CENTRAL TB DIVISION
MINISTRY OF HEALTH AND FAMILY WELFARE

TB INDIA 2010

RNTCP STATUS REPORT

ON THE MOVE AGAINST TUBERCULOSIS INNOVATE TO ACCELERATE ACTION

NATIONAL RURAL HEALTH MISSION

DOTS- sure cure for TB.

CENTRAL TB DIVISION
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TB INDIA 2010

RNTCP STATUS REPORT

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सत्यमेव जयते

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FOREWORD

The burden of suffering and economic loss caused by tuberculosis (TB) is an affront to our conscience. TB is a curable and preventable disease. In 2009, out of the estimated global annual incidence of 9.4 million TB cases, 1.98 million were estimated to have occurred in India, thus accounting for a fifth of the global burden of TB. The Revised National Tuberculosis Control Programme (RNTCP) has now completed over eleven years of its implementation, with 3 years of full nationwide coverage. As per the WHO 2009 Global TB Control Report, TB mortality in the country has reduced by 43%, from an estimated 42/lakh population in 1990 to 24/lakh population in 2009, and the prevalence of TB in the country has reduced by 67%, from 568/lakh population in 1990 to 185/lakh population. These are encouraging trends showing that the RNTCP is on the right path and steadily working towards achieving by 2015 the United Nations' Millennium Development Goals relating to TB. Since its inception, the Programme has initiated over 11 million patients on treatment, thus saving nearly 2 million additional lives.

In 2009, the Programme reached the key milestone of 70% case detection and 85% cure of new smear positive patients. This milestone was reached by the concerted hard work of thousands of committed TB workers both within and outside government system, and they deserve hearty congratulations. The ultimate goal of the programme remains a "TB-free India", with reduction of TB burden till it is no longer a major public health problem in India. However, we have a long way to go to reach that goal.

From 2010, the programme will seek to achieve universal access of TB care for all. This means early and complete detection of all TB cases. All health providers who undertake evaluation and treatment of a patient with tuberculosis must recognize that they are assuming an important public health function that entails a high level of responsibility to the community, as well as to the individual patient. Hence the need of a strong public private partnership in TB control efforts.

Universal access includes the prevention, diagnosis and treatment of drug resistant TB. While the key focus of RNTCP is the prevention of emergence of drug resistance by provision of quality DOTS services, the management of the patients suffering from Multi-drug resistant TB (MDR-TB) is being undertaken under DOTS-Plus. The programme is establishing a network of accredited Culture and Drug Sensitivity Testing (DST) laboratories to provide diagnostic and follow up services and DOTS- Plus sites for initiating and monitoring the treatment of MDR-TB patients. Management of MDR-TB is much more complicated than standard first-line anti-TB treatment, and requires a concerted effort by all health staff, and special efforts by programme staff to detect and refer MDR suspects and to support and supervise treatment of MDR-TB patients. The DOTS- Plus services, which were first initiated in 2007 in Gujarat and Maharashtra have been scaled up to 8 other states and intensive efforts are underway to make these services available in all States.

National efforts are well underway to reduce the burden of TB/HIV co-infection. Now all States will have to take up the challenge of implementing TB/HIV collaborative activities, as HIV services are available in every district. All patients attending ICTCs and ART centers require routine TB screening, with referral of TB suspects to RNTCP. All TB patients require assessment of HIV status, with routine referral for HIV-testing in those areas implementing the intensified TB-HIV package. Everywhere in the country, wherever HIV-infected TB patient is detected, prompt referral to an ART center is required to access live-saving HIV treatment and care. Several states that are implementing the intensified TB/HIV package deserve special recognition for an impressive first-year of implementation of all TB-HIV collaborative activities. I am happy to note that intensified TB/HIV collaborative activities are being implemented in 17 states and will be expanded to all states by 2012.

TB control efforts in the last decade in the country have been tremendous and the achievements of RNTCP make us, quite correctly, very proud. Of paramount importance is the sustained political and administrative commitment to the cause of TB control, quality supervision and monitoring of the programme at all levels and effective partnerships with other sectors including NGOs, private sector health providers, patients and community. We should strive hard to achieve our goal of TB control.

I would like to congratulate all those involved in TB control efforts across the country for their hard work and commitment. The goal of a 'TB-Free India' should be in the heart and mind of every citizen of this country. I, in my personal capacity and my Ministry are fully committed to support this noble mission of TB control and urge all to continue your efforts with exemplary vigour and zeal to achieve the goal.

(Ghulam Nabi Azad)
Union Minister for Health & Family Welfare

March 2010

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
CDC	Centre for Disease Control and Prevention
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
DST	Drug Susceptibility Testing
DTC	District Tuberculosis Centre
DTCS	District TB Control Society
DTO	District Tuberculosis Officer
E	Ethambutol
EQA	External Quality Assessment
GMSD	Government Medical Store Depot
GOI	Government of India
HBCs	High Burden Countries
HRD	Human Resource Development
ICB	International Competitive Bidding
ICMR	Indian Council of Medical Research
ICTC	Integrated Counselling and Testing Centre
IEC	Information, Education and Communication
IMA	Indian Medical Association
IRL	Intermediate Reference Laboratory
ISTC	International Standards for Tuberculosis Care
KAP	Knowledge, Attitude and Practices
LT	Laboratory Technician

MDGs	Millennium Development Goals
MDR-TB	Multi Drug Resistant TB
MIFA	Managing 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
NGO	Non Governmental Organisation
NRHM	National Rural Health Mission
NRL	National Reference Laboratory
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
PP	Private Practitioner
PPM	Public-Private Mix
PSU	Public Sector Unit
PTB	Pulmonary Tuberculosis

PWB	Patient-Wise Box
QA	Quality Assurance
RBRC	Random Blinded Re-Checking
RNTCP	Revised National Tuberculosis Control Programme
SDS	State Drug Store
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
USAID	United States Agency for International Development
WHO	World Health Organization
XDR-TB	Extensively Drug Resistant TB
Z	Pyrazinamide
ZTF	Zonal Task Force

CONTENTS

RNTCP Overview 2009

- India is the highest TB burden country accounting for one fifth of the global incidence (Global annual incidence estimate is 9.4 million cases out of which it is estimated that 1.98 million cases are from India). India is 17th among 22 High Burden Countries in terms of TB incidence rate (Source: WHO global TB report 2009).
- 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.
- Full nation wide coverage was achieved in March 2006 covering over a billion populations (1164 million) in 632 districts/reporting units. In terms of treatment of patients, RNTCP is the largest and the fastest expanding programme in the world. In 2005, 1.29 million TB patients, in 2006, 1.39 million and in 2007,1.48 million patients have been enrolled for treatment. In 2008 1.51 million patients were put on treatment and in 2009 1.53 million patients have been placed on treatment.
- Treatment success rates have tripled from 25% to 87% & TB death rates have been cut 7-fold from 29% to less than 5% in comparison to the pre-RNTCP era.
- Since its inception, the Programme has initiated more than 11 million patients on treatment, thus saving more than 2 million additional lives.
- The programme has consistently maintained the treatment success rate >85% and NSP case detection rate (CDR) close to the global target of 70%. In 2009, RNTCP has achieved the NSP CDR of 72% 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 programme is focusing on the reduction in the default rates amongst all new and re-treatment cases and is undertaking steps for the same.
- Quality assured sputum smear microscopy facilities are available through more than 12,500 sputum microscopy laboratories in the health system across the country. As a result, the proportions of sputum positive cases confirmed in the laboratory are double to that of the previous programme and are on par with international standards.
- 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.

- Pediatric patient wise boxes have been introduced 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.

- 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 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

- To know the prevalence of drug resistance amongst new cases and re-treatment cases, state wide community based surveys have been carried out in the states of Gujarat and Maharashtra. These surveys estimate the prevalence of Multidrug Resistant TB (MDR-TB) to be less than 3% in new cases and 14-17 % in retreatment cases. These surveys also indicate that the prevalence of MDR-TB is not increasing in the country. Two more surveys are underway in the states of Andhra Pradesh and Uttar Pradesh and there is a plan to undertake a survey in Orissa in the near future.

- The programme is in the process of establishing a network of accredited Culture and Drug Susceptibility testing Intermediate Reference Laboratories (IRLs) across the country in a phased manner for diagnosis and follow up of MDR TB patients. IRLs (Gujarat, Maharashtra, Kerala, Andhra Pradesh, Tamil Nadu, Delhi, Rajasthan, Orissa, Haryana, West Bengal) are accredited as per the RNTCP accreditation protocol in 2008/2009. The IRLs of Jharkhand and UP (Lucknow) are in the advanced stages of proficiency testing. The rest of the IRLs will be starting the accreditation process and are likely to get accredited in 2010.

- DOTS plus for management of MDR TB has been rolled out in the states of Gujarat and Maharashtra in March, 2007 and in Andhra Pradesh, Delhi, West Bengal and Kerala in 2008. At the end of the 4th quarter of 2009 the MDR TB treatment services have been scaled up to cover ~200 million population in 105 districts across 10 states. Over 6000 MDR suspects have been examined and over 1000 MDR cases have been initiated on treatment.

- The "National framework of Joint TB/HIV Collaborative activities" was revised in 2009 which establishes uniform activities at ART centers 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 2009 saw continued increase in the quantum of referrals between the programmes. In 2009 more than 315111 TB suspects were referred from ICTCs to RNTCP and of them 33509 were diagnosed as having TB. In the same period, about 258037 TB patients were tested for HIV and of them about 31058 were diagnosed as HIV positive and were offered access to HIV care.

- Public Private Mix (PPM) activities: More than 2500 NGOs, 19,000 Private Practitioners, 150 corporate hospitals and 273 Medical Colleges are implementing RNTCP. 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 five states of Andhra Pradesh, Maharashtra, Haryana, Punjab, Uttar Pradesh and

UT of Chandigarh. The project is being extended to 'another' 10 states, under the Rolling Continuation Channel (RCC) project of GFATM.

- Over the last year, RNTCP has been gaining ground in Catholic Health facilities (CHFs) in 11 states - Andhra Pradesh, Assam, Bihar, Chattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal under the Global fund round-4. This support in being extended to 8 more state under the Rolling Continuation Channel (RCC) project of GFATM.

- **Operational Research:** In order to maintain the quality of services and to generate adequate evidence for programme planning and implementation, RNTCP has developed and disseminated priority operational research agenda. This agenda includes topics for both qualitative and quantitative research. Adequate provisions and mechanisms have been outlined to encourage interested researchers to conduct operational research. In 2009, large numbers of proposals from all the zones of the country were received and a significant number of them have been approved for funding. In addition, large scale impact assessment surveys such as TB prevalence survey and annual risk of tuberculosis infection (ARTI) survey are underway and the results will be available by the end of 2010.

- Impact of the programme:

  a. TB mortality in the country has reduced from over 42/100,000 population in 1990 to 24/100,000 population in 2008 as per the WHO Global TB Control-updated 2009 Report.

  b. The prevalence of TB in the country has reduced from 568/100,000 population in 1990 to 185/100,000 population by the year 2008 as per the WHO Global TB Control-updated 2009 Report.

  c. Repeat population surveys conducted by TRC indicate an annual decline in prevalence of disease by 12%.

- The programme is currently undertaking repeat Zonal ARTI survey (2008-10) and disease prevalence surveys at seven sites (2008 -09) to assess the impact of the programme on TB control and additionally monitor the progress towards MDGs.

- ACSM:

  a. An effective advocacy, communication & social mobilization (ACSM) strategy is in place, in order to maintain high visibility of TB and RNTCP amongst policy makers, opinion leaders and community.

  b. Four national level ACSM capacity building training workshops held with the support of National Institute of Health and Family Welfare for the key functionaries in the field (state TB officers, IEC officers & communication facilitators).

  c. Mass Media Agency developed new TV & radio spots and also conducted capacity building workshops in a few selected states.

  d. The public private mix advocacy kit (flipbooks, stickers, posters etc.) has been developed for facilitating interaction with private practitioners for community involvement. A training module for the private practitioners has been designed 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 patients know about tuberculosis in simple terminology which is provided to private providers

Chapter 1

TB: Burden of the Disease in India

Global Burden of TB

Tuberculosis (TB) is the leading cause of death from a curable infections disease. A disease caused by Mycobacterium Tuberculosis, TB has affected mankind for over 5000 years, and is still continues to be a leading cause of morbidity and mortality. The bacilli was discovered more than a century back by Sir Robert Koch in 1882 and effective drugs for treatment were available for more than half a century, globally more than 1.3 million people die of the disease every year. Nearly one third of the world's population is infected with TB Bacilli, approximately 10% of them have a life time risk of developing TB disease. However this risk increases dramatically if the person is also co-infected with HIV. The risk for developing TB disease is also higher in persons with diabetes, other chronic debilitating disease leading to immuno-compromise, poor living conditions, tobacco smokers etc. Where the transmission of Mycobacterium tuberculosis has been stable or increasing for many years, the incidence rate is highest among young adults, and most cases are due to recent infection or reinfection. As transmission falls, the caseload shifts to older adults, and a higher proportion of cases are attributable to the reactivation of latent infection.

In 2008, there were estimated 9.4 million new cases equivalents to 139 cases per 100,000 population of TB globally[1]. Provisional estimates indicate that

women account for about 3.6 million cases. Though globally the incidence of TB is decreasing, the absolute number of TB cases is still on the rise due to population growth. The slow reduction in incidence rates continues to be outweighed by the increase in population. Most of the estimated cases in 2008 occurred in Asia (55%) and Africa (30%). The 22 high burden countries account for 80% of all estimated cases world wide. The five countries that rank first to fifth in terms of number of incident cases in 2008 are India (1.98 million), China (1.3 million), South Africa (0.47 million), Nigeria (0.45 million) and Indonesia (0.43million). India and China alone account for an estimated 35% of TB cases worldwide. There were an estimated 11.1 million prevalent cases of TB in 2008 equivalent to 168 cases per 100,000 population. The South East Asia region accounts for 34% of the global TB burden.

1 Global Tuberculosis Control: Epidemiology, Strategy, Financing. Geneva, Switzerland: World Health Organization. WHO/HTM/TB/2009.411 WHO/HTM/TB/2009.411

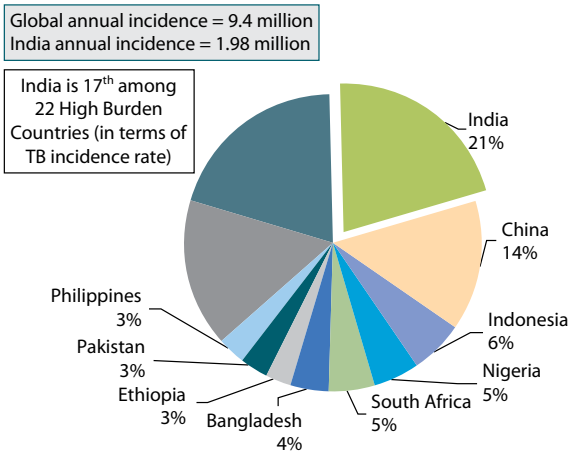
TB-HIV co-infection and drug resistant tuberculosis aggravate the TB situation globally. TB is a leading cause of death in HIV infected persons and HIV infection is the most potent risk factor for developing active TB disease from a latent TB infection. Of the 9.4 million incident cases in 2008, an estimated 1.4 million (15%) were HIV-positive. Of these HIV-positive cases, 78% were in the African region and 13% were in the South-East Asia region. An estimated 1.8 million people died of TB in 2008, of which about 0.5 million were patients with TB/HIV co-infection.

Globally Multi drug resistant TB[2] is emerging as a major challenge to programme managers. Multi drug resistance occurring primarily as a consequence of poor treatment services, could lead to emergence of XDR TB[3] if MDR TB is not managed properly. There were an estimated 0.5 million cases of MDR-TB in 2007[4]. The countries that ranked first to fifth in terms of total numbers of MDR-TB cases in 2007 were India (131 000), China (112 000), the Russian Federation (43 000), South Africa (16 000) and Bangladesh (15 000). By November 2009, 57 countries had reported at least one case of 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 2008, out of the estimated global annual incidence of 9.4 million TB cases, 1.98 million were estimated to have occurred in India, of whom 0.87 million were infectious cases, thus catering to a fifth of the global burden of TB. 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 on 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

Figure 1: India is the largest TB burden country accounting for one fifth of the global incidence



Govt. of India[5,6]. However the recent estimate by WHO gives a prevalence of 2.186 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

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:

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

2 MDR-TB defined as resistance to the 2 main first line anti-TB drugs, rifampoicin and isoniazid

3 XDR TB defined as resistance to at least INH and Rifampicin (i.e. MDR-TB), and 2 more classes of second line anti-TB drugs viz., any fluoroquinolone, and to at least one of the three injectable drugs (capreomycin, kanamycin and amikacin)

4 The Global MDR-TB and XDR-TB response plan: 2007-08. Geneva: World Health Organization. (WHO/HTM/TB/2007.387)

5 Minutes of the Expert committee meeting to estimate TB burden in India. March 2005. Directorate of Health and Family Welfare, Central TB Division, Government of India, 2005. Available at http://www.tbcindia.org. Accessed on December 12, 2006

6 Gopi PG, Subramani R, Santha T, Chandrasekaran V, Kolappan C, et al. (2005) Estimation of burden of tuberculosis in India for the year 2000. Indian J Med Res 122: 243-248

(DALYs) lost[7]. WHO estimated TB mortality in India as 276,000 (24/100,000 population) in 2008. With RNTCP implementation, there is 43% decline in death due to TB in India by 2008 is compared to 1990. It was estimated that the TB mortality was over 500,000 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.

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.

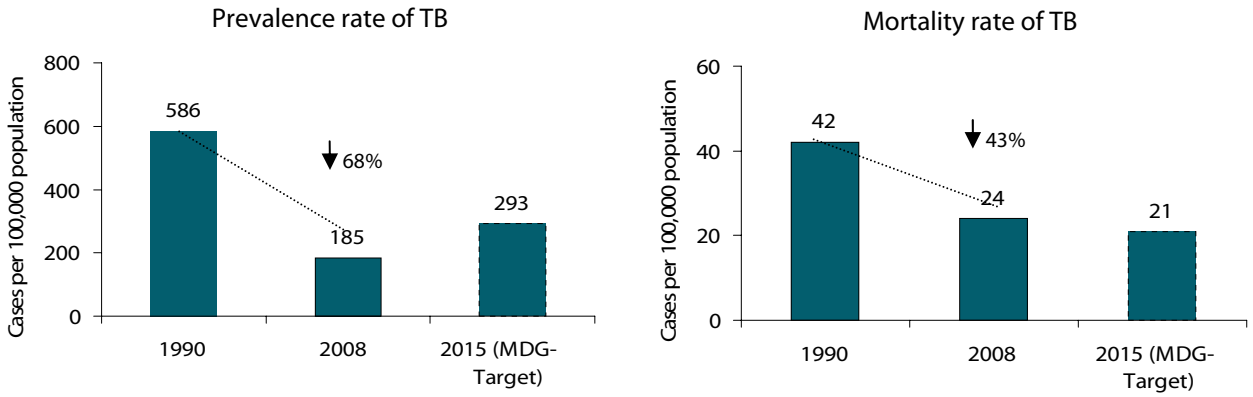
With respect to the progress towards indicator 23, as per the WHO estimates in the year 1990, the prevalence of TB in India was 586 per 100,000 populations and the mortality due to TB was 42 per 100,000 populations. In comparison, in the year 2008, the prevalence of TB in India was estimated by WHO to be 185 per 100,000 populations, and the mortality due to TB is 24 per 100,000 populations. The estimates show that India has progressed in reducing the prevalence rate by 68% and mortality rate by 43%.

Table 1: Estimated burden of tuberculosis in India

	Number (Millions) (95% CI)	Rate Per 100,000 Persons (95% CI)
Incidence (2009 WHO estimate)		
All cases	1.982 (1.6-2.4)	168
AFB smear-positive	0.885	75
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 (2000 WHO estimate)†	4.468	443
Prevalence, all cases (2007 WHO estimate)	3.304	283
Prevalence, all cases (2009 WHO estimate)	2.186(1.044-3.739)	185

** 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

Figure 2: Progress towards MDG indicator 23



7 Goodchild M, S Sahu, Wares F, L S. Chauhan, Economic impact of scaling up tuberculosis control in India - WHO - GoI - unpublished-personal communication

Researchers have used modeling to demonstrate that achieving the TB-mortality MDG target will be difficult without major efforts to reduce mortality among HIV-infected TB patients[8]. This interpretation has been supported by observations from programme data, where higher case fatality rates have been observed from many areas believed to have relatively high community HIV seroprevalence. Achievement of the mortality target then may require rapid scale-up of access to interventions, particularly antiretroviral treatment to reduce mortality in HIV-infected TB patients.

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, 2008 and 2009 (after whole country coverage).

Impact of other determinants of TB epidemiology

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[9]. 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[10]. Diabetes has been shown to be an independent risk factor for tuberculosis in community based study from South India[11] and multiple studies globally. Modeling has suggested that diabetes accounts for 14.8% of all tuberculosis and 20.8% of smear-positive TB[12]. 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[13]. 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[14]. 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 threatened by the emergence and spread of HIV and drug-resistant tuberculosis. India, the third highest HIV burdened country, had an estimated 2.31 million (0.36% of adult population in the country) people living with HIV/AIDS (PLHAs) in 2007 (estimates revised from the earlier 5.2 million PLHAs in the country, based on the findings of the comprehensive National Family Health Survey – NFHS 3), emphasizing the enormous challenge ahead.[15] The HIV epidemic pattern in the country shows great variance. The worst affected states are Andhra Pradesh, Karnataka, Manipur, Maharashtra, Nagaland and Tamil Nadu. These six states have reported more than 75% of all the AIDS cases in India and are classified as High Prevalence States. Another three states namely Gujarat, Goa and Pondicherry have been classified as Moderate HIV prevalence states. Even within the high prevalence states, there are districts which have ANC HIV levels below 1%.

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

8 Williams BG, Granich R, Chauhan LS, Dharmshaktu NS, Dye C (2005) The impact of HIV/AIDS on the control of tuberculosis in India. Proc Natl Acad Sci U S A 102: 9619-9624

9 Lonnroth K, Raviglione M (2008) Global epidemiology of tuberculosis: prospects for control. Semin Respir Crit Care Med 29: 481-491

10 Wild S, Roglic G, Green A, Sicree R, King H (2004) Global prevalence of diabetes: estimates for the year 2000 and projections for 2030. Diabetes Care 27: 1047-1053

11 Shetty N, Shemko M, Vaz M, D'Souza G (2006) An epidemiological evaluation of risk factors for tuberculosis in South India: a matched case control study. Int J Tuberc Lung Dis 10: 80-86

12 Stevenson CR, Forouhi NG, Roglic G, Williams BG, Lauer JA, et al. (2007) Diabetes and tuberculosis: the impact of the diabetes epidemic on tuberculosis incidence. BMC Public Health 7: 234

13 (2008) National AIDS Control Organization. HIV Sentinel Surveillance and HIV Estimation in India, 2007. A Technical Brief. New Delhi: Ministry of Health and Family Welfare, Government of India

14 Jha P, Jacob B, Gajalakshmi V, Gupta PC, Dhingra N, et al. (2008) A nationally representative case-control study of smoking and death in India. N Engl J Med 358: 1137-1147

15 National AIDS Control Organization. http://www.nacoindia.org

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. WHO has estimated a prevalence of 6.7 %(5.5%-7.9%) of HIV in TB patients in India for 2008.

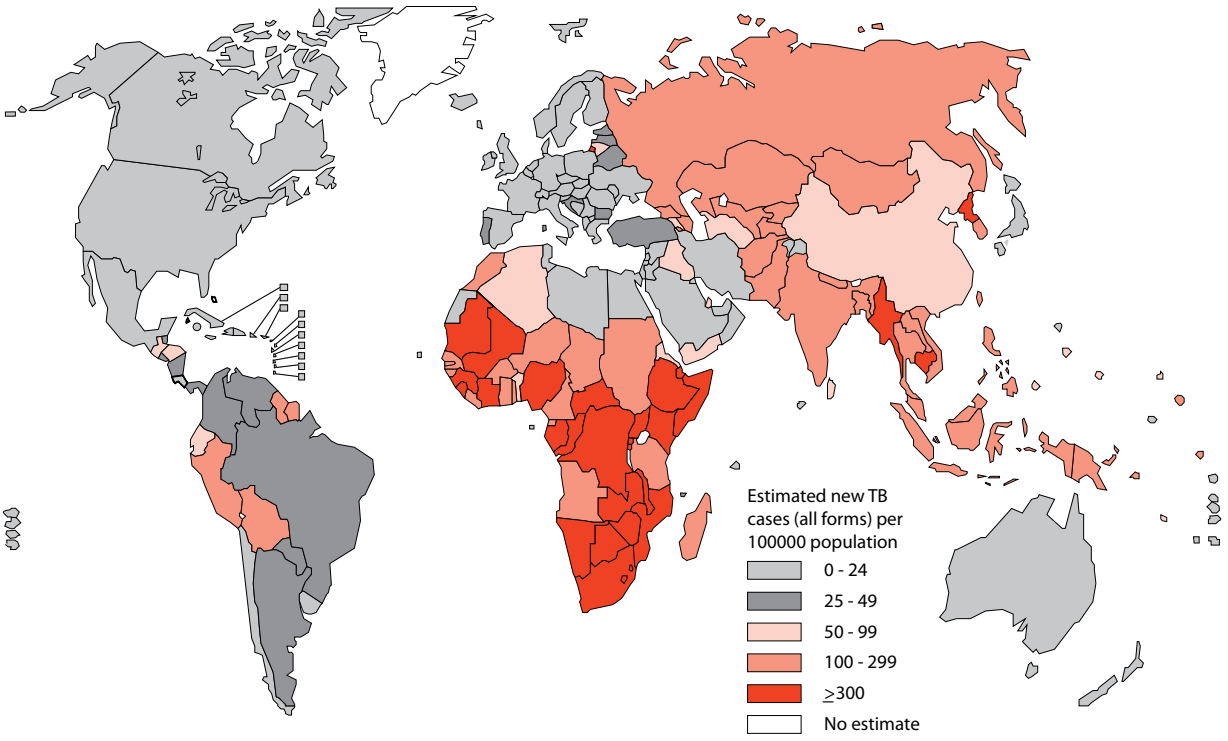
Unless continued urgent and effective action is taken, over 3 million are estimated to die of TB in India over the next 10 years regardless of the HIV prevalence. The pace at which the TB control programme in India is able to consolidate and strengthen DOTS services in the states and able to maintain the existing quality TB services provided over the next few years - will markedly change the number of new TB cases occurring at any level of HIV prevalence.

MDR and XDR-TB

The emergence of 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.[16] 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 14-17% 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 131,000 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

Figure 3: Estimated number of new TB cases, by country, 2008



16 Tuberculosis Research Centre. Trends in initial drug resistance over three decades in a rural community in South India. Indian J Tuberc 2003; 50: 75-86.

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 $23.7 billion annually[7]. Studies suggest that on an average 3 to 4 months of work time is lost as result of TB, resulting in an average lost potential earning of 20-30% of the annual household income. This leads to increased debt burden, particularly for the poor and marginalized sections of the population.[17] The vast majority (more than 90%) of the economic burden of TB in India is caused by the loss of life rather than by morbidity. This is due to the fact that TB mortality incurs a greater loss in the number of life-years per event than does TB morbidity - despite the fact that there are many more prevalent cases than deaths. A study on the economic impact of scaling up of RNTCP in India in 2009 shows that on an average each TB case incurs an economic burden of around US$ 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.

17 Ramachandran R, Balasubramaniam R, et al, Tuberculosis Research Centre, Chennai. Socio-economic impact of TB on patients and family in India, Int J Tub Lung Dis 1999; 3: 869-877

Crofton's long experience with the disease has given him a quiet but determined optimism.

Remembering Sir John Crofton (1912–2009)

Sir John Crofton, a remarkable clinician from Edinburgh, was a giant in the history of TB control. He was one of the initiators of the clinical trials against TB using combined regimens (e.g. strepto - INH-PAS) in the early 1950s. He was among the first to study and recognize the importance of drug resistance in TB. Sir John Crofton received his medical education at Cambridge University and St Thomas's Hospital in London (United Kingdom), and qualified as a doctor in 1937. During the Second World War, he joined the Royal Army Medical Corps with service in France, Egypt, Eritrea, Greece, Malta and then Germany. In 1947, he became a lecturer at the Royal Postgraduate School of Medicine at Hammersmith Hospital and treated patients at Brompton Hospital, where he participated in ground-breaking tuberculosis studies. From 1952 to 1977, Crofton held the Chair of Respiratory Diseases in the University of Edinburgh, where he and his team developed the Edinburgh Method, which paid obsessive attention to supervision, involving district nurses to follow up patients at home, as well as the triple-drug approach. From 1984 until 1988, he was Chairman of the International Union against Tuberculosis and Lung Disease. He also worked extensively in tobacco control and is the author of over 170 scientific and other publications. He passed away on 3 November 2009 at the age of 97, after a career that spanned three-quarters of a century. We salute this great soul who dedicated his entire life pursuing the goal of TB control.

Chapter 2

New Stop TB Strategy

"In recent years India has taken major strides towards controlling TB. The Stop TB Partnership is confident that India will continue the momentum and conribute significantly towards the implementation of the Global Plan to Stop TB, 2006-2015."

Dr. Marcos Espinal, Executive Secretary, Stop TB Partnership Secretariat, Geneva

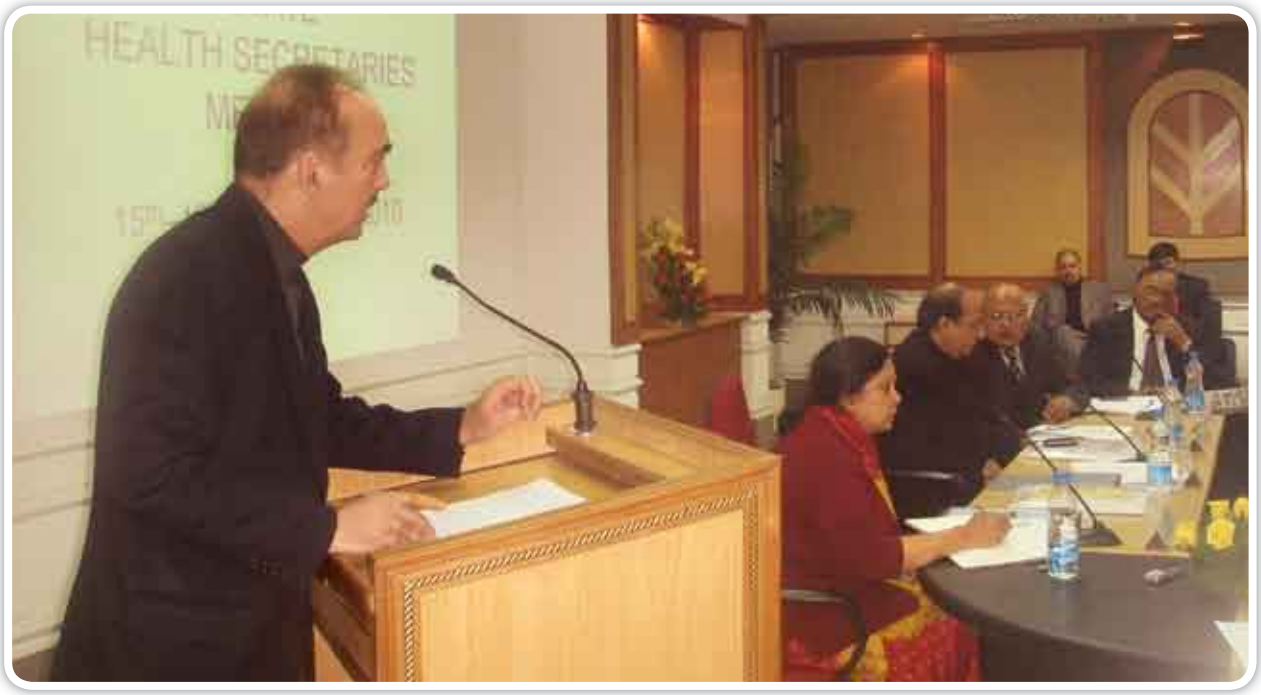
WHO Stop TB Strategy

Global TB control has made great progress in the past decade. The widespread implementation of the internationally recommended Directly Observed Treatment, Short-course (DOTS) strategy has proved to be an effective tool in controlling TB on a mass basis.

While maintaining the current status, the prime task for the next decade is to achieve the Millennium Development Goals (MDGs) and related Stop TB Partnership targets for TB control. Meeting these targets requires a coherent strategy that enables existing achievements to be sustained, effectively addresses the remaining constraints and challenges, and underpins efforts to strengthen health systems, alleviate poverty and advance human rights.

The new WHO Stop TB Strategy, released in 2006, has identified six principal components to realise the global TB related MDGs by 2015. These components were further revised in 2009:

The core element of RNTCP in Phase I (1997-2006) was to ensure high quality DOTS expansion in



Hon'ble Minister of Health and Family Welfare Govt of India 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

the country, addressing the five primary components of the DOTS strategy.

Political and Administrative Commitment

The Government of India has given TB control programme top priority. The government's continuous financial commitment, human resources and administrative support speak of its commitment to control and eliminate TB and the success of the programme, to date, bears testimony to this commitment.

Good Quality Diagnosis through Sputum Microscopy

Sputum microscopy continues to be the primary tool for detection of infectious cases. Apart from sputum microscopy, RNTCP also uses standardised diagnostic algorithms to diagnose and treat all forms of TB wherein X-ray plays a supporting role. 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 fluorescent microscopes, liquid culture and line probe assay for diagnosis drug resistant TB etc.

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 "patientwise box." Patient-wise drug boxes (both adult and pediatric) 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.

Patient wise boxes in a TB Drug Store

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

Direct observation of treatment by a DOT provider who is accessible and acceptable to the patient

Country has developed a large network of DOT providers >4 lacs, 40% of them being community DOT providers to make DOT most coinvent to patients, taking DOT close to their home. Programme is providing an incentive of Rs 250 to the community DOT provider for each patient completing the treatment.

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 standardised 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.

Addressing Stop TB Strategy under RNTCP

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 in ten states and is being extended to other states in a phased manner. By strengthening laboratories and drug delivery systems, and by providing additional contractual staff, RNTCP continues to strengthen the general health system in

Secretary Health and Family Welfare, Govt of India, reviewing RNTCP with State Health secretaries, Directors of NRHM and Directors of Health Services

the country. India will have its first 'Practical Approach to Lung health' (PAL), a defined activity to strengthen health systems in the stop TB strategy, as a pilot project in Kerala in 2010. 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.

With the active support of the TB Research Centre, Chennai, National TB Institute, Bangalore, Lala Ram Swarup Institute of TB and Respiratory Diseases, Delhi, JALMA Institute, Agra and other academicians

Practical Approach to Lung Health (PAL). Workshop for developing the technical and operational guideline is being inaugurated by the Hon'ble Minister of Health and Social Welfare, Govt of Kerala at Trivandrum

in Medical Colleges and research institutes, the programme has been undertaking operational research to generate evidence to inform policy decisions and assess the magnitude of disease burden and impact of RNTCP DOTS programme.

The Future

RNTCP is essential in order to maintain the international standards for the management of TB cases. It is necessary that professional bodies endorse the International Standards for TB Care (ISTC) and pledge that all health care providers shall give care to their TB patients as per these Standards.

The Indian medical practitioner community should commit to provide the best possible care in managing patients with tuberculosis, in accordance with international guidelines and standards and ensure rational use of first and second line anti-TB drugs.

RNTCP is building partnerships with civil society organisations and other sectors to reach out to larger sections of society through them. In addition, the MDR-TB management needs to be scaled up under the RNTCP DOTS Plus strategy while promoting rational use of second line anti- TB drugs in the country. An important component of this is the scaling up of laboratory capacity to diagnose MDR-TB. In the longer term, the success of new diagnostics, drugs and vaccine, currently under research and development, will determine the pace of TB control efforts globally and in India.

Chapter 3

RNTCP: Implementation Status and Activities in 2009

RNTCP on a fast track to achieve the TB-related UN Millennium Development Goals, has developed a strategic vision for TB control up to 2015. The country programme is already on the way to achieve the objectives of 85% cure rate and 70% case detection of new smear positive cases. The reduction in prevalence rate and mortality due to TB has become a reality. However the programme now strive hard to address other challenges like management of drug resistant TB and TB-HIV co-infection. The theme for coming years is

RNTCP review by JS(PH) and DDG(TB) with Directors of Health Services and State TB Officers

TB-related Millennium Development Goals

Goal 6
To combat HIV/AIDS, malaria and other diseases

Target 8
To have halted by 2015 and 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:

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

indicator 24
By 2005, to detect 70% of new smear positive TB cases arising annually, and to successfully treat 85% of these cases

to ensure 'Universal access' for TB care, in which special efforts are to be given for 'early case detection' and ensuring adequate TB care for all population groups. This will be achieved by further increasing the access of services to marginalised groups in hard-to-reach areas through continuation of all activities of Phase I and with intensive monitoring, supervision and evaluation. The Government of India stands fully committed towards the sustained implementation of RNTCP as a high quality programme, at least for the next few decades until tuberculosis ceases to be a public health problem; rational use of standardised first and second line anti-TB drugs; and need based advocacy, communication and social mobilisation in the country. RNTCP Phase II is making efforts to strengthen the quality of DOTS through implementation of the RNTCP quality assurance protocol for sputum microscopy; decentralised accessible and patient friendly DOT services; pro-active Public-Private Mix (PPM) activities to increase the reach of DOT services and social mobilisation to generate awareness and demand for quality services.

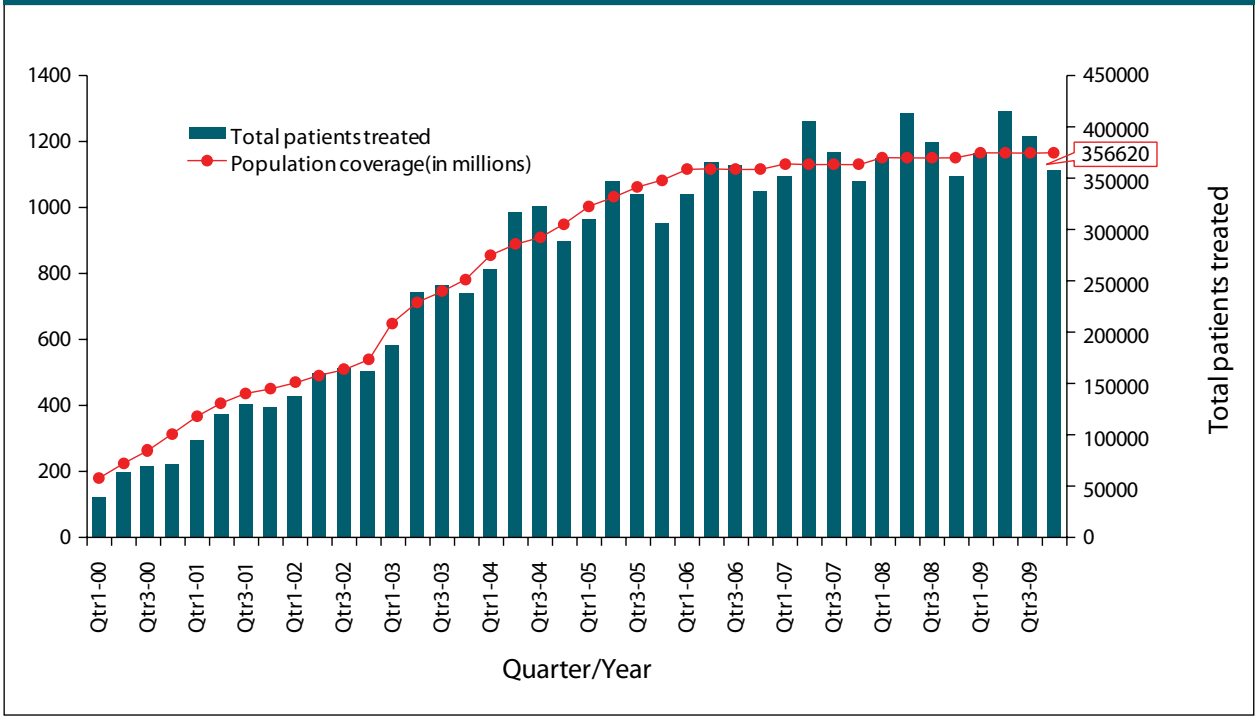
New activities have been proposed in RNTCP Phase II to provide care and management for MDR-TB cases throughout the country in a phased manner. The vision is to have a network of RNTCP accredited quality assured state level Intermediate Reference Laboratories (IRLs), at least one in each large state, providing culture and Drug Sensitivity Testing (DST) services and to have DOTS Plus sites, for the case management of MDR-TB patients as per guidelines by the year 2010.

RNTCP Activities 2009

The Revised National Tuberculosis Control Programme, since its inception in 1997 has trained over half a million staff in the health system, evaluated more than 44 million people with suspected TB, examined more than 120 million sputum slides and treated more than 11 million patients, thereby saving >2 million additional lives. This rapid expansion has not compromised the quality of services. The results meet the internationally set benchmark of a treatment success rate of >85% among new sputum positive pulmonary TB cases. Case detection rate as per global target of 70% has been achieved.

RNTCP is committed to implementing the 2006 Global Strategy to Stop TB and reaching the TB related targets of the Millennium Development Goals by 2015. The RNTCP II aims to provide a road map for TB control to achieve the long term goal, by 2015, of reducing the prevalence of TB by 50%.

Population in India Covered under DOTs and Total Tuberculosis Patients put on Treatement each Quarter



Pursue Quality DOTS Expansion and Enhancement

As a result of ground-breaking research in the 1950s and early 1960s by the Tuberculosis Research Centre (then known as the TB Chemotherapy Centre) at Chennai and the National TB Institute at Bangalore, a National Tuberculosis Programme (NTP) was implemented by Government of India in 1962. The NTP was implemented on a 50:50 cost sharing basis between Center and State and based on strategic principles of domiciliary treatment, use of a self-administered standard drug regimen of initially 12-18 months duration (6 - 8 months short course chemotherapy regimens were introduced in the 1980s), treatment free of cost, priority to newly diagnosed patients over previously treated patients, and treatment organization decentralized to district level. The NTP created an extensive infrastructure for TB control, with a network of 446 District TB Centres and 330 TB Clinics.

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) propagated by WHO and adopted in over 190 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 (Figure 1). Full national wide coverage was achieved in March 2006, and this rapid large scale expansion was hailed by the Joint Monitoring Mission 2006[18] as the fastest expanding DOTS programme in the world.

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, and over 11, 800 microscopy centres have been upgraded to provide quality sputum

18 Joint Monitoring Mission is an periodic (once in every 3 years) external evaluation undertaken by international and national experts in the field of TB control. The mission also includes participants from donors, NGOs and other civil society representatives. The programme has organized JMMs in 2000, 2003, 2006 and 2009. In 2009, over 50 international and national experts participated in the fortnight long mission

Figure 1: Current Financial Support to RNTCP

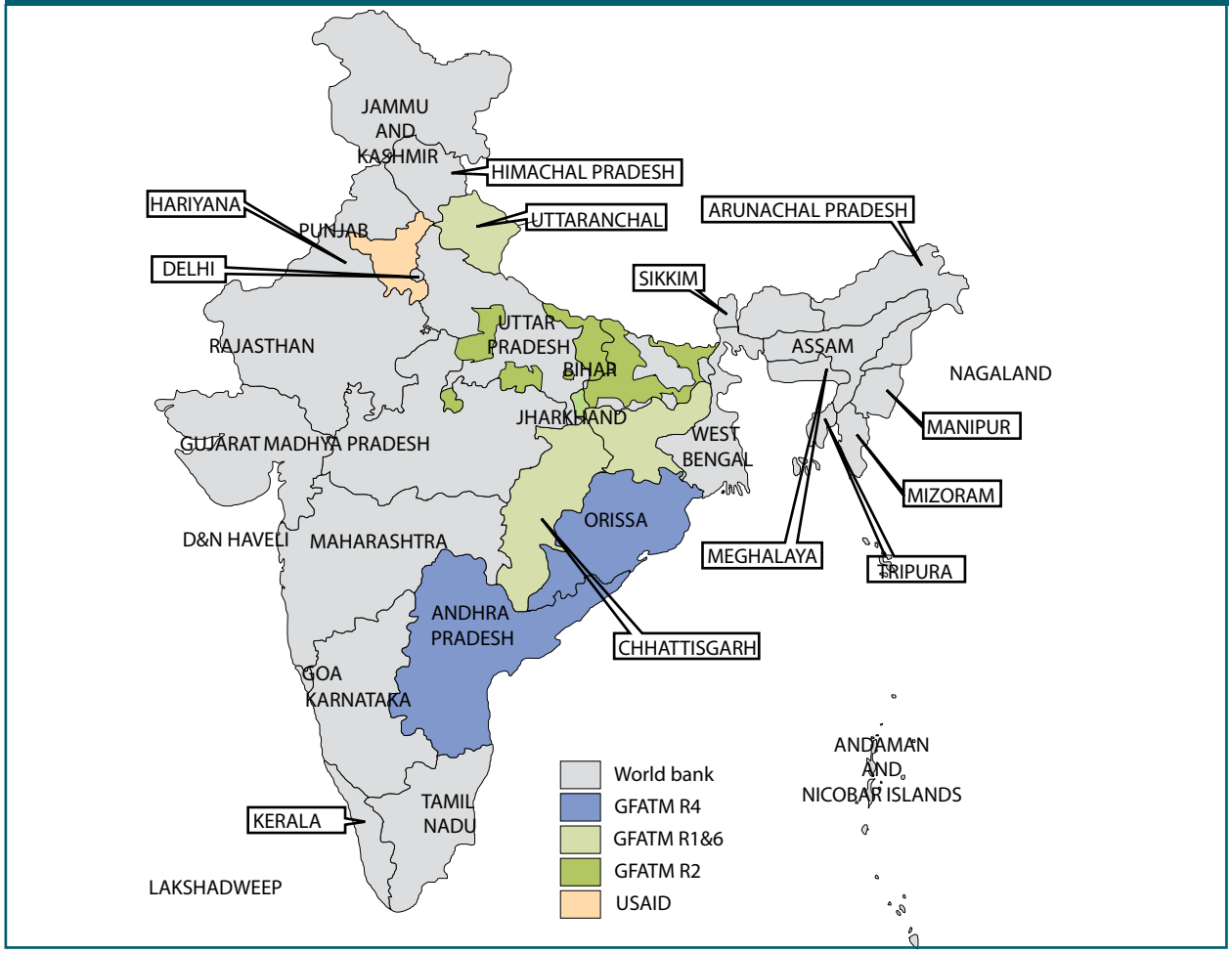


Table 1: Year wise allocation for the 11th Five Year plan

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
		1447.00

microscopy services. Over 5.8 million patients have been initiated on treatment during Phase I of the project, and 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).

However, to achieve the desired epidemiological impact where TB ceases to be a major public health problem, it was essential to support the programme for the next 15-20 years.[19] 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.

19 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.

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.

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.

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 has ended 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 has consolidated all GFATM grants. A funding of upto 199 million USD is available under this RCC grant for the period 2010–2015.

Synergies and convergence under NRHM: Starting in April 2005, the National Rural Health Mission (NRHM) has been launched with special focus on 18 identified states with poor health indices. 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 MoH&FW seeks to adopts 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

Table 2: RCC-Consolidation of grant proposals

TB proposals	April 04-Mar 05	April 05-Mar 06	April 06-Mar 07	April 07-Mar 08	April 08-Mar 09	April 09-Mar 10	April 10-Mar 11	April 11-Mar 12	April 12-Mar 13	April 13-Mar 14	April 14-Mar 15
RCC						Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
Budget											
Rd 2	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	RCC	RCC	RCC	RCC	RCC	RCC
Budget											
Rd 4		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	RCC	RCC	RCC	RCC	RCC
Budget						28.49					
Rd 6				Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	RCC	RCC	RCC
Budget						22.5	22.3	23.6			
Haryana-USAID					Till March 08	RCC	RCC	RCC	RCC	RCC	RCC
Budget											
World Bank			Yr 1 (Oct)	Yr 2	Yr 3	Yr 4	Yr 5 (Sept)				
Budget											

Joint monitoring mission 2009

of funds for improving infrastructure (up gradation of microscopy centres 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. 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, 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 quality reagents and equipment to the laboratory network. An in-built routine system has been designed for sputum microscopy External Quality Assessment (EQA) and for supervision and monitoring of the diagnostic systems by the RNTCP Senior TB Laboratory Supervisor (STLS) locally

Lab technician doing Hybridization

and by the intermediate (state level) and national reference laboratory network for RNTCP at higher levels.

Quality Assured Laboratory Services

RNTCP has established a nation wide laboratory network, encompassing over 12,500 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. Efforts have been made to consolidate the laboratory network into a well organized one, with a defined hierarchy for carrying out sputum microscopy with external quality assessment (EQA), Drug resistance Surveillance (DRS), mycobacterium culture and Drug susceptibility testing (DST) and DOTS-Plus related activities.

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.

Two microbiologists and three 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 visits each assigned state (Table 3) 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. NRLs also undertake periodic proficiency testing of the IRLs as part of the accreditation process under RNTCP.

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, Chattisgarh, Goa, Gujarat (& Dadra Nagar Haveli, Daman & Diu), Kerala (& Lakshadweep), Sikkim, Tamil Nadu, Punjab (& Chandigarh)	8	12	144
LRS	Delhi, Arunachal Pradesh, Haryana, Manipur, Nagaland, Mizoram, Meghalaya, Tripura	4	8	93
NTI	Maharashtra, Orissa, Rajasthan, West Bengal (& Andaman & Nicobar Islands), Karnataka, Pondicherry, Bihar, Madhya Pradesh, Jharkhand, Jammu and Kashmir	12	11	281
JALMA	Uttar Pradesh, Uttarakhand, Himachal Pradesh, Assam	4	4	118

The Central 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.

Intermediate Reference Laboratory (IRL)

The states have one IRL in the STDC / Public Health Laboratory / Medical College of the respective state. The functions of IRL are supervision and monitoring of EQA activities, mycobacterial culture and DST and also 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.

IRL

The IRLs undertake on-site evaluation and panel testing to each district in the state, at least once a year. Currently, 27 IRLs (Table 4) are being strengthened to undertake C&DST activities for the diagnosis and follow up of MDR TB patients. These IRLs are being accredited after undergoing the process of accreditation as per RNTCP guidelines. Till now, IRLs of Gujarat, Maharashtra, Delhi, Andhra Pradesh, Kerala, Tamil Nadu, West Bengal, Rajasthan and Orissa have been accredited and are undertaking C&DST for the MDR-TB patients from the respective states.

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 12,500 DMCs are available 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. (Fig 2 & 3)

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, operationalisation of RBRC procedures and identifying DMCs with errors for corrective actions.

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 with regard to issues such as setting up of IRLs, human resources, conducting effective on site evaluations by the IRL staff to DMC level, bio-medical waste disposal, infection control measures and other operational and technical issues. A separate training, which focuses mainly on

National workshop on capacity building and experience sharing –Microbiologist- NTI Bengaluru.

Figure 2: External quality assessment activities of RNTCP

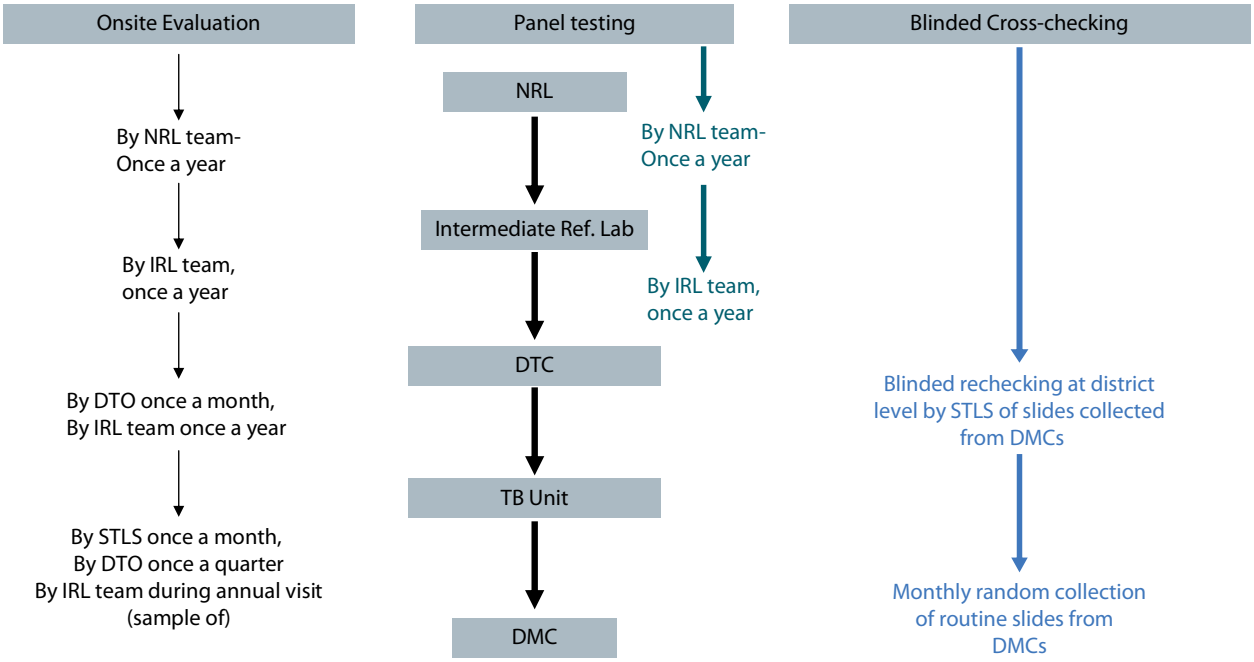
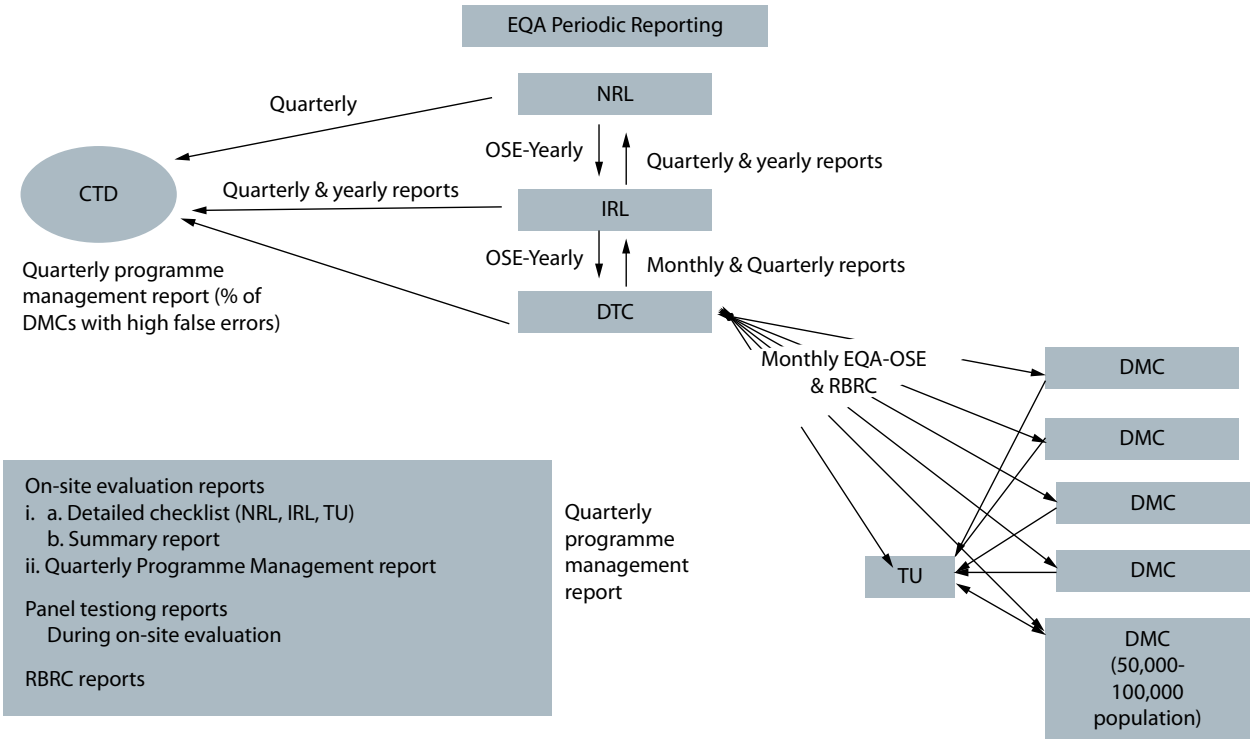


Figure 3: Reporting procedure



technical aspects of EQA protocol, also provided to the microbiologists and lab technicians of IRLs by the NRLs. The list of 27 IRLs with the status of EQA activities is given in table 4.

Table 4: List of designated IRLs and status of EQA activities

State	Name of institution where IRL identified/functional	EQA		
		OSE	RBRC	Panel Testing
Andhra Pradesh	STDC, Hyderabad	Yes	Yes	Yes
Arunachal Pradesh	STDC, Naharlagun	Yes	Yes	No
Assam	Guwahati Medical College	Yes	Yes	No
Bihar	STDC, Patna	Yes	Yes	Yes
Chhattisgarh	Regional Leprosy Training and Research Institue, Raipur	Yes	Yes	No
Delhi	New Delhi TB Centre	Yes	Yes	Yes
Gujarat	STDC, Ahmedabad	Yes	Yes	Yes
Goa	GMC, Bambolim	Yes	Yes	No
Haryana	PHL, Karnal	Yes	Yes	Yes
Himachal Pradesh	TB Hospital, Dharampur	Yes	Yes	Yes
Jammu	Jammu Medical College	Yes	Yes	No
Kashmir	STDC, Srinagar	Yes	Yes	Yes
Jharkhand	Itki TB sanatorium	Yes	Yes	Yes
Karnataka	STDC, Bangalore	Yes	Yes	Yes
Kerala	STDC, Thiruvanathapuram	Yes	Yes	Yes
Madhya Pradesh	STDC, Bhopal	Yes	Yes	No
Maharashtra	STDC, Nagpur	Yes	Yes	Yes
Manipur	STDC, Imphal	Yes	Yes	Yes
Orissa	STDC, Cuttack	Yes	Yes	Yes
Pondicherry	STDC, Pondicherry	Yes	Yes	Yes
Punjab	STDC, Patiala Government Medical College	Yes	Yes	Yes
Rajasthan	STDC, Ajmer	Yes	Yes	Yes
Sikkim	STDC, Gangtok	Yes	Yes	No
Tamil Nadu	Institute of Thoracic Medicine, Chennai	Yes	Yes	Yes
Uttar Pradesh	STDC Agra, and KGMU Lucknow	Yes	Yes	Yes
Uttarakhand	STDC Dehradun	Yes	Yes	No
West Bengal	STDC, Kolkata	Yes	Yes	Yes

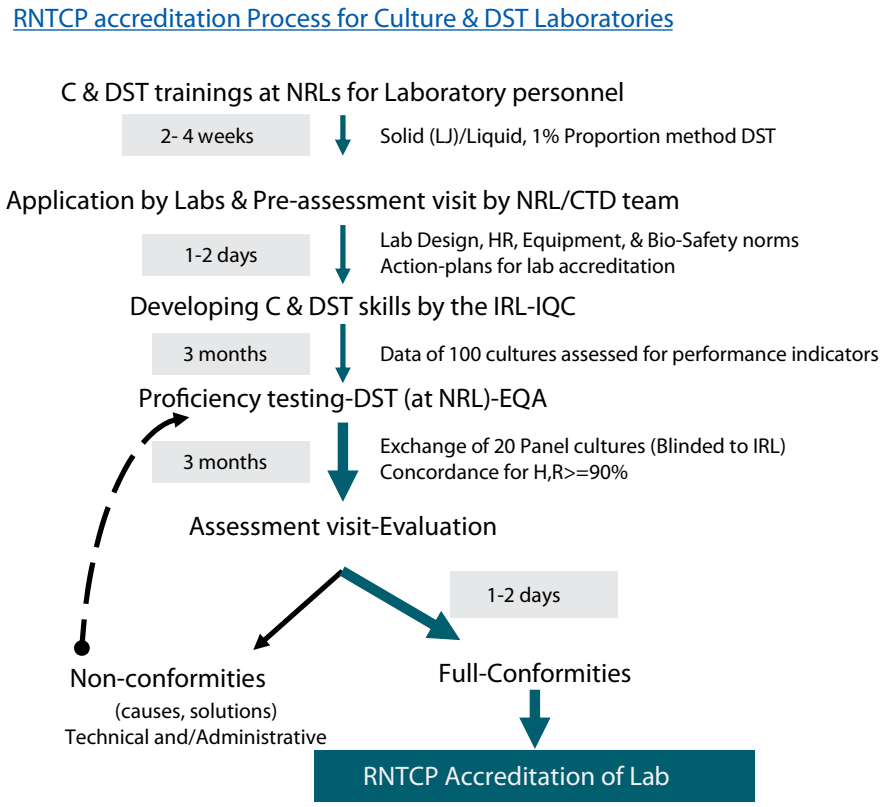
Establishment of C&DST Labs

RNTCP has adopted a rigorous C & DST Laboratory accreditation procedure (see Figure 4) to provide accurate and reliable services for MDRTB 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 2-4 week Culture and DST trainings to the Microbiologists and Laboratory technicians of laboratories undergoing accreditation. The accreditation process has three main stages.

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, technical procedures, bio-safety and infection control measures. Corrective actions recommended in case of deficiencies.

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.

Figure 4: 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 submissi on of application

3. NRLs provide external blinded proficiency testing panel of 20 cultures for susceptibility testing for anti-TB drugs—H,R,E and S. 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. If the concordance levels between the laboratories are at least 90% for H and R, the national team will make a second visit to the IRL and, if conditions and processes are satisfactory, accreditation is awarded. The accreditation is initially granted for a period of two years and shall be subjected to an on-site evaluation within one year of grant of accreditation and a re-assessment before the end of two years. Thereafter, re-assessment is carried out every two years. Accredited labs carry out testing activities within the scope of accreditation to meet the needs of RNTCP. The accredited laboratory shall regularly and satisfactorily participate in the proficiency testing programmes/rounds conducted by NRLs.

9 IRLs (Gujarat, Maharashtra, Kerala, Andhra Pradesh, Tamil Nadu, Delhi, Rajasthan, Orissa, West Bengal) are accredited as per the RNTCP accreditation protocol in 2008/2009. The IRLs of Haryana, Jharkhand and UP (Lucknow) are in the advanced stages of proficiency testing. (Table 5) The rest of the IRLs will be starting the accreditation process and are likely to get accredited in 2010. The procurement of C&DST equipments for another 14 IRLs (Assam, Bihar, Sikkim, Manipur, Arunachal Pradesh, Uttar Pradesh, Punjab, Himachal Pradesh, Srinagar, Jammu, Pune, Karnataka, Madhya Pradesh & Goa) is being done as per World Bank guidelines through UNOPS. As per the recommendation of 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.

Table 5: Status of accreditation of the C&DST labs in the country

IRLs accredited	IRLs in the process	Govt. Medical Colleges (in the process)	PPs/NGOs (accredited)	Private sector(in the process)
Gujarat Maharashtra Andhra Pradesh Delhi Kerala Tamil Nadu Rajasthan West Bengal Orissa	Haryana Jharkhand Uttarakhand Chattisgarh	SMS Jaipur, AIIMS, KGMU Lucknow, PGI Chandigarh	CMC Vellore, BPRC Hyderabad, PD Hinduja Hospital Mumbai	Ranbaxy lab, Mumbai & Gurgaon Metropolis Mumbai, Quest diagnostics Gurgaon

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 newer TB diagnostic technologies in collaboration with Foundation for Innovate and 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 nation-wide roll out 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.

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 taken 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 <3% and amongst re-treatment cases 14-17%.

Currently, DRS surveys are ongoing in Andhra Pradesh and Uttar Pradesh. AP has completed the study with the report likely to be submitted in early 2010. The UP study is likely to be completed by mid 2010. The pilot study for the DRS survey in Orissa has been successfully completed with the main study starting in January 2010.

A second round of DRS surveys will be carried out in the same states, using the same methodology, after a period of 5 years.

Validation and Demonstration of Newer Technologies for Diagnosis of Tuberculosis and MDR-TB

Rapid and newer technologies would enhance the accurate diagnosis and cut short the times of laboratory diagnosis. Realising these needs as well as to meet the increased threat of MDR-TB, RNTCP has initiated projects to validate and demonstrate newer technologies in collaboration with Foundation for Innovate and New Diagnostics (FIND), India. Under this collaboration newer technologies- Line probe assay (LPA), Automated Liquid culture systems for C & DST, and LED Fluorescence microscopy are validated in various IRLs and NRLs. IRLs of Gujarat and Andhra Pradesh, and JALMA Institute are validating Line probe assay for detection of Isonizid and Rifampicin resistance. Liquid culture systems are validated in Gujarat and LRS Institute. LED Fluorescence Microscopy is being validated at New Delhi TB centre JALMA Institute and CMC Vellore.

It is anticipated that validation and demonstration studies would provide enhanced reach to programme for diagnosis and follow-up of the MDR-TB.

Line Probe Assay Demonstration

Line probe assay demonstration project is a post-STAG approval project which being conducted at 6 programme sites in the country.

Under the project a unique LPA proficiency mechanism has been developed and successfully piloted in the RNTCP settings. The results of the piloted mechanism have been submitted to the National Lab committee and the mechanism has been approved for use the country lab scale-up plan.

Under the project the validation of LPA with solid culture as reference has been completed. The results of the in-country validation have been submitted to the National lab committee and LPA has been approved for the DR-TB diagnosis and treatment initiation under the demonstration project.

Liquid Culture Lab Preparedness Study

Liquid Culture Lab preparedness study is also a post STAG approval project. This project is being conducted at 4 programme sites. Under the project validation of Liquid culture with Solid culture as reference has been completed. The results of liquid culture validation have been presented to the National Lab committee and Liquid culture testing has been approved for the DR-TB diagnosis and treatment initiation under the demonstration project.

iLed and Gene Xpert demonstration projects: are a part of the FIND multi-country demonstration project

Line probe assay

being conducted to collect data for submission to WHO-STAG. Of these iLED project has been completed and the data has been presented to STAG. Gene Xpert project is currently in the stage of blinded lab validation and Gene Xpert results are not being used for patient management.

The salient aspects of the above mentioned projects are:

1. Initial capacity Building of in-country experts for the implementation of new diagnostics.
2. Provision of technical support and mentoring of the lab staff for day to day lab activities and trouble shooting.
3. Incorporation of technical and logistical data into the routine data system of the labs.

Master Mix Room

Gujarat again is front runner in this fight against the deadly bacteria. Kailasben a 45 year female TB patients was diagnosed as MDR-TB patient based on Line Probe Assay (a Multiples PCR Technique) in the molecular lab set up at IRL Ahmedabad on 18th August 2009. After Pre-Treatment Evaluation at B.J. Medical College, DOTS-Plus Site Honorable Health Minister of Gujarat Mr. Jay Narayan Vyas gave the first dose of Directly Observed treatment. Thus India's first MDR-TB patient diagnosed by LPA is on cat IV treatment at Ahmedabad.

Gujarat Health Minister announcing about the sophisticated molecular techniques for diagnosis of MDR-TB made available free of cost under Revised National TB Control Programme in Ahmedabad & Gandhinagar.

PROCUREMENT RELATED ACTIVITIES

Central Procurement

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

During RNTCP Phase II, the Central procurement has so far been done by an agency of UN i.e. UNOPS. M/s RITES Pvt. Ltd. has been selected as the new procurement agency for RNTCP by the Ministry of Health and Family Welfare (MoHFW). The Procurement of 1st Line Anti TB Drugs (for World Bank & GFATM funded States), 2nd Line Anti TB Drugs (for World Bank funded states) and the remaining items of Laboratory Equipment for Culture & Drug Sensitivity Testing (DST) for establishing 14 more Intermediate Reference Laboratories (IRLs) in the country 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.

First Line Anti TB Drugs

Procurement of Drugs for 500 million population of the country continues 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 by the procurement agency of MoHFW (Govt. of India), following the World Bank guidelines. Measures taken by the Programme to procure good quality drugs include:- restricting procurement of 1st Line Anti TB Drugs (except Inj Streptomycin) to WHO prequalified suppliers, pre-dispatch inspection, batch certification, product defect reporting mechanism etc. In case of International Competitive Bidding for Inj Streptomycin, verification of WHO-GMP certificates is ensured by a Joint Inspection team constituted by DCG (I).

Second Line Anti TB Drugs

The procurement of 2nd Line Anti TB Drugs for the World Bank funded states is done through

MDRTs patient on DOT

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.

For the year 2008-09, the procurement of these drugs for 1000 MDR TB patients in Delhi, Gujarat, Haryana, Maharashtra, Kerala, Rajasthan, Tamil Nadu & West Bengal through International Competitive Bidding (ICB) by UNOPS was undertaken. For states funded by GFATM, these drugs for 420 patients are being procured through Green Light Committee (GLC) of Stop TB Partnership. During 2009-10, drug procurement for 2350 MDR TB patients in World Bank funded states is being undertaken by UNOPS and procurement for 800 patients (funded by Global Fund) and for 4850 patients (funded by UNITAID) is being done through GLC/GDF.

(ii) Binocular Microscopes

Procurement of Binocular Microscopes (BMs) required for new DMCs and also for replacement of unserviceable BMs in many states was undertaken through National Competitive Bidding by UNOPS in 2008–09.

Laboratory Equipment for Culture & DST for IRLs

The process of procurement of Lab. Equipment for establishing 14 more IRLs at Assam, Bihar, Goa, Himachal Pradesh, J&K (Jammu), J&K (Srinagar), Karnataka, Madhya Pradesh, Maharashtra, Manipur, Punjab, Sikkim, Uttar Pradesh & Arunachal Pradesh is presently going on through UNOPS.

The states where these IRLs are being established are expected to complete the required civil works and get the work for electrical fittings etc. completed before the equipments reaches the IRL sites.

Purified Protein Derivative (PPD)

RNTCP has started the process for procurement of PPD required for diagnosis of pediatric TB, through its domestic budget. The rate contract mechanism for the same shall be established at Central level.

Decentralized Procurement

As a part of strengthening decentralized procurement, states have been communicated to follow World Bank procurement guidelines strictly. An abbreviated document on state/district level procurement has been sent to all the states for wide circulation to the districts. The revised threshold limits of shopping procedure for state/district level procurement of goods/works has been communicated to all states by CTD in October, 2009. 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 Procurement

The state level officials (STOs & State TB Cell Staff) of almost all the states were imparted training during workshops conducted by CTD. Subsequently, the states have conducted training of district level officials to build their capacity in procurement and this

Drug logistic training in progress at Ranchi-Jharkand

activity is taken up by all the states on a regular basis. CTD officials have also been visiting some states and providing need based training and hand holding to state and district level officials.

Post Procurement Review

Post Procurement Review of all Contracts "below prior review threshold levels" at the Centre and in the States is being done by an independent Consultant appointed by the World Bank. So far, five Post Procurement Reviews have been undertaken by the World Bank Consultant in 19 states. After the review, based on the report of the post review, letters were sent by CTD to all the concerned states asking for the detailed clarifications along with actions taken in the matter. Action taken reports have also been sent to the World Bank. Post Procurement Review of State/District level procurements is also being done during Central Internal Evaluation. Annual Audit Reports of RNTCP also include procurement audit.

Disclosure of Procurement information

As per the Governance & Accountability Action Plan (GAAP) agreed between the World Bank and the Govt. of India, Annual Procurement Plans for the Central level procurements are made available on RNTCP website i.e. www.tbcindia.org, which is linked to the website of Ministry of Health & Family Welfare i.e. www.mohfw.nic.in. The Bid documents, information regarding Contracts awarded, reasons for rejection of bids and other related information are also uploaded on RNTCP website, which is updated regularly. Central TB Division has uploaded the Technical Specifications of all the Laboratory Consumables for Designated Microscopy Centres (DMCs) and Intermediate Reference Laboratories (IRLs) on the RNTCP website i.e. http://www.tbcindia.org/documents.asp.

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 has started from April 2009 onwards.

Drug Logistics Management

The Joint Monitoring Mission (JMM) – 2009 has commented that the drug management system under RNTCP is functioning well. The main inventory management guidelines and principles, including the first-expiry-first-out (FEFO) policy, are generally followed by pharmacists and staff in the states visited by JMM, with documentation normally kept in good order and matching the existing supplies in stock. This explains that no major stock-outs were noticed and an adequate supply of Patient-Wise Boxes (PWBs) with sufficient shelf-life was available.

First Line Anti TB Drugs procured continue to be supplied to the six Government Medical Store Depots (GMSDs) across the country for further supply to the states. The Second Line Anti TB Drugs are directly being supplied to the State Drug Stores (SDS). Though the activity of drug logistics management has been decentralized to the states, the need to continuously

RNTCP State Drug Store-Uttarakhand

Paediatric patient with boxes

monitor at the National Level still remains. Hence, 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 drugs are issued to the States to replenish their stocks up to 10 months level which includes the buffer stocks required to be maintained under RNTCP.

Logistics management of 2nd Line drugs on the other hand, still remains a big challenge under DOTS-Plus in RNTCP. The influx of patients into the programme has considerably increased over the past year. Shorter shelf-life of 2nd line drugs is another area that requires close monitoring at both State & National level. Nevertheless, with the help of regular Inter-State transfers undertaken by Central TB Division, shortages at some places are being overcome to ensure an uninterrupted supply of drugs. Currently, 10 States viz Andhra Pradesh, Delhi, Haryana, Gujarat, Kerala, Maharashtra, Orissa, Rajasthan, West Bengal & Tamil Nadu have already implemented the DOTS-Plus programme in their respective States. Detailed guidelines for logistics management and storage of 2nd line drugs have already been circulated to them. Guidelines for improving the storage conditions of 2nd Line Anti TB Drugs are currently being prepared by CTD.

To ensure that the states are able to manage their drug logistics as per RNTCP guidelines, regular trainings & re-trainings on drug logistics management are conducted by Central TB Division for the State & district level staff. In 2009, such trainings have been conducted in Uttarakhand, Bihar, Jharkhand, West Bengal & Haryana for key staff at the State Drug Stores, STOs, DTOs & DTC Pharmacists. The District TB Officers are then expected to further train the sub-district level staff involved in drug logistics in their respective districts. To assess the impact of trainings on improving the drug management, Andhra Pradesh, Delhi, Bihar, J&K (Srinagar) and Uttar Pradesh were also visited in the past year & these states have shown a substantial improvement resulting in better logistics management ensuring no major stock-outs in the country.

Most of the states have submitted their action plan for the drug management trainings that would be conducted by them in 2010, which will help Central TB Division to monitor the states more effectively and improve the drug logistics management. JMM has recommended that drug logistics trainings may be made a regular feature in RNTCP to ensure capacity building of the concerned staff in states, districts and sub districts.

Quality Assurance of Anti TB Drugs

The quality assurance component of the RNTCP drug supply system makes certain that each drug used by a

Table 6: Reserve Drug Stocking Norms and Calculation of Drug Requirements for adult PWBs

Level	Stock for utilization	Reserve stock	Drug requirements
PHI	1 month	1 month	[Monthly consumption X2] - [existing stock in PHI at end of the month]
TU Drugstore	0 month	2 months	[Quarterly consumption/33] x 4 - [existing stock in TU including PHI drug stores at end of the quarter]
DTC Drugstore	0 month	3 months	[Quarterly consumption/3] x 7 - [existing stock in DTC drug store including TU & PHI drug stores at end of the quarter]
SDS	0 month	3 months	[Quarterly consumption/3 x 10 - [existing stock in SDS including stocks at all district at end of the quarter]
SDS	0 month	3 months	[Quarterly consumption/3 x 10 - [existing stock in SDS including stocks at all districts at end of the quarter]

patient is safe, efficacious, and has appropriate standards of quality. Maintaining quality of drugs remains a critical Programme requirement. This is enabled through pre-dispatch testing of drugs and monitoring of the quality throughout their shelf-life up to consumption by the patients. CTD has hired an independent drug testing laboratory, which regularly tests samples, taken on a random basis from DTCs, SDS' and GMSDs. A system is also in-place for testing the quality of drugs through random sampling by GMSDs. In addition, the samples are also taken by State and Central Drug Inspectors and tested to ensure quality. The various measures that have been adopted by the Programme for quality assurance include careful supplier selection, ensuring WHO-GMP (Good Manufacturing Practices) certification, batch certification, pre- and post-dispatch inspection, proper storage and dispensing methods and product defect reporting.

Monitoring and Evaluation System

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.
6. **ACSM activities:** It is ensured that the action plan on ACSM submitted by all the States/ districts is accordingly put into practice 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.

Data Management System in RNTCP

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. CTD analyzes these quarterly reports received from the States/Districts. Monitoring capacity at State level is updated regularly 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 will replace the existing 'DOS' based software from 1st quarter 2010.

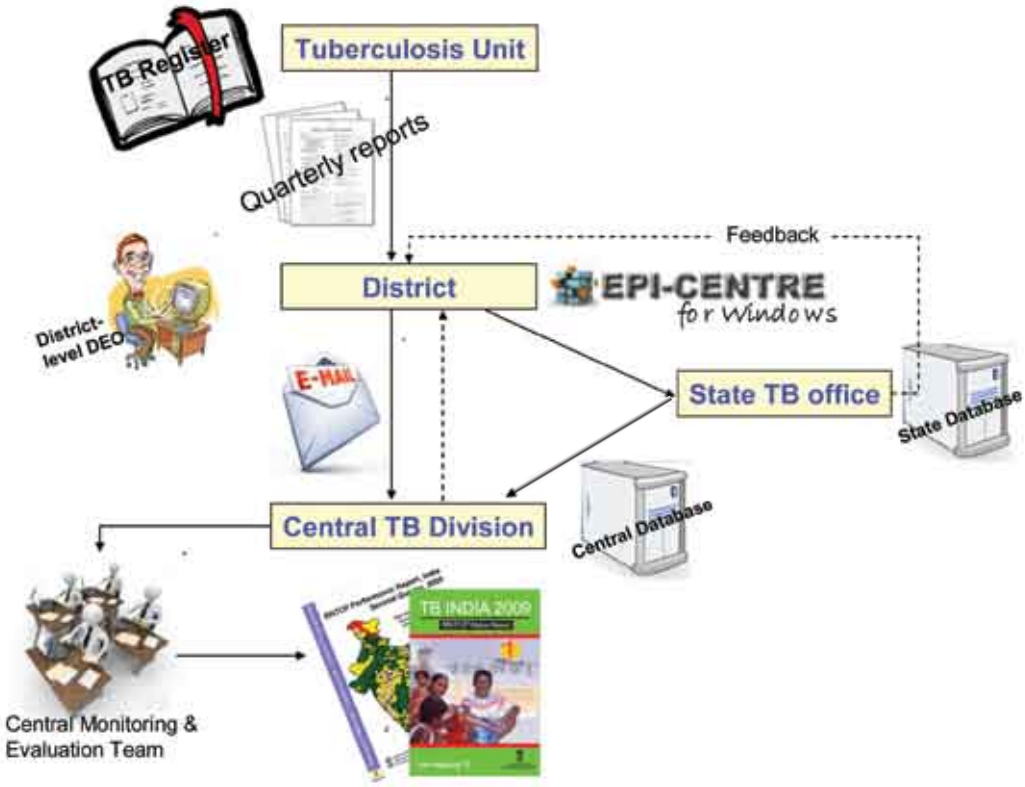
2. **Supervisory visits and feedback:** Monitoring of the performance of the programme is mainly done by supervisory visits. Good supervision helps to increase the efficiency of the staff by updating their knowledge, perfecting their skills and improving their attitudes towards work. RNTCP lays out clear 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, 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, TUs, DTOs and STOs of the country are available on the TB India website.

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.

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 7.

Figure 5: Data Management System: RNTCP



Frequent External and Internal Evaluations are strengths of RNTCP

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. 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 79 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 similar issues in their districts. Actions taken on the recommendations are regularly reviewed by the state. The central level has visited and intensively evaluated 6 states – evaluated 9 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 the state to enlist their active support for TB control activities in the state.

   The internal evaluation protocol has been revised in 2009 to include newer components in the programme and to provide more insight to accessibility issues.

Joint Monitoring Mission 2009

Joint Monitoring Missions are regular external evaluation processes helping the programme to streamline activities. JMM reviews are done once every 3 years. The 2009 JMM review was done in 6 states in April

Table 7: Review Meetings

Level	Frequency of review
Peripheral Health Institutions (PHIs) & Designated Microsocopy 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 8: 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 ♦ Conductperiodic 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-stie 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 distrcits in the state at least once every 6 months ♦ Undertake state level internal evaluations of 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) District evaluation reports Monthly activity reports/tour diaries of DTOs Tour diary of STO/supervision checklist Report from medical college STF Internal evaluation report Feedback from CTD
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 ♦ 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 at the DTC to be chaired by DM/CMO	Annual district report Quarterly TU reports Monthly programme review Monthly PHI reports Quality assurance report Tour diary of DTO/ supervision checklist Monthly activity reports of MOTCs, STS and STLS RNTCP TB regiser Supervision register Referral for treatment register Supervisory checklist Feedback from sto+ctd Internal evaluation report
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 regiser Laboratory register Treatment cards Referral for Treatment register Supervisory checklist

JMM 2009

2009. While apploading the success the programme has achieved, the JMM in their report suggested new areas to focus like expanding DOTS-Plus and TB/HIV collaborative services, however with out loosing the focus on basic DOT services.

Address TB-HIV, MDR-TB and other Challenges

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, as TB is the most common opportunistic infection amongst HIV infected individuals.

India is the highest TB burden country in the world, with over 1.9 million estimated incident TB cases per year. India also has the world's third highest HIV burden, the prevalence of HIV infection is estimated to be 0.34% of the population, which translates to 2.31 million people living with HIV/AIDS (PLHA). The national estimate for HIV prevalence among TB patients in India previously has been estimated indirectly from global data. To derive an improved national estimate, RNTCP and NACO correlated district-level HIV surveillance data from antenatal clinics and tuberculosis diagnostic centres, and applied this correlation to state-level HIV prevalence estimates for the antenatal population. With this approach, the nationwide HIV seroprevalence among TB patients for 2007 was estimated to be 4.85% (95% CI 4.12%–5.73%). When applied to 1.96 million incident TB cases estimated by WHO in 2007, an estimated 95,240 (95% CI 80,730–112,478) were HIV-infected.

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.

The key activities proposed in the framework are

1. Establish / Strengthen NACP-RNTCP coordination mechanisms at national, state and district levels.
2. Scaling up of Intensified TB/HIV Package of Services across the country.

State level training of TOTs in Intensified package of TB/HIV collaboration-Trivandrum, Kerala

3. Joint Monitoring and Evaluation including standardized reporting shared between the two programmes.

4. Training of the programme and field staff on TB/HIV.

5. TB and HIV service delivery coordination.

   5.1. Offer of HIV testing to TB patients

   5.2. Intensified TB case finding at ICTCs, ART and Community Care Centres

   5.3. Linking of HIV-infected TB patients to NACP for HIV care and support (including antiretroviral treatment) and to RNTCP for TB treatment

   5.4. Provision of Cotrimoxazole Prophylactic Treatment (CPT) for HIV-infected TB patients

6. Implementation of feasible and effective infection control measures.

7. Involvement of NGOs/CBOs and affected communities working with NACP and RNTCP for all activities on TB/HIV collaboration.

8. Operational research to improve the implementation and impact of TB/HIV collaborative activities.

The Intensified TB-HIV package is being scaled up in a phased manner to cover the entire country by 2012. The Intensified TB/HIV package of services started in 2008 in 9 HIV high prevalence states (Andhra Pradesh, Goa, Karnataka, Maharashtra, Manipur, Mizoram, Nagaland, Pondicherry and Tamil Nadu), and in 2009 were extended to 9 additional states (Delhi, Gujarat, Punjab, Rajasthan, Kerala, Assam, West Bengal, Orissa and Chandigarh). For 2010, RNTCP has made provision of a dedicated "TB/HIV and DOTS-Plus supervisor" post in all the districts of the country to support the programme in these activities.

Most training material for TB/HIV activities have been updated in 2009. The Joint Training Modules for TB/HIV and the Intensified TB-HIV Package for various categories of staff of RNTCP & NACP have been revised in light of the changes in the framework. A new TB/HIV module for ART centre staff has been prepared jointly by NACO and CTD to standardise the Intensified TB Case finding and strengthen the linkage of HIV-infected TB patients to ART centres. These modules would be used for the implementation and strengthening of TB/HIV activities nationwide.

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 identified the states of West Bengal and Gujarat to evaluate the operational feasibility and effectiveness of the guidelines.

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 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.

Figure 6: TB suspects referred from ICTC to RNTCP, 2006-09, (for 9 Intensified TB/HIV Package States)

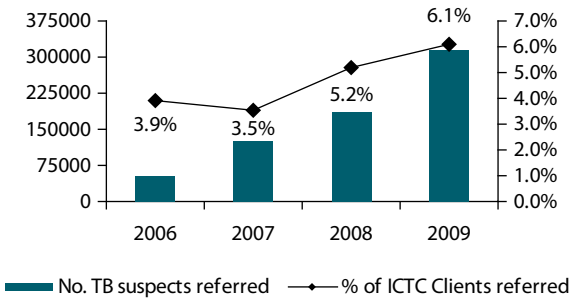
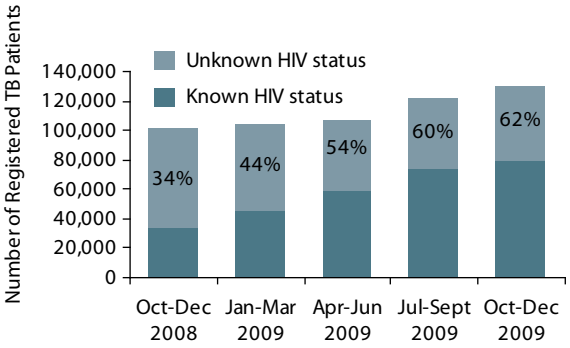


Figure 7: TB patients with known HIV status, 4q08-4q09, (for 9 Intensified TB/HIV Package States)



The year 2009 saw continued rise in the quantum of referrals across the programme. In 2009, in the 9 States implementing the Intensified TB-HIV package, more about 315111 TB suspects were referred from ICTCs to RNTCP and of them about 33509 were diagnosed as having TB (Figure 6). In the same period, about 258037 TB patients (55% of total TB patients registered) were tested for HIV and of them about 31058 were diagnosed as HIV positive. In the past year, the proportion of TB patients with known HIV status increased from 34% to 62% (Figure 7). Data on linkage of HIV-infected TB patients to HIV care has only recently become available; among the 6039 HIV-positive TB registered in 4q08, 4098 (68%) were reported to have been provided with CPT during TB treatment, and 2487 (41%) were provided ART during TB treatment.

RNTCP-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-standardised 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 developed a generic protocol for carrying out representative drug resistance surveillance (DRS) surveys at the state level in selected states. Following training of the State TB Training and Demonstration centre (STDC) staff in DRS techniques, and of field staff in patient intake and sample collection mechanisms, state representative DRS surveys have been undertaken in Gujarat (56m population) and Maharashtra (107m) in 2005-2006. The results of these surveys indicate prevalence of MDR-TB to be low i.e. <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 Andhra Pradesh (81m) and Western UP (85m) 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 2009, an estimated 130,000 MDR TB cases emerged in India in 2007 of which 86000 were smear positive. However, based on the results of the recently undertaken DRS surveys, it is estimated that about 50,000 detectable MDR cases emerge annually in the country.

Emerging Threat of 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%.

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 10 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 2010 the MDR TB services will be introduced in all the states across the country. By 2012 it is aimed to extend these diagnostic services to all smear positive retreatment cases and new cases who have failed treatment and by 2015 these services will be made available to all smear positive cases registered under the programme. It is intended to treat at least 30000 MDR cases annually by the end of 2012.

Key Activities During 2009

- **Policy changes related to the DOTS Plus:**

  The National DOTS Plus Committee meeting was held in July 2009 which has taken the following key decisions:

  - The definition of the MDR suspect has been revised to include 'Contacts of MDR cases who are found to be smear positive' besides Cat I/III failures and Cat II patients who are smear positive at 4 months or later.
  - The existing exclusion criteria for MDR suspects i.e. Age <15 years and history of intake of second line drugs for more than 1 month in the past has been withdrawn. A new weight band (16-25 Kgs) has been added for the treatment of the paediatric MDR patients.
  - In order to make the Cat IV regimen more effective it has been decided to replace Ofloxacin with Levofloxacin
  - Guidelines for the management of MDR patients with pregnancy have been finalized.
  - Guidelines for the management of XDR TB patients with Cat V regimen have been formulated

- **Training activities**

  National level DOTS Plus trainings were undertaken for the states of Orissa, Uttar Pradesh, Andhra Pradesh (Phase 2 and 3), Rajasthan (Phase 2), Tamil Nadu (Phase 2 and 3), West Bengal (Phase 2), Gujarat (Phase 3 and 4) and Maharashtra (Phase 3 and 4).

- **Initiation of treatment services**

  The MDR TB treatment services were initiated and the first patients were put on Cat IV treatment in the states of Tamil Nadu (January 2009), Rajasthan (May 2009) and Orissa (November 2009).

- RNTCP services for MDR-TB and plans for scale-up were reviewed during the Joint Government of India / WHO Monitoring Mission of RNTCP in April 2009 and a joint mission of the Green Light Committee (GLC) and Global Lab Initiative (GLI) in July/August 2009.
- UNITAID has approved the inclusion of India in MDR TB Scale Initiative in May 2009 and committed support for both lab strengthening and SLD procurement for from 2010 to 2012.
- Global Fund support, under Round 9, for MDR-TB scale-up (lab strengthening, SLD procurement, TA, etc) upto 2015 has been approved in November 2009.

Status of DOTS Plus at the end of 2009

At the end of the 4th quarter of 2009 the MDR TB treatment services have been scaled up to cover ~200 million population in 105 districts across 10 states. Over 6000 MDR suspects have been examined and over 1000 MDR cases have been initiated on treatment. The State wise details are as under:

Gujarat

DOTS Plus diagnostic services were initiated in district AMC in 2007. The first patients were put on treatment in August 2007. The MDR services are now available in 17 districts. At the end of 4Q09 status is as follows:

MDR Suspects identified	1767
MDR cases detected	563
MDR cases put on Cat IV treatment	383

The twelve month culture conversion report of the first cohort of 28 patients shows that 17 patients are culture negative (61%), 4 culture positive (14%), 3 have died (11%) and 4 have defaulted (14%).

Maharashtra

DOTS Plus diagnostic activities were initiated in 7 districts under the Nagpur division in 1Q2007 and the first patients were put on treatment in September 2007. The activities have been scaled up to another 6 districts under the Akola Division in 4Q08. The DOTS Plus services will be introduced in Mumbai shortly.

The status at the end of 4q09 is as follows:

MDR Suspects	844
MDR cases detected	284
MDR cases on Cat IV treatment	176

Andhra Pradesh

The DOTS Plus treatment services have commenced in AP in October 2008 in 4 districts. The activities have been scaled up to another 4 districts. The status at the end of 4Q09 is as follows:

MDR Suspects	921
MDR cases detected	260
MDR cases on Cat IV treatment	179

Haryana

The DOTS Plus treatment services have commenced in Haryana in December 2008 in 7 districts. The status at the end of 4 Q09 is as follows:

MDR Suspects	376
MDR cases detected	73
MDR cases on Cat IV treatment	47

Delhi

The DOTS Plus treatment services have commenced in Delhi in December 2008. The services have been scaled up to the entire state in 1Q09. The status at the end of 4Q09 is as follows:

MDR Suspects	1634
MDR cases detected	593
MDR cases on Cat IV treatment	297

Kerala

The DOTS Plus treatment services have commenced in Kerala in all 14 districts in December 2008. The status at the end of 4Q09 is as follows:

MDR Suspects	1093
MDR cases detected	208
MDR cases on Cat IV treatment	132

West Bengal

The DOTS Plus treatment services have commenced in West Bengal in December 2008 in the Kolkata district. The IRL has been accredited in August 2009. The State has expanded the diagnostic services to another 4 districts in October 2009. The status at the end of 4Q09 is as follows:

MDR Suspects	445
MDR cases detected	71
MDR cases on Cat IV treatment	40

Tamil Nadu

The DOTS Plus treatment services have commenced in Tamil Nadu in January 2009 in 4 districts. In the last 2 quarters the services have been expanded to another 8 districts.

The status at the end of 4Q09 is as follows:

MDR Suspects	256
MDR cases detected	53
MDR cases on Cat IV treatment	53

Rajasthan

The state of Rajasthan has commenced treatment services in April 2009 in 7 districts. The State is in the process of expanding the services to another 8 districts. The status at the end of 4Q09 is as follows:

MDR Suspects	1325
MDR cases detected	205
MDR cases on Cat IV treatment	102

Orissa

The DOTS Plus diagnostic services were commenced in Orissa July 2009 in 4 districts. The IRL has been accredited in August 2009. The status at the end of 4Q09 is as follows:

MDR Suspects	40
MDR cases detected	3
MDR cases on Cat IV treatment	3

DOTS-Plus Ward

Airborne Infection Control

The recent global spread of Influenza A H1N1 has highlighted the need for health care facilities to implement standard infection control precautions and to improve preparedness for pandemic respiratory infections. Preparedness for pandemics means having infection control activities already in place; many of the same infection control activities will help contain TB as well. The experience of SARS demonstrated clearly that even when confronted with a novel infectious respiratory disease with high epidemic potential for which there is no diagnostic test, vaccination or treatment, the systematic application of infection prevention and control measures in a healthcare facility can be effective in arresting spread and containing a potential epidemic.

NAIC Workshop - Demo of fit testing of N95 marks

Air-borne infection control measures are imperative for preventing spread of TB and other airborne infections from person to person and also reducing the risk of spread 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 national TB control efforts currently undertaken by the Revised National TB Control Programme (RNTCP) through implementation of the WHO STOP TB Strategy - 2006. Contributing to health system strengthening by actively participating in efforts to improve system-wide policy, human resources, financing, management, service delivery and information systems is one of the six components for the STOP TB strategy. In pursuing the Stop TB Strategy, RNTPC aims, among others, to contribute to national and local health systems strengthening ranging from infrastructure reforms, financing and human resources to delivery systems. The endeavor of RNTCP to engage in airborne infection control measures including administrative controls, environmental / engineering controls and personal protective measures in the complete range of health care facilities and other settings would be pertinent to and would be effective in reducing the risk of transmission of all other airborne diseases like Avian Influenza (H1N1, H5N1), SARS etc. besides tuberculosis. Thus, this initiative undertaken by RNTCP, will help health care facilities to have a tool to prevent transmission of airborn infection.

RNTCP has taken concrete steps towards this endeavor by developing the National Guidelines on Airborne Infection Control in Health Care and Other Settings over the past one year. This task was accomplished by the National Airborne Infection Control Committee (NAICC), a multi-lateral group of national experts from renowned Medical Colleges of India, National Communicable Disease Control (NCDC) Institute, National AIDS Control Organization (NACO), Central TB Division (CTD), World Health Organization, Architects and Engineers. These national guidelines are designed to provide up-to-date information about methods of reducing the risk of airborne infections in health care

facilities. The document is intended for health system officials covering general hospital services, TB, HIV/AIDS control, epidemic and infection control professionals, and facility administrators in the public and private sectors.

The national guidelines on airborne infection control elaborates practical administrative, environmental / engineering and personal protective infection control measures for various service delivery areas applicable to any health care setting, managerial activities for national, state and district level infection control committees with representation from general health system, specialists, engineers, architects and civil society partners. It also includes guidance on infection control in special settings that include out-patient department especially general medicine and respiratory medicine departments, in-patient wards, MDR-TB wards, Anti-Retroviral Treatment (ART) Centers, TB bacteriology culture and drug susceptibility testing laboratories, intensive care unit, bronchoscopy suites, autopsy suites and operating theatres. Beyond health-care facilities, these guidelines offer some limited but practical suggestions on how to minimize the risk of TB and other airborne infections transmission in households and other congregate settings. These guidelines would cater to all health-care facilities from medical colleges to sub-centre at village level as well as at high-risk areas within the larger facilities.

As a step further, these guidelines on airborne infection control are proposed to be pilot tested in a range of health care facilities in the states of West Bengal, Gujarat and Andhra Pradesh to assess its operational feasibility and effectiveness of implementation in practical situations.

Moreover, there was a definite felt need to build upon the existing expertise to apply the principles of airborne infection control under practical situations and have national and state coordination mechanisms to enable systematic quality implementation, supervision, monitoring and evaluation of these infection control measures. With the objectives of building upon the existing national institutional capacity on airborne infection control in India; finalizing the national guidelines and chalking out the next steps towards its implementation, a National Capacity Building Workshop on Air-borne Infection Control was successfully conducted by RNTCP at New Delhi in October 2009. As an output of the workshop, the participants were able to explain the principles of infection control, to conduct facility assessments for risk of TB transmissions, to recommend specific administrative and environmental / engineering remedies to reduce TB transmission risk and to assist facilities in incorporating TB infection control in their infection control plans. A state level team from Gujarat and West Bengal also participated in this workshop. These teams developed an action plan for their respective states to implement the National Guidelines on Airborne Infection Control. These time-bound plans were based on the following standard broad areas:

1. Advocacy with State Authorities to enhance political commitment and resource mobilization.
2. Defining coordination and planning mechanisms at state, district and facility levels.
3. Planning HRD and facility level pre, mid and post term risk assessment schedules.
4. Enlisting facilities for pilot testing.
5. Facility infection control plan development or integration of airborne infection control component in the existing facility infection control plan.
6. Supervision, periodic review, risk assessments, monitoring & evaluation including surveillance of TB disease or TB infection among HCW as a measure of effectiveness.

RNTCP has taken the onus of a) developing the national guidelines and provide technical assistance in building upon existing capacity of state infection control committees and facility administrators; b) assisting state teams in conducting facility risk assessments of major health care institutes and c) supervision, monitoring and evaluation through the coordination mechanisms at various levels. However, to be effective, these guidelines need to be integrated within the general health system for implementation as a critical component under NRHM. This is how RNTCP envisions contributing to strengthening of the general health system.

The NRHM has addressed many challenges that overlap with the top concerns of RNTCP like increasing early demand for and equitable access to quality health services, reducing financial burden on patients, addressing the needs of hard-to-reach communities

and tribal populations, improving retention of health staff and their capacity as well as infrastructure quality, and offering incentives to involve private providers. Furthermore, flexible resources available under NRHM at state, district and sub-centre levels offer tangible support by providing supplies and helping in infrastructural development which benefit TB control efforts. There is no dearth of funds under NRHM to support these crucial measures in India to make the health care facilities in India safe for the patients as well as the health care workers. RNTCP is also collaborating with other partners, such as PATH international, to add support for training and capacity building efforts on airborne infection control.

The states have initiated the preparatory activities for the pilot testing of the national airborne infection control guidelines. The baseline risk assessment of the selected facilities would initiate from April 2010 and facility specific recommendations on administrative control measures, environmental / engineering control measures and personal protective measures would be implemented by facility administrators with technical support of the respective State Infection Control Committee. A standardized risk assessment tool with a range of monitoring indicators (input, process, output, outcome and impact indicators) covering all range of interventions as per the guidelines would be used at all the identified sites for these assessments. This would be followed up by repeat and post assessment in March 2011. The favorable changes as well as unintended outcomes based on these assessments would lead to further improvisation of the national guidelines and would also determine the further expansion to the rest of the country.

The findings of this pilot implementation experience would be documented and the lessons learnt would be widely disseminated to add to the available scientific evidence of the infection control measures and its applicability in India and other resource limited countries.

Workshop on development of national guidelines for Airborn infection control

Demonstration during NAIC Workshop

Contribute to Health System Strengthening

Synergies and Convergence under NRHM

Starting in April 2005, the National Rural Health Mission (NRHM) has been launched with special focus on 18 identified states with poor health. The primary goal of the NRHM is to improve the availability and access to quality health care to the 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 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). 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.

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.

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 Auxillary 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.
- 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.
- 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.
- 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 lead to filling up of existing posts 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 Societies 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 bringing together the specific health needs of the people and the district information making a basic skeleton of the state plan.
- 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.

NRHM-Key achievements so far -

- **ASHA/Link worker-** 7.3 lakh ASHA/Link workers have been selected so far in the states and 6.13 lakh trained. While ASHA programme covers the 18 high focus states and tribal areas of non high focus states, Link workers have been appointed in non-high focus states as the necessity of a community worker was felt by the states. After the first round of trainings, ASHA/Link workers have been assisting in the immunization programme, the Janani Suraksha Yojana, the monthly nutrition and health days at Anganwadi centers, TB programme, vector borne disease control programme and in dispensing basic medicines wherever drug kits have been made available. However, mechanism for timely disbursement of performance based payments require attention, as well as involvement of civil societies in supporting and nurturing ASHAs in their skill based training need strengthening.
- **Addition of human resources-** 2,344 specialists, 9,874 MBBS doctors, 24,494 staff nurses, 44,561 ANMs, 13,278 paramedics have been added under NRHM.
- **24 X 7 PHCs-** Strengthening of the PHCs for 24 X7 services (availability of three staff nurses and out patient services round the clock) is a priority of NRHM. 14,365 PHCs/CHCs and sub district facilities are currently working 24 X 7
- **Village Health and Sanitation Committees (VH &SCs) –** 4.28 lakh villages (nearly 67%) have functional VH&SCs. An untied grant of Rs 10,000 is available for each VN&SC every year to enable them to take up water, sanitation and nutrition activities.
- **Rogi Kalyan Samitis (RKS)/ Hospital Development Committees-** 570 district hospitals, 4330 CHCs, and 16063 PHCs have registered as Rogi Kalyan Samiti and all RKS have been provided untied funds to carry out locally relevant action to ensure better services to the poor who visit government health facilities.
- **Integrated District Health Action Plans-** District health action plans have been prepared in over 500 districts of the country. All states and Union Territories submitted State Programme Implementation Plans (PIPs) in 2008-09 and budget approved after a rigorous process of appraisal of plans. The plans cover all disease control and disease surveillance programmes.
- **Programme Management Units (PMUs) –** 577 District Programme managers, 575, District Account Managers, 513 District Data Managers, 617 DPMUs, 34 SPMUs, 2754 Block Managers, 3560 Accountants, 3560 Block PMUs added on contract under NRHM.
- **Community Monitoring -** This has been taken up in partnership with NGOs and taken up in 9 states (Assam, Chhattisgarh, Maharashtra, Madhya Pradesh, Orissa, Karnataka, Tamil Nadu, Rajasthan, Jharkhand) for assessment of Janani Suraksha Yojana (JSY) schemes, ASHA programme, financial management systems etc.

Source: www.mohfw.nic.in/NRHM/Documents/Executive_summary.pdf ***All India summary of the NRHM***

The National Rural Health Mission is a mechanism which has provided an "umbrella" in all states with the repositioning of Reproductive and Child Health (RCH) and National Disease Control Programmes in integrated State/District Health Societies.

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".***

With the additional resources being pooled in the structural and human resource, deficits are expected to be met, as TB control strategy with its critical components {like laboratories, drug stores, Laboratory Technicians (**LTs)**} have been incorporated as part of the Public Health Standards established for each level of health institution. In addition, ASHA workers are also involved in facilitating enhanced outreach activities for TB services.

Effectiveness of RNTCP - The implementation of RNTCP services across the country have been commended by the NRHM-Common Review Missions (CRM).

Human Resource Development

The program recognises the importance of Human resources to the effectiveness of health programs and of interventions such as TB control, hence is directing its resources to planning, training, performance management and HR policy development in a structured and comprehensive manner.

Over a period of time, Human resource development (HRD) under RNTCP has assumed a broader perspective which includes managing the personnel as well as developing them using a competency based approach to training and skill development. Also equally critical to the chain is the impact of efficacy of human resources to effective service delivery of TB control activities to benefit every patient treated in the program.

As the program scales up its activities to include newer initiatives like TB-HIV, MDR-TB, etc it has become not only complex but also challenging to design and implement HRD programs to address the evolving program needs.

The programme has a mandate to ensure that at least 80% of key health personnel 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. Newer areas for training include Medical College personnel, NGOs and Private Practitioners. The treatment functionaries are the DOT providers who are provided modular training and on-site updates during the course of supervision.

The overall aim of Human Resource Management is to develop capable, motivated and supported health workers to achieve national and global health goals. Effective performance and adequate numbers of health workers are key to achievement of TB control objectives, hence even distribution of healthcare personnel is of prime importance in TB control activities. The program adopts the following strategies to leverage on the skills of available staff:

- The central division regularly connects with the states to address key HRD issues related to unfilled vacancy positions.
- RNTCP encourages continuity of key staff such as STO, DTO and MO-TC.
- HRD related issues are regularly taken up with the program managers to minimise all staff related issues impacting the program negatively. Such advocacy with states helps in establishing healthy interaction thus providing political and administrative commitment to the programme.
- Contract renewal of contractual staff is undertaken in a timely and objective manner.
- Exchange of experiences amongst different programme managers are promoted during evaluations and meetings.

RNTCP Undertakes a Range of Activities in HRD

1. **Establish and improve existing training programmes**

   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 venues.

   - The Central Institutes provide training for State TB Officers, District TB Officers, faculty of State TB and Demonstration Centers (STDC) and Master trainers. The Central Institutes are:
     - National TB Institute, Bangalore, Karnataka
     - TB Research Centre, Chennai, Tamil Nadu
     - Lala Ram Swaroop Institute of TB and Respiratory Diseases, Delhi
     - JALMA, Agra.
   - STDCs provide training for Medical Officer TB Control, STS and STLS.

- The District provides training for MO, LT, MPWs and Community DOT providers.

In the year 2009 more than 1,80,000 staff of various categories have been trained/retrained of state and district levels. This includes staff from NACP, representatives from Medical Colleges, NGOs and Private practitioners

Training modules have been revised and newer guidelines, modules and training programmes have been added to the existing training packages. Modules currently being used are:

- Basic RNTCP training modules for Program Managers
- Basic RNTCP training module for MO, STS, STLS, LT, MPW Module
- Improving Interpersonal Communication Skills in RNTCP training
- RNTCP Laboratory Network Guidelines for Quality Assurance of Smear Microscopy
- Strategy Document for Supervision and Monitoring of RNTCP
- Training module for Medical Practitioners
- Guidelines for the involvement of NGOs and Private Practitioners in RNTCP

Module revision workshop- NTI-Begaluru, September 2009.

- Module for MPWs and DOT providers
- Basic Training TB-HIV Module for Medical Officers, paramedical staff and ICTC Counselors
- Intensified TB-HIV package for Medical Officers and Paramedical Staff
- TB-HIV Training Module for ART Medical Officers.
- RNTCP DOTS Plus guidelines
- RNTCP DOTS Plus modules for Medical Officers and Paramedical staff
- Standard Operating Procedure Manual for state and district drug stores

Figure 8: Training Modules – RNTCP seeks to reach and train each and every health care provider

- Update training on Pediatric guidelines and pediatric patient wise boxes
- Indicative Guidelines used by the State Health Society, TB Sub committees
- Environmental and Bio-Medical Waste Management plan for RNTCP II
- Financial Management guidelines for State and District societies
- Guidelines on airborne infection control in health care and other settings

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 are 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.

New Initiatives and Future Plans

As HRD is becoming a crucial area in the program, various activities are planned to be undertaken in the coming months. HRD survey has been undertaken to understand the current scenario with respect to HRD, the report has been compiled and is planned to be used as an input to the HRD strategy that is being worked on for the program.

Additionally as training is an important aspect of RNTCP and there is a well structured and comprehensive training module for all category of staff working for RNTCP, hence updation of RNTCP training modules merits focus. This exercise being currently undertaken and it is expected to be completed by the middle of year 2010. Additionally there is also a plan to update the facilitators' manual to aid effective delivery of training to the trainees.

Further, training evaluation is another area that the program plans to focus on in the coming months and a framework for the same is being planned in the current year. Finally, managing performance of staff is an important aspect of managing program performance, hence RNTCP is planning to focus on devising a structured mechanism of managing and improving the performance of contractual RNTCP staff. This is being planned to be implemented on a country-wide basis.

1. Role of Medical Colleges in RNTCP Training

Involvement of medical colleges in the Revised National Tuberculosis Control Programme (RNTCP) is a high priority. A national task force and five zonal task forces (ZTF) have been formed for their effective involvement in RNTCP. Within each zone, nominated medical colleges have been given the responsibility to function as nodal centers. All medical colleges have formed State Task Forces (STF). In each medical college, there is a core committee to arrange for training and oversee the functioning of the microscopy / treatment centre in their respective institutions. 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 a 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

Joint Training Modules for Basic TB/HIV and Intensified TB-HIV Package for various categories of staff of RNTCP & NACP have been revised in light of the changes in the framework. A new TB/HIV module

RNTCP Modular Training

'MIFA' training of Trainers- NTI Bengaluru, July 2009- participants with facilitators

for ART centre staff has been prepared jointly by NACO and CTD following a module writing workshop at LRS in May 2009 to strengthen the linkage of HIV-infected TB patients to ART centres. TOT has been conducted in October 2009 to roll out trainings for ART MOs in the country. Central TB Division, in collaboration with NACO, have developed a range of training packages which address the issues of TB-HIV. These training courses are targeted at various levels of health workers from MOs to VCTC counselors. 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.

3. Managing Information for Action (MIFA)

The programme produces invaluable data at all levels. It is essential to ensure that districts and states know how to analyze and utilize their data for the betterment of the programme. In order to equip District programme managers with the basic analytical and epidemiological skills necessary for processing and interpreting quality data and to effectively use those skills to manage their TB control programme-MIFA – Managing Information For Action training has been found to be a useful tool. MIFA training for the master trainers for 8 states (Delhi, Karnataka, Gujarat, Maharashtra, Tamil Nadu, Orissa, West Bengal and Kerala) was held from 15th -19th December 2008. State level trainings for these states have been completed. Additionally master trainer training for additional 5 states of Assam, Bihar, Jharkhand, Chattisgarh, Jammu and Kashmir have been completed at NTI, Bangalore. State level training at Jharkhand has also been completed in November 2009.

4. Training in Advocacy, Communication and Social Mobilization

Advocacy, Communication and Social Mobilization (ACSM) has crucial role in increasing the reach of services 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 needs attention, such as capacity of the states and districts to systematically plan and implement need based, locally appropriate activities.

The RNTCP conducted four combined training/ workshop for Programme Managers in the states (State TB Officers and designated communication staff for RNTCP (State IEC Officers) to assess, plan and implement state specific need based ACSM activities.

Modular training

These trainings were conducted by National Institute of Health and Family Welfare in the months of November/ December 2008 and January 2009. Further five capacity building workshops were held in the states of Maharashtra, Madhya Pradesh, Assam, Uttranchal, Punjab and Haryana for effective use of IEC material.

Innovations to Strengthen Health System

Practical Approach to Lung Health (PAL)

The Practical Approach to Lung Health (PAL) is a component of the WHO Stop TB Strategy. PAL is a patient-centred approach to improve the quality of diagnosis and treatment of common respiratory illnesses in primary health care (PHC) setting. It seeks to standardize service delivery through development and implementation of clinical guidelines and managerial support within the general health system.

PAL strategy has been identified in the Stop TB Strategy as a model to strengthen the health systems. This initiative is aimed at managing respiratory patients in primary health care settings while expanding TB detection and good-quality TB services. PAL focuses on the most prevalent respiratory diseases at first-level health facilities – pneumonia, acute bronchitis and other acute respiratory infections, TB, and chronic respiratory conditions including chronic bronchitis, asthma and chronic obstructive pulmonary disease. A pilot project of PAL is being implemented in the state of Kerala. In order to develop the technical and operational guidelines for PAL, a workshop was organized in Trivandrum, Kerala in November 2009 with international, national and state experts with WHO support. The project implementation plan was developed by the state technical working group for PAL and the project will be implemented by State Disease Control and Monitoring Cell, NRHM Kerala with technical support of RNTCP.

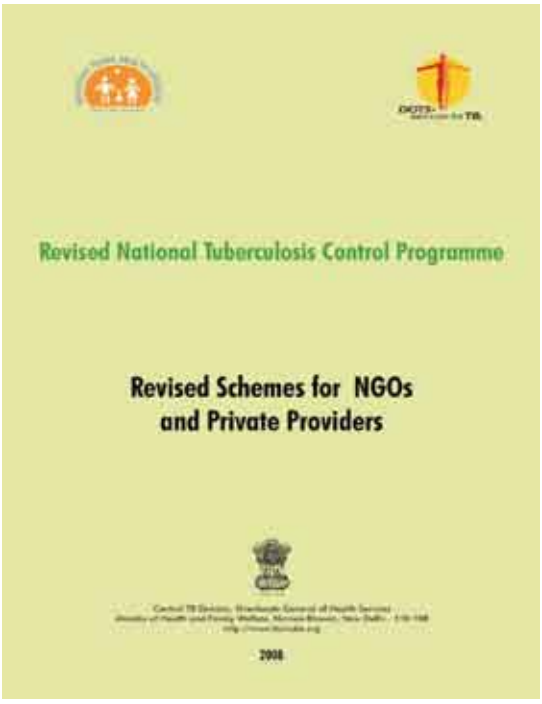
PAL-Kerala – State Technical working Group discuss with Dr Salah Ottmani and Dr S Sahu.

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, Labour 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



Revised NGO/PP Schemes

- ACSM scheme
- Sputum Collection scheme
- Transport scheme
- DMC scheme
- LT scheme
- Culture & DST scheme
- Adherence scheme
- Slum Scheme
- Tuberculosis Unit Scheme
- TB/HIV scheme

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 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.

Revised NGO/Private Provider Guidelines

RNTCP has revised the NGO/PP Guidelines which have included newer schemes 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. (Details placed at Annexure 1).

Intensified PPM Project

The Central TB Division has set up an 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 (Tamilnadu), Bangalore (Karnataka), Bhopal (Madhya Pradesh), Bhubaneswar (Orissa), Ranchi (Jharkhand), Patna (Bihar), Kolkata (West Bengal), Pune-Mumbai (Maharashtra),

Figure 9: NGO Status (State-wise) as per the 4th Quarter 2009
(States with less than 50 NGOs have not been shown)

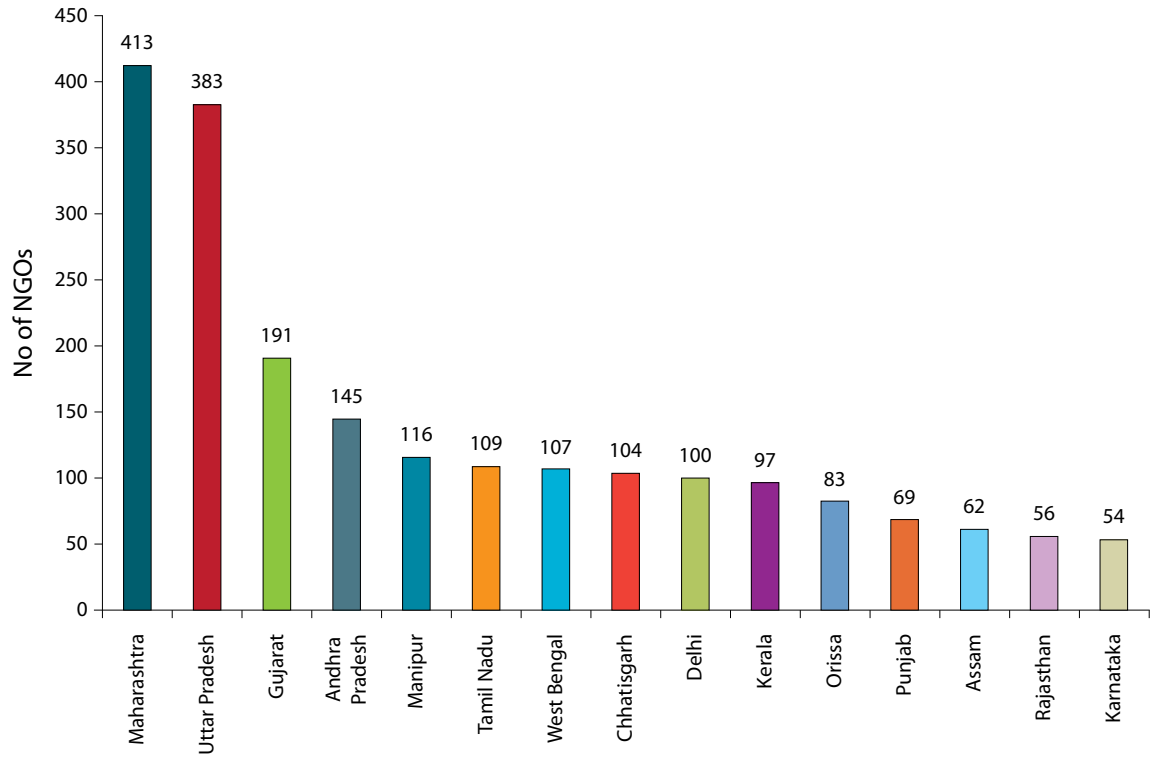


Figure 10: PP Status (State-wise) as per the 4th Quarter 2009
(States with less than 50 PPs have not been shown)

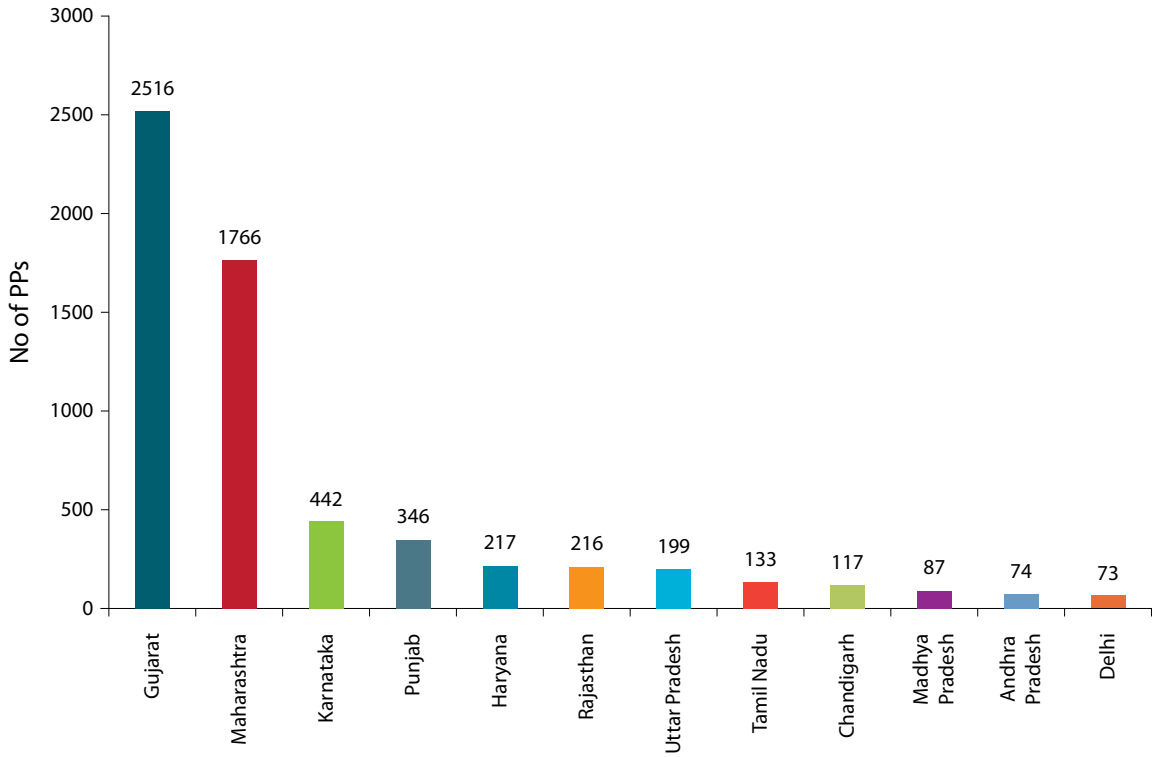
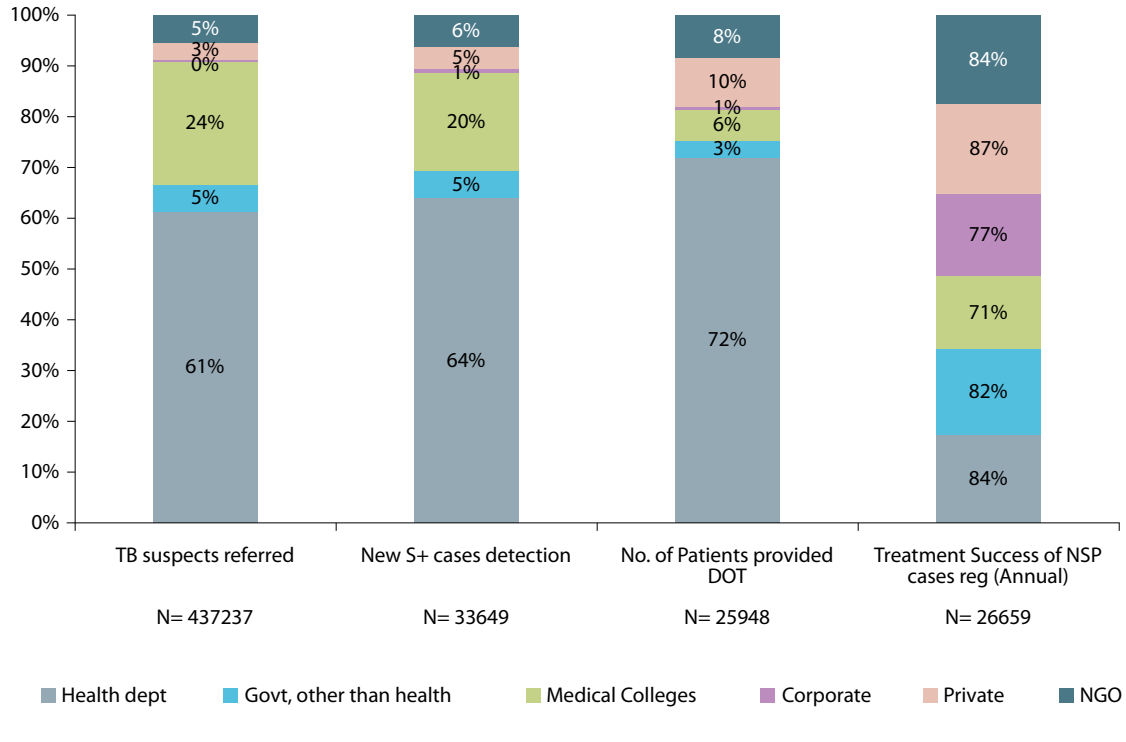


Figure 11: 14 intensified urban PPM districts (Annual): Summary of Contribution by different health sectors



Ahmedabad (Gujarat), Jaipur (Rajasthan), Lucknow (Uttar Pradesh), Chandigarh and New Delhi. The reporting focuses on the following four areas:

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

IMA Project

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, under the Rolling Continuation Channel (RCC) Project of GFATM.

The 2nd National Review workshop of IMA GFATM RNTCP PPM Project was conducted on October 14, 2009 at Hotel Atrium, Surajkund, Haryana. The NWG members, State Coordinators, IMA, Technical Consultants, State Presidents and State Secretaries of the Project States and private doctors trained by IMA and involved in DOTs participated in the review. Representatives of Central TB Division, State TB Officers, RNTCP consultants and representatives from WHO India and The UNION also participated. The National President of IMA Dr Ashok Adhao inaugurated the workshop. Dr. V.C. Velayudhan Pillai, Past National President and IMA Goodwill Ambassador for TB care was the Guest of Honour. The presence of a large number of field level private doctors involved in DOTS made a qualitative difference in the review process.

The Status till December '09:

- Total No. Of CMEs conducted: 107
- No. of PPs reached through the CMEs: 3912
- No. of District Training programme -39
- No. of PPs trained in DTP-896
- No. of DOT Centres created -828
- No. of DMCs created 20

The IMA has endorsed the International Standard of TB care guidelines and disseminated widely in the country.

IMPACT –Indian Medical Professional Association Coalition against TB

The IMA has supported in formation of Coalition of Professional Bodies against TB at the National level which has following members:

- API-Association of Physicians of India
- IAP-Indian Academy of Pediatrics
- NCCP-National College of Chest Physicians
- ICS-Indian Chest Society

IMPACT - National level meeting

- FPAI-Federation of Family Physicians Association of India

The 4th Consultative meeting of the Indian Medical Professional Associations' Coalition Against TB (IMPACT) was held at New Delhi on Sunday, April 5, 2009. It was attended by 27 delegates comprising of representatives from CTD, Ministry of Health and F.W., WHO India and partner Associations who deliberated upon how to get the International Standards of TB Care (ISTC) guidelines endorsed by all the partners. The new partners added to the existing coalition this year 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.

Catholic Bishop's Conference of India (CBCI)

The Revised National TB Control Programme has signed a MOU with the Catholic Bishop's Conference of India, Health Commission, for the First IMPACT TB Project under the direct supervision of Central TB Division in 11 states - Andhra Pradesh, Assam, Bihar, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. This support is being extended to 8 more states under the RCC project of GFATM.

The Catholic Healthcare network is the largest group in the NGO sector with more than 5,500 health care establishments in India. 85% of these health facilities are in remote rural and tribal areas, providing medical care to communities which have not been able to access the public health services.

Over the last year, RNTCP has been gaining ground in Catholic Health facilities (CHFs) with 125 already

CBCI Success Stories

Uttar Pradesh: Mariampur Hospital, Kanpur - RNTCP Sensitization

Community Level Sensitization - Sitapur village

Chhattisgarh: Participants of the Training conducted at Vellankani HC

Karnataka: MoU signing CHFs of Mysore Diocese- Bishop, DTO, RNTCP Consultant and CHAI office bearers

participating after signing the revised NGO/PP schemes.

The Partnership for Tuberculosis Care and Control

The "Partnership for Tuberculosis Care and Control in India" brings together civil society across the country on a common platform to support and strengthen India's national TB control efforts. The partnership was set up in November 2008 and has a Secretariat which provides administrative and technical support to the Partnership which currently includes 30 stakeholders across the country representing NGOs, CBOs, FBOs, affected communities and private sector. The Secretariat has also coordinated regional consultations in the southern, eastern and central regions of the country to broad base and increases the support of civil society to the RNTCP as well as increase the membership. A national consultation was held in Sep 2009, during which the Partnership's website was also launched – www.tbpartnershipindia.org. The national consultation was also attended by the Partnering and Social Mobilization Team of the WHO Stop TB Partnership Geneva, USAID and WHO India.

Partnership meeting

Railways and RNTCP

A workshop was conducted by Central TB Division to discuss the operational problems in the implementation of RNTCP in Railways on 29th May 2009 at New Delhi. The workshop was attended by 16 Zonal Hospital representatives. Each participant presented the Status of RNTCP implementation in their hospital. The

workshop was inaugurated by DG, Railway Board, Dr Ramteke, who assured commitment from Railways in smooth implementation of RNTCP in the Railway Health Facilities. Dr. L.S. Chauhan thanked the Railways in taking a lead in strengthening the Health Ministry in controlling the menace of TB.

National Thermal Power Corporation and RNTCP

National Thermal Power Corporation has 21 Project sites all over the country where they are running DMC /DOT Centres in their hospitals (with at least 50 adult OPD/day) namely, at Singrauli, Korba, Dadri, Farakka, Ramgunda, Talcher, Kahalgaon, Vindhyachal, Unchhar, and Rihand. They have put 991 patients on treatment till December 2009. The NTPC foundation reviews the progress at all the sites at National level every quarter. This is a good example of Corporate social responsibility. They provide ambulance for Advocacy, Social mobilization and DOT.

NTF meeting and workshop

NTF group work in progress

ZTF workshop - North east zone

CME session-ZTF North zone workshop

Involvement of Medical Colleges in RNTCP

Medical colleges play an important role in supporting any health programme in India. Medical college faculties have 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.

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 286 medical colleges as on 30th October 2009, 273 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 2009 for all the five zones was planned in the months of July-October 2009. During these meetings, the ZTF Chairpersons and Member secretaries were changed to take over the leadership for the next 2 years as part of the rotatory process amongst the states within the zones.

The details of the ZTF workshops and the new ZTF Chairpersons and Member Secretaries are as given in Table 9.

The National Task Force Workshop was held at the All India Institute of Medical Sciences, New Delhi on 30th & 31st October 2009 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, 2008 to 30th June, 2009, more than 0.57 million TB suspects were examined at the medical colleges for diagnosis. Out of these, 85457 smear positive TB cases were diagnosed and referred for treatment initiation at the DOT centre nearest to the patient's residence. During the same period, 45,666 sputum smear negative TB cases and 71531 extra-pulmonary TB cases have been diagnosed and either put on RNTCP treatment within the medical colleges or referred for treatment

ZTF - North Zone, Srinagar

ZTF - South Zone, Puducherry

ZTF East Zone, Bhubaneswar

ZTF West Zone - Udaipur

Table 9: ZTF Workshops-2009, ZTF chairpersons and member secretaries

Zone	Dates	Venue	States	ZTF Chairperson	ZTF Member Secretary
North	October (7-8)	Srinagar, Jammu & Kashmir	UP,HR,JK, PB,HP,UACtH, DL	Dr Jai Kishan, GMC Patiala, Punjab	STO Punjab
East	July (20-21)	Bhubhaneshwar Orissa	BI,WB,ORCG, JH	Dr DP Dash, SCB MC, Cuttack, Orissa	STO Orissa
South	August (27-28)	Puducherry	KA,AP,TN KE, PO	Dr K Venu, Nalgonda, AP	STO Andhra Pradesh
West	August (7-8)	Udaipur, Rajasthan	MP,MH,RJGU, GA	Dr Khushwaha S, SSMC, Rewa, MP	STO Madhya Pradesh
North-East	Sept (10-11)	Agartala, Tripura	AS,SK,MNTR, MG	Prof. N. Tombi Singh, RIMS, Imphal, Manipur	STO Manipur

outside the medical college to the DOT center that is convenient to the patient. During the same period, 55 STF meetings, 92 medical college visits by STF and 19 medical college visits by ZTF have been reported.

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

1. Promotion of rational use of anti-TB drugs in India
2. Mainstreaming programmatic management of DR-TB patients in medical colleges
3. Making TB a nationally notifiable disease
4. Review of Zonal OR Committee Meeting Recommendations

This year, the NTF also made a statement on the proposed change in the regimen and nomenclature from the existing categories (CAT I, II & III) of RNTCP treatment regimens to 'new' and 'previously treated' was discussed and accepted by the National Task Force. This change was long overdue and will make the RNTCP regimens more acceptable to clinicians in the country. NTF welcomed this change. However, it was cautioned that the proposed change had implications in terms of revision of training modules and utilization of existing stock of category III drugs.

RNTCP Operational Research Guidelines and priority topics on RNTCP OR agenda were revised and disseminated during the NTF and ZTF workshops held in 2009. All Zonal OR Committees met at-least once during this period and 11 OR proposals out of 38 OR proposals submitted; were approved by the Zonal OR Committees. 42 PG theses on RNTCP were approved by various State OR Committees.

Furthermore, 289 workshops/CMEs/Seminars were conducted in medical colleges during the same period and 29 state level workshops/CMEs/Seminars were organized by State Task Force of various states.

Engage People with TB and Affected Communities

Status of Advocacy, Communication and Social Mobilization (ACSM) in RNTCP

ACSM is an important component of RNTCP. ACSM strategy has carefully addressed the communication needs and interventions as per the programme objectives. Prior to 2006 (before achieving full coverage of the country under DOTS), focus of ACSM was as per the implementation status of DOTS in the states. It focused on restricted use of mass media, however, decentralized planning and implementation has been central to all ACSM initiatives.

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.

Communication plays a crucial role in RNTCP to raise awareness and the determination to fight the disease, publicize services, and remove barriers to their use

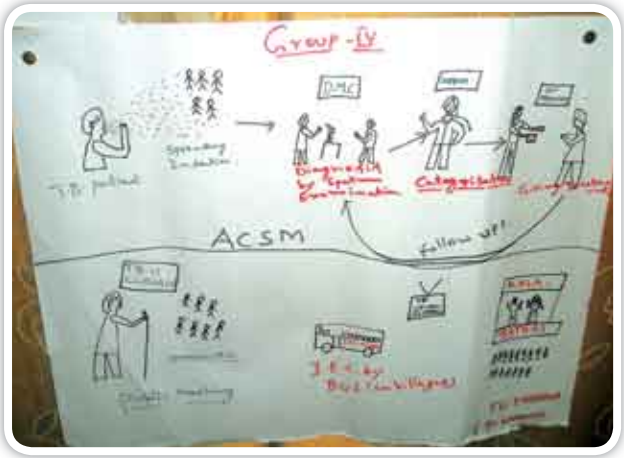
(such as stigma) and support patients through lengthy treatment. Particular challenges that face RNTCP are reaching "hard-to-reach" populations, changing public perceptions and behaviour so that people seek appropriate treatment through RNTCP services, and ensuring that TB is understood as a major public health problem in India.

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.

ACSM has been modified to include and address newer initiatives in the programme such as MDR TB and TB HIV. These newer thrust areas are included in the scope of media agency at the national level to be address through communication initiatives.

ACSM activities for MDR TB are based on the fact that patient has to undergo treatment for 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 effect. More over, most of these patients have previous history of default which can result in lack of motivation to complete treatment. Added to these is stigma and discrimination by the family and friend.

The focus of ACSM activities to address MDR TB is firstly to prevent mergence of MDR TB. The communication initiatives have to create awareness on availability of DOTS Plus services; increase case detection under DOTS Plus and ensure treatment adherence and completion. Patient counseling and motivation, and counseling of family members is very crucial and to prevent further transmission of infection cough hygiene and disposal of sputum. Advocacy with the care providers for promoting rational use of first and second line anti TB drugs is important area for ACSM component of the programme.



ACSM Capacity Building Workshop: The methodologies used by the facilitators walked the participants through a systematic process of programme gap identification and analysis. Participants used this analysis to develop concrete ACSM action plans for their respective TB Units, using a standardized ACSM planning form

TB- HIV collaborative activities are being undertaken in 14 states and scaled up to involve all the states in 2007. NACP & RNTCP have developed "National framework of joint TB/HIV Collaborative activities" in 2007 which was revised in Feb. 2008 to redefines the scopes of TB/HIV collaborative activities being implemented in the country. Both the programmes promote cross referral and shared confidentiality. To spread awareness about the disease 10 point counselling tools has been developed, and communication material about the disease and early detection and signs and symptoms are displayed at health facilities. The scope for strengthening this collaboration has been identified in the ACSM strategy.

Important ACSM Activities During the Year

1. **Media Agency**: Lintas India Pvt. Ltd. Has undertaken the following activities during the year.

    a. Media campaign on TV and radio using new spots focusing on "two weeks of cough" and availability of anti TB drugs in patient wise boxes.

    b. ACSM capacity building workshop in six states for effective use of communication material and hands on training for organization of community mobilization activities.

    c. Development of communication material for community awareness activities and material for use for patient counseling.

    d. End Line KAP study to document the reach of media campaign.

    e. The process of hiring new media is agency ongoing.

2. **National level ACSM Capacity building workshops for STOs, IEC Officers and Communication Facilitators**

    ACSM Capacity Building training workshops were planned for State TB Officers, IEC Officers and Communication Facilitators at National Institute of Health and Family Welfare (NIHFW) in four batches:- 1st Batch - 10-15th November 2008B; 2nd batch- 1-6 December 2008; 3rd batch- 15-20 December 2008; and 4th batch-

5-10 January 2009. The response of the participants has been very encouraging. The resource persons included representative from PATH.

District-level ACSM training and planning workshop in India

PATH, with financial support from USAID and in collaboration with the State TB Control Society, organized a 4-day action planning workshop on advocacy, communication and social mobilization in Hyderabad, Andhra Pradesh, India. Participants of the this district-level planning workshop included District TB Control Officers, Medical TB Officers and Senior Treatment Supervisors, as well as communication facilitators and local NGO partners and WHO consultants.

The methodologies used by the facilitators walked the participants through a systematic process of programme gap identification and analysis. Participants used this analysis to develop concrete ACSM action plans for their respective TB Units, using a standardized ACSM planning form.

3. **Pilot on redefining the role of communication facilitators in poor performing districts**

In May 2008, Central TB Division and World Bank mission observed that there was a problem with the introduction of Communication Facilitators (CFs). However, Communication Facilitators (helping hand or support in the districts) have potential to reach hitherto unreached populations. It was identified that this resource has the potential will require to be refining the strategy so that it is more focused: focus on poor performing districts, focus on specific challenges such as chronic defaulters etc.

The pilot was to allow for greater flexibility for states to determine how to engage CFs, as the Communication Facilitators (CFs), have potential to reach to unreached populations. Helping hand in the districts is desirable and welcome, however, in the existing arrangement there are issues that need clarity; and redefining and restructuring the roles and responsibilities of Communication Facilitators can address these issues.

The pilot was conducted in the states of Andhra Pradesh, Assam, Gujarat, Rajasthan and Tamilnadu. The result point to redefining the terms of reference and also education qualifications are some of the recommendations that have emerged from the pilot.

4. **Revised Format for ACSM annual action Plan**

ACSM Annual action Plan has been revised to make it more relevant to programmatic issues by identifying communication challenges, target audiences, time line, and monitoring indicators.

5. **Restructuring of IEC Advisory Group**

Restructuring of IEC Advisory Group has been done to include new members in place of members who haven't been actively participating and members who have left the organization that they were representing. The new members have also been included to get technical inputs on newer initiatives in the programme.

ACSM Activities in Various States

'New Paradigm in TB Control through Involvement of Pharmacists in Delhi'

Advocacy Workshop at New Delhi TB Centre, Delhi

Delhi DOTS program has started a new initiative to rope in the Pharmacist and Drug shop owners to bring uncovered TB cases into the DOTS fold. An advocacy workshop was conducted at New Delhi TB Centre to garner the support of pharmacists and drug shop owners in providing access to DOTS in the community. The objectives of the workshop were:

- To set up a platform for partnership between Revised National TB Control Program, Drug Control Department -Government of Delhi and Retail Chemists/Wholesale Dealers for effective referral of TB suspects for diagnosis and treatment to the DOTS system.
- To promote rational use of Anti-TB Drugs sale in Delhi- by sensitizing the Retail Chemists to refrain from selling Anti-TB drugs without the prescription of a Registered Medical Practitioner.
- To increase access to RNTCP at community level- Pharmacists being accessible and acceptable to the community can help in ensuring treatment adherence by acting as treatment providers.
- To promote IEC on TB and DOTS through private pharmacies- Pharmacists have a valuable public health role in promoting community awareness of tuberculosis, particularly in reducing the stigma and discrimination often associated with the disease. They can also counsel patients on proper use of their medication leading to greater patient involvement in treatment and compliance.

'New Paradigm in TB Control through Involvement of Pharmacists'
Advocacy Workshop at New Delhi TB Centre, Delhi.

The participants included office of Drug Controller General of India, Drug Controller Delhi, Drug Inspectors, Retail Pharmacist of all five Zones in Delhi, All India Organization of Chemists and Druggists, Indian Pharmacy Graduates Association, Indian Pharmacy Association and Registrar Delhi Pharmacy Council. The pharmacists were addressed by Hon'ble Minister of Health, Government of Delhi - Dr.Kran Wallia, DDG(TB)- Dr. L.S.Chauhan, MO(WHO) - Dr.Puneet Dewan, Drug Controller Delhi - Mr.Manoj Kumar and STO Delhi - Dr. R. P. Vashist.

Vahana Sandesh Yatra

Arunachal Pradesh

DD Talks show on World TB Day and RNTCP on the occasion of World TB Day celebration on 24th March'09 by (1) STO, Arunachal Pradesh Dr. B. Tada, (2) Shri Riya Tatar, Cured TB Patient (3) Dr. P.D.Thongchi, DTO, Papumpare, (4) Mrs. Taba Yasin, State ACSM Officer, anchored by Shri A. Tripathy, Co-ordinator, Volunteer Health Association of India, Arunachal Branch as NGO participant.

Occasion: TB Awareness Procession on the occasion of World TB Day Celebration 2009 on 24th March' 09

Street play- Kerala

Kerala

Kerala- 'Vahana Sandesha Yathra'

State TB cell of Kerala organised a novel form of campaign -"A Vahana Sandesa yathra" through out the state. Two minibuses decorated with TB Messages were arranged. Each bus was started from the southern and northern points of the State ie Parassala in Thiruvananthapuram and Manjeswaram in Kasargod. The yathra covered every districts and TUs in the state, giving TB awareness messages using a array of communication tools. The key attraction of the 'Yathra' was DOTS flag, this was handed over from one district to other after finished the campaign in the former District. Both the Yathras came to Thrissur on the day March 24, World TB Day. The programme got good coverage in both electronic and print media.

Date: 24th March'09, Venue: Doordharsan Kandera, Itanagar (Arunachal Pradesh)

Punjab

Awarenss Camp at Slum Area

People of Slum Areas believes that Tubuerculosis can be cured by visiting the Saints, Baba's etc. To remove the myth from their minds District Health Society-RNTCP Patiala is organizing Special Awareness Campaign in these areas.

Educating the people about Tuberculosis, a view in TU Rajpura, Patiala, Punjab

Painting and Slogan Competition about Tuberculosis

On the occassion of World TB Day 24 March 2009 A Slogan and Painting Competition on Tuberculosis was oraganized by District Health Society Patiala at Govt. Girls High School Anardana Chowk Patiala. Children of middle classes were well known about the decease and they prepared Very beautiful Paintings and Slogans. After the Competition winner students were honored by DHS (RNTCP) Patiala.

Kids at work

"Hashiye Ton Murdi Zindagi" Play on TB-DOTS

On the Occasion of **World TB Day**, 24th March 2009, District Health Society-RNTCP, Mansa-Punjab, organized a district level function, where a book **"Hashiye Ton Murdi Zindagi"** about the DOTS, Written by Mr. Jagdish Rai Kulrian, Communication Facilitator in RNTCP Mansa, was released. This book was written in regional language which conveys information regarding TB & DOTS.

DC Mansa Mr. Kumar Rahul, CS Dr. Nagi and DTO Dr. Yashpal Garg released the book "Hashiye Ton Murdi Zindagi" on World TB day 2009.

Tamil Nadu

A major IEC activity in the form of Motor cycle rally was organized by DTC,Tuticorin from 22.06.09 to 25.06.09. District Collector and MP inaugurated the rally in the presence of JD & DD(TB). It covered nearly 40 Primary Health Centres, 10 Government Hospitals,3 NGOs and one Industry in Tuticorin District. Quiz programme for school children, TB awareness speech, street

Tamil Nadu - Motor cycle rally

plays, students rally etc., were conducted during this four days Motorcycle rally. About four lakhs general population were reached through this rally and TB awareness given.

Mizzoram

Published TB Music Video on the occasion of World TB Day 2009. NGO Ramhlun South Young Mizo Association, Aizawl sang the song wearing RNTCP dress

Sensitization Workshop on RNTCP conducted for Aizawl Central Jail Inmates on 6th Feb, 2009 Accountant, Aizawl DTC chaired the meeting

Awareness Campaign on RNTCP conducted for Aizawl City Bus Drivers and Conductor at the General Meeting on 14th Feb, 2009

Laipuitlang KTP organized Annual Sport on 18th April 2009. Players wearing Jersey with DOTS logo

ACSM Activities in Various States

Maharashtra - Mumbai - Rally on World TB Day

Mumbai - Street Play

Assam: Revised NGOs Schemes inauguration - Bongaigaon

Madhya Pradesh: Sensitizing students - Indoor

Community Meeting Baduwa, Jaipur

DTC Sirsa, Haryana

Reaching out to Tribal, Hard to Reach and Marginalized Populations

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 1200 prisons/jails with a total capacity of 233,543 inmates. This includes 107 Central Jails, 268 District Jails, 678 Sub district Jails, 14 Women jails and 73 other jails. The current 326,000 jail inmates (Male: 3,13,739, Females: 12,780) are constituted of 28% convicts, 67% under-trials, 1.2% detainees and 4% 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 genderbased 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:

Operational Research- protocol development workshop at NTI-Bengaluru

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 rereviews 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 zonal OR committee meeting cum capacity building workshop for the zonal OR committee members was held at National Tuberculosis Institute Bangalore in the month of March' 2009. Members of all the zonal OR Committees participated in this meeting cum workshop.

A capacity building workshop on operational research was conducted at NTI, Bangalore in September 2009 in collaboration with the UNION. In this workshop, OR protocols were developed on various RNTCP priority areas by 5 states, 1 NGO and CTD.

A National level OR dissemination workshop was conducted at TRC, Chennai in December 2009.

List of Studies being undertaken by RNTCP

National Level

A retrospective assessment of reasons and risk of default amongst Cat II patients was successfully undertaken by CTD. The results of the study showed important risk factors and reasons for default. The results of the study and the remedial actions to be taken have been communicated to the districts.

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
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)
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 38 proposals have been reviewed by the Zonal OR committees during the period July'08-June'09 and 11 studies have been approved and funded. More than 80 postgraduate thesis 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
  a. (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 failure during TB treatment
- 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 interdepartment 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

Selected Published Articles on Tuberculosis-India in 2009

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2. Vandan N, Ali M, Prasad R, Kuroiwa C (2009) Assessment of doctors' knowledge regarding tuberculosis management in Lucknow, India: a public-private sector comparison. Public Health 123: 484–489.
3. Thomas BE, Dewan PK, Vijay S, Thomas A, Chauhan LS, et al. (2009) Perceptions of tuberculosis patients on provider-initiated HIV testing and counseling – a study from south India. PLoS One 4: e8389.
4. Singla R, Srinath D, Gupta S, Visalakshi P, Khalid UK, et al. (2009) Risk factors for new pulmonary tuberculosis patients failing treatment under the Revised National Tuberculosis Control Programme, India. Int J Tuberc Lung Dis 13: 521–526.
5. Singh M, Chauhan DS, Gupta P, Das R, Srivastava RK, et al. (2009) In vitro effect of fluoroquinolones against Mycobacterium tuberculosis isolates from Agra & Kanpur region of north India. Indian J Med Res 129: 542–547.

6. Sharma N, Nath A, Davender Kumar T, Gopal Krishnan I (2009) A qualitative evaluation of the information, education, and communication component of the tuberculosis control program in Delhi, India. Asia Pac J Public Health 21: 321–332.

7. Sekar B, Arunagiri K, Selvakumar N, Preethi KS, Menaka K (2009) Low frequency of moaA3 gene among the clinical isolates of Mycobacterium tuberculosis from Tamil Nadu and Pondicherry--south eastern coastal states of India. BMC Infect Dis 9: 114.

8. Ramzan M, Ali SM, Malik A, Zaka-ur-Rab Z, Shahab T (2009) Frequency of HIV infection amongst children with disseminated tuberculosis and tuberculous meningitis in Aligarh (North India) - a low HIV prevalence area. J Coll Physicians Surg Pak 19: 566–569.

9. Ramachandran R, Nalini S, Chandrasekar V, Dave PV, Sanghvi AS, et al. (2009) Surveillance of drug-resistant tuberculosis in the state of Gujarat, India. Int J Tuberc Lung Dis 13: 1154–1160.

10. Rajasekaran S, Raja K, Jeyaseelan L, Vijilat S, Priya K, et al. (2009) Post-HAART tuberculosis in adults and adolescents with HIV in India: incidence, clinical and immunological profile. Indian J Tuberc 56: 69–76.

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Changes in RNTCP Policy

on Diagnosis of Smear Positive Pulmonary TB

Effective from 1st April 2009

On the recommendation of the National Laboratory Committee RNTCP has made changes in diagnosis of smear positive pulmonary TB (PTB). WHO 2007 STAG-TB recommended that

- The revised definition of a new sputum smear positive pulmonary TB case is based on the presence of at least one acid-fast bacillus (AFB) in at least one sputum sample in countries with a well functioning EQA system
- The reduction of the number of specimens to be examined for screening of TB cases from three to two, in places where workload is very high and human resources are limited

According to new policy there are changes in:

1. Number of Sputum Specimen Required for Diagnosis of Smear Positive PTB

The number of specimens required for diagnosis of smear positive pulmonary TB is two, with one of them being a morning sputum specimen. Two sputum specimens are collected over one, or two consecutive days. Of the two sputum specimens, one is collected on the spot and the other is an early morning specimen collected at home by the patient. If the health facility is a DMC, one spot specimen is collected immediately on the first day and patient is given a sputum container with instructions for collection of an early morning specimen which is brought to the DMC by the patient/attendant on the second day. If the health facility is not a DMC, then the patient is given a sputum container with instructions to collect an early morning specimen and go with the sputum specimen to the DMC where the spot specimen can be collected. In case the patient is not able to travel to the DMC, then both the morning and the spot specimens could be collected at the nearest health facility or sputum collection centre and transported to the DMC. Results of sputum tests should be reported within a day.

2. Diagnosis of Smear Positive PTB

Diagnosis of smear positive TB amongst TB suspects - One specimen positive out of the two is enough to declare a patient as smear positive TB. Smear positive TB is further classified as a new or retreatment case based on their previous treatment history, and appropriate therapy is prescribed. Patients in whom both specimens are smear-negative should be prescribed symptomatic treatment and broad-spectrum antibiotics for 10–14 days. In such cases antibiotics such as fluoroquinolones (ciprofloxacin, ofloxacin, etc.), rifampicin or streptomycin, which are active against tuberculosis, should not be used. Most patients are likely to improve with antibiotics if they are not suffering from TB. If the symptoms persist after a course of broad spectrum antibiotics, repeat sputum smear examination (2 samples) must be done for such patients. If one or more smears are positive, the patient is diagnosed as having smear-positive pulmonary TB. If none of the repeat sputum specimens is positive, a chest X-ray is taken, and if findings of the X-ray are consistent with pulmonary tuberculosis, the patient is diagnosed by the physician as a case of sputum negative pulmonary TB.

3. Definition of PTB Suspect-TB Suspect is Any Person with Cough for 2 Weeks, or more

A pulmonary TB suspect is any person with cough for 2 weeks, or more. At all outpatient clinics, hospitals and health facilities, both in the public and private sectors, all patients need to be systematically screened for cough by medical officers and health staff manning the health facilities. Additionally, in medical colleges and hospitals, in-patients also need to be screened for identification of TB suspects. Persons with cough for 2 weeks, or more, with or without other symptoms suggestive of TB, should be promptly identified as pulmonary TB suspects and steps taken to subject them to sputum smear microscopy for acid-fast bacilli, for diagnosis of TB.

No changes are required in the recording and reporting formats for 2009. However, in view of these changes, the full range of External Quality Assessment (EQA) activities in all the RNTCP designated microscopy centres across all states and districts as per the existing guidelines will be maintained. The "RNTCP laboratory network: Guidelines for Quality Assurance of smear microscopy for diagnosing tuberculosis", published in 2005 by the Central TB Division, Directorate General of Health Services, Ministry of Health & Family Welfare, New Delhi, are available in downloadable format at www.tbcindia.org.

Accordingly, these changes will be reflected in I EC material, on TB suspects and number of sputum samples for diagnosis.

All partners of RNTCP, including PPM partners and TB-HIV partners at state and district levels have been communicated the new policy.

Consensus Statement
Multi-drug Resistant and Extensively Drug Resistant TB in India

Based on the review of published evidence, international and national guidelines, and the experience of participants and their institutions in the management of multi-drug resistant TB (MDR-TB) and extensively drug resistant TB (XDR-TB), the following consensus was reached.

Epidemiology

As per the estimates from the State representative Drug Resistance Surveillance (DRS) survey in Gujarat and various district level DRS studies, the prevalence of MDR-TB in new smear positive pulmonary TB (PTB) cases is <3% and 12 to 17% amongst smear positive previously treated PTB cases. Review of studies with representative samples does not indicate any increase in India of the prevalence of drug resistance over the years.

Although isolated reports, both published and unpublished, indicate the existence of XDR-TB in the country, it is not possible as yet to estimate its magnitude and distribution from the available data.

Definitions

MDR-TB is defined as resistance to isoniazid and rifampicin, with or without resistance to other anti-TB drugs.

XDR-TB is defined as resistance to at least Isoniazid and Rifampicin (i.e. MDR-TB) plus resistance to any of the fluoroquinolones and any one of the second line injectable drugs (amikacin, kanamycin or capreomycin).

Prevention of MDR-TB and XDR-TB

The use of inadequate regimens and the absence, or inappropriate application, of directly observed treatment can lead to the development of drug resistance and potentially to an increase in drug resistance levels amongst the community. The implementation of a good quality DOTS programme will prevent the emergence of MDR and XDR-TB in the community. Therefore, the highest priority is to further improve the quality and reach of DOTS services in the country. For this, all health care providers managing TB patients need to be linked to RNTCP and operational challenges in implementing

DOTS need to be addressed. The proportion of TB patients being treated outside the DOTS strategy needs to be minimised. The International Standards of TB Care need to be used by RNTCP and professional medical associations as a tool to improve TB care in the country. The fluoroquinolone group of drugs is not as yet recognised, nor recommended, as first line anti-TB drugs, and their use should be restricted only to the treatment of confirmed MDR-TB cases.

Management of MDR-TB

National guidelines and plans for scaling up management of MDR-TB have been developed under RNTCP. In the interim, while RNTCP DOTS Plus services are being expanded across the country, all health care providers in the public and private sector managing MDR-TB cases, need to adhere to the following:

- MDR-TB management to be preferably undertaken only at selected health institutions with experience, expertise and availability of required diagnostic and treatment facilities.
- Diagnosis of MDR-TB
  - Drug resistance may be suspected based on history of prior treatment (e.g. smear positive case after repeated treatment courses, Cat II failure etc.) and/or close exposure to a possible source case confirmed to have drug-resistant TB.
  - For patients in whom drug resistance is suspected, diagnosis of MDR-TB should be done through culture and drug susceptibility testing from a quality-assured laboratory.
- Interpretation of DST Results
  - Drug susceptibility test results of the first line anti-TB drugs like pyrazinamide, streptomycin, and ethambutol should be interpreted with caution due to the poor reproducibility of these results even under optimal laboratory conditions.
  - Drug Susceptibility Test (DST) results of second line anti-TB drugs 1 should be interpreted with great caution due to limited capacity of laboratories, absence of quality-assurance, and lack of standardised methodology.

Consensus Statement on the Problem, Prevention, Management and Control

From the Consultative Meeting on National Experts Organized by the TB Research Centre, ICMR, Govt. of India, on 14–15 September 2007, at Chennai

- Treatment regimen
  - All relevant investigations to be performed prior to treatment initiation.
  - Preferably the standardised regimen as recommended in the national DOTS Plus guidelines should be used [6(9) Km Ofx Eto Cs ZE/18OfxEtoCsE][2].
  - If results of second line DST from an accredited laboratory are available, an individualized regimen may be used in such patients after obtaining a detailed history of previous anti-TB treatment.
- Duration of treatment
  - At least six months of Intensive Phase (IP) should be given, extended up to nine months in patients who have a positive culture result taken in fourth month of treatment.
  - Minimum 18 months of Continuation Phase (CP) should be given following the Intensive Phase.
- Follow-up schedule
  - Smear examination should be conducted monthly during IP and at least quarterly during CP.
  - Culture examination should be done at least at 4, 6, 12, 18 and 24 months of treatment.
  - Relevant additional investigations should be performed as indicated.
- Treatment adherence and support
  - All patients initiated on treatment and their family members should be intensively counselled prior to treatment initiation and during all follow-up visits.
  - To reduce the risk of development of resistance to second-line anti-TB drugs and promote optimal treatment outcomes, all efforts should be made to administer treatment under direct observation (DOT) over the entire course of treatment.
  - If DOTS is not possible, attempts to ensure treatment adherence should be made by:
    - checking empty blister packs; and
    - follow-up visits at least every month.
- Documentation of treatment
  - Health care facilities/practitioners managing MDR-TB patients should maintain a systematic record of treatment regimen, doses, duration, side-effects, investigation results and treatment outcome for all patients initiated on second line treatment.

Public Health Responsibilities of Health Care Providers

- Health care facilities/practitioners managing confirmed MDR-TB patients should inform their respective District TB Officer regarding treatment initiation and outcome of all MDR-TB cases.
- Prior to treatment initiation and on all follow-up visits the patient and family members should be counselled on all aspects of MDR-TB.
- All household contacts of the MDR-TB patients should be screened for active TB disease.
- Infection control measures
  - All large health care facilities need to have an infection control (including air-borne infection) plan and a team for implementation of measures to prevent nosocomial transmission of TB and other air-borne infections.
- Statements to the press/media on MDR-TB and XDR-TB should be made with extreme caution and after requisite verification and authentication.

1. Fluoroquinolones ICiprofloxacin, Ofloxacin, Levofloxacin, Moxifloxacin, Gatifloxacin, Sparfloxacin, Pefloxacin]; Kanamycin, Amikacin, Capreomycin, Ethionamide, Prothionamide, Cycloserine and PAS
2. Km=Kanamycin; Ofx=0floxacin; Eto=Ethinamide; Cs=Cycloserine; Z=Pyrazinamide; E=EthambutoL

International Standards for TB Care

The International Standards for Tuberculosis Care (ISTC) describe an internationally accepted level of care that all practitioners, public and private, should follow in dealing with people who have, or are suspected of having, tuberculosis. The Standards are intended to facilitate the effective engagement of all care providers in delivering high-quality care for patients of all ages, including those with sputum smear-positive, sputum smear-negative, and extra pulmonary tuberculosis, tuberculosis caused by drug-resistant organisms, and tuberculosis combined with HIV infection.

The Standards have been developed by the Tuberculosis Coalition for Technical Assistance (TBCTA) with funding support from the US Agency for International Development. ISTC emerged after a year-long inclusive process guided by a 28-member steering committee that included individuals representing a wide variety of relevant perspectives on tuberculosis care and control. In addition, the document was presented at various public forums with an open invitation for comments. India was intimately involved in the development of the ISTC and a representative of the Indian Medical Association (IMA) was a member of the steering committee that supervised the development of the ISTC document. The RNTCP of the Government of India conforms to the standards prescribed in the ISTC.

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, and preferably three, sputum specimens obtained for microscopic examination. 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 and, where facilities and resources are available, for 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 three negative sputum smears (including at least one early morning specimen); chest radiography findings consistent with tuberculosis; and lack of response to a trial of broad spectrum antimicrobial agents. Because the fluoroquinolones are active against M. tuberculosis and, thus, may cause transient improvement in persons with tuberculosis, they should be avoided. In persons with known or suspected HIV infection, the diagnostic evaluation should be expedited.

Standard 6. The diagnosis of intrathoracic (i.e. pulmonary, pleural, and mediastinal or hilar lymph node) tuberculosis in symptomatic children with negative sputum smears should be based on the finding of chest radiographic abnormalities consistent with tuberculosis and either a history of exposure to an infectious case or evidence of tuberculosis infection (positive tuberculin skin test or interferon gamma release assay). For such patients, if facilities for culture are available, sputum specimens should be obtained (by expectoration, gastric washings, or induced sputum) for culture.

Standards for Treatment

Standard 7. Any practitioner treating a patient for tuberculosis is assuming an important public health responsibility. To fulfill this responsibility the practitioner must not only prescribe an appropriate regimen but also be capable of assessing the adherence of the patient to the regimen and addressing poor adherence when it occurs. By doing so, the provider will be able to ensure adherence to the regimen until the treatment is completed.

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 bioavailability. The initial phase should consist of two months of isoniazid, rifampicin, pyrazinamide and ethambutol. The preferred continuation phase consists of isoniazid and rifampicin given for four months. Isoniazid and ethambutol given for six months is an alternative continuation phase regimen that may be used when adherence cannot be assessed, but it is associated with a higher rate of failure and relapse, especially in patients with HIV infection. The doses of anti-tuberculosis drugs used should conform to international recommendations. Fixed-dose combinations of two (isoniazid and rifampicin), three (isoniazid, rifampicin, and pyrazinamide), and four (isoniazid, rifampicin, pyrazinamide, and ethambutol) drugs are highly recommended, especially when medication ingestion is not observed.

Recommended treatment for persons not treated previously		
Ranking	**Initial phase**	**Continuation phase**
Preferred	INH, RIF, PZA, EMB[1,2]	INH, RIF daily, 4 months
	INH, RIF, PZA, EMB1,2 3x/week, 2 months	INH, RIF 3x/ week, 4 months
Optional	INH, RIF, PZA, EMB[2] daily, 2 months	INH, EMB daily, 6 months[3]

INH = isoniazid; RIF = rifampicin; PZA = pyrazinamide; EMB = ethambutol

1. Streptomycin may be substituted for ethambutol.
2. Ethambutol may be omitted in the initial phase of treatment for adults and children who have negative sputum smears, do not have extensive pulmonary tuberculosis or severe forms of extra- pulmonary disease, and who are known to be HIV negative.
3. Associated with higher rate of treatment failure and relapse; should generally not be used in patients with HIV infection.

Standard 9. To foster and assess adherence, a patient-centred 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 gender-sensitive and age-specific and should draw on the full range of recommended interventions and available support services, including patient counselling and education. A central element of the patient-centred 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 therapy-DOT) by a treatment supporter who is acceptable and accountable to the patient and to the health system.

Standard 10. All patients should be monitored for response to therapy, best judged in patients with pulmonary tuberculosis by follow-up sputum microscopy (two specimens) at least at the time of completion of the initial phase of treatment (two months), at five months, and at the end of treatment. Patients who have positive smears during the fifth month of treatment should be considered as treatment failures and have therapy modified appropriately (See Standards 14 and 15). In patients with extrapulmonary tuberculosis and in children, the response to treatment is best assessed clinically. Follow-up radiographic examinations are usually unnecessary and may be misleading.

Standard 11. A written record of all medications given, bacteriologic response, and adverse reactions should be maintained for all patients.

Standard 12. In areas with a high prevalence of HIV infection in the general population and where tuberculosis and HIV infection are likely to co-exist, HIV counselling and testing is indicated for all tuberculosis patients as part of their routine management. In areas with lower prevalence rates of HIV, HIV counselling and testing is indicated for tuberculosis patients with symptoms and/ or signs of HIV-related conditions and in tuberculosis patients having a history suggestive of high risk of HIV exposure.

Standard 13. 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. Given the complexity of co-administration of anti-tuberculosis treatment and antiretroviral therapy, consultation with a physician who is expert in this area is recommended before initiation of concurrent treatment for tuberculosis and HIV infection, regardless of which disease appeared first. 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 14. 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. Patients who fail treatment and chronic cases should always be assessed for possible drug resistance. For patients in whom drug resistance is considered to be likely, culture and drug susceptibility testing for isoniazid, rifampicin, and ethambutol should be performed promptly.

Standard 15. Patients with tuberculosis caused by drug resistant (especially multi drug resistant [MDR]) organisms should be treated with specialised regimens containing second line anti-tuberculosis drugs. At least fourdrugs to which the organisms are known or presumed to be susceptible should be used and treatment should be given for at least 18 months. Patient-centred measures are required to ensure adherence. Consultation with a provider experienced in treatment of patients with MDR tuberculosis should be obtained.

Standards for Public Health Responsibilities

Standard 16. All providers of care for patients with tuberculosis should ensure that persons (especially children under five years of age and persons with HIV infection) who are in close contact with patients who have infectious tuberculosis are evaluated and managed in line with international recommendations. Children under five years of age and persons with HIV infection who have been in contact with an infectious case should be evaluated for both latent infection with M TB and for active tuberculosis.

Standard 17. 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

Schemes for NGO and 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

RNTCP Success Stories

The programme has made substantial success in various areas and the success stories continue in the year also. The programme salutes the millions of patients and their family members; acknowledge the contribution of hundreds of thousand of TB workers and applaud their intensive perseverance to serve the humanity by verging this battle against tuberculosis.

The exceptional commitment and dedication shown by programmes large contigent of NGO workers, members of self help groups and cured patients, who work with patients to make DOT services accessible even in the remote corners of our vast country is commendable. These ordinary people who have made a big difference to the lives of others continues to inspire all and their stories need to be told. The success stories below are few examples how ordinary men and women joining hand with programme staff, public health workers, administrators, community leaders and other professionals have made an impact on the TB control efforts in the country.

Brave Women – Fighting for a Cause

Mrs. Kalapana is a young women living in Pudukkottai with her two children. She lost her husband 5 years back to HIV. Mrs. Kalpana is also living with HIV and she was thrown out of her family. Her children were stopped from going to school and she had to shift her son to her mother for care taking. She is on ART treatment from Thambaram Sanitorium, from 2005. She joined as a member in PLHA Net work and she got trained in TB, HIV and TB/HIV at district TB Centre, Pudukkottai and various NGO at Chennai and Madurai.

She now works as an HIV, TB out-reach worker at District Tuberculosis Centre, Pudukkottai. She is a DOT provider to many poor working men and women in the quarry industry. She has never allowed any of her TB patients to default! Till now she has given DOT to more than 15 patients.

Restaurant Owner Turns DOTS Provider

Akbar Suleman Rabdi a restaurant owner - Rahi Restaurant, khand bazaar Station Road, Surat, is a man with a mission- contribute in TB control efforts. He not only sent his employee Sadik Ali Aliji Jagralu to Surat

Kalpana giving DOT to one of her patients

Municipal Corporation Health Center for evaluating his cough but when he knew that Sadik Ali has TB, he became a DOTS provider to Sadik. This is a good example of community participation in DOTS.

Akbar Suleman Rabdi a restaurant owner giving DOTS to his staff Patient Sadik

Private Practitioner as DOT Provider

Dr Ramesh K Nakun is a Private practitioner running his clinic at Godadara, Surat. He has been a successful RNTCP worker since 2003. He is referring many patients for diagnosis of TB and also providing DOTS. He has given Successful DOTS treatment to his 164 patients in 2008. In 2009, 68 patients were given DOTS successfully and 92 patients are still on DOTS therapy.

He was honored as "Best Private Practitioner Award "by Commissioner of Health Gujarat at state level "World TB Day-2008 "Programme. He is really front runner hero in RNTCP in Surat Municipal Corporation.

Dr Ramesh K Nakun is a Private practitioner giving DOTS to his Patient

Chemist as DOT Provider

Rajinder Medical Store in Lal Singh Basti, Bathinda has been involved in RNTCP since 2004. He has taken initiative to engage in TB initiative in his area, by providing DOT to TB patients and by referring chest symptomatic patients to the nearest DMC. Till date 96 patients have been successfully completed treatment with him. He is part of mission- a mission to facilitate the success of DOTS programme in the community.

School Students as TB Volunteers in the Fight against TB

District Health Society Mansa had organized workshops in different schools to create awareness in relation to TB. Students were given informations on symptomatology of TB and its Treatment (DOTS) & preventive measures. These students have taken up TB control their own goal and works as volunteers for spreading awareness about TB and DOTS in their locality.

Students of Govt. S.S. School Mansa creating awareness in a Rally

Social Worker-DOT Provider- Mr. Chiman Lal

To serve the humanity, this mission has under taken by **Mr. Chiman Lal**, in Mansa (Punjab), a practicing Registered Medical Practitioner, to become a DOT Provider. Since 2006, he has give DOTS to **136** patients. He refused to accept the Honorarium for DOT Providers as he feels that this is a social work he cherishes.

Mr. Chiman Lal serving the Humanity. Giving DOT to a patient

No Age Limit in the Battle Against TB

Dr. R. Srinivasan, M.B.B.S., D.M.R.D., D.T.C.D., 74 years young, rendering voluntary services in District Tuberculosis Centre, Pudukkottai.

A very gentle, polite and kind person, Dr Srinivasan received the Best Services Doctor Award in 2007. We salute his dedication to the cause of TB control.

A Real Life Story

Yudhistir Behera, is a 55 year old farmer eking out a living by cultivating his meagre 0.5 acre hilly agricultural land besides working as a daily labourer in P. Govindapur village under Mohana block in Gajapati district, Odisha. Yudhistir and his wife have 3 sons and a daughter with ages between 6 to 14 years. He is the sole bread winner for the family.

About three years ago, Yudhistir developed TB. He followed the local custom and consulted the village sorcerer who did some Pujas and gave him some local treatment. In the process, he spent about 450 rupees. However, he did not improve and became more ill. His relatives recommended a local doctor whom they said was good with chest complaints similar to what Yudhistir seemed to be suffering from. So he went to this local doctor who prescribed about 3-5 months of some herbal medicines which cost Yudhistir another 600 rupees. But Yudhistir was not getting better – he was now alarmingly ill. He could no longer work and now his wife started work on daily hire and sent his two young sons to work in the nearby roadside restaurant to support their daily needs and the medical expenses of Yudhistir. Finally, Yudhistir had to sell his small property to the local Sahukar (landlord-cum-money lender).

A whole year had gone by since Yudhistir first fell ill. He was now frail and looked ready to die. It was at this time as the ailing Yudhistir was lying half dead on his wooden rope cot outside his house that he met Abhimanyu Dalai. Abhimanyu was someone from the nearby village and who had been cured from TB. He belonged to a local TB patients group which had been recently set up and had heard about Yudhistir's plight from friends. Abhimanyu met with Yudhistir and his family and explained to them that this could be TB, that it was completely curable and that help was nearby at the local PHC in Mohana – only 13 kms away. Yudhistir's wife wasted no time – she got her sons to prepare a makeshift stretcher from Yudhistirs cot and with the help of their neighbours carried Yudhistir to the PHC. The medical officer, Dr Mishra, wasted no time and very soon a sputum examination confirmed Yudhistir's tuberculosis. Very soon, Yudhistir was informed about his treatment, was shown the drugs that had been set aside for him in a box with his name on it and agreed to have his treatment supported and supervised by the local Anganwadi worker who was also a good friend of his wife. He returned home and started his medication.

Yudhistir rapidly improved and returned to work as a daily agricultural worker. He remembers that he almost

died and has lost his land because he did not know about TB and is grateful for Abhimanyu's visit – it saved his life! He now plans to join the patient association in his district and hopes that he will be able to help someone else with TB. He also hopes to redeem his property from the local money lender one day. Since his recovery, Yudhistir has referred at least 5 fellow villagers with symptoms similar to his to the local PHC – he does this through the community based organisation located in his village. His wife is also a member of the women's Self Help Group coordinated by this NGO.

The Union project in Odisha supported with funding from the Global fund's round 4 grant to the Ministry of Health in India has helped set up 32 patient associations in Odisha – 31 at district level and one at the state level. Abhimanyu is an active member of the Gajapati district patient association. The patient associations use the Patient's Charter which has been translated into Odiya to inform and assist TB patients understand their rights and access treatment with dignity. The Union project has also widely disseminated the International Standards of TB Care within the PHC's in Odisha so that medical doctors and health workers apply these standards in their work with TB patients. Finally, this story demonstrates the value of community based NGOs who have been strengthened through this GF supported Union project to recognise and support TB patients access early and complete treatment.

Yudhister after his treatment

Contribution Of NTPC Hospital, In District Raebareilly, Uttar Pradesh

NTPC hospital is located in Unchahar in district Raebareilly, It is a 40- bedded multispeciality hospital involved as a DMC cum DOT centre in RNTCP since January 2008. This health facility provides free diagnostic and treatment services under RNTCP to the employees of NTPC as well as caters poor patients from outreach areas of the district as well as neighbouring districts.

During the period from Jan'08 to Sep'09, 385 Pulmonary TB suspects have undergone sputum examination and 51 TB patients have been successfully treated.

An Ambulance has been provided to DOTS centre NTPC Hospital Unchahar by NTPC Foundation. The Ambulance goes to the defined area three days in a week as per schedule.

Work assigned are:

- Increasing awareness about tuberculosis
- Retrieval of patients interrupting treatment and delivery of medicines
- Transport of critically ill patient to the hospital's centre

Pharmacists Fight Against Tuberculosis: TB Fact Card Project in Mumbai

Pharmacies and private health providers play a major role in the health care system in India today. Unfortunately, pharmacists both in public as well as private sector remain largely an untapped resource in our country.

This valuable resource was hardly tapped for TB Control till now. Based on these views, a TB Fact Card project was launched by Indian Pharmaceutical Association (IPA) in year 2005-06 in Mumbai as a pilot project. The project was a collaborative project of IPA, with (CPA)

Commonwealth Pharmaceutical Association & (IPSF) International Pharmaceutical Students Federation, supported by Maharashtra State Chemist & Druggists Association (MSCDA) & Mumbai District TB Control Society (MDTCS)

The project activities involved developing a TB Fact Card (informative card made in local languages), creating awareness among consumers & TB patients using Fact Card, counseling & treatment monitoring.

A total of 60 community pharmacists (retail pharmacists) from Mumbai & Navi Mumbai area participated in this pilot project. They were trained in all aspects of TB by MDTCS & IPA. These participant pharmacists worked hard for the one year period of the project. Pharmacy students (60 in number), from 6 pharmacy colleges of Mumbai enthusiastically acted as "support system" to these pharmacists & helped in monitoring of patient treatment & maintaining patient record. Pharmacists distributed 5000 TB Fact Cards and conducted monitoring for 133 patients on anti-tuberculosis medications by private-sector physicians..

Overall, this pilot gave successful indication that appropriately trained community pharmacists may be utilised to provide treatment counseling. Most of the pharmacists showed keen interest in the work & wish to continue working for such a social cause. The students got an excellent experience of the field work which otherwise they hardly get from their regular academic schedule. They also got a better insight in the public health issues, retail pharmacy functioning & realized their role in patient care.

The project created a lot of interest at the national & international level. This innovative project was very well appreciated by the international experts. The experts opined that such model would serve as an excellent mechanism to create awareness among the community & should be replicated in countries where the TB burden is high.

Till now worldwide, there are very few isolated reports of pharmacist's contribution in TB management.

IMA Success Stories

A General Practitioner in Warangal, Dr K Mallesham have been seeing many TB cases over the years. As most of the cases are from the poorer section of society he was finding it difficult to hold cases as they would stop treatment when they felt better even though they were not cured. Then he was trained by the IMA in RNTCP. Now Dr Mallesham refers about 30 to 40 cases every month to the DMC at MGM Hospital for sputum examination and has given DOTS for 12 patients in the last 2 years. His compounder administers the DOTS and even retrieves patients when they miss a dose.

Chapter 5

RNTCP case Finding and Treatment Outcome Performance, 1999–2009

On a quarterly basis, Central TB Division receives aggregate case-finding, programme management, sputum conversion, and treatment outcome information for patients registered under the programme from all districts. 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.

Analysis of programme performance trends over the past 10 years are complex due to the rapid pace of DOTS expansion, which only was completed in March 2006. Rate calculations have to account for the district-by-district scale-up of RNTCP services over several years; hence the denominator of population covered changes every quarter. Trend analysis is also affected by differences in the characteristics of implementing districts over the expansion years, and also 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 10 year analysis period, the population covered increased from 139 million to 1.16 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 7.2 million. Over the same time period, the annual rate of TB suspect examination also increased by 50%, from 397 per 100,000 population covered by RNTCP services to 623 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 2009, the number of suspects examined per smear-positive case diagnosed has increased by 7.8% from 7.04 to 7.79 suspects **(Figure 2)**. Total and sputum-positive case notification is also shown in **Table 1**. An average

difference of 12% [Range 8–14%] was observed between the rate of sputum-positive cases diagnosed and the sputum-positive case notification rate.

Total and sputum positive case notification is also shown in **Table 1**. An average difference of 11% [Range 8% to 15%] was observed between the rate of sputum positive cases diagnosed and the sputum positive case notification rate.

Notification Rates of TB Cases

Overall, the total case notification rate has increased from 96 cases per 100,000 population in 1999 to 132 per 100,000 population in 2009 **(Table 1)**. The notification rates of most types of TB cases has steadily increased, with the exceptions of new smear-negative **(Table 2 and Figure 3)** and "treatment after default" **(Table 2 and Figure 4)**. The NSP case notification rate

Table 1: Case finding activities and notification rates

		Sputum Microscopy Services				Case Notification			
Year	Total population of India covered under RNTCP (millions)	Suspects examined		Sputum positive cases diagnosed		Total TB cases notified		Total sputum positive cases notified	
		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

Figure 1: Rate of TB suspects examined and all sputum-positive TB cases diagnosed, 2000–2009

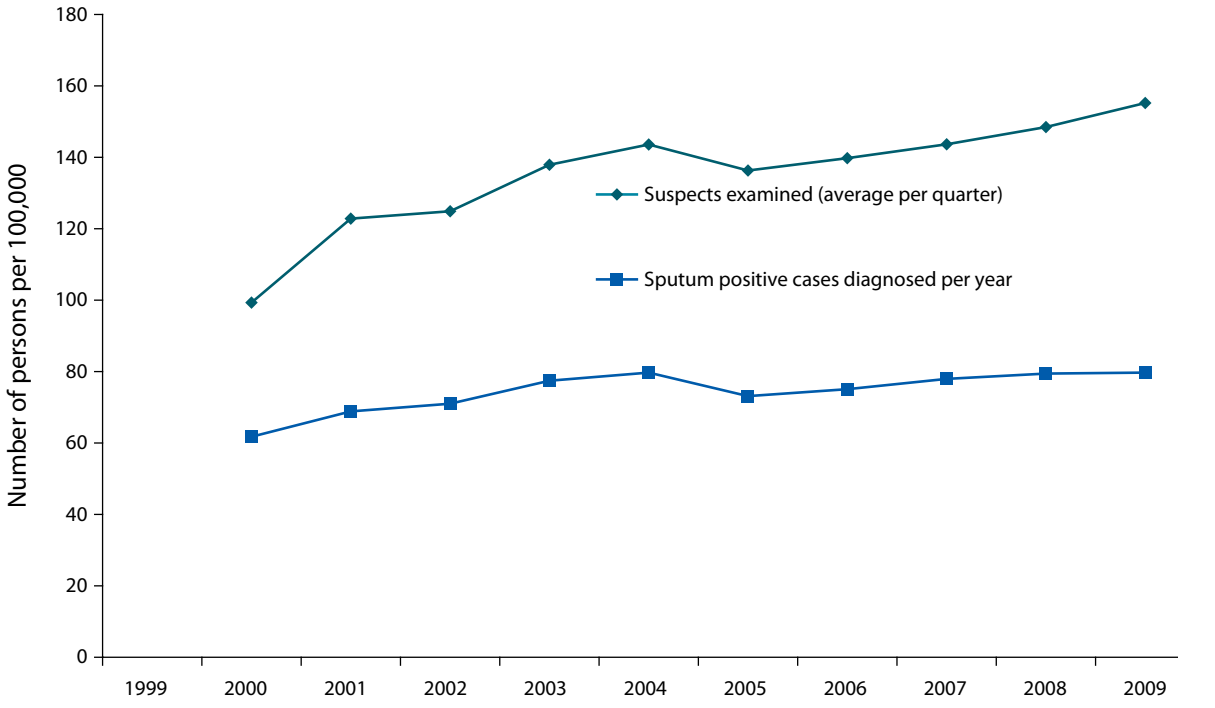
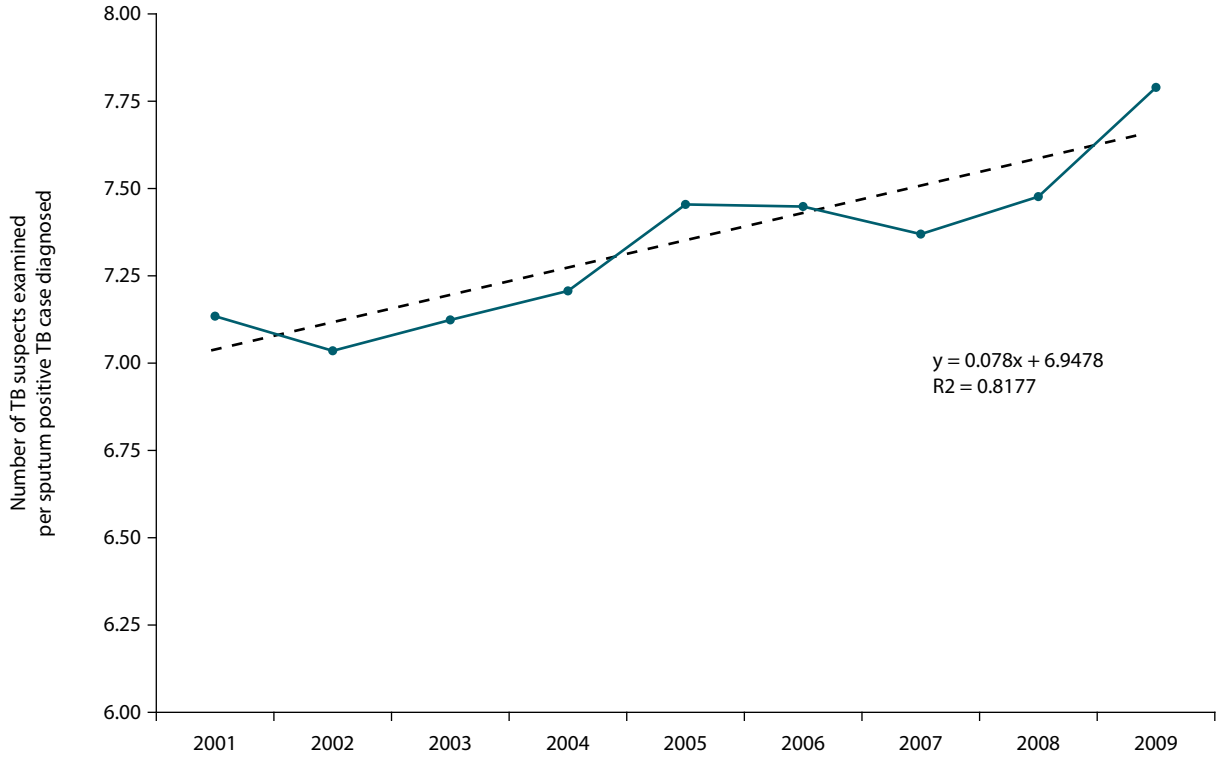


Figure 2: Trend in the number of suspects examined per sputum-positive case diagnosed



has increased from 37 cases per 100,000 population in 1999 to 54 per 100,000 population in the year 2009. The NSN notification rates have shown a decreasing trend from 43 per 100,000 population in 2004 to 33 per 100,000 population in 2009 **(Table 2 and Figure 3)**.

The notification rate of re-treatment cases has increased over the past 10 years, from 15 per 100,000 population in 1999 to 25 per 100,000 population in 2009. 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 gone up from 4 per 100,000 population in 1999 to 7 per 100,000 population in 2009. 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 2009 **(Table 2 and Figure 4)**.

Table 2: Notification rates of different types of TB cases under RNTCP, 1999 –2009. 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)

Figure 3: Total TB case notification, and the contribution of different types of TB cases, 1999–2009

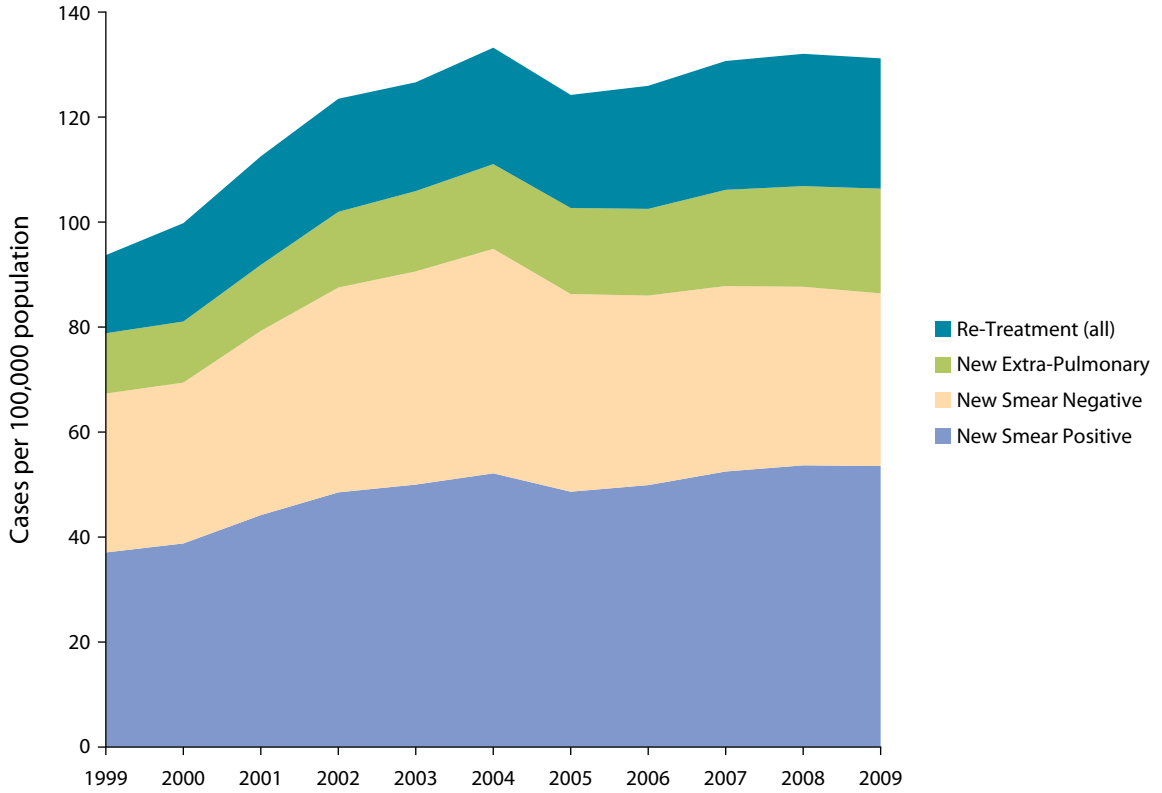
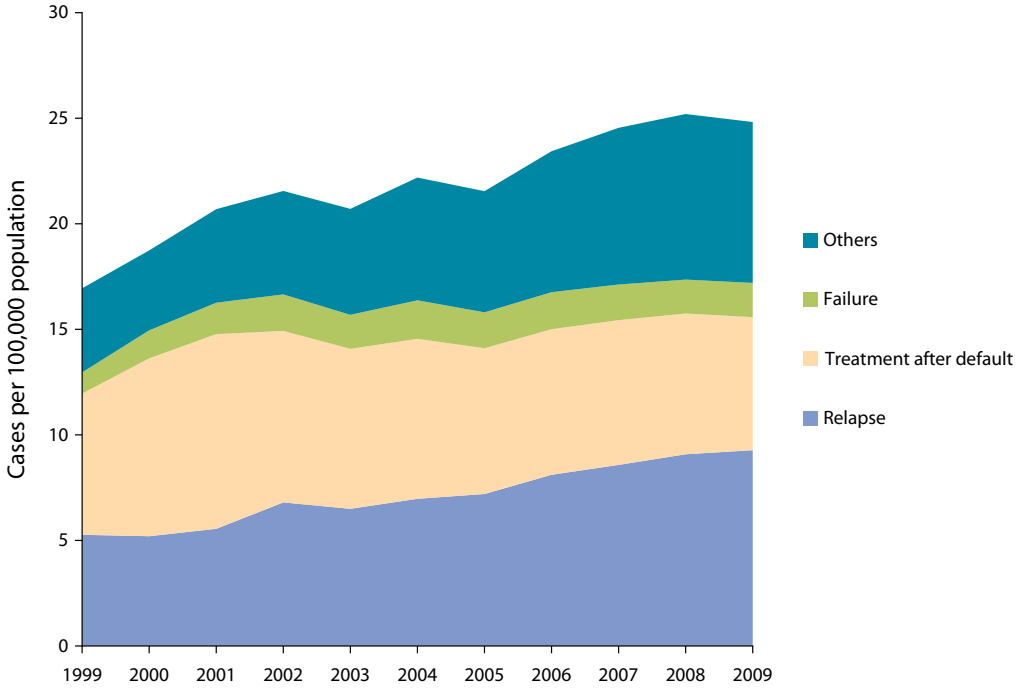


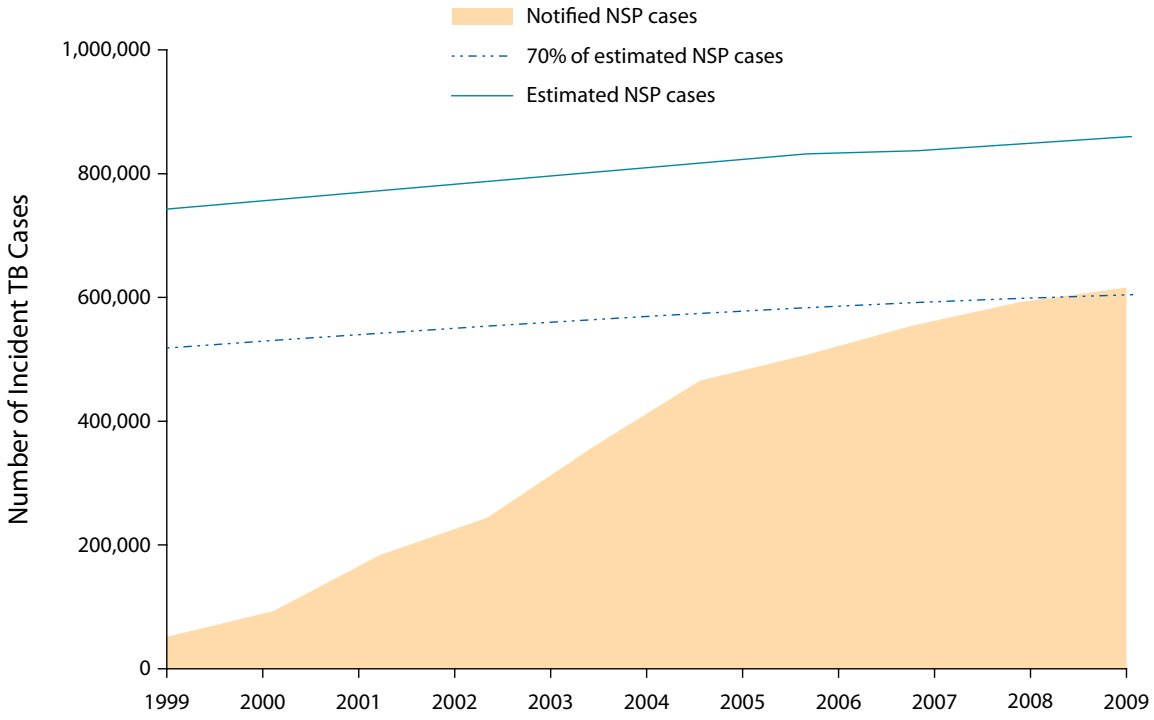
Figure 4: Re-treatment TB case notification, and the contribution of different sub-types of re-treatment cases, 1999–2009



New Sputum Positive Case Notification

The number and rate of new sputum-positive cases (NSP) notified in the country has steadily increased. The programme has been able to notify 70% of the country's estimated annual number of new sputum-positive cases from 2007 onwards **(Figure 5)**. Although the incidence of NSP cases is approximately stable on the basis of available evidence (75 NSP cases per 100,000 population), the total number of estimated cases has grown along with the country's population.

Figure 5: Total new smear positive TB cases notified under RNTCP, relative to the total number of estimated new smear-positive cases (stable at 75 NSP cases per 100,000)



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 6)**. From 1999 – 2005, an average 3.2 additional NSP cases notified per 100,000 population each year. During the period 2006–2009, an average 1.4 additional NSP cases per 100,000 population were notified each year.

NSP Case Notification by Sex

The sex-specific notification rates of NSP cases both among males and females have been increasing in the areas under the programme **(Figure 7)**. Both male and female NSP notification rates have increased, from 49 to 72 for males, and from 24 to 34 NSP cases per 100,000 population for females. The ratio of male to female notifications has remained relatively consistent **(Figure 8)**, ranging from 2.0 to 2.2 over the past 10 years.

NSP case Notification by Age Group

Changes in age-groups must be interpreted with caution, due to differences in the age structure of populations in districts covered by RNTCP, evolution in the age structure of local areas of the country (e.g. migration of young population to urban areas), and evolution in the age structure of the population of the country as a whole. Nevertheless, accounting for these trends with the best available data, there may be signs of some changes in age structure of TB case notifications.

Figure 6: New sputum-positive notification rate, 1999–2009

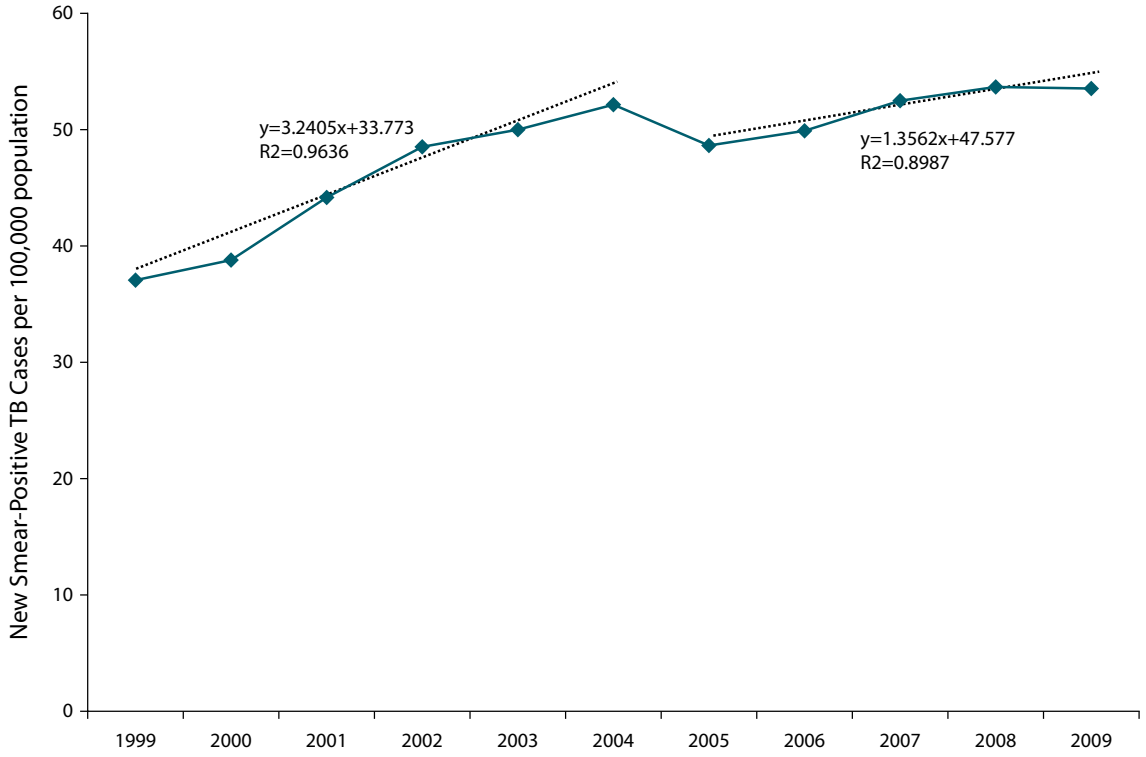


Figure 7: NSP case notification rate, by sex, 1999–2009

Figure 8: Ratio of male to female NSP case notification rates, 1999–2009

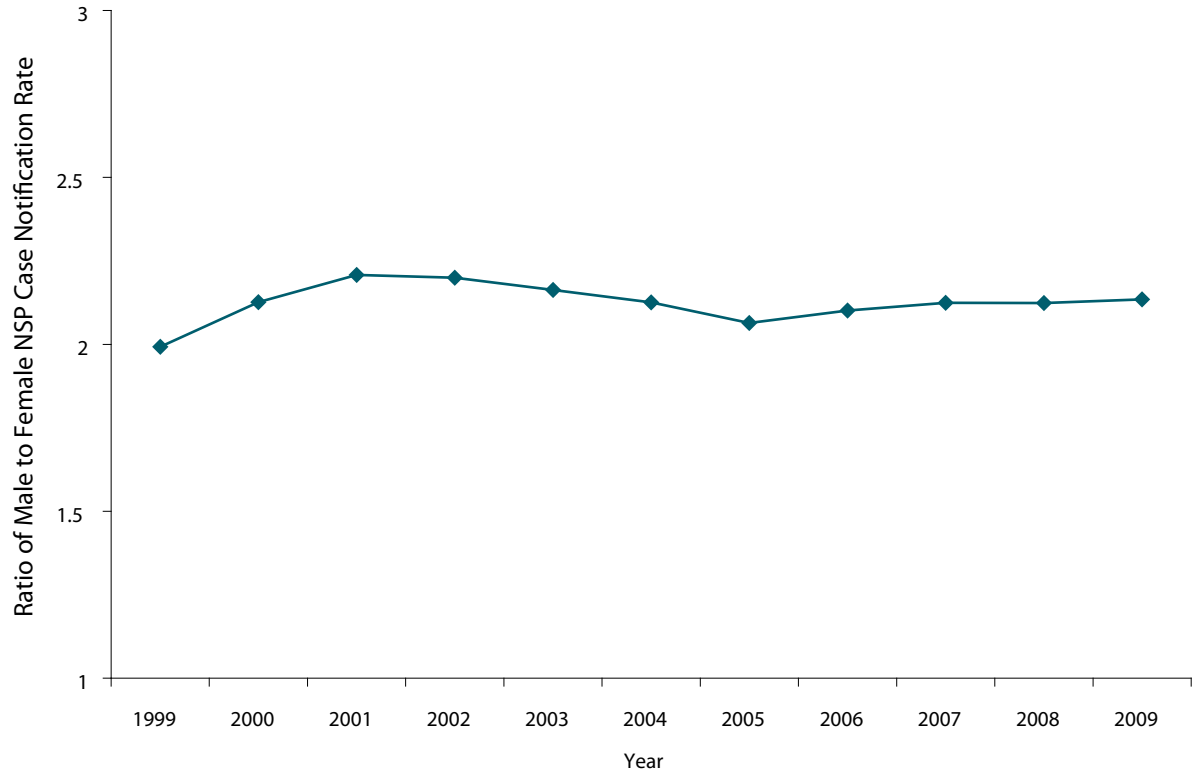
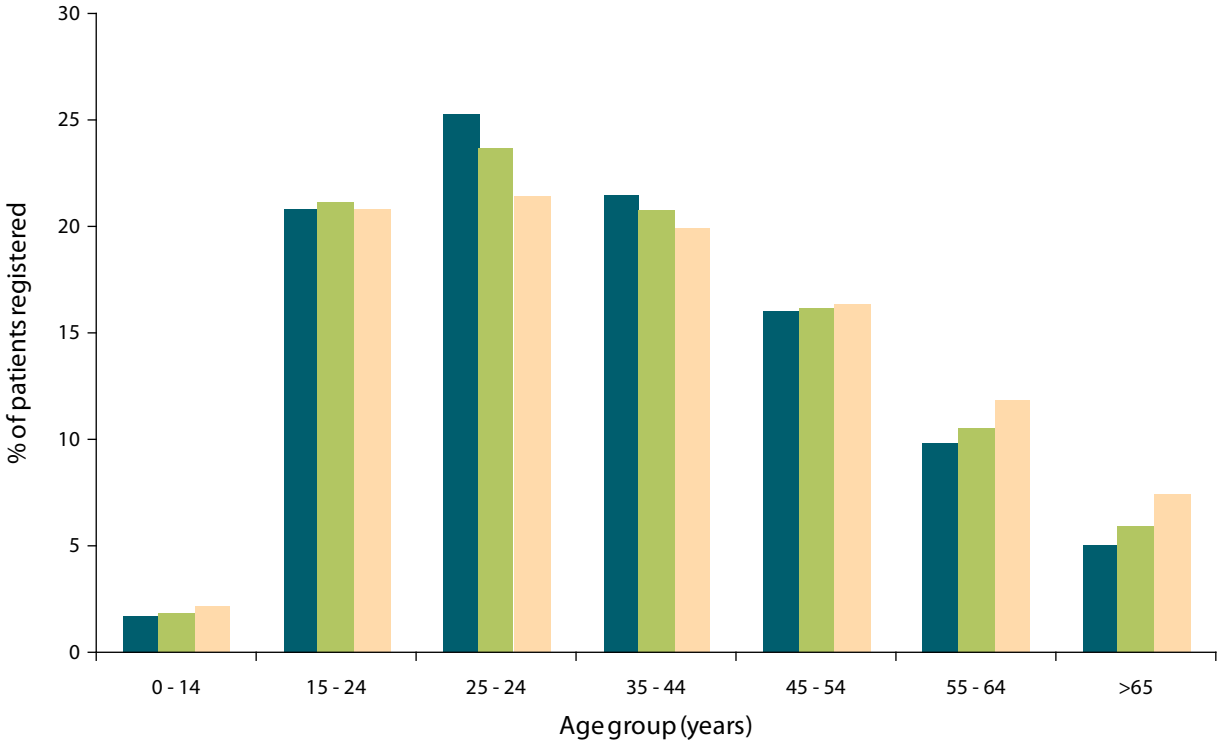


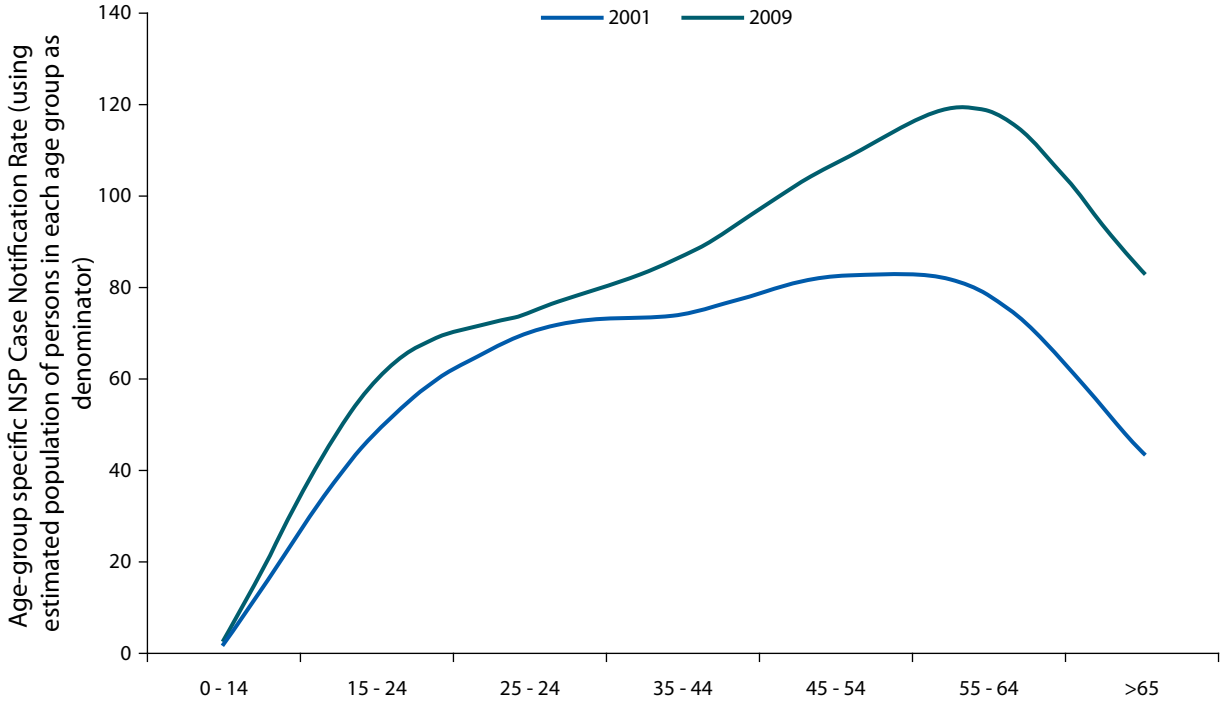
Figure 9: Proportion of total NSP case notifications from each age group, 2001, 2005, 2009



As seen in **Figure 9**, the proportion of NSP notifications from each age group has changed over 2001–2009, with a trend towards a lower proportion of notifications from the 25-34 age group, and a higher proportion of case notifications in the 55-64 age group. This trend has also continued over the past 3 years, since whole-country RNTCP coverage.

Evaluation of age-group specific notification rates was conducted using population age structure data and projections from the census data, Government of India, with the state-specific age structure for 2000 applied to those districts implementing RNTCP in the 2000 calendar year. Relative to 2001, NSP TB case notification rates increased in 2009 across all age groups, with the exception of the 0–14 age group which remains more or less the same **(Figure 10)**. These increases are not proportionate; greater increases are observed in the higher age groups. In both years, compared to historical observations from around the world where age-group specific case notification rates increase consistently with age, an unexpectedly low age-group specific case notification rate was observed amongst the >65 age group.

Figure 10: NSP age-group specific case notification rates, 2001 and 2009



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 **(Figure 11)**. 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 2008.

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 & Figure 11)** when compared to the treatment success rate among other smear positive TB cases (NSP and relapse).

Figure 11: Reported treatment success among smear-positive pulmonary TB cases, new and retreatment, 1999–2008

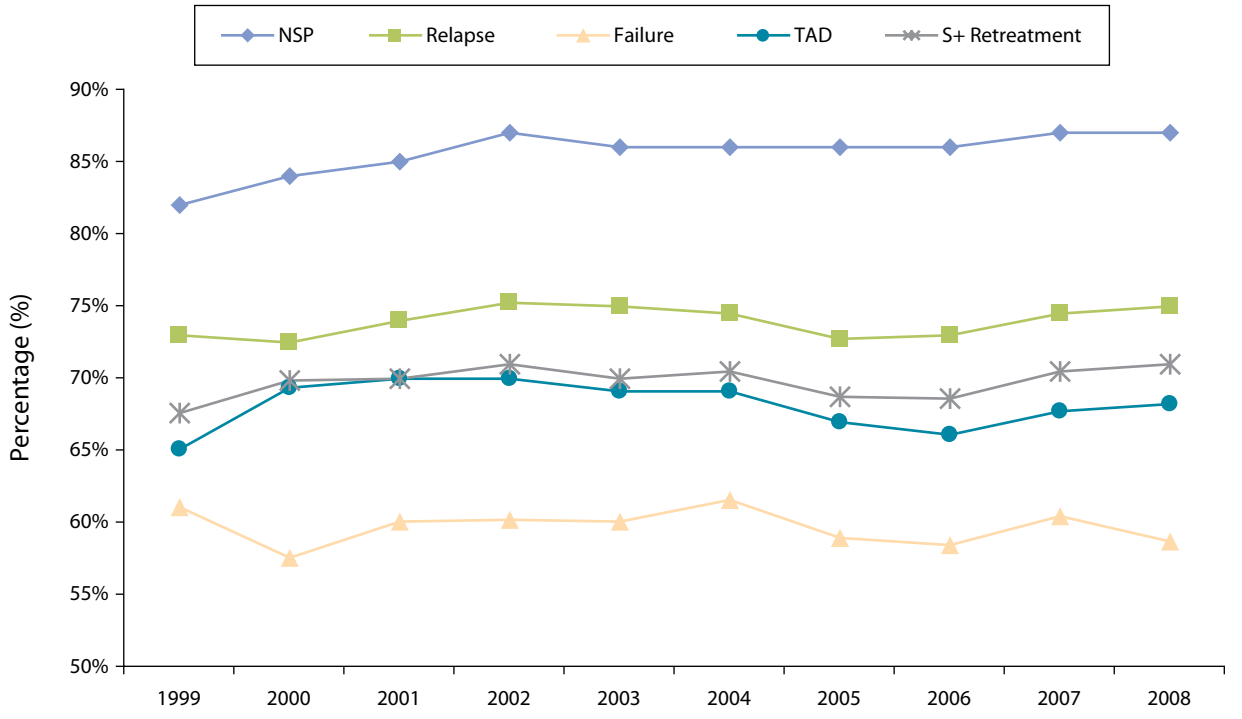


Table 3: Treatment outcomes among notified new TB cases, 1999–2008 (The year shown is the year of patient registration)

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%

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.

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 **(Figure 12)**.

Figure 12: Default rates among different types of smear positive TB cases, 1999–2008.

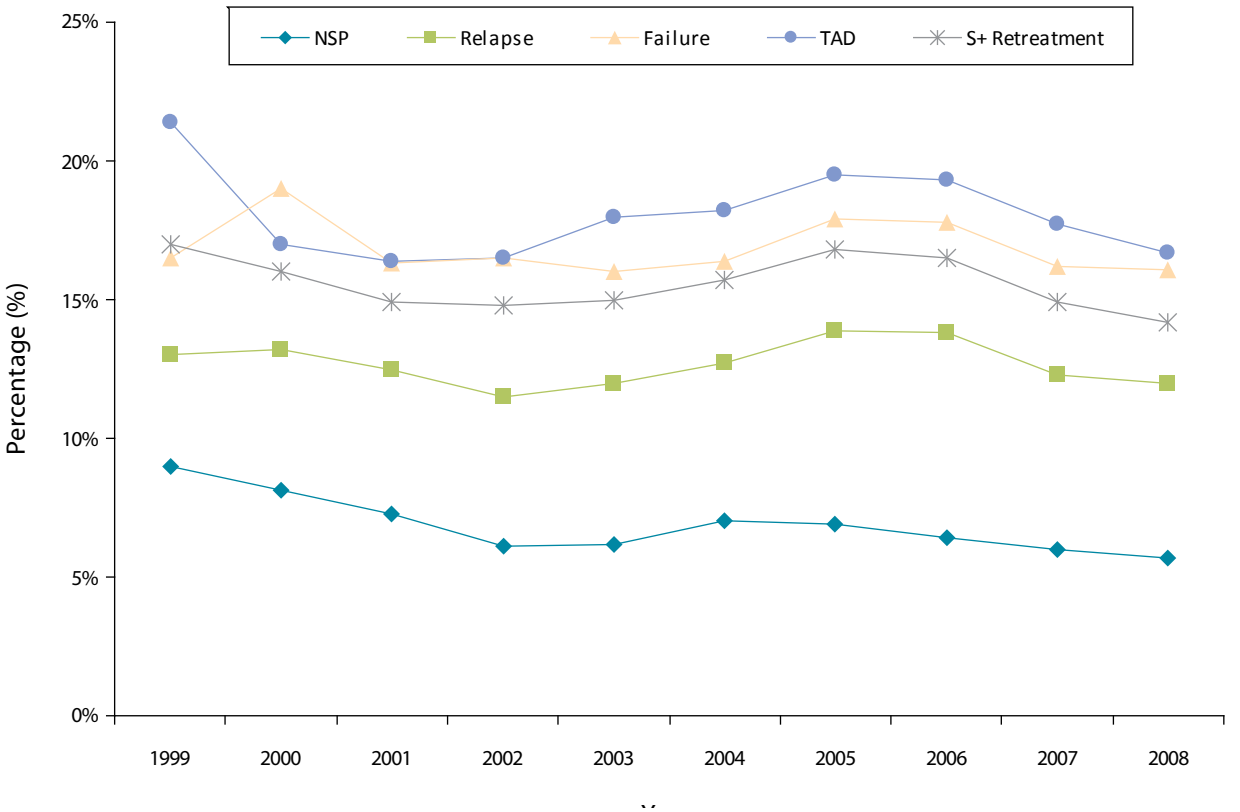
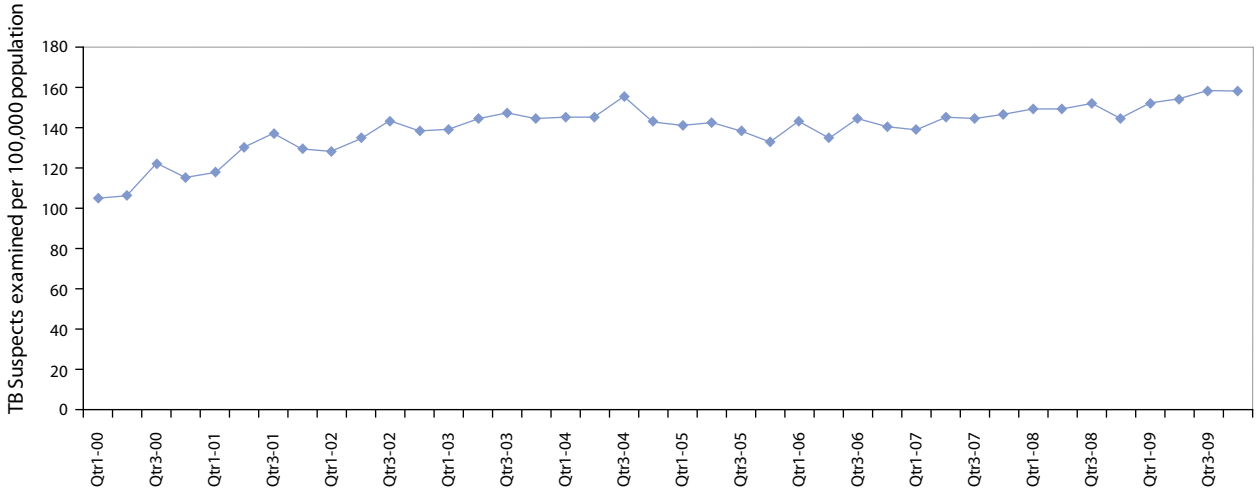


Table 4: Treatment outcomes among notified smear-positive re-treatment TB cases, 1999–2008 (The year shown is the year of registration)

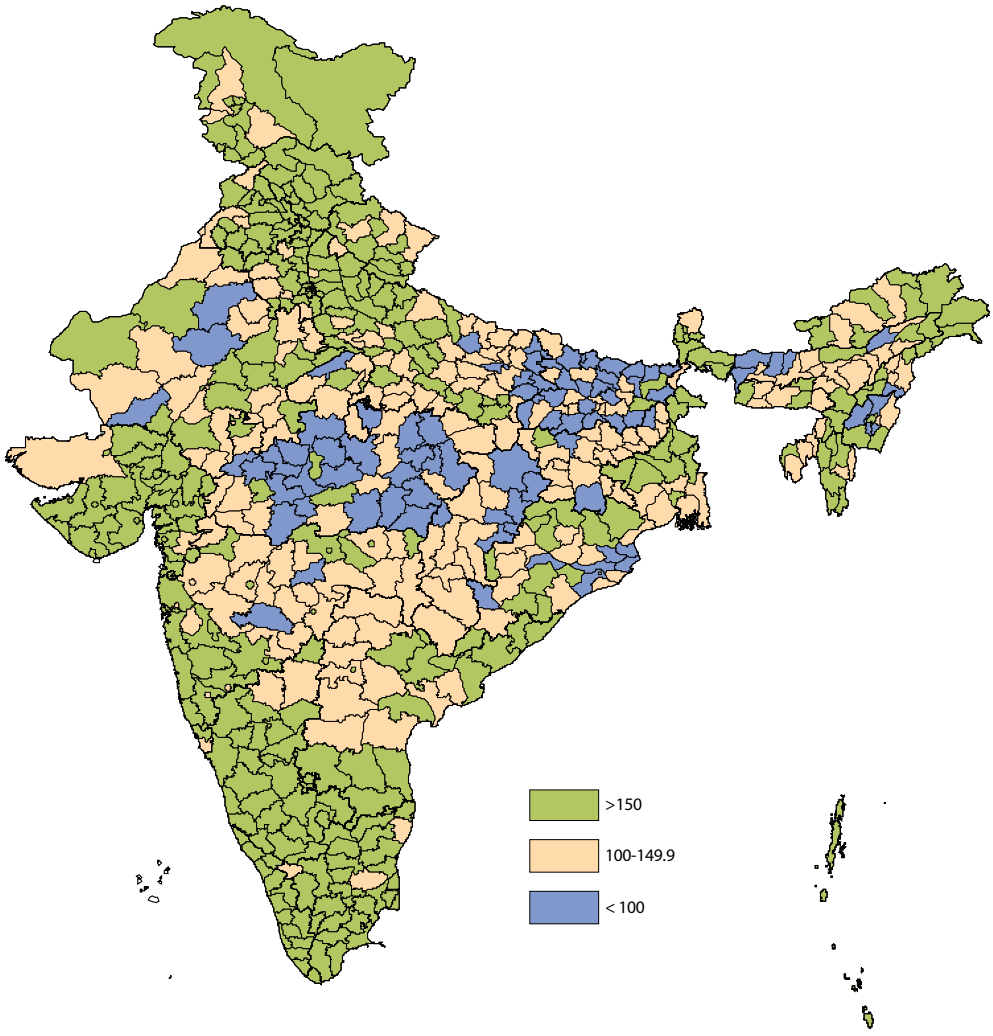
Year	Relapse				Failure				Treatment after default				Total S+ Re-treatment			
	Success	Death	Failure	Default	Success	Death	Failure	Default	Success	Death	Failure	Default	Success	Death	Failure	Default
1999	73%	7%	6%	13%	61%	7%	13%	17%	65%	7%	6%	21%	68%	7%	6%	18%
2000	73%	7%	6%	14%	57%	9%	14%	19%	69%	7%	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%

TB Suspects Examined per 100,000 Population*, 2000–2009

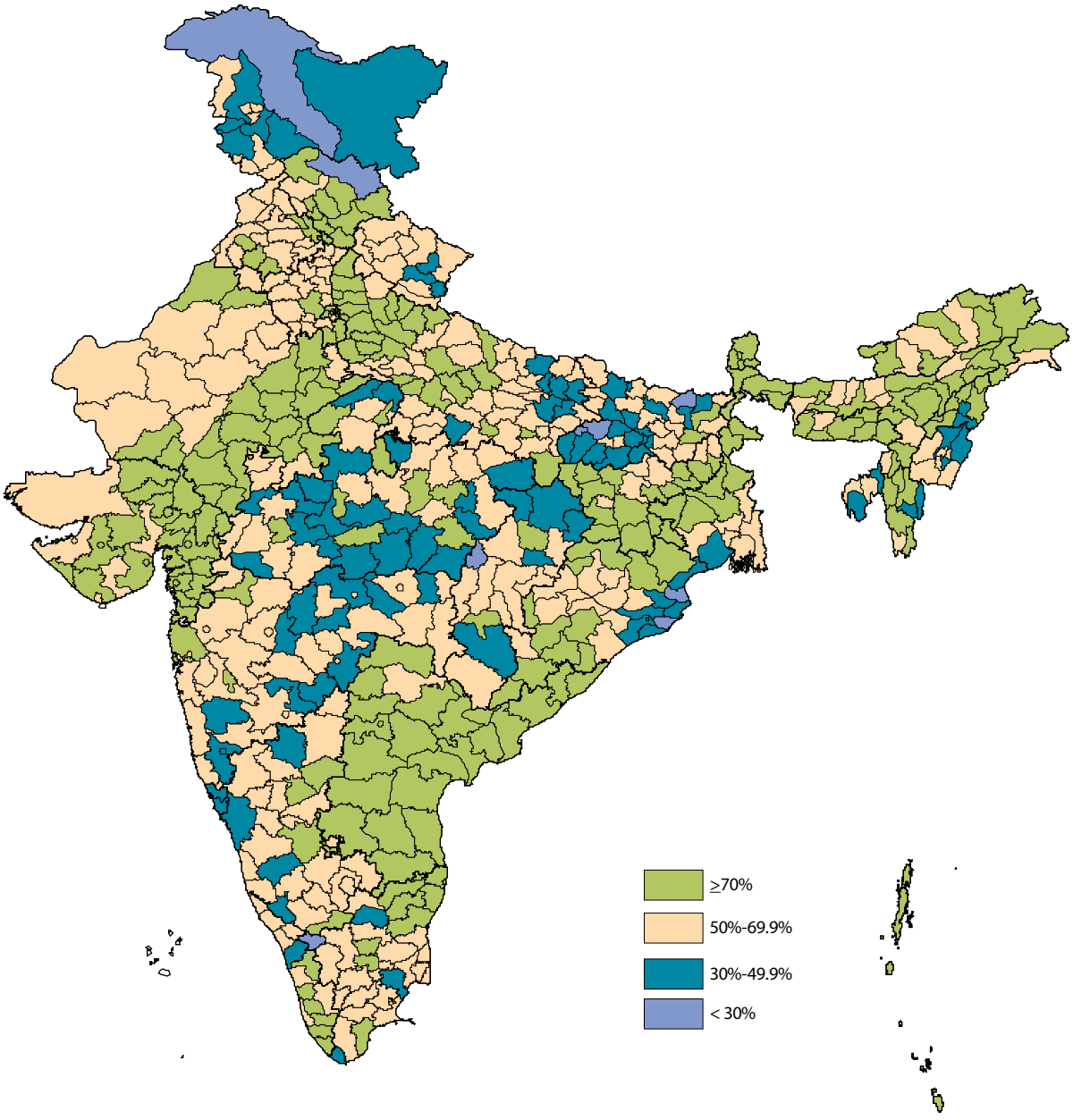


* During RNTCP expansion phase, data for districts implementing partial quarters has been excluded

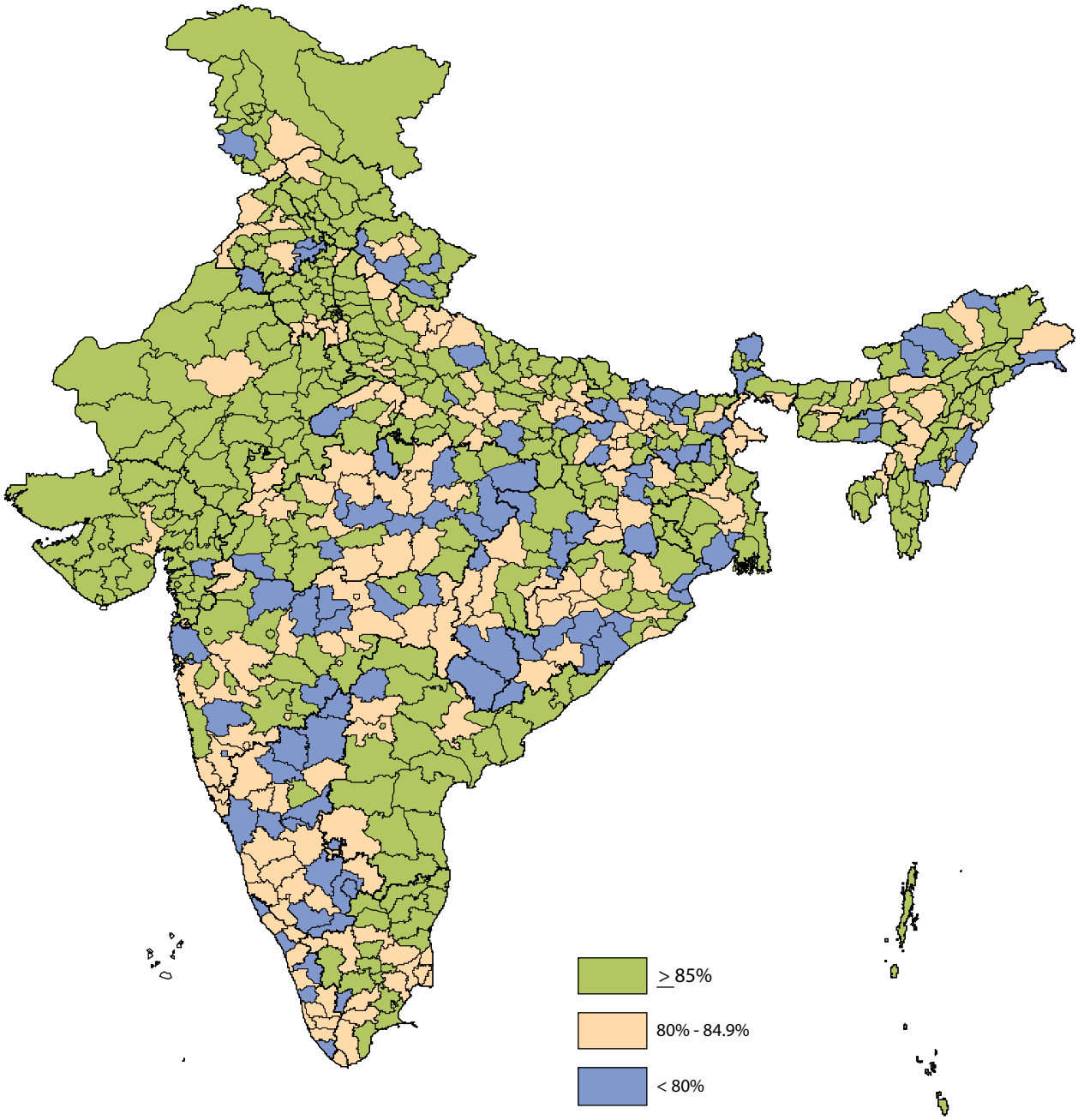
TB Suspects Examined per 100,000 Population per Quarter, by District, India, 2009

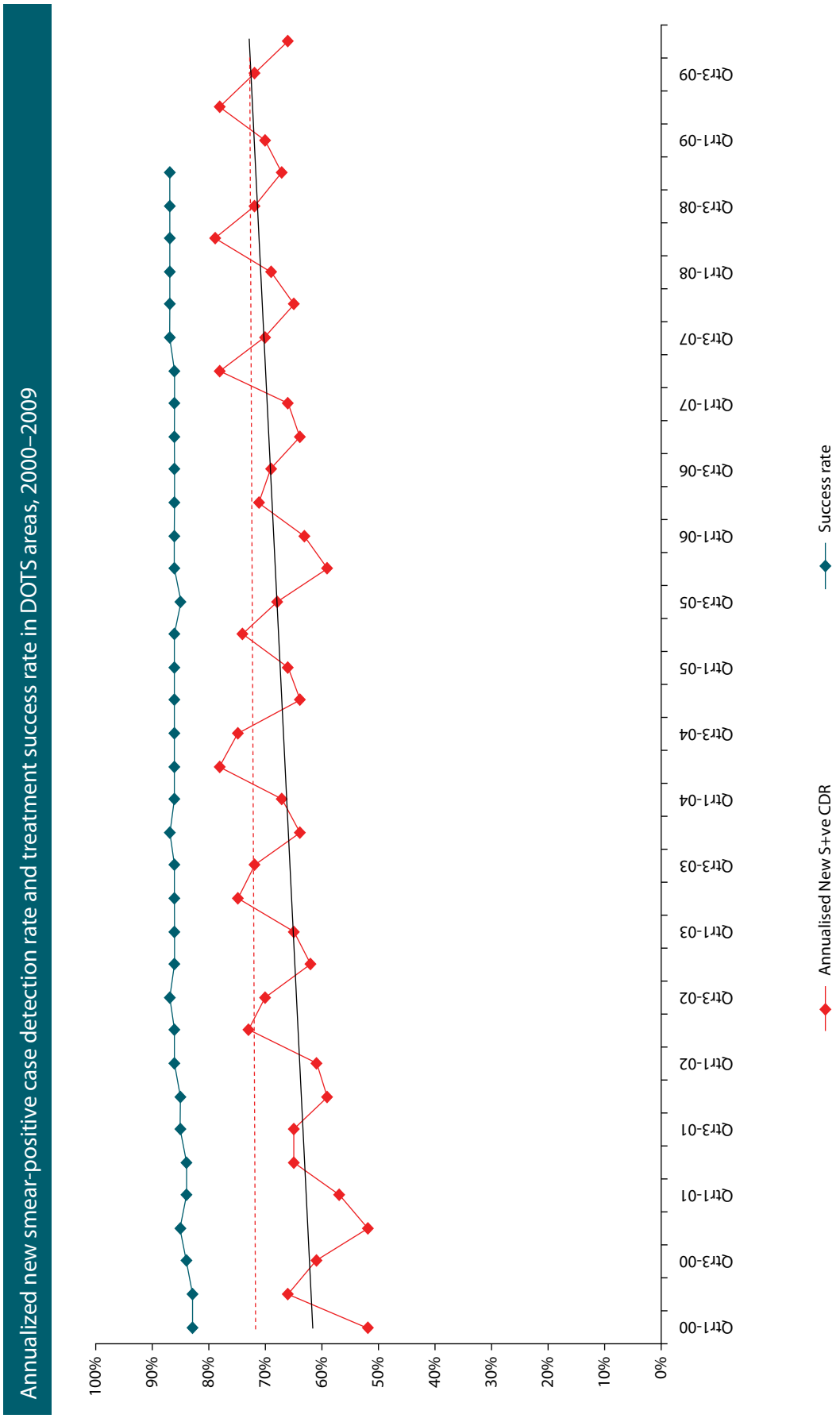


Case Detection Rate (New Smear Positive TB) by District, India, 2009

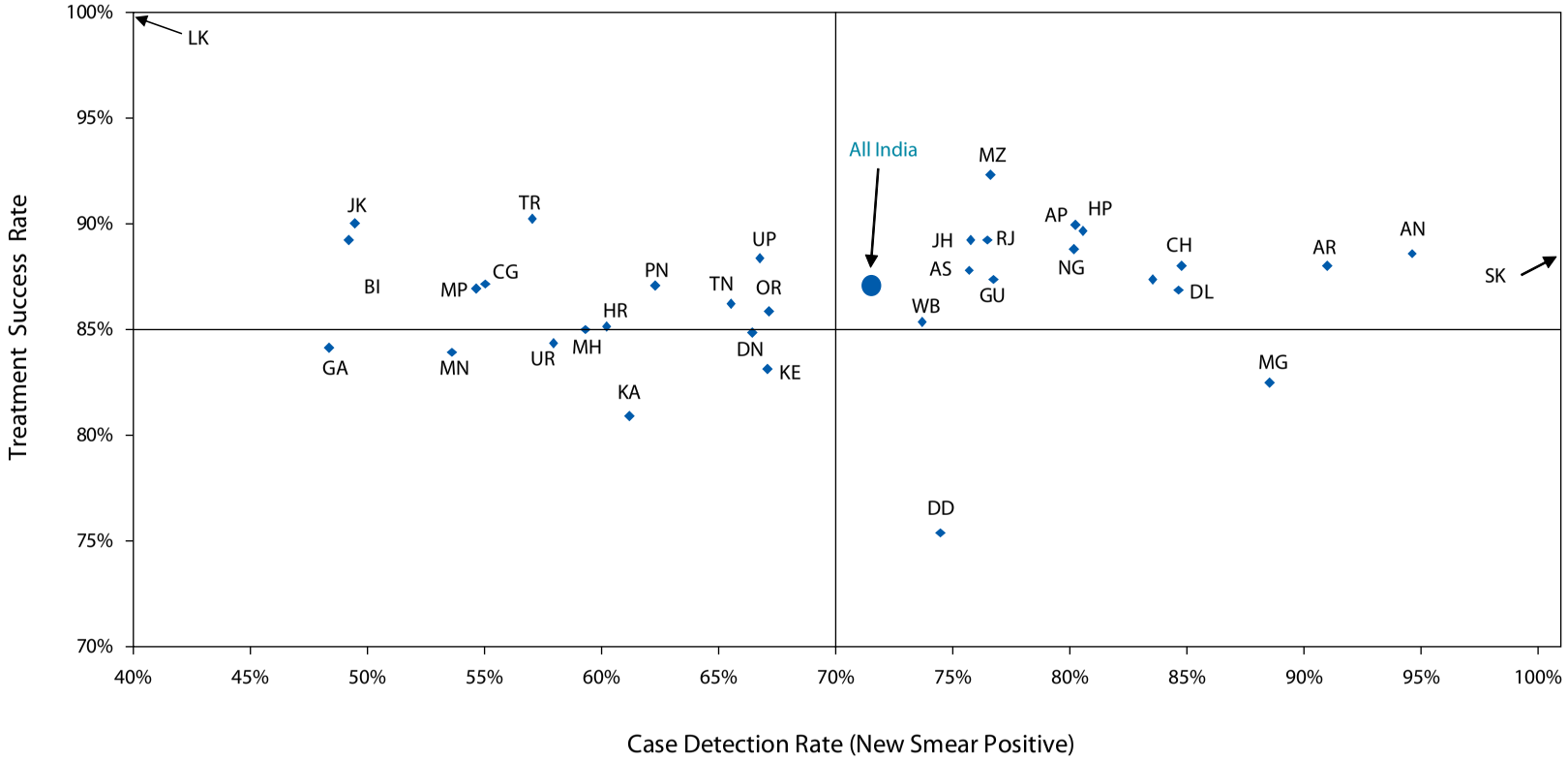


Cure rate (New Smear Positive TB) by District, India, 2008 Patient Cohort




Annualized new smear-positive case detection rate and treatment success rate in DOTS areas, 2000–2009
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Qtr1-00
Qtr3-00
Qtr1-01
Qtr3-01
Qtr1-02
Qtr3-02
Qtr1-03
Qtr3-03
Qtr1-04
Qtr3-04
Qtr1-05
Qtr3-05
Qtr1-06
Qtr3-06
Qtr1-07
Qtr3-07
Qtr1-08
Qtr3-08
Qtr1-09
Qtr3-09
Success rate
Annualised New S+ve CDR

Case Detection Rate and Treatment Success Rate in RNTCP areas for 2008–2009



AP- Andhra Pradesh; AR- Arunachal Pradesh; AN- Andaman & Nicobar; AS- Assam; BI- Bihar; CH- Chandigarh; CG- Chhatisgarh; DD- Daman & Diu; DL- Delhi; DN- Dadra & Nagar Haveli; GA- Goa; GU- Gujarat; HR- Haryana; HP- Himachal Pradesh; JK- Jammu & Kashmir; JH- Jharkhand; KA- Karnataka; KE- Kerala; LK- Lakshadweep; MP- Madhya Pradesh; MH- Maharashtra; MN- Manipur; MG- Meghalaya; MZ- Mizoram, NG- Nagaland; OR- Orissa, PD- Puducherry; PN-Punjab; RJ- Rajasthan; SK- Sikkim; TN- Tamil Nadu; TR- Tripura; UP- Uttar Pradesh; UR- Uttarakhand; WB- West Bengal

Performance of RNTCP Case Detection (2009), Smear Conversion (4th Quarter 2008 to 3rd quarter 2009), and Treatment Outcomes (2008)

State	Population (in lakh) covered by RNTCP1	No. of suspects examined	Suspects examined per lakh population per quarter	No of Smear positive patients diagnosed2	% of S+ve cases among suspects	Total patients registered for treatment3	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No. of re-treatment cases registered for treatment	No. of smear positive retreatment cases registered for treatment
Andaman & Nicobar	4	3813	227	415	11%	803	191	298	71	95%	61%	190	203	29%	110	90
Andhra Pradesh	830	537639	162	77380	14%	114074	137	49935	60	80%	63%	29541	12657	14%	21734	16329
Arunachal Pradesh	12	11202	230	1180	11%	2432	200	829	68	91%	57%	629	394	21%	566	303
Assam	304	148688	122	22975	15%	39910	131	17097	56	75%	61%	11151	5073	15%	6564	3656
Bihar	953	348652	91	46255	13%	82401	86	35152	37	49%	57%	26852	5733	8%	14461	7114
Chandigarh	11	14655	337	1905	13%	2572	236	876	81	85%	67%	422	788	38%	486	301
Chhatisgarh	240	106034	110	12976	12%	27463	114	10573	44	55%	50%	10577	3519	14%	2783	1643
D & N Haveli	3	1686	156	264	16%	386	142	144	53	66%	62%	90	76	25%	76	45
Daman & Diu	2	2271	294	173	8%	326	169	115	60	74%	56%	92	38	14%	62	29
Delhi	176	170201	242	24994	15%	50693	288	14156	80	85%	62%	8816	16089	41%	11548	6958
Goa	17	12178	182	1220	10%	1897	113	648	39	48%	64%	367	544	35%	337	211
Gujarat	572	407584	178	60578	15%	80575	141	35100	61	77%	76%	10831	10962	19%	23629	17216
Haryana	241	166345	172	24865	15%	38241	158	13790	57	60%	64%	7699	6534	23%	10142	7657
Himachal Pradesh	66	64566	244	8175	13%	13743	208	5057	77	81%	68%	2374	3223	30%	3064	2207
Jammu & Kashmir	128	85403	167	8042	9%	13164	103	6001	47	49%	73%	2168	2975	27%	2016	1597
Jharkhand	304	142864	117	21658	15%	39569	130	17273	57	76%	57%	13098	3225	10%	5896	2978
Karnataka	580	441850	190	43368	10%	67744	117	26614	46	61%	64%	14921	12997	24%	13138	9100
Kerala	346	306859	222	15505	5%	27019	78	11592	34	67%	67%	5800	6238	26%	3357	2588
Lakshadweep	0.7	223	80	8	4%	24	34	10	14	19%	50%	10	4	17%	0	0
Madhya Pradesh	705	307362	109	48419	16%	83276	118	30807	44	55%	54%	26376	9978	15%	16081	10895
Maharashtra	1083	642266	148	75972	12%	137705	127	51587	48	60%	61%	33025	25564	23%	27448	15696
Manipur	27	14668	138	1481	10%	4239	159	1069	40	54%	40%	1572	766	22%	829	322
Meghalaya	26	19641	191	2576	13%	4591	179	1705	66	89%	66%	879	1054	29%	931	573
Mizoram	10	8547	215	799	9%	2538	256	570	57	77%	43%	753	777	37%	429	189
Nagaland	22	13860	157	1695	12%	3614	163	1332	60	80%	60%	882	661	23%	724	429
Orissa	403	216910	135	30197	14%	52145	129	23001	57	67%	64%	12875	9568	21%	6658	4122
Puducherry	11	15774	361	2057	13%	1385	127	684	63	84%	76%	221	279	24%	201	178
Punjab	269	176578	164	24266	14%	38641	144	15905	59	62%	70%	6927	7746	25%	8045	6286
Rajasthan	657	382379	145	70033	18%	111501	170	40198	61	76%	56%	31033	14469	17%	25787	20980
Sikkim	6	7553	314	752	10%	1720	286	493	82	109%	56%	385	451	34%	391	241
Tamil Nadu	669	609722	228	44848	7%	82634	123	32874	49	65%	60%	21918	16587	23%	11188	8704
Tripura	36	21832	154	1817	8%	2851	80	1519	43	57%	73%	549	463	18%	320	242
Uttar Pradesh	1944	1198412	154	176501	15%	283317	146	123211	63	67%	61%	77797	33605	14%	48234	36835
Uttarakhand	96	70203	182	9984	14%	14300	148	5300	55	58%	61%	3357	2244	20%	3322	2596
West Bengal	889	569475	160	67120	12%	105816	119	49102	55	74%	71%	19936	17542	20%	19199	12470
Grand Total	11641	7247895	156	930453	13%	1533309	132	624617	54	72%	62%	384113	233026	19%	289756	200780

Performance of RNTCP (Contd...)

State	% of smear positive re-treat-ment cases out of all smear positive cases	No (%) of pediatric cases out of all New cases		3 month conver-sion rate of new smear positive patients	Cure rate of new smear positive patients	Success rate of new smear positive patients	% smear positive pa-tients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases regis-tered within one month of starting RNTCP DOTS treatment		No (%) of cured Smear Positive cases having end of treatment fol-low- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Andaman & Nicobar	23%	61	9%	93%	87%	89%	87%	7	1.8%	46	12%	117	67%	178	83%	111	91%	79	88%
Andhra Pradesh	25%	3911	4%	92%	87%	89%	93%	166	0.2%	5115	7%	53121	88%	57502	95%	39861	80%	70467	78%
Arunachal Pradesh	27%	227	12%	90%	86%	88%	87%	97	9.0%	38	4%	934	92%	982	94%	783	86%	746	44%
Assam	18%	1633	5%	90%	86%	88%	91%	72	0.3%	1852	8%	17264	87%	18268	92%	12623	81%	9119	30%
Bihar	17%	5123	8%	89%	82%	89%	92%	61	0.1%	3155	7%	34409	88%	35857	92%	22857	73%	12113	31%
Chandigarh	26%	192	9%	92%	87%	88%	96%	16	1.3%	35	3%	947	89%	1042	98%	808	95%	15	1%
Chhatisgarh	13%	1376	6%	89%	82%	87%	91%	36	0.3%	1044	8%	9772	83%	11391	96%	6621	72%	8505	43%
D & N Haveli	24%	32	10%	91%	85%	85%	84%	0	0.0%	33	16%	160	90%	177	100%	135	88%	27	12%
Daman & Diu	20%	15	6%	93%	61%	75%	92%	0	0.0%	8	8%	97	72%	97	72%	40	85%	115	54%
Delhi	33%	5745	15%	89%	87%	87%	91%	281	1.4%	1391	7%	17281	91%	18654	98%	15421	98%	3687	10%
Goa	25%	111	7%	91%	83%	84%	87%	37	3.5%	98	9%	691	85%	738	91%	596	92%	346	24%
Gujarat	33%	3953	7%	92%	87%	87%	93%	613	1.1%	3139	6%	43085	89%	47200	98%	34315	87%	28562	45%
Haryana	36%	1885	7%	90%	85%	85%	93%	79	0.4%	1361	6%	16467	89%	16868	91%	11793	87%	6044	28%
Himachal Pradesh	30%	543	5%	93%	88%	90%	89%	85	1.2%	598	8%	6250	96%	6183	93%	4739	89%	1201	14%
Jammu & Kashmir	21%	601	5%	92%	88%	90%	96%	6	0.1%	277	4%	6842	97%	6802	96%	5227	92%	1355	26%
Jharkhand	15%	2225	7%	91%	85%	89%	95%	27	0.1%	1109	5%	16821	86%	18908	97%	11320	74%	12138	41%
Karnataka	25%	3680	7%	86%	79%	81%	91%	258	0.7%	3134	8%	27695	82%	31303	93%	18176	77%	18260	41%
Kerala	18%	3100	13%	83%	81%	83%	93%	119	0.8%	829	6%	12019	90%	12107	88%	8330	80%	10982	57%
Lakshadweep	0%	6	25%	70%	100%	100%	0%	0	0.0%	0	0%	7	100%	7	100%	5	100%	2	18%
Madhya Pradesh	26%	4786	7%	89%	83%	87%	91%	424	1.0%	3574	8%	32327	85%	35579	93%	22307	68%	26827	45%
Maharashtra	23%	7755	7%	90%	83%	85%	90%	1592	2.4%	5251	8%	53767	86%	59169	95%	39748	79%	20012	22%
Manipur	23%	420	12%	85%	83%	84%	93%	8	0.6%	80	6%	1286	97%	1146	87%	813	85%	642	41%
Meghalaya	25%	350	10%	86%	82%	83%	88%	29	1.2%	266	11%	1851	89%	1911	91%	1247	88%	1876	60%
Mizoram	25%	296	14%	91%	91%	93%	98%	9	1.2%	7	1%	632	99%	628	99%	715	97%	530	31%
Nagaland	24%	402	14%	92%	90%	90%	98%	0	0.0%	37	2%	1811	83%	1422	88%	1139	83%	1576	63%
Orissa	15%	2638	6%	88%	82%	86%	91%	207	0.7%	2192	8%	21137	82%	24700	97%	13757	72%	16028	46%
Puducherry	21%	96	8%	89%	87%	87%	91%	25	2.7%	57	6%	663	80%	745	90%	574	90%	96	21%
Punjab	28%	2108	7%	89%	85%	87%	93%	364	1.6%	1110	5%	18547	90%	19776	96%	14079	92%	3354	12%
Rajasthan	34%	4776	6%	91%	88%	89%	93%	355	0.6%	3698	6%	46361	83%	53315	95%	39024	82%	10441	12%
Sikkim	33%	160	12%	87%	87%	87%	94%	18	2.8%	20	3%	581	91%	602	94%	476	78%	429	32%

Performance of RNTCP (Contd...)

State	% of smear positive re-treat-ment cases out of all smear positive cases	No (%) of pediatric cases out of all New cases		3 month conver-sion rate of new smear positive patients	Cure rate of new smear positive patients	Success rate of new smear positive patients	% smear positive pa-tients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases regis-tered within one month of starting RNTCP DOTS treatment		No (%) of cured Smear Positive cases having end of treatment fol-low- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Tamil Nadu	21%	6604	9%	91%	85%	86%	94%	456	1.2%	1915	5%	31193	81%	36855	96%	23991	78%	15199	26%
Tripura	14%	70	3%	91%	89%	90%	92%	35	2.1%	99	6%	1361	81%	1642	98%	1149	77%	1054	51%
Uttar Pradesh	23%	16121	7%	91%	85%	88%	91%	118	0.1%	14816	9%	133635	90%	142260	96%	104715	88%	133330	66%
Uttarakhand	33%	867	8%	88%	80%	84%	86%	82	1.0%	997	12%	5825	84%	6688	97%	4195	83%	5548	59%
West Bengal	20%	4664	5%	88%	84%	85%	90%	77	0.1%	6283	10%	46302	79%	54008	92%	37900	80%	19194	26%
Grand Total	24%	86532	7%	90%	85%	87%	92%	5759	0.7%	63664	7%	661258	86%	724710	95%	499590	82%	439899	41%

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

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 2008

Implementing states	New Smear Positive1							New Smear Negative2						New Extra Pulmonary2					
	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	273	86.8%	1.8%	2.2%	1.1%	6.2%	1.8%	219	91.3%	3.2%	0.0%	4.1%	1.4%	167	85.6%	7.2%	0.0%	4.2%	3.0%
Andhra Pradesh	49757	86.6%	2.2%	4.8%	2.3%	3.5%	0.6%	32123	89.2%	4.2%	0.6%	5.0%	1.0%	12002	91.0%	2.8%	0.2%	3.9%	2.1%
Arunachal Pradesh	819	86.3%	1.7%	1.7%	4.8%	4.0%	1.5%	609	86.5%	5.3%	1.5%	6.2%	0.5%	400	93.5%	2.8%	0.3%	3.0%	0.5%
Assam	16391	85.7%	2.1%	3.7%	1.3%	6.6%	0.6%	10989	84.1%	3.1%	0.5%	11.8%	0.5%	4639	89.5%	2.8%	0.0%	7.0%	0.6%
Bihar	33561	81.7%	7.5%	3.1%	0.9%	6.0%	0.6%	28410	89.8%	1.8%	0.2%	7.1%	1.1%	5875	89.1%	1.8%	0.1%	4.1%	4.9%
Chandigarh	837	87.3%	0.7%	3.1%	2.7%	3.9%	2.2%	451	94.2%	1.8%	0.2%	1.6%	2.2%	764	95.8%	1.2%	0.1%	1.8%	1.0%
Chhatisgarh	10470	81.8%	5.4%	4.2%	0.9%	7.1%	0.6%	10825	88.0%	2.8%	0.2%	8.6%	0.3%	3223	93.0%	1.6%	0.0%	4.6%	0.8%
D & N Haveli	152	84.9%	0.0%	4.6%	1.3%	6.6%	2.6%	101	81.2%	3.0%	3.0%	10.9%	2.0%	91	93.4%	2.2%	0.0%	3.3%	1.1%
Daman & Diu	57	61.4%	14.0%	3.5%	3.5%	8.8%	8.8%	68	82.4%	1.5%	0.0%	13.2%	2.9%	31	83.9%	0.0%	0.0%	6.5%	9.7%
Delhi	14000	86.7%	0.2%	2.5%	4.1%	4.8%	1.7%	8177	92.0%	1.8%	0.9%	4.2%	1.0%	15854	96.2%	0.9%	0.1%	2.2%	0.6%
Goa	638	82.6%	1.6%	4.9%	3.0%	6.7%	1.3%	458	88.6%	6.6%	0.7%	3.1%	1.1%	528	91.7%	4.0%	0.0%	4.0%	0.2%
Gujarat	35375	87.1%	0.3%	4.4%	2.6%	4.7%	0.9%	10525	87.4%	4.3%	1.0%	6.8%	0.6%	10102	91.7%	3.1%	0.2%	4.0%	1.0%
Haryana	13056	84.7%	0.5%	4.7%	2.9%	6.7%	0.5%	6968	86.1%	3.4%	1.5%	8.8%	0.2%	5715	93.6%	1.4%	0.2%	4.5%	0.3%
Himachal Pradesh	5090	87.9%	1.8%	3.5%	2.6%	3.7%	0.6%	2542	89.5%	4.1%	1.2%	4.6%	0.5%	2921	93.5%	2.4%	0.1%	3.7%	0.2%
Jammu & Kashmir	5474	88.4%	1.6%	3.9%	0.8%	3.2%	2.0%	2074	88.9%	3.2%	0.7%	5.1%	2.1%	2841	91.2%	3.1%	0.1%	3.3%	2.2%
Jharkhand	16877	84.5%	4.8%	4.2%	1.0%	5.2%	0.3%	12757	89.6%	2.9%	0.3%	6.8%	0.4%	2871	92.7%	2.0%	0.1%	4.4%	0.9%
Karnataka	25534	78.9%	2.0%	6.8%	2.8%	7.9%	1.5%	15015	82.1%	6.9%	0.7%	8.4%	1.8%	12358	87.6%	5.0%	0.2%	5.1%	2.0%
Kerala	11045	81.4%	1.7%	5.1%	4.9%	6.0%	0.9%	4849	88.7%	3.6%	0.6%	5.8%	1.3%	5909	90.3%	3.3%	0.2%	4.8%	1.5%
Lakshadweep	6	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3	100.0%	0.0%	0.0%	0.0%	0.0%	1	100.0%	0.0%	0.0%	0.0%	0.0%
Madhya Pradesh	29626	83.0%	3.9%	4.1%	1.8%	6.2%	0.9%	25627	86.9%	2.5%	0.5%	8.9%	1.1%	9329	87.7%	2.1%	0.1%	5.4%	3.9%
Maharashtra	52412	83.2%	1.9%	5.7%	2.3%	5.9%	1.1%	34644	86.1%	4.7%	0.7%	7.2%	1.2%	24193	89.7%	3.7%	0.2%	5.0%	1.3%
Manipur	974	83.3%	0.7%	3.2%	3.4%	8.5%	0.9%	1565	85.0%	2.8%	0.3%	11.7%	0.2%	845	89.1%	3.1%	0.2%	7.3%	0.2%
Meghalaya	1477	81.6%	0.9%	4.1%	6.3%	5.6%	1.6%	917	86.2%	4.1%	1.2%	6.8%	1.7%	1204	91.1%	3.0%	0.2%	4.5%	1.2%
Mizoram	770	91.0%	2.3%	2.6%	1.0%	2.5%	0.5%	692	88.7%	5.6%	0.7%	4.9%	0.0%	715	95.2%	2.0%	0.0%	2.8%	0.0%
Nagaland	1136	89.7%	0.3%	2.7%	3.9%	3.1%	0.2%	713	87.2%	2.2%	1.4%	8.3%	0.7%	493	95.7%	2.0%	0.2%	1.8%	0.2%
Orissa	22613	82.2%	3.7%	5.6%	1.4%	6.2%	0.9%	12627	86.7%	4.8%	0.3%	6.7%	1.5%	9188	90.6%	3.3%	0.1%	4.7%	1.3%
Puducherry	635	86.8%	0.6%	4.7%	3.5%	3.5%	0.9%	195	91.8%	6.7%	0.0%	1.5%	0.0%	309	94.2%	3.2%	0.0%	1.9%	0.0%

Treatment Outcome of New Cases for 2008 (Contd...)

Implementing states	New Smear Positive1							New Smear Negative2						New Extra Pulmonary2					
	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
Punjab	14705	84.7%	2.4%	4.2%	2.2%	4.2%	2.2%	7113	88.3%	3.5%	0.8%	5.3%	2.2%	7436	92.9%	2.1%	0.2%	3.0%	1.8%
Rajasthan	41700	87.6%	1.7%	3.4%	1.9%	5.2%	0.2%	32376	89.2%	2.7%	1.0%	6.9%	0.1%	12919	93.1%	1.9%	0.2%	4.7%	0.2%
Sikkim	483	87.2%	0.0%	2.9%	8.3%	0.6%	1.0%	329	90.3%	2.7%	3.6%	1.8%	1.2%	463	93.3%	3.0%	0.9%	1.7%	1.1%
Tamil Nadu	33355	85.5%	0.8%	5.5%	1.8%	5.9%	0.6%	22531	91.0%	4.1%	0.4%	3.9%	0.6%	17500	94.2%	2.7%	0.1%	2.0%	1.1%
Tripura	1584	88.8%	1.5%	4.0%	2.3%	2.8%	0.6%	498	88.6%	6.4%	0.6%	3.2%	1.0%	446	91.0%	4.7%	0.0%	3.4%	0.9%
Uttar Pradesh	119801	85.5%	2.9%	3.8%	1.0%	6.1%	0.7%	78571	89.1%	2.4%	0.4%	7.2%	0.8%	29343	93.4%	1.3%	0.1%	4.3%	0.9%
Uttarakhand	5154	80.0%	4.4%	3.5%	1.8%	9.4%	0.8%	3207	88.2%	1.9%	1.2%	7.8%	0.9%	2018	94.1%	1.2%	0.0%	3.7%	0.6%
West Bengal	51360	83.9%	1.5%	4.3%	2.7%	6.7%	0.9%	21590	84.7%	5.0%	0.8%	8.3%	1.2%	17737	88.7%	3.4%	0.2%	4.8%	2.9%
Grand Total	617197	84.6%	2.5%	4.4%	2.0%	5.7%	0.8%	390358	88.0%	3.4%	0.6%	7.0%	0.9%	220430	91.6%	2.6%	0.1%	4.2%	1.5%

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 2008 (Excluding "Others")

Type of retreatment case	Cured	Success	Died	Failure	Defaulted	Transferred out	No. registered
Relapse	68.5%	75.0%	7.1%	4.6%	12.0%	1.3%	104317
Failure	52.1%	58.7%	9.0%	14.4%	16.1%	1.6%	18399
Treatment after default	60.2%	68.2%	8.3%	3.7%	16.7%	2.5%	77031
Total	63.8%	70.9%	7.7%	5.1%	14.2%	1.8%	199747

State-wise Outcome of Smear Positive Retreatment Cases 2008 (Excluding "Others")

Implementing states	Cured	Success	Died	Failure	Defaulted	Transferred out	No. registered
Andaman & Nicobar	75.0%	75.0%	5.9%	8.8%	8.8%	1.5%	68
Andhra Pradesh	66.4%	72.2%	9.4%	6.3%	10.6%	1.5%	15574
Arunachal Pradesh	76.8%	80.8%	4.3%	7.4%	7.1%	0.3%	323
Assam	58.1%	67.5%	7.2%	5.5%	18.8%	1.2%	3482
Bihar	60.7%	76.4%	5.6%	3.0%	10.3%	0.8%	8214
Chandigarh	74.8%	74.8%	5.7%	7.4%	7.4%	4.6%	282
Chhatisgarh	53.8%	67.6%	9.1%	2.0%	19.1%	2.3%	1458
D & N Haveli	61.2%	61.2%	16.3%	4.1%	10.2%	8.2%	49
Daman & Diu	46.2	84.6%	0.0%	0.0%	15.4%	0.0%	26
Delhi	71.1%	71.7%	6.6%	7.8%	11.1%	2.7%	6784
Goa	67.6	68.5%	7.6%	8.8%	13.9%	1.3%	238
Gujarat	64.0%	65.6%	9.1%	7.6%	16.0%	1.8%	17031
Haryana	64.5%	69.8%	8.1%	6.0%	15.5%	0.6%	7163
Himachal Pradesh	71.9%	79.3%	6.9%	6.0%	7.3%	0.5%	2157
Jammu & Kashmir	76.0%	80.5%	5.0%	3.9%	7.7%	3.0%	1509
Jharkhand	65.9%	76.1%	6.5%	3.3%	12.2%	1.8%	2880
Karnataka	51.2%	57.8%	10.2%	6.9%	21.2%	3.8%	9031
Kerala	63.5%	68.1%	7.3%	8.1%	15.0%	1.7%	2369
Lakshadweep	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	1
Madhya Pradesh	54.0%	68.9%	7.0%	4.6%	15.6%	2.8%	11080
Maharashtra	59.8%	64.9%	10.0%	6.2%	17.2%	1.6%	15847
Manipur	63.9%	69.1%	5.5%	6.9%	17.5%	1.0%	291
Meghalaya	49.4%	58.1%	7.7%	14.4%	17.0%	2.8%	534
Mizoram	78.6%	81.0%	4.8%	3.6%	9.5%	1.2%	168
Nagaland	71.7%	76.0%	4.0%	9.6%	9.3%	1.0%	396
Orissa	53.1%	66.9%	8.6%	3.3%	18.1%	3.0%	4183
Puducherry	65.7%	66.3%	6.5%	11.8%	15.4%	0.0%	169
Punjab	64.6%	73.8%	7.8%	4.4%	10.1%	3.9%	6045
Rajasthan	69.2%	77.1%	6.3%	3.9%	12.5%	0.1%	20759
Sikkim	49.1%	49.1%	6.0%	21.4%	2.1%	0.4%	285
Tamil Nadu	58.4%	66.0%	9.0%	5.5%	18.1%	1.4%	8688
Tripura	71.0%	78.2%	4.0%	7.3%	10.1%	0.4%	248
Uttar Pradesh	68.9%	76.9%	6.6%	2.6%	12.3%	1.8%	37996
Uttarakhand	65.0%	70.8%	5.9%	3.8%	16.8%	2.6%	2253
West Bengal	61.5%	65.4%	7.9%	7.3%	16.7%	2.7%	12166
Grand Total	63.8%	70.9%	7.7%	5.1%	14.2%	1.8%	199747

Programme Infrastructure, Staffing and Training Status at the end of 4th Quarter 2009

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-medical Staff
Andaman & Nicobar	1	3	13	0	0	0	1	0	2	3	3	19	76%	70%
Andhra Pradesh	24	177	919	145	74	32	17	23	165	177	174	873	80%	88%
Arunachal Pradesh	13	13	33	20	0	0	13	0	6	14	14	39	82%	55%
Assam	23	68	339	62	19	3	23	5	60	68	68	420	84%	61%
Bihar	38	168	691	15	12	6	33	34	185	205	149	637	81%	79%
Chandigarh	1	2	15	4	117	2	1	0	2	2	4	15	89%	100%
Chhatisgarh	16	62	298	104	0	3	16	2	56	49	52	280	83%	86%
D & N Haveli	1	1	5	0	5	0	1	0	1	1	1	5	100%	100%
Daman & Diu	2	2	4	0	0	0	2	0	1	1	2	4	96%	92%
Delhi	24	37	196	100	73	5	23	15	19	49	40	190	87%	54%
Goa	2	4	21	15	0	1	0	0	3	5	4	21	83%	97%
Gujarat	30	136	718	191	2516	13	27	14	134	135	132	683	95%	94%
Haryana	21	47	216	18	217	3	19	8	45	46	45	221	77%	81%
Himachal Pradesh	12	41	168	3	29	2	12	4	32	40	40	145	82%	76%
Jammu & Kashmir	14	42	174	8	13	5	12	12	37	43	39	226	95%	69%
Jharkhand	22	66	280	17	12	3	19	13	56	66	67	304	81%	84%
Karnataka	30	129	646	54	442	39	30	9	121	123	121	624	83%	80%
Kerala	14	71	476	97	40	18	13	12	62	70	68	610	76%	68%
Lakshadweep	1	1	9	0	0	0	1	1	0	1	1	13	94%	100%
Madhya Pradesh	45	144	738	40	87	9	45	7	114	130	137	758	95%	84%
Maharashtra	55	261	1251	413	1766	41	55	46	252	244	248	1195	75%	87%
Manipur	9	13	51	116	0	1	9	6	7	13	17	43	71%	62%
Meghalaya	7	12	55	15	0	1	6	2	12	12	12	49	86%	61%
Mizoram	8	9	30	2	0	0	8	2	4	9	9	32	77%	92%
Nagaland	11	15	40	25	14	0	10	0	5	13	13	43	77%	56%
Orissa	31	107	544	83	2	6	31	10	95	104	97	514	86%	85%
Puducherry	1	4	22	4	4	8	1	0	4	5	5	22	71%	94%
Punjab	20	57	289	69	346	8	20	5	50	54	55	317	84%	77%
Rajasthan	33	150	818	56	216	8	29	8	130	143	141	775	86%	77%
Sikkim	4	5	20	6	4	1	4	0	3	5	5	21	89%	88%
Tamil Nadu	30	142	791	109	133	19	26	26	111	135	97	607	82%	95%
Tripura	4	10	52	0	0	2	4	2	8	9	10	57	82%	95%
Uttar Pradesh	71	379	1792	383	199	20	63	50	342	362	339	1903	74%	61%
Uttarakhand	13	30	144	10	16	3	12	9	23	29	30	160	64%	59%
West Bengal	19	188	846	107	5	6	19	11	177	187	189	1016	81%	76%
Grand Total	650	2596	12704	2291	6361	268	605	336	2324	2552	2428	12841	82%	79%

Performance of RNTCP Case Detection (2009), Smear Conversion (4th Quarter 2008 to 3rd Quarter 2009), and Treatment Outcomes (2008)

State	District	Population (in lakh) covered by RNTCP[1]	No. of suspects examined	Suspects examined per lakh population per quarter	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Andaman & Nicobar	Andaman & Nicobar Islands*	4	3813	227	415	11%	803	191	298	71	95%	61%	190	203	29%	110	90	23%
Andhra Pradesh	Adilabad *	27	11092	102	2315	21%	3730	137	1746	64	86%	59%	1236	272	8%	471	417	19%
Andhra Pradesh	Anantapur	40	29455	185	4055	14%	5673	142	2634	66	88%	66%	1340	616	13%	1079	837	24%
Andhra Pradesh	Bhadrachalam	9	7119	208	1090	15%	1436	168	703	82	110%	63%	405	65	6%	263	245	26%
Andhra Pradesh	Chittoor	41	26419	161	4218	16%	4863	119	2181	53	71%	69%	992	746	19%	942	702	24%
Andhra Pradesh	Cuddapah	28	20494	182	2401	12%	4377	155	1605	57	76%	53%	1423	413	12%	936	577	26%
Andhra Pradesh	East Godavari	53	40154	188	4424	11%	8043	151	3203	60	80%	55%	2608	918	14%	1300	747	19%
Andhra Pradesh	Guntur	48	42812	222	5838	14%	7684	159	3376	70	93%	60%	2286	533	9%	1489	1144	25%
Andhra Pradesh	Hyderabad	40	40106	248	6036	15%	6620	164	2257	56	74%	64%	1260	1731	32%	1273	864	28%
Andhra Pradesh	Karimnagar	38	20881	137	2889	14%	4208	110	1891	50	66%	61%	1198	278	8%	839	716	27%
Andhra Pradesh	Khammam	20	12958	165	2656	20%	3118	159	1566	80	107%	71%	637	317	13%	595	539	26%
Andhra Pradesh	Krishna	46	27400	148	3871	14%	5876	127	2574	56	74%	63%	1500	568	12%	1233	922	26%
Andhra Pradesh	Kurnool	39	22829	148	2914	13%	5674	147	2042	53	71%	51%	1975	508	11%	1145	707	26%
Andhra Pradesh	Mahbubnagar	38	20674	134	3003	15%	4658	121	2387	62	83%	69%	1063	343	9%	863	674	22%
Andhra Pradesh	Medak	29	12029	103	2064	17%	3259	112	1610	55	74%	72%	627	423	16%	599	489	23%
Andhra Pradesh	Nalgonda	36	15634	110	3326	21%	4401	124	1963	55	74%	72%	780	461	14%	1171	1056	35%
Andhra Pradesh	Nellore	29	20386	175	2908	14%	4210	144	1839	63	84%	63%	1073	320	10%	943	732	28%
Andhra Pradesh	Nizamabad	26	13794	134	1700	12%	2650	103	1375	54	71%	66%	705	222	10%	347	290	17%
Andhra Pradesh	Prakasam	33	19011	142	2471	13%	4186	125	2017	60	80%	64%	1155	193	6%	820	603	23%
Andhra Pradesh	Rangareddi	38	21796	142	3765	17%	5247	136	2230	58	77%	69%	1019	898	22%	1100	893	29%
Andhra Pradesh	Srikakulam	28	17203	155	2207	13%	4358	157	1725	62	83%	52%	1566	479	13%	586	365	17%
Andhra Pradesh	Visakhapatnam	42	31586	190	3865	12%	5706	137	2597	63	83%	66%	1344	921	19%	843	645	20%
Andhra Pradesh	Vizianagaram	25	17989	183	2384	13%	3888	158	1768	72	96%	70%	769	628	20%	723	535	23%
Andhra Pradesh	Warangal	35	21685	153	3610	17%	4305	122	2099	59	79%	71%	860	287	9%	1059	906	30%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Andaman & Nicobar	Andaman & Nicobar Islands*	61	9%	93%	87%	89%	87%	7	1.8%	46	12%	117	67%	178	83%	111	91%	79	88%
Andhra Pradesh	Adilabad *	119	4%	92%	86%	91%	89%	9	0.4%	237	10%	1846	88%	2091	100%	1296	84%	3027	93%
Andhra Pradesh	Anantapur	142	3%	89%	85%	87%	92%	2	0.1%	303	8%	2766	85%	3139	96%	2055	78%	4070	93%
Andhra Pradesh	Bhadrachalam	28	2%	87%	86%	91%	91%	0	0.0%	93	9%	635	83%	723	95%	526	71%	1252	96%
Andhra Pradesh	Chittoor	120	3%	90%	85%	86%	94%	0	0.0%	210	6%	2241	82%	2663	98%	1482	69%	1840	50%
Andhra Pradesh	Cuddapah	79	2%	91%	85%	88%	85%	2	0.1%	343	15%	1746	83%	1668	79%	1102	74%	2409	73%
Andhra Pradesh	East Godavari	290	4%	95%	90%	92%	96%	0	0.0%	179	4%	3321	88%	3721	99%	2810	80%	5226	81%
Andhra Pradesh	Guntur	161	3%	94%	89%	90%	89%	34	0.7%	518	10%	3928	92%	4244	100%	3008	87%	4875	76%
Andhra Pradesh	Hyderabad	588	11%	91%	87%	87%	85%	0	0.0%	645	15%	2215	97%	2284	100%	2094	100%	463	9%
Andhra Pradesh	Karimnagar	97	3%	91%	86%	91%	89%	43	1.5%	261	9%	2154	89%	2312	96%	1606	85%	2778	80%
Andhra Pradesh	Khammam	72	3%	86%	85%	88%	96%	0	0.0%	91	4%	1641	92%	1787	100%	1306	84%	2493	90%
Andhra Pradesh	Krishna	123	3%	92%	88%	89%	96%	4	0.1%	147	4%	2896	88%	2502	76%	2048	73%	2282	66%
Andhra Pradesh	Kurnool	214	5%	92%	85%	86%	92%	19	0.7%	194	7%	1692	81%	2072	99%	1156	60%	3051	90%
Andhra Pradesh	Mahbubnagar	137	4%	91%	86%	87%	90%	0	0.0%	307	10%	2627	91%	2793	97%	1875	81%	3580	97%
Andhra Pradesh	Medak	189	7%	92%	84%	86%	92%	1	0.1%	157	8%	1706	87%	1844	94%	1043	69%	2100	76%
Andhra Pradesh	Nalgonda	142	4%	89%	86%	87%	94%	4	0.1%	193	6%	2148	77%	2094	75%	1480	68%	2012	56%
Andhra Pradesh	Nellore	92	3%	92%	88%	90%	90%	0	0.0%	280	10%	1829	89%	2343	98%	1569	78%	3160	100%
Andhra Pradesh	Nizamabad	64	3%	86%	75%	87%	96%	5	0.3%	64	4%	1391	90%	1508	98%	995	87%	1602	83%
Andhra Pradesh	Prakasam	79	2%	91%	86%	89%	96%	1	0.0%	98	4%	2028	87%	2296	98%	1586	88%	3407	96%
Andhra Pradesh	Rangareddi	305	7%	90%	84%	84%	95%	4	0.1%	131	5%	2458	93%	2621	99%	1961	91%	3417	82%
Andhra Pradesh	Srikakulam	180	5%	93%	87%	92%	94%	12	0.6%	114	5%	1674	84%	1911	96%	1166	68%	2865	85%
Andhra Pradesh	Visakhapatnam	292	6%	94%	89%	91%	95%	19	0.5%	146	4%	2860	92%	3062	99%	2268	89%	4303	92%
Andhra Pradesh	Vizianagaram	200	6%	92%	87%	89%	95%	3	0.1%	114	5%	1897	88%	2117	98%	1294	74%	2720	92%
Andhra Pradesh	Warangal	52	2%	91%	85%	88%	94%	0	0.0%	197	6%	2402	85%	2592	89%	1756	80%	4464	95%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Andhra Pradesh	West Godavari	42	24133	145	3370	14%	5904	142	2547	61	82%	60%	1720	517	11%	1115	724	22%
Arunachal Pradesh	Changlang **	1	941	169	62	7%	171	123	69	50	66%	64%	39	22	17%	38	20	22%
Arunachal Pradesh	Dibang Valley	1	596	233	55	9%	109	170	55	86	114%	66%	28	4	5%	22	21	28%
Arunachal Pradesh	East Kameng *	1	348	137	28	8%	140	220	28	44	59%	40%	42	22	24%	48	18	39%
Arunachal Pradesh	East Siang *	1	977	251	101	10%	268	275	81	83	111%	50%	80	51	24%	56	40	33%
Arunachal Pradesh	Lohit **	2	1045	164	147	14%	259	162	116	73	97%	64%	66	24	12%	53	32	22%
Arunachal Pradesh	Lower Subansiri *	1	576	132	49	9%	148	136	46	42	56%	59%	32	25	24%	45	27	37%
Arunachal Pradesh	Papum Pare *	1	3719	686	367	10%	643	474	147	108	145%	42%	203	120	26%	173	66	31%
Arunachal Pradesh	Tawang *	0.4	434	281	34	8%	81	210	29	75	100%	69%	13	26	38%	13	4	12%
Arunachal Pradesh	Tirap †	1	701	157	99	14%	216	194	77	69	92%	56%	60	46	25%	32	18	19%
Arunachal Pradesh	Upper Siang *	0.4	331	224	29	9%	43	117	20	54	72%	77%	6	9	26%	8	8	29%
Arunachal Pradesh	Upper Subansiri*	1	449	183	70	16%	97	158	47	77	102%	80%	12	15	20%	23	12	20%
Arunachal Pradesh	West Kameng *	1	610	184	73	12%	125	150	55	66	88%	64%	31	18	17%	21	16	23%
Arunachal Pradesh	West Siang *	1	475	103	66	14%	132	114	59	51	68%	78%	17	12	12%	34	21	26%
Assam	Barpeta	19	7294	97	929	13%	1961	105	744	40	53%	55%	613	161	11%	443	193	21%
Assam	Bongaigaon	10	5899	143	816	14%	1246	121	558	54	72%	62%	338	76	8%	274	149	21%
Assam	Cachar	16	9955	151	1223	12%	2543	155	932	57	76%	53%	842	519	23%	250	131	12%
Assam	Darrang	17	8439	123	1126	13%	2062	120	890	52	69%	57%	658	219	12%	295	175	16%
Assam	Dhemaji	6	2773	107	513	18%	817	126	409	63	84%	65%	219	65	9%	124	74	15%
Assam	Dhubri	19	6892	92	1136	16%	2266	122	883	47	63%	52%	821	119	7%	442	177	17%
Assam	Dibrugarh	13	8037	150	1592	20%	2405	180	970	73	97%	67%	488	653	31%	294	197	17%
Assam	Goalpara	9	4110	110	633	15%	920	98	503	54	72%	69%	231	46	6%	140	79	14%
Assam	Golaghat	11	4516	105	742	16%	1330	123	602	56	74%	63%	357	222	19%	149	67	10%
Assam	Hailakandi	6	3813	154	404	11%	692	112	336	54	72%	64%	185	100	16%	71	38	10%
Assam	Jorhat	12	5303	115	888	17%	1481	129	693	60	80%	68%	333	283	22%	166	112	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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Andhra Pradesh	West Godavari	146	3%	95%	93%	93%	97%	4	0.1%	93	3%	3020	97%	3115	100%	2379	94%	3071	64%
Arunachal Pradesh	Changlang **	12	9%	88%	79%	81%	97%	1	1.6%	1	2%	66	80%	74	89%	49	75%	76	51%
Arunachal Pradesh	Dibang Valley	10	11%	98%	98%	98%	100%	0	0.0%	0	0%	71	100%	71	100%	63	100%	12	92%
Arunachal Pradesh	East Kameng*	20	22%	81%	72%	78%	100%	0	0.0%	0	0%	33	94%	35	100%	27	57%	25	24%
Arunachal Pradesh	East Siang *	22	10%	96%	92%	92%	93%	0	0.0%	6	7%	112	99%	100	88%	107	92%	53	23%
Arunachal Pradesh	Lohit **	6	3%	87%	83%	83%	97%	2	1.4%	2	1%	125	95%	132	100%	103	95%	71	37%
Arunachal Pradesh	Lower Subansiri *	18	17%	83%	73%	81%	94%	0	0.0%	3	6%	59	91%	48	74%	52	98%	36	34%
Arunachal Pradesh	Papum Pare *	72	15%	93%	93%	93%	70%	90		0	0%	193	97%	198	100%	157	99%	379	77%
Arunachal Pradesh	Tawang *	14	21%	95%	91%	91%	100%	0	0.0%	0	0%	31	100%	31	100%	31	97%	16	25%
Arunachal Pradesh	Tirap †	29	16%	86%	89%	93%	88%	0	0.0%	12	12%	44	76%	82	89%	45	63%	12	25%
Arunachal Pradesh	Upper Siang *	3	9%	86%	79%	83%	97%	0	0.0%	1	3%	23	100%	23	100%	23	88%	12	41%
Arunachal Pradesh	Upper Subansiri *	8	11%	86%	86%	86%	77%	3	4.5%	12	18%	47	81%	58	100%	30	77%	14	21%
Arunachal Pradesh	West Kameng *	9	9%	100%	95%	95%	99%	1	1.4%	0	0%	68	100%	68	100%	48	72%	24	22%
Arunachal Pradesh	West Siang *	4	4%	89%	82%	82%	98%	0	0.0%	1	2%	62	83%	62	83%	48	76%	16	14%
Assam	Barpeta	49	3%	90%	88%	89%	96%	1	0.1%	35	4%	775	86%	897	100%	531	71%	129	9%
Assam	Bongaigaon	41	4%	91%	87%	87%	97%	0	0.0%	25	3%	596	89%	608	90%	283	54%	195	20%
Assam	Cachar	97	4%	91%	85%	85%	94%	4	0.3%	59	5%	880	85%	998	96%	573	83%	1088	52%
Assam	Darrang	34	2%	90%	86%	89%	96%	0	0.0%	49	4%	951	92%	1018	99%	725	86%	646	41%
Assam	Dhemaji	25	4%	90%	89%	91%	94%	2	0.4%	27	5%	411	87%	471	100%	305	83%	294	45%
Assam	Dhubri	61	3%	90%	86%	90%	93%	17	1.5%	65	6%	853	84%	795	78%	503	63%	719	40%
Assam	Dibrugarh	239	11%	93%	88%	89%	84%	14	1.1%	196	15%	1064	95%	1027	92%	875	94%	544	28%
Assam	Goalpara	21	3%	90%	83%	85%	87%	0	0.0%	79	13%	527	93%	564	100%	381	90%	135	19%
Assam	Golaghat	90	8%	91%	86%	87%	90%	2	0.3%	73	10%	588	90%	620	95%	507	84%	470	45%
Assam	Hailakandi	34	5%	88%	87%	87%	91%	0	0.0%	36	9%	215	62%	346	100%	189	68%	122	21%
Assam	Jorhat	80	6%	92%	89%	89%	97%	4	0.5%	19	2%	769	98%	746	96%	670	94%	67	6%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Assam	Kamrup	29	15541	135	2628	17%	3972	138	1507	53	70%	64%	848	536	19%	1081	688	31%
Assam	Karbi Anglong*	9	4353	117	670	15%	1578	170	548	59	79%	44%	701	114	8%	214	74	12%
Assam	Karimganj	11	5603	122	633	11%	1294	113	509	44	59%	54%	428	169	15%	188	76	13%
Assam	Kokrajhar	11	4189	99	867	21%	1222	115	707	67	89%	71%	291	40	4%	184	89	11%
Assam	Lakhimpur	10	3833	94	698	18%	1048	103	528	52	69%	70%	231	103	12%	170	128	20%
Assam	Marigaon	9	3560	101	485	14%	977	110	372	42	56%	51%	357	40	5%	208	95	20%
Assam	Nagaon	26	11698	111	1709	15%	3070	116	1412	53	71%	59%	964	284	11%	410	197	12%
Assam	Nalbari	13	4184	81	624	15%	1299	100	564	43	58%	62%	342	155	15%	238	144	20%
Assam	North Cachar Hills *	2	1273	150	126	10%	227	107	96	45	60%	60%	64	15	9%	52	26	21%
Assam	Sibsagar	12	5609	117	868	15%	1831	152	659	55	73%	58%	480	359	24%	333	190	22%
Assam	Sonitpur	19	11863	155	2072	17%	3255	170	1565	82	109%	65%	830	369	13%	490	308	16%
Assam	Tinsukia	13	9951	190	1593	16%	2414	184	1110	85	113%	68%	530	426	21%	348	249	18%
Bihar	Araria **	24	6284	64	831	13%	1507	62	648	27	35%	54%	559	68	5%	232	112	15%
Bihar	Arwal	7	3018	108	440	15%	632	90	289	41	55%	59%	198	20	4%	125	77	21%
Bihar	Aurangabad-BI **	23	6845	74	920	13%	1421	62	679	29	39%	67%	341	102	9%	299	200	23%
Bihar	Banka **	18	6666	90	766	11%	1557	84	706	38	51%	61%	456	33	2%	225	32	4%
Bihar	Begusarai **	27	10530	98	1590	15%	3064	114	1184	44	59%	48%	1266	142	5%	472	320	21%
Bihar	Bhagalpur **	28	18960	170	2166	11%	3915	140	1536	55	73%	52%	1417	369	11%	591	312	17%
Bihar	Bhojpur **	26	5784	56	623	11%	1188	46	409	16	21%	51%	396	92	10%	291	141	26%
Bihar	Buxar	16	4258	66	457	11%	913	57	335	21	28%	54%	288	49	7%	241	125	27%
Bihar	Darbhanga **	38	13912	92	1849	13%	3038	80	1270	34	45%	72%	496	751	30%	509	315	20%
Bihar	Gaya **	40	7929	50	1334	17%	3509	88	934	23	31%	34%	1834	133	5%	608	249	21%
Bihar	Gopalganj **	25	8670	88	1352	16%	2438	99	1205	49	65%	76%	391	113	7%	723	171	12%
Bihar	Jamui **	16	4753	74	858	18%	1602	100	715	45	59%	54%	621	38	3%	227	101	12%
Bihar	Jehanabad **	10	5070	122	649	13%	1252	121	476	46	61%	46%	555	35	3%	186	144	23%

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

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Assam	Kamrup	78	3%	89%	86%	87%	93%	5	0.2%	155	7%	1515	75%	1967	97%	1144	84%	768	28%
Assam	Karbi Anglong*	59	4%	86%	84%	88%	92%	4	0.6%	50	8%	538	90%	437	73%	282	62%	331	27%
Assam	Karimganj	41	4%	89%	84%	85%	93%	0	0.0%	41	7%	504	88%	512	90%	383	84%	277	27%
Assam	Kokrajhar	22	2%	85%	86%	86%	90%	0	0.0%	84	10%	657	84%	712	92%	495	85%	334	32%
Assam	Lakhimpur	39	4%	91%	88%	88%	91%	3	0.4%	63	9%	551	89%	544	88%	506	86%	680	76%
Assam	Marigaon	11	1%	88%	81%	87%	95%	3	0.6%	20	4%	391	89%	402	91%	306	89%	203	26%
Assam	Nagaon	74	3%	91%	86%	89%	83%	0	0.0%	287	17%	1243	79%	1487	95%	1115	86%	743	31%
Assam	Nalbari	21	2%	84%	80%	88%	91%	0	0.0%	54	9%	603	89%	674	100%	375	66%	318	30%
Assam	North Cachar Hills *	5	3%	90%	83%	93%	97%	0	0.0%	4	3%	98	88%	106	96%	46	48%	43	23%
Assam	Sibsagar	130	9%	90%	85%	86%	90%	4	0.5%	78	9%	675	83%	392	48%	342	57%	8	1%
Assam	Sonitpur	196	7%	88%	84%	89%	91%	2	0.1%	189	9%	1703	94%	1796	99%	1205	87%	472	20%
Assam	Tinsukia	186	9%	92%	87%	87%	89%	7	0.5%	164	11%	1157	89%	1149	88%	882	86%	533	28%
Bihar	Araria **	59	5%	88%	85%	86%	87%	0	0.0%	107	13%	560	81%	652	96%	470	80%	110	10%
Bihar	Arwal	28	6%	91%	85%	93%	84%	15	3.5%	37	9%	268	93%	313	100%	223	90%	110	34%
Bihar	Aurangabad-BI **	96	9%	85%	80%	82%	97%	0	0.0%	31	3%	716	85%	841	100%	578	79%	129	13%
Bihar	Banka **	58	4%	90%	79%	92%	98%	0	0.0%	14	2%	731	97%	750	99%	687	80%	73	17%
Bihar	Begusarai **	286	11%	95%	93%	95%	95%	0	0.0%	80	5%	1338	93%	1435	100%	991	79%	333	13%
Bihar	Bhagalpur **	404	12%	92%	90%	92%	92%	0	0.0%	165	8%	1654	97%	1703	100%	1088	73%	492	20%
Bihar	Bhojpur **	70	8%	80%	67%	76%	75%	0	0.0%	155	25%	355	79%	480	90%	304	63%	54	5%
Bihar	Buxar	29	4%	93%	88%	89%	99%	0	0.0%	2	0%	353	86%	412	100%	254	71%	19	68%
Bihar	Darbhanga **	409	16%	89%	79%	88%	99%	0	0.0%	10	1%	1409	93%	1340	89%	1083	88%	727	32%
Bihar	Gaya **	189	7%	80%	80%	95%	92%	0	0.0%	100	8%	843	75%	934	90%	448	70%	196	71%
Bihar	Gopalganj **	128	7%	89%	85%	94%	100%	0	0.0%	4	0%	1185	90%	1334	101%	765	84%	448	53%
Bihar	Jamui **	69	5%	81%	70%	83%	88%	0	0.0%	101	12%	522	66%	496	62%	270	17%	149	15%
Bihar	Jehanabad **	91	9%	86%	81%	87%	93%	5	0.8%	38	6%	485	86%	525	93%	439	86%	28	12%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Bihar	Kaimur **	15	3676	62	510	14%	949	64	351	24	32%	56%	271	15	2%	312	138	28%
Bihar	Katihar **	27	10089	92	1783	18%	2266	82	1408	51	68%	81%	327	125	7%	405	277	16%
Bihar	Khagaria **	15	6874	117	735	11%	1014	69	561	38	51%	70%	241	49	6%	163	140	20%
Bihar	Kishanganj **	15	5919	99	795	13%	1205	81	618	42	55%	73%	226	96	10%	265	160	21%
Bihar	Lakhisarai **	9	4119	112	374	9%	736	80	308	33	45%	58%	220	52	9%	156	63	17%
Bihar	Madhepura **	18	6321	90	687	11%	923	53	498	28	38%	72%	196	46	6%	183	143	22%
Bihar	Madhubani **	41	15515	94	2037	13%	2749	67	1602	39	52%	73%	607	159	7%	381	253	14%
Bihar	Munger **	13	5609	107	838	15%	1459	112	671	51	69%	61%	422	150	12%	216	160	19%
Bihar	Muzaffarpur **	43	18312	106	2279	12%	5673	132	1669	39	52%	39%	2636	378	8%	990	452	21%
Bihar	Nalanda **	27	6851	63	1009	15%	1802	66	827	30	40%	57%	618	127	8%	230	113	12%
Bihar	Nawada **	21	4601	55	796	17%	1128	54	603	29	39%	73%	220	81	9%	224	142	19%
Bihar	Pashchim Champaran **	35	14113	101	1967	14%	2669	76	1652	47	63%	74%	572	126	5%	317	201	11%
Bihar	Patna	54	24272	112	3172	13%	6443	119	1819	34	45%	42%	2499	885	17%	1240	493	21%
Bihar	Purba Champaran **	45	11290	62	1610	14%	2504	55	1326	29	39%	63%	775	107	5%	296	148	10%
Bihar	Purnia **	29	20446	175	2229	11%	3230	111	1752	60	80%	64%	969	91	3%	418	271	13%
Bihar	Rohtas	28	12083	107	1405	12%	1892	67	992	35	47%	71%	413	72	5%	415	235	19%
Bihar	Saharsa **	17	7389	107	784	11%	1656	96	676	39	52%	48%	736	56	4%	157	47	7%
Bihar	Samastipur **	39	13474	86	2157	16%	4275	109	1749	45	59%	54%	1508	376	10%	642	292	14%
Bihar	Saran **	37	8631	58	1172	14%	2140	57	924	25	33%	63%	541	254	15%	421	212	19%
Bihar	Sheikpura	6	3024	125	281	9%	714	118	214	35	47%	41%	314	14	3%	172	18	8%
Bihar	Sheohar	6	2112	89	270	13%	539	91	208	35	47%	53%	187	35	8%	98	50	19%
Bihar	Sitamarhi **	31	10861	88	1790	16%	2886	94	1498	49	65%	65%	820	241	9%	327	207	12%
Bihar	Siwan	31	13053	105	1997	15%	3372	108	1548	50	66%	63%	897	63	3%	864	279	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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Bihar	Kaimur **	30	5%	87%	85%	85%	92%	0	0.0%	42	8%	429	93%	430	93%	336	82%	143	17%
Bihar	Katihar **	113	6%	86%	78%	81%	92%	0	0.0%	139	8%	1448	89%	1620	100%	1281	100%	1189	79%
Bihar	Khagaria **	82	10%	90%	83%	87%	96%	0	0.0%	30	4%	594	89%	636	95%	303	81%	110	18%
Bihar	Kishanganj **	68	7%	91%	85%	90%	96%	0	0.0%	32	4%	447	90%	243	49%	310	65%	457	59%
Bihar	Lakhisarai **	48	8%	92%	91%	94%	95%	0	0.0%	17	5%	298	89%	317	93%	194	77%	111	27%
Bihar	Madhepura **	31	4%	95%	88%	95%	96%	0	0.0%	24	4%	590	96%	614	100%	295	60%	198	27%
Bihar	Madhubani **	105	4%	90%	78%	87%	72%	0	0.0%	132	6%	1737	97%	1263	70%	814	66%	34	76%
Bihar	Munger **	85	7%	91%	85%	91%	99%	0	0.0%	10	1%	744	94%	791	100%	456	78%	312	27%
Bihar	Muzaffarpur **	256	5%	91%	82%	89%	89%	0	0.0%	248	11%	1184	87%	1309	96%	1005	83%	475	21%
Bihar	Nalanda **	106	7%	91%	87%	92%	96%	0	0.0%	42	4%	854	92%	888	96%	705	85%	163	11%
Bihar	Nawada **	55	6%	94%	88%	91%	95%	0	0.0%	41	5%	716	99%	652	90%	461	83%	558	93%
Bihar	Pashchim Champaran **	124	5%	95%	89%	94%	94%	22	1.1%	100	5%	1670	92%	1717	95%	861	70%	177	23%
Bihar	Patna	706	14%	90%	84%	89%	81%	0	0.0%	517	19%	1808	79%	2134	93%	1274	62%	306	18%
Bihar	Purba Champaran **	88	4%	91%	92%	94%	95%	0	0.0%	80	5%	1252	87%	1442	100%	1080	77%	224	46%
Bihar	Purnia **	166	6%	91%	82%	93%	96%	0	0.0%	90	4%	1319	88%	1495	93%	1010	91%	1588	69%
Bihar	Rohtas	96	6%	91%	83%	90%	92%	0	0.0%	114	8%	1045	87%	1051	88%	751	85%	160	9%
Bihar	Saharsa **	59	4%	94%	78%	90%	96%	0	0.0%	27	4%	587	86%	697	100%	438	83%	978	69%
Bihar	Samastipur **	324	9%	87%	82%	93%	96%	2	0.1%	77	4%	1861	93%	1541	77%	1258	76%	70	6%
Bihar	Saran **	87	5%	78%	69%	77%	97%	1	0.1%	37	3%	1014	93%	934	86%	545	81%	162	12%
Bihar	Sheikpura	44	8%	80%	75%	79%	95%	0	0.0%	15	5%	232	100%	232	100%	54	40%	111	72%
Bihar	Sheohar	23	5%	86%	48%	82%	80%	0	0.0%	53	20%	166	66%	249	99%	51	86%	245	76%
Bihar	Sitamarhi **	202	8%	82%	67%	79%	89%	1	0.1%	189	11%	1453	87%	1324	79%	637	63%	138	19%
Bihar	Siwan	108	4%	89%	76%	93%	91%	15	0.8%	158	8%	1499	85%	1709	97%	697	59%	754	34%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Bihar	Supaul **	20	5692	71	432	8%	877	44	347	17	23%	55%	281	27	4%	222	66	16%
Bihar	Vaishali **	31	11647	93	1311	11%	3264	105	945	30	40%	38%	1538	163	6%	618	255	21%
Chandigarh	Chandigarh	11	14655	337	1905	13%	2572	236	876	81	85%	67%	422	788	38%	486	301	26%
Chhatisgarh	Bastar *	15	6276	104	813	13%	1628	108	585	39	49%	49%	613	212	15%	217	104	15%
Chhatisgarh	Bilaspur-CG	23	10459	114	1326	13%	2814	122	987	43	54%	49%	1019	477	19%	331	235	19%
Chhatisgarh	Dantewada *	8	3790	114	543	14%	764	92	395	48	59%	63%	237	54	8%	78	64	14%
Chhatisgarh	Dhamtari	8	3378	104	408	12%	696	86	329	40	51%	63%	196	101	16%	69	54	14%
Chhatisgarh	Durg	32	16107	124	1605	10%	3862	119	1351	42	52%	47%	1538	734	20%	239	178	12%
Chhatisgarh	Janjgir	15	5733	94	573	10%	1472	97	517	34	42%	42%	710	125	9%	120	69	12%
Chhatisgarh	Jashpur *	9	2069	61	271	13%	598	70	220	26	32%	41%	311	22	4%	43	21	9%
Chhatisgarh	Kanker *	8	4252	141	541	13%	1003	133	467	62	78%	56%	365	81	9%	90	50	10%
Chhatisgarh	Kawardha **	7	1277	47	143	11%	350	52	115	17	21%	41%	164	38	12%	30	24	17%
Chhatisgarh	Korba	12	6276	134	798	13%	1726	148	708	61	76%	55%	573	298	19%	147	78	10%
Chhatisgarh	Koriya **	7	2705	100	289	11%	680	101	215	32	40%	46%	252	122	21%	91	47	18%
Chhatisgarh	Mahasamund	10	3462	87	425	12%	1117	112	408	41	51%	44%	518	130	12%	61	23	5%
Chhatisgarh	Raigarh-CG **	15	4895	84	819	17%	1719	118	691	47	59%	46%	802	81	5%	145	95	12%
Chhatisgarh	Raipur	35	19001	137	2392	13%	4552	131	1904	55	68%	55%	1554	624	15%	467	333	15%
Chhatisgarh	Rajnandgaon	15	7418	125	958	13%	1993	135	819	55	69%	56%	651	251	15%	271	147	15%
Chhatisgarh	Surguja †	23	8936	98	1072	12%	2489	109	862	38	47%	45%	1074	169	8%	384	121	12%
D & N Haveli	Dadra & Nagar Haveli †	3	1686	156	264	16%	386	142	144	53	66%	62%	90	76	25%	76	45	24%
Daman & Diu	Daman	1	1469	264	123	8%	289	208	97	70	87%	54%	82	34	15%	57	28	22%
Daman & Diu	Diu	1	802	372	50	6%	37	69	18	33	42%	64%	10	4	13%	5	1	5%
Delhi	BJRM Chest Clinic	5	4838	234	639	13%	1395	269	430	83	87%	62%	269	369	34%	313	187	30%
Delhi	BSA Chest Clinic	5	2779	134	470	17%	1285	248	344	66	70%	55%	287	400	39%	254	146	30%

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

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Bihar	Supaul **	25	4%	87%	67%	92%	100%	0	0.0%	0	0%	322	79%	409	100%	112	61%	490	99%
Bihar	Vaishali **	176	7%	88%	83%	91%	93%	0	0.0%	97	7%	721	86%	945	100%	329	74%	92	33%
Chandigarh	Chandigarh	192	9%	92%	87%	88%	96%	16	1.3%	35	3%	947	89%	1042	98%	808	95%	15	1%
Chhatisgarh	Bastar *	79	6%	70%	55%	68%	82%	1	0.1%	141	18%	594	89%	609	91%	276	81%	694	59%
Chhatisgarh	Bilaspur-CG	210	8%	89%	84%	91%	86%	1	0.1%	181	14%	910	80%	996	87%	543	55%	957	44%
Chhatisgarh	Dantewada *	22	3%	73%	74%	81%	84%	1	0.2%	84	15%	349	79%	400	90%	224	64%	101	17%
Chhatisgarh	Dhamtari	27	4%	91%	89%	89%	96%	0	0.0%	15	4%	338	93%	363	100%	326	82%	344	65%
Chhatisgarh	Durg	174	5%	90%	85%	86%	92%	16	1.0%	99	6%	1128	76%	1488	100%	884	70%	423	22%
Chhatisgarh	Janjgir	49	4%	93%	88%	92%	98%	0	0.0%	9	2%	493	86%	570	100%	416	77%	644	52%
Chhatisgarh	Jashpur *	1	0%	79%	73%	88%	91%	0	0.0%	25	9%	175	73%	195	82%	90	57%	80	26%
Chhatisgarh	Kanker *	25	3%	93%	83%	85%	93%	3	0.6%	36	7%	444	89%	501	100%	288	73%	343	44%
Chhatisgarh	Kawardha **	16	5%	83%	58%	88%	100%	0	0.0%	0	0%	98	72%	131	96%	115	76%	177	67%
Chhatisgarh	Korba	66	4%	94%	91%	93%	90%	0	0.0%	76	10%	699	91%	769	100%	480	87%	324	31%
Chhatisgarh	Koriya **	32	5%	88%	75%	83%	89%	1	0.4%	30	11%	222	88%	251	100%	174	85%	220	40%
Chhatisgarh	Mahasamund	81	8%	90%	82%	85%	96%	0	0.0%	16	4%	384	90%	426	100%	253	72%	655	78%
Chhatisgarh	Raigarh-CG **	46	3%	85%	75%	89%	93%	2	0.2%	58	7%	631	83%	741	98%	335	79%	45	4%
Chhatisgarh	Raipur	267	7%	92%	86%	89%	95%	8	0.3%	96	4%	1609	74%	2072	96%	972	62%	2077	56%
Chhatisgarh	Rajnandgaon	168	10%	89%	84%	87%	98%	0	0.0%	17	2%	841	91%	929	100%	597	84%	704	45%
Chhatisgarh	Surguja †	113	5%	93%	90%	91%	84%	3	0.3%	161	16%	857	89%	950	99%	648	86%	717	38%
D & N Haveli	Dadra & Nagar Haveli †	32	10%	91%	85%	85%	84%	0	0.0%	33	16%	160	90%	177	100%	135	88%	27	12%
Daman & Diu	Daman	11	5%	95%	55%	73%	90%	0	0.0%	8	10%	79	68%	79	68%	27	82%	106	57%
Daman & Diu	Diu	4	13%	82%	85%	85%	100%	0	0.0%	0	0%	18	100%	18	100%	13	93%	9	32%
Delhi	BJRM Chest Clinic	156	14%	91%	91%	91%	93%	0	0.0%	42	7%	524	91%	574	100%	467	100%	316	28%
Delhi	BSA Chest Clinic	115	11%	88%	85%	85%	92%	0	0.0%	33	8%	424	94%	450	100%	324	99%	74	7%

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

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Delhi	CD Chest Clinic	5	3551	171	432	12%	926	179	182	35	37%	45%	226	341	46%	177	94	34%
Delhi	DDU Chest Clinic	20	12296	156	1877	15%	4754	242	1300	66	70%	61%	826	1651	44%	977	583	31%
Delhi	GTB Chest Clinic	6	9829	396	1378	14%	2176	350	618	99	105%	67%	300	715	44%	543	292	32%
Delhi	Gulabi Bagh	10	6578	159	926	14%	1867	180	523	51	53%	60%	353	587	40%	401	234	31%
Delhi	Hedgewar C Clinic	5	4277	207	549	13%	1169	226	334	65	68%	69%	150	456	49%	229	123	27%
Delhi	Jhandewalan	5	4068	196	647	16%	1374	265	359	69	73%	66%	189	438	44%	374	213	37%
Delhi	Karawal Nagar	6	5333	215	1021	19%	2565	413	730	117	124%	66%	382	888	44%	565	323	31%
Delhi	Kingsway	5	4698	227	781	17%	1942	375	546	105	111%	56%	429	543	36%	414	283	34%
Delhi	LN Chest Clinic	5	6380	308	818	13%	1021	197	301	58	61%	76%	96	370	48%	254	161	35%
Delhi	LRS	10	7886	190	999	13%	1955	189	606	59	62%	69%	272	591	40%	476	298	33%
Delhi	MNCH Chest Clinic	10	6442	156	935	15%	3889	376	1028	99	105%	61%	671	1247	42%	943	550	35%
Delhi	Moti Nagar	6	7593	306	931	12%	1830	295	460	74	78%	58%	336	637	44%	396	212	32%
Delhi	Narela	6	6797	274	1004	15%	1773	285	481	77	81%	57%	365	442	34%	485	273	36%
Delhi	NDMC	8	14356	433	2178	15%	1684	203	440	53	56%	64%	248	620	47%	376	217	33%
Delhi	Nehru Nagar	10	10716	259	1686	16%	3797	367	1154	111	117%	65%	632	1110	38%	876	577	33%
Delhi	Patparganj	7	9467	327	1380	15%	2739	378	783	108	114%	66%	395	966	45%	595	419	35%
Delhi	RK Mission	6	6208	250	937	15%	1824	294	553	89	94%	59%	378	518	36%	375	244	31%
Delhi	RTRM Chest Clinic	10	9305	225	1195	13%	2223	215	703	68	71%	65%	377	588	35%	554	349	33%
Delhi	SGM Chest Clinic	6	9133	368	1130	12%	2831	456	618	99	105%	42%	868	734	33%	611	350	36%
Delhi	Shahadra	5	8226	397	1375	17%	2367	457	691	133	140%	66%	357	788	43%	525	308	31%
Delhi	SPM Marg	5	4180	202	714	17%	1016	196	355	69	72%	79%	96	293	39%	272	185	34%
Delhi	SPMH Chest Clinic	5	5265	254	992	19%	2291	443	617	119	125%	66%	314	797	46%	563	337	35%

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

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Delhi	CD Chest Clinic	104	14%	94%	84%	84%	64%	4	1.2%	11	3%	235	93%	252	100%	211	96%	17	4%
Delhi	DDU Chest Clinic	535	14%	89%	88%	88%	93%	9	0.5%	118	7%	1544	89%	1742	100%	1501	100%	204	6%
Delhi	GTB Chest Clinic	302	18%	86%	84%	84%	88%	31	3.4%	81	9%	782	93%	838	100%	629	94%	195	12%
Delhi	Gulabi Bagh	207	14%	87%	87%	87%	82%	27	3.4%	118	15%	522	92%	567	100%	527	100%	29	2%
Delhi	Hedgewar C Clinic	124	13%	88%	83%	84%	95%	0	0.0%	20	5%	409	96%	421	99%	347	93%	40	5%
Delhi	Jhandewalan	149	15%	89%	85%	85%	86%	39	7.0%	38	7%	432	86%	505	100%	484	100%	73	7%
Delhi	Karawal Nagar	327	16%	87%	86%	87%	90%	0	0.0%	89	10%	973	98%	938	95%	719	96%	47	2%
Delhi	Kingsway	268	18%	89%	87%	87%	94%	2	0.3%	40	6%	723	95%	741	97%	709	96%	170	11%
Delhi	LN Chest Clinic	98	13%	88%	85%	85%	87%	6	1.3%	54	12%	334	95%	351	100%	268	100%	155	100%
Delhi	LRS	162	11%	91%	89%	89%	98%	0	0.0%	18	2%	734	89%	822	100%	661	100%	70	5%
Delhi	MNCH Chest Clinic	403	14%	89%	86%	86%	93%	0	0.0%	54	7%	1237	86%	1402	97%	1154	100%	200	11%
Delhi	Moti Nagar	244	17%	93%	87%	87%	85%	30	3.8%	93	12%	610	98%	614	99%	523	98%	127	9%
Delhi	Narela	236	18%	83%	86%	87%	89%	27	3.6%	52	7%	586	86%	592	87%	415	84%	95	7%
Delhi	NDMC	163	12%	91%	90%	90%	91%	4	0.6%	58	8%	514	85%	607	100%	534	100%	32	2%
Delhi	Nehru Nagar	350	12%	85%	87%	87%	93%	16	1.0%	101	6%	1429	90%	1522	96%	1220	99%	172	8%
Delhi	Patparganj	342	16%	91%	91%	91%	92%	25	2.3%	62	6%	848	81%	1040	100%	950	100%	172	8%
Delhi	RK Mission	219	15%	90%	87%	87%	95%	21	2.5%	21	3%	670	91%	734	100%	654	100%	191	13%
Delhi	RTRM Chest Clinic	198	12%	90%	88%	88%	95%	1	0.1%	55	5%	769	89%	780	90%	669	91%	422	30%
Delhi	SGM Chest Clinic	332	15%	91%	88%	89%	95%	0	0.0%	48	5%	839	95%	865	98%	818	100%	61	3%
Delhi	Shahadra	314	17%	85%	82%	82%	93%	35	3.5%	41	4%	916	99%	921	100%	679	100%	231	13%
Delhi	SPM Marg	83	11%	87%	84%	84%	95%	1	0.2%	25	5%	477	97%	491	100%	370	97%	69	9%
Delhi	SPMH Chest Clinic	314	18%	93%	86%	87%	87%	3	0.3%	119	13%	750	85%	885	100%	588	98%	525	28%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Goa	North Goa	9	8764	232	776	9%	1089	115	376	40	50%	65%	199	333	37%	180	109	22%
Goa	South Goa	7	3414	117	444	13%	808	111	272	37	47%	62%	168	211	32%	157	102	27%
Gujarat	Ahmadabad	15	10262	166	1692	16%	2009	130	852	55	69%	80%	210	292	21%	645	458	35%
Gujarat	AMC	50	34663	173	5920	17%	9287	185	2976	59	74%	72%	1163	2237	35%	2903	1884	39%
Gujarat	Amreli	16	11739	186	1337	11%	1639	104	844	54	67%	84%	159	175	15%	461	383	31%
Gujarat	Anand	21	12772	152	2455	19%	3110	148	1315	63	78%	73%	490	294	14%	1011	779	37%
Gujarat	Banas Kantha	28	17155	152	3113	18%	4124	146	1628	58	72%	70%	685	271	10%	1540	1095	40%
Gujarat	Bharuch	15	10371	167	1661	16%	2004	129	1031	67	83%	78%	285	214	14%	474	377	27%
Gujarat	Bhavnagar	28	17553	157	2432	14%	3307	118	1591	57	71%	83%	318	492	20%	906	677	30%
Gujarat	Chhota Udepur	10	6280	153	978	16%	1391	135	677	66	82%	72%	258	64	6%	392	302	31%
Gujarat	Dahod *	18	19982	270	2682	13%	3604	195	1480	80	100%	67%	736	238	10%	1150	988	40%
Gujarat	Gandhinagar	15	10584	175	1391	13%	1940	129	849	56	70%	79%	228	253	19%	608	403	32%
Gujarat	Jamnagar	22	15029	174	1823	12%	2620	121	1154	53	67%	85%	206	495	27%	765	576	33%
Gujarat	Junagadh	28	18840	170	2173	12%	3014	109	1565	57	71%	82%	355	278	13%	816	583	27%
Gujarat	Kachchh	17	9872	143	1462	15%	1873	109	913	53	66%	84%	177	192	15%	591	434	32%
Gujarat	Kheda	23	15212	166	2806	18%	3130	137	1491	65	82%	79%	392	266	12%	981	795	35%
Gujarat	Mahesana	21	16489	198	2095	13%	2482	120	1230	59	74%	79%	328	231	13%	693	519	30%
Gujarat	Narmada	6	5268	227	627	12%	798	137	416	72	89%	76%	134	76	12%	172	137	25%
Gujarat	Navsari	14	10676	192	1265	12%	1867	134	837	60	75%	71%	334	245	17%	451	319	28%
Gujarat	Panch Mahals	23	16951	185	3534	21%	4082	178	1957	86	107%	79%	519	207	8%	1399	1242	39%
Gujarat	Patan	13	10334	193	1393	13%	1704	128	775	58	73%	78%	214	203	17%	512	383	33%
Gujarat	Pobandar	6	3849	158	440	11%	810	133	346	57	71%	60%	229	68	11%	167	91	21%
Gujarat	Rajkot	36	27388	192	3142	11%	4087	115	2026	57	71%	83%	418	658	21%	985	690	25%
Gujarat	Sabar Kantha	24	16340	173	2809	17%	3926	167	1419	60	75%	60%	931	297	11%	1279	849	37%
Gujarat	Surat	17	14268	208	2548	18%	2409	141	1166	68	85%	83%	238	397	22%	608	466	29%
Gujarat	Surat Municipal Corp	28	23645	215	2976	13%	5761	209	2027	74	92%	76%	651	1544	37%	1539	916	31%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Goa	North Goa	46	5%	92%	85%	85%	87%	18	2.8%	66	10%	394	87%	423	93%	338	93%	140	17%
Goa	South Goa	65	10%	89%	80%	83%	88%	19	4.6%	32	8%	297	84%	315	89%	258	91%	206	32%
Gujarat	Ahmadabad	89	7%	88%	83%	83%	92%	7	0.7%	80	7%	991	82%	1199	99%	725	77%	1377	83%
Gujarat	AMC	698	11%	89%	86%	86%	89%	196	3.7%	390	7%	4147	95%	4369	100%	3329	96%	1757	25%
Gujarat	Amreli	63	5%	91%	87%	88%	95%	3	0.2%	64	5%	1067	93%	1136	99%	866	91%	386	30%
Gujarat	Anand	108	5%	92%	87%	87%	90%	6	0.3%	211	10%	1714	90%	1832	96%	1429	90%	1040	41%
Gujarat	Banas Kantha	116	4%	92%	86%	88%	92%	22	0.8%	223	8%	2041	84%	2371	97%	1344	69%	1736	54%
Gujarat	Bharuch	66	4%	93%	89%	89%	96%	2	0.1%	58	4%	1146	87%	1310	100%	1325	86%	888	54%
Gujarat	Bhavnagar	155	6%	92%	88%	88%	94%	43	1.9%	94	4%	1942	93%	2069	99%	1567	90%	1397	55%
Gujarat	Chhota Udepur	41	4%	93%	90%	90%	95%	8	0.9%	37	4%	734	81%	910	100%	627	83%	748	67%
Gujarat	Dahod *	259	11%	94%	88%	89%	94%	34	1.3%	127	5%	1933	86%	2216	99%	1759	89%	1582	54%
Gujarat	Gandhinagar	91	7%	92%	89%	89%	96%	0	0.0%	50	4%	1063	91%	1130	96%	887	94%	576	38%
Gujarat	Jamnagar	205	11%	91%	87%	87%	95%	14	0.8%	80	5%	1485	93%	1546	97%	1068	84%	789	39%
Gujarat	Junagadh	126	6%	92%	86%	86%	96%	7	0.3%	75	4%	1878	95%	1980	100%	1423	89%	740	33%
Gujarat	Kachchh	55	4%	88%	85%	85%	95%	0	0.0%	68	5%	1137	92%	1131	92%	835	84%	816	55%
Gujarat	Kheda	96	4%	91%	87%	87%	92%	25	1.0%	192	7%	1855	87%	1986	93%	1444	86%	1491	60%
Gujarat	Mahesana	79	4%	93%	87%	87%	94%	12	0.6%	103	5%	1385	85%	1611	99%	1189	88%	684	35%
Gujarat	Narmada	38	6%	96%			97%	0	0.0%	16	3%	463	89%	523	100%	0	#DIV/0!	548	79%
Gujarat	Navsari	107	8%	92%	87%	87%	92%	22	1.9%	75	6%	1000	92%	1083	100%	896	96%	888	63%
Gujarat	Panch Mahals	91	3%	95%	91%	91%	94%	0	0.0%	197	6%	2669	91%	2916	100%	2287	89%	1847	56%
Gujarat	Patan	73	6%	91%	87%	87%	88%	33	2.6%	113	9%	920	86%	1043	98%	747	85%	451	34%
Gujarat	Pobandar	106	16%	93%	94%	94%	98%	2	0.5%	7	2%	397	95%	409	98%	342	94%	178	26%
Gujarat	Rajkot	202	7%	91%	86%	86%	93%	32	1.2%	158	6%	2393	94%	2540	100%	1822	91%	1092	35%
Gujarat	Sabar Kantha	136	5%	91%	86%	88%	94%	2	0.1%	159	6%	1656	80%	1787	86%	1316	77%	1783	58%
Gujarat	Surat	93	5%	93%	88%	88%	93%	15	0.9%	103	6%	1365	89%	1521	99%	1053	87%	1246	64%
Gujarat	Surat Municipal Corp	426	10%	89%	86%	86%	92%	64	2.4%	149	6%	2462	90%	2724	100%	1988	95%	1147	26%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Gujarat	Surendranagar	17	11872	173	1859	16%	2087	122	964	56	70%	82%	210	356	23%	557	461	32%
Gujarat	The Dangs *	2	1791	212	181	10%	222	105	131	62	78%	85%	24	17	10%	50	42	24%
Gujarat	Vadodara	16	11623	181	1811	16%	2066	128	959	60	75%	79%	259	197	14%	651	494	34%
Gujarat	Vadodara Corp	15	9979	169	1857	19%	2140	145	904	61	77%	78%	257	329	22%	617	407	31%
Gujarat	Valsad *	16	11304	177	1185	10%	1761	110	909	57	71%	80%	223	247	18%	382	224	20%
Gujarat	Vyara(Surat)	12	5493	116	931	17%	1321	112	668	56	70%	77%	200	129	13%	324	242	27%
Haryana	Ambala	12	10583	228	1236	12%	1649	142	578	50	52%	66%	298	312	26%	461	336	37%
Haryana	Bhiwani	16	8177	125	1514	19%	2050	126	947	58	61%	78%	260	230	16%	613	546	37%
Haryana	Faridabad	14	12515	223	1551	12%	3935	281	1024	73	77%	48%	1109	1005	32%	797	487	32%
Haryana	Fatehabad	9	6464	175	986	15%	1318	143	575	62	66%	68%	265	115	12%	363	290	34%
Haryana	Gurgaon	11	9511	210	1518	16%	2052	181	729	64	68%	76%	234	562	37%	527	435	37%
Haryana	Hisar	18	10155	144	1923	19%	2199	125	883	50	53%	68%	410	237	15%	669	551	38%
Haryana	Jhajjar	10	4617	114	767	17%	1714	169	613	60	64%	65%	334	321	25%	446	366	37%
Haryana	Jind	14	8273	152	1250	15%	1944	143	750	55	58%	71%	306	294	22%	594	487	39%
Haryana	Kaithal **	11	4996	115	776	16%	1267	117	551	51	54%	73%	207	198	21%	311	263	32%
Haryana	Karnal	15	9930	170	1472	15%	2432	167	845	58	61%	58%	614	360	20%	613	464	35%
Haryana	Kurukshetra	9	6696	177	1049	16%	1335	141	548	58	61%	69%	250	214	21%	323	264	33%
Haryana	Mahendragarh	9	5565	150	825	15%	1241	134	442	48	50%	64%	246	182	21%	371	282	39%
Haryana	Mewat**	8	4467	146	954	21%	1495	196	513	67	71%	67%	252	210	22%	520	402	44%
Haryana	Palwal	11	2957	67	362	12%	758	68	217	20	21%	46%	251	84	15%	206	133	38%
Haryana	Panchkula	5	6505	303	732	11%	1023	191	400	74	78%	76%	123	266	34%	234	173	30%
Haryana	Panipat	11	7464	169	965	13%	2128	192	591	53	56%	46%	693	299	19%	545	265	31%
Haryana	Rewari	9	7351	210	778	11%	1547	177	422	48	51%	51%	411	279	25%	435	283	40%
Haryana	Rohtak	11	15673	364	2547	16%	2078	193	826	77	81%	74%	289	432	28%	531	429	34%
Haryana	Sirsa	13	8240	162	1307	16%	1768	139	796	63	66%	80%	204	226	18%	542	461	37%
Haryana	Sonipat	15	8877	152	1378	16%	2874	196	912	62	66%	56%	713	446	21%	727	491	35%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Gujarat	Surendranagar	90	6%	90%	87%	87%	94%	26	1.8%	55	4%	1187	90%	1300	99%	887	83%	571	35%
Gujarat	The Dangs *	13	8%	92%	87%	88%	95%	8	4.7%	1	1%	138	87%	158	100%	95	79%	156	81%
Gujarat	Vadodara	73	5%	92%	87%	87%	95%	8	0.6%	55	4%	1228	92%	1294	97%	911	88%	793	50%
Gujarat	Vadodara Corp	123	8%	92%	87%	87%	91%	6	0.5%	111	9%	1025	85%	1195	99%	892	91%	316	19%
Gujarat	Valsad *	85	6%	92%	87%	87%	96%	4	0.4%	43	4%	929	86%	1078	100%	733	81%	695	52%
Gujarat	Vyara(Surat)	50	5%	92%	86%	87%	94%	12	1.3%	45	5%	735	87%	833	99%	529	76%	844	81%
Haryana	Ambala	74	6%	93%	86%	87%	91%	0	0.0%	85	9%	754	90%	819	98%	494	85%	82	6%
Haryana	Bhiwani	95	7%	89%	85%	86%	89%	6	0.5%	137	11%	998	87%	1068	93%	603	86%	339	59%
Haryana	Faridabad	351	11%	89%	84%	84%	94%	0	0.0%	84	6%	1237	91%	1159	85%	824	77%	75	9%
Haryana	Fatehabad	70	7%	90%	85%	87%	93%	3	0.3%	63	7%	749	92%	782	96%	541	87%	314	30%
Haryana	Gurgaon	137	9%	88%	81%	82%	88%	2	0.2%	153	12%	842	79%	838	79%	532	79%	561	39%
Haryana	Hisar	59	4%	90%	85%	86%	94%	0	0.0%	98	6%	1205	92%	1253	96%	937	87%	422	24%
Haryana	Jhajjar	107	8%	92%	84%	84%	98%	0	0.0%	12	2%	586	96%	613	100%	496	95%	93	7%
Haryana	Jind	66	5%	93%	85%	85%	93%	20	1.7%	68	6%	938	86%	1026	94%	782	95%	613	42%
Haryana	Kaithal **	39	4%	90%	86%	86%	94%	0	0.0%	45	6%	701	92%	762	100%	601	91%	172	71%
Haryana	Karnal	117	6%	92%	87%	89%	98%	9	0.6%	24	2%	1135	94%	1040	86%	916	99%	560	28%
Haryana	Kurukshetra	43	4%	92%	88%	88%	94%	15	1.7%	38	4%	715	95%	688	91%	520	95%	325	35%
Haryana	Mahendragarh	65	7%	92%	85%	85%	96%	1	0.1%	30	4%	421	92%	425	93%	294	87%	112	17%
Haryana	Mewat**	79	8%	90%	82%	82%	88%	0	0.0%	106	12%	498	90%	553	100%	397	85%	146	16%
Haryana	Palwal	43	8%	89%			96%	0	0.0%	13	4%	207	95%	202	93%	0	0%	0	0%
Haryana	Panchkula	65	8%	90%	85%	86%	96%	0	0.0%	25	4%	493	92%	516	96%	306	92%	308	44%
Haryana	Panipat	114	7%	91%	86%	86%	89%	0	0.0%	104	11%	729	91%	724	91%	565	85%	461	27%
Haryana	Rewari	62	6%	93%	81%	82%	97%	0	0.0%	21	3%	606	93%	570	88%	405	89%	497	40%
Haryana	Rohtak	120	8%	89%	85%	85%	96%	0	0.0%	53	4%	968	83%	1076	93%	729	81%	70	97%
Haryana	Sirsa	67	5%	87%	80%	80%	90%	8	0.7%	109	9%	1001	88%	910	80%	702	85%	348	27%
Haryana	Sonipat	69	3%	92%	88%	90%	96%	0	0.0%	57	4%	1107	85%	1186	91%	655	82%	104	16%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Haryana	Yamunanagar	11	7329	163	975	13%	1434	128	628	56	59%	73%	230	262	23%	314	249	28%
Himachal Pradesh	Bilaspur-HP	4	3379	228	445	13%	711	192	294	79	84%	71%	118	93	18%	201	171	37%
Himachal Pradesh	Chamba	5	3827	191	617	16%	1113	222	428	85	90%	73%	160	219	27%	306	218	34%
Himachal Pradesh	Hamirpur-HP **	4	5388	301	522	10%	793	177	319	71	75%	71%	130	200	31%	144	114	26%
Himachal Pradesh	Kangra	15	10826	186	1512	14%	2590	178	910	63	66%	68%	432	753	36%	485	379	29%
Himachal Pradesh	Kinnaur *	1	969	265	108	11%	221	242	83	91	96%	78%	24	57	34%	51	26	24%
Himachal Pradesh	Kullu	4	4914	297	654	13%	1337	324	451	109	115%	65%	239	340	33%	306	181	29%
Himachal Pradesh	Lahul & Spiti *	0.4	404	279	13	3%	79	219	10	28	29%	27%	27	29	44%	13	8	44%
Himachal Pradesh	Mandi	10	9139	233	1117	12%	2111	215	808	82	87%	70%	341	439	28%	521	433	35%
Himachal Pradesh	Shimla	8	9508	303	1241	13%	1784	227	590	75	79%	65%	323	489	35%	381	237	29%
Himachal Pradesh	Sirmaur	5	4658	234	596	13%	1064	213	399	80	84%	71%	166	256	31%	243	167	30%
Himachal Pradesh	Solan	5	7958	366	905	11%	1242	229	458	84	89%	61%	294	224	23%	266	149	25%
Himachal Pradesh	Una	5	3596	185	445	12%	698	143	307	63	66%	72%	120	124	23%	147	124	29%
Jammu & Kashmir	Anantanag	15	9719	164	723	7%	977	66	658	44	47%	89%	85	139	16%	95	79	11%
Jammu & Kashmir	Badgam	8	5445	181	410	8%	569	76	426	57	60%	93%	34	84	15%	25	19	4%
Jammu & Kashmir	Baramula	15	8080	136	605	7%	845	57	507	34	36%	85%	89	167	22%	82	64	11%
Jammu & Kashmir	Doda	9	4901	140	475	10%	943	108	301	34	36%	61%	195	263	35%	184	152	34%
Jammu & Kashmir	Jammu	20	14830	186	2033	14%	2915	146	1019	51	54%	64%	578	632	28%	682	553	35%
Jammu & Kashmir	Kargil *	1	1175	201	37	3%	133	91	29	20	21%	31%	65	27	22%	12	7	19%
Jammu & Kashmir	Kathua	7	4736	171	618	13%	1143	166	416	60	63%	59%	287	172	20%	268	185	31%
Jammu & Kashmir	Kupwara	8	6608	203	474	7%	788	97	494	61	64%	84%	96	140	19%	58	48	9%
Jammu & Kashmir	Leh *	1	1615	270	66	4%	219	147	52	35	37%	49%	55	92	46%	20	14	21%
Jammu & Kashmir	Poonch	5	2371	126	240	10%	533	113	193	41	43%	61%	122	133	30%	85	49	20%
Jammu & Kashmir	Pulwama	8	4861	151	429	9%	718	89	430	54	56%	76%	138	115	17%	35	27	6%
Jammu & Kashmir	Rajouri	6	4187	172	344	8%	751	124	235	39	41%	61%	152	246	39%	118	108	31%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Haryana	Yamunanagar	43	4%	88%	84%	84%	95%	15	1.6%	36	4%	577	71%	658	81%	494	79%	442	40%
Himachal Pradesh	Bilaspur-HP	21	4%	88%	87%	88%	96%	4	1.0%	13	3%	368	118%	378	99%	282	111%	38	20%
Himachal Pradesh	Chamba	38	5%	92%	84%	86%	96%	12	2.0%	11	2%	522	90%	523	90%	352	77%	62	30%
Himachal Pradesh	Hamirpur-HP **	5	1%	92%	87%	87%	90%	4	0.9%	41	9%	360	97%	327	88%	286	94%	51	18%
Himachal Pradesh	Kangra	122	6%	92%	87%	88%	87%	8	0.6%	94	7%	1117	94%	1023	86%	715	71%	282	14%
Himachal Pradesh	Kinnaur *	8	5%	87%	87%	89%	93%	1	1.0%	4	4%	102	99%	102	99%	88	85%	21	16%
Himachal Pradesh	Kullu	76	7%	93%	89%	90%	85%	1	0.2%	89	14%	549	95%	566	98%	467	92%	99	8%
Himachal Pradesh	Lahul & Spiti *	9	14%	100%	95%	95%	100%	0	0.0%	0	0%	12	100%	7	100%	13	100%	18	95%
Himachal Pradesh	Mandi	41	3%	94%	87%	90%	95%	3	0.3%	49	5%	1079	95%	1123	99%	853	96%	144	9%
Himachal Pradesh	Shimla	72	5%	98%	91%	94%	77%	19	2.1%	190	21%	687	89%	658	85%	640	92%	45	6%
Himachal Pradesh	Sirmaur	63	8%	91%	87%	90%	92%	13	2.3%	32	6%	489	96%	499	97%	281	88%	246	36%
Himachal Pradesh	Solan	75	8%	90%	89%	89%	88%	20	3.0%	58	9%	571	98%	577	99%	471	98%	101	12%
Himachal Pradesh	Una	13	2%	92%	90%	91%	96%	0	0.0%	17	4%	394	98%	400	100%	291	99%	94	17%
Jammu & Kashmir	Anantanag	75	9%	92%	88%	90%	100%	0	0.0%	0	0%	672	98%	672	98%	507	98%	151	21%
Jammu & Kashmir	Badgam	23	4%	94%	88%	88%	100%	0	0.0%	2	1%	438	100%	427	97%	370	99%	114	36%
Jammu & Kashmir	Baramula	60	8%	98%	96%	96%	97%	0	0.0%	17	3%	546	98%	554	100%	328	73%	65	13%
Jammu & Kashmir	Doda	70	9%	92%	84%	88%	94%	6	1.3%	19	4%	415	100%	412	99%	316	86%	81	21%
Jammu & Kashmir	Jammu	86	4%	91%	89%	90%	91%	0	0.0%	141	9%	1280	90%	1285	91%	1111	97%	240	17%
Jammu & Kashmir	Kargil *	21	17%	92%	95%	95%	100%	0	0.0%	0	0%	31	100%	31	100%	23	100%	7	19%
Jammu & Kashmir	Kathua	22	3%	91%	83%	87%	93%	0	0.0%	43	7%	539	96%	538	96%	389	95%	88	100%
Jammu & Kashmir	Kupwara	27	4%	93%	93%	93%	100%	0	0.0%	0	0%	522	100%	522	100%	396	99%	100	42%
Jammu & Kashmir	Leh *	4	2%	82%	87%	87%	100%	0	0.0%	0	0%	66	100%	66	100%	35	90%	29	16%
Jammu & Kashmir	Poonch	23	5%	90%	87%	90%	100%	0	0.0%	1	0%	228	100%	228	100%	168	80%	43	90%
Jammu & Kashmir	Pulwama	36	5%	94%	89%	89%	100%	0	0.0%	0	0%	455	100%	455	100%	348	92%	190	33%
Jammu & Kashmir	Rajouri	34	5%	82%	78%	86%	95%	0	0.0%	16	5%	284	93%	216	70%	178	93%	57	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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treatment	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Jammu & Kashmir	Srinagar	16	10588	168	907	9%	1460	93	788	50	53%	87%	115	456	34%	101	74	9%
Jammu & Kashmir	Udhampur	9	6287	168	681	11%	1170	125	453	48	51%	74%	157	309	34%	251	218	32%
Jharkhand	Bokaro	20	10578	132	1347	13%	2939	146	1102	55	73%	54%	939	424	17%	474	253	19%
Jharkhand	Chatra **	9	2736	77	524	19%	943	106	520	58	78%	62%	318	28	3%	73	37	7%
Jharkhand	Deoghar **	13	7198	137	945	13%	1254	96	734	56	75%	73%	276	70	6%	174	125	15%
Jharkhand	Dhanbad	27	13385	124	1996	15%	3320	123	1607	59	79%	63%	945	245	9%	523	268	14%
Jharkhand	Dumka **	12	6222	125	915	15%	2345	188	742	60	79%	41%	1081	49	3%	473	135	15%
Jharkhand	Garhwa	12	5532	118	820	15%	1832	157	686	59	78%	47%	774	109	7%	263	78	10%
Jharkhand	Giridih **	21	9292	108	1461	16%	2201	102	1121	52	70%	65%	597	111	6%	372	281	20%
Jharkhand	Godda **	12	3582	76	645	18%	1100	93	480	41	54%	53%	428	34	4%	157	75	14%
Jharkhand	Gumla †	9	3956	106	657	17%	909	98	510	55	73%	68%	240	21	3%	123	47	8%
Jharkhand	Hazaribagh **	26	11082	108	1454	13%	2845	111	1207	47	63%	56%	933	297	12%	408	197	14%
Jharkhand	Jamtara **	7	3619	123	552	15%	920	125	438	59	79%	66%	221	27	4%	234	99	18%
Jharkhand	Kodarma **	6	2524	112	348	14%	459	81	261	46	62%	75%	85	17	5%	96	35	12%
Jharkhand	Lathehar **	7	3513	134	470	13%	827	126	378	58	77%	58%	275	44	6%	124	87	19%
Jharkhand	Lohardaga *	4	1727	105	252	15%	426	103	190	46	62%	67%	95	78	21%	63	34	15%
Jharkhand	Pakaur **	8	3814	120	695	18%	991	125	559	70	94%	72%	214	27	3%	191	100	15%
Jharkhand	Palamu **	17	11163	163	1551	14%	2905	170	1217	71	95%	51%	1148	251	10%	284	207	15%
Jharkhand	Pashchimi Singhbhum *	15	5295	90	1109	21%	2281	155	980	67	89%	50%	967	108	5%	226	108	10%
Jharkhand	Purbi Singhbhum †	22	10148	113	1973	19%	3114	139	1410	63	84%	63%	833	289	11%	561	293	17%
Jharkhand	Ranchi †	31	15695	125	2335	15%	4553	145	1751	56	74%	57%	1328	823	21%	651	309	15%
Jharkhand	Sahibganj **	10	4755	113	580	12%	1623	155	482	46	61%	36%	851	44	3%	221	89	16%
Jharkhand	Saraikela-Kharsawan **	9	4549	129	604	13%	1142	130	526	60	80%	56%	412	83	8%	121	55	9%
Jharkhand	Simdega **	6	2499	106	425	17%	640	109	372	63	84%	73%	138	46	8%	84	66	15%

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

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Jammu & Kashmir	Srinagar	77	6%	93%	91%	91%	99%	0	0.0%	9	1%	846	100%	846	100%	646	91%	107	100%
Jammu & Kashmir	Udhampur	43	5%	92%	87%	90%	96%	0	0.0%	29	4%	520	95%	550	100%	412	95%	83	24%
Jharkhand	Bokaro	128	5%	92%	87%	88%	93%	1	0.1%	90	7%	1256	97%	1297	100%	859	83%	1880	76%
Jharkhand	Chatra **	37	4%	93%	84%	85%	97%	0	0.0%	17	3%	466	93%	470	94%	400	90%	109	18%
Jharkhand	Deoghar **	40	4%	95%	92%	94%	99%	1	0.1%	10	1%	645	84%	769	100%	561	80%	845	75%
Jharkhand	Dhanbad	222	8%	92%	87%	89%	96%	0	0.0%	88	4%	1569	85%	1792	98%	1073	76%	1053	50%
Jharkhand	Dumka **	46	2%	94%	91%	92%	95%	2	0.2%	45	5%	717	85%	843	100%	766	85%	528	29%
Jharkhand	Garhwa	114	7%	95%	90%	95%	100%	0	0.0%	0	0%	622	85%	730	100%	516	74%	16	2%
Jharkhand	Giridih **	114	6%	92%	85%	93%	95%	0	0.0%	67	5%	1242	93%	1018	76%	771	76%	1155	64%
Jharkhand	Godda **	37	4%	75%	60%	94%	95%	12	1.9%	17	3%	482	82%	567	97%	133	44%	331	59%
Jharkhand	Gumla †	29	4%	92%	85%	89%	83%	0	0.0%	107	17%	403	74%	543	100%	287	70%	322	45%
Jharkhand	Hazaribagh **	231	9%	80%	74%	87%	97%	0	0.0%	41	3%	1320	95%	1386	100%	800	67%	816	39%
Jharkhand	Jamtara **	18	3%	94%	89%	90%	98%	0	0.0%	12	2%	470	92%	513	100%	365	79%	315	41%
Jharkhand	Kodarma **	11	3%	85%	68%	70%	95%	0	0.0%	19	5%	252	94%	263	99%	101	75%	178	48%
Jharkhand	Lathehar **	66	9%	88%	86%	89%	98%	0	0.0%	10	2%	321	85%	374	99%	260	70%	52	8%
Jharkhand	Lohardaga *	22	6%	90%	88%	89%	92%	0	0.0%	20	8%	171	79%	198	92%	122	72%	330	99%
Jharkhand	Pakaur **	22	3%	92%	86%	88%	91%	0	0.0%	60	9%	379	60%	636	100%	218	51%	702	87%
Jharkhand	Palamu **	239	9%	94%	90%	93%	99%	0	0.0%	9	1%	1288	93%	1384	100%	940	84%	685	30%
Jharkhand	Pashchimi Singhbhum *	62	3%	93%	80%	85%	83%	0	0.0%	183	17%	721	68%	1022	96%	309	40%	410	32%
Jharkhand	Purbi Singhbhum †	129	5%	91%	87%	89%	94%	0	0.0%	110	6%	1483	90%	1627	99%	1088	87%	527	21%
Jharkhand	Ranchi †	518	13%	91%	84%	89%	95%	11	0.5%	100	5%	1796	90%	1993	100%	1211	82%	732	21%
Jharkhand	Sahibganj **	96	7%	86%	85%	90%	94%	0	0.0%	35	6%	395	71%	495	100%	93	25%	538	43%
Jharkhand	Saraikela-Kharsawan **	31	3%	94%	86%	88%	93%	0	0.0%	42	7%	480	83%	574	99%	314	69%	401	39%
Jharkhand	Simdega **	13	2%	85%	82%	83%	94%	0	0.0%	27	6%	343	80%	414	97%	133	50%	213	42%

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

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Karnataka	Bagalkot	18	13577	187	1298	10%	2161	119	857	47	63%	58%	618	281	16%	405	277	24%
Karnataka	Bangalore City	46	45397	247	5818	13%	6129	134	1974	43	57%	66%	1013	1779	37%	1357	955	33%
Karnataka	Bangalore Rural	9	7839	216	591	8%	1080	119	461	51	68%	68%	219	246	27%	154	119	21%
Karnataka	Bangalore U	26	15436	149	1424	9%	3980	154	1397	54	72%	71%	576	1194	38%	810	571	29%
Karnataka	Belgaum	46	29616	160	2469	8%	4919	106	2017	44	58%	58%	1472	719	17%	708	355	15%
Karnataka	Bellary	22	15573	175	2258	14%	2908	131	1162	52	70%	62%	706	472	20%	568	452	28%
Karnataka	Bidar **	17	10190	154	1002	10%	1706	103	621	38	50%	57%	465	193	15%	427	308	33%
Karnataka	Bijapur	20	11416	143	1054	9%	2308	116	581	29	39%	35%	1103	201	11%	396	260	31%
Karnataka	Chamarajanagar	11	8352	197	740	9%	1490	140	582	55	73%	65%	312	295	25%	295	225	28%
Karnataka	Chikkaballapur	13	8411	168	808	10%	1634	131	694	55	74%	64%	392	327	23%	221	160	19%
Karnataka	Chikmagalur	13	10346	206	647	6%	1063	85	416	33	44%	67%	204	261	30%	182	137	25%
Karnataka	Chitradurga	17	11070	167	1329	12%	2336	141	1055	64	85%	65%	562	350	18%	368	206	16%
Karnataka	Dakshina Kannada	21	17319	208	1446	8%	1981	95	840	40	54%	73%	306	370	24%	460	296	26%
Karnataka	Davanagere	20	15682	199	1657	11%	2268	115	892	45	60%	60%	590	336	18%	450	293	25%
Karnataka	Dharwad	18	11339	161	1381	12%	1802	102	687	39	52%	73%	258	536	36%	321	249	27%
Karnataka	Gadag	11	8496	199	776	9%	1042	97	509	48	63%	78%	147	168	20%	218	162	24%
Karnataka	Gulbarga **	34	18640	136	2199	12%	3888	113	1347	39	52%	58%	980	470	17%	1078	726	35%
Karnataka	Hassan	19	16952	224	1136	7%	1849	98	766	40	54%	72%	294	427	29%	362	259	25%
Karnataka	Haveri	16	10976	173	978	9%	1630	103	721	46	61%	68%	335	283	21%	289	219	23%
Karnataka	Kodagu	6	5020	209	289	6%	407	68	204	34	45%	82%	44	96	28%	63	49	19%
Karnataka	Kolar	15	11969	196	1135	9%	1541	101	670	44	59%	72%	258	357	28%	256	204	23%
Karnataka	Koppal	13	8364	159	1241	15%	1717	131	844	64	86%	71%	353	165	12%	353	264	24%
Karnataka	Mandya	19	20165	260	1326	7%	2099	108	939	48	65%	78%	264	451	27%	444	335	26%
Karnataka	Mysore	29	30862	267	2939	10%	4021	139	1486	51	69%	66%	772	982	30%	781	569	28%
Karnataka	Raichur	18	13127	181	2105	16%	2830	156	1197	66	88%	63%	705	246	11%	681	445	27%

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

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Karnataka	Bagalkot	91	5%	81%	73%	75%	89%	4	0.3%	126	10%	810	75%	1006	94%	548	79%	207	12%
Karnataka	Bangalore City	373	8%	86%	74%	76%	90%	11	0.3%	359	9%	2267	84%	2707	100%	1382	84%	869	19%
Karnataka	Bangalore Rural	45	5%	88%	79%	80%	92%	17	3.1%	25	5%	480	87%	522	94%	288	81%	325	57%
Karnataka	Bangalore U	243	8%	88%	81%	82%	96%	5	0.4%	45	4%	1544	84%	1841	100%	1013	81%	1530	75%
Karnataka	Belgaum	574	14%	91%	84%	85%	94%	3	0.1%	149	6%	2062	90%	2249	98%	1401	82%	1112	30%
Karnataka	Bellary	144	6%	89%	80%	82%	84%	1	0.1%	305	16%	1186	79%	1287	85%	756	74%	780	36%
Karnataka	Bidar **	63	5%	88%	76%	80%	96%	1	0.1%	41	4%	720	84%	608	71%	337	67%	12	12%
Karnataka	Bijapur	197	10%	75%	63%	70%	90%	0	0.0%	99	10%	549	71%	698	91%	241	51%	5	100%
Karnataka	Chamarajanagar	64	5%	86%	78%	80%	92%	8	1.1%	48	7%	665	88%	729	97%	447	82%	523	46%
Karnataka	Chikkaballapur	63	4%	89%	82%	83%	94%	2	0.3%	46	6%	632	78%	797	98%	323	63%	396	48%
Karnataka	Chikmagalur	55	6%	86%	83%	84%	98%	1	0.2%	12	2%	452	87%	510	98%	318	75%	51	82%
Karnataka	Chitradurga	85	4%	89%	82%	83%	93%	10	0.8%	81	6%	1003	83%	1135	93%	577	69%	629	75%
Karnataka	Dakshina Kannada	77	5%	85%	80%	82%	86%	33	2.6%	147	12%	966	91%	1012	95%	536	72%	715	47%
Karnataka	Davanagere	65	4%	89%	79%	80%	88%	14	1.0%	149	11%	939	83%	1054	93%	530	64%	973	55%
Karnataka	Dharwad	87	6%	87%	80%	82%	89%	19	1.7%	105	10%	737	84%	861	98%	428	65%	556	41%
Karnataka	Gadag	29	4%	89%	83%	83%	92%	11	1.6%	44	7%	512	81%	627	100%	359	74%	122	15%
Karnataka	Gulbarga **	173	6%	80%	69%	71%	91%	2	0.1%	184	9%	1233	65%	1609	85%	658	57%	844	34%
Karnataka	Hassan	77	5%	90%	84%	87%	93%	13	1.2%	60	6%	844	87%	889	91%	661	88%	656	46%
Karnataka	Haveri	79	6%	85%	80%	82%	85%	33	3.5%	106	11%	520	58%	808	91%	322	58%	637	48%
Karnataka	Kodagu	15	4%	86%	83%	84%	88%	1	0.4%	29	12%	205	84%	243	100%	146	87%	185	57%
Karnataka	Kolar	74	6%	88%	80%	83%	92%	0	0.0%	71	8%	683	85%	789	98%	546	80%	535	44%
Karnataka	Koppal	105	8%	85%	85%	86%	90%	21	1.8%	93	8%	882	84%	1023	97%	797	89%	787	59%
Karnataka	Mandya	83	5%	91%	83%	83%	93%	5	0.4%	83	7%	998	84%	1128	94%	845	92%	608	35%
Karnataka	Mysore	217	7%	88%	79%	83%	92%	3	0.1%	189	8%	1664	87%	1804	95%	949	73%	1074	34%
Karnataka	Raichur	163	8%	85%	80%	83%	88%	0	0.0%	234	12%	1244	78%	1112	70%	931	76%	638	28%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treatment	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Karnataka	Ramanagara	12	7561	163	634	8%	1315	114	524	45	60%	70%	221	321	30%	249	176	25%
Karnataka	Shimoga	18	13523	187	1122	8%	1859	103	799	44	59%	62%	498	332	20%	240	181	18%
Karnataka	Tumkur	28	21093	186	2139	10%	3302	116	1422	50	67%	69%	649	702	25%	527	335	19%
Karnataka	Udupi	12	11317	232	785	7%	1082	89	476	39	52%	72%	183	214	25%	209	155	25%
Karnataka	Uttara Kannada	15	12222	205	642	5%	1397	94	474	32	42%	53%	422	233	21%	266	158	25%
Kerala	Alappuzha	23	22892	250	956	4%	1791	78	760	33	67%	60%	513	300	19%	218	173	19%
Kerala	Ernakulam	34	29898	222	1723	6%	2825	84	1193	35	71%	64%	684	490	21%	458	353	23%
Kerala	Idukki	12	18203	372	378	2%	747	61	343	28	56%	74%	119	200	30%	85	71	17%
Kerala	Kannur	26	22631	216	1084	5%	1815	69	718	27	55%	69%	317	546	34%	232	184	20%
Kerala	Kasaragod	13	9727	186	522	5%	947	73	426	33	65%	75%	140	213	27%	165	142	25%
Kerala	Kollam	28	19639	175	1226	6%	2245	80	1061	38	76%	67%	515	429	21%	235	177	14%
Kerala	Kottayam	21	25401	300	1219	5%	1815	86	860	41	81%	74%	308	432	27%	215	178	17%
Kerala	Kozhikode	31	26018	208	1325	5%	2708	87	966	31	62%	56%	758	716	29%	268	205	18%
Kerala	Malappuram	39	27142	172	1151	4%	2530	64	942	24	48%	58%	672	637	28%	272	207	18%
Kerala	Palakkad	28	19927	175	1391	7%	2425	85	1128	40	79%	73%	415	581	27%	292	234	17%
Kerala	Pathanamthitta	13	9553	179	638	7%	1024	77	536	40	80%	82%	114	251	28%	123	72	12%
Kerala	Thiruvananthapuram	35	41062	292	1796	4%	2998	85	1288	37	73%	68%	605	670	26%	430	314	20%
Kerala	Thrissur	32	27240	211	1767	6%	2434	75	1082	34	67%	71%	433	609	29%	310	236	18%
Kerala	Wayanad	9	7526	220	329	4%	715	84	289	34	68%	58%	207	164	25%	54	42	13%
Lakshadweep	Lakshadweep *	1	223	80	8	4%	24	34	10	14	19%	50%	10	4	17%	0	0	0%
Madhya Pradesh	Balaghat **	17	3340	49	760	23%	1305	77	664	39	49%	66%	336	111	10%	194	120	15%
Madhya Pradesh	Barwani †	13	5657	112	756	13%	1011	80	483	38	48%	67%	242	107	13%	179	148	23%
Madhya Pradesh	Betul **	16	7478	115	745	10%	1119	69	469	29	36%	59%	320	171	18%	159	130	22%
Madhya Pradesh	Bhind	17	6969	105	870	12%	1601	96	482	29	36%	41%	692	155	12%	272	229	32%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Karnataka	Ramanagara	48	5%	84%	71%	76%	97%	0	0.0%	18	3%	551	83%	581	88%	402	90%	580	53%
Karnataka	Shimoga	84	5%	90%	82%	83%	96%	2	0.2%	39	4%	824	89%	904	98%	502	75%	106	15%
Karnataka	Tumkur	153	6%	84%	78%	82%	91%	26	1.4%	145	8%	1441	86%	1603	96%	1121	91%	1653	65%
Karnataka	Udupi	66	8%	81%	83%	83%	89%	9	1.3%	66	10%	562	96%	579	99%	447	93%	718	72%
Karnataka	Uttara Kannada	88	8%	81%	79%	80%	94%	3	0.5%	36	6%	520	88%	588	99%	365	79%	434	39%
Kerala	Alappuzha	309	20%	83%	84%	85%	97%	6	0.6%	23	2%	866	94%	854	93%	591	82%	1062	78%
Kerala	Ernakulam	272	11%	81%	80%	82%	92%	11	0.7%	120	7%	1291	90%	1348	93%	872	86%	1201	46%
Kerala	Idukki	55	8%	83%	82%	83%	97%	1	0.3%	9	2%	351	127%	379	136%	218	103%	443	152%
Kerala	Kannur	164	10%	83%	82%	83%	88%	20	2.0%	103	10%	751	89%	803	95%	565	88%	559	52%
Kerala	Kasaragod	50	6%	80%	80%	81%	93%	3	0.6%	31	6%	489	94%	479	91%	327	84%	526	75%
Kerala	Kollam	139	7%	86%	85%	86%	97%	6	0.5%	30	3%	1139	95%	1138	95%	836	88%	597	40%
Kerala	Kottayam	172	11%	83%	82%	84%	96%	14	1.3%	35	3%	869	93%	827	87%	611	85%	458	35%
Kerala	Kozhikode	499	20%	81%	80%	83%	85%	1	0.1%	185	15%	963	86%	1058	95%	701	87%	1288	64%
Kerala	Malappuram	399	18%	84%	81%	84%	97%	3	0.3%	31	3%	858	79%	908	83%	567	86%	1186	61%
Kerala	Palakkad	207	10%	83%	80%	82%	94%	22	1.7%	55	4%	1138	87%	1109	69%	957	74%	996	72%
Kerala	Pathanamthitta	39	4%	85%	82%	83%	97%	1	0.2%	16	3%	529	90%	574	97%	294	64%	267	48%
Kerala	Thiruvananthapuram	326	13%	80%	80%	82%	95%	5	0.3%	81	5%	1397	91%	1268	82%	849	69%	1037	46%
Kerala	Thrissur	318	15%	86%	84%	84%	92%	26	1.7%	104	7%	1097	85%	1070	83%	811	74%	1126	61%
Kerala	Wayanad	151	23%	84%	82%	82%	98%	0	0.0%	6	2%	281	90%	292	94%	131	82%	236	54%
Lakshadweep	Lakshadweep *	6	25%	70%	100%	100%	113%	0	0.0%	0	0%	7	100%	7	100%	5	100%	2	18%
Madhya Pradesh	Balaghat **	67	6%	89%	86%	89%	92%	0	0.0%	56	8%	605	80%	760	100%	315	58%	541	54%
Madhya Pradesh	Barwani †	45	5%	87%	79%	88%	92%	3	0.5%	50	8%	541	91%	591	100%	305	65%	349	44%
Madhya Pradesh	Betul **	130	14%	90%	85%	86%	85%	27	4.0%	75	11%	476	88%	548	99%	317	86%	247	43%
Madhya Pradesh	Bhind	46	3%	87%	81%	85%	85%	19	2.2%	108	13%	507	87%	543	93%	345	80%	954	73%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Madhya Pradesh	Bhopal	21	22646	264	3027	13%	4445	207	1204	56	70%	44%	1554	558	17%	1129	554	32%
Madhya Pradesh	Chhatarpur **	17	10183	148	1798	18%	1697	99	860	50	62%	65%	470	60	4%	307	250	23%
Madhya Pradesh	Chhindwara **	22	6807	79	1163	17%	1622	75	724	34	42%	66%	367	232	18%	299	267	27%
Madhya Pradesh	Damoh **	13	6616	131	1276	19%	1881	149	815	65	81%	66%	425	212	15%	428	352	30%
Madhya Pradesh	Datia	7	3429	117	722	21%	1288	176	437	60	75%	48%	477	82	8%	292	189	30%
Madhya Pradesh	Dewas	15	5612	92	655	12%	1486	97	553	36	45%	49%	587	197	15%	149	101	15%
Madhya Pradesh	Dhar †	20	9508	117	1217	13%	2206	109	907	45	56%	55%	757	222	12%	320	256	22%
Madhya Pradesh	Dindori †	7	2882	107	305	11%	552	82	240	35	44%	61%	153	76	16%	83	65	21%
Madhya Pradesh	Guna	19	7468	96	1115	15%	1836	94	719	37	46%	53%	629	159	11%	329	243	25%
Madhya Pradesh	Gwalior	19	15094	198	2524	17%	2855	150	1029	54	68%	66%	527	418	21%	881	752	42%
Madhya Pradesh	Harda **	6	1962	89	241	12%	428	77	172	31	39%	60%	115	58	17%	83	74	30%
Madhya Pradesh	Hoshangabad **	13	7641	151	1022	13%	2004	158	729	58	72%	51%	698	260	15%	317	234	24%
Madhya Pradesh	Indore	30	24860	206	3093	12%	4443	147	1734	57	72%	68%	823	902	26%	984	684	28%
Madhya Pradesh	Jabalpur	25	9585	95	2034	21%	3344	132	1239	49	61%	69%	563	802	31%	731	481	28%
Madhya Pradesh	Jhabua †	16	6823	105	997	15%	1694	104	698	43	54%	56%	558	100	7%	334	264	27%
Madhya Pradesh	Katni	12	4281	86	1037	24%	1788	144	780	63	79%	52%	717	112	7%	179	179	19%
Madhya Pradesh	Khandwa **	20	7677	96	1230	16%	2199	110	898	45	56%	53%	806	206	11%	289	223	20%
Madhya Pradesh	Khargone **	18	7144	100	1051	15%	2372	133	782	44	55%	44%	989	371	17%	230	188	19%
Madhya Pradesh	Mandla †	10	4034	97	850	21%	1350	129	635	61	76%	61%	414	142	12%	159	139	18%
Madhya Pradesh	Mandsaur	14	6054	110	1036	17%	1997	145	654	47	59%	51%	631	222	15%	490	375	36%
Madhya Pradesh	Morena	19	6707	90	1143	17%	1974	107	577	31	39%	58%	419	235	19%	743	463	45%
Madhya Pradesh	Narsinghpur **	11	4801	107	588	12%	1243	111	443	40	50%	55%	356	197	20%	244	162	27%
Madhya Pradesh	Neemuch	8	5807	171	621	11%	1239	146	450	53	66%	53%	403	120	12%	266	198	31%
Madhya Pradesh	Panna **	10	2389	60	717	30%	1087	109	467	47	59%	71%	188	88	12%	344	201	30%
Madhya Pradesh	Raisen **	13	2952	56	485	16%	1379	105	342	26	33%	37%	590	101	10%	341	155	31%

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

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Madhya Pradesh	Bhopal	262	8%	80%	79%	79%	75%	26	1.1%	558	24%	1502	93%	1569	97%	1012	94%	1266	38%
Madhya Pradesh	Chhatarpur **	10	1%	93%	84%	89%	96%	15	1.1%	37	3%	732	71%	629	61%	1365	175%	241	16%
Madhya Pradesh	Chhindwara **	68	5%	89%	84%	86%	94%	7	0.7%	62	6%	831	90%	888	96%	403	57%	638	53%
Madhya Pradesh	Damoh **	54	4%	86%	83%	88%	91%	15	1.2%	92	8%	860	81%	889	83%	554	68%	409	28%
Madhya Pradesh	Datia	125	13%	91%	83%	86%	90%	42	6.1%	29	4%	457	97%	555	96%	236	59%	472	70%
Madhya Pradesh	Dewas	83	6%	91%	86%	87%	98%	0	0.0%	8	1%	579	93%	621	100%	371	70%	441	46%
Madhya Pradesh	Dhar †	44	2%	91%	85%	89%	100%	4	0.4%	0	0%	895	86%	971	94%	618	77%	288	83%
Madhya Pradesh	Dindori †	36	8%	88%	78%	78%	94%	0	0.0%	19	6%	229	80%	280	98%	102	52%	369	75%
Madhya Pradesh	Guna	42	3%	90%	83%	87%	97%	1	0.1%	27	3%	820	90%	898	99%	623	84%	666	47%
Madhya Pradesh	Gwalior	246	12%	91%	85%	86%	88%	91	4.6%	155	8%	942	69%	1072	79%	1078	92%	940	43%
Madhya Pradesh	Harda **	30	9%	81%	77%	83%	73%	1	0.5%	59	27%	191	89%	180	84%	49	30%	97	39%
Madhya Pradesh	Hoshangabad **	146	9%	94%	90%	92%	96%	0	0.0%	37	4%	782	87%	902	100%	682	91%	538	34%
Madhya Pradesh	Indore	422	12%	92%	87%	88%	97%	40	1.5%	31	1%	2136	95%	2215	98%	1484	28%	2250	66%
Madhya Pradesh	Jabalpur	295	11%	72%	62%	72%	84%	2	0.1%	302	16%	1193	74%	1457	90%	559	60%	1303	50%
Madhya Pradesh	Jhabua †	79	6%	93%	90%	93%	96%	0	0.0%	43	4%	786	90%	867	99%	596	75%	524	53%
Madhya Pradesh	Katni	93	6%	89%	83%	89%	97%	9	0.9%	20	2%	782	85%	884	96%	468	58%	963	66%
Madhya Pradesh	Khandwa **	84	4%	91%	87%	90%	92%	0	0.0%	101	8%	878	88%	988	99%	644	81%	788	47%
Madhya Pradesh	Khargone **	199	9%	91%	88%	89%	97%	0	0.0%	33	3%	791	86%	922	100%	552	80%	524	30%
Madhya Pradesh	Mandla †	89	7%	94%	89%	90%	90%	1	0.1%	80	10%	622	84%	722	97%	468	73%	716	58%
Madhya Pradesh	Mandsaur	125	8%	86%	82%	92%	97%	0	0.0%	33	3%	794	84%	945	100%	593	79%	239	15%
Madhya Pradesh	Morena	123	10%	88%	80%	82%	82%	7	0.6%	194	17%	703	76%	877	95%	387	57%	1188	75%
Madhya Pradesh	Narsinghpur **	91	9%	88%	79%	80%	96%	0	0.0%	24	4%	413	72%	546	95%	221	62%	746	71%
Madhya Pradesh	Neemuch	50	5%	93%	86%	89%	92%	15	2.5%	32	5%	576	95%	523	87%	401	77%	317	31%
Madhya Pradesh	Panna **	25	3%	86%	79%	85%	91%	23	3.3%	39	6%	576	92%	544	87%	402	84%	61	13%
Madhya Pradesh	Raisen **	22	2%	88%	77%	87%	52%	0	0.0%	229	48%	273	58%	464	99%	161	49%	93	14%

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

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Madhya Pradesh	Rajgarh	15	4128	71	719	17%	1741	119	469	32	40%	40%	710	121	9%	441	158	25%
Madhya Pradesh	Ratlam	14	4817	85	835	17%	1858	131	466	33	41%	40%	704	192	14%	496	277	37%
Madhya Pradesh	Rewa	23	11335	123	1431	13%	3399	148	1048	46	57%	48%	1135	730	25%	484	267	20%
Madhya Pradesh	Sagar **	24	9343	99	1747	19%	2866	121	1210	51	64%	56%	934	249	10%	473	424	26%
Madhya Pradesh	Satna	22	6860	79	1354	20%	3243	149	1073	49	61%	42%	1455	357	12%	358	150	12%
Madhya Pradesh	Sehore **	13	4081	81	440	11%	1119	89	356	28	35%	40%	532	99	10%	132	61	15%
Madhya Pradesh	Seoni **	14	2529	46	570	23%	992	73	392	29	36%	62%	236	140	18%	224	150	28%
Madhya Pradesh	Shahdol	18	6322	86	1012	16%	1744	95	782	43	53%	55%	640	116	8%	199	88	10%
Madhya Pradesh	Shajapur	15	5039	84	844	17%	1313	87	569	38	47%	72%	220	150	16%	374	284	33%
Madhya Pradesh	Sheopur	7	2951	113	787	27%	916	140	489	75	94%	71%	200	52	7%	174	149	23%
Madhya Pradesh	Shivpuri	17	7038	105	1148	16%	2175	129	933	55	69%	51%	881	49	3%	312	157	14%
Madhya Pradesh	Sidhi	21	9098	106	1156	13%	2311	108	838	39	49%	55%	675	332	18%	466	227	21%
Madhya Pradesh	Tikamgarh **	14	3060	54	504	16%	944	67	388	28	35%	51%	377	70	8%	107	93	19%
Madhya Pradesh	Ujjain	20	7646	96	1744	23%	2319	116	823	41	52%	57%	631	363	20%	502	411	33%
Madhya Pradesh	Umaria	6	1393	58	245	18%	531	88	186	31	39%	51%	182	70	16%	93	51	22%
Madhya Pradesh	Vidisha **	14	5316	94	805	15%	2360	166	599	42	53%	36%	1058	212	11%	491	272	31%
Maharashtra	Ahmadnagar	42	20131	121	1829	9%	3647	88	1668	40	50%	64%	926	541	17%	512	228	12%
Maharashtra	Ahmadnagar Mun Corp	4	1157	70	124	11%	166	40	46	11	14%	56%	36	41	33%	43	25	35%
Maharashtra	Akola	14	6469	117	861	13%	1498	108	610	44	55%	70%	267	269	23%	352	263	30%
Maharashtra	Akola Mun Corp	4	1204	69	238	20%	238	54	67	15	19%	66%	34	66	40%	71	46	41%
Maharashtra	Amravati Mun Corp	6	6834	278	550	8%	760	124	269	44	55%	70%	117	186	33%	188	125	32%
Maharashtra	Amravati Rural	23	14633	159	1316	9%	2420	105	832	36	45%	59%	572	452	24%	564	365	30%
Maharashtra	Aurangabad Muni Corp	10	6520	167	1076	17%	1175	120	508	52	65%	83%	105	339	36%	223	145	22%
Maharashtra	Aurangabad-MH**	23	9789	107	973	10%	1931	84	1107	48	60%	80%	273	237	15%	308	204	16%
Maharashtra	Bhandara	13	6862	135	724	11%	1218	96	458	36	45%	63%	264	189	21%	304	196	30%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Madhya Pradesh	Rajgarh	46	4%	87%	81%	82%	94%	0	0.0%	42	6%	530	95%	543	98%	338	69%	721	74%
Madhya Pradesh	Ratlam	60	4%	93%	84%	86%	91%	16	2.1%	49	6%	390	69%	581	88%	458	77%	65	9%
Madhya Pradesh	Rewa	249	9%	90%	87%	89%	98%	9	0.7%	23	2%	901	86%	1043	100%	517	64%	392	15%
Madhya Pradesh	Sagar **	176	7%	88%	84%	88%	94%	8	0.5%	96	6%	1284	84%	1474	97%	589	60%	1073	49%
Madhya Pradesh	Satna	108	4%	91%	88%	92%	94%	0	0.0%	78	6%	1095	92%	955	80%	780	82%	753	30%
Madhya Pradesh	Sehore **	52	5%	90%	83%	86%	96%	0	0.0%	16	4%	381	95%	398	99%	260	86%	527	56%
Madhya Pradesh	Seoni **	54	7%	87%	84%	85%	87%	12	2.1%	62	11%	391	83%	364	77%	218	58%	606	78%
Madhya Pradesh	Shahdol	88	6%	88%	78%	87%	87%	2	0.2%	123	13%	681	85%	805	100%	269	46%	110	33%
Madhya Pradesh	Shajapur	38	4%	94%	92%	93%	98%	0	0.0%	17	2%	725	124%	767	98%	585	91%	856	76%
Madhya Pradesh	Sheopur	52	7%	86%	75%	82%	77%	28	3.6%	154	20%	407	69%	537	91%	285	56%	509	86%
Madhya Pradesh	Shivpuri	63	3%	92%	88%	93%	94%	0	0.0%	72	6%	1029	97%	939	89%	755	83%	915	48%
Madhya Pradesh	Sidhi	151	8%	83%	79%	91%	95%	0	0.0%	57	5%	716	70%	977	96%	431	58%	1051	65%
Madhya Pradesh	Tikamgarh **	22	3%	87%	85%	86%	62%	0	0.0%	189	38%	418	91%	365	80%	278	74%	78	21%
Madhya Pradesh	Ujjain	193	11%	90%	84%	89%	98%	1	0.1%	30	2%	998	89%	1108	99%	642	78%	453	25%
Madhya Pradesh	Umaria	37	8%	91%	87%	87%	88%	0	0.0%	28	12%	173	83%	184	88%	93	70%	239	82%
Madhya Pradesh	Vidisha **	266	14%	87%	81%	87%	99%	0	0.0%	5	1%	736	91%	689	85%	498	81%	311	16%
Maharashtra	Ahmadnagar	136	4%	90%	82%	85%	98%	0	0.0%	43	2%	1667	91%	1834	100%	1309	84%	312	12%
Maharashtra	Ahmadnagar Mun Corp	5	4%	79%			95%	0	0.0%	3	5%	65	92%	71	100%	0	0%	0	0%
Maharashtra	Akola	47	4%	83%	70%	77%	96%	2	0.3%	28	4%	638	81%	756	96%	479	72%	539	51%
Maharashtra	Akola Mun Corp	12	7%	74%			94%	0	0.0%	7	6%	101	89%	113	100%	0	0%	84	35%
Maharashtra	Amravati Mun Corp	31	5%	88%	84%	84%	88%	0	0.0%	42	12%	331	92%	349	97%	323	92%	243	43%
Maharashtra	Amravati Rural	90	5%	88%	84%	86%	95%	1	0.1%	59	5%	895	81%	1102	99%	563	63%	639	35%
Maharashtra	Aurangabad Muni Corp	83	9%	90%	86%	86%	83%	0	0.0%	112	17%	494	82%	576	95%	421	85%	20	3%
Maharashtra	Aurangabad-MH**	80	5%	93%	89%	92%	100%	0	0.0%	0	0%	1000	87%	1081	94%	893	87%	423	26%
Maharashtra	Bhandara	43	5%	86%	78%	79%	95%	2	0.3%	33	5%	524	87%	589	99%	380	77%	487	53%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Maharashtra	Bhiwandi-Nizampur	10	2200	54	290	13%	608	59	158	15	19%	39%	246	118	23%	86	43	21%
Maharashtra	Bid **	24	9118	94	1257	14%	1934	80	1043	43	54%	79%	283	345	21%	263	160	13%
Maharashtra	Buldana **	25	13527	136	2132	16%	2454	99	924	37	46%	59%	653	310	16%	559	465	33%
Maharashtra	Chandrapur	23	13584	146	1451	11%	2543	109	1002	43	54%	58%	728	321	16%	492	323	24%
Maharashtra	Dhule	15	12303	204	1314	11%	2327	154	1022	68	85%	65%	555	327	17%	423	259	20%
Maharashtra	Dhule Mun Corp	4	1099	68	140	13%	128	32	59	15	18%	69%	27	28	25%	14	8	12%
Maharashtra	Gadchiroli **	11	5713	132	769	13%	1232	114	551	51	63%	60%	372	126	12%	173	127	19%
Maharashtra	Gondiya	13	8634	161	847	10%	1379	103	603	45	56%	68%	288	235	21%	253	181	23%
Maharashtra	Hingoli **	11	5303	120	586	11%	1339	121	501	45	57%	57%	385	219	20%	234	145	22%
Maharashtra	Jalgaon	37	18898	128	2094	11%	4695	127	1720	47	58%	50%	1709	674	16%	592	392	19%
Maharashtra	Jalgaon Mun Corp	4	1383	80	168	12%	138	32	53	12	15%	54%	45	25	20%	15	11	17%
Maharashtra	Jalna **	18	8836	122	985	11%	1768	98	685	38	47%	57%	513	214	15%	356	289	30%
Maharashtra	Kalyan Dombivli MC	13	5685	106	988	17%	2164	162	696	52	65%	58%	513	415	26%	540	120	15%
Maharashtra	Kolhapur	34	22411	165	1782	8%	2977	88	1311	39	48%	66%	665	549	22%	452	257	16%
Maharashtra	Kolhapur Mun Corp	5	2564	118	217	8%	509	94	157	29	36%	57%	118	134	33%	100	63	29%
Maharashtra	Latur **	23	12866	138	1065	8%	1793	77	765	33	41%	66%	394	356	23%	278	216	22%
Maharashtra	Malegaon	5	621	32	85	14%	238	50	88	18	23%	55%	73	62	28%	15	13	13%
Maharashtra	Meera Bhayander	10	717	19	114	16%	170	18	82	9	11%	93%	6	34	28%	48	30	27%
Maharashtra	Mumbai	133	96065	180	14981	16%	30564	229	8642	65	81%	55%	6980	6644	30%	8298	4224	33%
Maharashtra	Nagpur Muni Corp	23	15962	174	2295	14%	3639	159	1050	46	57%	66%	535	1228	43%	801	473	31%
Maharashtra	Nagpur Rural	22	11213	125	1323	12%	2557	114	1223	55	68%	65%	660	256	12%	418	312	20%

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

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Maharashtra	Bhiwandi-Nizampur	72	14%	89%			76%	0	0.0%	62	24%	175	88%	198	100%	111	46%	74	75%
Maharashtra	Bid **	56	3%	92%	85%	86%	94%	0	0.0%	67	6%	1054	90%	1163	100%	717	73%	616	44%
Maharashtra	Buldana **	82	4%	86%	76%	82%	90%	0	0.0%	157	10%	984	86%	1081	88%	686	74%	726	60%
Maharashtra	Chandrapur	84	4%	88%	81%	84%	93%	1	0.1%	91	7%	958	83%	1148	99%	793	79%	307	18%
Maharashtra	Dhule	98	5%	92%	85%	86%	95%	1	0.1%	63	5%	1027	85%	1170	96%	685	68%	822	46%
Maharashtra	Dhule Mun Corp	5	4%				100%	0	0.0%	0	0%	64	96%	67	100%	0	0%	20	16%
Maharashtra	Gadchiroli **	31	3%	89%	82%	88%	96%	1	0.1%	27	4%	550	85%	608	94%	410	85%	251	27%
Maharashtra	Gondiya	68	6%	85%	81%	81%	93%	12	1.5%	45	6%	618	83%	744	100%	388	72%	482	44%
Maharashtra	Hingoli **	56	5%	91%	85%	87%	99%	1	0.2%	6	1%	512	92%	520	93%	364	87%	666	78%
Maharashtra	Jalgaon	269	7%	86%	79%	82%	90%	9	0.4%	198	10%	1666	80%	1857	89%	1258	71%	784	22%
Maharashtra	Jalgaon Mun Corp	11	9%				89%	1	1.5%	6	9%	54	84%	64	100%	57	95%	8	6%
Maharashtra	Jalna **	27	2%	90%	82%	86%	98%	0	0.0%	19	2%	830	91%	892	98%	648	88%	275	21%
Maharashtra	Kalyan Dombivli MC	166	10%	91%	85%	86%	95%	1	0.1%	43	5%	702	89%	788	100%	590	92%	36	3%
Maharashtra	Kolhapur	167	7%	88%	83%	84%	96%	0	0.0%	64	4%	1280	85%	1483	99%	809	77%	217	18%
Maharashtra	Kolhapur Mun Corp	41	10%	81%	67%	70%	92%	2	1.0%	13	7%	154	90%	168	98%	118	83%	37	13%
Maharashtra	Latur **	88	6%	83%	75%	77%	93%	0	0.0%	68	7%	739	80%	918	100%	292	56%	596	45%
Maharashtra	Malegaon	25	11%				92%	0	0.0%	7	8%	98	97%	99	98%	0	0%	36	15%
Maharashtra	Meera Bhayander	7	6%				89%	0	0.0%	13	11%	68	83%	82	100%	75	77%	75	44%
Maharashtra	Mumbai	2225	10%	91%	87%	87%	75%	1304	9.5%	2083	15%	10605	90%	11208	95%	8907	87%	0	0%
Maharashtra	Nagpur Muni Corp	208	7%	87%	82%	82%	96%	0	0.0%	68	4%	916	87%	1049	100%	345	69%	334	24%
Maharashtra	Nagpur Rural	113	5%	92%	88%	89%	95%	0	0.0%	61	5%	1173	81%	1401	96%	950	82%	8	1%

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

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Maharashtra	Nanded **	27	11872	109	1531	13%	2725	100	1117	41	51%	57%	843	366	16%	398	244	18%
Maharashtra	Nanded Waghela MC	5	3130	162	382	12%	571	119	217	45	56%	75%	73	164	36%	117	73	25%
Maharashtra	Nandurbar *	15	8263	141	921	11%	1740	119	705	48	60%	54%	600	183	12%	252	171	20%
Maharashtra	Nashik	39	20586	132	2277	11%	4209	108	2044	52	66%	66%	1067	647	17%	448	266	12%
Maharashtra	Nashik Corp	12	6573	136	907	14%	1503	125	618	51	64%	55%	497	166	13%	222	96	13%
Maharashtra	Navi Mumbai	8	9909	315	1300	13%	1865	237	604	77	96%	69%	272	478	35%	511	249	29%
Maharashtra	Osmanabad **	16	6696	102	685	10%	1179	72	585	36	44%	71%	238	182	18%	174	118	17%
Maharashtra	Parbhani **	17	8176	123	911	11%	1704	102	689	41	52%	57%	523	279	19%	213	177	20%
Maharashtra	Pimpri Chinchwad	11	9365	208	1061	11%	1921	171	657	58	73%	69%	302	587	38%	375	200	23%
Maharashtra	Pune	28	13200	116	1433	11%	3729	131	1420	50	62%	72%	557	1101	36%	651	328	19%
Maharashtra	Pune Rural	41	32424	197	3735	12%	4281	104	2091	51	64%	72%	825	656	18%	706	418	17%
Maharashtra	Raigarh-MH	25	15027	152	1918	13%	3520	143	1275	52	65%	59%	901	542	20%	801	474	27%
Maharashtra	Ratnagiri	19	13097	172	1349	10%	2607	137	1033	54	68%	58%	761	228	11%	585	273	21%
Maharashtra	Sangli	24	19218	200	1275	7%	2419	101	993	41	52%	63%	577	430	22%	419	179	15%
Maharashtra	Sangli Muni Corp	5	2776	142	298	11%	531	109	173	35	44%	56%	135	124	28%	85	38	18%
Maharashtra	Satara	31	19969	160	1463	7%	3270	104	1065	34	43%	49%	1106	615	22%	484	262	20%
Maharashtra	Sindhudurg	10	7833	203	563	7%	1127	117	412	43	53%	55%	337	154	17%	224	127	24%
Maharashtra	Solapur	33	22904	172	1867	8%	2738	82	1611	48	60%	76%	507	275	11%	345	191	11%
Maharashtra	Solapur Muni Corp	10	6280	161	982	16%	1207	124	480	49	61%	66%	248	219	23%	260	159	25%
Maharashtra	Thane	30	22959	188	3356	15%	7010	230	2726	89	112%	59%	1888	1164	20%	1232	666	20%
Maharashtra	Thane Muni Corp	14	9194	163	1445	16%	3065	217	755	53	67%	52%	693	846	37%	768	405	35%
Maharashtra	Ulhasnagar Muni Corp	5	3209	152	696	22%	854	161	309	58	73%	60%	207	89	15%	249	130	30%

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

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Maharashtra	Nanded **	98	4%	89%	85%	90%	98%	0	0.0%	28	2%	942	72%	1097	83%	644	61%	116	13%
Maharashtra	Nanded Waghela MC	13	3%	90%	82%	83%	92%	0	0.0%	24	8%	235	98%	225	100%	114	70%	144	68%
Maharashtra	Nandurbar *	108	7%	89%	83%	86%	91%	10	1.1%	73	8%	647	77%	818	98%	397	64%	863	59%
Maharashtra	Nashik	339	9%	94%	89%	89%	97%	0	0.0%	47	2%	1894	86%	2187	99%	1074	51%	967	31%
Maharashtra	Nashik Corp	122	10%	92%	87%	87%	93%	2	0.3%	52	7%	640	93%	689	100%	591	91%	74	7%
Maharashtra	Navi Mumbai	229	17%	91%	86%	87%	88%	48	5.0%	62	6%	746	95%	787	100%	620	100%	309	26%
Maharashtra	Osmanabad **	49	5%	90%	87%	87%	98%	0	0.0%	14	2%	544	81%	673	100%	334	64%	357	36%
Maharashtra	Parbhani **	73	5%	90%	86%	88%	99%	0	0.0%	11	1%	748	91%	821	100%	539	86%	187	14%
Maharashtra	Pimpri Chinchwad	148	10%	91%	86%	86%	93%	8	0.9%	50	6%	756	93%	811	100%	616	93%	39	3%
Maharashtra	Pune	158	5%	92%	87%	87%	94%	0	0.0%	81	6%	1484	87%	1597	96%	1323	93%	22	28%
Maharashtra	Pune Rural	182	5%	90%	84%	85%	93%	9	0.3%	176	7%	2142	89%	2066	90%	1548	81%	492	21%
Maharashtra	Raigarh-MH	114	4%	89%	80%	83%	97%	6	0.3%	52	3%	1180	75%	1466	93%	734	68%	635	67%
Maharashtra	Ratnagiri	116	6%	92%	85%	86%	95%	0	0.0%	64	5%	1123	91%	1222	99%	708	76%	1450	70%
Maharashtra	Sangli	108	5%	91%	83%	85%	95%	7	0.6%	55	5%	959	85%	1109	98%	683	80%	254	17%
Maharashtra	Sangli Muni Corp	45	10%	93%	85%	85%	89%	6	3.5%	12	7%	165	81%	188	93%	118	71%	44	19%
Maharashtra	Satara	123	4%	87%	74%	77%	95%	0	0.0%	67	5%	1092	86%	1249	99%	667	72%	1367	56%
Maharashtra	Sindhudurg	37	4%	92%	83%	84%	91%	1	0.2%	48	9%	442	86%	445	87%	255	70%	340	41%
Maharashtra	Solapur	132	6%	90%	85%	85%	96%	0	0.0%	79	4%	1551	92%	1662	100%	1116	82%	318	19%
Maharashtra	Solapur Muni Corp	79	8%	86%	83%	84%	87%	0	0.0%	101	13%	504	85%	592	100%	412	94%	36	4%
Maharashtra	Thane	436	8%	89%	79%	85%	87%	110	3.3%	314	9%	2474	78%	2622	83%	1822	71%	1662	39%
Maharashtra	Thane Muni Corp	345	15%	90%	81%	82%	88%	30	2.4%	121	10%	919	87%	995	95%	808	94%	490	22%
Maharashtra	Ulhasnagar Muni Corp	76	13%	92%	77%	77%	83%	13	2.8%	65	14%	335	84%	397	99%	304	99%	98	15%

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

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Maharashtra	Wardha	14	9277	168	911	10%	1478	107	537	39	49%	63%	321	357	29%	263	201	27%
Maharashtra	Washim	11	3794	83	506	13%	1193	105	430	38	47%	53%	380	179	18%	204	163	27%
Maharashtra	Yavatmal **	28	14234	129	1626	11%	3050	111	1141	41	52%	58%	825	593	23%	487	380	25%
Manipur	Bishnupur	2	911	99	116	13%	254	111	104	45	60%	67%	52	54	25%	41	28	21%
Manipur	Chandel *	1	1073	196	78	7%	201	147	52	38	51%	46%	61	26	19%	62	32	38%
Manipur	Churachandpur*	3	2609	256	121	5%	983	386	103	40	54%	16%	554	96	13%	230	23	18%
Manipur	Imphal East	4	2596	148	290	11%	874	199	218	50	66%	36%	380	152	20%	124	50	19%
Manipur	Imphal West	5	3711	190	449	12%	792	162	233	48	63%	50%	229	193	29%	137	65	22%
Manipur	Senapati *	4	1285	76	106	8%	327	77	106	25	33%	60%	72	82	32%	67	36	25%
Manipur	Tamenglong *	1	441	89	56	13%	92	74	55	44	59%	80%	14	8	10%	15	10	15%
Manipur	Thoubal	4	1298	80	188	14%	553	136	140	34	46%	42%	190	115	26%	108	44	24%
Manipur	Ukhrul *	2	744	119	77	10%	163	104	58	37	49%	74%	20	40	34%	45	34	37%
Meghalaya	East Khasi Hills *	7	7784	264	1103	14%	1889	257	539	73	98%	59%	374	529	36%	427	281	34%
Meghalaya	East Garo Hills *	3	1319	120	193	15%	249	90	122	44	59%	70%	52	19	10%	55	45	27%
Meghalaya	Jaintia Hills *	3	1779	135	251	14%	439	133	190	58	77%	71%	77	99	27%	73	37	16%
Meghalaya	Ri Bhoi *	2	1600	186	205	13%	445	207	165	77	102%	64%	93	89	26%	97	73	31%
Meghalaya	South Garo Hills*	1	497	113	44	9%	115	104	68	62	82%	86%	11	17	18%	19	9	12%
Meghalaya	West Garo Hills*	6	4773	208	561	12%	756	132	441	77	102%	82%	98	91	14%	126	67	13%
Meghalaya	West Khasi Hills *	3	1889	144	219	12%	698	213	180	55	73%	51%	174	210	37%	134	61	25%
Mizoram	Aizawl *	4	3469	229	376	11%	1418	375	236	62	83%	34%	456	473	41%	253	82	26%
Mizoram	Champhai *	1	667	148	44	7%	163	144	39	35	46%	44%	50	54	38%	20	16	29%
Mizoram	Kolasib *	1	750	276	93	12%	226	333	62	91	122%	50%	63	68	35%	33	21	25%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Maharashtra	Wardha	50	4%	85%	69%	83%	95%	0	0.0%	40	5%	557	81%	614	90%	405	76%	200	44%
Maharashtra	Washim	44	4%	80%	78%	83%	93%	4	0.8%	32	7%	359	83%	315	73%	256	83%	362	74%
Maharashtra	Yavatmal **	105	4%	89%	84%	86%	94%	0	0.0%	95	6%	1387	91%	1343	89%	1089	90%	69	3%
Manipur	Bishnupur	2	1%	89%	86%	89%	91%	0	0.0%	10	9%	119	92%	127	98%	89	88%	156	70%
Manipur	Chandel *	12	9%	90%	83%	83%	78%	0	0.0%	17	22%	68	96%	39	55%	35	56%	30	19%
Manipur	Churachandpur*	261	35%	84%	74%	74%	98%	0	0.0%	2	2%	126	100%	126	100%	69	86%	58	28%
Manipur	Imphal East	73	10%	88%	82%	82%	85%	2	0.7%	38	14%	250	97%	256	99%	118	66%	82	31%
Manipur	Imphal West	23	4%	81%	89%	89%	94%	6	1.9%	11	4%	273	96%	243	86%	200	94%	110	42%
Manipur	Senapati *	26	10%	92%	87%	87%	100%	0	0.0%	0	0%	137	100%	137	100%	109	96%	29	31%
Manipur	Tamenglong *	1	1%	95%	94%	94%	100%	0	0.0%	0	0%	58	98%	52	88%	50	96%	25	42%
Manipur	Thoubal	11	2%	80%	79%	82%	99%	0	0.0%	2	1%	179	100%	127	71%	103	87%	90	48%
Manipur	Ukhrul *	11	9%	67%	68%	68%	100%	0	0.0%	0	0%	76	95%	39	49%	40	100%	62	65%
Meghalaya	East Khasi Hills *	140	10%	82%	71%	73%	73%	28	2.8%	236	24%	671	89%	669	89%	347	84%	1090	72%
Meghalaya	East Garo Hills *	19	10%	88%	83%	85%	99%	0	0.0%	2	1%	104	80%	123	88%	106	76%	84	32%
Meghalaya	Jaintia Hills *	11	3%	90%	87%	87%	100%	0	0.0%	0	0%	165	75%	220	100%	112	78%	240	90%
Meghalaya	Ri Bhoi *	45	13%	79%	73%	74%	100%	0	0.0%	0	0%	178	90%	172	87%	110	100%	86	52%
Meghalaya	South Garo Hills *	7	7%	92%	92%	94%	91%	0	0.0%	4	9%	47	69%	67	99%	58	95%	44	53%
Meghalaya	West Garo Hills *	29	5%	90%	92%	92%	95%	1	0.2%	24	5%	470	95%	457	92%	352	91%	167	49%
Meghalaya	West Khasi Hills *	99	18%	86%	86%	86%	100%	0	0.0%	0	0%	216	95%	203	89%	162	99%	165	34%
Mizoram	Aizawl *	174	15%	91%	92%	93%	98%	0	0.0%	6	2%	259	100%	259	100%	240	100%	151	14%
Mizoram	Champhai *	24	17%	86%	87%	87%	100%	0	0.0%	0	0%	43	100%	41	95%	45	98%	38	60%
Mizoram	Kolasib *	17	9%	94%	92%	93%	90%	9	9.8%	0	0%	65	100%	64	98%	49	91%	56	84%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treatment	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Mizoram	Lawngtlai *	1	774	238	32	4%	139	171	41	50	67%	47%	47	29	25%	22	8	16%
Mizoram	Lunglei *	2	1352	221	140	10%	257	168	90	59	79%	66%	47	67	33%	52	32	26%
Mizoram	Mamit *	1	497	179	40	8%	78	112	38	55	73%	69%	17	16	23%	7	3	7%
Mizoram	Saiha *	1	699	258	51	7%	196	289	44	65	87%	41%	63	50	30%	32	18	29%
Mizoram	Serchhip *	1	339	137	23	7%	61	99	20	32	43%	67%	10	20	39%	10	9	31%
Nagaland	Dimapur *	3	2676	195	490	18%	937	273	317	92	123%	52%	293	50	8%	277	144	31%
Nagaland	Kiphire *	1	654	157	64	10%	141	136	49	47	63%	60%	32	40	32%	16	16	25%
Nagaland	Kohima *	2	1740	174	268	15%	532	213	176	71	94%	58%	126	127	30%	103	41	19%
Nagaland	Longleng*	1	531	106	47	9%	102	82	43	34	46%	56%	34	7	7%	8	4	9%
Nagaland	Mokokchung *	2	1284	129	159	12%	286	115	145	58	77%	77%	44	42	18%	55	45	24%
Nagaland	Mon *	3	2535	219	195	8%	463	160	195	67	90%	71%	79	91	25%	98	72	27%
Nagaland	Peren	1	522	131	46	9%	107	107	40	40	53%	53%	35	7	8%	24	24	38%
Nagaland	Phek *	2	471	71	73	15%	145	87	50	30	40%	67%	25	40	35%	30	23	32%
Nagaland	Tuensang *	2	1362	145	154	11%	593	252	136	58	77%	50%	136	240	47%	81	35	20%
Nagaland	Wokha *	2	1315	184	147	11%	192	107	129	72	96%	78%	37	8	5%	18	18	12%
Nagaland	Zunheboto *	2	770	110	52	7%	116	66	52	30	40%	56%	41	9	9%	14	7	12%
Orissa	Anugul	13	7428	148	846	11%	1351	108	626	50	59%	68%	291	235	20%	199	151	19%
Orissa	Balangir **	15	7340	125	963	13%	2408	164	812	55	65%	47%	922	448	20%	195	59	7%
Orissa	Baleshwar	22	9630	108	1217	13%	1951	88	903	41	48%	64%	504	309	18%	235	182	17%
Orissa	Bargarh	15	6804	115	779	11%	1833	124	719	49	57%	58%	526	422	25%	166	97	12%
Orissa	Baudh	4	1588	97	202	13%	425	104	198	48	57%	70%	84	73	21%	70	43	18%
Orissa	Bhadrak	15	5179	89	409	8%	959	66	358	24	29%	64%	198	297	35%	106	69	16%
Orissa	Bhubaneshwar Corp	7	4443	156	652	15%	723	102	270	38	45%	76%	86	248	41%	113	75	22%
Orissa	Cuttack	26	9877	96	1520	15%	1998	78	757	29	35%	69%	335	659	38%	247	164	18%
Orissa	Debagarh	3	1371	114	175	13%	298	99	150	50	59%	72%	59	58	22%	31	21	12%
Orissa	Dhenkanal	12	6908	148	810	12%	1308	112	668	57	67%	77%	197	247	22%	196	152	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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Mizoram	Lawngtlai *	9	8%	91%	94%	94%	97%	0	0.0%	1	3%	44	94%	42	89%	50	81%	71	57%
Mizoram	Lunglei *	38	19%	91%	87%	91%	102%	0	0.0%	0	0%	108	100%	108	100%	204	100%	117	60%
Mizoram	Mamit *	3	4%	90%	100%	100%	100%	0	0.0%	0	0%	37	97%	37	97%	48	100%	45	73%
Mizoram	Saiha *	26	16%	93%	93%	93%	100%	0	0.0%	0	0%	52	98%	53	100%	55	100%	39	32%
Mizoram	Serchhip *	5	10%	95%	89%	89%	100%	0	0.0%	0	0%	24	100%	24	100%	24	89%	13	41%
Nagaland	Dimapur *	78	12%	90%	88%	88%	93%	0	0.0%	30	7%	376	98%	380	99%	226	80%	280	46%
Nagaland	Kiphire *	25	20%	94%	85%	85%	100%	0	0.0%	0	0%	61	98%	61	98%	59	100%	45	82%
Nagaland	Kohima *	45	10%	91%	91%	92%	97%	0	0.0%	7	3%	210	100%	208	99%	145	93%	354	81%
Nagaland	Longleng*	8	9%	100%	88%	88%	100%	0	0.0%	0	0%	40	100%	45	100%	117	99%	126	98%
Nagaland	Mokokchung *	25	11%	92%	90%	90%	100%	0	0.0%	0	0%	157	100%	157	100%	130	100%	96	64%
Nagaland	Mon *	31	8%	88%	96%	96%	100%	0	0.0%	0	0%	579	72%	164	73%	140	77%	184	70%
Nagaland	Peren	7	8%	98%	83%	83%	100%	0	0.0%	0	0%	15	11%	15	11%	19	15%	15	13%
Nagaland	Phek *	16	14%	90%	84%	85%	100%	0	0.0%	0	0%	62	87%	68	96%	47	87%	37	29%
Nagaland	Tuensang *	140	27%	94%	91%	91%	100%	0	0.0%	0	0%	136	100%	136	100%	48	91%	127	46%
Nagaland	Wokha *	15	9%	95%	91%	91%	100%	0	0.0%	0	0%	120	98%	139	100%	170	100%	260	100%
Nagaland	Zunheboto *	12	12%	94%	89%	89%	100%	0	0.0%	0	0%	55	100%	49	89%	38	97%	52	84%
Orissa	Anugul	54	5%	94%	91%	92%	93%	5	0.6%	53	7%	605	81%	738	99%	466	81%	796	74%
Orissa	Balangir **	146	7%	89%	84%	87%	95%	3	0.3%	42	5%	663	80%	813	98%	400	54%	1404	76%
Orissa	Baleshwar	70	4%	89%	78%	84%	96%	1	0.1%	42	4%	861	83%	981	95%	565	79%	585	44%
Orissa	Bargarh	84	5%	91%	83%	87%	93%	0	0.0%	50	7%	616	83%	723	98%	478	76%	1300	93%
Orissa	Baudh	44	12%	85%	83%	84%	92%	1	0.5%	14	7%	165	80%	207	100%	188	90%	313	95%
Orissa	Bhadrak	30	4%	85%	78%	86%	92%	0	0.0%	30	8%	340	82%	410	99%	261	83%	717	97%
Orissa	Bhubaneshwar Corp	63	10%	88%	85%	88%	75%	4	1.0%	98	24%	275	89%	286	92%	226	91%	125	23%
Orissa	Cuttack	101	6%	91%	84%	86%	89%	11	1.1%	94	10%	701	79%	879	99%	396	56%	56	4%
Orissa	Debagarh	18	7%	87%	83%	83%	95%	0	0.0%	8	5%	142	92%	155	100%	132	99%	250	102%
Orissa	Dhenkanal	78	7%	93%	90%	92%	96%	0	0.0%	28	4%	643	82%	782	100%	401	70%	938	82%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Orissa	Gajapati †	6	3749	165	728	19%	1156	203	584	103	121%	69%	257	197	19%	118	89	13%
Orissa	Ganjam	34	18761	136	2865	15%	5610	163	2015	59	69%	57%	1501	1155	25%	939	567	22%
Orissa	Jagatsinghapur	12	4897	106	303	6%	602	52	268	23	27%	81%	63	202	38%	69	52	16%
Orissa	Jajapur	18	5701	80	745	13%	1529	86	690	39	46%	71%	276	388	29%	175	119	15%
Orissa	Jharsuguda	6	4388	196	511	12%	906	162	419	75	88%	68%	195	172	22%	120	80	16%
Orissa	Kalahandi **	15	7619	130	1263	17%	2262	154	1001	68	80%	63%	592	368	19%	300	149	13%
Orissa	Kandhamal †	7	5165	182	594	12%	986	139	476	67	79%	68%	222	177	20%	111	59	11%
Orissa	Kendrapara	14	5664	99	526	9%	885	62	495	35	41%	79%	128	161	21%	101	78	14%
Orissa	Kendujhar	17	11854	173	1845	16%	3022	176	1405	82	96%	64%	798	464	17%	355	226	14%
Orissa	Khordha	13	4061	75	519	13%	1237	92	492	37	43%	63%	287	286	27%	172	124	20%
Orissa	Koraput †	13	7731	149	1431	19%	1718	133	975	75	89%	80%	237	270	18%	236	164	14%
Orissa	Malkangiri *	5	3888	184	770	20%	1173	222	609	115	136%	68%	289	109	11%	166	140	19%
Orissa	Mayurbhanj †	24	20199	207	3257	16%	5515	226	2809	115	135%	66%	1417	718	15%	571	297	10%
Orissa	Nabarangapur†	11	3560	80	664	19%	1018	91	585	52	62%	68%	270	67	7%	91	62	10%
Orissa	Nayagarh	9	6153	162	891	14%	1427	150	510	54	63%	60%	338	260	23%	319	189	27%
Orissa	Nuapada †	6	3821	164	500	13%	1015	174	376	65	76%	44%	481	59	6%	99	57	13%
Orissa	Puri	16	7120	108	692	10%	1497	91	512	31	37%	57%	383	306	25%	296	139	21%
Orissa	Rayagada †	9	6874	190	1246	18%	1717	190	1026	114	134%	73%	370	141	9%	180	126	11%
Orissa	Sambalpur	10	7713	189	929	12%	1486	146	531	52	61%	57%	395	397	30%	163	102	16%
Orissa	Sonapur	6	2757	116	308	11%	686	116	300	51	59%	67%	151	174	28%	61	39	12%
Orissa	Sundargarh †	20	14667	183	2037	14%	3444	171	1462	73	86%	59%	1023	501	17%	458	251	15%
Puducherry	Puducherry	11	15774	361	2057	13%	1385	127	684	63	84%	76%	221	279	24%	201	178	21%
Punjab	Amritsar	21	13635	159	2369	17%	3817	178	1349	63	66%	65%	718	1039	33%	707	513	28%
Punjab	Barnala	6	3429	144	483	14%	702	118	355	60	63%	77%	108	110	19%	129	105	23%
Punjab	Bathinda	13	9514	184	1308	14%	2175	168	872	67	71%	67%	439	345	21%	512	428	33%
Punjab	Faridkot	6	4777	197	757	16%	1118	184	413	68	72%	68%	192	281	32%	232	163	28%

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

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Orissa	Gajapati †	105	10%	86%	77%	82%	89%	12	1.7%	65	9%	549	86%	590	93%	308	75%	169	29%
Orissa	Ganjam	337	7%	81%	75%	80%	92%	10	0.4%	225	8%	1930	79%	2318	95%	1010	62%	317	7%
Orissa	Jagatsinghapur	27	5%	92%	90%	90%	97%	3	1.0%	6	2%	263	90%	292	100%	229	85%	494	98%
Orissa	Jajapur	56	4%	93%	87%	88%	97%	0	0.0%	24	3%	648	83%	758	98%	523	76%	912	77%
Orissa	Jharsuguda	40	5%	93%	89%	91%	92%	1	0.2%	36	7%	393	90%	415	95%	317	85%	415	56%
Orissa	Kalahandi **	129	7%	78%	76%	83%	91%	1	0.1%	114	9%	862	77%	1033	93%	487	57%	8	1%
Orissa	Kandhamal †	73	8%	86%	78%	88%	88%	1	0.2%	63	12%	405	82%	478	97%	195	52%	66	11%
Orissa	Kendrapara	44	6%	95%	95%	96%	96%	0	0.0%	21	4%	500	90%	558	100%	411	98%	684	93%
Orissa	Kendujhar	103	4%	89%	83%	88%	89%	11	0.6%	182	10%	1241	85%	1455	100%	514	80%	601	43%
Orissa	Khordha	66	6%	89%	86%	88%	100%	0	0.0%	2	0%	489	82%	592	100%	321	71%	63	75%
Orissa	Koraput †	77	5%	87%	81%	84%	91%	17	1.3%	110	8%	812	72%	1081	96%	389	61%	357	32%
Orissa	Malkangiri *	58	6%	86%	80%	80%	90%	0	0.0%	74	10%	550	81%	607	89%	353	58%	413	56%
Orissa	Mayurbhanj †	184	4%	90%	85%	90%	91%	0	0.0%	296	9%	2614	86%	3015	99%	2006	82%	2312	55%
Orissa	Nabarangapur†	43	5%	84%	78%	86%	90%	1	0.2%	67	10%	553	88%	598	95%	333	67%	537	71%
Orissa	Nayagarh	95	9%	63%	59%	68%	89%	1	0.1%	83	11%	561	86%	485	74%	193	56%	60	5%
Orissa	Nuapada †	59	6%	91%	84%	88%	94%	0	0.0%	27	6%	367	91%	401	100%	316	79%	89	11%
Orissa	Puri	143	12%	86%	83%	90%	98%	2	0.3%	9	1%	559	90%	620	100%	330	76%	109	10%
Orissa	Rayagada †	112	7%	90%	84%	85%	93%	5	0.4%	86	7%	883	78%	1105	98%	656	76%	1079	81%
Orissa	Sambalpur	68	5%	90%	82%	82%	79%	49	6.7%	108	15%	474	85%	541	97%	331	66%	732	35%
Orissa	Sonapur	31	5%	91%	80%	82%	98%	0	0.0%	7	2%	224	70%	190	89%	76	68%	10	3%
Orissa	Sundargarh †	100	3%	92%	86%	87%	90%	68	3.6%	128	7%	1249	78%	1594	100%	946	76%	117	34%
Puducherry	Puducherry	96	8%	89%	87%	87%	91%	25	2.7%	57	6%	663	80%	745	90%	574	90%	96	21%
Punjab	Amritsar	266	9%	88%	82%	86%	87%	89	4.2%	188	9%	1402	82%	1571	91%	1281	100%	80	4%
Punjab	Barnala	47	8%	90%	81%	88%	96%	1	0.2%	15	3%	418	95%	436	99%	271	86%	14	4%
Punjab	Bathinda	98	6%	93%	92%	92%	96%	7	0.6%	43	3%	1048	99%	1056	100%	897	100%	296	17%
Punjab	Faridkot	57	6%	90%	87%	89%	92%	45	6.7%	7	1%	522	94%	537	97%	393	94%	273	31%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Punjab	Fatehgarh Sahib	6	4744	200	464	10%	836	141	365	62	65%	78%	105	189	29%	177	146	29%
Punjab	Firozpur	19	10218	133	1585	16%	2193	115	968	51	53%	72%	380	281	17%	564	452	32%
Punjab	Gurdaspur	23	13259	144	1806	14%	2683	117	1274	55	58%	75%	429	369	18%	609	498	28%
Punjab	Hoshiarpur	16	12273	189	1404	11%	2075	128	906	56	59%	69%	405	274	17%	490	417	32%
Punjab	Jalandhar	21	12871	150	2121	16%	3137	146	1321	62	65%	74%	471	719	29%	626	514	28%
Punjab	Kapurthala	8	5179	157	595	11%	964	117	433	52	55%	71%	180	192	24%	159	131	23%
Punjab	Ludhiana	33	22236	167	2839	13%	5486	165	1853	56	59%	58%	1329	1243	28%	1061	666	26%
Punjab	Mansa-PU	8	5955	197	792	13%	1082	143	532	70	74%	80%	135	174	21%	237	204	28%
Punjab	Moga	10	4866	125	823	17%	1138	117	614	63	66%	84%	118	183	20%	223	175	22%
Punjab	Mohali	7	4685	161	581	12%	1244	171	478	66	69%	72%	186	332	33%	248	167	26%
Punjab	Muktsar	9	6073	178	848	14%	1227	144	540	63	67%	69%	246	183	19%	257	197	27%
Punjab	Nawanshahr	6	4532	176	588	13%	897	139	468	73	77%	80%	115	136	19%	178	155	25%
Punjab	Patiala	20	14267	177	2061	14%	2969	147	1046	52	55%	69%	479	771	34%	673	543	34%
Punjab	Rupnagar	7	6152	211	710	12%	971	133	495	68	71%	80%	127	180	22%	169	150	23%
Punjab	Sangrur	16	11579	181	1206	10%	2278	143	895	56	59%	64%	508	424	23%	451	369	29%
Punjab	Tarn Taran	12	6334	129	926	15%	1649	134	728	59	62%	74%	257	321	25%	343	293	29%
Rajasthan	Ajmer	25	16771	165	3373	20%	5569	219	1614	64	80%	52%	1504	1058	25%	1393	1091	40%
Rajasthan	Alwar	35	17699	127	3002	17%	5702	164	2145	62	77%	53%	1878	787	16%	892	804	27%
Rajasthan	Banswara †	17	7963	114	2276	29%	3567	204	1586	91	114%	64%	897	268	10%	816	775	33%
Rajasthan	Baran	12	7706	162	1596	21%	2394	201	1000	84	105%	62%	615	290	15%	489	423	30%
Rajasthan	Barmer	23	10661	117	1394	13%	3002	131	972	43	53%	45%	1175	206	9%	649	453	32%
Rajasthan	Bharatpur	24	11062	113	1756	16%	3430	140	1064	44	54%	43%	1407	226	8%	733	600	36%
Rajasthan	Bhilwara	23	16628	178	3572	21%	5853	250	1919	82	103%	59%	1327	903	22%	1703	1408	42%
Rajasthan	Bikaner	22	14047	159	2262	16%	2798	127	1206	55	68%	75%	394	549	26%	649	500	29%
Rajasthan	Bundi	11	5416	121	1064	20%	1907	170	710	63	79%	59%	500	193	14%	504	388	35%
Rajasthan	Chittaurgarh	21	10329	123	1845	18%	3548	169	1402	67	84%	64%	772	505	19%	869	783	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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Punjab	Fatehgarh Sahib	41	6%	82%	78%	81%	98%	2	0.4%	9	2%	426	91%	470	100%	235	86%	165	25%
Punjab	Firozpur	92	6%	86%	81%	84%	91%	31	2.1%	98	7%	1121	85%	1213	92%	830	88%	131	8%
Punjab	Gurdaspur	107	5%	93%	89%	90%	98%	4	0.2%	38	2%	1471	89%	1655	100%	1151	92%	78	4%
Punjab	Hoshiarpur	80	5%	91%	85%	87%	94%	2	0.1%	86	6%	1178	97%	1213	100%	877	97%	35	2%
Punjab	Jalandhar	163	6%	85%	80%	81%	93%	66	3.3%	84	4%	1474	87%	1463	86%	952	80%	261	11%
Punjab	Kapurthala	47	6%	92%	90%	90%	94%	26	4.7%	6	1%	505	94%	537	100%	467	87%	90	12%
Punjab	Ludhiana	413	9%	92%	86%	89%	89%	21	0.8%	272	10%	2105	87%	2340	97%	1675	93%	822	20%
Punjab	Mansa-PU	35	4%	90%	88%	91%	93%	0	0.0%	51	7%	653	95%	662	97%	429	98%	135	14%
Punjab	Moga	40	4%	98%	91%	91%	98%	1	0.1%	14	2%	730	98%	733	98%	596	91%	196	21%
Punjab	Mohali	74	7%	81%	79%	81%	92%	20	4.2%	18	4%	499	84%	595	100%	427	92%	234	24%
Punjab	Muktsar	54	6%	91%	87%	92%	88%	37	4.8%	58	7%	608	94%	639	99%	491	92%	91	23%
Punjab	Nawanshahr	40	6%	94%	92%	92%	99%	1	0.2%	4	1%	567	95%	595	100%	422	91%	114	15%
Punjab	Patiala	186	8%	82%	74%	77%	96%	4	0.2%	57	3%	1268	87%	1369	94%	946	92%	72	6%
Punjab	Rupnagar	35	4%	98%	95%	95%	97%	3	0.5%	13	2%	540	90%	602	100%	464	90%	113	15%
Punjab	Sangrur	143	8%	86%	82%	86%	96%	1	0.1%	44	4%	1079	93%	1145	98%	664	91%	97	5%
Punjab	Tarn Taran	90	7%	90%	86%	90%	99%	3	0.3%	5	1%	933	99%	945	100%	611	100%	57	4%
Rajasthan	Ajmer	393	9%	89%	87%	88%	91%	37	1.2%	242	8%	2044	83%	2330	95%	1796	84%	546	13%
Rajasthan	Alwar	205	4%	93%	89%	91%	96%	5	0.2%	119	4%	2498	91%	2712	98%	2009	90%	729	16%
Rajasthan	Banswara †	172	6%	90%	86%	91%	92%	14	0.6%	164	7%	1631	75%	1989	92%	1046	62%	296	11%
Rajasthan	Baran	118	6%	91%	90%	92%	95%	8	0.5%	63	4%	1176	88%	1302	97%	917	86%	444	23%
Rajasthan	Barmer	88	4%	88%	86%	88%	92%	0	0.0%	112	8%	1085	83%	1294	99%	1011	84%	96	6%
Rajasthan	Bharatpur	131	5%	92%	86%	88%	95%	1	0.1%	86	5%	1070	71%	1505	100%	763	65%	92	4%
Rajasthan	Bhilwara	249	6%	92%	89%	89%	95%	17	0.5%	155	5%	2950	98%	2908	96%	2572	95%	331	7%
Rajasthan	Bikaner	118	5%	91%	87%	89%	95%	5	0.3%	94	5%	1390	88%	1500	95%	1126	86%	275	13%
Rajasthan	Bundi	59	4%	92%	88%	89%	92%	9	0.9%	74	7%	920	91%	982	98%	652	82%	165	11%
Rajasthan	Chittaurgarh	107	4%	91%	86%	88%	95%	7	0.4%	76	4%	1240	63%	1706	86%	1266	75%	207	12%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treatment	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Rajasthan	Churu	20	7527	95	1616	21%	2804	142	991	50	63%	55%	796	358	17%	659	537	35%
Rajasthan	Dausa	15	8749	143	1234	14%	2476	162	860	56	70%	50%	857	286	14%	473	422	33%
Rajasthan	Dhaulpur	11	7613	166	1406	18%	2332	204	896	78	98%	57%	677	193	11%	566	459	34%
Rajasthan	Dungarpur †	13	6164	120	1739	28%	2804	218	1296	101	126%	63%	762	185	8%	561	522	29%
Rajasthan	Ganganagar	21	11482	138	1732	15%	3480	167	1276	61	77%	54%	1108	480	17%	616	486	28%
Rajasthan	Hanumangarh	18	9186	130	1989	22%	3039	172	1068	60	76%	62%	654	428	20%	889	745	41%
Rajasthan	Jaipur	30	52101	428	7673	15%	9892	325	3135	103	129%	57%	2329	1937	26%	2491	1954	38%
Rajasthan	Jaipur DTC II	31	5365	44	525	10%	1104	36	336	11	14%	52%	311	197	23%	260	196	37%
Rajasthan	Jaisalmer	6	4183	177	380	9%	597	101	263	44	56%	71%	106	87	19%	141	115	30%
Rajasthan	Jalore	17	6679	99	1238	19%	2686	159	946	56	70%	47%	1061	102	5%	573	378	29%
Rajasthan	Jhalawar	14	6333	115	1397	22%	2086	152	764	56	70%	56%	602	151	10%	569	479	39%
Rajasthan	Jhunjhunun	22	10386	117	1718	17%	2704	121	995	45	56%	63%	585	418	21%	706	569	36%
Rajasthan	Jodhpur	34	18868	141	2793	15%	4277	128	1359	41	51%	53%	1203	844	25%	871	643	32%
Rajasthan	Karauli	14	10108	180	1743	17%	2854	203	988	70	88%	49%	1035	148	7%	683	571	37%
Rajasthan	Kota	18	9849	135	1940	20%	3210	176	1116	61	76%	55%	919	498	20%	677	541	33%
Rajasthan	Nagaur	32	12142	94	2126	18%	4047	125	1431	44	55%	52%	1307	454	14%	852	655	31%
Rajasthan	Pali	21	9612	114	1676	17%	3094	146	1141	54	67%	54%	984	352	14%	617	541	32%
Rajasthan	Rajsamand	11	5003	109	1143	23%	1941	169	720	63	78%	56%	575	241	16%	399	366	34%
Rajasthan	Sawai Madhopur	13	9425	181	1534	16%	2488	192	896	69	86%	60%	603	363	19%	626	481	35%
Rajasthan	Sikar	27	13833	130	1959	14%	3353	126	1170	44	55%	52%	1061	310	12%	812	553	32%
Rajasthan	Sirohi	10	6476	164	1088	17%	1757	177	681	69	86%	64%	391	165	13%	520	388	36%
Rajasthan	Tonk	14	10272	182	2234	22%	3851	273	1396	99	124%	59%	978	472	17%	1005	929	40%
Rajasthan	Udaipur	31	22741	186	7010	31%	6855	224	2856	93	117%	63%	1660	815	15%	1524	1225	30%
Sikkim	East	3	4672	429	422	9%	924	339	226	83	111%	52%	211	261	37%	226	144	39%
Sikkim	North *	0.5	266	146	34	13%	134	294	40	88	117%	54%	34	27	27%	33	17	30%
Sikkim	South **	1	1572	269	174	11%	391	267	119	81	109%	54%	100	93	30%	79	43	27%

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

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Rajasthan	Churu	190	9%	91%	88%	90%	92%	7	0.4%	122	8%	1217	86%	1291	91%	1163	87%	159	7%
Rajasthan	Dausa	113	6%	91%	86%	86%	94%	5	0.4%	68	6%	870	73%	1184	100%	745	72%	143	7%
Rajasthan	Dhaulpur	128	7%	92%	88%	89%	95%	1	0.1%	63	5%	1019	81%	1238	99%	823	81%	736	40%
Rajasthan	Dungarpur †	72	3%	92%	88%	91%	97%	4	0.2%	52	3%	1237	73%	1549	92%	1147	79%	248	15%
Rajasthan	Ganganagar	121	4%	91%	88%	88%	96%	12	0.7%	60	4%	1430	89%	1569	98%	1096	85%	328	12%
Rajasthan	Hanumangarh	125	6%	91%	85%	87%	92%	4	0.2%	148	8%	1449	89%	1427	88%	1085	90%	57	2%
Rajasthan	Jaipur	598	8%	94%	91%	91%	93%	58	1.1%	309	6%	3543	77%	4480	98%	3311	85%	724	10%
Rajasthan	Jaipur DTC II	64	8%				92%	1	0.2%	38	8%	396	74%	492	92%	425	85%	88	8%
Rajasthan	Jaisalmer	22	5%	91%	88%	91%	95%	9	2.6%	9	3%	294	84%	292	84%	248	80%	58	12%
Rajasthan	Jalore	53	3%	90%	88%	90%	96%	1	0.1%	51	4%	1022	82%	1141	92%	874	85%	165	7%
Rajasthan	Jhalawar	58	4%	90%	86%	86%	92%	22	1.7%	78	6%	886	78%	1079	95%	711	75%	132	10%
Rajasthan	Jhunjhunun	124	6%	88%	86%	87%	88%	11	0.7%	193	12%	1199	83%	1433	99%	939	84%	99	5%
Rajasthan	Jodhpur	173	5%	91%	89%	91%	89%	14	0.6%	244	10%	1515	82%	1840	100%	1242	73%	336	10%
Rajasthan	Karauli	80	4%	93%	87%	90%	91%	3	0.2%	139	8%	1081	76%	1386	98%	1052	81%	478	21%
Rajasthan	Kota	177	7%	92%	89%	92%	93%	8	0.5%	111	6%	1402	92%	1460	96%	1254	87%	279	11%
Rajasthan	Nagaur	154	5%	90%	84%	88%	92%	8	0.4%	160	8%	1694	88%	1822	94%	1339	83%	332	11%
Rajasthan	Pali	102	4%	90%	86%	88%	94%	1	0.1%	87	5%	1148	74%	1448	94%	938	72%	180	8%
Rajasthan	Rajsamand	66	4%	90%	86%	87%	88%	19	1.8%	108	10%	782	77%	996	99%	685	75%	293	19%
Rajasthan	Sawai Madhopur	104	6%	92%	87%	90%	95%	1	0.1%	72	5%	1096	88%	1247	100%	981	86%	161	10%
Rajasthan	Sikar	114	4%	91%	86%	87%	90%	5	0.3%	164	9%	1358	85%	1518	95%	1259	88%	62	3%
Rajasthan	Sirohi	86	7%	92%	89%	89%	94%	7	0.7%	57	5%	878	89%	979	100%	679	90%	255	19%
Rajasthan	Tonk	126	4%	91%	87%	89%	97%	0	0.0%	54	3%	1729	83%	1563	75%	1479	83%	520	18%
Rajasthan	Udaipur	286	5%	92%	88%	92%	96%	51	1.1%	126	3%	3112	82%	3653	96%	2391	77%	1427	27%
Sikkim	East	78	11%	85%	86%	86%	92%	16	4.6%	11	3%	279	86%	287	89%	262	67%	101	14%
Sikkim	North *	7	7%	77%	76%	76%	100%	0	0.0%	0	0%	49	100%	49	100%	21	91%	70	64%
Sikkim	South **	44	14%	91%	92%	92%	94%	1	0.7%	7	5%	132	94%	140	100%	103	99%	165	54%

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

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Sikkim	West **	1	1043	190	122	12%	271	198	108	79	105%	73%	40	70	32%	53	37	26%
Tamil Nadu	Chennai	45	56072	309	5413	10%	6394	141	2426	53	71%	64%	1348	1678	31%	942	786	24%
Tamil Nadu	Coimbatore	46	27372	150	2555	9%	4271	94	1999	44	59%	72%	781	826	23%	663	501	20%
Tamil Nadu	Cuddalore	25	30290	308	1574	5%	3502	142	1218	50	66%	55%	981	682	24%	621	431	26%
Tamil Nadu	Dharmapuri	14	13284	240	722	5%	1386	100	514	37	49%	58%	379	268	23%	225	167	25%
Tamil Nadu	Dindigul	21	19474	235	2075	11%	2799	135	1069	52	69%	57%	818	646	26%	266	233	18%
Tamil Nadu	Erode	28	29404	265	2664	9%	2806	101	1365	49	66%	68%	633	406	17%	402	329	19%
Tamil Nadu	Kancheepuram	31	14338	116	1088	8%	4732	153	1847	60	80%	65%	1014	1187	29%	684	573	24%
Tamil Nadu	Kanniyakumari	18	18573	258	1074	6%	1486	83	635	35	47%	60%	416	274	21%	160	137	18%
Tamil Nadu	Karur	10	6638	165	626	9%	1300	129	580	58	77%	60%	388	144	13%	188	126	18%
Tamil Nadu	Krishnagiri	17	15017	225	798	5%	1806	108	678	41	54%	51%	647	253	16%	228	182	21%
Tamil Nadu	Madurai	28	23974	217	2554	11%	3868	140	1380	50	67%	58%	1008	743	24%	737	496	26%
Tamil Nadu	Nagapattinam	16	10715	167	719	7%	1624	101	619	39	51%	51%	601	206	14%	198	174	22%
Tamil Nadu	Namakkal	16	10247	159	963	9%	1805	112	934	58	77%	76%	293	313	20%	265	231	20%
Tamil Nadu	Perambalur	13	7151	140	705	10%	1301	102	558	44	58%	62%	345	249	22%	149	116	17%
Tamil Nadu	Pudukkottai	16	10954	175	740	7%	1446	92	540	35	46%	55%	446	278	22%	182	140	21%
Tamil Nadu	Ramanathapuram	13	12151	238	638	5%	1398	110	638	50	67%	64%	353	230	19%	176	145	19%
Tamil Nadu	Salem	32	20072	156	1956	10%	3521	109	1431	44	59%	65%	769	796	27%	525	413	22%
Tamil Nadu	Sivaganga	12	12532	253	743	6%	1383	112	561	45	60%	53%	495	174	14%	152	121	18%
Tamil Nadu	Thanjavur	24	31221	328	1851	6%	2800	118	1118	47	63%	60%	738	566	23%	378	268	19%
Tamil Nadu	The Nilgiris	8	4317	131	185	4%	458	56	173	21	28%	60%	116	139	32%	29	17	9%
Tamil Nadu	Theni	12	13829	293	974	7%	1715	145	610	52	69%	52%	570	305	21%	230	156	20%
Tamil Nadu	Thiruvallur	30	33248	282	1359	4%	4129	140	1613	55	73%	64%	905	946	27%	665	517	24%
Tamil Nadu	Thiruvarur	13	8144	162	630	8%	1559	124	578	46	61%	51%	565	221	16%	137	95	14%
Tamil Nadu	Tiruchirappalli	26	22657	220	1706	8%	3501	136	1341	52	69%	57%	1030	827	26%	302	227	14%
Tamil Nadu	Tirunelveli	30	22199	184	1652	7%	3775	125	1308	43	58%	50%	1315	644	20%	508	391	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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Sikkim	West **	31	14%	89%	89%	89%	97%	1	0.8%	2	2%	121	95%	126	99%	90	96%	93	41%
Tamil Nadu	Chennai	429	8%	92%	86%	86%	93%	2	0.1%	252	7%	1958	75%	2393	92%	1096	63%	1063	29%
Tamil Nadu	Coimbatore	140	4%	90%	85%	85%	94%	0	0.0%	144	6%	2008	84%	2388	100%	1801	89%	184	6%
Tamil Nadu	Cuddalore	362	13%	95%	90%	91%	86%	30	2.0%	178	12%	1219	79%	1517	98%	1148	83%	193	7%
Tamil Nadu	Dharmapuri	77	7%	90%	86%	87%	100%	0	0.0%	3	0%	493	77%	578	90%	364	71%	198	20%
Tamil Nadu	Dindigul	411	16%	90%	85%	86%	80%	320	18.9%	18	1%	964	78%	1185	95%	711	74%	1212	53%
Tamil Nadu	Erode	33	1%	89%	84%	84%	93%	0	0.0%	118	7%	1239	76%	1518	93%	933	76%	548	25%
Tamil Nadu	Kancheepuram	450	11%	92%	87%	88%	96%	13	1.5%	23	3%	2024	89%	2265	99%	1796	95%	747	21%
Tamil Nadu	Kanniyakumari	158	12%	85%	82%	82%	88%	7	0.9%	90	11%	531	74%	616	86%	345	66%	539	46%
Tamil Nadu	Karur	58	5%	94%	91%	91%	94%	0	0.0%	36	6%	525	78%	677	100%	419	70%	168	17%
Tamil Nadu	Krishnagiri	132	8%	94%	90%	90%	94%	0	0.0%	48	6%	657	85%	723	94%	531	87%	334	24%
Tamil Nadu	Madurai	388	12%	88%	81%	81%	96%	0	0.0%	102	4%	1343	82%	1327	81%	1078	90%	386	19%
Tamil Nadu	Nagapattinam	185	13%	89%	84%	85%	91%	0	0.0%	62	9%	563	75%	692	92%	371	66%	147	12%
Tamil Nadu	Namakkal	82	5%	93%	90%	90%	96%	0	0.0%	32	4%	860	82%	982	93%	796	90%	927	64%
Tamil Nadu	Perambalur	107	9%	88%	80%	80%	94%	0	0.0%	38	6%	508	78%	672	104%	416	77%	309	30%
Tamil Nadu	Pudukkottai	145	11%	87%	82%	85%	93%	23	3.3%	23	3%	426	70%	525	87%	406	70%	244	27%
Tamil Nadu	Ramanath-apuram	163	13%	92%	87%	87%	97%	1	0.2%	17	3%	639	85%	750	100%	529	83%	326	30%
Tamil Nadu	Salem	215	7%	88%	82%	83%	92%	1	0.1%	142	8%	1407	81%	1706	98%	792	53%	655	25%
Tamil Nadu	Sivaganga	107	9%	84%	85%	86%	98%	0	0.0%	14	2%	525	85%	558	91%	381	78%	292	29%
Tamil Nadu	Thanjavur	267	11%	88%	82%	83%	98%	23	1.6%	7	0%	1263	96%	1317	100%	929	90%	569	29%
Tamil Nadu	The Nilgiris	66	15%	87%	84%	84%	97%	0	0.0%	5	3%	188	99%	189	100%	152	94%	181	62%
Tamil Nadu	Theni	135	9%	88%	76%	80%	97%	1	0.1%	24	3%	542	75%	694	96%	361	70%	129	12%
Tamil Nadu	Thiruvallur	234	7%	93%	86%	87%	93%	2	0.2%	77	7%	1463	73%	2012	100%	1317	83%	853	27%
Tamil Nadu	Thiruvarur	221	16%	90%	84%	84%	94%	10	1.7%	26	4%	570	87%	653	100%	406	80%	144	13%
Tamil Nadu	Tiruchirappalli	182	6%	94%	90%	90%	98%	4	0.3%	19	1%	1462	97%	1427	94%	1225	97%	880	34%
Tamil Nadu	Tirunelveli	375	11%	87%	81%	85%	92%	0	0.0%	123	8%	1187	76%	1557	100%	645	56%	687	24%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Tamil Nadu	Tiruvanamalai	24	21435	228	1689	8%	3041	129	1468	62	83%	69%	651	506	19%	416	361	20%
Tamil Nadu	Toothukudi	17	13457	199	1333	10%	2102	125	944	56	75%	64%	532	361	20%	265	222	19%
Tamil Nadu	Vellore	38	50129	334	2878	6%	5516	147	2116	56	75%	60%	1395	1455	29%	548	410	16%
Tamil Nadu	Viluppuram	32	37587	296	1691	4%	4710	148	1721	54	72%	55%	1405	935	23%	649	509	23%
Tamil Nadu	Virudhunagar	19	13241	175	1293	10%	2500	132	892	47	63%	48%	981	329	15%	298	230	20%
Tripura	Dhalai *	3	1866	136	169	9%	279	82	152	44	59%	68%	70	28	11%	29	20	12%
Tripura	North Tripura	7	3191	121	244	8%	512	78	226	34	46%	60%	148	69	16%	69	39	15%
Tripura	South Tripura	8	4538	134	321	7%	523	62	279	33	44%	75%	93	81	18%	70	51	15%
Tripura	West Tripura	17	12237	180	1083	9%	1537	90	862	51	67%	78%	238	285	21%	152	132	13%
Uttar Pradesh	Agra	42	35706	211	6201	17%	8582	203	2726	64	68%	65%	1477	1497	26%	2784	1953	42%
Uttar Pradesh	Aligarh	35	27939	200	3851	14%	6452	184	2579	74	78%	54%	2239	811	14%	823	632	20%
Uttar Pradesh	Allahabad	58	41489	179	6123	15%	8443	146	3526	61	64%	61%	2219	942	14%	1756	1417	29%
Uttar Pradesh	Ambedkar Nagar	24	9181	97	1461	16%	2153	91	1228	52	55%	75%	419	240	13%	266	223	15%
Uttar Pradesh	Auraiya	14	7872	143	1452	18%	2250	163	1094	79	83%	69%	483	190	11%	483	405	27%
Uttar Pradesh	Azamgarh	46	19005	103	2660	14%	4934	107	2011	43	46%	57%	1535	472	12%	914	506	20%
Uttar Pradesh	Baghpat	14	7294	134	1270	17%	1988	146	980	72	76%	77%	299	270	17%	439	384	28%
Uttar Pradesh	Bahraich **	31	21490	171	3368	16%	5429	173	2403	77	81%	55%	1975	480	10%	571	560	19%
Uttar Pradesh	Ballia	32	10009	78	1696	17%	3144	98	1541	48	50%	59%	1052	343	12%	205	137	8%
Uttar Pradesh	Balrampur	20	8991	114	1171	13%	2370	120	1058	54	56%	54%	915	261	12%	136	105	9%
Uttar Pradesh	Banda **	18	9689	138	1600	17%	2049	117	786	45	47%	68%	377	203	15%	664	582	43%
Uttar Pradesh	Barabanki **	36	20870	146	3158	15%	5360	150	2590	72	76%	64%	1427	675	14%	662	633	20%
Uttar Pradesh	Bareilly	42	37360	222	5243	14%	6932	165	2891	69	72%	62%	1764	695	13%	1582	1131	28%
Uttar Pradesh	Basti **	24	10136	105	1543	15%	3538	146	1204	50	52%	44%	1551	522	16%	261	199	14%
Uttar Pradesh	Bijnor **	37	24340	166	2959	12%	4402	120	2402	66	69%	80%	613	728	19%	659	532	18%
Uttar Pradesh	Budaun **	36	29660	206	3981	13%	5812	162	2988	83	88%	69%	1340	206	5%	1278	966	24%

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Tamil Nadu	Tiruvanamalai	276	11%	94%	87%	90%	95%	1	0.1%	72	5%	1246	71%	1732	99%	881	63%	381	16%
Tamil Nadu	Toothukudi	152	8%	89%	87%	87%	96%	6	0.5%	39	3%	975	87%	1068	95%	893	97%	478	29%
Tamil Nadu	Vellore	159	3%	91%	88%	89%	96%	0	0.0%	97	4%	2125	92%	2300	99%	1484	83%	1560	93%
Tamil Nadu	Viluppuram	549	14%	92%	88%	89%	97%	12	0.7%	39	2%	1467	79%	1745	94%	1389	83%	430	11%
Tamil Nadu	Virudhunagar	346	16%	89%	82%	82%	96%	0	0.0%	47	4%	816	75%	1089	100%	396	46%	435	21%
Tripura	Dhalai *	3	1%	94%	94%	95%	99%	0	0.0%	1	1%	160	94%	162	95%	147	90%	214	85%
Tripura	North Tripura	14	3%	89%	84%	88%	91%	0	0.0%	22	9%	198	80%	237	96%	181	81%	300	76%
Tripura	South Tripura	12	3%	92%	89%	90%	92%	2	0.6%	24	8%	252	79%	310	97%	189	75%	159	35%
Tripura	West Tripura	41	3%	91%	89%	90%	91%	33	3.5%	52	5%	751	80%	933	100%	632	74%	381	40%
Uttar Pradesh	Agra	990	17%	91%	85%	88%	93%	0	0.0%	434	7%	3633	87%	4198	100%	2337	92%	5519	85%
Uttar Pradesh	Aligarh	367	7%	94%	88%	92%	89%	2	0.1%	387	11%	2151	70%	2724	89%	2481	94%	1381	43%
Uttar Pradesh	Allahabad	441	7%	88%	78%	83%	90%	28	0.5%	514	10%	4268	93%	4590	100%	2440	75%	5126	77%
Uttar Pradesh	Ambedkar Nagar	76	4%	89%	87%	92%	95%	0	0.0%	73	5%	1238	90%	1259	91%	975	84%	726	66%
Uttar Pradesh	Auraiya	97	5%	91%	85%	91%	97%	0	0.0%	49	3%	1014	86%	1176	100%	705	87%	1435	82%
Uttar Pradesh	Azamgarh	262	7%	87%	82%	83%	90%	5	0.2%	252	10%	2098	92%	2215	98%	1215	85%	1235	42%
Uttar Pradesh	Baghpat	81	5%	94%	88%	89%	96%	0	0.0%	45	4%	1127	89%	1268	100%	964	88%	1262	85%
Uttar Pradesh	Bahraich **	196	4%	89%	87%	88%	94%	0	0.0%	191	6%	2633	99%	2672	100%	2253	125%	2259	85%
Uttar Pradesh	Ballia	188	6%	92%	81%	88%	96%	0	0.0%	70	4%	1517	93%	1402	86%	1134	115%	1080	47%
Uttar Pradesh	Balrampur	125	6%	89%	85%	86%	97%	0	0.0%	37	3%	1139	100%	1141	100%	997	98%	1756	86%
Uttar Pradesh	Banda **	121	9%	92%	86%	87%	92%	0	0.0%	121	8%	1106	93%	1194	100%	1059	89%	783	53%
Uttar Pradesh	Barabanki **	460	10%	93%	89%	91%	97%	0	0.0%	103	3%	3039	98%	2631	85%	2328	94%	2788	66%
Uttar Pradesh	Bareilly	347	6%	91%	85%	87%	87%	2	0.0%	647	13%	3076	88%	3485	100%	2903	100%	3674	76%
Uttar Pradesh	Basti **	195	6%	90%	84%	84%	94%	0	0.0%	81	6%	1196	88%	1354	100%	886	76%	1971	91%
Uttar Pradesh	Bijnor **	334	9%	89%	84%	85%	93%	1	0.0%	209	7%	2425	91%	2677	100%	1962	93%	2679	80%
Uttar Pradesh	Budaun **	286	6%	94%	87%	90%	97%	1	0.0%	109	3%	3513	93%	3752	100%	2613	90%	2809	62%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Uttar Pradesh	Bulandshahar	34	24078	176	3381	14%	7270	212	2696	79	83%	50%	2703	897	14%	974	723	21%
Uttar Pradesh	Chandauli	19	9109	119	1296	14%	1940	101	994	52	55%	72%	385	239	15%	304	224	18%
Uttar Pradesh	Chitrakoot	9	4675	125	755	16%	1487	159	554	59	62%	56%	436	132	12%	365	218	28%
Uttar Pradesh	Deoria	32	10998	86	1588	14%	2421	76	1179	37	39%	72%	459	326	17%	457	309	21%
Uttar Pradesh	Etah	18	18254	251	2650	15%	3994	220	1848	102	107%	66%	934	522	16%	685	590	24%
Uttar Pradesh	Etawah	16	15056	240	2399	16%	2764	176	1251	80	84%	74%	444	384	18%	685	646	34%
Uttar Pradesh	Faizabad	20	10929	137	1679	15%	2856	143	1248	63	66%	57%	935	336	13%	337	271	18%
Uttar Pradesh	Farrukhabad	18	10800	146	1677	16%	2596	141	1112	60	63%	62%	685	354	16%	445	389	26%
Uttar Pradesh	Fatehpur **	27	17198	159	2174	13%	3635	135	1644	61	64%	61%	1061	413	13%	517	413	20%
Uttar Pradesh	Firozabad	24	11868	124	2426	20%	4012	168	1454	61	64%	69%	650	662	24%	1245	800	35%
Uttar Pradesh	Gautam Budh Nagar	14	10339	185	1591	15%	3495	251	1146	82	87%	59%	802	932	32%	584	437	28%
Uttar Pradesh	Ghaziabad	39	30219	196	4449	15%	10420	271	3624	94	99%	56%	2836	2067	24%	1893	1120	24%
Uttar Pradesh	Ghazipur	36	12908	90	2103	16%	3152	88	1706	48	50%	69%	760	279	10%	407	296	15%
Uttar Pradesh	Gonda	32	12522	97	2303	18%	4306	133	1687	52	55%	46%	1955	244	6%	419	347	17%
Uttar Pradesh	Gorakhpur	44	21583	122	2968	14%	3664	83	1968	44	47%	75%	655	411	14%	628	516	21%
Uttar Pradesh	Hamirpur-UP **	12	6821	140	1105	16%	1750	143	719	59	62%	55%	600	203	13%	228	180	20%
Uttar Pradesh	Hardoi **	40	28472	179	3966	14%	7606	191	3166	80	84%	51%	3062	427	6%	948	728	19%
Uttar Pradesh	Hathras	16	9314	149	1545	17%	2232	143	1116	71	75%	73%	421	89	5%	583	303	21%
Uttar Pradesh	Jalaun **	17	10432	153	1563	15%	2664	156	1054	62	65%	60%	708	290	14%	611	433	29%
Uttar Pradesh	Jaunpur	46	20160	110	3376	17%	7442	163	2487	54	57%	44%	3112	1178	17%	662	484	16%
Uttar Pradesh	Jhansi **	20	11536	141	2084	18%	2745	134	1311	64	67%	72%	498	247	12%	689	449	26%
Uttar Pradesh	Jyotiba Phule Nagar **	18	14582	208	1702	12%	2112	120	1327	76	80%	81%	307	114	7%	364	344	21%
Uttar Pradesh	Kannauj	16	11118	171	1376	12%	2107	130	1036	64	67%	67%	501	209	12%	361	320	24%
Uttar Pradesh	Kanpur Dehat**	19	8517	115	1557	18%	2370	128	1297	70	74%	77%	397	247	13%	429	338	21%
Uttar Pradesh	Kanpur Nagar	48	32481	168	5987	18%	7532	156	2812	58	61%	66%	1459	1264	23%	1997	1388	33%

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

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Uttar Pradesh	Bulandshahar	458	7%	93%	88%	93%	96%	0	0.0%	147	4%	2881	94%	2814	92%	2459	95%	2093	42%
Uttar Pradesh	Chandauli	137	8%	89%	87%	88%	95%	0	0.0%	58	5%	1071	92%	1158	99%	948	89%	1236	81%
Uttar Pradesh	Chitrakoot	93	8%	91%	84%	89%	96%	0	0.0%	32	4%	535	85%	567	91%	430	78%	280	49%
Uttar Pradesh	Deoria	149	8%	89%	81%	86%	89%	0	0.0%	164	11%	1204	86%	1385	100%	872	74%	1270	97%
Uttar Pradesh	Etah	338	10%	93%	87%	96%	98%	3	0.1%	44	2%	1953	87%	2254	100%	1789	86%	2626	86%
Uttar Pradesh	Etawah	167	8%	92%	86%	86%	97%	0	0.0%	61	3%	1382	79%	1577	90%	936	74%	63	5%
Uttar Pradesh	Faizabad	157	6%	91%	86%	88%	95%	0	0.0%	80	5%	1243	90%	1376	100%	1036	91%	560	35%
Uttar Pradesh	Farrukhabad	179	8%	92%	87%	87%	70%	0	0.0%	462	30%	551	41%	1000	74%	994	87%	614	40%
Uttar Pradesh	Fatehpur **	150	5%	86%	80%	89%	91%	0	0.0%	191	9%	1812	92%	1954	100%	1313	86%	2094	78%
Uttar Pradesh	Firozabad	523	19%	88%	83%	84%	89%	0	0.0%	269	11%	1968	95%	1629	78%	1281	72%	831	27%
Uttar Pradesh	Gautam Budh Nagar	259	9%	92%	88%	91%	93%	0	0.0%	104	7%	1188	72%	1282	77%	1137	87%	1247	47%
Uttar Pradesh	Ghaziabad	710	8%	94%	91%	91%	97%	0	0.0%	125	3%	4189	100%	3209	100%	3652	95%	6129	75%
Uttar Pradesh	Ghazipur	118	4%	88%	77%	88%	96%	0	0.0%	81	4%	1780	92%	1929	100%	1108	83%	2360	96%
Uttar Pradesh	Gonda	194	5%	92%	86%	90%	95%	42	1.9%	60	3%	1739	88%	1965	100%	1369	87%	2826	74%
Uttar Pradesh	Gorakhpur	149	5%	93%	87%	87%	91%	1	0.0%	233	9%	2146	90%	1673	70%	1218	76%	1520	47%
Uttar Pradesh	Hamirpur-UP**	106	7%	92%	87%	89%	94%	0	0.0%	53	6%	766	90%	847	100%	559	82%	443	54%
Uttar Pradesh	Hardoi **	292	4%	92%	86%	89%	94%	0	0.0%	232	6%	3482	93%	3734	99%	2521	91%	4814	76%
Uttar Pradesh	Hathras	133	8%	93%	86%	91%	92%	0	0.0%	114	8%	1320	97%	1167	86%	1038	96%	1809	89%
Uttar Pradesh	Jalaun **	129	6%	90%	83%	87%	90%	0	0.0%	148	10%	1112	87%	1076	85%	929	78%	1014	50%
Uttar Pradesh	Jaunpur	382	6%	91%	86%	87%	95%	0	0.0%	153	5%	2691	95%	2798	99%	2219	87%	2836	47%
Uttar Pradesh	Jhansi **	80	4%	92%	87%	89%	98%	0	0.0%	41	2%	1515	92%	1601	97%	1353	90%	1313	67%
Uttar Pradesh	Jyotiba Phule Nagar **	41	2%	92%	89%	89%	97%	0	0.0%	47	3%	1493	93%	1602	100%	1243	91%	571	35%
Uttar Pradesh	Kannauj	136	8%	93%	90%	90%	97%	0	0.0%	46	3%	1081	91%	1194	100%	1075	98%	756	80%
Uttar Pradesh	Kanpur Dehat**	98	5%	96%	90%	91%	95%	0	0.0%	78	5%	1478	95%	1547	99%	1177	94%	1462	78%
Uttar Pradesh	Kanpur Nagar	512	9%	84%	77%	79%	76%	1	0.0%	1226	24%	3409	89%	3817	99%	2334	86%	3053	59%

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)		% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Uttar Pradesh	Kanshiram Nagar	14	3534	61	492	14%	882	61	407	28	30%	59%	280	86	11%	108	93	19%
Uttar Pradesh	Kaushambi	15	11205	185	1550	14%	2976	196	1315	87	91%	58%	952	212	9%	497	330	20%
Uttar Pradesh	Kheri	37	19160	128	2933	15%	4870	130	2095	56	59%	58%	1530	425	10%	818	622	23%
Uttar Pradesh	Kushinagar	34	12245	90	1929	16%	2927	86	1624	48	50%	69%	716	294	11%	293	239	13%
Uttar Pradesh	Lalitpur **	11	6615	145	1172	18%	1574	138	778	68	72%	66%	402	76	6%	318	244	24%
Uttar Pradesh	Lucknow	43	44644	259	6818	15%	7876	183	3129	73	76%	65%	1695	1289	21%	1763	1436	31%
Uttar Pradesh	Maharajganj **	25	11473	113	1469	13%	2325	92	1258	50	52%	64%	714	132	6%	221	175	12%
Uttar Pradesh	Mahoba **	8	4050	122	839	21%	1050	127	517	62	66%	81%	122	92	13%	319	265	34%
Uttar Pradesh	Mainpuri	19	8886	119	1475	17%	2186	117	1054	57	59%	71%	433	159	9%	369	283	21%
Uttar Pradesh	Mathura	24	16178	167	2350	15%	3689	152	1681	69	73%	63%	968	523	16%	517	439	21%
Uttar Pradesh	Mau **	22	8498	98	950	11%	1958	90	758	35	37%	49%	778	173	10%	244	117	13%
Uttar Pradesh	Meerut	35	32049	228	4132	13%	6792	193	3085	88	92%	63%	1808	1008	17%	891	726	19%
Uttar Pradesh	Mirzapur	25	16068	162	1991	12%	3211	130	1404	57	60%	58%	1018	228	9%	561	511	27%
Uttar Pradesh	Moradabad **	44	31113	177	4704	15%	6032	137	3446	79	83%	78%	955	633	13%	997	937	21%
Uttar Pradesh	Muzaffarnagar	41	32040	193	4126	13%	6200	150	3045	73	77%	72%	1189	900	18%	1066	948	24%
Uttar Pradesh	Pilibhit **	19	17257	224	2202	13%	3158	164	1419	74	78%	67%	698	304	13%	736	468	25%
Uttar Pradesh	Pratapgarh **	32	18602	146	2045	11%	4098	128	1612	50	53%	53%	1409	506	14%	535	405	20%
Uttar Pradesh	Rae Bareli **	34	15487	115	2769	18%	5342	159	2150	64	67%	48%	2310	447	9%	430	381	15%
Uttar Pradesh	Rampur	23	18634	207	2517	14%	3942	175	1714	76	80%	65%	943	439	14%	827	709	29%
Uttar Pradesh	Saharanpur	33	27922	209	3700	13%	5401	162	2397	72	76%	76%	741	972	24%	1291	1057	31%
Uttar Pradesh	Sant Kabir Nagar **	17	7567	113	966	13%	1911	115	772	46	49%	50%	774	224	13%	141	107	12%
Uttar Pradesh	Sant Ravidas Nagar	16	11200	177	1425	13%	2958	187	1143	72	76%	52%	1068	208	9%	539	286	20%
Uttar Pradesh	Shahjahanpur	30	19170	161	2739	14%	3860	129	1956	66	69%	68%	939	342	11%	622	505	21%
Uttar Pradesh	Shravasti **	10	5559	135	773	14%	1014	98	622	60	64%	81%	142	91	11%	158	148	19%

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

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Uttar Pradesh	Kanshiram Nagar	57	7%	92%			96%	0	0.0%	21	4%	442	88%	500	100%	203	94%	470	62%
Uttar Pradesh	Kaushambi	122	5%	99%	96%	96%	100%	0	0.0%	0	0%	1499	97%	1553	100%	1141	96%	2327	100%
Uttar Pradesh	Kheri	233	6%	87%	83%	88%	67%	0	0.0%	936	33%	2076	84%	2481	100%	2068	86%	2834	76%
Uttar Pradesh	Kushinagar	141	5%	90%	90%	92%	93%	0	0.0%	141	7%	1495	83%	1779	99%	1094	78%	2102	95%
Uttar Pradesh	Lalitpur **	64	5%	88%	79%	86%	86%	24	2.1%	143	12%	867	94%	880	95%	778	92%	739	62%
Uttar Pradesh	Lucknow	538	9%	85%	82%	82%	80%	0	0.0%	1079	20%	3970	94%	4209	100%	2513	98%	1802	29%
Uttar Pradesh	Maharajganj **	103	5%	90%	87%	90%	91%	0	0.0%	138	9%	1239	89%	1238	89%	965	93%	941	51%
Uttar Pradesh	Mahoba **	58	8%	93%	85%	88%	98%	1	0.1%	19	2%	602	88%	677	100%	481	81%	839	86%
Uttar Pradesh	Mainpuri	96	5%	91%	88%	93%	91%	0	0.0%	133	9%	1054	100%	1054	100%	449	53%	1166	99%
Uttar Pradesh	Mathura	213	7%	92%	86%	88%	94%	0	0.0%	135	6%	1738	98%	1974	100%	1503	94%	1161	41%
Uttar Pradesh	Mau **	65	4%	90%	82%	92%	96%	0	0.0%	38	4%	752	88%	850	100%	675	88%	686	45%
Uttar Pradesh	Meerut	343	6%	92%	90%	91%	92%	0	0.0%	325	8%	3340	92%	3618	100%	2849	91%	4077	77%
Uttar Pradesh	Mirzapur	172	6%	94%	91%	94%	96%	0	0.0%	83	4%	1439	80%	1401	78%	1064	68%	995	60%
Uttar Pradesh	Moradabad **	261	5%	90%	84%	85%	93%	0	0.0%	334	7%	3880	93%	3986	95%	3118	89%	3671	79%
Uttar Pradesh	Muzaffarnagar	310	6%	91%	86%	88%	93%	1	0.0%	301	7%	3276	87%	3773	100%	2807	90%	3534	74%
Uttar Pradesh	Pilibhit **	164	7%	92%	84%	86%	97%	0	0.0%	71	3%	1723	97%	1772	99%	1145	90%	2009	70%
Uttar Pradesh	Pratapgarh **	161	5%	91%	84%	90%	98%	0	0.0%	47	2%	1750	91%	1926	100%	907	78%	1951	79%
Uttar Pradesh	Rae Bareli **	244	5%	89%	81%	87%	81%	0	0.0%	506	19%	1933	79%	2439	100%	1696	86%	3136	74%
Uttar Pradesh	Rampur	213	7%	91%	87%	87%	99%	0	0.0%	24	1%	1943	92%	2100	100%	1505	90%	554	22%
Uttar Pradesh	Saharanpur	324	8%	91%	87%	89%	92%	1	0.0%	299	8%	2930	92%	3187	100%	2316	94%	3280	79%
Uttar Pradesh	Sant Kabir Nagar **	97	5%	85%	89%	91%	86%	0	0.0%	137	14%	705	83%	791	94%	484	66%	964	64%
Uttar Pradesh	Sant Ravidas Nagar	197	8%	95%	91%	94%	100%	0	0.0%	1	0%	1342	98%	1215	89%	1008	91%	1449	59%
Uttar Pradesh	Shahjahanpur	174	5%	91%	84%	86%	63%	4	0.2%	947	36%	1830	85%	2069	96%	1481	87%	556	52%
Uttar Pradesh	Shravasti **	38	4%	91%	86%	88%	99%	0	0.0%	4	1%	577	88%	656	100%	471	82%	658	71%

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

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Uttar Pradesh	Siddharthnagar**	24	9641	101	1279	13%	2289	96	1017	43	45%	54%	863	156	8%	253	225	18%
Uttar Pradesh	Sitapur **	42	25510	151	3378	13%	6873	162	2489	59	62%	46%	2872	396	7%	1116	729	23%
Uttar Pradesh	Sonbhadra	17	7482	109	1534	21%	1881	110	1162	68	71%	79%	301	137	9%	277	235	17%
Uttar Pradesh	Sultanpur	37	18093	121	2426	13%	4290	115	2088	56	59%	59%	1462	386	10%	349	284	12%
Uttar Pradesh	Unnao **	32	19819	157	2911	15%	5306	168	2214	70	74%	61%	1424	712	16%	954	805	27%
Uttar Pradesh	Varanasi	37	23711	161	3470	15%	6036	164	2417	66	69%	57%	1841	1054	20%	724	495	17%
Uttarakhand	Almora	7	5868	205	533	9%	825	115	337	47	50%	75%	110	186	29%	177	138	29%
Uttarakhand	Bageshwar	3	1899	167	197	10%	369	130	117	41	43%	57%	88	81	28%	83	65	36%
Uttarakhand	Chamoli	4	1734	103	280	16%	559	133	211	50	53%	63%	123	69	17%	153	112	35%
Uttarakhand	Champawat	3	1886	185	147	8%	292	114	98	38	40%	60%	64	48	22%	74	49	33%
Uttarakhand	Dehradun	15	16029	276	2511	16%	2872	198	924	64	67%	56%	723	640	28%	582	476	34%
Uttarakhand	Garhwal	8	5529	175	877	16%	1080	136	462	58	61%	67%	229	173	20%	209	175	27%
Uttarakhand	Hardwar	16	9590	146	1389	14%	1909	116	824	50	53%	64%	460	127	9%	498	432	34%
Uttarakhand	Nainital	9	7101	205	1422	20%	1875	216	561	65	68%	56%	439	281	21%	555	379	40%
Uttarakhand	Pithoragarh	5	2903	138	398	14%	576	110	268	51	54%	75%	90	109	23%	109	93	26%
Uttarakhand	Rudraprayag	3	1796	174	216	12%	486	188	166	64	68%	52%	154	73	19%	93	77	32%
Uttarakhand	Tehri Garhwal	7	3184	116	396	12%	933	136	350	51	54%	62%	214	168	23%	201	151	30%
Uttarakhand	Udhamsingh Nagar	14	9930	177	1310	13%	1976	141	782	56	59%	59%	547	190	12%	455	339	30%
Uttarakhand	Uttarkashi	3	2754	206	308	11%	548	164	200	60	63%	63%	116	99	24%	133	110	35%
West Bengal	Bankura	35	23575	167	2814	12%	4144	117	2144	61	81%	71%	881	706	19%	413	314	13%
West Bengal	Barddhaman	77	47131	154	5702	12%	9570	125	4172	54	73%	62%	2581	1145	14%	1672	1009	19%
West Bengal	Birbhum	33	22970	172	3215	14%	4264	128	2318	69	93%	72%	911	373	10%	661	516	18%

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Uttar Pradesh	Siddharthnagar**	91	4%	91%	87%	88%	93%	0	0.0%	83	7%	1044	89%	1174	100%	845	84%	720	48%
Uttar Pradesh	Sitapur **	231	4%	88%	78%	90%	85%	0	0.0%	496	15%	2667	88%	3047	100%	1908	85%	3628	68%
Uttar Pradesh	Sonbhadra	84	5%	91%	86%	90%	90%	0	0.0%	150	10%	1154	87%	1297	97%	739	69%	1251	95%
Uttar Pradesh	Sultanpur	204	5%	92%	86%	91%	96%	1	0.0%	91	4%	2133	93%	2270	98%	1829	90%	28	88%
Uttar Pradesh	Unnao **	287	7%	92%	91%	91%	90%	0	0.0%	298	10%	2637	94%	2806	100%	2375	93%	2326	60%
Uttar Pradesh	Varanasi	580	11%	90%	85%	86%	92%	0	0.0%	265	8%	2436	88%	2645	95%	2056	84%	3173	72%
Uttarakhand	Almora	57	9%	96%	87%	89%	96%	0	0.0%	21	4%	388	92%	388	92%	307	87%	360	56%
Uttarakhand	Bageshwar	14	5%	92%	78%	78%	95%	0	0.0%	9	5%	110	94%	117	100%	61	73%	103	75%
Uttarakhand	Chamoli	13	3%	89%	89%	89%	98%	0	0.0%	5	2%	216	86%	251	100%	201	86%	62	100%
Uttarakhand	Champawat	41	19%	88%	86%	94%	85%	0	0.0%	22	15%	86	76%	113	100%	99	78%	171	68%
Uttarakhand	Dehradun	194	8%	83%	70%	80%	79%	47	2.8%	250	15%	984	77%	1150	93%	540	76%	2043	88%
Uttarakhand	Garhwal	86	10%	87%	73%	73%	86%	0	0.0%	96	14%	426	76%	521	93%	271	67%	38	81%
Uttarakhand	Hardwar	92	7%	89%	84%	86%	88%	9	0.7%	146	11%	815	69%	1170	99%	657	74%	682	47%
Uttarakhand	Nainital	128	10%	82%	65%	80%	75%	4	0.3%	298	24%	804	93%	846	97%	422	97%	776	49%
Uttarakhand	Pithoragarh	25	5%	90%	87%	90%	94%	1	0.3%	21	6%	318	93%	341	100%	265	83%	27	82%
Uttarakhand	Rudraprayag	31	8%	90%	84%	88%	95%	5	2.4%	6	3%	196	88%	222	100%	151	86%	214	54%
Uttarakhand	Tehri Garhwal	46	6%	86%	81%	89%	87%	14	3.6%	25	6%	303	87%	350	100%	219	74%	521	68%
Uttarakhand	Udhamsingh Nagar	113	7%	91%	88%	88%	93%	2	0.2%	82	7%	995	96%	1019	98%	828	97%	362	24%
Uttarakhand	Uttarkashi	27	7%	94%	87%	90%	94%	0	0.0%	16	6%	184	92%	200	100%	174	81%	189	77%
West Bengal	Bankura	118	3%	92%	88%	90%	89%	0	0.0%	313	11%	2037	83%	2153	89%	1218	84%	248	23%
West Bengal	Barddhaman	368	5%	88%	84%	85%	90%	0	0.0%	535	10%	3293	67%	4655	95%	2332	60%	1701	32%
West Bengal	Birbhum	101	3%	87%	82%	85%	89%	0	0.0%	326	11%	2074	77%	2482	92%	1758	83%	504	15%

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

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West Bengal	Dakshin Dinajpur	17	12826	193	1723	13%	2417	145	1385	83	111%	82%	303	356	17%	372	275	17%
West Bengal	Darjiling **	18	16355	230	2660	16%	3980	224	1400	79	105%	69%	626	917	31%	1037	733	34%
West Bengal	Haora	47	28796	152	3441	12%	5718	121	2190	46	62%	69%	975	1127	26%	1421	929	30%
West Bengal	Hugli	56	27906	125	3703	13%	5884	105	2771	50	66%	72%	1088	1048	21%	972	624	18%
West Bengal	Jalpaiguri **	38	35830	238	4398	12%	7096	188	3445	91	122%	76%	1087	1178	21%	1369	973	22%
West Bengal	Koch Bihar **	27	23290	212	1982	9%	3241	118	1498	55	73%	71%	602	617	23%	524	330	18%
West Bengal	Kolkata	51	40053	197	5398	13%	7389	146	2612	51	69%	74%	925	1938	35%	1914	1233	32%
West Bengal	Maldah **	36	26541	182	3596	14%	5041	138	2679	73	98%	75%	877	638	15%	847	598	18%
West Bengal	Medinipur East	49	24736	126	2007	8%	2823	58	1609	33	44%	81%	368	391	17%	454	285	15%
West Bengal	Medinipur West	58	23492	102	4034	17%	6724	116	3011	52	69%	66%	1558	1108	20%	1047	561	16%
West Bengal	Murshidabad	65	46956	181	5034	11%	8104	125	3982	61	82%	72%	1538	1403	20%	1181	882	18%
West Bengal	Nadia	51	35961	176	3278	9%	5214	102	2336	46	61%	69%	1063	847	20%	968	583	20%
West Bengal	North 24 Parganas	99	54467	138	5922	11%	10333	104	4906	50	66%	77%	1459	1913	23%	2054	1207	20%
West Bengal	Puruliya	28	18033	160	2122	12%	4028	143	1685	60	80%	56%	1307	314	9%	722	324	16%
West Bengal	South 24 Parganas	77	45015	147	4303	10%	6993	91	3523	46	61%	74%	1217	1124	19%	1126	814	19%
West Bengal	Uttar Dinajpur	27	15542	144	1788	12%	2853	105	1436	53	71%	72%	570	399	17%	445	280	16%
Grand Total		**11641**	**7247895**	**156**	**930453**	**13%**	**1533309**	**132**	**624617**	**54**	**72%**	**62%**	**384113**	**233026**	**19%**	**289756**	**200780**	**24%**

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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
West Bengal	Dakshin Dinajpur	123	6%	86%	81%	83%	88%	0	0.0%	202	12%	1049	66%	1299	82%	1101	87%	337	17%
West Bengal	Darjiling **	315	11%	89%	79%	81%	80%	5	0.2%	493	20%	1420	72%	1566	80%	969	71%	1061	33%
West Bengal	Haora	383	9%	84%	75%	79%	94%	15	0.4%	180	5%	2450	85%	2773	97%	1829	88%	1811	41%
West Bengal	Hugli	171	3%	87%	83%	85%	82%	0	0.0%	653	18%	2284	71%	3181	98%	2071	77%	1190	30%
West Bengal	Jalpaiguri **	398	7%	90%	87%	88%	97%	0	0.0%	126	3%	3803	90%	4134	98%	3213	93%	535	10%
West Bengal	Koch Bihar **	66	2%	89%	84%	85%	95%	0	0.0%	85	5%	1302	74%	1701	97%	1164	84%	526	21%
West Bengal	Kolkata	540	10%	81%	79%	79%	87%	5	0.1%	563	13%	3157	89%	3512	100%	2869	98%	1701	31%
West Bengal	Maldah **	279	7%	88%	82%	84%	84%	21	0.6%	529	15%	1879	60%	2456	79%	1648	65%	435	13%
West Bengal	Medinipur East	72	3%	87%	80%	81%	93%	1	0.1%	135	7%	1346	74%	1612	88%	1134	72%	197	10%
West Bengal	Medinipur West	144	3%	91%	87%	89%	86%	24	0.6%	532	13%	2483	72%	2456	71%	2003	72%	651	13%
West Bengal	Murshidabad	421	6%	91%	86%	88%	92%	0	0.0%	388	8%	3736	80%	4395	94%	3133	82%	732	21%
West Bengal	Nadia	153	4%	89%	88%	88%	91%	1	0.0%	272	9%	2233	81%	2747	99%	2052	82%	802	20%
West Bengal	North 24 Parganas	400	5%	88%	85%	86%	92%	5	0.1%	442	8%	5528	95%	5812	100%	4720	96%	4584	61%
West Bengal	Puruliya	152	5%	90%	85%	87%	94%	0	0.0%	133	6%	1417	73%	1828	94%	1319	82%	412	13%
West Bengal	South 24 Parganas	277	5%	90%	85%	87%	94%	0	0.0%	272	6%	3377	82%	3657	88%	2174	67%	1392	27%
West Bengal	Uttar Dinajpur	183	8%	89%	84%	86%	94%	0	0.0%	104	6%	1434	87%	1589	97%	1193	84%	375	17%
Grand Total		**86532**	**7%**	**90%**	**85%**	**87%**	**92%**	**5759**	**0.7%**	**63664**	**7%**	**661258**	**86%**	**724710**	**95%**	**499590**	**82%**	**439899**	**41%**

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	No of Smear positive patients diagnosed[2]	% of S+ve cases among suspects	Total patients registered for treatment[3]	Annualized total case detection rate	New smear positive patients registered for treatment	Annualized new smear positive case detection rate (%)	% new sputum positive out of total new pulmonary cases	No of new smear negative cases registered for treatment	No of new EP cases registered for treament	% of new EP cases out of all new cases	No of retreatment cases registered for treatment	No of smear positive retreatment cases registered for treatment	% of smear positive retreatment cases out of all smear positive cases
Summary of performance of Tribal Districts		**525**	**301724**	**144**	**44551**	**15%**	**78233**	**149**	**33120**	**63**	**84%**	**60%**	**22292**	**9913**	**15%**	**12789**	**8290**	**20%**
Summary of performance of Poor and Backward Districts		**2643**	**1284840**	**122**	**180630**	**14%**	**307371**	**116**	**134870**	**51**	**68%**	**60%**	**90713**	**31039**	**12%**	**50282**	**33747**	**20%**
Zonal Analysis																	
North Zone		2931	1946363	166	278732	14%	454671	155	184296	63	66%	63%	109560	73204	20%	86857	64437	26%
South Zone		2437	1912067	196	183166	10%	292880	120	121709	50	67%	63%	72411	48762	20%	49618	36899	23%
West Zone		3278	1861760	142	269635	14%	443129	135	169172	52	65%	60%	112391	65150	19%	96203	66715	28%
East zone		2553	1281714	126	165645	13%	280734	110	124826	49	65%	63%	72951	36271	15%	46324	26774	18%
North East		442	245991	139	33275	14%	61895	140	24614	56	74%	59%	16800	9639	19%	10754	5955	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]	Cure rate of new smear positive patients[5]	Success rate of new smear positive patients[5]	% smear positive patients living in the district placed on DOTS	No (%) of patients put on Non-DOTS treatment regimen		No (%) of Initial defaulters		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 cured Smear Positive cases having end of treatment follow- up sputum done within 7 days of last dose		No (%) of cases registered receiving DOT through a community volunteer	
Summary of performance of Tribal Districts		**4705**	**7%**	**90%**	**84%**	**88%**	**91%**	**358**	**0.8%**	**3274**	**8%**	**33180**	**84%**	**37218**	**96%**	**23485**	**77%**	**24122**	**46%**
Summary of performance of Poor and Backward Districts		**15746**	**6%**	**90%**	**84%**	**88%**	**93%**	**372**	**0.2%**	**11986**	**7%**	**136876**	**87%**	**148685**	**94%**	**99604**	**80%**	**92349**	**46%**
Zonal Analysis																			
North Zone		28062	8%	90%	85%	88%	91%	1031	0.4%	20585	8%	205794	90%	218273	96%	160977	89%	154534	50%
South Zone		17397	7%	89%	84%	86%	93%	1024	0.6%	11050	7%	124698	85%	138519	94%	90937	79%	115006	54%
West Zone		22804	7%	90%	85%	87%	92%	3057	1.3%	16845	7%	186260	86%	207666	95%	142786	79%	94835	30%
East zone		14711	6%	89%	83%	87%	91%	379	0.2%	12785	8%	118786	83%	133651	94%	85945	76%	59552	34%
North East		3558	7%	89%	86%	88%	91%	268	0.9%	2399	8%	25720	87%	26601	92%	18945	82%	15972	36%

* 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, Pondicherry, 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 were carved out during 4th quarter 2009
5 Cure rate and Success rate are not expected for new districts that were carved out after 4th quarter 2008
Values for grey areas are not expected

Referral of TB Suspects from ICTCs to RNTCP Diagnostic Units for the Year 2009 (Reported by Phase-I States Implementing Joint TB-HIV Action Plan

	Andhra Pradesh		Karnataka		Maharashtra		Manipur		Mizoram		Nagaland		Tamil Nadu		Total	
Total Population (In lakhs)	830		580		1083		27		10		22		669		3221	
Total No. of districts	24		30		34		9		8		11		30		146	
	HIV Positive	**HIV Negative**	**HIV Positive**	**HIV Negative**	**HIV Positive**	**HIV Negative**	**HIV Positive**	**HIV Negative**	**HIV Positive**	**HIV Negative**	**HIV Positive**	**HIV Negative**	**HIV Positive**	**HIV Negative**	**HIV Positive**	**HIV Negative**
1. Number of TB suspects referred from VCTCs to RNTCP facilities*	36054	49203	18680	29002	31890	60765	1100	934	343	91	297	2052	20105	64595	108469	206642
2. Out of the above persons, number diagnosed as having TB:																
a) Sputum Positive TB	2685	6404	1057	2473	1449	4696	25	55	13	18	20	233	982	3689	6231	17568
b) Sputum Negative TB	917	1637	448	676	770	1711	20	49	67	26	9	48	508	619	2739	4766
c) Extra-Pulmonary TB	152	198	215	245	428	459	6	10	6	2	4	35	234	211	1045	1160
d) Total diagnosed TB patients	3754	8239	1720	3394	2647	6866	51	114	86	46	33	316	1724	4519	10015	23494
3. Out of above total diagnosed TB patients (d), number receiving DOTS	3232	7391	1491	2769	2111	5723	47	105	8	8	26	274	1250	3605	8165	19875
* Source of data: Monthly reports on TB-HIV cross referrals submitted by individual ICTCs to the respective state SACS																

HIV Status of the TB Patients - Annual 2009
(Reported by Eleven States Implementing Intensified TB/HIV Package)

State	Total TB patients registered	Registered TB patients with known HIV status		Registered TB cases found to be HIV positive		
		No.	%	No.	% HIV+ among those tested	% HIV+ among total TB cases registered
Andhra Pradesh	114074	61089	54%	9162	15%	8%
Delhi**	10345	4851	47%	95	2%	1%
Goa	1894	1131	60%	93	8%	5%
Gujarat*	39273	19824	50%	823	4%	2%
Karnataka	67744	50308	74%	7857	16%	12%
Maharashtra	137485	59620	43%	7705	13%	6%
Manipur	4239	983	23%	180	18%	4%
Mizoram	2538	443	17%	139	31%	5%
Nagaland	3614	959	27%	92	10%	3%
Puducherry	1385	1010	73%	29	3%	2%
Tamil Nadu	82634	57819	70%	4883	8%	6%
Grand Total	**465225**	**258037**	**55%**	**31058**	**12%**	**7%**

*Gujarat Started reporting from 3Q09 and **Delhi Started reporting from 4Q09

Annual Report on Case Finding of MDR-TB Patients-Year 2009

Year	State	Name of the DOTS plus site	No. of MDR Suspects subjected to Culture and DST	No. of MDR TB cases detected	No. of MDR TB Cases registered and initiated on Cat- IV treatment
2009	Gujarat	BJMC, Ahmedabad	1236	374	252
2009	Maharshtra	1. GMC, Nagpur; 2. GMC Akola	496	140	91
2009	Andhra Pradesh	1. APCH,Hyderabad 2. IDH, Guntur	589	222	154
2009	West Bengal	KS Ray TB Hospital, Kolkata	390	66	39
2009	Haryana	PGIMS, Rohtak	291	66	42
2009	Kerala	1.Trivandrum, 2. Kozhikode	763	193	131
2009	Delhi	1.LNJP Hospital 2. LRS Institute 3. RBTB Hospital 4. AIIMS	1495	574	293
2009	Tamil Nadu	GHTM, Tambaram	256	53	53
2009	Rajasthan	SMS, Jaipur	1325	205	102
2009	Orissa	SCB Medical College Cuttack	24	3	3
2009	**Total**		**5260**	**1635**	**1107**

Central TB Division
Directorate General of Health Services
Ministry of Health and Family Wefare, Nirman Bhawan, New Delhi - 110 011