	141	65	12	22	42	27
Gujarat	Valsad*	16	11662	180	1%	1270	9	-4%	78	76	1803	111	59	9	13	29	17
Gujarat	Vyara (Surat)	8	6556	197	70%	930	7	19%	112	104	1305	157	78	26	14	38	28

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Goa	South Goa	96	13%	88%	76%	90%	75%	370	83%	410	92%	299	94%	222	24%	91%	9%	9%	99%	63%
Gujarat	Ahmedabad	62	5%	91%	69%	83%	62%	1150	87%	1305	99%	855	86%	1609	84%	91%	4%	3%	100%	93%
Gujarat	Ahmedabad MC	748	12%	88%	60%	86%	59%	4450	95%	4679	99%	3543	97%	2017	23%	67%	7%	5%	76%	67%
Gujarat	Amreli	58	5%	91%	67%	87%	60%	1170	95%	1219	99%	878	91%	597	39%	50%	5%	3%	100%	71%
Gujarat	Anand	94	5%	93%	78%	88%	68%	1903	94%	1967	97%	1520	90%	1794	60%	58%	4%	2%	62%	38%
Gujarat	Banaskantha	120	5%	92%	76%	87%	69%	2403	88%	2574	94%	1767	82%	2710	70%	75%	3%	2%	100%	85%
Gujarat	Bharuch	56	4%	93%	81%	89%	67%	1358	89%	1528	100%	1009	86%	1156	57%	68%	2%	2%	79%	71%
Gujarat	Bhavnagar	148	6%	92%	66%	89%	69%	2330	93%	2488	99%	1712	91%	1944	56%	70%	4%	3%	97%	76%
Gujarat	Chhota Udepur	33	4%	93%	79%	91%	71%	826	85%	968	100%	706	86%	933	74%	69%	1%	1%	60%	100%
Gujarat	Dahod*	169	8%	95%	78%	90%	74%	2129	94%	2262	100%	1887	92%	1904	63%	96%	2%	1%	83%	43%
Gujarat	Gandhinagar	75	6%	92%	67%	89%	67%	1152	92%	1215	97%	968	95%	1058	59%	95%	3%	3%	93%	63%
Gujarat	Jamnagar	174	9%	92%	64%	86%	61%	1583	94%	1634	97%	1122	85%	1443	57%	67%	4%	3%	81%	54%
Gujarat	Junagadh	115	6%	93%	72%	90%	63%	2127	94%	2235	99%	1545	88%	1727	61%	78%	3%	2%	94%	74%
Gujarat	Kachchh	59	5%	89%	66%	85%	58%	1214	90%	1288	95%	882	87%	863	50%	49%	6%	3%	57%	39%
Gujarat	Kheda	72	3%	92%	68%	88%	65%	2123	88%	2196	91%	1608	82%	1875	58%	65%	3%	2%	96%	68%
Gujarat	Mahesana	70	4%	92%	73%	88%	70%	1466	85%	1707	99%	1289	90%	770	32%	93%	4%	4%	97%	75%
Gujarat	Narmada	16	3%	95%	83%	94%	79%	533	89%	594	100%	448	91%	618	78%	76%	1%	1%	100%	50%
Gujarat	Navsari	82	6%	92%	73%	89%	65%	1097	94%	1154	99%	912	97%	1231	67%	75%	7%	5%	82%	58%
Gujarat	Panch Mahals	150	6%	95%	76%	92%	70%	2801	93%	3000	100%	2469	93%	2645	69%	81%	2%	1%	94%	88%
Gujarat	Patan	70	6%	93%	71%	88%	63%	1079	89%	1188	98%	788	86%	782	47%	58%	6%	4%	83%	67%
Gujarat	Porbandar	103	16%	96%	66%	92%	67%	459	98%	470	100%	342	91%	189	23%	76%	6%	5%	87%	60%
Gujarat	Rajkot	209	7%	92%	65%	88%	63%	2651	94%	2799	99%	1956	89%	1840	46%	93%	7%	7%	96%	59%
Gujarat	Sabarkantha	112	4%	93%	76%	87%	75%	2180	90%	2370	98%	1520	83%	2864	75%	75%	2%	2%	87%	48%
Gujarat	Surat	83	5%	93%	71%	89%	75%	1498	88%	1697	100%	1181	86%	1711	70%	71%	4%	3%	91%	40%
Gujarat	Surat MC	356	9%	91%	69%	87%	67%	2609	89%	2923	100%	2277	96%	1510	27%	96%	8%	7%	91%	68%
Gujarat	Surendranagar	71	5%	90%	59%	87%	62%	1331	93%	1432	100%	975	87%	1101	55%	91%	4%	4%	100%	79%
Gujarat	The Dangs*	18	8%	90%	54%	89%	79%	157	83%	190	100%	122	84%	208	74%	78%	1%	1%	0%	0%
Gujarat	Vadodara	90	6%	92%	68%	87%	66%	1334	92%	1412	97%	1003	87%	1225	58%	69%	5%	4%	100%	30%
Gujarat	Vadodara Corp	89	6%	91%	64%	88%	62%	1179	85%	1331	96%	931	89%	485	23%	62%	8%	5%	88%	74%
Gujarat	Valsad*	96	7%	90%	67%	87%	67%	1086	87%	1240	99%	766	81%	1053	58%	73%	3%	2%	79%	71%
Gujarat	Vyara (Surat)	26	3%	94%	79%	89%	77%	803	91%	884	100%	637	83%	1017	78%	83%	3%	3%	60%	70%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Haryana	Ambala	12	10348	215	-6%	1206	9	0%	100	71	1513	126	48	21	25	31	24
Haryana	Bhiwani	17	7573	112	-11%	1435	5	-2%	85	81	1997	118	51	15	15	37	33
Haryana	Faridabad	15	9624	166	-26%	1197	8	0%	82	78	3060	211	51	53	61	46	29
Haryana	Fatehabad	10	6168	161	-8%	868	7	8%	91	79	1206	126	54	25	11	37	30
Haryana	Gurgaon	12	8365	178	-15%	1329	6	0%	113	96	2171	185	64	26	49	46	35
Haryana	Hisar	18	10763	148	2%	1935	6	5%	106	74	2069	113	50	18	10	35	28
Haryana	Jhajjar	11	4525	107	-5%	782	6	-4%	74	93	1741	165	60	28	35	42	35
Haryana	Jind	14	8541	151	0%	1277	7	1%	90	82	1808	128	52	19	18	39	33
Haryana	Kaithal**	11	5705	127	10%	834	7	6%	74	72	1284	114	49	17	19	30	27
Haryana	Karnal	15	9925	164	-4%	1476	7	0%	98	75	2321	153	52	44	23	34	26
Haryana	Kurukshetra	10	6695	170	-4%	933	7	12%	95	78	1271	129	55	18	25	31	26
Haryana	Mahendragarh	10	5461	142	-5%	684	8	18%	71	60	1158	120	36	27	18	38	25
Haryana	Mewat**	8	3047	96	-34%	642	5	1%	81	103	1428	180	59	33	23	66	49
Haryana	Palwal	11	5325	116	74%	777	7	-16%	68	68	1443	126	46	25	19	35	24
Haryana	Panchkula	6	6540	294	-3%	712	9	3%	128	84	933	168	61	26	45	36	26
Haryana	Panipat	11	6720	146	-13%	875	8	-1%	76	66	1963	171	49	60	23	39	20
Haryana	Rewari	9	6564	181	-14%	734	9	-5%	81	70	1351	149	48	33	30	38	25
Haryana	Rohtak	11	15951	357	-2%	2598	6	0%	233	103	2014	181	70	29	38	43	34
Haryana	Sirsa	13	8297	157	-3%	1264	7	4%	96	84	1619	123	55	14	17	38	32
Haryana	Sonipat	15	8821	145	-4%	1361	6	1%	90	91	2674	176	62	38	29	48	31
Haryana	Yamunanagar	12	6472	139	-15%	943	7	-9%	81	73	1565	134	56	22	25	31	24
Himachal Pradesh	Bilaspur-HP	4	3713	246	8%	463	8	6%	123	120	757	201	81	29	29	60	49
Himachal Pradesh	Chamba	5	4219	207	8%	564	7	21%	111	112	1155	227	75	46	42	63	43
Himachal Pradesh	Hamirpur-HP**	5	5695	312	4%	605	9	-9%	133	114	906	199	83	29	47	40	34
Himachal Pradesh	Kangra	15	12798	216	16%	1614	8	11%	109	88	2759	186	63	31	53	38	28
Himachal Pradesh	Kinnaur*	1	1039	279	5%	99	10	17%	107	124	216	232	91	25	56	59	37
Himachal Pradesh	Kullu	4	5117	304	2%	637	8	7%	151	139	1387	330	95	64	93	78	47
Himachal Pradesh	Lahul & Spiti*	0.4	444	302	8%	21	21	-32%	57	76	91	247	46	41	122	38	30
Himachal Pradesh	Mandi	10	9880	248	6%	1047	9	15%	105	117	2170	218	77	36	51	54	44
Himachal Pradesh	Shimla	8	9097	285	-6%	1240	7	-4%	155	101	1557	195	77	25	54	40	25
Himachal Pradesh	Sirmaur	5	4821	238	2%	605	8	2%	119	112	1146	226	78	45	46	57	37

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Haryana	Ambala	53	5%	93%	79%	88%	69%	780	90%	822	95%	561	78%	0	0%	55%	2%	1%	0%	0%
Haryana	Bhiwani	57	4%	89%	67%	85%	68%	1189	84%	1172	83%	814	71%	58	3%	59%	2%	1%	0%	0%
Haryana	Faridabad	256	11%	90%	75%	86%	70%	1069	92%	1094	94%	772	66%	55	2%	65%	2%	1%	0%	0%
Haryana	Fatehabad	37	4%	90%	83%	85%	75%	667	83%	738	92%	582	84%	372	31%	35%	1%	0%	0%	0%
Haryana	Gurgaon	156	10%	89%	65%	83%	63%	923	79%	1055	90%	764	91%	1024	47%	15%	2%	0%	0%	0%
Haryana	Hisar	61	4%	90%	79%	85%	72%	1284	91%	1301	92%	1000	87%	474	23%	61%	2%	1%	0%	0%
Haryana	Jhajjar	111	9%	91%	72%	84%	67%	971	97%	1004	100%	710	95%	292	17%	15%	3%	0%	0%	0%
Haryana	Jind	71	6%	91%	77%	86%	76%	1113	93%	1144	95%	879	87%	581	32%	41%	3%	1%	0%	0%
Haryana	Kaithal**	40	4%	85%	70%	83%	69%	746	88%	849	100%	539	87%	238	19%	36%	0%	0%	0%	0%
Haryana	Karnal	95	5%	89%	76%	88%	75%	1072	91%	1156	99%	946	99%	949	41%	57%	1%	1%	0%	0%
Haryana	Kurukshetra	44	5%	94%	77%	89%	70%	747	94%	791	99%	643	97%	473	37%	54%	1%	1%	50%	50%
Haryana	Mahendragarh	56	7%	89%	74%	84%	62%	519	88%	516	87%	424	79%	386	33%	4%	16%	1%	0%	0%
Haryana	Mewat**	76	8%	91%	54%	88%	53%	449	53%	540	63%	342	57%	239	17%	18%	2%	0%	0%	0%
Haryana	Palwal	79	8%	90%	82%	84%	80%	557	69%	575	71%	183	0%	0	0%	22%	0%	0%	0%	0%
Haryana	Panchkula	71	10%	90%	75%	84%	76%	440	91%	458	95%	427	93%	334	36%	63%	1%	0%	0%	0%
Haryana	Panipat	104	7%	91%	81%	86%	74%	669	85%	789	100%	520	74%	1019	52%	20%	1%	0%	0%	0%
Haryana	Rewari	55	5%	91%	77%	88%	72%	600	90%	618	93%	468	82%	637	47%	50%	1%	1%	0%	0%
Haryana	Rohtak	114	7%	90%	72%	86%	76%	1028	89%	1077	93%	764	75%	88	4%	25%	3%	1%	0%	0%
Haryana	Sirsa	62	6%	87%	64%	79%	63%	1027	89%	1084	94%	662	73%	358	22%	44%	2%	1%	0%	0%
Haryana	Sonipat	89	5%	91%	84%	86%	79%	1270	89%	1415	100%	1068	93%	444	17%	77%	1%	1%	0%	0%
Haryana	Yamunanagar	43	4%	88%	64%	83%	65%	809	87%	893	96%	550	83%	1069	68%	60%	1%	1%	0%	0%
Himachal Pradesh	Bilaspur-HP	17	3%	92%	79%	85%	71%	468	96%	487	100%	290	79%	9	1%	37%	2%	1%	0%	100%
Himachal Pradesh	Chamba	37	4%	93%	81%	87%	79%	598	99%	604	100%	449	88%	9	1%	13%	1%	0%	0%	0%
Himachal Pradesh	Hamirpur-HP**	24	3%	94%	74%	92%	77%	512	96%	526	99%	364	96%	87	10%	20%	1%	0%	0%	0%
Himachal Pradesh	Kangra	151	7%	93%	80%	88%	79%	1294	97%	1329	99%	1039	96%	597	22%	18%	3%	0%	0%	0%
Himachal Pradesh	Kinnaur*	10	6%	87%	57%	82%	92%	104	87%	112	94%	73	88%	12	6%	5%	0%	0%	0%	0%
Himachal Pradesh	Kullu	100	9%	95%	87%	87%	81%	563	94%	590	99%	476	90%	43	3%	0%	100%	0%	0%	0%
Himachal Pradesh	Lahul & Spiti*	3	4%	92%	80%	90%	0%	27	96%	25	89%	13	76%	0	0%	0%	0%	0%	0%	0%
Himachal Pradesh	Mandi	55	3%	93%	79%	90%	75%	1158	95%	1179	97%	932	95%	188	9%	1%	0%	0%	0%	0%
Himachal Pradesh	Shimla	54	4%	93%	85%	91%	82%	766	94%	732	90%	490	72%	88	6%	18%	1%	0%	0%	0%
Himachal Pradesh	Sirmaur	47	5%	92%	84%	88%	75%	563	97%	562	96%	388	89%	349	30%	3%	0%	0%	0%	0%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Himachal Pradesh	Solan	6	8229	372	2%	918	9	2%	166	108	1289	233	86	58	47	43	24
Himachal Pradesh	Una	5	4081	206	11%	472	9	7%	95	97	746	150	76	20	25	29	25
Jammu & Kashmir	Anantnag	13	9148	170	4%	797	11	-15%	59	59	1026	76	53	5	10	8	7
Jammu & Kashmir	Badgam	7	5579	204	13%	473	12	-11%	69	72	588	86	69	2	10	5	4
Jammu & Kashmir	Baramula	13	8259	154	13%	628	13	-2%	47	45	805	60	39	5	9	7	6
Jammu & Kashmir	Doda	8	5061	160	14%	494	10	-1%	62	61	1002	126	44	23	37	22	19
Jammu & Kashmir	Jammu	18	16200	224	21%	2130	8	4%	118	93	3174	176	63	33	39	40	32
Jammu & Kashmir	Kargil*	1	1014	192	-5%	54	19	-41%	41	35	147	111	30	45	26	10	5
Jammu & Kashmir	Kathua	6	4139	166	-3%	591	7	-9%	95	87	1006	161	56	32	30	42	33
Jammu & Kashmir	Kupwara	7	5594	190	-6%	494	11	-19%	67	76	687	93	72	5	12	5	4
Jammu & Kashmir	Leh (Ladakh)*	1	1213	224	-17%	63	19	-21%	47	46	194	144	34	27	67	16	13
Jammu & Kashmir	Poonch	4	2634	154	23%	256	10	4%	60	58	551	129	49	27	36	17	11
Jammu & Kashmir	Pulwama	7	5072	175	15%	471	11	-5%	65	70	725	100	67	13	15	5	4
Jammu & Kashmir	Rajouri	5	4091	186	8%	382	11	-12%	69	69	814	148	49	30	44	25	21
Jammu & Kashmir	Srinagar	14	12410	218	29%	1106	11	-4%	78	72	1476	104	68	7	24	6	5
Jammu & Kashmir	Udhampur	8	6666	196	17%	734	9	-2%	86	88	1287	152	60	20	37	35	29
Jharkhand	Bokaro	20	12307	150	14%	1524	8	3%	74	71	2889	141	61	40	15	25	12
Jharkhand	Chatra**	9	3328	91	19%	586	6	9%	64	61	1021	112	57	40	4	12	5
Jharkhand	Deoghar**	13	7760	145	6%	986	8	3%	74	67	1273	95	57	19	5	14	10
Jharkhand	Dhanbad	28	13858	125	1%	1903	7	9%	69	63	3166	115	54	30	11	20	10
Jharkhand	Dumka**	13	6876	135	8%	1130	6	-11%	89	80	2418	190	68	82	4	36	12
Jharkhand	Garhwa	12	5486	115	-3%	852	6	-5%	71	65	1920	161	56	71	5	29	9
Jharkhand	Giridih**	22	8992	102	-5%	1472	6	-4%	67	62	1980	90	51	19	5	15	12
Jharkhand	Godda**	12	4437	92	21%	570	8	40%	47	46	1246	103	40	43	4	16	7
Jharkhand	Gumla†	10	3502	92	-13%	578	6	1%	61	57	825	87	52	17	5	11	6
Jharkhand	Hazaribagh**	17	8367	127	18%	994	8	10%	60	58	2064	125	51	43	14	18	9
Jharkhand	Jamtara**	8	3673	122	-1%	562	7	0%	75	72	947	126	62	26	3	34	10
Jharkhand	Khunti†	6	1871	79		363	5		62	58	541	92	53	18	10	10	5
Jharkhand	Kodarma**	6	2391	104	-7%	326	7	1%	57	48	448	78	42	13	5	17	7
Jharkhand	Lathehar**	7	4188	156	17%	529	8	6%	79	79	883	132	67	37	8	19	13
Jharkhand	Lohardaga*	4	1482	88	-16%	261	6	-17%	62	56	490	117	51	25	27	13	7

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Himachal Pradesh	Solan	72	7%	89%	80%	89%	78%	601	99%	610	100%	495	97%	167	13%	0%	0%	0%	0%	0%
Himachal Pradesh	Una	14	2%	90%	66%	92%	78%	489	98%	498	100%	371	99%	185	25%	0%	0%	0%	0%	0%
Jammu & Kashmir	Anantnag	78	9%	93%	83%	89%	85%	511	63%	511	63%	575	92%	104	10%	1%	13%	0%	NA	NA
Jammu & Kashmir	Badgam	20	4%	91%	86%	88%	58%	495	100%	497	100%	384	99%	116	20%	1%	0%	0%	NA	NA
Jammu & Kashmir	Baramula	48	7%	98%	93%	94%	94%	588	98%	597	100%	524	98%	94	12%	15%	0%	0%	NA	NA
Jammu & Kashmir	Doda	76	9%	94%	77%	93%	83%	495	100%	495	100%	397	100%	0	0%	0%	NA	0%	NA	NA
Jammu & Kashmir	Jammu	123	5%	92%	85%	91%	82%	1714	99%	1723	100%	1334	98%	439	14%	3%	15%	0%	0%	17%
Jammu & Kashmir	Kargil*	12	9%	100%	80%	92%	0%	47	100%	47	100%	40	95%	5	3%	0%	NA	0%	NA	NA
Jammu & Kashmir	Kathua	15	2%	91%	68%	87%	76%	526	94%	552	99%	389	84%	0	0%	0%	0%	0%	NA	NA
Jammu & Kashmir	Kupwara	33	5%	93%	84%	92%	92%	560	100%	560	100%	497	100%	6	1%	10%	0%	0%	0%	0%
Jammu & Kashmir	Leh (Ladakh)*	6	3%	89%	76%	68%	71%	64	100%	64	100%	44	98%	15	8%	2%	0%	0%	NA	NA
Jammu & Kashmir	Poonch	20	4%	90%	76%	83%	80%	254	100%	249	98%	152	82%	0	0%	0%	NA	0%	NA	NA
Jammu & Kashmir	Pulwama	39	6%	97%	84%	94%	88%	514	100%	514	100%	437	100%	117	16%	1%	0%	0%	NA	NA
Jammu & Kashmir	Rajouri	53	8%	90%	84%	87%	87%	341	89%	331	87%	76	29%	0	0%	0%	NA	0%	NA	NA
Jammu & Kashmir	Srinagar	84	6%	94%	68%	93%	82%	1028	100%	1028	100%	791	100%	19	1%	4%	0%	0%	NA	NA
Jammu & Kashmir	Udhampur	42	4%	92%	82%	91%	79%	713	94%	749	99%	512	92%	23	2%	0%	20%	0%	NA	NA
Jharkhand	Bokaro	132	6%	91%	79%	88%	71%	1391	93%	1492	100%	922	82%	2284	79%	11%	3%	0%	NA	NA
Jharkhand	Chatra**	30	3%	87%	70%	87%	67%	504	89%	569	100%	279	76%	919	90%	0%	NA	0%	NA	NA
Jharkhand	Deoghar**	26	2%	97%	89%	96%	84%	674	75%	799	89%	583	74%	852	67%	18%	1%	0%	NA	NA
Jharkhand	Dhanbad	196	8%	92%	80%	89%	80%	1500	85%	1683	96%	1211	76%	1440	45%	16%	1%	0%	0%	50%
Jharkhand	Dumka**	47	2%	91%	74%	92%	87%	750	73%	1025	100%	525	68%	2344	97%	14%	0%	0%	NA	NA
Jharkhand	Garhwa	129	8%	96%	84%	95%	86%	616	79%	779	100%	425	65%	1470	77%	7%	0%	0%	NA	NA
Jharkhand	Giridih**	97	6%	91%	81%	94%	88%	1173	85%	1382	100%	858	75%	1462	74%	7%	14%	1%	27%	73%
Jharkhand	Godda**	55	5%	95%	89%	90%	89%	502	90%	543	97%	347	72%	648	52%	10%	2%	0%	0%	50%
Jharkhand	Gumla†	37	5%	91%	77%	92%	77%	371	68%	545	100%	326	70%	478	58%	0%	NA	0%	NA	NA
Jharkhand	Hazaribagh**	201	11%	82%	66%	86%	76%	857	88%	923	94%	456	43%	1585	77%	13%	35%	5%	8%	92%
Jharkhand	Jamtara**	18	3%	94%	83%	92%	79%	494	91%	543	100%	378	83%	515	54%	23%	0%	0%	NA	NA
Jharkhand	Khunti†	25	5%	94%	79%			311	90%	327	95%	198	63%	118	22%	4%	5%	0%	NA	NA
Jharkhand	Kodarma**	13	4%	93%	66%	82%	71%	260	92%	282	100%	179	80%	328	73%	49%	2%	1%	NA	NA
Jharkhand	Lathehar**	64	8%	92%	91%	90%	77%	438	82%	516	96%	255	64%	39	4%	7%	2%	0%	0%	0%
Jharkhand	Lohardaga*	39	9%	84%	57%	83%	68%	175	71%	221	90%	127	72%	490	100%	0%	NA	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Jharkhand	Pakaur**	8	4438	137	14%	835	5	-3%	103	98	1226	151	84	33	3	30	14
Jharkhand	Palamu**	17	11124	160	-2%	1472	8	5%	84	78	2800	161	68	63	13	17	11
Jharkhand	Pashchimi Singhbhum*	15	6009	100	11%	1277	5	-1%	85	80	2468	164	74	67	8	15	7
Jharkhand	Purbi Singhbhum†	23	9911	109	-4%	2032	5	-5%	89	76	3129	137	63	34	12	28	14
Jharkhand	Ramgarh**	10	3737	96		556	7		57	51	1003	103	43	38	7	16	10
Jharkhand	Ranchi†	26	14252	136	9%	2164	7	-2%	83	63	3298	126	53	33	18	21	11
Jharkhand	Sahibganj**	11	4921	115	1%	675	7	-11%	63	59	1568	147	50	65	4	28	10
Jharkhand	Saraikela-Kharsawan**	9	5299	148	14%	660	8	7%	74	74	1271	142	68	52	7	15	6
Jharkhand	Simdega**	6	2674	111	5%	453	6	0%	75	72	591	98	59	18	5	16	14
Karnataka	Bagalkot	18	14000	190	2%	1237	11	8%	67	57	2071	112	45	36	12	20	14
Karnataka	Bangalore City	47	48868	263	6%	6215	8	1%	134	67	6551	141	46	24	39	32	23
Karnataka	Bangalore Rural	9	7831	213	-1%	562	14	5%	61	59	1182	128	48	30	31	19	14
Karnataka	Bangalore Urban	26	17788	170	14%	1511	12	9%	58	74	4123	157	56	26	45	30	21
Karnataka	Belgaum	47	30348	162	1%	2693	11	-6%	57	54	5051	108	46	30	15	17	9
Karnataka	Bellary	23	16854	187	7%	2251	7	9%	100	68	2831	125	50	29	22	25	20
Karnataka	Bidar**	17	14469	216	40%	1131	13	26%	68	59	1878	112	41	28	13	30	21
Karnataka	Bijapur	20	15733	195	36%	1102	14	32%	55	46	2110	105	37	41	9	18	11
Karnataka	Chamarajanagar	11	10238	238	21%	764	13	19%	71	76	1453	135	56	24	26	29	24
Karnataka	Chikkaballapur	13	9192	181	8%	846	11	4%	67	66	1574	124	53	23	27	22	16
Karnataka	Chikmagalur	13	11614	229	11%	677	17	7%	53	46	1040	82	36	13	18	15	12
Karnataka	Chitradurga	17	11716	174	4%	1257	9	12%	75	71	2369	141	59	34	23	25	14
Karnataka	Dakshina Kannada	21	20072	237	14%	1313	15	28%	62	49	1931	91	36	14	18	23	16
Karnataka	Davanagere	20	17102	214	8%	1529	11	18%	77	57	2222	111	43	25	19	24	16
Karnataka	Dharwad	18	14552	203	27%	1500	10	18%	84	60	1914	107	48	14	26	19	14
Karnataka	Gadag	11	9547	220	11%	782	12	12%	72	65	1116	103	52	19	14	18	14
Karnataka	Gulbarga**	24	18652	194	43%	1805	10	22%	75	60	2577	107	40	20	15	32	23
Karnataka	Hassan	19	19633	256	14%	1119	18	18%	58	54	1772	92	42	17	16	18	14

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Jharkhand	Pakaur**	20	2%	92%	87%	89%	76%	555	70%	798	100%	269	48%	992	81%	7%	0%	0%	NA	NA
Jharkhand	Palamu**	178	7%	95%	80%	94%	78%	928	68%	1001	73%	871	68%	397	14%	11%	3%	0%	0%	69%
Jharkhand	Pashchimi Singhbhum*	58	3%	94%	87%	88%	74%	893	73%	1211	100%	454	50%	1460	59%	6%	1%	0%	NA	NA
Jharkhand	Purbi Singhbhum†	87	3%	92%	79%	88%	72%	1568	89%	1747	99%	1257	89%	1092	35%	2%	18%	0%	0%	80%
Jharkhand	Ramgarh**	37	4%	60%	51%			280	55%	396	78%	0	0%	312	31%	0%	NA	0%	NA	NA
Jharkhand	Ranchi†	217	8%	94%	72%	88%	60%	1560	92%	1677	99%	1166	70%	1099	33%	18%	3%	0%	NA	NA
Jharkhand	Sahibganj**	56	4%	91%	89%	92%	96%	499	79%	624	99%	126	30%	560	36%	27%	3%	1%	NA	NA
Jharkhand	Saraikela-Kharsawan**	43	4%	94%	83%	92%	93%	549	82%	667	100%	357	68%	798	63%	16%	0%	0%	NA	NA
Jharkhand	Simdega**	20	4%	85%	57%	83%	59%	353	81%	432	99%	191	57%	511	86%	7%	0%	0%	NA	NA
Karnataka	Bagalkot	93	5%	84%	66%	75%	58%	840	78%	1025	95%	603	79%	321	15%	93%	48%	44%	100%	67%
Karnataka	Bangalore City	427	8%	88%	55%	82%	51%	2743	87%	3153	99%	1836	89%	1433	22%	77%	8%	6%	99%	64%
Karnataka	Bangalore Rural	56	6%	87%	58%	83%	54%	501	88%	552	97%	384	87%	580	49%	87%	7%	6%	100%	74%
Karnataka	Bangalore Urban	259	8%	88%	66%	83%	60%	1643	82%	1973	98%	1106	76%	3041	74%	77%	14%	11%	100%	57%
Karnataka	Belgaum	706	17%	90%	77%	86%	74%	2295	90%	2536	99%	1504	77%	1694	34%	75%	26%	19%	98%	54%
Karnataka	Bellary	201	9%	87%	67%	79%	57%	1246	79%	1388	88%	843	73%	1190	42%	83%	10%	9%	99%	58%
Karnataka	Bidar**	60	4%	84%	57%	75%	54%	897	86%	950	91%	401	73%	556	30%	85%	9%	8%	100%	53%
Karnataka	Bijapur	125	7%	78%	59%	67%	42%	685	71%	790	82%	162	44%	453	21%	90%	32%	29%	70%	34%
Karnataka	Chamarajanagar	53	5%	88%	67%	82%	49%	754	88%	829	97%	492	85%	711	49%	92%	9%	9%	94%	77%
Karnataka	Chikkaballapur	66	5%	90%	63%	83%	58%	634	73%	858	99%	368	55%	787	50%	75%	6%	4%	98%	63%
Karnataka	Chikmagalur	54	6%	87%	53%	84%	50%	538	89%	598	99%	284	71%	161	15%	92%	10%	9%	99%	76%
Karnataka	Chitradurga	52	3%	88%	66%	84%	56%	1018	83%	1152	94%	726	76%	444	19%	80%	10%	8%	99%	42%
Karnataka	Dakshina Kannada	74	5%	86%	65%	82%	55%	991	91%	1011	93%	619	74%	992	51%	90%	10%	9%	99%	74%
Karnataka	Davanagere	86	5%	88%	65%	80%	63%	1013	87%	1100	94%	674	77%	1125	51%	81%	15%	12%	98%	72%
Karnataka	Dharwad	98	6%	85%	66%	81%	62%	986	89%	1099	99%	490	72%	653	34%	81%	19%	15%	94%	46%
Karnataka	Gadag	41	4%	89%	62%	83%	51%	608	85%	711	100%	383	76%	130	12%	82%	18%	15%	99%	47%
Karnataka	Gulbarga**	128	7%	84%	54%	74%	50%	1129	75%	1353	90%	589	49%	893	35%	83%	14%	11%	98%	49%
Karnataka	Hassan	63	4%	90%	71%	82%	61%	948	89%	1001	94%	663	86%	803	45%	84%	11%	10%	100%	75%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Karnataka	Haveri	16	12447	194	12%	1013	12	9%	63	59	1901	119	46	30	20	23	15
Karnataka	Kodagu	6	4729	194	-7%	289	16	-6%	48	41	408	67	32	7	15	13	10
Karnataka	Kolar	15	12732	206	5%	1086	12	11%	70	54	1568	101	44	19	23	15	11
Karnataka	Koppal	13	7922	149	-7%	1114	7	6%	84	75	1641	123	58	26	12	27	20
Karnataka	Mandya	20	19070	243	-7%	1303	15	-4%	66	61	2064	105	46	14	23	23	17
Karnataka	Mysore	29	33771	288	8%	3205	11	0%	109	67	4017	137	49	29	32	28	20
Karnataka	Raichur	18	14818	202	11%	1930	8	23%	105	84	2801	152	62	40	12	38	25
Karnataka	Ramanagara	12	8840	188	15%	709	12	5%	60	67	1439	123	52	20	25	25	18
Karnataka	Shimoga	18	13977	191	2%	1149	12	1%	63	57	1862	102	46	24	17	14	11
Karnataka	Tumkur	29	24763	215	16%	2247	11	12%	78	66	3660	127	54	25	27	21	15
Karnataka	Udupi	12	11125	225	-3%	792	14	-3%	64	46	982	79	38	10	16	16	11
Karnataka	Uttara Kannada	15	12162	201	-2%	653	19	-2%	43	40	1338	89	32	25	14	18	10
Karnataka	Yadgiri**	11	4512	104		573	8		53	54	1209	111	40	33	11	28	15
Kerala	Alappuzha	23	22878	252	1%	929	25	3%	41	41	1929	85	36	23	16	10	7
Kerala	Ernakulam	33	31418	235	6%	1766	18	3%	53	41	2758	83	35	22	13	13	9
Kerala	Idukki	12	16636	342	-8%	346	48	0%	28	27	685	56	25	10	16	5	4
Kerala	Kannur	26	25962	250	16%	926	28	34%	36	29	1686	65	25	13	20	7	5
Kerala	Kasaragod	13	9965	192	3%	485	21	10%	37	38	909	70	31	11	16	13	9
Kerala	Kollam	28	24166	217	24%	1262	19	20%	45	42	2270	82	37	21	14	9	7
Kerala	Kottayam	21	27219	323	8%	1141	24	14%	54	46	1802	86	40	13	22	10	7
Kerala	Kozhikode	31	28595	230	11%	1121	26	30%	36	28	2426	78	25	22	25	7	5
Kerala	Malappuram	39	36628	234	36%	1246	29	25%	32	29	2836	72	25	23	16	8	6
Kerala	Palakkad	28	22681	201	15%	1391	16	14%	49	44	2285	81	38	15	18	10	8
Kerala	Pathanamthitta	13	10558	199	11%	662	16	7%	50	44	1096	83	38	14	20	10	7
Kerala	Thiruvananthapuram	35	44918	322	10%	1721	26	14%	49	37	2524	72	32	14	15	10	7
Kerala	Thrissur	32	32797	256	21%	1712	19	24%	53	38	2309	72	32	13	17	10	7
Kerala	Wayanad	8	7622	225	2%	332	23	0%	39	36	740	87	33	28	19	8	7
Lakshadweep	Lakshadweep*	0.8	395	132	65%	9	44	57%	12	12	13	17	12	4	0	1	1
Madhya Pradesh	Alirajpur†	7	598	23		125	5		19	20	164	25	16	3	1	5	4
Madhya Pradesh	Anuppur	9	710	21		83	9		10	10	158	18	9	8	1	1	1

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Karnataka	Haveri	157	10%	84%	72%	80%	69%	669	68%	950	97%	517	74%	1000	53%	80%	11%	9%	94%	55%
Karnataka	Kodagu	17	5%	88%	61%	89%	78%	218	86%	250	98%	196	94%	241	59%	92%	7%	6%	100%	72%
Karnataka	Kolar	97	7%	88%	67%	85%	65%	738	87%	835	98%	534	78%	921	59%	90%	11%	10%	98%	78%
Karnataka	Koppal	97	8%	89%	58%	85%	62%	812	78%	1029	98%	636	75%	894	54%	92%	16%	14%	96%	40%
Karnataka	Mandya	96	6%	90%	60%	85%	56%	1042	84%	1180	95%	869	89%	1183	57%	80%	13%	10%	100%	64%
Karnataka	Mysore	266	8%	84%	54%	81%	51%	1866	92%	1954	96%	1121	78%	1206	30%	81%	16%	13%	100%	73%
Karnataka	Raichur	173	8%	87%	57%	83%	52%	1226	77%	1328	84%	891	75%	2351	84%	86%	16%	14%	99%	36%
Karnataka	Ramanagara	63	6%	87%	66%	81%	56%	665	81%	747	91%	441	86%	859	60%	74%	6%	5%	98%	71%
Karnataka	Shimoga	108	7%	90%	78%	84%	67%	941	90%	1024	98%	655	83%	20	1.1%	82%	10%	8%	100%	31%
Karnataka	Tumkur	189	6%	85%	58%	82%	59%	1713	87%	1922	97%	1192	89%	2415	66%	84%	15%	13%	100%	58%
Karnataka	Udupi	65	8%	83%	62%	83%	62%	564	94%	591	99%	454	94%	599	61%	95%	16%	16%	100%	86%
Karnataka	Uttara Kannada	74	7%	84%	60%	81%	56%	549	88%	615	98%	360	77%	651	49%	81%	16%	13%	96%	68%
Karnataka	Yadgiri**	54	6%	80%	50%			407	68%	520	87%	217	63%	671	56%	83%	14%	11%	0%	0%
Kerala	Alappuzha	333	19%	81%	67%	84%	67%	906	92%	943	96%	593	78%	1486	77%	44%	3%	1%	30%	80%
Kerala	Ernakulam	335	14%	83%	64%	82%	59%	1246	85%	1290	88%	944	82%	1635	59%	7%	3%	0%	0%	100%
Kerala	Idukki	62	10%	82%	71%	84%	73%	316	91%	343	99%	275	82%	503	73%	40%	17%	7%	0%	0%
Kerala	Kannur	237	16%	86%	70%	84%	68%	697	89%	733	94%	627	88%	917	54%	25%	4%	1%	0%	100%
Kerala	Kasaragod	52	7%	84%	65%	81%	52%	463	89%	495	95%	311	78%	644	71%	39%	4%	2%	0%	0%
Kerala	Kollam	234	12%	86%	63%	86%	73%	1114	92%	1208	99%	855	83%	978	43%	22%	2%	0%	100%	100%
Kerala	Kottayam	188	12%	84%	66%	85%	72%	897	89%	847	84%	669	79%	779	43%	49%	2%	1%	44%	72%
Kerala	Kozhikode	511	23%	81%	67%	85%	66%	776	85%	844	92%	795	86%	1616	67%	1%	0%	0%	0%	0%
Kerala	Malappuram	605	24%	84%	67%	85%	72%	943	78%	1075	89%	718	78%	2012	71%	32%	2%	1%	0%	100%
Kerala	Palakkad	185	9%	84%	72%	85%	70%	1084	83%	1104	85%	860	80%	1417	62%	35%	3%	1%	50%	50%
Kerala	Pathanamthitta	108	11%	84%	59%	83%	61%	554	92%	580	96%	340	73%	474	43%	47%	2%	1%	100%	100%
Kerala	Thiruvananthapuram	252	12%	82%	69%	81%	61%	1217	88%	1314	95%	979	81%	1543	61%	10%	9%	1%	63%	100%
Kerala	Thrissur	285	14%	86%	69%	86%	67%	1120	90%	1090	87%	861	80%	1658	72%	5%	3%	0%	0%	0%
Kerala	Wayanad	191	28%	86%	72%	85%	81%	294	89%	321	97%	237	85%	508	69%	40%	0%	0%	0%	0%
Lakshadweep	Lakshadweep*	0	0%	86%	NA	0%	NA	10	100%	10	100%	8	0%	0	0%	0%	NA	0%	NA	NA
Madhya Pradesh	Alirajpur†	2	1%					114	86%	131	99%	54	NA	58	35%	12%	0%	0%	NA	NA
Madhya Pradesh	Anuppur	11	7%					71	87%	82	100%	29	NA	45	28%	30%	0%	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

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Madhya Pradesh	Ashoknagar	10	699	18		98	7		10	10	218	23	8	9	3	3	1
Madhya Pradesh	Balaghat**	17	3466	51	3%	808	4	-2%	47	47	1244	73	41	14	7	10	7
Madhya Pradesh	Barwani †	13	7428	146	30%	894	8	11%	70	58	1130	89	45	18	8	18	15
Madhya Pradesh	Betul**	16	8440	129	12%	621	14	35%	38	31	1021	62	26	18	10	8	6
Madhya Pradesh	Bhind	17	6880	102	-2%	751	9	14%	45	38	1680	100	28	46	9	17	12
Madhya Pradesh	Bhopal	22	21530	249	-6%	3242	7	-11%	150	90	4468	207	63	61	31	52	29
Madhya Pradesh	Burhanpur**	7	2162	74		297	7		41	39	547	75	31	27	7	10	9
Madhya Pradesh	Chhatarpur**	17	16849	243	64%	2452	7	21%	141	94	2411	139	77	34	5	23	20
Madhya Pradesh	Chhindwara**	22	8438	97	23%	1189	7	21%	55	48	1853	85	35	23	11	17	15
Madhya Pradesh	Damoh**	13	6191	122	-7%	1206	5	-1%	95	86	1931	152	61	38	16	36	28
Madhya Pradesh	Datia	7	2935	99	-15%	630	5	-2%	85	75	1129	153	48	48	13	45	29
Madhya Pradesh	Dewas	15	6474	105	14%	791	8	-4%	51	50	1535	100	46	32	13	8	5
Madhya Pradesh	Dhar†	20	11662	142	22%	1403	8	6%	69	63	2415	118	52	39	10	17	13
Madhya Pradesh	Dindori†	7	3307	121	14%	335	10	4%	49	46	638	94	38	29	12	14	10
Madhya Pradesh	Guna	10	6868	171	79%	1114	6	-8%	111	98	1946	194	80	67	18	28	20
Madhya Pradesh	Gwalior	19	14738	192	-3%	2249	7	10%	117	83	2882	150	55	27	28	40	30
Madhya Pradesh	Harda**	6	2667	120	35%	270	10	21%	48	44	479	86	31	24	15	16	15
Madhya Pradesh	Hoshangabad**	13	8306	163	8%	1098	8	1%	86	80	2168	170	64	65	15	25	19
Madhya Pradesh	Indore	30	26478	218	6%	3181	8	4%	105	80	4494	148	60	26	30	32	22
Madhya Pradesh	Jabalpur	26	13672	134	42%	2322	6	25%	91	75	3630	142	55	27	25	34	22
Madhya Pradesh	Jhabua†	10	6996	177	70%	1173	6	-13%	119	111	1913	194	93	61	12	28	20
Madhya Pradesh	Katni	13	4476	89	4%	1024	4	6%	82	70	1952	156	59	74	8	15	15
Madhya Pradesh	Khandwa**	13	6504	127	32%	1024	6	2%	80	74	1803	141	63	53	10	15	11
Madhya Pradesh	Khargone**	18	10069	140	40%	1414	7	5%	79	70	2691	149	58	55	20	16	14
Madhya Pradesh	Mandla†	11	4594	109	13%	932	5	4%	89	81	1459	139	70	40	15	14	11
Madhya Pradesh	Mandsaur	14	7514	135	23%	1142	7	13%	82	78	2052	147	53	48	13	33	27
Madhya Pradesh	Morena	19	7270	97	8%	1058	7	17%	57	49	1831	98	28	22	13	36	23
Madhya Pradesh	Narsinghpur**	11	5696	126	18%	627	9	11%	56	52	1350	120	41	36	23	20	13
Madhya Pradesh	Neemuch	9	5634	165	-4%	694	8	-13%	81	82	1332	156	61	47	18	31	22
Madhya Pradesh	Panna**	10	2616	65	9%	785	3	0%	78	71	1080	107	53	15	7	33	19

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Madhya Pradesh	Ashoknagar	4	2%					75	82%	92	100%	58	NA	160	73%	0%	NA	0%	NA	NA
Madhya Pradesh	Balaghat**	69	6%	92%	79%	89%	69%	663	81%	805	98%	430	65%	777	62%	21%	1%	0%	NA	NA
Madhya Pradesh	Barwani †	37	4%	89%	74%	86%	59%	671	89%	751	100%	286	63%	612	54%	0%	0%	0%	NA	NA
Madhya Pradesh	Betul**	87	10%	91%	74%	87%	75%	474	89%	533	100%	405	85%	108	11%	0%	NA	0%	NA	NA
Madhya Pradesh	Bhind	109	8%	88%	72%	84%	61%	590	89%	627	94%	369	74%	1044	62%	0%	25%	0%	NA	NA
Madhya Pradesh	Bhopal	321	10%	82%	54%	77%	49%	1689	85%	1861	94%	1081	91%	1333	30%	3%	0%	0%	NA	NA
Madhya Pradesh	Burhanpur**	21	4%	90%	86%			240	83%	250	87%	139	NA	269	49%	0%	NA	0%	NA	NA
Madhya Pradesh	Chhatarpur**	31	2%	96%	67%	91%	70%	1606	95%	1525	91%	946	94%	1846	77%	1%	0%	0%	NA	NA
Madhya Pradesh	Chhindwara**	73	5%	90%	66%	86%	69%	934	87%	1021	96%	472	63%	1003	54%	0%	25%	0%	NA	NA
Madhya Pradesh	Damoh**	89	6%	86%	59%	88%	73%	1022	90%	1123	99%	666	78%	648	34%	0%	NA	0%	NA	NA
Madhya Pradesh	Datia	115	14%	91%	54%	89%	65%	523	93%	553	98%	232	52%	595	53%	29%	0%	0%	NA	NA
Madhya Pradesh	Dewas	147	10%	91%	72%	86%	57%	711	90%	780	99%	400	75%	714	47%	20%	3%	1%	NA	NA
Madhya Pradesh	Dhar†	24	1%	92%	74%	91%	75%	1153	86%	1314	98%	713	75%	662	27%	0%	NA	0%	NA	NA
Madhya Pradesh	Dindori†	66	12%	92%	73%	84%	68%	272	83%	323	99%	87	36%	518	81%	7%	0%	0%	NA	NA
Madhya Pradesh	Guna	56	3%	91%	69%	89%	80%	899	89%	995	99%	596	78%	1037	53%	0%	NA	0%	NA	NA
Madhya Pradesh	Gwalior	343	16%	93%	61%	89%	59%	1473	90%	1636	100%	1143	91%	1383	48%	4%	2%	0%	NA	NA
Madhya Pradesh	Harda**	23	6%	89%	38%	81%	47%	200	78%	252	99%	67	43%	285	59%	46%	0%	0%	NA	NA
Madhya Pradesh	Hoshangabad**	221	12%	94%	83%	92%	79%	934	89%	1052	100%	773	92%	1285	59%	5%	0%	0%	NA	NA
Madhya Pradesh	Indore	567	16%	95%	86%	90%	79%	2398	97%	2474	100%	1972	95%	2416	54%	23%	2%	0%	NA	NA
Madhya Pradesh	Jabalpur	324	12%	90%	55%	84%	60%	1601	81%	1882	95%	838	67%	2258	62%	3%	10%	0%	64%	18%
Madhya Pradesh	Jhabua†	93	6%	97%	91%	92%	81%	1016	91%	1072	96%	559	66%	706	37%	0%	NA	0%	NA	NA
Madhya Pradesh	Katni	123	7%	89%	76%	88%	83%	736	80%	899	98%	574	73%	1628	83%	4%	0%	0%	NA	NA
Madhya Pradesh	Khandwa**	149	9%	91%	78%	89%	72%	825	87%	928	97%	573	61%	1216	67%	0%	NA	0%	NA	NA
Madhya Pradesh	Khargone**	325	14%	91%	82%	86%	78%	1143	88%	1286	99%	673	83%	911	34%	0%	NA	0%	NA	NA
Madhya Pradesh	Mandla†	108	8%	93%	79%	91%	78%	722	85%	811	95%	478	70%	894	61%	14%	3%	0%	0%	100%
Madhya Pradesh	Mandsaur	152	10%	88%	70%	92%	82%	991	89%	1113	100%	617	80%	682	33%	9%	2%	0%	NA	NA
Madhya Pradesh	Morena	145	12%	90%	61%	85%	54%	760	80%	891	94%	395	60%	1493	82%	3%	0%	0%	NA	NA
Madhya Pradesh	Narsinghpur**	120	11%	90%	62%	88%	72%	443	74%	583	97%	295	63%	1009	75%	5%	0%	0%	NA	NA
Madhya Pradesh	Neemuch	53	5%	91%	79%	91%	82%	647	91%	695	98%	435	79%	664	50%	0%	NA	0%	NA	NA
Madhya Pradesh	Panna**	40	5%	89%	53%	86%	69%	577	79%	646	89%	344	74%	6	1%	0%	NA	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Madhya Pradesh	Raisen**	13	3871	73	30%	472	8	35%	36	39	1312	100	28	42	6	23	11
Madhya Pradesh	Rajgarh	15	5831	99	40%	795	7	28%	54	44	1801	122	34	47	8	32	10
Madhya Pradesh	Ratlam	14	5823	102	20%	1060	5	-5%	74	58	1889	132	38	46	14	34	21
Madhya Pradesh	Rewa	23	10761	116	-6%	1472	7	-8%	63	57	3376	145	47	49	27	23	11
Madhya Pradesh	Sagar**	24	10315	108	10%	1971	5	-2%	83	74	2887	121	55	35	9	22	20
Madhya Pradesh	Satna	22	7873	90	14%	1545	5	1%	70	63	3392	154	57	63	16	19	8
Madhya Pradesh	Sehore**	13	4529	89	10%	542	8	-10%	43	39	1175	93	33	40	7	13	6
Madhya Pradesh	Seoni**	14	4942	90	94%	634	8	76%	46	44	1074	78	34	17	10	18	12
Madhya Pradesh	Shahdol	10	6091	154	79%	980	6	-1%	99	86	1721	174	76	59	14	23	11
Madhya Pradesh	Shajapur	15	5749	95	13%	1197	5	-20%	79	77	1576	104	57	11	11	25	21
Madhya Pradesh	Sheopur	7	3272	124	10%	791	4	10%	120	100	948	144	77	23	10	34	25
Madhya Pradesh	Shivpuri	17	8489	125	20%	1336	6	4%	79	76	2415	142	65	56	2	19	12
Madhya Pradesh	Sidhi	11	8698	191	80%	1100	8	0%	97	87	2142	188	73	52	24	39	17
Madhya Pradesh	Singrauli	10	1021	25		110	9		11	11	226	22	9	6	3	4	2
Madhya Pradesh	Tikamgarh**	14	3059	54	-1%	495	6	2%	35	33	950	67	28	26	5	7	6
Madhya Pradesh	Ujjain	20	9799	122	27%	1762	6	27%	88	61	2483	123	39	36	19	29	24
Madhya Pradesh	Umaria	6	1744	72	24%	287	6	7%	47	45	544	90	37	28	8	16	9
Madhya Pradesh	Vidisha**	14	5831	102	9%	870	7	1%	61	61	2308	161	43	76	10	32	19
Maharashtra	Ahmadnagar	43	21519	126	4%	1754	12	11%	41	43	3428	80	39	18	11	12	5
Maharashtra	Ahmednagar MC	4	2870	170	142%	297	10	4%	70	35	359	85	27	19	23	16	9
Maharashtra	Akola	14	9304	164	40%	659	14	88%	46	53	1309	92	41	14	18	19	14
Maharashtra	Akola MC	4	2577	143	109%	563	5	-10%	125	59	475	106	39	14	23	29	23
Maharashtra	Amravati MC	6	6575	261	-6%	534	12	-1%	85	54	754	120	41	22	33	24	15
Maharashtra	Amravati Rural	24	15041	159	0%	1312	11	3%	56	51	2300	97	37	20	16	24	16
Maharashtra	Aurangabad MC	24	6100	65	-61%	1013	6	-1%	43	26	1144	49	21	4	13	10	6
Maharashtra	Aurangabad-MH**	10	12624	315	195%	1057	12	19%	105	130	1867	186	109	28	16	33	22
Maharashtra	Bhandara	13	7997	153	14%	743	11	14%	57	51	1266	97	38	21	15	24	15
Maharashtra	Bhiwandi Nizampur	11	3688	88	63%	653	6	-26%	62	49	1384	132	38	46	23	24	13
Maharashtra	Bid**	25	14519	146	55%	1133	13	77%	46	40	1800	73	35	13	13	12	7

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Madhya Pradesh	Raisen**	29	3%	87%	78%	87%	84%	285	55%	520	100%	195	53%	116	9%	14%	1%	0%	NA	NA
Madhya Pradesh	Rajgarh	66	5%	91%	68%	87%	72%	614	94%	639	98%	390	79%	1408	78%	3%	0%	0%	NA	NA
Madhya Pradesh	Ratlam	71	5%	88%	74%	86%	68%	767	91%	812	96%	373	73%	1129	60%	0%	NA	0%	NA	NA
Madhya Pradesh	Rewa	264	9%	93%	82%	89%	79%	1022	75%	500	37%	559	51%	2528	75%	12%	4%	0%	NA	NA
Madhya Pradesh	Sagar**	179	8%	90%	65%	88%	73%	1524	85%	1717	96%	679	57%	1622	56%	3%	5%	0%	NA	NA
Madhya Pradesh	Satna	146	5%	91%	67%	89%	81%	1279	90%	1334	94%	762	75%	1857	55%	0%	NA	0%	NA	NA
Madhya Pradesh	Sehore**	90	9%	89%	83%	87%	77%	466	94%	497	100%	289	86%	785	67%	0%	NA	0%	NA	NA
Madhya Pradesh	Seoni**	48	6%	88%	69%	86%	67%	531	86%	549	88%	251	60%	853	79%	0%	NA	0%	NA	NA
Madhya Pradesh	Shahdol	100	7%	90%	78%	88%	80%	746	87%	860	100%	414	58%	631	37%	6%	0%	0%	NA	NA
Madhya Pradesh	Shajapur	78	7%	93%	94%	93%	90%	1103	94%	1151	98%	680	90%	1114	71%	19%	4%	1%	0%	33%
Madhya Pradesh	Sheopur	48	7%	88%	56%	86%	72%	515	77%	645	96%	282	61%	852	90%	31%	0%	0%	NA	NA
Madhya Pradesh	Shivpuri	93	4%	92%	69%	93%	70%	1226	94%	1275	98%	762	85%	1714	71%	30%	1%	0%	NA	NA
Madhya Pradesh	Sidhi	155	9%	80%	53%	88%	88%	739	73%	983	97%	438	56%	1589	74%	0%	NA	0%	NA	NA
Madhya Pradesh	Singrauli	20	11%					71	64%	111	100%	38	NA	106	47%	0%	NA	0%	NA	NA
Madhya Pradesh	Tikamgarh**	33	4%	87%	76%	83%	76%	384	80%	479	100%	264	68%	462	49%	1%	0%	0%	NA	NA
Madhya Pradesh	Ujjain	308	16%	90%	72%	88%	66%	1164	92%	1237	98%	668	78%	1109	45%	17%	2%	0%	NA	NA
Madhya Pradesh	Umaria	22	5%	92%	67%	91%	73%	244	86%	264	93%	133	67%	462	85%	0%	NA	0%	NA	NA
Madhya Pradesh	Vidisha**	344	19%	85%	68%	89%	76%	792	89%	801	90%	516	82%	394	17%	0%	NA	0%	NA	NA
Maharashtra	Ahmadnagar	136	5%	91%	68%	88%	75%	1733	93%	1860	100%	1322	84%	393	11%	64%	13%	8%	91%	73%
Maharashtra	Ahmednagar MC	17	6%	84%	66%	76%	56%	145	98%	148	100%	40	0%	4	1%	78%	26%	21%	28%	72%
Maharashtra	Akola	40	4%	82%	60%	78%	55%	664	84%	788	100%	478	79%	810	62%	65%	7%	5%	97%	47%
Maharashtra	Akola MC	18	5%	73%	42%	69%	53%	224	81%	207	75%	23	0%	275	58%	81%	8%	6%	93%	86%
Maharashtra	Amravati MC	36	6%	88%	57%	85%	50%	334	95%	344	98%	259	90%	330	44%	71%	9%	6%	96%	80%
Maharashtra	Amravati Rural	89	5%	86%	68%	87%	64%	987	79%	1249	100%	561	61%	1172	51%	59%	5%	3%	96%	60%
Maharashtra	Aurangabad MC	70	8%	91%	68%	85%	66%	545	86%	634	100%	463	89%	14	1%	58%	9%	5%	30%	66%
Maharashtra	Aurangabad-MH**	75	5%	93%	83%	91%	88%	1095	83%	1190	90%	968	85%	533	29%	86%	5%	5%	73%	58%
Maharashtra	Bhandara	48	5%	85%	59%	81%	50%	586	85%	685	100%	338	73%	549	43%	75%	9%	7%	76%	76%
Maharashtra	Bhiwandi Nizampur	162	14%	86%	57%	79%	54%	424	79%	530	99%	243	78%	272	20%	49%	10%	5%	63%	69%
Maharashtra	Bid**	83	5%	90%	77%	85%	65%	934	91%	999	98%	670	68%	639	36%	87%	17%	15%	90%	27%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Maharashtra	Buldana**	26	14623	143	5%	2127	7	8%	83	56	2484	97	39	21	13	24	19
Maharashtra	Chandrapur	24	15801	166	13%	1546	10	9%	65	56	2455	103	45	25	12	20	13
Maharashtra	Dhule	15	9387	151	-26%	927	10	8%	60	69	1823	118	58	24	15	21	11
Maharashtra	Dhule MC	4	4795	290	325%	621	8	-2%	150	72	580	140	62	25	27	26	11
Maharashtra	Gadchiroli**	11	6186	139	5%	800	8	4%	72	62	1234	111	53	28	14	16	11
Maharashtra	Gondiya	14	8874	161	0%	888	10	-2%	64	55	1387	101	44	19	16	21	14
Maharashtra	Hingoli**	11	5039	111	-7%	576	9	-3%	51	54	1203	106	43	28	17	19	13
Maharashtra	Jalgaon	38	15971	106	-18%	1615	10	10%	43	51	4184	111	41	36	17	16	11
Maharashtra	Jalgaon MC	4	6083	342	329%	657	9	12%	148	59	603	136	47	37	30	21	13
Maharashtra	Jalna**	19	7838	106	-14%	832	9	5%	45	41	1534	83	29	25	12	17	13
Maharashtra	Kalyan Dombivli MC	14	6089	111	4%	922	7	15%	67	57	2100	153	49	38	31	36	11
Maharashtra	Kolhapur	35	25148	181	9%	1733	15	15%	50	44	2960	85	39	19	15	13	6
Maharashtra	Kolhapur MC	6	2789	125	6%	232	12	2%	42	36	493	88	26	26	15	22	10
Maharashtra	Latur**	24	15427	162	17%	1232	13	4%	52	46	2023	85	37	19	14	15	11
Maharashtra	Malegoan Corporation	5	2673	136	319%	358	7	2%	73	83	1040	211	70	59	60	22	15
Maharashtra	Mira Bhayander	10	3487	88	374%	556	6	0%	56	54	818	83	44	6	16	18	11
Maharashtra	Mumbai	137	93432	171	-5%	14823	6	-2%	108	88	29685	217	60	47	47	63	31
Maharashtra	Nagpur MC	24	15289	162	-7%	2191	7	0%	93	70	3426	145	51	19	43	33	20
Maharashtra	Nagpur Rural	23	14786	161	28%	1723	9	1%	75	69	2520	110	55	24	11	19	14
Maharashtra	Nanded**	28	13535	121	11%	1490	9	17%	53	47	2575	92	40	24	15	13	8
Maharashtra	Nanded Waghela MC	5	4214	213	31%	436	10	18%	88	61	550	111	51	10	31	19	11
Maharashtra	Nandurbar*	15	7681	128	-9%	895	9	-4%	60	53	1722	115	42	40	13	19	13
Maharashtra	Nashik	40	20453	128	-3%	2078	10	9%	52	50	3343	84	45	20	10	10	6
Maharashtra	Nashik Corp	12	7293	147	8%	980	7	3%	79	63	1411	114	54	30	11	19	9
Maharashtra	Navi Mumbai	8	10204	316	0%	1352	8	-1%	167	108	1905	236	78	33	58	66	36
Maharashtra	Osmanabad**	17	7895	117	15%	712	11	13%	42	41	1224	72	35	15	12	10	7
Maharashtra	Parbhani**	17	8054	118	-4%	797	10	13%	47	46	1491	87	38	24	13	12	9
Maharashtra	Pimpri Chinchwad	12	10273	222	7%	1083	9	7%	94	74	1988	172	59	23	54	35	17

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Maharashtra	Buldana**	83	4%	86%	57%	81%	54%	1166	78%	1456	98%	565	65%	663	27%	54%	6%	3%	82%	60%
Maharashtra	Chandrapur	81	4%	91%	65%	85%	60%	1167	85%	1372	99%	843	84%	786	32%	79%	11%	9%	95%	44%
Maharashtra	Dhule	84	6%	92%	80%	87%	67%	972	90%	1065	99%	801	76%	979	54%	74%	11%	8%	91%	39%
Maharashtra	Dhule MC	26	5%	96%	78%	88%	63%	294	97%	301	100%	57	0%	59	10%	68%	12%	8%	57%	71%
Maharashtra	Gadchiroli**	32	3%	87%	59%	88%	70%	554	79%	619	88%	396	80%	202	16%	55%	3%	1%	0%	0%
Maharashtra	Gondiya	41	4%	87%	65%	84%	57%	683	86%	790	100%	471	78%	740	53%	68%	5%	3%	84%	58%
Maharashtra	Hingoli**	42	4%	91%	71%	87%	72%	582	91%	592	93%	444	88%	925	77%	79%	8%	6%	71%	51%
Maharashtra	Jalgaon	173	5%	83%	62%	81%	62%	1641	84%	1924	99%	1023	65%	1870	45%	49%	9%	5%	72%	57%
Maharashtra	Jalgaon MC	29	6%	89%	60%	79%	73%	234	88%	267	100%	44	0%	29	5%	70%	12%	9%	100%	83%
Maharashtra	Jalna**	37	3%	87%	69%	86%	82%	725	93%	763	98%	672	90%	555	36%	73%	6%	5%	65%	69%
Maharashtra	Kalyan Dombivli MC	196	12%	89%	62%	86%	55%	737	90%	821	100%	584	89%	59	3%	71%	9%	7%	82%	31%
Maharashtra	Kolhapur	142	6%	91%	63%	83%	58%	1337	86%	1548	99%	1001	82%	384	13%	63%	18%	11%	95%	77%
Maharashtra	Kolhapur MC	62	17%	86%	51%	74%	54%	156	78%	193	96%	132	88%	6	1%	65%	26%	17%	93%	32%
Maharashtra	Latur**	93	6%	84%	50%	80%	57%	962	85%	1124	99%	526	73%	1087	54%	57%	15%	9%	90%	50%
Maharashtra	Malegoan Corporation	95	10%	89%	77%	84%	83%	385	92%	408	98%	74	0%	161	15%	37%	4%	2%	100%	25%
Maharashtra	Mira Bhayander	43	7%	91%	70%	88%	70%	493	92%	538	100%	93	0%	224	27%	81%	8%	7%	100%	83%
Maharashtra	Mumbai	1991	9%	91%	72%	86%	69%	11196	90%	11668	94%	9065	87%	0	0%	75%	7%	6%	81%	35%
Maharashtra	Nagpur MC	184	7%	90%	63%	83%	54%	1147	69%	1224	74%	713	63%	98	3%	66%	16%	11%	73%	45%
Maharashtra	Nagpur Rural	106	5%	92%	80%	88%	78%	1427	89%	1595	100%	1157	88%	446	18%	80%	6%	5%	71%	52%
Maharashtra	Nanded**	81	4%	91%	68%	89%	80%	1009	76%	1136	85%	697	64%	377	15%	60%	4%	2%	89%	23%
Maharashtra	Nanded Waghela MC	14	3%	93%	70%	86%	48%	288	94%	308	100%	152	69%	202	37%	70%	8%	5%	0%	0%
Maharashtra	Nandurbar*	100	7%	89%	74%	86%	78%	657	80%	817	99%	417	60%	1176	68%	62%	8%	5%	70%	57%
Maharashtra	Nashik	275	9%	94%	88%	91%	81%	1717	85%	1953	97%	1146	55%	1463	44%	61%	4%	2%	92%	71%
Maharashtra	Nashik Corp	96	8%	92%	73%	89%	63%	740	94%	783	100%	543	90%	98	7%	68%	9%	6%	73%	61%
Maharashtra	Navi Mumbai	221	16%	90%	54%	86%	47%	883	95%	926	100%	637	100%	396	21%	90%	11%	10%	98%	71%
Maharashtra	Osmanabad**	57	5%	90%	68%	85%	66%	598	85%	706	100%	409	72%	443	36%	58%	23%	13%	86%	68%
Maharashtra	Parbhani**	56	4%	90%	66%	88%	78%	707	87%	794	98%	595	84%	350	23%	67%	23%	16%	97%	28%
Maharashtra	Pimpri Chinchwad	148	9%	88%	72%	86%	60%	818	93%	870	99%	566	83%	8	0%	86%	15%	13%	95%	61%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Maharashtra	Pune	29	12947	111	-4%	1386	9	1%	48	59	3699	127	48	17	38	24	12
Maharashtra	Pune Rural	42	33373	198	0%	3770	9	2%	89	60	4202	99	50	17	16	16	10
Maharashtra	Raigarh-Mh	25	16681	165	8%	1982	8	7%	78	74	3721	147	56	33	21	36	20
Maharashtra	Ratnagiri	19	14092	181	5%	1254	11	16%	64	63	2536	130	52	38	10	30	13
Maharashtra	Sangli	25	22225	226	13%	1498	15	-2%	61	55	2697	109	47	25	18	20	8
Maharashtra	Sangli MC	5	2848	142	0%	293	10	4%	58	46	572	114	37	22	29	22	9
Maharashtra	Satara	32	25699	200	25%	1871	14	1%	58	55	3744	117	47	30	22	18	9
Maharashtra	Sindhudurg	10	9297	235	16%	541	17	24%	55	54	1160	117	44	33	18	22	11
Maharashtra	Solapur	34	19676	144	-16%	1767	11	-9%	52	51	2719	79	45	14	9	11	6
Maharashtra	Solapur MC	10	6085	152	-6%	891	7	7%	89	57	1140	114	42	25	20	26	16
Maharashtra	Thane	31	21468	172	-9%	2613	8	20%	84	86	5571	178	70	45	28	35	18
Maharashtra	Thane MC	14	9304	161	-1%	1436	6	2%	99	73	2697	186	51	37	48	50	25
Maharashtra	Ulhasnagar MC	5	3250	150	-1%	639	5	10%	118	73	836	154	52	33	17	51	22
Maharashtra	Wardha	14	10706	189	12%	1009	11	4%	71	56	1454	103	44	20	19	20	15
Maharashtra	Washim	12	4798	102	23%	503	10	27%	43	49	1138	97	34	25	18	20	16
Maharashtra	Yavatmal**	28	16349	145	12%	1806	9	3%	64	58	3402	120	44	35	21	20	15
Manipur	Bishnupur	2	836	100	1%	149	6	-29%	71	71	284	136	61	22	34	19	11
Manipur	Chandel*	1	833	167	-15%	64	13	-5%	51	63	180	145	47	51	17	30	16
Manipur	Churachandpur*	2	2797	302	18%	147	19	-12%	63	59	784	338	48	171	47	72	13
Manipur	Imphal East	4	2680	168	13%	279	10	7%	70	59	802	201	52	80	37	32	10
Manipur	Imphal West	4	3098	174	-8%	407	8	-8%	91	65	703	158	50	38	42	28	15
Manipur	Senapati*	4	908	59	-22%	95	10	-21%	25	34	286	74	26	13	18	18	9
Manipur	Tamenglong*	1	489	108	22%	68	7	-9%	60	58	78	69	49	5	3	12	12
Manipur	Thoubal	4	1120	75	-5%	145	8	12%	39	38	393	106	34	32	26	14	5
Manipur	Ukhrul*	1	571	100	-16%	75	8	-21%	53	46	142	99	36	8	25	32	20
Meghalaya	East Garo Hills*	7	1212	41	-66%	144	8	23%	19	18	266	36	15	9	5	6	4
Meghalaya	East Khasi Hills*	3	8907	801	203%	1190	7	6%	428	271	2084	749	184	152	213	189	120
Meghalaya	Jaintia Hills*	3	1925	145	7%	229	8	19%	69	61	578	174	50	51	40	33	15
Meghalaya	Ri Bhoi*	2	1720	199	7%	185	9	19%	85	88	413	191	65	29	40	54	33
Meghalaya	South Garo Hills*	1	608	137	21%	47	13	15%	42	63	125	112	56	20	15	22	9

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Maharashtra	Pune	211	7%	93%	66%	87%	52%	1616	92%	1691	96%	1305	93%	239	6%	66%	25%	16%	93%	60%
Maharashtra	Pune Rural	163	5%	91%	64%	87%	66%	2108	83%	2271	89%	1530	76%	906	22%	54%	21%	11%	87%	34%
Maharashtra	Raigarh-Mh	168	6%	88%	67%	81%	61%	1534	79%	1883	97%	952	76%	2151	58%	51%	15%	7%	71%	56%
Maharashtra	Ratnagiri	98	5%	92%	69%	87%	59%	1162	92%	1260	99%	889	85%	1732	68%	71%	10%	7%	98%	69%
Maharashtra	Sangli	128	6%	91%	61%	86%	61%	1208	88%	1370	100%	787	82%	436	16%	81%	19%	16%	96%	67%
Maharashtra	Sangli MC	29	6%	89%	76%	88%	82%	208	90%	224	97%	125	71%	49	9%	88%	28%	25%	91%	25%
Maharashtra	Satara	137	4%	91%	71%	85%	62%	1629	91%	1782	99%	658	64%	1924	51%	74%	26%	19%	86%	58%
Maharashtra	Sindhudurg	37	4%	92%	56%	89%	54%	490	90%	547	100%	339	79%	733	63%	78%	5%	4%	84%	80%
Maharashtra	Solapur	129	5%	91%	66%	87%	58%	1504	85%	1736	98%	1267	82%	299	11%	59%	22%	13%	84%	42%
Maharashtra	Solapur MC	92	10%	89%	55%	82%	48%	487	84%	568	98%	439	94%	30	3%	76%	16%	12%	90%	69%
Maharashtra	Thane	342	8%	91%	74%	86%	68%	2141	78%	2437	89%	1754	65%	2986	54%	50%	8%	4%	91%	56%
Maharashtra	Thane MC	246	13%	87%	60%	81%	44%	944	86%	1080	98%	744	96%	892	33%	69%	11%	7%	99%	72%
Maharashtra	Ulhasnagar MC	54	10%	89%	70%	80%	58%	359	89%	379	94%	314	98%	48	6%	47%	14%	7%	63%	59%
Maharashtra	Wardha	51	4%	88%	69%	84%	62%	666	81%	733	89%	396	74%	569	39%	82%	9%	7%	64%	51%
Maharashtra	Washim	21	2%	86%	66%	86%	69%	421	72%	514	88%	311	71%	856	75%	47%	14%	6%	79%	29%
Maharashtra	Yavatmal**	124	4%	89%	67%	86%	69%	1322	79%	1554	93%	956	80%	2238	66%	65%	16%	10%	98%	19%
Manipur	Bishnupur	4	2%	88%	61%	90%	79%	136	89%	148	97%	106	95%	235	83%	18%	2%	0%	0%	0%
Manipur	Chandel*	7	5%	91%	81%	90%	63%	74	94%	78	99%	47	73%	112	62%	45%	21%	9%	50%	50%
Manipur	Churachandpur*	177	29%	92%	70%	88%	57%	141	100%	141	100%	93	89%	313	40%	22%	34%	7%	96%	94%
Manipur	Imphal East	47	7%	92%	84%	86%	74%	239	98%	231	94%	182	82%	451	56%	30%	14%	4%	44%	50%
Manipur	Imphal West	15	3%	87%	69%	83%	69%	273	93%	256	88%	149	63%	387	55%	13%	32%	4%	11%	13%
Manipur	Senapati*	15	7%	91%	82%	85%	75%	134	100%	134	100%	107	94%	0	0%	34%	9%	3%	50%	100%
Manipur	Tamenglong*	2	3%	94%	80%	95%	60%	68	100%	65	96%	52	93%	50	64%	72%	27%	19%	75%	50%
Manipur	Thoubal	3	1%	89%	68%	83%	66%	140	97%	140	97%	114	80%	337	86%	29%	5%	2%	13%	29%
Manipur	Ukhrul*	7	7%	78%	58%	69%	65%	76	96%	79	100%	60	100%	90	63%	61%	23%	14%	67%	67%
Meghalaya	East Garo Hills*	13	6%	89%	70%	87%	83%	103	72%	110	77%	122	81%	108	41%	8%	0%	0%	NA	NA
Meghalaya	East Khasi Hills*	183	12%	74%	51%	73%	39%	780	92%	789	93%	376	82%	1380	66%	0%	NA	0%	NA	NA
Meghalaya	Jaintia Hills*	81	17%	80%	40%	84%	59%	124	57%	217	100%	133	77%	552	96%	2%	0%	0%	NA	NA
Meghalaya	Ri Bhoi*	33	11%	80%	61%	79%	56%	174	82%	177	83%	158	100%	398	96%	13%	0%	0%	NA	NA
Meghalaya	South Garo Hills*	5	5%	91%	38%	91%	89%	52	72%	60	83%	49	71%	85	68%	4%	0%	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Meghalaya	West Garo Hills*	6	4374	189	-9%	585	7	-12%	101	88	744	128	78	16	14	22	13
Meghalaya	West Khasi Hills*	3	2067	156	8%	241	9	-1%	73	74	737	223	59	62	60	42	22
Mizoram	Aizawl*	4	3718	245	7%	320	12	26%	85	72	1356	358	51	87	131	89	27
Mizoram	Champhai*	1	746	165	12%	51	15	-4%	45	49	137	121	40	24	38	19	12
Mizoram	Kolasib*	1	766	282	2%	81	9	17%	119	107	176	259	74	72	65	49	37
Mizoram	Lawngtlai*	1	516	158	-33%	23	22	-7%	28	34	125	154	23	66	34	29	12
Mizoram	Lunglei*	2	1221	200	-10%	109	11	16%	71	62	238	156	51	24	52	29	11
Mizoram	Mamit*	1	522	188	5%	32	16	31%	46	37	55	79	36	20	12	12	10
Mizoram	Saiha*	1	608	224	-13%	34	18	30%	50	69	171	252	55	111	44	43	15
Mizoram	Serchhip*	1	236	95	-30%	16	15	0%	26	32	52	84	26	21	24	11	10
Nagaland	Dimapur*	3	3521	256	31%	634	6	2%	184	124	1002	291	95	95	26	75	35
Nagaland	Kiphire*	1	603	144	-8%	66	9	-11%	63	66	136	130	54	21	33	23	15
Nagaland	Kohima*	3	1737	173	-1%	287	6	-7%	115	85	476	190	67	43	44	37	21
Nagaland	Longleng*	1	419	84	-21%	49	9	-24%	39	38	93	74	33	11	14	14	7
Nagaland	Mokokchung*	3	1326	132	3%	216	6	-24%	86	81	328	131	58	22	16	34	28
Nagaland	Mon*	3	2809	242	10%	197	14	10%	68	85	563	194	67	37	56	34	21
Nagaland	Peren*	1	529	132	1%	48	11	-3%	48	66	108	108	48	33	7	20	19
Nagaland	Phek*	2	435	65	-8%	63	7	7%	38	34	128	77	27	8	23	18	10
Nagaland	Tuensang*	2	1605	170	17%	208	8	-13%	88	86	757	321	68	80	127	47	20
Nagaland	Wokha*	2	1215	169	-8%	123	10	10%	69	69	178	99	64	27	4	4	4
Nagaland	Zunheboto*	2	686	98	-11%	79	9	-41%	45	49	135	77	45	13	13	6	5
Orissa	Anugul	13	7904	158	6%	790	10	14%	63	54	1205	96	44	20	18	14	10
Orissa	Balangir**	15	7348	125	0%	1018	7	-5%	69	59	2330	159	55	57	26	16	5
Orissa	Baleshwar	22	9315	105	-3%	1318	7	-11%	59	49	1881	85	42	20	12	11	8
Orissa	Bargarh	15	6466	109	-5%	795	8	-7%	54	54	1773	120	49	33	26	12	7
Orissa	Bhadrak	15	4251	72	-18%	343	12	-2%	23	22	754	51	19	11	16	6	4
Orissa	Bhubaneshwar MC	7	4232	148	-5%	601	7	3%	84	39	668	94	28	15	31	18	11
Orissa	Boudh	4	1502	91	-6%	215	7	-11%	52	65	417	102	58	16	15	12	8
Orissa	Cuttack	26	9150	89	-8%	1388	7	1%	54	31	1786	69	25	12	23	9	7
Orissa	Debagarh	3	1384	115	1%	174	8	2%	58	52	265	88	46	18	14	9	7

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Meghalaya	West Garo Hills*	22	4%	93%	77%	91%	79%	505	96%	526	100%	420	92%	221	30%	65%	0%	0%	NA	NA
Meghalaya	West Khasi Hills*	100	17%	88%	58%	87%	41%	240	90%	245	92%	156	87%	345	47%	3%	5%	0%	NA	NA
Mizoram	Aizawl*	145	14%	89%	73%	87%	76%	291	98%	291	98%	239	88%	100	7%	37%	26%	10%	100%	54%
Mizoram	Champhai*	7	6%	72%	71%	95%	75%	59	100%	59	100%	46	96%	42	31%	76%	15%	12%	0%	0%
Mizoram	Kolasib*	5	3%	91%	64%	97%	81%	71	95%	67	89%	44	67%	33	19%	63%	14%	9%	100%	50%
Mizoram	Lawngtlai*	13	13%	90%	89%	88%	88%	27	93%	29	100%	33	77%	83	66%	39%	0%	0%	0%	0%
Mizoram	Lunglei*	32	16%	93%	96%	94%	91%	95	100%	95	100%	101	95%	65	27%	74%	3%	2%	0%	0%
Mizoram	Mamit*	3	6%	72%	40%	84%	100%	32	100%	32	100%	35	100%	29	53%	78%	9%	7%	100%	100%
Mizoram	Saiha*	36	25%	98%	88%	95%	100%	44	94%	44	94%	57	93%	17	10%	43%	3%	1%	0%	0%
Mizoram	Serchhip*	2	4%	88%	71%	90%	56%	16	73%	16	73%	9	41%	8	15%	54%	14%	8%	0%	0%
Nagaland	Dimapur*	57	8%	90%	85%	87%	75%	383	85%	449	100%	293	77%	388	39%	49%	12%	6%	76%	56%
Nagaland	Kiphire*	27	24%	96%	100%	94%	100%	72	100%	72	100%	59	95%	16	12%	34%	2%	1%	0%	0%
Nagaland	Kohima*	43	11%	93%	88%	93%	76%	219	100%	219	100%	192	100%	434	91%	70%	9%	6%	100%	60%
Nagaland	Longleng*	11	15%	100%	63%	98%	50%	49	98%	49	98%	44	100%	0	0%	83%	1%	1%	0%	0%
Nagaland	Mokokchung*	40	16%	89%	87%	89%	82%	209	97%	216	100%	152	94%	98	30%	36%	2%	1%	33%	0%
Nagaland	Mon*	48	10%	91%	77%	96%	94%	0	0%	0	0%	0	0%	0	0%	19%	0%	0%	0%	0%
Nagaland	Peren*	5	6%	96%	71%	92%	80%	0	0%	0	0%	0	0%	0	0%	14%	7%	1%	0%	14%
Nagaland	Phek*	8	8%	96%	64%	94%	78%	57	92%	57	92%	43	67%	43	34%	30%	3%	1%	0%	0%
Nagaland	Tuensang*	211	33%	93%	74%	91%	86%	208	100%	208	100%	131	85%	281	37%	37%	7%	3%	43%	57%
Nagaland	Wokha*	6	4%	100%	100%	95%	83%	123	100%	123	100%	137	100%	123	69%	53%	1%	1%	0%	0%
Nagaland	Zunheboto*	17	14%	94%	75%	90%	100%	83	94%	83	94%	43	80%	8	6%	14%	0%	0%	0%	0%
Orissa	Anugul	56	5%	94%	70%	92%	65%	575	84%	677	99%	528	82%	923	77%	0%	NA	0%	NA	NA
Orissa	Balangir**	117	6%	87%	60%	84%	58%	752	84%	873	98%	418	60%	2146	92%	0%	NA	0%	NA	NA
Orissa	Baleshwar	60	4%	90%	76%	88%	74%	965	87%	1082	97%	682	78%	1631	87%	43%	3%	1%	0%	23%
Orissa	Bargarh	53	3%	91%	70%	87%	63%	711	87%	804	98%	521	79%	1699	96%	0%	NA	0%	NA	NA
Orissa	Bhadrak	17	3%	87%	61%	85%	62%	284	83%	341	99%	268	84%	685	91%	13%	1%	0%	NA	NA
Orissa	Bhubaneshwar MC	57	11%	87%	54%	84%	64%	235	83%	264	93%	236	89%	173	26%	0%	NA	0%	NA	NA
Orissa	Boudh	20	5%	85%	68%	90%	63%	231	84%	274	100%	174	88%	395	95%	3%	0%	0%	NA	NA
Orissa	Cuttack	90	6%	93%	67%	88%	60%	650	79%	778	95%	468	63%	1118	63%	0%	NA	0%	NA	NA
Orissa	Debagarh	17	7%	83%	57%	85%	76%	153	96%	159	99%	137	100%	281	106%	3%	13%	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Orissa	Dhenkanal	12	6769	144	-2%	692	10	15%	59	60	1213	103	51	16	23	14	10
Orissa	Gajapati†	6	3584	157	-5%	665	5	5%	117	108	1058	185	97	38	26	24	14
Orissa	Ganjam	35	16602	120	-12%	2774	6	-9%	80	69	5221	151	54	39	32	26	17
Orissa	Jagatsinghpur	12	4404	95	-10%	292	15	-7%	25	24	568	49	21	8	15	5	4
Orissa	Jajapur	18	5500	77	-4%	783	7	-8%	44	47	1569	88	40	14	24	10	8
Orissa	Jharsuguda	6	4709	210	7%	514	9	7%	92	87	916	164	72	38	28	25	16
Orissa	Kalahandi**	15	7754	132	2%	1269	6	1%	86	79	2079	142	69	34	19	19	11
Orissa	Kandhamal†	7	5278	185	2%	666	8	-9%	93	79	1007	141	69	29	24	20	12
Orissa	Kendrapara	14	5794	101	2%	489	12	10%	34	38	903	63	33	10	12	9	5
Orissa	Kendujhar	17	11296	164	-5%	1861	6	-6%	108	96	3044	177	84	46	27	21	13
Orissa	Khordha	13	3933	73	-3%	491	8	2%	36	43	1131	84	33	19	18	13	10
Orissa	Koraput†	13	7319	141	-6%	1381	5	-2%	107	89	1815	140	80	25	20	15	10
Orissa	Malkangiri*	5	3513	166	-10%	779	5	-11%	147	149	1077	204	123	34	16	31	26
Orissa	Mayurbhanj†	24	18778	192	-7%	3426	5	-12%	140	130	5395	221	116	48	31	24	15
Orissa	Nabarangapur†	11	3917	87	10%	648	6	13%	58	53	961	86	47	24	4	10	7
Orissa	Nayagarh	10	5786	152	-6%	882	7	-5%	93	73	1465	154	54	38	29	33	21
Orissa	Nuapada†	6	3558	152	-7%	536	7	-13%	92	81	980	168	71	63	15	19	11
Orissa	Puri	16	6699	102	-6%	584	11	11%	35	34	1239	75	27	15	16	16	7
Orissa	Rayagada†	9	6652	184	-3%	1148	6	5%	127	118	1637	181	104	39	17	22	16
Orissa	Sambalpur	10	7838	192	1%	966	8	-2%	95	66	1594	156	55	40	41	19	12
Orissa	Sonapur	6	2619	110	-5%	266	10	10%	45	47	589	99	42	22	25	9	6
Orissa	Sundargarh†	20	14566	181	-1%	1971	7	3%	98	81	3329	165	70	48	24	23	13
Puducherry	Puducherry	13	20899	393	9%	2513	8	8%	189	58	1437	108	44	23	23	18	15
Punjab	Amritsar	22	12770	146	-8%	2878	4	-23%	132	95	4206	193	69	33	53	38	29
Punjab	Barnala	6	3419	141	-2%	470	7	2%	77	76	673	111	60	13	18	19	16
Punjab	Bathinda	13	9221	175	-5%	1332	7	-5%	101	98	2147	163	72	33	24	34	28
Punjab	Faridkot	6	4836	196	-1%	785	6	-2%	127	99	1259	204	72	42	49	41	29
Punjab	Fatehgarh Sahib	6	3993	166	-17%	362	11	8%	60	63	706	117	49	15	29	23	19
Punjab	Firozpur	19	11465	147	10%	1664	7	7%	85	78	2329	120	58	18	16	28	22
Punjab	Gurdaspur	23	15133	162	12%	1868	8	10%	80	80	2762	118	58	18	15	27	23

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Orissa	Dhenkanal	95	9%	95%	74%	93%	76%	604	85%	714	100%	521	75%	1068	88%	0%	NA	0%	NA	NA
Orissa	Gajapati†	92	10%	78%	59%	82%	48%	549	87%	590	94%	373	78%	82	8%	1%	13%	0%	NA	NA
Orissa	Ganjam	315	7%	80%	50%	81%	54%	1936	79%	2392	98%	1051	64%	1181	23%	0%	NA	0%	NA	NA
Orissa	Jagatsinghpur	8	2%	87%	67%	91%	73%	259	88%	294	100%	234	85%	562	99%	0%	NA	0%	NA	NA
Orissa	Jajapur	62	4%	95%	81%	93%	84%	722	84%	821	96%	597	82%	1212	77%	8%	2%	0%	NA	NA
Orissa	Jharsuguda	48	6%	91%	69%	91%	74%	433	87%	478	96%	368	86%	872	95%	0%	NA	0%	NA	NA
Orissa	Kalahandi**	94	5%	84%	61%	84%	62%	936	80%	1135	97%	510	60%	0	0%	0%	NA	0%	NA	NA
Orissa	Kandhamal†	74	9%	90%	72%	88%	76%	482	84%	560	97%	251	59%	718	71%	0%	33%	0%	NA	NA
Orissa	Kendrapara	47	6%	96%	80%	96%	76%	491	91%	540	100%	495	93%	843	93%	0%	NA	0%	NA	NA
Orissa	Kendujhar	114	4%	88%	57%	87%	65%	1441	87%	1656	100%	1104	86%	16	1%	0%	NA	0%	NA	NA
Orissa	Khordha	71	7%	88%	67%	88%	64%	481	83%	583	100%	355	75%	90	8%	0%	NA	0%	NA	NA
Orissa	Koraput†	89	5%	87%	66%	86%	81%	879	76%	1104	95%	691	72%	632	35%	0%	NA	0%	NA	NA
Orissa	Malkangiri*	43	5%	86%	70%	82%	81%	581	73%	685	87%	361	63%	491	46%	0%	NA	0%	NA	NA
Orissa	Mayurbhanj†	160	3%	89%	72%	89%	73%	2724	85%	3158	99%	2098	83%	4755	88%	0%	NA	0%	NA	NA
Orissa	Nabarangapur†	29	3%	90%	87%	87%	89%	559	92%	525	86%	338	67%	782	81%	0%	NA	0%	NA	NA
Orissa	Nayagarh	66	6%	68%	31%	70%	42%	634	89%	650	92%	197	52%	69	5%	0%	33%	0%	0%	100%
Orissa	Nuapada†	60	7%	90%	73%	89%	82%	420	88%	470	98%	306	88%	296	30%	16%	0%	0%	NA	NA
Orissa	Puri	67	7%	91%	67%	89%	67%	525	92%	573	100%	373	74%	862	70%	0%	NA	0%	NA	NA
Orissa	Rayagada†	115	8%	90%	79%	87%	68%	804	74%	1086	100%	696	73%	1331	81%	19%	1%	0%	0%	0%
Orissa	Sambalpur	73	5%	88%	64%	86%	64%	580	84%	653	95%	340	67%	1538	96%	0%	33%	0%	NA	NA
Orissa	Sonapur	24	5%	89%	69%	91%	87%	253	88%	286	100%	207	71%	62	11%	0%	NA	0%	NA	NA
Orissa	Sundargarh†	90	3%	93%	76%	89%	75%	1247	75%	1532	92%	995	70%	2471	74%	3%	6%	0%	NA	NA
Puducherry	Puducherry	156	13%	88%	71%	87%	63%	650	82%	669	84%	666	95%	0	0%	78%	2%	1%	100%	88%
Punjab	Amritsar	322	10%	90%	74%	84%	71%	2028	95%	2128	100%	1175	82%	2104	50%	52%	1%	1%	0%	0%
Punjab	Barnala	42	8%	83%	66%	92%	78%	432	94%	451	98%	304	84%	23	3%	33%	4%	1%	0%	100%
Punjab	Bathinda	87	5%	92%	85%	91%	84%	1273	97%	1314	100%	1138	99%	379	18%	52%	1%	1%	80%	60%
Punjab	Faridkot	78	8%	89%	64%	89%	69%	686	110%	694	111%	456	99%	322	26%	36%	1%	0%	0%	0%
Punjab	Fatehgarh Sahib	45	8%	90%	50%	85%	79%	374	91%	406	99%	315	86%	306	43%	51%	1%	1%	0%	100%
Punjab	Firozpur	76	4%	89%	66%	84%	71%	1418	91%	1497	96%	939	87%	554	24%	18%	2%	0%	0%	0%
Punjab	Gurdaspur	95	4%	94%	80%	91%	78%	1680	89%	1892	100%	1344	89%	121	4%	37%	1%	0%	0%	0%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Punjab	Hoshiarpur	17	10230	155	-18%	1270	8	-8%	77	70	1945	118	50	26	16	25	22
Punjab	Jalandhar	22	12946	148	-1%	2138	6	0%	98	83	3436	158	60	25	40	32	25
Punjab	Kapurthala	8	5867	175	11%	661	9	2%	79	76	1076	128	62	22	27	18	15
Punjab	Ludhiana	34	22127	163	-2%	3174	7	-11%	94	86	5934	175	64	37	39	35	24
Punjab	Mansa-PN	8	6427	209	6%	775	8	10%	101	91	1012	132	68	15	19	29	24
Punjab	Moga	10	4572	115	-8%	882	5	-12%	89	86	1282	130	72	20	17	21	16
Punjab	Mohali	7	5203	176	9%	577	9	12%	78	98	1387	187	73	26	50	38	27
Punjab	Muktsar	9	5689	164	-8%	858	7	-7%	99	86	1216	140	64	22	25	29	24
Punjab	Nawanshahr	7	4293	164	-7%	606	7	-8%	93	96	945	144	74	20	24	27	23
Punjab	Patiala	21	14099	172	-3%	2104	7	-3%	102	72	2997	146	52	24	42	28	22
Punjab	Rupnagar	7	6298	212	1%	741	8	-2%	100	93	1113	150	72	19	33	26	21
Punjab	Sangrur	16	13371	206	13%	1297	10	7%	80	80	2491	153	58	39	26	30	24
Punjab	Tarn Taran	13	6818	136	6%	950	7	5%	76	79	1721	137	60	20	30	28	21
Rajasthan	Ajmer	26	16204	157	-5%	3560	5	-8%	138	106	5533	215	67	48	45	55	44
Rajasthan	Alwar	35	19179	136	7%	3089	6	5%	87	81	5745	163	64	53	24	22	20
Rajasthan	Banswara†	18	8266	117	2%	2316	4	2%	131	139	3700	209	97	50	16	46	44
Rajasthan	Baran	12	8069	167	3%	1403	6	19%	116	105	2319	192	78	53	19	42	33
Rajasthan	Barmer	23	14041	151	30%	1521	9	21%	66	63	3110	134	46	51	11	26	19
Rajasthan	Bharatpur	25	10908	110	-3%	1756	6	-1%	71	70	3572	144	45	58	10	31	26
Rajasthan	Bhilwara	24	18209	192	8%	3588	5	9%	151	143	5900	248	90	52	41	66	55
Rajasthan	Bikaner	22	14875	166	4%	2248	7	7%	100	76	2850	127	56	15	28	28	21
Rajasthan	Bundi	11	5405	119	-2%	920	6	15%	81	86	1802	159	60	41	19	38	29
Rajasthan	Chittaurgarh	21	11956	140	14%	1889	6	13%	89	103	3563	167	69	36	22	41	36
Rajasthan	Churu	20	9145	114	20%	1612	6	22%	80	72	2811	140	48	45	16	30	25
Rajasthan	Dausa	16	8543	137	-4%	1305	7	-8%	84	77	2340	150	53	49	19	30	25
Rajasthan	Dhaulpur	12	7880	170	2%	1385	6	5%	119	111	2225	192	79	48	17	47	36
Rajasthan	Dungarpur†	13	6910	132	10%	1914	4	2%	146	150	3157	241	108	66	14	52	46
Rajasthan	Ganganagar	21	11476	136	-2%	1824	6	-5%	86	85	3689	175	65	54	27	29	22
Rajasthan	Hanumangarh	18	9279	129	-1%	1988	5	1%	111	100	2999	167	63	34	23	48	40
Rajasthan	Jaipur	62	59357	239	2%	8632	7	-2%	139	90	11146	180	57	41	37	44	34

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Punjab	Hoshiarpur	60	4%	93%	88%	88%	72%	1165	98%	1191	100%	1037	98%	413	21%	23%	1%	0%	0%	0%
Punjab	Jalandhar	216	8%	88%	72%	84%	71%	1734	93%	1777	95%	1058	74%	561	16%	28%	2%	0%	67%	67%
Punjab	Kapurthala	44	5%	91%	79%	90%	79%	624	97%	644	100%	420	86%	219	20%	63%	2%	1%	0%	0%
Punjab	Ludhiana	553	12%	89%	77%	89%	71%	2628	88%	2948	99%	1946	93%	1303	22%	44%	1%	1%	0%	0%
Punjab	Mansa-PN	41	5%	91%	75%	89%	84%	694	97%	712	100%	581	99%	0	0%	50%	1%	0%	0%	0%
Punjab	Moga	68	6%	97%	86%	90%	83%	848	98%	852	98%	671	96%	315	25%	38%	1%	0%	0%	0%
Punjab	Mohali	89	8%	93%	76%	81%	66%	627	84%	746	100%	458	93%	400	29%	59%	2%	1%	0%	50%
Punjab	Muktsar	69	7%	93%	76%	93%	88%	728	95%	767	100%	545	91%	433	36%	28%	1%	0%	0%	0%
Punjab	Nawanshahr	28	4%	95%	88%	92%	86%	598	94%	634	100%	500	94%	117	12%	24%	1%	0%	0%	0%
Punjab	Patiala	160	7%	83%	60%	78%	60%	1366	91%	1426	95%	917	86%	247	8%	41%	2%	1%	13%	88%
Punjab	Rupnagar	51	6%	94%	86%	95%	91%	644	93%	691	100%	554	91%	164	15%	79%	2%	1%	9%	27%
Punjab	Sangrur	143	7%	88%	71%	88%	79%	1219	91%	1294	97%	753	74%	141	6%	29%	2%	0%	0%	0%
Punjab	Tarn Taran	141	10%	92%	78%	92%	81%	1012	100%	1012	100%	782	96%	67	4%	37%	2%	1%	0%	100%
Rajasthan	Ajmer	403	10%	91%	68%	86%	70%	2351	83%	2690	95%	1742	85%	1077	19%	0%	NA	0%	NA	NA
Rajasthan	Alwar	188	4%	94%	85%	93%	82%	2352	80%	2562	87%	2074	80%	771	13%	0%	NA	0%	NA	NA
Rajasthan	Banswara†	135	5%	91%	79%	91%	79%	1976	79%	2281	91%	1339	71%	688	19%	2%	4%	0%	NA	NA
Rajasthan	Baran	103	6%	92%	82%	91%	81%	1229	92%	1316	98%	1052	86%	717	31%	5%	0%	0%	NA	NA
Rajasthan	Barmer	68	3%	90%	75%	89%	82%	1324	88%	1490	99%	994	84%	33	1%	4%	2%	0%	NA	NA
Rajasthan	Bharatpur	134	5%	91%	70%	89%	74%	1291	73%	1742	99%	883	69%	290	8%	0%	0%	0%	NA	NA
Rajasthan	Bhilwara	338	8%	92%	76%	89%	78%	3174	92%	3415	99%	2610	93%	429	7%	0%	NA	0%	NA	NA
Rajasthan	Bikaner	149	7%	90%	72%	88%	75%	1539	89%	1663	96%	1113	84%	309	11%	0%	NA	0%	NA	NA
Rajasthan	Bundi	67	5%	92%	75%	89%	70%	945	93%	1003	99%	780	89%	183	10%	2%	0%	0%	NA	NA
Rajasthan	Chittaurgarh	86	3%	90%	76%	88%	77%	1750	78%	2015	90%	1464	83%	348	10%	0%	NA	0%	NA	NA
Rajasthan	Churu	168	8%	92%	74%	89%	85%	1298	89%	1298	89%	1068	85%	203	7%	0%	NA	0%	NA	NA
Rajasthan	Dausa	79	4%	93%	78%	88%	73%	1051	87%	1200	100%	805	77%	281	12%	2%	5%	0%	NA	NA
Rajasthan	Dhaulpur	160	10%	92%	78%	88%	76%	1029	77%	1294	97%	881	80%	372	17%	2%	10%	0%	NA	NA
Rajasthan	Dungarpur†	90	4%	91%	70%	91%	82%	1543	77%	2016	100%	1109	74%	374	12%	0%	NA	0%	NA	NA
Rajasthan	Ganganagar	134	4%	92%	79%	88%	77%	1727	94%	1731	94%	1332	89%	612	17%	26%	1%	0%	NA	NA
Rajasthan	Hanumangarh	161	8%	91%	80%	86%	77%	1688	92%	1754	95%	1314	91%	75	3%	1%	3%	0%	NA	NA
Rajasthan	Jaipur	664	8%	94%	77%	91%	73%	4660	82%	5624	99%	4032	85%	767	7%	0%	NA	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Rajasthan	Jaisalmer	6	4446	185	5%	384	12	5%	64	62	601	100	45	18	16	20	18
Rajasthan	Jalore	17	7932	116	17%	1503	5	-2%	88	94	3015	176	73	60	8	35	23
Rajasthan	Jhalawar	14	6174	111	-4%	1398	4	-3%	100	83	1964	141	55	40	10	36	31
Rajasthan	Jhunjhunun	23	10978	121	4%	1693	6	7%	75	69	2807	124	45	27	19	33	26
Rajasthan	Jodhpur	34	20274	149	6%	2956	7	2%	87	71	4849	142	52	38	26	27	19
Rajasthan	Karauli	14	9536	167	-7%	1612	6	2%	113	100	2799	196	69	76	11	41	34
Rajasthan	Kota	19	10930	147	9%	2008	5	7%	108	88	3127	169	62	45	28	34	27
Rajasthan	Nagaur	33	12744	97	3%	2170	6	3%	66	67	4211	128	43	40	16	29	24
Rajasthan	Pali	22	9356	109	-4%	1759	5	-7%	82	79	3139	146	57	48	15	26	23
Rajasthan	Rajsamand	12	5008	107	-1%	1037	5	10%	89	99	1964	168	70	45	19	35	30
Rajasthan	Sawai Madhopur	13	8020	152	-16%	1439	6	-9%	109	101	2386	181	70	40	25	46	33
Rajasthan	Sikar	27	14666	136	4%	1888	8	10%	70	60	3177	118	41	36	12	28	20
Rajasthan	Sirohi	10	7141	178	9%	1146	6	5%	114	107	1660	165	79	32	14	40	30
Rajasthan	Tonk	14	10139	177	-3%	2125	5	4%	148	152	3915	273	105	72	38	59	53
Rajasthan	Udaipur	31	25710	207	11%	7520	3	5%	242	129	6912	222	94	51	28	49	39
Sikkim	East Sikkim	3	4414	403	-6%	452	10	-12%	165	133	885	323	93	63	91	76	54
Sikkim	North Sikkim*	0.5	321	175	20%	35	9	17%	76	98	154	335	74	107	68	87	50
Sikkim	South Sikkim**	1.5	1452	247	-8%	173	8	-7%	118	111	363	247	79	60	50	57	39
Sikkim	West Sikkim**	1.4	1155	209	10%	111	10	22%	81	94	244	177	75	28	40	33	22
Tamil Nadu	Chennai	45	65316	359	16%	5671	12	11%	125	72	6747	148	55	32	39	23	19
Tamil Nadu	Coimbatore	32	21882	173	15%	2100	10	-3%	66	54	2790	88	44	11	18	15	12
Tamil Nadu	Cuddalore	25	32219	327	6%	1305	25	28%	53	61	3228	131	45	36	28	22	16
Tamil Nadu	Dharmapuri	14	12392	223	-7%	660	19	2%	48	48	1385	100	35	27	20	19	14
Tamil Nadu	Dindigul	21	22043	266	13%	2320	10	1%	112	67	2881	139	54	42	28	16	14
Tamil Nadu	Erode	21	25525	299	13%	2531	10	-9%	118	64	2204	103	51	22	13	17	15
Tamil Nadu	Kanchipuram	31	13404	108	-7%	1118	12	-9%	36	75	4791	155	60	35	40	19	16
Tamil Nadu	Kanyakumari	18	19544	271	5%	1122	17	1%	62	47	1450	80	39	19	13	9	8
Tamil Nadu	Karur	10	5877	146	-12%	537	11	3%	53	63	1310	130	50	44	16	19	14
Tamil Nadu	Krishnagiri	17	12611	189	-16%	780	16	-14%	47	46	1685	101	37	31	17	16	10
Tamil Nadu	Madurai	28	26908	243	12%	2930	9	-2%	106	71	3882	140	54	37	24	25	18

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Rajasthan	Jaisalmer	16	3%	92%	73%	92%	79%	324	86%	357	94%	257	80%	35	6%	10%	0%	0%	NA	NA
Rajasthan	Jalore	52	2%	94%	80%	92%	79%	1465	89%	1634	99%	979	88%	55	2%	3%	41%	1%	13%	25%
Rajasthan	Jhalawar	54	4%	91%	70%	88%	72%	1061	88%	1158	96%	820	84%	198	10%	0%	NA	0%	NA	NA
Rajasthan	Jhunjhunun	151	7%	90%	71%	85%	69%	1377	86%	1592	99%	988	83%	168	6%	2%	6%	0%	NA	NA
Rajasthan	Jodhpur	183	5%	94%	76%	90%	73%	2050	84%	2431	100%	1217	75%	331	7%	0%	NA	0%	NA	NA
Rajasthan	Karauli	97	4%	94%	79%	93%	81%	1157	79%	1460	100%	1029	78%	830	30%	0%	NA	0%	NA	NA
Rajasthan	Kota	165	7%	91%	80%	92%	82%	1167	70%	1208	73%	1216	87%	610	20%	0%	NA	0%	NA	NA
Rajasthan	Nagaur	180	6%	89%	75%	87%	79%	1969	88%	2121	95%	1360	82%	448	11%	0%	NA	0%	NA	NA
Rajasthan	Pali	122	5%	91%	79%	89%	84%	1335	78%	1668	97%	1143	81%	186	6%	0%	NA	0%	NA	NA
Rajasthan	Rajsamand	57	4%	91%	77%	89%	78%	1005	86%	1144	98%	730	83%	524	27%	0%	NA	0%	NA	NA
Rajasthan	Sawai Madhopur	73	4%	92%	79%	92%	81%	1191	87%	1359	99%	951	87%	232	10%	2%	0%	0%	NA	NA
Rajasthan	Sikar	108	4%	92%	79%	87%	67%	1379	84%	1538	93%	1114	83%	150	5%	0%	NA	0%	NA	NA
Rajasthan	Sirohi	49	4%	93%	76%	89%	74%	1016	92%	1096	100%	819	92%	141	8%	1%	0%	0%	NA	NA
Rajasthan	Tonk	171	6%	93%	78%	88%	71%	2170	96%	2252	100%	1775	96%	882	23%	0%	NA	0%	NA	NA
Rajasthan	Udaipur	293	5%	91%	77%	91%	83%	3276	79%	4040	97%	2551	77%	2132	31%	10%	1%	0%	NA	NA
Sikkim	East Sikkim	81	12%	86%	62%	84%	53%	377	94%	398	99%	255	97%	185	21%	0%	NA	0%	NA	NA
Sikkim	North Sikkim*	14	12%	77%	56%	83%	53%	57	100%	57	100%	40	95%	64	42%	0%	NA	0%	NA	NA
Sikkim	South Sikkim**	32	11%	91%	81%	87%	67%	167	97%	173	100%	130	98%	206	57%	12%	2%	0%	NA	NA
Sikkim	West Sikkim**	26	13%	90%	78%	93%	83%	128	95%	135	100%	124	95%	106	43%	2%	0%	0%	NA	NA
Tamil Nadu	Chennai	515	9%	91%	70%	87%	61%	2761	82%	3346	100%	2302	89%	413	6%	85%	4%	3%	94%	90%
Tamil Nadu	Coimbatore	69	3%	90%	64%	86%	56%	1467	83%	1744	99%	1180	57%	440	16%	92%	6%	6%	95%	54%
Tamil Nadu	Cuddalore	302	11%	95%	90%	93%	84%	1217	81%	1476	98%	1196	82%	170	5%	72%	6%	5%	71%	66%
Tamil Nadu	Dharmapuri	80	7%	91%	78%	85%	64%	552	83%	649	97%	451	83%	127	9%	96%	15%	14%	99%	35%
Tamil Nadu	Dindigul	389	15%	89%	68%	85%	66%	1093	78%	1381	99%	703	70%	1679	58%	74%	12%	9%	75%	29%
Tamil Nadu	Erode	28	2%	88%	60%	80%	48%	1150	82%	1387	99%	711	57%	653	30%	95%	8%	8%	92%	60%
Tamil Nadu	Kanchipuram	444	11%	92%	73%	88%	64%	2054	87%	2302	98%	1764	92%	1189	25%	89%	3%	3%	85%	70%
Tamil Nadu	Kanyakumari	119	9%	92%	73%	86%	63%	747	87%	832	97%	390	62%	783	54%	76%	2%	1%	92%	54%
Tamil Nadu	Karur	53	5%	92%	81%	91%	75%	476	73%	647	100%	428	69%	131	10%	99%	21%	21%	37%	63%
Tamil Nadu	Krishnagiri	92	7%	90%	79%	91%	71%	669	85%	768	97%	655	88%	216	13%	75%	16%	12%	79%	27%
Tamil Nadu	Madurai	358	11%	87%	58%	81%	61%	1797	90%	1680	84%	1288	94%	445	11%	76%	7%	5%	67%	33%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Tamil Nadu	Nagapattinam	16	10262	160	-4%	822	12	-16%	51	54	1794	112	46	40	14	12	10
Tamil Nadu	Namakkal	16	64537	1000	529%	913	71	564%	57	66	1859	115	54	29	19	14	12
Tamil Nadu	Perambalur	13	6765	133	-6%	657	10	2%	52	50	1276	100	39	28	20	12	11
Tamil Nadu	Pudukottai	16	11548	184	5%	781	15	0%	50	44	1410	90	37	27	15	12	9
Tamil Nadu	Ramanatha puram	13	12078	237	-1%	637	19	0%	50	64	1326	104	52	23	14	15	13
Tamil Nadu	Salem	32	18688	145	-7%	1988	9	-8%	62	55	3337	103	43	21	21	18	13
Tamil Nadu	Sivaganga	12	12171	245	-3%	831	15	-13%	67	57	1248	101	47	30	12	12	10
Tamil Nadu	Thanjavur	24	28918	304	-7%	1792	16	-4%	75	59	2655	112	48	26	20	17	13
Tamil Nadu	The Nilgiris	8	4641	141	7%	201	23	-1%	24	24	404	49	22	12	11	3	2
Tamil Nadu	Theni	12	13310	282	-4%	1012	13	-7%	86	68	1736	147	55	43	27	22	14
Tamil Nadu	Thiruvallur	30	32768	277	-2%	1354	24	-1%	46	68	4098	139	52	33	32	22	17
Tamil Nadu	Thiruvarur	13	7506	149	-8%	606	12	-4%	48	49	1521	121	40	50	15	16	10
Tamil Nadu	Tiruchirappalli	26	32426	315	43%	1906	17	28%	74	62	3594	139	54	39	34	13	9
Tamil Nadu	Tirunelveli	30	22271	184	0%	1672	13	-1%	55	53	3310	110	42	34	17	16	12
Tamil Nadu	Tiruppur	20	8637	106		631	14		31	53	2155	106	41	33	14	18	13
Tamil Nadu	Tiruvanamalai	24	23118	246	8%	1734	13	5%	74	70	3085	131	56	34	22	19	16
Tamil Nadu	Toothukudi	17	12400	184	-8%	1308	9	-6%	77	68	1952	116	57	28	16	15	13
Tamil Nadu	Vellore	38	68490	456	36%	2681	26	47%	71	67	5477	146	56	36	38	16	11
Tamil Nadu	Villupuram	32	16466	130	-56%	1451	11	-49%	46	72	5071	160	54	51	30	24	18
Tamil Nadu	Virudhunagar	19	16327	216	23%	1491	11	7%	79	65	2796	148	53	62	15	18	14
Tripura	Dhalai*	3	1956	142	4%	163	12	9%	47	49	278	81	43	19	10	9	7
Tripura	North Tripura	7	2709	102	-16%	263	10	-21%	40	41	523	79	36	20	12	12	7
Tripura	South Tripura	9	4393	129	-4%	375	12	-17%	44	43	567	66	38	12	8	9	6
Tripura	West Tripura	17	11755	171	-5%	1142	10	-9%	67	57	1482	86	49	11	16	10	9
Uttar Pradesh	Agra	43	35690	208	-2%	6086	6	2%	142	108	8187	191	68	32	33	55	40
Uttar Pradesh	Aligarh	36	26650	188	-6%	3659	7	0%	103	86	6013	169	68	51	23	26	19
Uttar Pradesh	Allahabad	59	42551	181	1%	5699	7	10%	97	76	8141	139	55	43	14	27	22
Uttar Pradesh	Ambedkar Nagar	24	7954	83	-15%	1531	5	-17%	64	60	2019	84	53	13	8	10	8
Uttar Pradesh	Auraiya	14	8748	156	10%	1451	6	11%	104	99	2115	151	76	29	12	34	27
Uttar Pradesh	Azamgarh	47	18355	98	-5%	2593	7	-1%	55	50	4651	99	42	30	8	19	10

District-wise Performance of RNTCP (Contd...)

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Tamil Nadu	Nagapattinam	222	14%	91%	43%	85%	59%	717	79%	836	92%	392	68%	243	14%	61%	6%	4%	100%	39%
Tamil Nadu	Namakkal	113	7%	94%	75%	88%	63%	870	82%	1065	100%	914	95%	1178	63%	96%	21%	20%	86%	69%
Tamil Nadu	Perambalur	94	8%	86%	68%	78%	54%	465	72%	591	92%	437	82%	225	18%	94%	14%	13%	84%	46%
Tamil Nadu	Pudukottai	109	9%	90%	51%	89%	68%	476	67%	575	81%	403	74%	438	31%	71%	10%	7%	18%	76%
Tamil Nadu	Ramanatha puram	94	8%	91%	56%	88%	54%	683	82%	829	100%	483	76%	390	29%	93%	4%	4%	49%	43%
Tamil Nadu	Salem	183	7%	89%	56%	83%	54%	1479	81%	1798	99%	747	54%	934	28%	85%	20%	17%	89%	54%
Tamil Nadu	Sivaganga	82	7%	91%	76%	88%	73%	528	75%	583	82%	451	79%	446	36%	96%	5%	5%	4%	7%
Tamil Nadu	Thanjavur	195	9%	87%	62%	83%	64%	1413	97%	1445	99%	1009	93%	489	18%	84%	8%	7%	94%	70%
Tamil Nadu	The Nilgiris	44	12%	91%	68%	84%	71%	195	98%	200	100%	158	100%	180	45%	98%	3%	2%	100%	90%
Tamil Nadu	Theni	121	8%	86%	55%	83%	49%	638	77%	810	98%	435	80%	190	11%	84%	14%	12%	99%	52%
Tamil Nadu	Thiruvallur	191	6%	94%	72%	89%	66%	1513	74%	2038	100%	1400	79%	938	23%	99%	4%	4%	89%	81%
Tamil Nadu	Thiruvarur	239	18%	88%	62%	85%	64%	398	64%	468	75%	345	63%	154	10%	55%	4%	2%	68%	79%
Tamil Nadu	Tiruchirappalli	179	5%	93%	85%	93%	77%	1443	89%	1584	98%	1385	98%	1075	30%	77%	16%	12%	78%	74%
Tamil Nadu	Tirunelveli	205	7%	90%	64%	85%	59%	1261	76%	1610	98%	704	55%	1117	34%	81%	6%	5%	40%	24%
Tamil Nadu	Tiruppur	85	5%	90%	69%			891	80%	1103	100%	0	0%	185	9%	98%	9%	9%	0%	0%
Tamil Nadu	Tiruvanamalai	281	11%	95%	83%	89%	75%	1185	70%	1653	98%	1176	75%	946	31%	75%	8%	6%	97%	88%
Tamil Nadu	Toothukudi	128	8%	88%	61%	86%	59%	1063	90%	1166	98%	860	92%	619	32%	97%	4%	4%	97%	63%
Tamil Nadu	Vellore	149	3%	90%	73%	91%	81%	1984	79%	2485	99%	1758	84%	3376	62%	84%	5%	4%	63%	25%
Tamil Nadu	Villupuram	476	11%	91%	70%	88%	75%	1865	81%	2119	92%	1573	85%	1932	38%	81%	11%	8%	89%	64%
Tamil Nadu	Virudhunagar	400	16%	91%	70%	83%	54%	937	74%	1271	100%	469	55%	528	19%	83%	4%	3%	90%	82%
Tripura	Dhalai*	6	2%	98%	95%	96%	70%	160	94%	164	96%	148	93%	215	77%	4%	0%	0%	0%	0%
Tripura	North Tripura	9	2%	87%	53%	86%	71%	215	77%	265	94%	171	71%	397	76%	4%	0%	0%	NA	NA
Tripura	South Tripura	13	3%	92%	82%	90%	73%	301	82%	363	98%	206	72%	206	36%	9%	2%	0%	0%	100%
Tripura	West Tripura	27	2%	88%	78%	89%	77%	691	70%	985	99%	660	77%	558	38%	9%	4%	0%	47%	41%
Uttar Pradesh	Agra	959	16%	91%	65%	89%	69%	4073	87%	4668	100%	2771	82%	7109	87%	0%	NA	0%	NA	NA
Uttar Pradesh	Aligarh	390	8%	93%	80%	91%	80%	2931	94%	3121	100%	2434	92%	3420	57%	7%	0%	0%	NA	NA
Uttar Pradesh	Allahabad	414	6%	91%	72%	86%	73%	4206	93%	4520	100%	3031	80%	6546	80%	37%	3%	1%	43%	54%
Uttar Pradesh	Ambedkar Nagar	70	4%	87%	85%	91%	86%	1205	82%	1401	96%	982	81%	1236	61%	10%	1%	0%	NA	NA
Uttar Pradesh	Auraiya	84	5%	91%	78%	90%	82%	1282	89%	1444	100%	1096	89%	1823	86%	1%	5%	0%	0%	0%
Uttar Pradesh	Azamgarh	212	6%	90%	76%	85%	73%	2104	88%	2306	96%	1520	78%	1288	28%	0%	67%	0%	0%	67%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Uttar Pradesh	Baghpat	14	6343	115	-14%	1150	6	-4%	83	86	1780	129	59	18	20	31	27
Uttar Pradesh	Bahraich**	32	18702	147	-14%	2929	6	0%	92	83	5275	166	67	63	18	18	17
Uttar Pradesh	Ballia	33	11062	85	9%	1981	6	-5%	61	61	3429	105	57	32	10	5	4
Uttar Pradesh	Balrampur	20	9413	118	3%	1273	7	-4%	64	61	2460	123	55	49	11	8	7
Uttar Pradesh	Banda**	18	11075	155	13%	1471	8	24%	83	76	2168	122	48	26	11	35	29
Uttar Pradesh	Barabanki**	36	20016	138	-5%	3331	6	-9%	92	91	5669	156	71	41	20	23	20
Uttar Pradesh	Bareilly	43	36896	216	-3%	5125	7	1%	120	90	6728	157	66	39	16	36	25
Uttar Pradesh	Basti**	25	10460	106	2%	1711	6	-7%	70	63	3654	149	56	63	19	10	8
Uttar Pradesh	Bijnor**	37	23445	158	-5%	2939	8	-3%	79	78	4096	110	66	11	18	16	13
Uttar Pradesh	Budaun**	36	30468	209	1%	4140	7	-1%	114	114	6101	167	82	38	4	43	32
Uttar Pradesh	Bulandshahar	35	22780	164	-7%	3293	7	-3%	95	95	7165	206	76	74	27	30	20
Uttar Pradesh	Chandauli	19	8437	108	-9%	1321	6	-9%	68	62	1906	98	51	17	11	17	12
Uttar Pradesh	Chitrakoot	10	4465	117	-6%	703	6	3%	74	67	1399	147	51	50	15	31	19
Uttar Pradesh	Deoria	32	9120	70	-18%	1588	6	-17%	49	45	2451	76	36	14	12	13	11
Uttar Pradesh	Etah	18	15003	204	-19%	2134	7	2%	116	102	3149	171	77	37	26	31	27
Uttar Pradesh	Etawah	16	13572	213	-11%	2073	7	4%	130	109	2775	174	73	33	27	41	37
Uttar Pradesh	Faizabad	20	11980	148	8%	1987	6	-7%	98	88	3249	161	74	50	17	19	14
Uttar Pradesh	Farrukhabad	19	11199	149	2%	1715	7	1%	92	78	2606	139	61	37	21	19	18
Uttar Pradesh	Fatehpur**	27	16008	146	-8%	2144	7	-6%	78	73	3377	123	56	29	15	23	19
Uttar Pradesh	Firozabad	24	12374	127	3%	2474	5	2%	102	86	3840	158	57	20	30	51	32
Uttar Pradesh	Gautam Budh Nagar	14	10519	186	0%	1578	7	3%	112	110	3674	260	83	62	72	43	29
Uttar Pradesh	Ghaziabad	39	30223	193	-1%	4951	6	-10%	127	132	10710	274	103	64	58	49	30
Uttar Pradesh	Ghazipur	36	12096	83	-8%	2227	5	-12%	61	55	3044	84	48	18	7	11	8
Uttar Pradesh	Gonda	33	12719	97	0%	2258	6	4%	69	60	4879	148	51	72	11	14	10
Uttar Pradesh	Gorakhpur	45	20996	117	-4%	3217	7	-10%	72	61	3711	83	53	12	7	11	9
Uttar Pradesh	Hamirpur-UP**	12	6918	140	0%	994	7	13%	80	65	1593	129	49	44	11	24	16
Uttar Pradesh	Hardoi**	40	26241	163	-9%	3987	7	-8%	99	97	7293	181	81	67	10	23	18
Uttar Pradesh	Hathras	16	7889	125	-17%	1243	6	5%	78	71	1677	106	57	17	6	25	14
Uttar Pradesh	Jalaun**	17	8727	126	-18%	1378	6	-5%	80	73	2361	137	56	34	17	30	20
Uttar Pradesh	Jaunpur	46	20290	109	-1%	3113	7	9%	67	62	6625	143	55	56	20	12	7

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Uttar Pradesh	Baghpat	86	6%	89%	79%	88%	82%	1027	86%	1193	100%	991	87%	1265	71%	12%	1%	0%	0%	100%
Uttar Pradesh	Bahraich**	232	5%	89%	74%	88%	78%	2557	95%	2671	100%	2412	96%	3797	72%	0%	NA	0%	NA	NA
Uttar Pradesh	Ballia	163	5%	95%	88%	91%	91%	1851	93%	1928	96%	1232	89%	1245	36%	0%	0%	0%	NA	NA
Uttar Pradesh	Balrampur	126	5%	90%	68%	85%	59%	1243	100%	1243	100%	873	93%	1000	41%	0%	NA	0%	NA	NA
Uttar Pradesh	Banda**	152	10%	94%	86%	89%	82%	1251	91%	1365	99%	1018	88%	1479	68%	54%	1%	0%	31%	63%
Uttar Pradesh	Barabanki**	423	9%	93%	84%	91%	84%	3194	96%	3331	100%	2451	87%	4048	71%	12%	0%	0%	0%	100%
Uttar Pradesh	Bareilly	338	7%	90%	70%	87%	68%	3379	87%	3868	99%	3193	100%	5728	85%	0%	NA	0%	NA	NA
Uttar Pradesh	Basti**	192	6%	90%	71%	85%	69%	1419	90%	1585	100%	932	81%	2737	75%	0%	100%	0%	NA	NA
Uttar Pradesh	Bijnor**	279	8%	91%	75%	87%	69%	2702	92%	2910	99%	2254	96%	3393	83%	1%	5%	0%	NA	NA
Uttar Pradesh	Budaun**	270	6%	94%	89%	91%	86%	3985	96%	4152	100%	3153	93%	4211	69%	5%	0%	0%	NA	NA
Uttar Pradesh	Bulandshahar	430	7%	94%	80%	93%	79%	3093	92%	3341	100%	2552	87%	4105	57%	0%	17%	0%	NA	NA
Uttar Pradesh	Chandauli	89	6%	89%	78%	86%	79%	1082	88%	1222	100%	911	91%	1667	87%	0%	0%	0%	NA	NA
Uttar Pradesh	Chitrakoot	79	7%	90%	81%	89%	78%	559	84%	606	91%	520	87%	696	50%	7%	4%	0%	NA	NA
Uttar Pradesh	Deoria	175	9%	90%	76%	87%	77%	1254	82%	1493	98%	909	77%	2384	97%	7%	6%	0%	0%	18%
Uttar Pradesh	Etah	261	10%	92%	88%	95%	95%	1562	82%	1912	100%	1270	60%	2495	79%	0%	NA	0%	NA	NA
Uttar Pradesh	Etawah	135	6%	91%	74%	86%	66%	1417	81%	1686	96%	964	65%	1854	67%	40%	1%	0%	0%	0%
Uttar Pradesh	Faizabad	204	7%	91%	79%	87%	73%	1639	91%	1792	100%	1158	92%	2455	76%	5%	2%	0%	0%	50%
Uttar Pradesh	Farrukhabad	164	7%	92%	84%	86%	77%	1182	80%	1482	100%	972	78%	791	30%	2%	2%	0%	NA	NA
Uttar Pradesh	Fatehpur**	160	6%	87%	76%	88%	80%	1876	92%	2036	99%	1235	91%	2516	75%	5%	8%	0%	NA	NA
Uttar Pradesh	Firozabad	518	20%	86%	55%	85%	62%	1865	87%	2144	99%	1208	76%	3567	93%	0%	NA	0%	NA	NA
Uttar Pradesh	Gautam Budh Nagar	259	8%	93%	75%	90%	76%	1436	91%	1537	97%	1158	87%	2566	70%	0%	NA	0%	NA	NA
Uttar Pradesh	Ghaziabad	792	9%	95%	88%	92%	82%	5073	98%	5148	99%	4105	97%	7448	70%	0%	NA	0%	NA	NA
Uttar Pradesh	Ghazipur	154	6%	91%	80%	89%	78%	1866	92%	2019	100%	1304	84%	2998	98%	1%	42%	0%	0%	100%
Uttar Pradesh	Gonda	238	5%	91%	82%	92%	83%	1688	85%	1996	100%	1391	79%	2589	53%	1%	7%	0%	NA	NA
Uttar Pradesh	Gorakhpur	141	4%	93%	83%	89%	82%	2319	84%	2742	100%	1711	79%	2894	78%	1%	21%	0%	NA	NA
Uttar Pradesh	Hamirpur-UP**	66	5%	91%	85%	91%	83%	707	87%	806	100%	591	77%	1043	65%	0%	NA	0%	NA	NA
Uttar Pradesh	Hardoi**	268	4%	92%	81%	89%	76%	3696	93%	3783	95%	2803	87%	4609	63%	1%	0%	0%	NA	NA
Uttar Pradesh	Hathras	94	7%	94%	86%	92%	86%	1024	91%	1124	99%	1138	97%	1425	85%	68%	1%	0%	NA	NA
Uttar Pradesh	Jalaun**	121	7%	90%	74%	89%	72%	1169	89%	1233	94%	987	84%	1826	77%	0%	NA	0%	NA	NA
Uttar Pradesh	Jaunpur	274	5%	92%	77%	88%	76%	2467	85%	2856	98%	1949	78%	3744	57%	0%	100%	0%	0%	100%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Uttar Pradesh	Jhansi**	21	10699	129	-9%	1834	6	5%	88	67	2367	114	49	25	8	32	18
Uttar Pradesh	Jyotiba Phule Nagar**	18	14745	207	0%	1709	9	1%	96	92	2187	123	70	23	6	25	23
Uttar Pradesh	Kannauj	16	10675	162	-5%	1397	8	-5%	85	81	1998	121	63	26	11	21	19
Uttar Pradesh	Kanpur Dehat**	19	9557	127	11%	1463	7	19%	78	77	2097	111	61	16	12	22	17
Uttar Pradesh	Kanpur Nagar	49	32423	165	-2%	5852	6	2%	119	82	7285	148	55	27	26	40	27
Uttar Pradesh	Kanshiram Nagar	15	8736	149	144%	1228	7	-1%	84	81	1952	133	69	37	11	15	12
Uttar Pradesh	Kaushambi	15	10881	177	-4%	1732	6	-13%	113	112	2938	191	89	49	14	39	23
Uttar Pradesh	Kheri	38	19928	131	2%	2948	7	3%	78	70	4887	129	56	42	9	21	16
Uttar Pradesh	Kushinagar	34	12231	89	-2%	2000	6	-4%	58	55	2972	87	48	19	10	9	7
Uttar Pradesh	Lalitpur**	12	6849	147	2%	1202	6	1%	104	84	1299	112	65	19	4	23	20
Uttar Pradesh	Lucknow	44	41332	236	-9%	6734	6	-6%	154	95	7563	173	68	41	29	36	28
Uttar Pradesh	Maharajganj**	26	10304	100	-12%	1463	7	-10%	57	56	2179	85	49	21	5	9	7
Uttar Pradesh	Mahoba**	8	4649	138	13%	831	6	16%	99	93	967	115	63	8	9	35	32
Uttar Pradesh	Mainpuri	19	7662	101	-15%	1188	6	7%	63	54	1890	100	41	17	10	19	15
Uttar Pradesh	Mathura	25	14032	143	-15%	2290	6	-11%	93	79	3177	129	64	31	14	20	17
Uttar Pradesh	Mau**	22	9668	110	12%	1125	9	-4%	51	46	2002	91	41	31	9	10	5
Uttar Pradesh	Meerut	36	30663	215	-6%	4093	7	-3%	115	104	6654	187	81	45	31	28	23
Uttar Pradesh	Mirzapur	25	16807	167	3%	2307	7	-10%	92	88	3615	144	67	41	10	25	22
Uttar Pradesh	Moradabad**	45	25750	145	-18%	4237	6	-8%	95	88	5309	119	69	16	13	22	20
Uttar Pradesh	Muzaffarnagar	42	31163	185	-4%	4065	8	-1%	97	92	6326	150	68	30	22	30	26
Uttar Pradesh	Pilibhit**	20	15957	204	-9%	2065	8	-1%	106	85	2671	137	64	27	11	35	22
Uttar Pradesh	Pratapgarh**	32	17860	138	-5%	2133	8	-8%	66	64	3962	122	54	37	14	17	11
Uttar Pradesh	Rae Bareli**	34	14614	107	-7%	2660	5	-2%	78	72	5433	159	61	68	16	15	12
Uttar Pradesh	Rampur	23	17756	194	-6%	2373	7	1%	104	97	3866	169	71	48	16	33	28
Uttar Pradesh	Saharanpur	34	24940	184	-12%	3658	7	-10%	108	101	5146	152	69	18	26	39	33
Uttar Pradesh	Sant Kabir Nagar**	17	8033	119	5%	1131	7	-9%	67	63	2095	124	56	41	15	11	8
Uttar Pradesh	Sant Ravidas Nagar	16	11412	178	0%	1515	8	-4%	94	94	3102	193	74	71	14	35	21

District-wise Performance of RNTCP (Contd...)

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Uttar Pradesh	Jhansi**	83	5%	86%	70%	88%	72%	1300	93%	1383	99%	1138	81%	1229	52%	7%	1%	0%	NA	NA
Uttar Pradesh	Jyotiba Phule Nagar**	40	2%	92%	84%	88%	82%	1558	94%	1651	100%	1316	92%	1000	46%	12%	0%	0%	NA	NA
Uttar Pradesh	Kannauj	101	6%	94%	83%	91%	87%	1231	92%	1344	100%	1130	95%	1551	78%	0%	NA	0%	NA	NA
Uttar Pradesh	Kanpur Dehat**	67	4%	93%	84%	92%	88%	1299	88%	1476	100%	1358	95%	1650	79%	0%	NA	0%	NA	NA
Uttar Pradesh	Kanpur Nagar	512	10%	87%	73%	83%	69%	3678	90%	4060	100%	2820	88%	4887	67%	0%	14%	0%	NA	NA
Uttar Pradesh	Kanshiram Nagar	110	6%	93%	85%	96%	95%	1104	92%	1169	98%	600	74%	1443	74%	0%	NA	0%	NA	NA
Uttar Pradesh	Kaushambi	125	5%	98%	96%	98%	95%	1688	97%	1732	100%	1503	97%	2938	100%	10%	1%	0%	NA	NA
Uttar Pradesh	Kheri	180	4%	89%	78%	89%	79%	2266	84%	2712	100%	1766	82%	3939	81%	0%	NA	0%	NA	NA
Uttar Pradesh	Kushinagar	142	5%	95%	87%	92%	82%	1620	85%	1891	100%	1345	82%	2791	94%	1%	35%	0%	17%	67%
Uttar Pradesh	Lalitpur**	41	4%	85%	77%	86%	78%	989	100%	1015	103%	713	88%	948	73%	34%	1%	0%	NA	NA
Uttar Pradesh	Lucknow	483	8%	86%	63%	81%	59%	3870	92%	4175	100%	3338	99%	2349	31%	15%	1%	0%	0%	33%
Uttar Pradesh	Maharajganj**	90	5%	94%	83%	89%	82%	1256	86%	1380	95%	854	68%	1615	74%	1%	30%	0%	0%	0%
Uttar Pradesh	Mahoba**	36	5%	93%	80%	89%	83%	721	90%	779	97%	542	86%	778	80%	0%	NA	0%	NA	NA
Uttar Pradesh	Mainpuri	89	6%	91%	79%	91%	82%	925	87%	984	92%	604	56%	1024	54%	0%	NA	0%	NA	NA
Uttar Pradesh	Mathura	170	6%	92%	73%	88%	73%	1785	90%	1983	100%	1583	91%	2180	69%	8%	6%	0%	0%	0%
Uttar Pradesh	Mau**	67	4%	94%	86%	92%	85%	920	91%	1012	100%	705	93%	1393	70%	9%	8%	1%	NA	NA
Uttar Pradesh	Meerut	371	7%	93%	83%	91%	81%	3319	90%	3691	100%	3057	92%	5271	79%	6%	4%	0%	0%	100%
Uttar Pradesh	Mirzapur	157	5%	95%	88%	93%	91%	2086	93%	2191	98%	1546	91%	2405	67%	1%	0%	0%	0%	100%
Uttar Pradesh	Moradabad**	216	5%	91%	74%	86%	71%	3608	91%	3914	99%	2968	85%	3892	73%	0%	NA	0%	NA	NA
Uttar Pradesh	Muzaffarnagar	253	5%	91%	72%	87%	73%	3464	88%	3951	100%	2899	91%	4740	75%	11%	1%	0%	0%	0%
Uttar Pradesh	Pilibhit**	99	5%	90%	84%	85%	79%	1623	97%	1672	100%	1403	91%	2142	80%	9%	1%	0%	NA	NA
Uttar Pradesh	Pratapgarh**	166	5%	94%	86%	91%	86%	1918	91%	2119	100%	1130	66%	3320	84%	13%	6%	1%	NA	NA
Uttar Pradesh	Rae Bareli**	236	5%	88%	78%	86%	77%	2072	83%	2471	99%	1637	83%	4526	83%	2%	3%	0%	0%	0%
Uttar Pradesh	Rampur	151	5%	90%	68%	87%	68%	2091	92%	2276	100%	1697	87%	464	12%	8%	1%	0%	NA	NA
Uttar Pradesh	Saharanpur	219	6%	92%	77%	90%	81%	3181	92%	3440	100%	2595	92%	4106	80%	0%	NA	0%	NA	NA
Uttar Pradesh	Sant Kabir Nagar**	105	6%	90%	69%	87%	77%	886	82%	1067	98%	514	71%	1425	68%	1%	25%	0%	NA	NA
Uttar Pradesh	Sant Ravidas Nagar	179	7%	96%	89%	95%	93%	1466	97%	1514	100%	1278	100%	2094	68%	1%	12%	0%	NA	NA

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
Uttar Pradesh	Shahjahanpur	30	17665	146	-9%	2991	6	-16%	99	84	3734	123	69	25	10	20	16
Uttar Pradesh	Shravasti**	10	5025	120	-11%	768	7	-9%	73	71	972	93	58	13	8	14	13
Uttar Pradesh	Siddharth nagar**	24	10155	105	4%	1405	7	-4%	58	58	2456	101	48	32	10	11	10
Uttar Pradesh	Sitapur**	43	29340	171	13%	3537	8	10%	82	77	7370	172	60	71	12	29	18
Uttar Pradesh	Sonbhadra	17	7826	113	3%	1448	5	11%	83	77	1831	105	64	17	9	15	12
Uttar Pradesh	Sultanpur	38	16324	108	-11%	2625	6	-17%	69	66	4063	107	58	28	10	12	9
Uttar Pradesh	Unnao**	32	16807	131	-16%	2621	6	-6%	82	82	5042	157	60	47	22	28	22
Uttar Pradesh	Varanasi	37	23527	157	-2%	3432	7	0%	92	73	5868	157	60	48	27	22	13
Uttarakhand	Almora	7	4898	168	-18%	533	9	-17%	73	64	744	102	47	8	20	24	18
Uttarakhand	Bageshwar	3	2433	211	26%	280	9	-10%	97	93	406	141	68	18	24	31	27
Uttarakhand	Chamoli	4	2023	119	15%	300	7	9%	70	72	562	132	51	26	23	31	22
Uttarakhand	Champawat	3	1895	183	-1%	166	11	-11%	64	68	298	115	49	15	28	23	20
Uttarakhand	Dehradun	15	16487	279	1%	2547	6	1%	172	86	2874	194	59	52	44	39	30
Uttarakhand	Garhwal	8	5800	180	3%	893	6	3%	111	72	994	123	52	26	19	26	22
Uttarakhand	Hardwar	17	9243	138	-5%	1413	7	-5%	85	75	2178	130	51	31	16	33	26
Uttarakhand	Nainital	9	7829	222	8%	1616	5	-3%	183	117	1848	210	72	34	33	71	47
Uttarakhand	Pithoragarh	5	3527	165	19%	424	8	14%	79	71	611	114	55	23	16	20	18
Uttarakhand	Rudraprayag	3	1599	152	-12%	218	7	-12%	83	88	473	180	67	57	25	31	24
Uttarakhand	Tehri Garhwal	7	3664	131	13%	419	9	9%	60	71	890	127	48	23	27	29	24
Uttarakhand	Udhamsingh Nagar	14	10430	183	3%	1484	7	-7%	104	87	2330	163	62	43	19	39	26
Uttarakhand	Uttarkashi	3	2361	174	-16%	289	8	-9%	85	81	546	161	55	42	26	37	28
West Bengal	Bankura	35	25373	180	8%	2874	9	5%	81	73	4356	123	63	25	21	15	11
West Bengal	Barddhaman	76	50895	166	8%	5699	9	8%	75	66	9412	123	53	31	16	22	14
West Bengal	Birbhum	33	24755	186	8%	3127	8	11%	94	81	4206	126	69	29	10	17	13
West Bengal	Dakshin Dinajpur	17	12770	192	0%	1824	7	-6%	110	99	2506	151	87	19	23	22	16
West Bengal	Darjiling**	18	16589	234	2%	2373	7	14%	134	106	3907	220	73	39	54	54	40
West Bengal	Haora	47	26908	142	-6%	3274	8	-2%	69	61	5296	112	44	18	22	28	19
West Bengal	Hugli	56	26685	120	-4%	3514	8	1%	63	57	5807	104	47	19	19	19	12

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
Uttar Pradesh	Shahjahanpur	187	6%	92%	83%	87%	79%	1570	61%	1810	71%	1265	64%	1225	33%	3%	0%	0%	NA	NA
Uttar Pradesh	Shravasti**	20	2%	91%	85%	87%	78%	686	92%	749	100%	531	83%	810	83%	8%	1%	0%	0%	0%
Uttar Pradesh	Siddharth nagar**	117	5%	96%	91%	91%	85%	1249	88%	1413	100%	920	83%	1418	58%	1%	50%	0%	0%	0%
Uttar Pradesh	Sitapur**	366	6%	88%	77%	90%	82%	2944	88%	3356	100%	2051	90%	4660	63%	2%	0%	0%	NA	NA
Uttar Pradesh	Sonbhadra	89	6%	92%	82%	92%	88%	1207	90%	1311	98%	832	72%	1802	98%	4%	3%	0%	0%	100%
Uttar Pradesh	Sultanpur	187	5%	93%	80%	90%	79%	2348	93%	2471	98%	1742	88%	0	0%	3%	2%	0%	NA	NA
Uttar Pradesh	Unnao**	262	6%	93%	86%	89%	81%	2485	94%	2642	100%	2404	93%	3416	68%	6%	0%	0%	0%	0%
Uttar Pradesh	Varanasi	531	10%	91%	72%	87%	71%	2470	90%	2722	99%	2069	86%	4355	74%	0%	100%	0%	100%	0%
Uttarakhand	Almora	60	11%	92%	82%	88%	78%	429	90%	468	98%	331	88%	375	50%	3%	0%	0%	0%	0%
Uttarakhand	Bageshwar	18	6%	94%	90%	85%	77%	239	87%	250	91%	132	88%	47	12%	0%	0%	0%	0%	0%
Uttarakhand	Chamoli	17	4%	92%	82%	85%	81%	254	81%	309	98%	222	84%	196	35%	10%	0%	0%	0%	0%
Uttarakhand	Champawat	43	18%	85%	72%	92%	81%	150	83%	179	99%	113	85%	219	73%	12%	0%	0%	0%	0%
Uttarakhand	Dehradun	261	11%	89%	67%	82%	64%	1069	81%	1253	95%	737	78%	2384	83%	19%	3%	1%	60%	40%
Uttarakhand	Garhwal	65	8%	90%	77%	82%	69%	485	81%	549	92%	316	66%	569	57%	8%	0%	0%	0%	0%
Uttarakhand	Hardwar	151	9%	89%	76%	86%	78%	964	75%	1272	98%	787	76%	1396	64%	39%	0%	0%	0%	0%
Uttarakhand	Nainital	121	10%	83%	64%	76%	56%	967	92%	1008	96%	534	95%	683	37%	10%	1%	0%	0%	0%
Uttarakhand	Pithoragarh	50	10%	89%	64%	91%	84%	366	94%	390	100%	278	89%	237	39%	14%	3%	0%	33%	33%
Uttarakhand	Rudraprayag	20	5%	92%	76%	88%	81%	214	89%	240	100%	193	94%	227	48%	13%	0%	0%	0%	0%
Uttarakhand	Tehri Garhwal	32	5%	88%	81%	90%	85%	417	83%	501	100%	319	80%	498	56%	3%	3%	0%	0%	0%
Uttarakhand	Udhamsingh Nagar	143	8%	90%	71%	87%	59%	1194	95%	1240	99%	795	94%	629	27%	6%	2%	0%	0%	0%
Uttarakhand	Uttarkashi	38	9%	89%	76%	89%	77%	244	87%	282	100%	199	83%	408	75%	4%	0%	0%	0%	0%
West Bengal	Bankura	119	3%	93%	83%	90%	74%	2142	82%	2457	95%	1866	85%	1104	25%	21%	0%	0%	0%	0%
West Bengal	Barddhaman	337	4%	90%	62%	86%	62%	3575	69%	4766	92%	2514	61%	2381	25%	19%	1%	0%	0%	13%
West Bengal	Birbhum	110	3%	88%	70%	83%	66%	2098	77%	2492	91%	1757	80%	642	15%	11%	1%	0%	0%	0%
West Bengal	Dakshin Dinajpur	71	3%	83%	65%	83%	66%	1223	72%	1383	81%	1122	87%	406	16%	9%	5%	0%	67%	67%
West Bengal	Darjiling**	269	9%	88%	55%	84%	55%	1461	73%	1663	83%	1165	77%	1833	47%	38%	4%	1%	50%	50%
West Bengal	Haora	277	7%	84%	69%	80%	60%	2538	84%	2934	98%	1942	88%	2234	42%	64%	3%	2%	0%	0%
West Bengal	Hugli	193	4%	87%	64%	84%	65%	2343	71%	3235	99%	2016	76%	1505	26%	24%	2%	0%	63%	25%

District-wise Performance of RNTCP (Contd...)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
West Bengal	Jalpaiguri**	38	38995	259	9%	4298	9	11%	114	106	6927	184	88	29	31	36	25
West Bengal	Koch Bihar**	27	20975	191	-10%	1932	11	-8%	71	61	3045	111	52	19	23	17	11
West Bengal	Kolkata	51	38379	190	-4%	5366	7	-4%	106	68	6978	138	47	17	37	37	25
West Bengal	Maldah**	36	27299	188	3%	3604	8	3%	99	88	4996	137	75	22	18	23	17
West Bengal	Medinipur East	49	21864	112	-11%	1818	12	-2%	37	33	2558	52	28	7	8	9	6
West Bengal	Medinipur West	58	29115	126	24%	4076	7	23%	71	60	6347	110	51	24	17	18	10
West Bengal	Murshidabad	65	47751	184	2%	5154	9	-1%	80	72	7940	123	61	24	20	18	13
West Bengal	Nadia	51	35185	173	-2%	3140	11	2%	62	56	5111	100	45	22	16	18	12
West Bengal	North 24 Parganas	99	49164	125	-10%	5796	8	-8%	59	59	9674	98	47	12	18	21	14
West Bengal	Puruliya	28	18142	162	1%	1946	9	10%	69	66	3787	135	56	43	12	24	10
West Bengal	South 24 Parganas	76	41527	136	-8%	4068	10	-2%	53	53	6751	88	43	16	14	15	11
West Bengal	Uttar Dinajpur	27	16500	153	6%	1944	8	-2%	72	66	2793	103	58	17	14	15	10
Grand Total		**11767**	**7550522**	**160**	**3%**	**939062**	**8**	**3%**	**80**	**69**	**1522147**	**129**	**54**	**31**	**20**	**25**	**17**
Summary of performance of Tribal Districts		**530**	**305751**	**577**	**0%**	**45625**	**7**	**-1%**	**345**	**315**	**79305**	**599**	**257**	**164**	**76**	**101**	**65**
Summary of performance of Poor and Backward Districts		**2664**	**1347758**	**506**	**4.1%**	**182328**	**7**	**4%**	**274**	**251**	**304056**	**456**	**203**	**130**	**45**	**78**	**53**

District-wise Performance of RNTCP (Contd...)

State	District	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
West Bengal	Jalpaiguri**	339	6%	90%	67%	87%	70%	3903	92%	4175	98%	3459	94%	645	9%	53%	1%	1%	100%	100%
West Bengal	Koch Bihar**	76	3%	89%	67%	86%	61%	1189	68%	1612	93%	1132	77%	722	24%	9%	3%	0%	0%	0%
West Bengal	Kolkata	486	9%	81%	58%	79%	57%	3080	85%	3615	100%	2693	98%	2009	29%	32%	8%	3%	0%	0%
West Bengal	Maldah**	257	6%	87%	68%	84%	66%	2342	70%	2784	83%	1789	68%	489	10%	15%	2%	0%	0%	0%
West Bengal	Medinipur East	64	3%	86%	56%	83%	67%	1250	75%	1534	93%	1062	71%	313	12%	17%	4%	1%	33%	33%
West Bengal	Medinipur West	139	3%	91%	78%	89%	72%	2610	74%	2652	75%	2130	72%	1005	16%	4%	4%	0%	0%	0%
West Bengal	Murshidabad	372	5%	92%	73%	89%	72%	3909	81%	4523	94%	3342	82%	1570	20%	27%	1%	0%	0%	0%
West Bengal	Nadia	137	3%	89%	66%	87%	66%	2376	82%	2858	99%	2019	84%	1030	20%	39%	2%	1%	0%	60%
West Bengal	North 24 Parganas	349	5%	87%	61%	85%	64%	5650	95%	5956	100%	4636	95%	5654	58%	43%	2%	1%	49%	47%
West Bengal	Puruliya	126	4%	90%	73%	87%	68%	1218	65%	1719	92%	1324	81%	470	12%	16%	0%	0%	0%	0%
West Bengal	South 24 Parganas	267	5%	88%	64%	87%	65%	3115	75%	4076	98%	2828	83%	1861	28%	20%	3%	1%	0%	0%
West Bengal	Uttar Dinajpur	136	6%	88%	68%	85%	67%	1591	87%	1772	97%	1148	83%	429	15%	15%	5%	1%	0%	0%
Grand Total		**85756**	**7%**	**90%**	**72%**	**87%**	**71%**	**721609**	**87%**	**800397**	**96%**	**543414**	**82%**	**662074**	**43%**	**34%**	**8%**	**3%**	**86%**	**49%**
Summary of performance of Tribal Districts		**4383**	**7%**	**90%**	**73%**	**88%**	**73%**	**36011**	**84%**	**40726**	**95%**	**25522**	**77%**	**39170**	**49%**	**18%**	**6%**	**1%**	**77%**	**50%**
Summary of performance of Poor and Backward Districts		**15251**	**6%**	**90%**	**73%**	**88%**	**75%**	**146682**	**86%**	**163530**	**96%**	**106653**	**79%**	**154325**	**51%**	**13%**	**7%**	**1%**	**85%**	**42%**

* Tribal Districts (more than 50% tribal population) ** Poor/Backward District † Tribal & Poor/Backward Districts

Estimated New Smear Positive cases / lakh population based on ARTI data for North Zone (Chandigarh, Delhi, Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Uttar Pradesh, Uttaranchal) is 95; East Zone (Andaman & Nicobar, Arunachal Pradesh, Assam, Bihar, Jharkhand, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, West Bengal) is 75; South Zone (Andhra Pradesh, Karnataka, Lakshdweep, Puducherry, Tamil Nadu) is 75 and West Zone (Chhattisgarh, Dadra & Nagar Haveli, Daman & Diu, Goa, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan) is 80; Orissa is 85, Kerala is 50

1 Projected population based on census population of 2001 is used for calculation of case-detection rate. 1 lakh = 100,000 population

2 Smear positive patients diagnosed include new smear positive cases and smear positive retreatment cases.

3 Total patients registered for treatment includes new sputum smear positive cases, new smear negative cases, new extra-pulmonary cases, new others,relapse,failure,TAD and retreatment others

4 Sputum Conversion rate is not expected for new districts that began implementing RNTCP in 4th quarter 2010.

5 Cure rate and Success rate are not expected for new districts that began implementing RNTCP after 4th quarter 2009.

Values for grey areas are not expected

Zonal Analysis

Zone	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	Rate of change in suspects examined per lakh population (compared previous year)	No of Smear positive patients diagnosed[2]	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to previous year)	Annual smear positive case detection rate (from PMR)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD)/ Pop]	Total patients registered for treatment[3]	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate	Annual previously treated case notification rate	Annual previously treated smear positive case notification rate
North Zone	2971	1908328	161	-3%	278466	7	-2%	94	82	450126	152	62	35	25	29	21
South Zone	2455	2094205	213	9%	185546	11	8%	76	63	293231	119	50	29	20	21	15
West Zone	3334	2005737	150	6%	277377	7	5%	83	72	446288	134	53	32	19	29	20
East zone	2570	1298817	126	1%	164055	8	2%	64	57	271045	105	47	26	13	18	11
North East	438	243435	139	0%	33618	7	-2.0%	77	67	61457	140	55	36	23	26	14

Zonal Analysis (Contd...)

Zone	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients[4]	3 month conversion rate of retreatment patients[4]	Treatment Success rate of new smear positive patients[5]	Treatment success rate among smear positive previously treated cases[5]	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients receiving CPT during TB treatment	Proportion of HIV infected TB patients receiving ART during TB treatment
North Zone	27571	8%	91%	76%	88%	75%	223775	90%	243321	98%	176465	87%	219730	49%	18%	2%	0%	36%	52%
South Zone	18116	7%	90%	69%	86%	66%	136445	86%	152671	96%	101084	81%	161492	55%	76%	12%	9%	89%	48%
West Zone	23579	7%	91%	71%	88%	70%	211605	87%	234090	96%	153592	82%	149912	34%	36%	8%	3%	86%	53%
East zone	13080	6%	88%	69%	87%	70%	123423	83%	142055	95%	93572	78%	108512	40%	14%	3%	0%	18%	44%
North East	3410	7%	88%	68%	85%	65%	26361	87%	28260	93%	18701	79%	22428	36%	19%	5%	1%	66%	53%

HIV Status of the TB Patients - Annual 2010
(Reported by Ten States Implementing Intensified TB/HIV Package)

Implementing states	HIV-infected TB patients (NSP only)							HIV-infected TB patients (All)						
	Registered	Cured	Completed	Died	Failure	Defaulted	Trans out	Registered	Cured	Completed	Died	Failure	Defaulted	Trans out
Andhra Pradesh	4608	73%	2%	17%	3%	4%	1%	10975	38%	40%	15%	2%	5%	1%
Goa	33	73%	0%	6%	12%	9%	0%	125	28%	52%	10%	4%	5%	1%
Gujarat	431	71%	0%	20%	2%	5%	2%	1722	23%	51%	15%	2%	7%	2%
Karnataka	2352	68%	2%	19%	2%	7%	1%	8422	23%	50%	16%	1%	8%	2%
Maharashtra	3018	74%	2%	17%	1%	5%	2%	9779	25%	50%	14%	1%	7%	2%
Manipur	83	61%	18%	7%	5%	7%	1%	200	22%	56%	12%	2%	8%	2%
Mizoram	17	53%	0%	12%	18%	18%	0%	136	3%	76%	10%	1%	7%	3%
Nagaland	29	79%	0%	17%	0%	3%	0%	107	19%	56%	9%	2%	2%	12%
Puducherry	11	73%	0%	9%	18%	0%	0%	34	26%	53%	6%	6%	3%	6%
Tamil Nadu	1693	70%	3%	16%	1%	5%	4%	4983	25%	55%	13%	1%	5%	1%
Grand Total	**12275**	**72%**	**2%**	**17%**	**2%**	**5%**	**2%**	**36483**	**28%**	**48%**	**15%**	**1%**	**6%**	**2%**

DOTS Plus Implementation, Diagnosis, 6 months interim, 12 months Culture Conversion and Treatment Outcome of MDR TB Case (Reported by DOTS Plus Sites of Implementing States)

State	Indicators on Coverage of MDR TB Services						Indicators on MDR TB Case Finding					Indicators on 6 months interim report						
	Total Population (In lacs)	Total number of districts	Number of districts implementing DOTS Plus	Population of districts implementing DOTS Plus (in lacs)	% population with access to MDR TB services under RNTCP in 2010	Number of DOTS Plus Sites functional in the state	Number of S+ Retreatment cases registered in districts implementing DOTS Plus in 2010	Number of MDR TB Suspects subjected to C-DST in 2010	Proportion of S+ RT cases registered in districts implementing DOTS Plus who were tested for MDR-TB$	Number of MDR TB Cases detected in 2010	Number of MDR TB Cases detected that were registered and initiated on Cat-IV treatment in 2010#	Number of MDR TB Case registered and initiated on Cat IV in the 4 cohorts 6-9 months prior (2Q09 - 1Q10) (a)	Out of a, No. (%) who are alive, on treatment and culture negative		Out of a, No. (%) who died		Out of a, No. (%) who defaulted	
Andhra Pradesh	839.6	24	8	336.9	40%	2	6673	791	12%	311	246	154	84	55%	19	12%	14	9%
Delhi	179.4	24	24	179.4	100%	4	6980	2870	41%	610	406	346	246	71%	19	5%	36	10%
Gujarat*	582.3	30	21	338.2	59%	2	10955	2132	19%	714	559	291	164	56%	19	7%	26	9%
Haryana	250.2	21	7	94.5	38%	1	2857	303	11%	77	54	45	28	62%	6	13%	6	13%
Jharkhand	310.4	24	2	53.8	17%	1	578	82	14%	8	3							
Kerala	343.2	14	14	343.2	100%	2	2376	878	37%	136	127	155	111	72%	9	6%	12	8%
Maharashtra	1111.2	55	16	313.2	28%	3	8190	704	9%	288	189	120	75	63%	10	8%	10	8%
Orissa	403.9	31	4	80.9	20%	1	965	94	10%	46	29	4	3	75%	1	25%	0	0%
Rajasthan	667.5	32	15	371.2	56%	1	10717	759	7%	315	215	155	119	77%	7	5%	8	5%
Tamil Nadu	670.1	31	25	537.7	80%	1	7195	485	7%	91	120	84	45	54%	4	5%	0	0%
West Bengal	886.7	19	5	232.1	26%	2	4573	927	20%	371	230	78	53	68%	3	4%	4	5%
India Total	**11767.4**	**658**	**141**	**2881.1**	**24%**	**20**	**62059**	**10025**	**16%**	**2967**	**2178**	**1432**	**928**	**65%**	**97**	**7%**	**116**	**8%**

DOTS Plus Implementation (Contd...)

State	Indicators on 12 months Culture Conversion Report											Indicators on Treatment Outcome of MDR TB Cases									
	Number of MDR TB cases registered in the 4 cohorts, 12-15 months prior (4Q08-3Q09) (b)	Out of b, No. (%) who are alive, on treatment and culture negative		Out of b, No. (%) who are alive, on treatment and culture positive		Out of b, No. (%) who are alive, on treatment and culture not known		Out of b, No. (%) who died		Out of b, No. (%) who defaulted		Number of MDR TB cases registered in the 4 cohorts, 31-33 months prior (3Q07-2Q08) (c)	Out of c, No. reported as Cured	Out of c, No. reported as Treatment Completed	Out of c, Success Rate	Out of c, No. (%) who died		Out of c, No. (%) who defaulted		Out of c, No. (%) who failed treatment	
Andhra Pradesh	101	41	41%	11	11%	25	25%	11	11%	13	13%										
Delhi	209	128	61%	13	6%	15	7%	23	11%	28	13%										
Gujarat*	164	98	60%	33	20%	0	0%	18	11%	15	9%	92	38	1	42%	21	23%	19	21%	13	14%
Haryana	28	13	46%	0	0%	5	18%	7	25%	3	11%										
Jharkhand																					
Kerala	92	66	72%	1	1%	5	5%	11	12%	9	10%										
Maharashtra	87	48	55%	10	11%	8	9%	8	9%	13	15%	45	16	4	44%	7	16%	10	22%	8	18%
Orissa																					
Rajasthan	66	41	62%	6	9%	0	0%	12	18%	7	11%										
Tamil Nadu	27	7	26%	8	30%	8	30%	4	15%	0	0%										
West Bengal	28	19	68%	1	4%	0	0%	3	11%	5	18%										
India Total	**802**	**461**	**57%**	**83**	**10%**	**66**	**8%**	**97**	**12%**	**93**	**12%**	**137**	**54**	**5**	**43%**	**28**	**20%**	**29**	**21%**	**21**	**15%**

* Data from Daman & Diu is included in Gujarat.

$ This indicator will be more relevant when S+ve RT cases are considered as MDR TB suspects in all districts in the state.

For 2010, these numbers are NOT from the same cohort of patients from which MDR diagnosed are reported, but rather from treatment initiation registers only. The current DOTS Plus information system does not allow for cohort-based reporting of MDR TB suspects, hence this should not yet be taken as a proportion of MDR TB diagnosed and used as an indicator for efficiency of initiation on treatment. Future versions of the DOTS Plus reporting system will be based on cohorts of patients tested in laboratories, and will be used for monitoring of timeliness and efficiency of diagnosis and initiation on treatment.

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