



**TB FREE INDIA**

# TB INDIA 2015

Revised National TB Control Programme

## ANNUAL STATUS REPORT

**REACH  
TREAT  
CURE TB**



Central TB Division  
Directorate General of Health Services  
Ministry of Health and Family Welfare, Nirman Bhavan, New Delhi-110108  
[www.tbcindia.gov.in](http://www.tbcindia.gov.in)





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जगत प्रकाश नड्डा  
Jagat Prakash Nadda



स्वास्थ्य एवं परिवार कल्याण मंत्री  
भारत सरकार  
Minister of Health & Family Welfare  
Government of India



## FOREWORD

Tuberculosis is the oldest malady of human poverty and sufferings and remains a major Public health problem despite noteworthy socio-economic development, advances and availability of technology. It is a curable disease but still millions of people suffer every year and a number of them die from this infectious disease resulting in devastating social & economic impact.

Since the Millennium Development Declaration by United Nations in the year 2000 it has been a decade of learning, expansion, success and achievement for Revised National Tuberculosis Control Programme and it is a matter of pride for me that the RNTCP has taken target based initiatives and is on the path to achieve the Millennium Development Goals related to TB.

Under the "Revised National Tuberculosis Control Programme", with the advent of effective drugs, modern technology, and the programme Management techniques, the recent decline of the disease prevalence and mortality is evident. Still there are many challenges due to complexity of TB transmission of disease and active disease progression which run the epidemic. Air pollution, malnutrition, overcrowding and poor living condition add fuel to the fire of epidemic. Programme is also expanding collaborative activities to address co-morbidities like associated HIV, diabetes, smoking.

Newer challenge of great concern is development of resistance to anti TB Drugs due to irregular & incomplete treatment with irrational regimens which is being dealt effectively with appropriate expansion of diagnostic and treatment services for managing Drug Resistant TB (MDR/XDR TB) across the country.

Case Based Web Based IT system (Nikshay) for tracking of individual TB cases, ban on Commercial Serological test for diagnosis of active TB because of the inconsistency in their result and notification of all TB cases are some of the bold decisions of the programme.

Steps for effective engagement of all care providers are being taken through Technical Support Group and Private Provider Interface Agencies (PPIA) for effective engagement of private sector.

A lot has been achieved during the 11<sup>th</sup> Five year plan period but lot more need to be done and to accomplish the vision the programme has ambitious plans for 12<sup>th</sup> Five year period. The Union Government is firmly committed and will ensure all necessary help to achieve vision of "TB-free India."

(Jagat Prakash Nadda)

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सचिव  
B.P. SHARMA  
Secretary



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

Dated : 18<sup>th</sup> March, 2015

**MESSAGE**

Tuberculosis has remained a disease of Public Health Importance since ages and is known to inflict large quantum of socio-economic cost on the society. Despite the availability of effective treatment one fourth of Global burden of TB is in India and one death takes place every two minute.

The Revised National Tuberculosis Control Program has achieved the Global Targets during the Eleventh Five year Plan. The Program has treated 17.4 million patients and has saved additional 3.1 million lives since inception.

Challenges of drug resistance, HIV and other disease associated TB are being addressed with appropriate measures. To cut the chain of transmission and prevent the spread of disease, it is essential to reach all TB cases, treat and cure them. This will also prevent the emergence of drug resistance TB.

New initiatives are required to address the problems of TB in urban and socio-economically vulnerable population. "Nikshay", the case based web based reporting system developed under RNTCP will ensure better surveillance and treatment of TB cases.

Involvement of all care providers will enhance availability of quality diagnostic and treatment services to TB patients not yet captured under RNTCP. Development of "Standards of TB Care in India" is an important milestone in this direction. All stakeholders from government, private and civil societies, both from health and non health sector have to work together in coordination to achieve the common goal of TB free India.

Finally, effective planning & implementation of Advocacy Communication and Social Mobilization activities for community, patients and providers need to be undertaken at state, district and field level to generate awareness about TB and demand for services available under RNTCP.

I take this opportunity to express the commitment of Ministry of Health and Family Welfare, Government of India, to achieve the mission of Swachh Bharat, Swasth Bharat and TB Mukh Bharat.

(B.P.Sharma)





**Dr. Jagdish Prasad**  
M.S., M.Ch., FIACS  
Director General of Health Services



सत्यमेव जयते

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**Dated: 17/3/2015**

दिनांक/Dated.....

### **MESSAGE**

Revised National Tuberculosis Control Program has been able to make significant dent on the impact indicators. Prevalence and mortality have been reduced to half as compared to base year of 1990. Due to praiseworthy political and administrative commitments many bold decisions and initiatives have been undertaken.

The program has developed more than 13000 Designated Microscopy Centers across the country to Diagnose TB. Quality assured anti TB drugs for the whole treatment in patient wise boxes are made available as near as possible to residence of all diagnosed TB cases through ASHAs & other Community DOT Provider.

To address the challenge of drug resistant TB, 42 laboratories with solid culture and drug susceptibility testing; 27 for Liquid culture and drug susceptibility testing and 50 Line Probe Assay technology have been developed in addition to 110 laboratories for Cartridge Based Nucleic Acid Amplification Test (CBNAAT). Diagnosed patients of drug resistant TB also get the drugs free of cost for the whole course of twenty four months.

CBNAAT is being used to diagnose TB early in TB-HIV co-infected cases and treatment for both diseases is started as early as possible to improve the prognosis of such cases.

Universal access will mean increasing the capacity to manage and treat all forms of TB as well as enhanced engagement of the private sector in India which manages nearly half of all TB cases. Universal access to TB care has encompassed the private sector through adoption of Standards of TB Care in India. The 12<sup>th</sup> Five Year Plan and the National Strategic Plan to Control TB (2012-2017) have prioritized private sector engagement for early detection and appropriate treatment. The Ministry of Health and Family Welfare and Central TB Division have envisaged providing free TB drugs to all TB patients treated in the private sector. Under free drugs pilot in three districts, Patna, Mehsana and Mumbai, patients in the private sector have been assured free drugs. The success from these districts has to be replicated across the country.

Year 2015 holds many new promises and new initiatives will be field tested. Amitabh Bachchan was the face of the TB awareness campaigns and this got highest publicity for TB awareness at all forums and will help to diminish the social stigma associated with TB. The daily anti-TB drug regimen will be piloted in 100 districts across the country. New diagnostic algorithms including those for paediatric TB will be piloted. Individualized treatment regimens based on universal DST will be tested and implemented. The surveillance system in the country will be strengthened to include all diagnosed TB cases from public & private sector through e-Nikshay development and deployment.

Support from all stakeholders will go a long way to help achieve our goals of Universal Access to TB Care and a TB free India.

(Dr. Jagdish Prasad)





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## PREFACE

TB India 2015 released on 24<sup>th</sup> March, World TB Day is an annual publication from Central TB Division wherein a comprehensive status of TB control activities in the country has been compiled.

The Revised National TB Control Programme (RNTCP) has come a long way since its inception and a lot has been achieved. We have been faced with many challenges and together we have worked hard to resolve the issues.

Since inception, RNTCP has diagnosed and treated more than 17.4 million TB cases and 3.1 million additional lives have been saved. In line with the Millennium Development Goals (MDGs), TB prevalence has been reduced from 465/ lakh/year in 1990 to 211/lakh/year in 2013, incidence of TB has come down from 216/lakh/year in 1990 to 171/lakh/year in 2013 and mortality from 38/ lakh/year in 1990 to 19/ lakh/year in 2013.

The program has seen many new initiatives and policy changes in the last one year. First nationwide anti-Tuberculosis Drug Resistance Survey of India was formally launched. Daily drug regimen will be pilot tested in 100 districts across the country. Draft guidelines have been formulated on DST guided treatment for DR-TB. Under a pilot project at 30 sites, CBNAAT machines installed at ART sites in 5 high HIV burden states will be used to detect MTB in presumptive TB cases among People living with HIV. The program has taken a policy decision to screen all TB patients for Diabetes under programme settings.

India's TB control "Vision 2020" has laid down strategies for involvement of all care providers to strengthen notification, promote ban on serology, rational use of anti-TB drugs, early identification and referral of TB suspect for diagnosis and increase community awareness. Private Provider Interface Agencies will be engaged through Technical Support Groups for better involvement of private sector as per Standards of TB Care in India. The free drugs pilot to provide anti-TB drugs to patients in the private sector will be extended to other districts. An EPTB Centre of Excellence established at AIIMS, New Delhi will formulate treatment guidelines for EP TB and an expert committee has been formulated to study use of new anti-TB drug Bedaquiline. In a most recent initiative National Guidelines for partnership have been approved.

I appreciate the support of RNTCP staff and partners across the country that are working together for a common goal i.e to make India a TB free country. I'm also grateful to officers and staff of Ministry of Health and Family Welfare and Directorate General Health Services, Government of India for their continued support and endeavours for betterment for the program.

  
(Dr. Sunil Khaparde)

March 2015



# EXECUTIVE SUMMARY

The “Revised National TB Control Program” being implemented by Central TB Division (CTD), Directorate General of Health Services, Ministry of Health and Family Welfare Government of India has been publishing Annual Status report “TB India” every year. The report showcases RNTCP implementation status, highlights various policy changes and activity undertaken during the year 2014. Unlike the previous editions, this edition of “TB India 2015” will carry one page profile of each State and Union Territory summarizing case finding, outcomes of treatment and also any innovations carried out in the calendar year.

With the advent of the Sustainable Development Goals, the third of which is aimed towards the end of the tuberculosis epidemic by 2030, and the expiration of the Stop TB Strategy, a new era in control efforts is set to begin. WHO’s End TB Strategy envisages a world of “zero deaths, disease, and suffering due to tuberculosis”. The 2035 target is a 95% reduction in deaths and a 90% reduction in incidence relative to 2015 levels.

India’s Revised National Tuberculosis Control Program entered 12th Five year Plan (2012-17) with a budget of Rs 4500 crore, the theme of Universal Access for quality diagnosis and treatment for all TB patients in the community and a target of “reaching the unreached”. Our Vision 2020 is to significantly reduce TB burden in India by ensuring universal access to quality assured TB care as per Standards for TB Care in India (STCI). To ensure quality case management, notification of all TB cases in Nikshay is an incremental step to close the gap of missing TB cases in India. Year 2014 saw a considerable increase in TB notification from the private sector. Strengthening Surveillance System will ensure that appropriate measures can be taken by the program to implement quality TB diagnosis and treatment as per STCI.

RNTCP has quality assured laboratory network of more than 13,000 microscopy centers for sputum smear microscopy and Culture and DST laboratories. At present under the program there are 62 RNTCP certified Culture and DST laboratories in the country which includes laboratories from Public sector (IRL, Medical College), Private and NGO laboratories. Fourteen laboratories under the program are certified for SLD. Six states have rolled out baseline SLD for MDR-TB patients. Currently 89 Cartridge Based Nucleic Acid Amplification Test (CBNAAT) sites provide rapid decentralized diagnosis of MDR-TB, TB in high risk group PLHIV and Pediatric presumptive including EP-TB case. RNTCP in collaboration with National AIDS Control Program has initiated the “Innovative intensified TB case finding and appropriate treatment at high burden ART centers in India” under which 30 more CBNAAT sites have being established.

Under a Pediatric project supported by USAID “Accelerating access to quality TB diagnosis for Pediatric cases in 4 major cities in India” CBNAAT labs were established in Delhi, Chennai, Kolkata and Hyderabad and sensitization was conducted for key hospitals and private clinics catering to Pediatric populations with established referral network for diagnosis.

In 2014, National Reference Laboratories Coordination Committee Meeting endorsed CBNAAT supervisory check list, monthly CBNAAT laboratory indicators, revised laboratory performance indicators and SOP for EP-TB.

First National anti TB Drug Resistance Survey (NDRS) is being conducted across 120 TB Units in the country and will test drug resistance to drugs other than Rifampicin and Isoniazid. The results shall guide RNTCP in formulating standardized regimens for better public health initiatives to confront DR TB. The National Expert committee for Diagnosis and Management of TB approved 100 district pilot for daily regimen with fixed dose combinations (FDCs) of 4 drug and 3 drug for Intensive phase and continuation phase respectively. The FDCs shall be given in daily dosages. The pilot shall be conducted to demonstrate operational feasibility and benefits of daily regimen.

National Guideline for Partnership has been finalized and would facilitate enhanced involvement of private sector in TB control to realize the dream of TB free India. “Operation Handbook on ACSM” was developed to facilitate states and districts to plan implement and evaluate effective ACSM interventions in their respective states and districts. A dynamic “Media Tool Kit” has also been developed to inform journalists about cause, diagnosis, treatment

and other developments under Revised National TB Control Program. Bollywood actor, Amitabh Bachchan was the face of TB campaigns and his advocacy will help to reduce the stigma associated with TB.

Synergistic efforts of all stakeholders involved in TB control in India are the key towards realizing the goal of “Universal access to TB care and treatment for all”. RNTCP has successful partnerships with Indian Medical Association (IMA), Catholic Bishops’ Conference of India (CBCI), Foundation for Innovative New Diagnostics (FIND), World Vision, The International Union against Tuberculosis and Lung Diseases (The UNION) and The Clinton Health Access Initiative (CHAI) From strengthening notification from private sector, scaling up diagnosis for drug resistance TB, engagement of communities and Community Systems Strengthening, partners have complemented RNTCP’s efforts towards universal access to TB care. More than 330 Medical Colleges are involved with RNTCP through the task force mechanism and are contributing in diagnosis, management and formulating policies for the program. In 2014, six annual Zonal Task Force (ZTF) CMEs cum Workshops were held.

In 2014, RNTCP covered a population of 12,656 lakh. A total of 87,83,551 TB suspects were examined by sputum smear microscopy and 14,43,942 cases were registered for treatment. 72% of all registered TB cases knew their HIV status. 94% HIV infected TB patients were initiated on CPT and 91% were initiated on ART.

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# CHAPTER 1: CENTRAL TB DIVISION: ACTIVITIES UNDERTAKEN IN 2014

## January

1. Review of Programmatic Management of Drug Resistant Tuberculosis (PMDT) activities of Mumbai and West Zone States of India, was organized in Mumbai on 16th-17th January, 2014; Secretary (H & FW), Govt. of India, visited Mumbai to review TB situation in Mumbai and the activities being undertaken for its control.
2. Training on Procurement and Supply Chain Management under RNTCP was organized for the State level program managers and trainers at National Tuberculosis Institute (NTI), Bangalore from 13th to 16th January, 2014.
3. Meeting of the National Technical Working Group (NTWG) for TB/HIV on 22nd January 2014.
4. RNTCP Central Internal Evaluation (CIE) of Tamil Nadu was organized from 20th to 24th January, 2014; during the CIE, two districts (Madurai and Thiruvallur) were visited.
5. RNTCP Modular Training of State and District level program managers, trainers and medical college faculty was organized at NTI, Bangalore, between 20th January to 1st February, 2014.

## February

6. Rapid assessment of feasibility and TB elimination proposal for union territory of Lakshadweep, was undertaken between 1st to 5th February, 2014.
7. Coordination meeting of National Reference Laboratories (NRLs) was organized in New Delhi from 6th to 7th February, 2014.
8. A mass media campaign across Television, Radio, Mobile (SMS) and outdoor publicity was rolled-out to generate greater recall about TB and reinforce the importance of treatment adherence.
9. Meeting with National Informatics Centre (NIC), for integration of NIKSHAY with other software being used in Health System, was held on 10th February, 2014.

10. Meeting of sub-committee for the finalization of Protocol for use of Bedaquiline in MDR-TB from 12th to 13th February 2014 at Delhi.
11. National Training on PMDT from 18th to 22nd February 2014 at Hyderabad.
12. Brainstorming workshop for transitioning to new RNTCP surveillance system, was held from 20th to 21st February 2014 at Patna.
13. Training on Procurement and Supply Chain Management under RNTCP was organized for the State level program managers and trainers from 24th to 27th February, 2014 at NTI, Bangalore.
14. Review of RNTCP/PMDT activities for North Eastern States was organized from 27th to 28th February, 2014 at Guwahati.

## March

15. National Task Force (NTF) Meeting and Workshop, for involvement of Medical Colleges in RNTCP and review of progress made since last NTF, was held in Bhubaneswar, on 2nd-3rd March, 2014.
16. Workshop on development of Standard Operating Procedures for TB Drug Resistance Surveillance was held at NTI, Bangalore between 5th to 7th March, 2014.
17. National Review Meeting of Indian Medical Association-RNTCP-PPM Project, was held at Chennai on 8th to 9th March, 2014.
18. RNTCP Modular Training for State and District level program managers, trainers and medical college faculty, was organized at NTI, Bangalore, between 3rd to 15th March, 2014.
19. CTD was invited by GFATM for submission of new proposal under New Funding model of GFATM.
20. Workshop on Pediatric Tuberculosis on the theme of "Accelerating access to quality TB diagnosis for pediatric cases", was held at New Delhi TB Center, on 12th March, 2014.

21. RNTCP Central Internal Evaluation of Chandigarh was conducted between 12th to 14th March, 2014.
22. National Research Committee meeting was organized on 19th March 2014, New Delhi.
23. Training of Trainers on Module for PMDT and Laboratories in NIKSHAY, the case-based web-based program for surveillance of TB, was held on 19th-21st March, 2014; at NTI, Bangalore.
24. Standards for TB Care in India (STCI) document was released by Secretary, Health and Family Welfare, Govt. of India, at Nirman Bhawan, New Delhi, on the occasion of World TB Day, 24th March, 2014.
25. A national-level print media campaign in 305 newspapers across India to create awareness about TB was undertaken on World TB Day – 24th March, 2014.
26. Release of Annual Status Report of RNTCP, “TB-India 2014” was done on the occasion of World TB Day, 24th March, 2014; at National Institute of TB and Respiratory Diseases (erstwhile LRS Institute), New Delhi.
27. On the occasion of World TB Day, 24th March, 2014; a social media campaign to raise awareness on notification and its subsequent compilation in NIKSHAY, was launched by DDG (TB).

## April

28. Regional Review Meeting on Drug-resistant TB, East Zone, held on 2nd-3rd April, 2014 in Patna, Bihar.
29. Regional Review Meeting on Drug-resistant TB, South Zone, held on 10th-11th April, 2014 in Hyderabad, Andhra Pradesh.
30. Training of Master Trainers on National Drug-resistant Survey, held on 24th-25th April, 2014, at NIT, Bangalore, Karnataka.
31. Central TB Division Officials participated in Review of RNTCP activities of Uttar Pradesh with Field Visits to Districts Lucknow and Hardoi, between 9th to 13th April, 2014.
32. Launch of 4-City Pediatric TB Project- accelerating access to Pediatric TB patients, Chennai, Tamil Nadu, 17th April, 2014
33. National Training on PMDT: 21st-25th April 2014 at Calicut, Kerala.

34. National Stakeholders cum Consultation Meeting of Catholic Medical Colleges and DNB Institutions involved in RNTCP, held at Hyderabad on 30th April to 1st May 2014.
35. Consultative meeting with ICDHI to finalize TB Report.

## May

36. RNTCP Central Internal Evaluation of Odisha was conducted between 5th-9th May, 2014 during which two districts (Cuttack and Ganjam) were visited, along with state level RNTCP institutions.
37. RNTCP Modular Training for State and District level program managers and trainers, organized at NTI, Bangalore, from 12th to 24th May, 2014.
38. RNTCP Modular Training for State and District level program managers and trainers, organized at NTI, Bangalore, from 12th to 24th May, 2014.
39. Meeting of the ACSM HRD Group on 28th May 2014 at New Delhi.
40. New Credit Agreement between World Bank and DEA was signed for TB project of USD 100 million on 30th May 2014.
41. Workshop on Revision of RNTCP Technical & Operational Guidelines was organized from 29th to 31st May, 2014 in Delhi.
42. Contract for procurement of injectable worth about ₹ 31 crore was awarded to M/s Vital Health Care.
43. RNTCP Modular Training for State and District level program managers and trainers, was organized at National Institute of TB and Respiratory Diseases (erstwhile LRS Institute), New Delhi from 26th May to 7th June, 2014.

## June

44. RNTCP Central Internal Evaluation of Madhya Pradesh was conducted between 2nd and 6th June, 2014, during which two districts (Indore and Betul) were visited, along with state level RNTCP institutions.
45. Training on Procurement and Supply Chain Management under RNTCP was organized for the State level program managers and trainers at NTI, Bangalore from 2nd to 5th June, 2014.
46. Training on NIKSHAY, the Case-based Web-based Platform for TB Surveillance and Program Man-

agement, was held for IMA-RNTCP Consultants on 9th June, 2014, at NTI, Bangalore.

47. Training of Master Trainers on National Drug Resistant Survey, held on 9th-10th June, 2014 at NTI, Bangalore, Karnataka.
48. Meeting of National ACSM Advisory Committee was held on 10th June, 2014.
49. Meeting of National Oversight Committee for review of progress on DRS was held on 10th June, 2014 at NTI, Bangalore.
50. Central TB Division Officials participated in Review of RNTCP activities of Karnataka State with District Officials, from 11th to 12th June, 2014 in Bangalore.
51. Training on NIKSHAY, the Case-based Web-based Platform for TB Surveillance and Program Management, was held for STOs/STDC Directors and Partners, from 16th to 20th June, 2014, at NTI, Bangalore.
52. National Research Committee meeting, 20th June 2014, New Delhi
53. Central TB Division Officials participated in RNTCP State Task Force Meeting for Medical Colleges of Himachal Pradesh, held on 21st June, 2014.
54. National Training on PMDT was organized from 23rd to 27th June, 2014 at Ahmedabad, Gujarat.

## July

55. RNTCP Modular Training for State and District level program managers and trainers, was organized at NTI, Bangalore from 30th June to 12th July, 2014.
56. Review of progress in Pilot of Universal Access for free quality assured Anti-TB Drugs to all patients, in Mehsana, Gujarat (1st-2nd July, 2014).
57. Meeting of the NTWG was held on 9th July, 2014.
58. RNTCP Central Internal Evaluation (CIE) of Bihar was organized from 14th to 18th July, 2014; during the CIE, two districts (West Champaran and Araria) were visited along with state level RNTCP institutions.
59. Review of TB-HIV Collaborative activities of Southern and Western Indian States (15th-16th July, 2014), NTI, Bangalore.
60. Review of progress in Pilot of Universal Access for free quality assured Anti-TB Drugs to all patients, in Patna, Bihar (14th-18th July, 2014).

61. Social and Behavioral change communication training for State IEC Officers/ACSM Officers in National Institute of Health and Family Welfare (NIHFW), New Delhi (21st-25th July, 2014).

## August

62. ASSOCHAM event on “launch of TB awareness, prevention and wellness program” held in Delhi on 6th August, 2014.
63. Review of TB-HIV Collaborative activities of Northern and Central Indian States (11th-12th August, 2014, New Delhi).
64. Submission of New Funding Model Proposal to The Global Fund on 14th August, 2014.
65. RNTCP Central Internal Evaluation (CIE) of Rajasthan was organized from 19th to 22nd August, 2014; during the CIE, two districts (Ajmer and Churu) were visited along with state level RNTCP Institutions.
66. Co-ordination Committee meeting of National Reference Laboratories (NRLs) was organized in Bhopal, Madhya Pradesh, on 21st-22nd August, 2014.
67. National Workshop on DST Guided Treatment, 26th-28th August, 2014 at Mumbai, Maharashtra.
68. RNTCP Modular Training of State and District level program managers, Trainers and Medical College faculty was organized at NITRD, Delhi, between 18th to 31st August, 2014.

## September

69. RNTCP Modular Training of State and District level program managers, Trainers and Medical College faculty was organized at NTI, Bangalore, between 1st to 13th September, 2014.
70. An event to mark the launch the first National Anti-TB Drug Resistance Survey (2014-15) was held in New Delhi on 6th September, 2014, inaugurated by Dr Harsh Vardhan, Hon'ble Union Minister for Health & Family Welfare. The RNTCP Media Campaign was also re-launched.
71. De-briefing meeting of the Regional Green Light Committee (RGLC) Mission, that was visiting India between 4th to 12th September, was held on 11th September, 2014 at Nirman Bhawan, New Delhi.

72. National Training on PMDT was organized from 22nd to 26th September, 2014 at NITRD, New Delhi.
73. A meeting to discuss the work being done by civil society partners for TB control in India, under the chairmanship of Joint Secretary (Public health), Ministry of Health and Family Welfare was held on 18th September, 2014 at Nirman Bhawan, New Delhi.
74. Workshop for Orientation and Dissemination of "Operational Handbook – ACSM", for State RNTCP teams comprising STO, RNTCP State HQ Consultant and State IEC Officer, in collaboration with United States Agency for International Development (USAID) and Improving Healthy Behaviors Program (IHBP), was held in New Delhi on 15th-16th September, 2014.
75. RNTCP Central Internal Evaluation (CIE) of Jharkhand was organized from 22nd to 26th September, 2014; during the CIE, two districts (Hazaribagh and West Singhbhum) were visited along with State level RNTCP Institutions.
76. National Operational Research Workshop was organized at NTI, Bangalore, from 22nd September to 2nd October, 2014.
83. Workshop of the National Country Program Managers Review Meeting at SEARO, New Delhi from 10th to 14th November 2014.
84. Launch of the Pilot of Universal Access for free quality assured Anti-TB Drugs to all patients in Patna on 21st November 2014.
85. Training of Trainers for the Drug Resistant Survey organized at NTI, Bangalore from 17th to 18th November 2014.
86. Technical Review Panel (TRP) GFATM comments was communicated to CTD on the NFM proposal submitted by country to GFATM.
87. Meeting for approval and finalization of Feasibility Pilot for 100 Daily Regimen Districts under RNTCP Chaired by Secretary DHR/DG ICMR on 26th November, 2014 at New Delhi.
88. Meeting of the National Expert Committee on Regulation of Newer Anti TB Drugs Chaired by Secretary DHR/DG ICMR on 26th November 2014 at New Delhi.
89. Zonal OR Capacity Building Workshop for Medical Colleges of North Zone from 26th to 27th November 2014 at Rajpura, Punjab.
90. RNTCP Central Internal Evaluation (CIE) of Haryana was organized from 24th to 28th November 2014; during the CIE, two districts (Sonapat and Sirsa) were visited along with State level RNTCP Institutions.

## October

77. National Workshop on Intensifying TB Control activity from 9th to 10th October 2014 at New Delhi where over 90 eminent experts from across the Country participated.
78. National Training on PMDT was organized from 13th to 17th October, 2014 at Ahmedabad, Gujarat.
79. Joint Review Mission was held from 14th to 20th October 2014 in the States of Andhra Pradesh, Gujarat, Maharashtra and Rajasthan.
80. Zonal Task Force for Involvement of Medical Colleges under RNTCP for South 2 Zone from 15th to 16th October 2014 at Mahabalipuram, Tamil Nadu.
81. Participation at World Lung Conference from Central TB Division as part of Indian Delegation from 27th October to 1st November 2014 at Barcelona, Spain.

## November

82. Zonal Task Force for Involvement of Medical Colleges under RNTCP for North East Zone from 6th to 7th November 2014 at Gangtok, Sikkim.

## December

91. RNTCP Modular Training of State and District level program managers, trainers and medical college faculty was organized at National Institute of Tuberculosis and Respiratory Diseases, New Delhi from 1st to 13th December 2014.
92. Annual Meeting of the National Diagnosis and Treatment Committee for RNTCP on 2nd-3rd December 2014 at New Delhi.
93. Training of Trainers Workshop on Pharmacovigilance for 15 DRTB Centers and 30 ART Centers across the Country at New Delhi on 10th-11th December, 2014.
94. National Level Training of Trainers for the Innovative and Intensified TB Case finding among PLHIVs of 30 high workload ART settings in India held at NTI, Bangalore on 15th-16th December 2014.

95. Zonal Task Force for Involvement of Medical Colleges under RNTCP for West Zone from 18th to 19th December 2014 at Jodhpur, Rajasthan.
96. RNTCP Central Internal Evaluation (CIE) of Assam was organized from 19th to 23rd December 2014; during the CIE, two districts (Kamrup and Tinsukhia) were visited along with State level RNTCP Institutions.
97. Comprehensive Training of Trainers for Second Line Drug Susceptibility Testing at NTI, Bangalore; two batches from 8th to 12th December and 15th to 19th December 2014.
98. Launch of the comprehensive audio-video and outreach campaign for TB control in Mumbai portraying Shri Amitabh Bachchan on 21st December 2014 at Mumbai, Maharashtra.
99. Training on Procurement and Supply Chain Management under RNTCP at NTI, Bangalore from 22nd to 24th December 2014.

# CHAPTER 2: TB DISEASE BURDEN IN INDIA

Though India is the second-most populous country in the world one-fourth of the global incident TB cases occur in India annually. In 2013, out of the estimated global annual incidence of 9 million TB cases, 2.1 million were estimated to have occurred in India.

## WHO estimated burden of tuberculosis in India, 2013

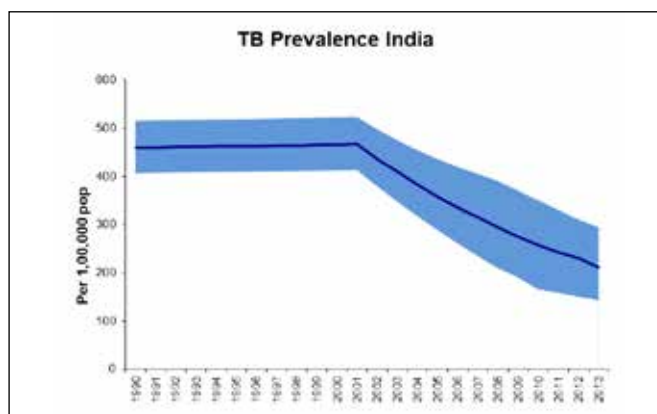
TB burden	Number (Millions) (95% CI)	Rate Per 1,00,000 Persons (95% CI)
Incidence	2.1 (2.0-2.3)	171 (162-184)
Prevalence	2.6 (1.8-3.7)	211 (143-294)
Mortality	0.24 (0.15-0.35)	19 (12-28)

TB burden	Number (Millions) (95% CI)	Percent (95% CI)
HIV among estimated incident TB patients		5.7% (4.8%-6.6%)
MDR-TB among notified pulmonary TB patients	0.062 (0.050-0.074)	
MDR-TB among notified new pulmonary TB patients	0.020 (0.018-0.025)	2.2% (1.9-2.6%)
MDR-TB among notified re-treatment pulmonary TB patients	0.042 (0.033-0.054)	15% (11-19%)

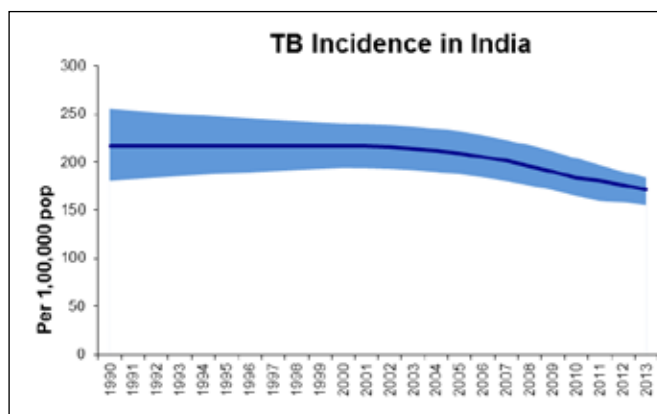
India's TB Control Program is on track as far as reduction in disease burden is concerned. There is 50% reduction in TB mortality rate by 2013 as compared to 1990 level. Similarly, there is 55% reduction in TB prevalence rate by 2013 as compared to 1990 level.

These estimations were based on RNTCP data, 7 Prevalence surveys in India conducted between 2007-2010, National ARTI surveys, mortality surveys conducted in 2005.

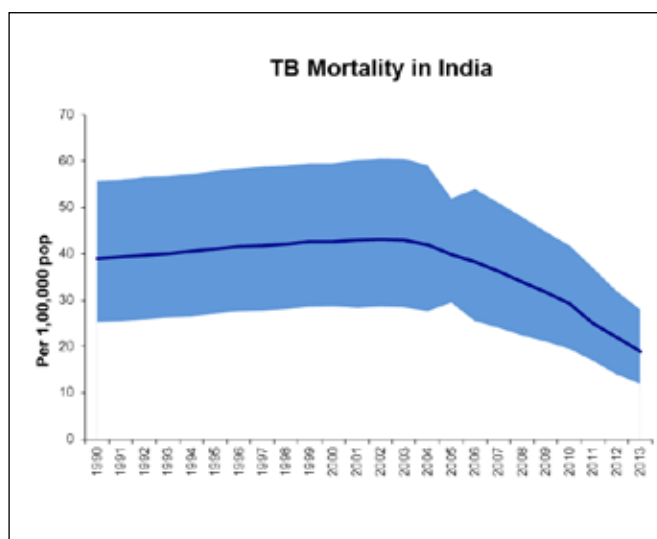
Tuberculosis prevalence per lakh population has reduced from 465 in year 1990 to 211 in 2013. In absolute numbers, prevalence has reduced from 40 lakhs to 26 lakhs annually.



Tuberculosis incidence per lakh population has reduced from 216 in year 1990 to 171 in 2013.



Tuberculosis mortality per lakh population has reduced from 38 in year 1990 to 19 in 2012. In absolute numbers, mortality due to TB has reduced from 3.3 lakhs to 2.4 lakhs annually.



# CHAPTER 3: RNTCP IMPLEMENTATION STATUS

## 3.1 Diagnosis of TB

RNTCP has quality assured laboratory network for the sputum smear microscopy in three tier system of National Reference Laboratories (NRL), Intermediate Reference Laboratory (IRL) and Designated Microscopy Centers (DMCs). The nationwide network of RNTCP quality assured, designated sputum smear microscopy laboratories providing appropriate and accessible quality assured diagnostic services for TB suspects and cases. To meet the standards of internationally recommended diagnostic practices for TB, the program provides quality reagents and equipment to the laboratory network. An inbuilt 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 and by the Intermediate (State level) and National Reference Laboratory network for RNTCP at higher levels. The program has a certification procedure for the culture and drug susceptibility testing for solid, liquid and Molecular (Line Probe Assay) with quality assurance protocol-based upon WHO and Global Laboratory Initiative recommendations.

### Quality Assured Laboratory Services

RNTCP has established a nationwide laboratory network, encompassing over 13,000 DMCs, which are being

supervised by IRL at State level, and NRL & Central TB Division at the National level. RNTCP aims to consolidate the laboratory network into a well-organized one, with a defined hierarchy for carrying out sputum microscopy with external quality assessment EQA.

**National Reference Laboratories (NRL):** The six NRLs under the program are National Institute for Research in Tuberculosis (NIRT), Chennai; National Tuberculosis Institute (NTI), Bangalore; National Institute of TB and Respiratory Diseases (NITRD), Delhi and National Japanese Leprosy Mission for Asia (JALMA) Institute of Leprosy and other Mycobacterial Diseases, Agra, Regional Medical Research Centre (RMRC), Bhubaneswar and Bhopal Memorial Hospital and Research Centre (BMHRC), Bhopal. The last two NRLs have been designated recently and the states have been redistributed among the 6 NRLs. The NRLs work closely with the IRLs, monitor and supervise the IRL's activities and also impart periodic training for the IRL staff in EQA sputum smear microscopy, and Culture & DST activities, LPA and CB NAAT.

Three microbiologists and four laboratory technicians have been provided by the RNTCP on a contractual basis to each NRL for supervision and monitoring of laboratory activities. The NRL microbiologist and laboratory supervisor/ technician visits each assigned state at least once a year for 2 - 3 days as a part of on-site evaluation under the RNTCP EQA protocol.

NRL	States and Union Territories (UTs) Assigned for EQA	Total no. of IRLs assigned	Total no. of states/UTs assigned	No. of OSE conducted during the year (2014)
NTI, Bangalore	Karnataka, Maharashtra, Rajasthan	5	3	3
NIRT, Chennai	Tamil Nadu, Puducherry, Kerala, Gujarat, Andaman & Nicobar, Telangana, Andhra Pradesh Dadar & Nagar Haveli, Daman & Diu, Lakshadweep	5	9	6
NITRD, New Delhi	Delhi, Jammu & Kashmir, Chandigarh, Punjab Haryana, Bihar, Himachal Pradesh	8	7	8
JALMA, Agra	Uttar Pradesh, Uttarakhand	3	2	1

NRL	States and Union Territories (UTs) Assigned for EQA	Total no. of IRLs assigned	Total no. of states/UTs assigned	No. of OSE conducted during the year (2014)
RMRC, Bhubaneswar	Odisha, Meghalaya, Assam, Tripura, West Bengal, Sikkim, Arunachal Pradesh, Manipur, Nagaland, Mizoram	6	10	6
BMHRC, Bhopal	Madhya Pradesh, Chhattisgarh, Jharkhand, Goa	4	4	3

**Intermediate Reference Laboratory (IRL):** One IRL has been designated in the STDC/Public Health Laboratory/Medical College of the respective state. In larger states like Uttar Pradesh, Madhya Pradesh and Maharashtra two IRLs have been designated. The functions of IRL are supervision and monitoring of EQA activities, Mycobacterial culture and DST and also Drug Resistance Surveys (DRS). The IRL ensures the proficiency of staff in performing smear microscopy activities by providing technical training to district and sub-district laboratory technicians and STLSSs. The IRLs undertake on-site evaluation and panel testing in each district in the state, at least once a year.

**Culture and DST Laboratories (C & DST):** In addition to IRLs, the program also involves the Microbiology Department of Medical colleges for providing diagnostic services for drug resistance tuberculosis, extrapulmonary tuberculosis (EP-TB) and research. The RNTCP provides additional human resources, equipments and trainings to C & DST laboratories.

**Designated Microscopy Centre (DMC):** The most peripheral laboratory under the RNTCP network is the DMC, which serves a population of around 1,00,000 (50,000 in tribal and hilly areas). Currently all the districts in the country are implementing EQA. For quality improvement purposes, the NRL OSE recommendations to IRLs and districts are discussed in the RNTCP laboratory NRL Coordination Committee meetings and National Expert Committee for Diagnosis and Management of Tuberculosis. Quality improvement workshops for the state level TB officers and laboratory managers are conducted at NRLs based on the observations of the NRL-OSEs. These workshops focus on issues such as human resources, trainings, AMC for binocular microscopes, quality specifications for ZN stains, RBRC blinding and coding issues, biomedical waste disposal, infection control measures, etc.

## External Quality Assurance

The Quality Assurance activities include:

- On-site evaluation (OSE)
- Panel testing (PT)
- Random-blinded rechecking (RBRC).

The National Expert Committee on Diagnosis and Management of Tuberculosis under RNTCP is merger of the National Laboratory Committee and National DOTS Plus Committee. This expert committee provides technical guidelines for diagnosis and management of all forms of tuberculosis.

At present under the program, there are 62 RNTCP certified culture and DST laboratories in the country, which includes laboratories from public sector (IRL, Medical College), private and NGO laboratories.

**Solid Culture Certification:** Forty-one laboratories are certified for solid C & DST. These include 6 NRLs (NTI-Bangalore, NIRT-Chennai, JALMA-Agra, NIRTD-New Delhi, BMHRC-Bhopal and RMRC-Bhubaneswar); 21 IRLs (Hyderabad, Raipur, Delhi, Ahmedabad, Karnal, Ranchi, Thiruvananthapuram, Goa, Nagpur, Indore, Dharampur, Cuttack, Puducherry, Ajmer, Lucknow, Kolkata, Dehradun, Chennai, Pune, Jammu, Srinagar); 6 medical colleges (PGIMER-Chandigarh, AIIMS-Dept. of Medicine, New Delhi, JJ Hospital-Mumbai, SMS-Jaipur, MGIMS-Wardha and MPSMS-Jamnagar); 3 NGOs (BPHRC-Hyderabad, Choithram Hospital-Indore and DFIT-Nellore); 3 ICMR institutes (RMRC-Port Blair, RMRC-Dibrugarh and RMRC-Jabalpur); 2 private laboratories (CMC-Vellore and Microcare-Surat).

The proficiency testing for solid is in progress for 5 IRLs (Assam, Karnataka, Manipur, Arunachal Pradesh, Punjab) for RNTCP certification. RNTCP also encourages the Laboratories from Medical Colleges, ICMR, Private sector and NGO sector to apply for certification by providing technical assistance and training of the human resources at NRLs.



**Liquid Culture Certification:** Twenty-six laboratories certified by RNTCP for liquid culture. These include 4 NRLs (NTI-Bangalore, NIRT-Chennai, JALMA-Agra and NITRD-New Delhi); 12 IRLs (Ahmedabad, Kolkata, Nagpur, Delhi, Trivandrum, Puducherry, Bangalore, Pune, Indore, Chennai, Cuttack and Hyderabad); 5 Medical Colleges (SMS-Jaipur, MPSMS-Jamnagar, JJ Hospital-Mumbai, AIIMS-Dept. of Medicine, New Delhi, PGI-Chandigarh); 4 private laboratories (Metropolis, SRL-Mumbai, SRL-Kolkata, Sankara Nethralaya-Chennai); 1 NGO laboratories (PD Hinduja-Mumbai).

The proficiency testing for liquid culture is ongoing for other IRLs and C & DST labs for certification. RNTCP is in process of establishing 40 Biosafety level-3 laboratories for liquid culture as per laboratory scale up plan for liquid culture in selected intermediate reference laboratories and C & DST laboratories at medical colleges.

**Line Probe Assay (LPA):** The LPA is a molecular diagnostic test, which can provide the DST results within 1 day. RNTCP has completed the demonstration and evaluation phase in selected laboratories and based upon the evidence adopted the policy for rapid diagnosis of MDR-TB by LPA. A total of 50 laboratories have been certified for LPA including 6 NRLs (NTI-Bangalore, NIRT-Chennai, JALMA-Agra, BMHRC-Bhopal, NITRD-New Delhi and RMRC-Bhubaneswar); 23 IRLs (Guwahati, Hyderabad, Delhi, Dehradun, Ahmedabad, Karnal, Raipur, Ranchi, Thiruvananthapuram, Nagpur, Pune, Patna, Indore, Cuttack, Chennai, Puducherry, Ajmer, Kolkata, Lucknow, Dharampur, Bangalore, Agra and Patiala); 14 Medical Colleges (Aurangabad, Vishakhapatnam, AIIMS-Dept. of Medicine, New Delhi, Govt. Med. College-Jamnagar, JJ Hospital-Mumbai, SMS-Jaipur, SNM-Jodhpur, NBMC-Silliguri, PGI-Chandigarh, KIMS-Hubli, BHU-Varanasi, AMU-Aligarh, AIIMS-Dept. of Laboratory Medicine, New Delhi and GTB Hospital-Sewri, Mumbai); 5 NGOs (DFIT-Darbhanga, DFIT-Nellore, BPHRC-Hyderabad, Nazerath-Shillong and PD Hinduja-Mumbai) 2 private laboratories (Metropolis-Mumbai and Subharti Medical College- Meerut).

The work for establishment of LPA laboratories at GMC-Bhagalpur, Bihar; GMC-Madurai, Tamil Nadu; Raichur Medical College-Karnataka; Gwalior Medical College-Madhya Pradesh and IRL, Jammu-Jammu & Kashmir is in various stages and will be completed in due course of time.

**Second-line DST (SLD):** Fourteen laboratories that certified for SLD that includes 3 NRLs (NIRT-Chennai,

NTI-Bangalore and NITRD-New Delhi), 5 IRLs (Trivandrum, Delhi, Pune, Nagpur and Ahmedabad); 4 medical colleges (Jamnagar, JJ Hospital-Mumbai, AIIMS-Dept. of Medicine New Delhi, SMS-Jaipur), 1 NGO (PD Hinduja and Private SRL-Mumbai) are certified under RNTCP for SLD. Eight states have rolled out baseline SLD for MDR-TB patients. The RNTCP has plans to scale up liquid culture in 40 laboratories and then certify all these 40 laboratories for SLD.

**Training of the Human Resource:** RNTCP's National Reference Laboratories conduct trainings of Microbiologist, Senior Laboratory Technician and Laboratory Technician in modular training in solid culture DST, EQA in sputum smear microscopy, Liquid Culture DST, Second-line DST, Preventive maintenance of Microscope. In 2014, all national reference laboratories conducted modular trainings and trained more than 90 laboratory staff for laboratory procedures.

**International Center for Excellence in Laboratory Training (ICELT):** The center at NTI, Bangalore is supporting training of the laboratory staff in technologies like LPA, CB-NAAT, Liquid culture, biosafety and safe practices in laboratories. Over the last year, the center conducted training of two batches on LPA, four batches in Liquid C & DST and trained over 58 participants from across the country.

**National Reference Laboratories Coordination Committee Meeting:** The CTD conducts NRL coordination meetings to update on the laboratory issue, newer development, discussing finding on on-site evaluation visit of IRLs and C & DST labs, study finding, and deliberate on coordination issue with state and IRLs as per RNTCP plan. In 2014, there were two NRL Coordination Committee meeting held at Delhi (February 2014) and Bhopal (August 2014). In these meetings, the committee has endorsed CB-NAAT supervisory check list, monthly CB-NAAT laboratory indicators, revised laboratory performance indicators, SOP of EP-TB, monitoring performance of laboratories.

**Annual Review Meeting of TB Laboratories:** The annual review meeting of the TB laboratories was held from 24th to 26th September 2014 at Udaipur, Rajasthan by Central TB Division. The Microbiologist from Culture and DST laboratories, IRLs, NRLs as well as the Directors of the IRLs and NRLs, representatives from FIND and WHO-RNTCP consultant participated in the meeting. The meeting was organized to discuss the achievement, technical update, cross learning and solution to challenges faced by laboratories.

C-DST labs: 62

SL-DST: 14

RNTCP Culture and DST Labs Network  
(February, 2015)



Figure showing C&DST laboratory network under RNTCP

## Newer Initiative by the RNTCP

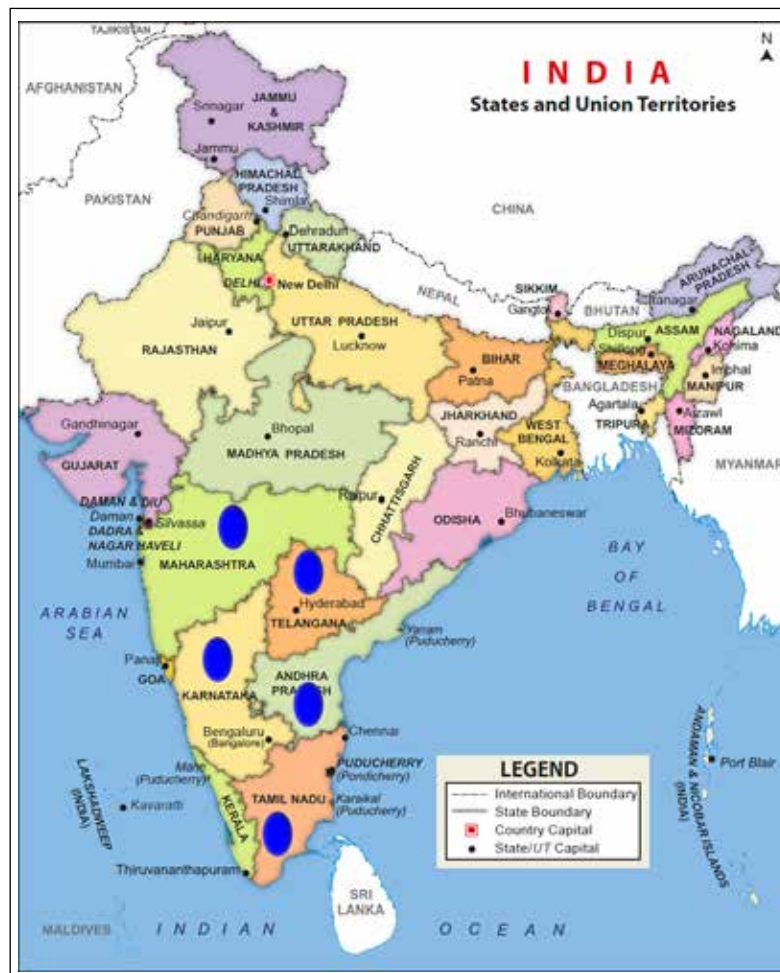
**Nationwide Anti-tuberculosis Drug-resistance Survey (NDRS):** The First Nationwide Anti-tuberculosis Drug Resistance Survey, India 2014-2015 is being conducted by National TB Institute, Bangalore with the technical and financial support from WHO, India. The Survey will provide a statistically representative national estimate of the prevalence of anti-tuberculosis drug resistance among new and previously treated patients in India and will contribute to a more accurate estimate of drug-resistant TB globally.

**Accelerating Access to Quality TB Diagnosis for Pediatric Cases in 4 Major Cities in India:** The RNTCP in collaboration with the State TB officer rolled out project for accelerating access to quality TB diagnosis for Pediatric project supported by USAID. Under the project CB-NAAT labs were established at Delhi, Chennai, Kolkata and Hyderabad. Sensitization of key hospitals and private clinics catering to Pediatric populations was conducted to establish referral network for diagnosis. The laboratory staff was also trained on

processing EP-TB samples. Very recently, the National Expert Committee on Diagnosis and Management of TB has approved use of CB-NAAT for EP-TB sample.

**Center of Excellence (CoE) for Extrapulmonary Tuberculosis:** The RNTCP established Center of Excellence for EP-TB at Dept. of Medicine, AIIMS, New Delhi. The core committee also had series of deliberation for diagnosis and management of EP-TB. The committee will develop guidelines for diagnosis and management of EP-TB.

**CB-NAAT project under RNTCP:** Currently, 89 CB-NAAT sites are providing rapid decentralized diagnosis of MDR-TB, TB in high-risk group PLHIV and Pediatric presumptive including EP-TB case. All the sites are also implementing innovative mechanism to involve PPM (Public-Private Mix) model to provide diagnosis of TB and DR-TB from the private sector. RNTCP in collaboration with National AIDS Control Program has initiated the “Innovative intensified TB case finding and appropriate treatment at high burden ART centers in India” under which 30 CB-NAAT sites are being established.



### Innovative Intensified TB Case Finding and Appropriate Treatment at High Burden ART Centres of India

- RNTCP-WHO-NACO Project
- CB-NAAT to detect MTB in Presumptive TB cases among People living with HIV
- Pilot Project in 30 sites
- Implementation of 3Ts
- Daily regimen to be used for project

## 3.2 Treatment of TB

Every year >9 million people suffer from TB and India accounts for >25% of Global TB burden. India is implementing WHO endorsed DOTS strategy under a national program-RNTCP. National coverage of DOTS strategy was achieved in the year 2006 and since then program has been achieving the global twin targets of >70% case detection and >85% success rate among new sputum smear positive TB cases. RNTCP is the world's largest DOT program and since inception of RNTCP, >18.9 million TB patients have been treated under DOTS by utilizing a network of over 6 lakh DOT providers. This has resulted in saving >3.5 million additional lives. RNTCP has tested 5,81,399 presumptive DR TB cases, >76,000 MDR-TB/Rif resistance diagnosed and initiated >66,000 DR TB patients on treatment. The 3rd phase of RNTCP implementation started in 2012 as National Strategic Plan 2012-17, which envisions "Universal access to quality TB care".

The success rate of >85% has been accomplished by the use of standardized treatment regimens, delivered in an uninterrupted manner in patient-wise boxes, provided to patients free of cost under direct observation of a DOT provider. With an ambitious goal of providing universal access to high quality diagnosis and treatment for all TB patients (including HIV-associated and drug-resistant TB) the program has tweaked the treatment strategies in light of changing global treatment guidelines, TB epidemic and knowledge gained from in country research and program implementation.

DOT being the back bone of RNTCP, the program is also taking measures to make it more patients friendly and flexible i.e., decentralized community-based DOT with enhanced provider incentives, patient incentives especially in difficult areas, improved use of IT and telecommunication to track patients in a setting of improved web-based, case-based surveillance systems. The program is taking cautious and informed decisions to ensure that the core elements of success to date are not lost while innovations are evaluated and incorporated into the program.

### Treatment Regimen

A standardized four drug (Category-I, HRZE), 6 months, intermittent (thrice-weekly) regimen is used to treat all new TB cases under RNTCP. The

nonresponders and failures of first-line treatment are offered C&DST (At least Rif-Xpert MTB/Rif® or INH & Rif-Line Probe Assay). The drug-sensitive treatment experienced TB patients are treated using a standardized five drug (Category II, HRZES), 8 months and intermittent (thrice -weekly) regimen.

The Rif-resistant/MDR-TB, patients are treated with a standardized six drug, (category IV, ethionamide, cycloserine, levofloxacin, kanamycin, ethambutol and pyrazinamide), 24-27 months daily regimen. The nonresponders and failures are offered second-line anti-TB drug DST (fluoroquinolone and aminoglycoside). The extensively drug-resistant (XDR)-TB cases are treated with the drugs to which MTB is sensitive (Category V) for up to 30 months daily regimen.

Country has already rolled out second-line DST Offer to all Rif-resistant/MDR-TB cases at the initiation of treatment in six states (Gujarat, Maharashtra, Delhi, Karnataka, Kerala and Tamil Nadu). The patients diagnosed with FLQ/Inj resistance are treated with modified category IV regimen, whereas the FLQ/Inj resistance among nonresponders and failures of Category IV are treated with category V regimen.

### Directly Observed Treatment

DOT is the core of the treatment delivery system that can create a human bond between the provider and the patient and motivate the patient to complete the treatment. In addition, it fosters rigorous monitoring and rapid retrieval of patients who interrupt treatment. Since these activities are not possible in a setting of self-administration, RNTCP strongly discourages 'self-administration' as an option in the interest of the patient and public health.

DOT Centers (providers) are institutions/individuals (health staff/volunteers) who are accessible and acceptable to the patient and accountable to the system. All public health facilities including sub-centres are enrolled as DOT centers. The program has been making efforts to identify, sensitize and garner support of community volunteers, cured patients, volunteers working with health and nutrition departments-Anganwadi workers, including ASHA volunteers and workers with PLHIV networks where ever available-who are committed and compassionate to deliver DOT as close to the patient as possible.

Further, the assistance of sub-district supervisors is also sought in the retrieval of patients who are late for

treatment and a nominal honorarium is provided to all the community DOT providers at the rate of ₹ 750 for every successfully treated drug sensitive TB patient and ₹ 5,000/- per successfully treated drug-resistant TB patient.

## Organization of Treatment Services Under Programmatic Management of Drug-resistant TB

Treatment of Drug-resistant TB is much more complex and lengthy in comparison to treatment of Drug sensitive TB and requires special care during treatment which is made more cumbersome due to adverse drug reactions. Under RNTCP, DR-TB patients are treated primarily on ambulatory basis after a brief period of in-patient care at initiation of treatment. The facilities for initiating treatment are designated as DR-TB centers and are normed at 1 per 10 million population across the country. The DR-TB centre has a formal committee which comprises of various specialties and is the committee which decides regimens and dosages. A DR-TB patient once stabilized on treatment is then referred to a decentralized identified DOT centre from where he is provided DOT. A linked DR-TB centre is a decentralized clinical unit under a DR-TB centre which provides treatment services but reporting lies with the parent DR-TB centre.

Currently, there is a network of 127 DR-TB centers across the country supported by 50 linked DR-TB centers, district level DR-TB centers and DR-TB OPDs.

## Results

Indian RNTCP is the world's largest DOTS program achieving global targets of case finding and treatment success rate but the same success has not been achieved with PMDT. The treatment success rates under the program are well below 50% with ~20% each of death and lost to follow up. The HIV rates among drug sensitive and drug-resistant TB are comparable at 4-5%. The major attributable factors observed for poor treatment outcomes in the country are resistance to FLQ, Ethambutol, lower BMI and previous treatment episodes. Cumulative outcomes of 12,125 MDR-TB patients have been reported till date out of which 5,796 (48%) have been successfully treated whereas 2,682 (22%) have died and 2,277 (19%) defaulted, respectively.

## Newer Initiatives

### Standards for TB Care in India

The gold standards for TB care in India were released on World TB Day 2014. This is India's bold step towards Universal access to quality TB care. On one side these standards propagate best practices in TB control in the private sector at the same time these also challenge the national TB program to raise the bar and provide highest quality TB care under the program. These standards envisages daily treatment regimen in high risk groups, DST-guided treatment regimen to tackle the menace of DR-TB, more patient friendly DOT systems including family DOT and ICT enabled support systems and psychosocial support systems, etc.

### DR-TB Counseling Project

Launched in May 2014 in collaboration with Population Services International under Project Axshaya, this project provides facility and home based counseling to DR-TB patients across 28 locations districts with the help of 30 DR-TB counselors. The compliance and adherence related issues in the treatment of DR-TB are being primarily addressed by counseling at every contact, capacity building of care providers and linkages with psychosocial support systems etc.

### Drug Sensitivity Testing (DST)-guided Treatment Regimen

To improve the efficacy of treatment prevent augmentation of drug resistance due to effective monodrug therapies due to unknown resistance and improve treatment outcomes there was a felt need for DST-guided treatment regimen in the country. With support from WHO Country Office in India a workshop to build consensus on DST-guided treatment regimen a Workshop was conducted by Central TB Division.

The consensus reached on graded offer of universal DST to all presumptive MDR-TB cases with scientific regimens to address the issue of mono - and polydrug resistance shall be pilot tested at five locations during 2015-16 for operational feasibility, interim outcomes and scalability across the country.

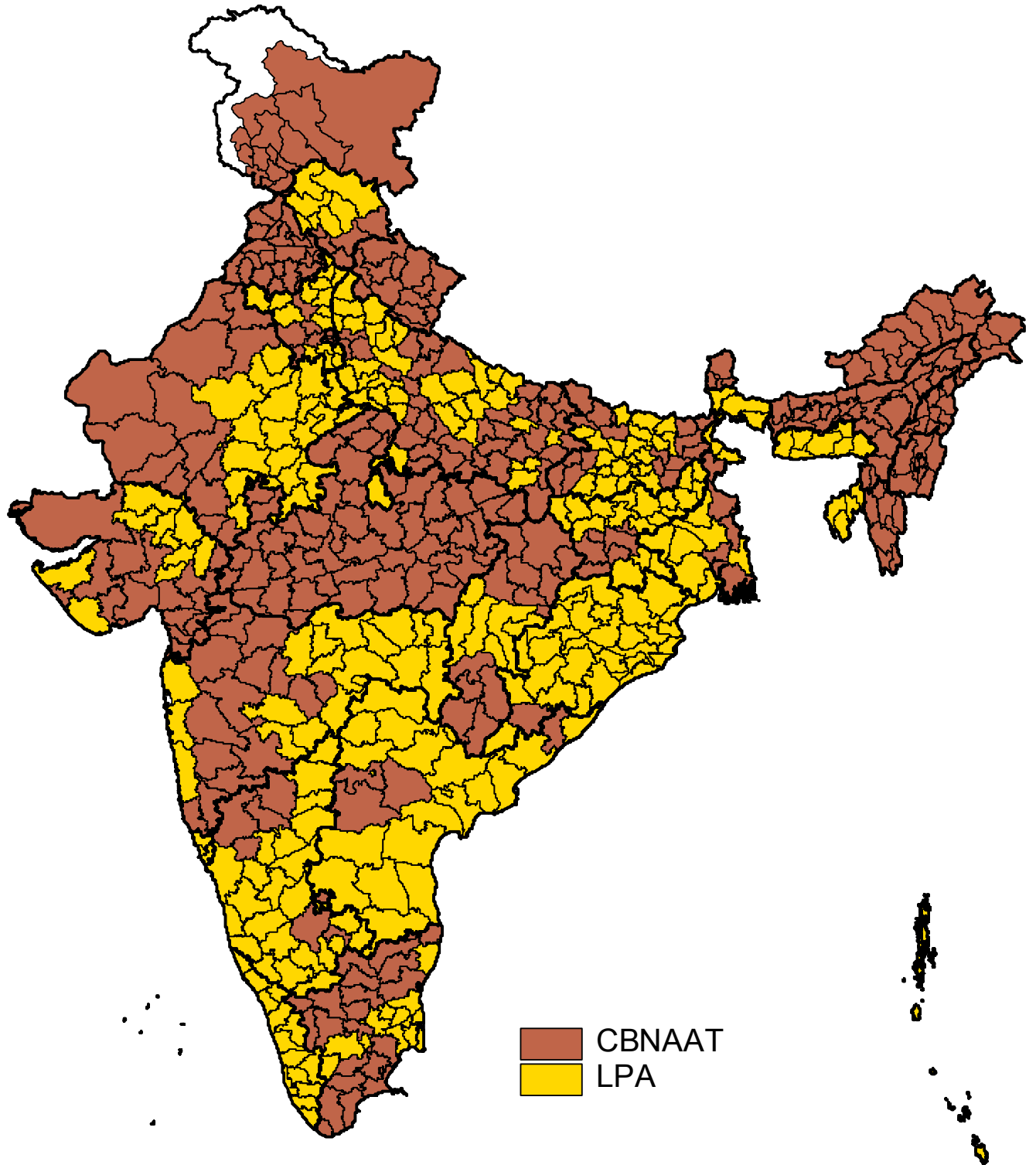
## **National Anti-TB Drug-resistance Survey (NDRS)**

A national representative anti-TB drug survey was launched by Honorable Health and Family Welfare, Minister on 6th September 2014. This is first NDRS globally to test drug resistance to drugs other than Rifampicin and Isoniazid, being conducted in collaboration with CDC Atlanta, WCO-India and Supra National Reference Laboratory, Belgium. This survey is being conducted across 120 TB Units in the country. Each TB unit shall contribute 27 New Smear Positive and 17 Retreatment TB cases for 13 drugs DST. A total of 5,280 patient's sputum sample shall be tested at a National Reference Laboratory, NTI, Bangalore. This survey shall be completed by June 2015 and results shall be available by December 2015. The results shall guide RNTCP in formulating standardized regimens for a better public health initiatives to confront DR-TB.

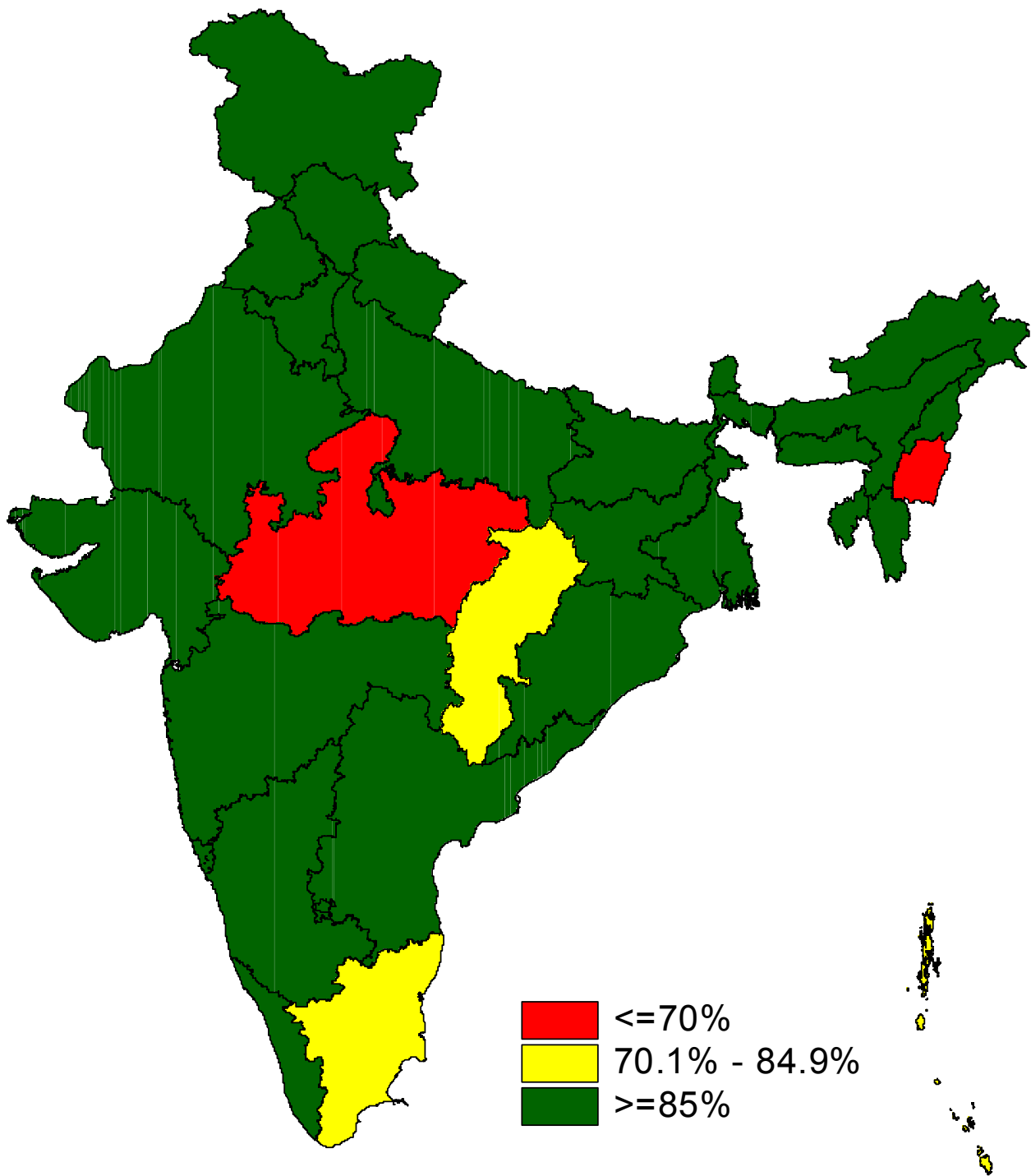
## **Fixed Dose Combinations and Daily Regimen**

The standards for TB care in India and all the international treatment guidelines envisages daily regimen for all TB cases. The National Expert Committee for Diagnosis and Management of TB has approved 100 district pilot for daily regimen with fixed dose combinations (FDCs) of 4 drug and 3 drug for Intensive phase and continuation phase, respectively. The FDCs shall be given in daily dosages. The pilot shall be conducted to demonstrate operational feasibility and benefits of daily DOT over alternate day. FDCs decrease the pill burden significantly thus improving the patient compliance and treatment outcomes. Both adult and pediatric FDCs shall be made available in single strength, double strength and dispersible formulations.

## Diagnostic Technology 4th qtr 2014



## Proportion of MDR diagnosed initiated on Rx 3rd qtr 2014





# CHAPTER 4: TB SURVEILLANCE IN INDIA WITH NIKSHAY

## Nikshay (Case-based Online Software)

**Background:** RNTCP since implementation followed international guidelines for recording and reporting for Tuberculosis Control Program with minor modifications. Epi-info based EPI-CENTRE software was being used for the purpose of electronic data transmission from district level upwards. Initially DOS version was in use and the program shifted to windows version in 2007. However, the data available at district, state or national level was in aggregated form, with a lead time of >4 months, excluding private sector and neither could help much for TB burden estimation or individual case management or monitoring. To address this Central TB Division (CTD) in collaboration with National Informatics Centre (NIC) undertook the initiative to develop a Case-based Web online (cloud) application named Nikshay. This software was launched in May 2012 and has following functional components.

- Master management
- User details
- TB patient registration & details of diagnosis, DOT provider, HIV status, follow-up, contact tracing, Outcomes
- Details of solid and liquid culture & DST, LPA, CB-NAAT details
- DR-TB patient registration with details
- Referral and transfer of patients
- Private health facility registration and TB notification
- Mobile application for TB notification
- SMS alerts to patients on registration
- SMS alerts to program officers
- Automated periodic Reports
  - Case finding
  - Sputum conversion
  - Treatment outcome
- TU and District level Program Management

## Data Security/Confidentiality:

Security audit of Nikshay application is done as per guidelines of Department of IT. Password protection is applicable for each level of user. Password reset facility is available at higher users in hierarchy. Access to relevant information for each user, based on defined functions.

## Data Quality

Since the software does not itself generate information and almost all information is digitized from the source which exists in the program; the inherent quality of data of the program is transferred. Transcription errors if any are being evaluated by the program in implementation research mode. However, Nikshay already has internal validations for most of the variables based on the logic flow and conditionality's. But a judgment of choice of stricter validations against the availability of complete and accurate information; is also an opportunity to improve processes in the program. It started with certain mandatory fields which were defined and these now ensure completeness of information regarding those variables e.g. DOT provider details. Unwanted characters avoided at entry. Regular feedback from administrator to check bugs if any, has been established. Most importantly data point formats of Metadata and Data Standards (MDDS) have been followed in the development of this could application. In future, this will be the basis for system integration and interoperability to set an example of EMR/EHR.

Till 18th March 2014, status of implementation and is as below:

TB Patients Registered under RNTCP	38,61,201
Peripheral Health Institutes (PHI) registered	47,461
Tuberculosis Officials details	2,891
District TB Officers details	698
State TB Officers details	35

Contractual Employees details	8,304
Health Establishments registered	85,259
Patients notified	20,8617
Culture & Drug Resistant Labs Patients registered	1,20,717
Drug Resistant Tuberculosis Patients registered	10,788

## Implementation challenges

Many of the PHCs in the country do not have adequate ICT infrastructure like computer, internet connectivity and Data Entry Operator. Also intermittent electricity supply hampers the data entry and use of Nikshay. Also patient treatment cards need to be brought to TU/Block level or even at district level in certain areas for data entry. Slow internet/web connectivity in some places and incomplete treatment cards at many places also slows down the process.

However, support from NRHM in terms of ICT infrastructure and data entry operators has significantly contributed to use of Nikshay software across the country.

## TB Notification

**Background:** India's National TB Control program provides quality assured diagnostic and treatment services to all the TB patients including necessary supportive mechanisms for ensuring treatment adherence and completion. But these services cannot be made available to large number of patients availing services from private sector, as they are not currently reported to the program. The National Program is unable to support TB patients and facilitate effective treatment as there is no information on TB and M/XDR-TB diagnosis and treatment in private sector and unable to monitor and act for this looming epidemic. The country has a huge private sector and it is growing at enormous pace. Private sector predominates in healthcare and TB treatment. Extremely large quantities of anti-TB drugs are sold in the private sector. Poor prescribing practices among private providers with inappropriate and inadequate regimens and unsupervised treatment continues in private sector without supporting patient for ensuring treatment adherence and completion with unrestricted access to first and second-line TB drugs without prescription. High cost of TB and M/XDR-TB

drugs for privately treated patients is leading to further poverty and treatment interruptions.

A large number of patients are not benefited with these program services and leads to nonadherence, incomplete, inadequate treatment leading to M/XDR-TB, mitigating all the efforts of the program to prevent emergence and spread of drug resistance. If the TB patients diagnosed and treated under private sector are reported to public health authorities, the mechanisms available under the program can be extended to these patients to ensure treatment adherence and completion. The impending epidemic of M/XDR-TB can only be prevented to a large extent by this intervention.

To curb this situation, Govt. of India declared Tuberculosis a notifiable disease on 7th May 2012 with the following objectives.

## Objectives

1. To have establish Tuberculosis surveillance system in the country.
2. To extend mechanisms of TB treatment adherence and contact tracing to patients treated in private sector.
3. To ensure proper TB diagnosis and case management and further accelerate reduction of TB transmission.
4. To mitigate the impeding drug-resistant TB epidemic in the country.

## Implementation Tools and Methods

For the purpose of notification, the contact details of the nodal officer at district level and the reporting formats are available on the website [www.tbcindia.gov.in](http://www.tbcindia.gov.in). All the health establishments throughout the country in public as well as private and nongovernmental sector are expected to notify TB cases.

For the purpose of notification the definition of TB cases is as below:

- Microbiologically-confirmed TB case: Patient diagnosed with at least one clinical specimen positive for acid fast bacilli, or Culture-positive for *Mycobacterium tuberculosis*, or RNTCP-approved Rapid Diagnostic molecular test positive for tuberculosis.

- **Clinical TB case:** Patient diagnosed clinically as tuberculosis, without microbiologic confirmation and initiated on anti-TB drugs.

List of RNTCP endorsed TB diagnostics are as below:

*Smear Microscopy (for AFB):*

- Sputum smear stained with Ziehl-Neelson staining or
- Fluorescence stains and examined under direct or indirect microscopy with or without LED.

*Culture:*

- Solid (Lowenstein-Jansen) media
- Liquid media (Middle Brook) using manual, semi-automatic or automatic machines e.g., Bactec, MGIT, etc.

*Rapid diagnostic molecular test:*

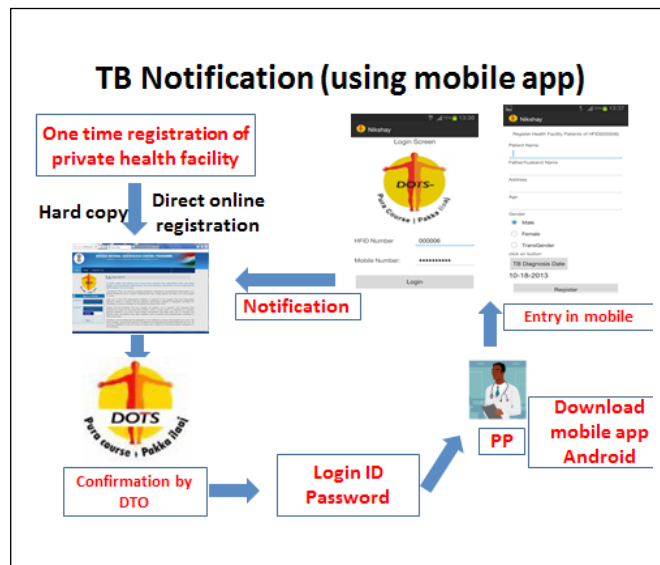
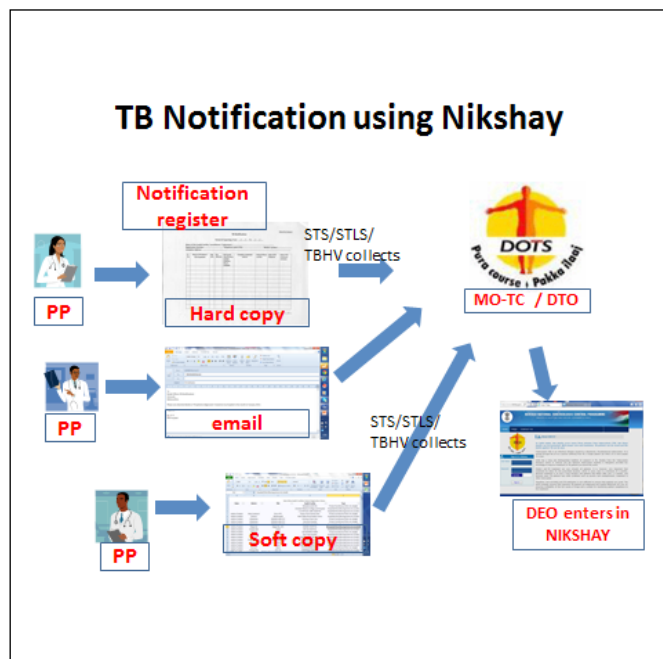
- Conventional PCR-based LAP for MTB complex
- Real-time PCR-based Nucleic Acid Amplification Test (NAAT) for MTB complex e.g., GeneXpert.

**Sputum Smear Microscopy (for AFB):** Sputum smear stained with Zeil-Nelson staining or fluorescence stains and examined under direct or indirect microscopy.

**Sputum Culture:** Sputum culture on solid (Lowenstein-Jansen) media or liquid media (Middle Brook) using manual, semi-automatic or automatic machines e.g. Bactec, MGIT, etc.

**Rapid diagnostic molecular test:** LPA for MTB or Nucleic Acid Amplification Test (CB-NAAT).

### Options of Notification Modalities



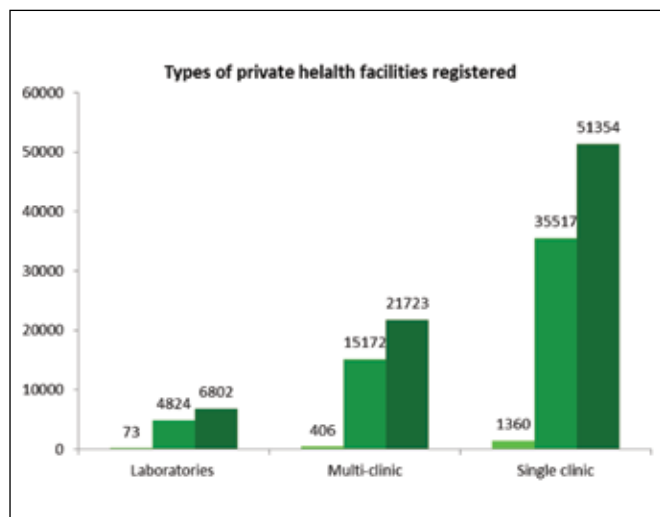
Option of registration and login for private facilities for TB notification indirectly in Nikshay will be made available by June 2014.

### Challenges

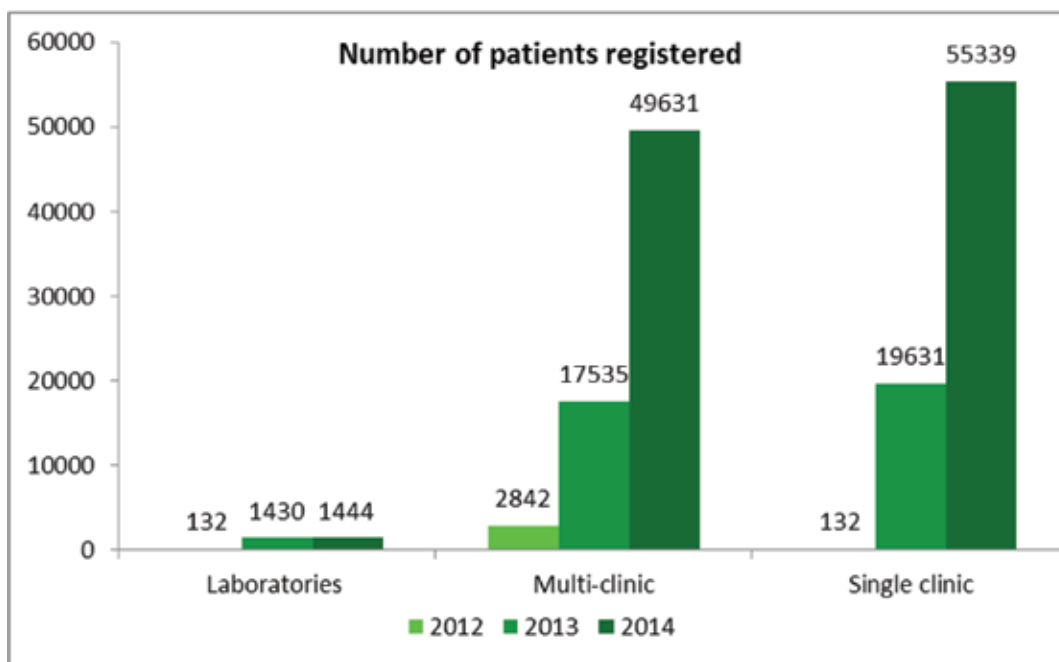
Sensitization of huge number of private healthcare providers especially with inadequate human resources is a big challenge. Also, following up notified cases as a public health responsibility in a manner acceptable to patients and the community is another challenge. Managing huge information at different levels and creating a national TB register and ensuring deduplication for converting the information in burden statement is also challenging.

However, with support of various partners like IMA & CBCI, notification is progressing.

### TB Notification Status



With efforts for sensitization of program officials and staff and then subsequently to private sector, the number of private health facilities registered in Nikshay for TB notification further increased in 2014 as compared to 2013. A total of >85,000 private health facilities are registered till now.



With increasing number of health facilities registered notification of TB cases also increased many fold. Till now, 2 lakh TB cases have been notified. Though this is still the beginning and case based surveillance with increasingly complete notification by all health facilities across the country will be the milestone for RNTCP in the coming years.

# CHAPTER 5: PARTNERSHIPS

Synergistic efforts of all stakeholders involved in TB control in India are the key towards realizing the goal of “Universal access to TB care and treatment for all”. Revised National TB Control Program is working towards this goal with the basic philosophy that government is not the sole provider of services for TB and optimum efforts should be made to utilize the resources in the private sector. In this context, an enabling environment has been created through regular interaction with partners involved in TB control and promoting innovative TB control initiatives at district and state level. RNTCP acknowledges the contribution of different partners which are supplementing RNTCP TB control services in rural and urban areas.

RNTCP through participatory consultation process has developed the National Guideline for Partnership 2014 which now provides new partnership options for involvement of NGOs/Private Providers/Corporates/Institutions for TB control efforts. National Guideline for Partnership would facilitate enhanced involvement of private sector in TB control to realize the dream of TB-free India.

## Indian Medical Association (IMA)

IMA PPM project started in April 2008 in five states and one union territory of India, namely Andhra Pradesh, Haryana, Maharashtra, Punjab, Uttar Pradesh and Chandigarh (UT). Subsequently, 10 more states were added. Subsequently, 10 more states viz. Bihar, Chhattisgarh, Gujarat, Jharkhand, Kerala, Orissa, Rajasthan, Tamil Nadu, Uttaranchal and West Bengal were added to promote RNTCP and PPM-DOTS. The State of Himachal Pradesh has been included in the project in place of Haryana. The objective of this project has been to improve the access of patients availing services from the private sector to the diagnostic and treatment services of the RNTCP and thereby improving the quality care for the patients suffering from tuberculosis, through the involvement of the IMA leaders and public sector health staff.

**The salient achievements made under the project are:**

- ⇒ 97,363 private practitioners have been sensitized on RNTCP and STCI

- ⇒ 16,219 private doctors have been trained in 15 states and 1 union territory
- ⇒ 74,750 TB cases has been notified by the facilitation of IMA
- ⇒ IMA has facilitated establishment of 1,383 Private PHI.

## CBCI-CARD

CBCI-CARD (Catholic Bishops Conference of India- Coalition for AIDS and Related Diseases) is a Civil Society Organization working under GFATM supported PPM project of RNTCP, to improve access to the diagnostic and treatment services provided by the RNTCP within the Catholic Church Healthcare Facilities (CHFs) and thereby to improve the quality of care for patients suffering from tuberculosis in India.

**The salient achievements made under the project are:**

- ⇒ 15,065 TB patients were notified to district TB authorities
- ⇒ 36,115 sputum positive TB patients were diagnosed from CHF designated microscopy centers
- ⇒ 27,5476 TB suspects were referred for sputum examination to RNTCP DMCs
- ⇒ 15,634 Hospital and Health Centre staffs were sensitized in RNTCP
- ⇒ 7,451 medical and paramedical personnel underwent 1-day RNTCP modular training
- ⇒ 256 school health activities were organized
- ⇒ Formulation of a catholic church’s ‘Response to TB’ which signed by the Health Commission Bishops of CBCI. It became the advocacy tool and overarching guideline for TB control in Catholic Health Institutions of India
- ⇒ Contributed to the dissemination of the ‘Standards for TB care’ in India by printing 6,000 copies and reaching out to doctors in different parts of the country.

## Foundation for Innovative New Diagnostics

FIND is the technical and implementing partner with RNTCP for the nationwide laboratory network for DR-TB service. This initiative began in India under EXPAND TB with the funding support from UNITAID and this was complemented by funding from GFATM since 2011. GFATM provides support to all laboratories with additional Human Resources, in addition to supporting training, quality assurance procedures, technical assistance, monitoring and supervision, supply of equipment and consumables, and National PMDT reviews.

### The number of labs supported by EXPAND TB and GFATM

	EXPAND TB	GFATM	EXPAND TB CB-NAAT
Project Duration	2010-2015	2010-2015	2012-2015
No. of Sites planned	LPA: 46, LC: 40		14
No. of Sites Functional*	LPA: 41, LC: 30		14

\* Infrastructure for the remaining 5 LPA and 10 LC labs will be ready by mid-2015, and the labs will be functional by the end of 2015

During the last four quarters, 1,38,585 MDR-TB suspects were tested with new rapid TB diagnostics and 19,017 MDR TB cases were diagnosed taking the cumulative figures till end of 3rd quarter 2014 to 3,21,890 and 54,961; respectively.

Under RNTCP led initiative a pilot project was facilitated by FIND between February to June 2014 in four major cities of India, namely New Delhi, Chennai, Hyderabad and Kolkata. During this period, more than 3,300 pediatric suspects were tested by Xpert MTB/RIF and a total of 226 TB cases were detected out of which 27 were rifampicin-resistant. Overall Xpert MTB/RIF positivity was 6.9% as compared to 2.4% on smear microscopy. Positivity varies between different specimens; however, Gastric aspirate, CSF and BAL has shown higher positivity than other specimens.

## Partnership with ASSOCHAM

Central TB Division has partnered with ASSOCHAM and organized a one day Advocacy Workshop in New



Delhi to raise awareness among corporate members of ASSOCHAM to join the fight against TB in India. This workshop was attended by WHO Representative to India, Mission Director USAID, the team from Central TB Division under the leadership of DDG-TB and leading members of the corporate bodies. This **“Tuberculosis Awareness, Prevention & Wellness Program”** was an effort by RNTCP and ASSOCHAM to work together for TB control in India.

## Lilly Foundation

Chemists are integral part of health system and are contacted by people for consultation for any sort of illnesses. NGOs with funding support from Lilly MDR-TB Partnership are engaging Chemists (Medical Shop Owners) in TB Care and Control. The chemists trained using RNTCP module in identifying, referring TB symptomatic persons to testing and treatment facilities of RNTCP and encouraged to take up DOTS provision. Lilly foundation is supporting this initiative in coordination with RNTCP in Telangana, Delhi, Chennai, Maharashtra, Goa and Madhya Pradesh. The foundation is also supporting the involvement of Rural Health Care Providers (RHCPs) for medical care in rural areas (especially in tribal and remote geographic locations) with limited availability of public health services. Through, this intervention the project is enhancing the involvement of RHCPs in TB control, linkages between NTP and community for early gains in program outcomes. This intervention is being implemented through local NGOs in 4 districts across 4 states (Alirajpur in Madhya Pradesh; Ghazipur in Uttar Pradesh; Khunti in Jharkhand and Pali in Rajasthan), which have been selected based on their sub-optimal performance for TB control and difficult geographies. Under this initiative a mobile application is being used for referring and tracking TB patients.

## The International Union against Tuberculosis and Lung Diseases

Project 'Axshya' (meaning TB-free) is being implemented by the Union South East Asia Office (USEA) since April 2010. The Union **has been working in partnership with** 8 sub-recipient partners, over 1,000 local NGOs and nearly 15,000 community volunteers. The key achievements of the project are:

- Over 2.8 million households in vulnerable areas have been reached resulting in identification and testing of over 1,00,000 TB symptomatic and over 7,500 patients being diagnosed with TB and put on DOTS
- Over 1,80,000 TB symptomatic benefited from the sputum collection and transportation services
- Trained and engaged 2,500 providers this year who have identified nearly 40,000 TB symptomatic resulting in diagnosis of over 3,000 TB patients
- Over 250 TB forums have been formed at the district level and have facilitated nutritional support and linkages with social welfare schemes
- A toll free TB helpline (number- 18001022248) has been initiated in the states of Punjab, Karnataka and Maharashtra. Over 4,600 calls have been answered through the helpline providing basic information about TB and the location of DMCs and DOT centers where the patients can access services
- Providing support for maintenance of over 5,000 Binocular Microscopes in Bihar, Chhattisgarh, Rajasthan, Uttar Pradesh, Uttarakhand, Karnataka, Haryana, Punjab and Chandigarh to ensure uninterrupted diagnostic services
- The Union through Axshya continues capacity building of the program personnel on key thematic areas including TB Epidemiology, Operational Research (OR), Clinical Management of DR-TB and Leadership and Management. Nearly 100 personnel working with RNTCP have been trained in these courses.

### The Clinton Health Access Initiative (CHAI)

CHAI provides technical inputs to the Central TB Division towards planning and forecasting for diagnosis/treatment under PMDT, it has been partnering with private sector labs and RNTCP to improve access to

quality TB diagnosis in the private sector via the "Initiative for Promoting Affordable and Quality TB Diagnostics" or IPAQT. Under this initiative, participating laboratories, have committed to offering quality WHO-endorsed TB tests at or below agreed upon ceiling price to the patients, discontinuing use of sub-optimal TB tests and notifying all positive cases to the government so that a linkage to quality treatment can be established.

## World Vision India

To support RNTCP in improving TB case detection, World Vision India (WVI) and its 6 civil society partners - GLRA, ADRA India, CARE India, SHIS, TB Alert and LEPR India have been implementing Project Axshya in selected problematic areas in West Bengal, Bihar, Jharkhand, Chhattisgarh, Odisha, Madhya Pradesh and Andhra Pradesh, with the assistance of Global Fund Round 9 TB Grant since April 2010. The key interventions of the project involve engaging local grass-root level CBOs and community care givers in TB control and care, linking them with RNTCP through advocacy, capacity building and mobilization activities and strengthening health systems. The key achievements of the project are:

- TB community meetings were conducted in 8,151 villages and as an impact of those meetings, 310 TB cases were detected from the villages through community referrals to RNTCP. Moreover, the project helped around 1,462 villages to develop the TB Action Plan for the VHSCs
- The project sensitized 3,139 unqualified rural healthcare practitioners on TB & RNTCP and 1,346 (cumulative) of those rural healthcare practitioners referred 4,464 presumptive cases to the DMCs of RNTCP and 504 TB cases were detected out of those referrals
- The Community Volunteers of the project retrieved 4833 (cumulative) cases of drug-defaulters and brought them back to DOT
- The project had referred 96,340 TB presumptive cases to the DMCs, out of which 80,531 got tested, 8,708 TB cases were detected and 7,961 were put on DOT within 7 days of diagnosis
- Provided soft-skill training to 5,623 district level RNTCP and health staff.

## Involvement of Medical Colleges in Revised National Tuberculosis Control Program

Involvement of medical colleges in the RNTCP is a high priority. Continuing success of RNTCP requires involvement of all large providers of healthcare including medical colleges. Under RNTCP Medical Colleges play important roles in service delivery, advocacy, training and operational research.

### Evolution of Medical College Involvement in RNTCP

A consensus conference in 1,997, attended by leading medical professors throughout the country and subsequent national workshops at AIIMS and National Tuberculosis Institute, Bangalore in 2001, lead to growing professional consensus among public health and medical opinion leaders, that the RNTCP approach is appropriate and feasible.

Subsequent to that increasing number of medical colleges are participating in the program as tuberculosis units, microscopy centers, treatment observation centers, etc. The initial period saw 7 nodal centers in different parts of the country which facilitated in the development of the State and Zonal Task Forces and involvement of the individual medical colleges through the State Task Forces. The involvement includes the presence of medical college core committees at each medical college, State Task Forces with representation from medical colleges, Zonal Task Forces and National Task Force.

Each medical college is provided with a Medical Officer, Lab technician and a TB Health Visitor to facilitate the RNTCP activities through the respective District Health Societies. The logistics for the laboratory and all the reporting formats are provided by RNTCP.

In India, more than 330 out of about 380 medical colleges are involved (formation of core committee, DMC and DOT center) under RNTCP. The Annual Zonal Task Force (ZTF) CMEs cum Workshops are held every year. For the year 2014 the ZTF Workshops were held between October 2014 – February 2015 for all the Six Zones in India.

ZTF	States in Zone	ZTF held at
West	Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Goa	Jodhpur, Rajasthan
South 2	Kerala, Tamil Nadu, Pudducherry	Mahabalipuram, Tamil Nadu
South 1	Andhra Pradesh, Karnataka, Telangana	Hyderabad, Telangana
North	J&K, Punjab, Haryana, HP, Delhi, UP, Chandigarh, Uttarakhand	Chandigarh
North East	North Eastern States	Gangtok, Sikkim
East	Bihar, West Bengal, Odisha, Jharkhand, Chattisgarh	Bhubaneswar, Odisha

The Medical college Zonal task force workshop is an opportunity for reviewing the performance of State Task Force and Medical Colleges and advocating the guidelines of RNTCP. In all these workshops, two representatives from each medical college in the zone, the STOs, STF Chairpersons, ZTF Chairpersons, Zonal OR Committee Members and head quarter RNTCP consultants of all the states in the zone will be invited to participate.

NTF Workshop is the event wherein all the recommendations from the ZTF are consolidated and deliberated to enable necessary policy changes. The national Task Force for 2014 was held at Simla from 14 to 15 March 2015.

### Impact of Medical Colleges

Medical Colleges are actively involved in RNTCP. Medical colleges contribute about 20% of the total registered cases under the RNTCP. The main contribution is in terms of the sputum negative and extrapulmonary TB where their contribution is above 30% of the overall cases diagnosed. More than 600 faculty members from Medical Colleges are trained as master trainers, these trained human resource available in the medical colleges are supporting program beyond the academics and participating in the National as well as local training as facilitators



for over 300 CMEs and workshops annually as part of advocacy efforts and also participating in Internal Evaluations and appraisals of the RNTCP. Majority

of the medical colleges are running ICTCs and ART centers and have established standard cross referrals between TB and HIV programs.

### Contribution of Medical Colleges

	2009-10	2010-11	2011-12	2012-13	2013-14
No. of medical colleges involved	282	291	315	320	347
Pulmonary TB cases diagnosed	1,41,859	1,44,303	1,36,072	1,36,130	1,56,858
EP cases diagnosed	81,615	83,824	82,067	78,200	91,367
Total cases diagnosed	2,23,474	2,25,127	2,18,139	2,14,330	2,52,066

### PMDT Services Provided

No of medical colleges offering TB C&DST services	68
No of medical colleges having RNTCP certified C&DST laboratories	28
No of medical colleges having DR-TB center	88
No. of DR-TB centers having DR-TB committees	88
No. of DR-TB committee members completed training in national PMDT guidelines	230

### TB HIV Collaborative Activities

No of medical colleges have an ICTC	68
No of medical colleges have an ART center	88
No of medical colleges that have designated a nodal person for TB/HIV coordination	230
Number of state OR committee meetings held	35
Number of OR projects (other than thesis) received by the state OR committee	112
Number of OR proposals (other than thesis) reviewed by the STF and forwarded to the ZTF for approval	43
Number of OR proposals approved by the zonal OR committee	7
Number of OR projects initiated by medical colleges in the state	55
Number of thesis proposals received by the state OR committee	103
Number of thesis proposals approved	80
Number of thesis initiated with RNTCP as a topic in the state	82

# CHAPTER 5.1: IMA GFATM RNTCP PROJECT

IMA is the largest NGO of the works with a membership of over 2,50,000 doctors spread over 1,700 branches and 30 state branches. IMA communicates to its members daily through emails and or SMS apart from its regular publications.

IMA-RNTCP-GFATM-PPM Project started in April 2008 in five states and one union territory of India, namely Andhra Pradesh, Haryana, Maharashtra, Punjab, Uttar Pradesh and Chandigarh (UT). Subsequently, 10 more states were added, namely Bihar, West Bengal, Jharkhand, Odisha, Rajasthan, Tamil Nadu, Uttranchal, Chhattisgarh, Gujarat, Kerala, Haryana was replaced by Himachal Pradesh.

**Under the IMA GFATM RNTCP Project and IMA TB initiative IMA has been engaged in the following activities:**

1. Sensitization of doctors about Standards of TB care through State and District Level Workshops
2. Need for notification - follow up and cure
3. Training of general practitioners in standards of TB care through District Level Workshops
4. Establishment of Private Sector Peripheral Health Institution
5. IEC activities, e-IMA NEWS, IMA NEWS, JIMA, TB Newsletter
6. Media Advocacy
7. Celebrity endorsement
8. Medico-Legal Protection
9. Policy Making
10. IMA Slogan

1. **Sensitization of doctors in Standards of TB care:** IMA has been able to sensitize over one lakh private doctors.

Patients notified in private sector if lost in follow up could result in multidrug-resistant TB.

2. **Need for notification - follow-up and cure:** All patients of TB needs to be notified and followed up till they are cured. IMA has helped in identifying, follow, treat and cure one lakh (104000 to be exact) out of one million missing TB cases in India. Out of these 33,913 cases were sputum positive and infectious to the community. Each sputum positive case spreads infection to 15 oth-

er healthy persons and 10% of all TB-infected persons develop clinical disease. IMA has been able to avert about 5,08,695 new TB infections due to reduction of TB transmission by treating infective TB cases. Out of these 10%, 50,870 cases could have developed clinical TB disease. Three percent of them, 1,526 cases could have become drug-resistant over time.

Treatment of 1,526 drug-resistant cases could have caused the government extra cost of over 30.52 crores (Rs 2 lac per treatment). Apart IMA's contribution has been able to check impending Drug-resistant TB epidemic.

3. **Training of general practitioners in standards of TB care:** IMA has trained and provided a TB faculty cum experts of over 16,000 doctors in the country. All these doctors follow one TB treatment protocol adhering to Standards of TB Care in India. This itself further checks the development of MDR-TB.

4. **Start of Peripheral Health Institutions(PHI):** IMA is also linking private doctors and private doctors owned clinical establishments into the loop of DOTS centers by way of establishing PHI. A PHI is a center in private sector linked to government DOTS and provided confidential and free treatment to the public. Over 1,700 such centers have been established by IMA so far. IMA hospital Board of India has been roped in by IMA to expand its scope of PHI centers. HBI has over 10,000 member.

Talks are also on with National Accreditation Board of Hospitals to accreditate PHI in regards to quality and safety.

5. **IEC activities: At National, State and Branch levels include:**

- ➔ Sensitization of School and College Principals
- ➔ Sensitization of medical college students
- ➔ Sensitization of Nursing School and Colleges
- ➔ CME for general practitioners
- ➔ Rally, Walks, Run, Exhibitions, etc. events
- ➔ Fairs, Melas, etc.
- ➔ Competitions: Poster, slogan, painting, dances, music, etc.

6. **Media Advocacy:** IMA regularly organizes media sensitization programs for the benefits of the public, at National, State and Branch levels.
7. **Celebrity Endorsement:** Padma Awardees of the country have joined hands for social causes of National Interest. They include Birju Maharaj, Sonal Man Singh, Uma Sharma, Naresh Trehan, Ambrish Mithal, Sudhir Tailang, Shovana Narayan, Geeta Chandran, Satpal, Surinder Sharma, Ashok Chakradhar and many others.



8. **Medico-Legal Protection:** IMA has sensitized its members that not notifying TB patients is a violation of MCI Ethics Regulations under Sections 5.2 and 7.14 which are as follows and it can lead to suspension of the license of the doctor:

*“5.2 Public and Community Health” – Physicians, especially those engaged in public health work, should enlighten the public concerning quarantine regulations and measures for the prevention of epidemic and communicable diseases. At all times the physician should notify the constituted public health authorities of every case of communicable disease under his care, in accordance with the laws, rules and regulations of the health authorities. When an epidemic occurs a physician should not abandon his duty for fear of contracting the disease himself.”*

*“7.14 The registered medical practitioner shall not disclose the secrets of a patient that have been learnt in the exercise of his/her profession except – 9i) in a Court of law under orders of the Presiding Judge; (ii) in circumstances where there is a serious and identified risk to a specific person and/or community and (iii) notifiable diseases.”*

**Dr A Marthanda Pillai**  
Padma Shri Awardee  
National President, IMA

**Dr K K Aggarwal**  
Padma Shri Awardee  
Honorary Secretary General, IMA

9. **Policy Making:** IMA in its 207th meeting of the Central Working Committee held on 22nd April, 2012 in Mumbai resolved as under

*“In conformity with the requirements of international standards for TB care, IMA desires that Notifications of TB patients to the national program be made mandatory. IMA also recommends to the General Practitioners to follow the ISTC in diagnosis and management of TB patients.”*

*Subsequently, Govt. of India, MoHFW Letter No.Z-28015/2/2012/TB dt. 7th May 2012 mandated Notification of TB Cases. The Govt Order said “.....therefore, the healthcare providers shall notify every TB case to the local authorities.....”.*

10. **IMA slogan** for the general practitioners” I have notified a TB patient today: have you. Do it today.

## Success Stories and New Initiatives

The initial notification of Satara district was quiet low, with only 30-40 cases per month till May this year. Five CMEs were organized in the district, with the main focus on TB Notification. In this district, the number of notification cases has now reached a whopping 400-500 per month. Doctors notifying maximum TB cases have been felicitated.

IMA in Kerala state has started receiving information electronically (by emails and Text messages) on diagnosed TB patients, which it transmits to the concerned DTOs in the proper format. IMA here has put up attractive posters in the rooms of all doctors. Brochures on notification and a 2-minute video presentation on notification are presented in personal visits to doctors by IMA Consultant and in IMA meetings.

IMA Kerala has initiated a daily regimen drug boxes for treatment of TB patients, in consultations with the STO. This is an initiative of Kerala TB Cell and IMA. Although the move is commendable, follow up is a challenge and a way has to be found out for defaulting patients.

A strategy of line listing, one to one meetings and involvement of IMA local branch officials personally has resulted in dramatic increase of notifications from private practitioners. The notifications have been increased from a paltry figure of 20 cases to 3323 cases.

**Dr Suresh Gutta**  
National Coordinator  
TB Cell, IMA

**Dr R V Asokan**  
Chairman  
IMA Hospital Board of India

# CHAPTER 6: BUDGETING AND FINANCE

RNTCP's National Strategic Plan includes a significant increase in the program's budget in order to accelerate progress towards universal access to TB services. Program has got an approval ₹ 4,500 crore in 12th 5-year plan. The financial management procedures for RNTCP are well-established and administered by the Finance Cell of the CTD. These procedures are documented in manuals and guidelines available on the program's website. Program's financial management arrangements to account for and report on program funds inclusive of both Domestic as well as Externally Aided Component (EAC) are as follows.

- a. **Institutional arrangements:** Overall responsibility for financial management of the program is with the Central Tuberculosis Division (CTD), a part of the National Health Mission of the MoHFW. At state level these are through state TB cell and at district level through district TB cell.
- b. **Budget and release of funds:** Program expenditures are budgeted in the Demand for Grants of the MoHFW under the Disease flexi-pool funding arrangement under two separate budget lines for Externally Aided Component (EAC) and General Component (GC).
- c. **Funds flow:** Funds flow for the program will remain within the existing financial management systems of MoHFW, which operates through the centralized Pay and Accounts Office. Funds are being released to state in 2-3 instalments.
- d. **Obtaining sanctions and payments:** The internal processes for obtaining technical and financial sanctions and making individual payments involve multiple levels of approvals through several steps – these are however, well-established procedures. All procurements of commodities are processed by the Empowered Procurement Wing (EPW) and approved

by the Secretary and Union Minister in line with the delegation of financial powers. All funds releases for commodity advances for approved contracts are routed through the Integrated Finance Division (IFD) of MoHFW and processed by the Drawing & Disbursing Officers (DDO) and Pay & Accounts Office (PAO). All other program expenditures follow the standard government systems of the PAO and are subject to controls as per the General Financial Rules of the Government of India. Payments are made through electronic funds transfers through State Treasury since the financial year 2014-2015

- e. **Accounting:** The accounting records for all payments against appropriated budget lines are maintained by the Principal Accounts Officer and compiled by the Controller General of Accounts (CGA). The compiled monthly accounts are reconciled with the CTD's record of transactions.
- f. **Financial reporting:** Based on the compiled monthly accounts and the CTD's own record of expenditures incurred, the CTD submits its financial report to MoHFW, other Donors to the program GFATM and World Bank on periodic basis.
- g. **External audit:** The Office of the Comptroller and Auditor General (C&AG) of India is the statutory auditor; the audit is being conducted as per the standard terms of reference agreed with Department of Economic Affairs (DEA) of the Ministry of Finance and the World Bank. The audit report(s) are being made available to all donors as per the agreement. At state level audit are being done as per state NHM audit manual and guidance. State audit are being done by the empaneled chartered accountancy firms of the state. All the states are required to submit the annual audit report to CTD by 30th September.

## Financial Performance of RNTCP in 12th FYP

Under 12th 5-year plan in first 3 years of RNTCP the snapshot of funds approved and released to RNTCP is following:

Description	2012-13	2013-14	2014-15	Total
Budget requested	700	800	1,358	2,858
Budgetary estimates (approved budget)	710	710	710.15	2,130.15

Description	2012-13	2013-14	2014-15	Total
Revised estimated (revised approved budget)	467	500	640	1607
Total releases to States	224.72	323.52	339.03	887.27
Expenditure (plan)	566.93	527	393.19*	1487.12
Expenditure (Nonplan)	95.78	140.02	466.81	702.61
Total expenditure	662.71	667.02	860.00	2189.73

\*Expenditure till December 2014 and SOE has been received by only 30 States/UTs (as on 18 March 2015).

## Status of Donor Supported Projects

In the current National Strategic Plan RNTCP budget apart from domestic budget two other donors are supporting the program: The Global Fund and The World Bank. The update on the donor supported projects is as follows:

**The Global Fund:** CTD is one of the principal recipients of Global Fund grant from Round 1 itself. The Round 1 grant started from FY 2002-03. Subsequently CTD became the PR of GF round 2, 4, 6, RCC and Round 9 and Single stream funding project (SSF-TB). Currently, the phase 2 of SSF TB project is under implementation. This project is till September 2015. In FY 2013-14 project has utilized USD 112 million out of approved 131 million under this grant. The disbursement made by GFATM in FY 2013-14 is 105 million USD. Under this project 9 states (Bihar, Andhra Pradesh, Odisha, Haryana, Chhattisgarh, Karnataka, Jharkhand, Telangana and Uttarakhand) are covered. Apart from these following sub-recipients of the grant:

- Catholic Bishop Conference of India (CBCI)
- Indian Medical Association (IMA)
- Foundation for Innovative and new Diagnostics (FIND)
- World Health Organization (WHO).

**World Bank Project:** The assistance provided by the World Bank contributed substantially in starting the implementation of the DOTS strategy for TB Control in India. World Bank has supported RNTCP with 2 previous credits TBI and TBII with a total value of 146 million and 170 million, respectively.

In 2014-15, an International Development Association (IDA) credit of US\$ 100 million was approved by the World Bank Board of Executive Directors and became effective on June 26, 2014 (P148604). The Project Development Objective (PDO) is to support the aims of India's National Strategic Plan for Tuberculosis (TB) Control to expand the provision and utilization of quality diagnosis and treatment services for people suffering from TB. This credit is of USD 100 million for 3 years.

## Goal and Objective of Project are Following

**Goal:** The overall goal of the project is to support the Government's 2012-17 National Strategic Plan for TB control and contribute to the vision of "Universal Access for quality diagnosis and treatment for all TB patients in the community."

**The project has three components:**

- **Component 1:** New strategies to reach more tuberculosis patients with earlier and more effective care in the public and private sectors.
- **Component 2:** Scale-up and improve diagnosis and treatment of drug-resistant tuberculosis.
- **Component 3:** Expand public tuberculosis services integrated with the primary healthcare system.

Bank has completed the first review mission of the project (October 14-20; 2014) under which project has been categorized "Moderately Satisfactory".

# CHAPTER 7: PROCUREMENT AND LOGISTICS MANAGEMENT

## Central Procurement

The Procurement of first and second Line (MDR and XDR) anti-TB Drugs and Laboratory Equipments is undertaken at the central level through a procurement agent, M/s RITES Ltd. who has been contracted by MoHFW to undertake procurement under various Program Divisions of the MoHFW including RNTCP.

Procurement, Supply and Logistics Unit at Central TB Division (CTD) continues to function under the supervision of Additional Deputy Director General, (ADDG), who is supported by a Procurement and Supply Management Consultant and an agency outsourced with the Govt. of India (GoI) support for drug logistics management.

## Anti-TB Drugs

An uninterrupted supply of good quality anti-TB drugs is an essential component of DOTS strategy under RNTCP. During the year 2014, the RNTCP experienced some delays in drug supplies at the central level but the situation was managed through timely emergency procurement and through procurement of some loose drugs at the state/district levels. The program is striving hard to ensure that the bottlenecks in the procurement at the central level in the MoHFW are sorted out at the earliest and a smooth flow of drugs is ensured.

## First-line Anti-TB Drugs

Procurement of anti-TB drugs for the entire population of the country for GoI, World Bank and GFATM funded states is being done through International Bidding from 'WHO Pre-Qualified Suppliers' only through GoI approved procurement support agency i.e., M/s RITES Ltd., with an exception to Injection Streptomycin, for which no WHO pre-qualified suppliers are available. Hence, it is procured through International Competitive Bidding with WHO-GMP as a qualifying requirement.

The procurement of first-line anti-TB drugs under GOI-Domestic Budget Support (DBS)/World Bank and for the GFATM funded states for the year 2015-16 is proposed to be procured by CMSS (Central Medical Store Society).

## Second-line Anti-TB Drugs

The supplies of second-line anti-TB drugs are received from two different sources; from GoI through the DBS/World Bank funding mechanism and from GDF through the GFATM grant to the program. Against DBS/World Bank indents of 2012-13 & 2013-14, supplies of few drugs are currently underway and balance drugs are clubbed with the 2014-15 procurement. Under GFATM procurement, supplies of the 1st tranche for 33,566 full Treatment and 15,275 preceding year's CP courses for the year 2013-14 is almost complete except for Injection kanamycin and NaPAS, which is staggered till Mar/Apr'2015. However, 2nd tranche supplies against this procurement is expected to begin from 1st Qtr 2015.

In addition, procurement of 31,250 MDR-TB courses and 2,250 XDR-TB drugs through DBS/World Bank for the year 2014-15 has been finalized and in the process of award of contract. Another 18,750 MDR-TB courses and 500 XDR-TB courses through GDF for GFATM funded states are in process and are expected to reach by mid-2015.

In keeping with the scale-up activities of the program, procurement of 31,250 MDR-TB patient courses and 2,250 XDR-TB patient courses under GoI-World Bank mechanism for the year 2015-16 has been initiated. With all these supplies expected in the year 2014-15 and 2015-16, the program is gearing up to ensure an uninterrupted supply of these drugs.

## Quality Assurance of First and Second Line Anti-TB Drugs

Quality assurance (QA) of anti-TB drugs has been accorded special importance by RNTCP and measures are taken to ensure both pre and post dispatch inspection of all the anti-TB drugs.

## QA Measures at the Time of Procurement

**First-line Anti-TB Drugs:** Since 2008-09, procurement of first-line anti-TB oral drugs has been limited to 'WHO Pre-Qualified Suppliers' under GoI-World Bank/DBS mechanism and GFATM funded first-line drugs are procured through Expert Review Panel (ERP) approved sources as per GFATM Policy on Quality Assurance of Pharmaceutical Products. Pre-dispatch inspection and testing of all batches is mandatorily done. Injection streptomycin and other loose drugs are procured through International Competitive Bidding (ICB) from WHO-GMP suppliers only. Quality is ensured through pre-dispatch inspection of all batches.

**Second-line Anti-TB Drugs:** Procurement for the DBS/World Bank funded States is done through ICB by the Procurement Agency of Ministry of Health & Family Welfare. For this procurement, WHO-GMP Certification is required, as in case of first-line anti-TB drugs, pre-dispatch inspection of all batches is done. For GFATM funded states, procurement is done through Global Drug Facility (GDF) of Stop TB Partnership from suppliers, as per GFATM Quality Assurance policy on procurement of pharmaceuticals.

## QA Measures Post Procurement

To ensure good quality drugs at all stocking/service delivery points under the program and till the final consumption of drugs, the program has developed a protocol which entails that samples are tested at an Independent Quality Assurance Laboratory contracted by RNTCP. Under the protocol, each quarter, random samples of all anti-TB drugs are drawn from GMSDs, State Drug Stores and District Drug Stores and sent for testing to the independent QA Lab. The test reports are presented to a Committee headed by Drug Controller General (India). In addition to this, samples also get picked up randomly from drug stores by various Central and State Drug Inspection Authorities and sent for testing at the State labs. Based on the test reports, further necessary action is taken by the program.

## LED Fluorescence Microscopes (LED)

Central TB Division has planned to replace the Binocular Microscopes with LED Microscopes in a phased manner over the next 5 years starting from the high

work load settings in the country. Two hundred LED microscopes had been procured last year by UNION for use in Projects in Medical Colleges. Though LEDs are more expensive than the ordinary BMs, studies have confirmed that the use of LEDs provides much faster diagnosis and is more user-friendly resulting ultimately in a better yield. Thus, it has been decided to procure LEDs at the central level. In the first phase, the contract has been awarded for procurement of 2500 LEDs, for higher work load settings and 1500 BMs, for low work load settings.

## Drug Logistics Management

Drug requirements, consumption and stock positions, both at state and district levels continue to be monitored at the Central TB Division (CTD) through the Quarterly Reports submitted by the districts. The first-line anti-TB drugs procured are stored at the six Government Medical store depots (GMSDs) across the country. The second-line anti-TB Drugs are received directly by the States as loose drugs. The states then repack these into monthly boxes which are then distributed to the districts based on the existent case load and the PMDT plan. Based on the District Quarterly Program Management Reports and the monthly State Drug Stores (SDS) Reports, drugs are issued to the states accordingly. The States are required to maintain defined buffer stocks at each levels i.e., at the PHIs, TUs, DTCs and the SDS as per the defined stocking norms for each level.

## Training and Capacity Building

For long-term sustainability of the program, decentralization of inventory management practices is very important. To ensure that the States are able to manage their drug logistics as per RNTCP guidelines, regular trainings and re-trainings on Procurement and Supply Chain Management have been conducted by Central TB Division for the state level staff during the year. Two national level training were conducted in financial year 2014-15 at NTI in the months of June and December, 2014 for State TB officers, RNTCP consultants, State level pharmacists and store assistants. Central TB Division has designed a training calendar for the financial year 2015-16 for training of staff on procurement and supply chain management.

# CHAPTER 8: **ADVOCACY, COMMUNICATION AND SOCIAL MOBILIZATION**

ACSM is an inbuilt component of Revised National Tuberculosis Control Program (RNTCP) and is recognized as an important element of all activities of TB control essential to achieve the goal of universal access. ACSM can contribute to TB control through:

- ➔ Mobilizing political administrative commitment resulting in availability of better resources for TB
- ➔ Early case detection and early complete treatment
- ➔ Reaching the unreached
- ➔ Combating stigma and discrimination
- ➔ Motivates and empowers community, partners and allies to actively participate in local initiatives with locally available resources
- ➔ Generate awareness and demand in community through well-informed and reasoned dialogue.

During year 2014, following ACSM activities were undertaken to raise the level of awareness amongst Health care providers and community at large to benefit the end-beneficiary-TB patient.

**World TB day:** On 24th March 2014, World TB Day - mass media campaigns were rolled-out to generate awareness about TB. A print media campaign in Hindi, English and regional daily newspapers were published. In addition, Audio-video campaign was also undertaken on TV/Radio continuously for 1 month. TB India 2014, the Annual Report of RNTCP was also released on this day.

A similar focused Audio Visual (AV) campaigns was launched in September 2014 by, the then, Union Health Minister to spread greater awareness about TB diagnosis and treatment during launch of drug resistance survey.

National Advisory committee was constituted in 2013 for a period of 2 years to advise and guide the Central TB Division by infusion of newer ideas and experience. It includes experts from field of health communication, research, national and state teaching institutes, etc. The second meeting was convened in June, where approval was accorded to “Operation Handbook on ACSM” and “Media tool kit” developed by CTD in coordination with USAID-IHBP.

The baseline study undertaken by CTD-IHBP-USAID in

six states highlighted the status of ACSM implementation across the country thus identifying Constraints, challenges and weaker areas in implementation of ACSM activities. Based on the findings, the “Operation Handbook on ACSM” was developed and has been distributed to all concerned in states and districts to facilitate them to plan implement and evaluate effective ACSM interventions in their respective states and districts.

A media content analysis on TB was also undertaken with the help of partners and findings of the analysis offered insights on how TB is covered in media. To address media issues a “Media Tool Kit”, which gives information to journalists about cause, diagnosis, treatment and other developments under RNTCP was developed. It is a dynamic document and will regularly be updated. Media workshop is under proposal to widely disseminate it. The program is in the process of hiring a media agency to take care of specific requirements of ACSM.

**Development of ACSM material:** Two New audio-video, four Radio jingles and two posters portraying Sh Amitabh Bachchan has been developed on issues regarding Tuberculosis. Two TVCs and two posters have been developed CTD- DAC-USAID-IHBP on SBCC TB-HIV co-infection. Campaign of World TB Day 2015 will promote these audiovisuals.

**Capacity Development:** To enhance the capability of RNTCP staff to plan and implement ACSM activities at state and district “ACSM Human Resource Group” was constituted. The group will suggest ways and means to empower RNTCP staff with specific knowledge, skills, and resources to plan, implement and evaluate effective ACSM interventions linked to specific TB control. It will also help to estimate the training needs, load, plan, contents, material and monitoring methodology, etc.

To develop the capabilities of State IEC/ACSM Officers, CTD in collaboration with USAID-IHBP organized 5-day Social Behavior Change Communication (SBCC) training at National Institute of Health and Family Welfare, New Delhi. The training was found very useful by the participants in planning and implementation of the ACSM activities at state and district level in their respective state.



The states were further empowered through 2 days orientation workshop wherein team of STO, RNTCP Consultant and State IEC Officers were sensitized on identifying problem and planning the ACSM interventions accordingly. Draft of revised the Health Communication Strategy and Urban ACSM strategy was shared for inputs during orientation and dissemination workshop of Operational Handbook on ACSM-September.

For effective planning and implementation of ACSM activities for providers, patient and community at state, district, TU level a SBCC activity format was developed and circulated to all states with communication to propose ACSM activities for last two quarters 2014.

**Monitoring and supervision:** To review the performance of states and districts regarding the implementation of ACSM, following Nine states and sixteen district were reviewed through the structured mechanism of Central Internal Evaluations (CIE) during the year 2014:

In addition performance of Uttar Pradesh, Haryana, Punjab, Himachal Pradesh, Chandigarh, West Bengal, Tripura were also assessed through Quarterly District reviews.

➤ Tamil Nadu	➤ Thiruvallur and Madurai
➤ Chandigarh	
➤ Odisha	➤ Cuttack and Ganjam
➤ Madhya Pradesh	➤ Betul and Indore
➤ Bihar	➤ Araria and East Champaran
➤ Jharkhand	➤ Hazaribag and West Singhbhum
➤ Rajasthan	➤ Churu and Ajmer
➤ Haryana	➤ Sirsa and Sonapat
➤ Assam	➤ Kamrup rural and Tinsukia

One good observation was that IEC material was available at most of the places and was well displayed at health facilities. However, the presence outside health facilities was suboptimal at most of the places. Main issues identified are shortage of allocated/release of funds at user's end at district to carry out ACSM activities. Sanctioned post of IEC Officer, PPM Coordinator at State and district are lying vacant at most of the places. RNTCP Signboards were missing at some of the health facilities.

Concerned states and districts were informed about the shortcoming and recommendations were made to address the problems.

Based on these findings guidelines for planning and implementation of need based targeted 360°, 365 days ACSM activities at state and district level were developed and were disseminated along with "Operational hand book for ACSM", which will facilitate state and district in planning, implementing and monitoring ACSM activities.

The Health Communication Strategy developed in 2005 is being revised as per current needs to address the newer challenges of DR-TB and other morbidity associated TB. In addition, to address the special needs of urban area a separate ACSM Strategy for urban TB is being developed.

**The total ACSM activities reported in 2014 from field across the country are as under:**

1. Patient provider meetings:	61,312
2. Community meeting:	50,487
3. School activities:	15,114
4. Private practitioner sensitization:	50,423
5. Outdoor publicity:	25,9178

# CHAPTER 9: 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 program 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 program managers, the program implemented measures to encourage operational research (OR). Efforts of RNTCP

Number of State OR committee meetings held	35
Number of OR projects (other than thesis) received by the state OR committee	112
Number of OR proposals (other than thesis) reviewed by the STF and forwarded to the ZTF for approval	43
Number of OR proposals approved by the Zonal OR Committee	7
Number of OR projects initiated by Medical Colleges in the State	55
Number of thesis proposals received by the State OR Committee	103
Number of thesis Proposals approved	80
Number of thesis initiated with RNTCP as a topic in the State	82

to promote OR yielded success and most of the studies has are linked to the main priorities of TB control.

The program requires more knowledge and evidence of the effectiveness of interventions to optimize policies, improve service quality and increase operational efficiency. This has led to the realization of the need for a more proactive approach to promoting OR for the benefit of the TB control efforts. Furthermore, the program seeks to better leverage the enormous technical expertise and resources existing within India both within the Program, and across the many medical colleges, institutions and agencies. Operational research aims to improve the quality, effectiveness, efficiency and accessibility (coverage) of the control efforts.

Following is the summary of number of Operational Research proposals and status of approval by the mechanism of State OR Committees, Zonal OR Committees and National Standing OR Committee in year 3Q13-2Q14.

## Important Developments

- Program has initiated process to develop web-based application for streamlining operational research to facilitate transparent and accountable system ensuring timely feedback and decisions of the respective OR committees to the applicant Principle Investigators.
- National Research Committee meets at least twice year and provides technical guidance to CTD on the RNTCP.

# CHAPTER 10: MONITORING AND EVALUATION

The Revised National Tuberculosis Control Program (RNTCP) has completed 16 years of implementation. The program has been consistently achieving its objectives of treatment success rate >85% and case detection rate (CDR) >70% among the New Smear Positive Patients, since 2007, which was in alignment with the global targets. While RNTCP consolidated these achievements, it is also attempting to expand the horizon. The program is moving towards achieving ‘universal access’, reaching out to the unreached and ensuring that all TB patients receive the highest quality diagnostic and treatment facilities as early as possible. The program is also facing the challenge of drug-resistant - TB and that of HIV co-infection with TB. The program has initiated steps to tackle these challenges.

The Global Tuberculosis Report, 2014 published by the World Health Organization mentions India having met the Incidence and Prevalence targets. Regarding mortality, it mentions that India is on track, meaning that the projections suggest that the targets will be reached by 2015.

Date	State	District
20-24 Jan, 2014	Tamil Nadu	Madurai, Thiruvallur
12-14 Mar, 2014	Chandigarh	Chandigarh
28 Apr-02 May, 2014	Odisha	Cuttack, Ganjam
2-6 June, 2014	Madhya Pradesh	Betul, Indore
14-18 July, 2014	Bihar	Araria, East Champaran
19-22 Aug, 2014	Rajasthan	Churu, Ajmer
22-26 Sept, 2014	Jharkhand	Hazaribag, West Singhbhum
24-28 Nov, 2014	Haryana	Sirsa, Sonapat
19-23 Dec, 2014	Assam	Kamrup Rural, Tinsukia

It is recognized that management of TB control program is challenging both from technical as well as operational point of view. It has relatively complex diagnostics, treatment, and follow-up dimensions. Further in the year 2014, it faced dual challenge of keeping pace with the widening priorities and strengthening systems for provision of basic services.

Although RNTCP has standardized set of program management guidelines, people tend to deviate over time especially, when supervision slackens. Another concern is the competing local priorities for which the program managers had to find solutions within the ambit of the health system.

Intensive supervision and monitoring on a continuous basis prevents complacency setting in and the activities becoming “routine”.

As part of the Supervision and Monitoring Strategy of the program, central internal evaluation were conducted as per list in Table-1.

In addition, state level internal evaluations were also conducted in 28 states during the year 2014. The program was also reviewed in terms of State co-ordination committee meetings for TB HIV and review of Programmatic Management of drug-resistant TB at the state and regional level.

National Task Force meeting regarding the involvement and contribution of medical colleges was held in Bhubaneswar. Coordination committee meeting of the national reference laboratories along with the annual meeting of the National Diagnosis and Treatment Committee for RNTCP was held to formulate the future course of action.

RNTCP will continue the system of periodic review at all levels, with increasing emphasis on inclusion of the TB program in general health system review activities. Regular reviews will be conducted on a predetermined schedule by teams with specified compositions.

# CHAPTER 11: HUMAN RESOURCE

Committed, qualified and trained healthcare providers equitably distributed at all levels are the foundation of an effective health system. The goal of RNTCP's HRD strategy is to optimally utilize available health system staff to deliver quality TB services, and to strengthen the supervisory and managerial capacity of program staff overseeing these services. RNTCP will align more effectively with health system under NHM to leverage field supervisory staff more effectively, and increase capacity building of the staff to equip them to handle multiple tasks of DOTS, drug-resistant TB and TB-HIV. By aligning with the health system and strengthening program management capacity to leverage and supervise the health system, the Universal Access will become a reality.

The depicted diagram is illustrative of the human resources available for TB control from the grassroots to the national level, both government and contractual.

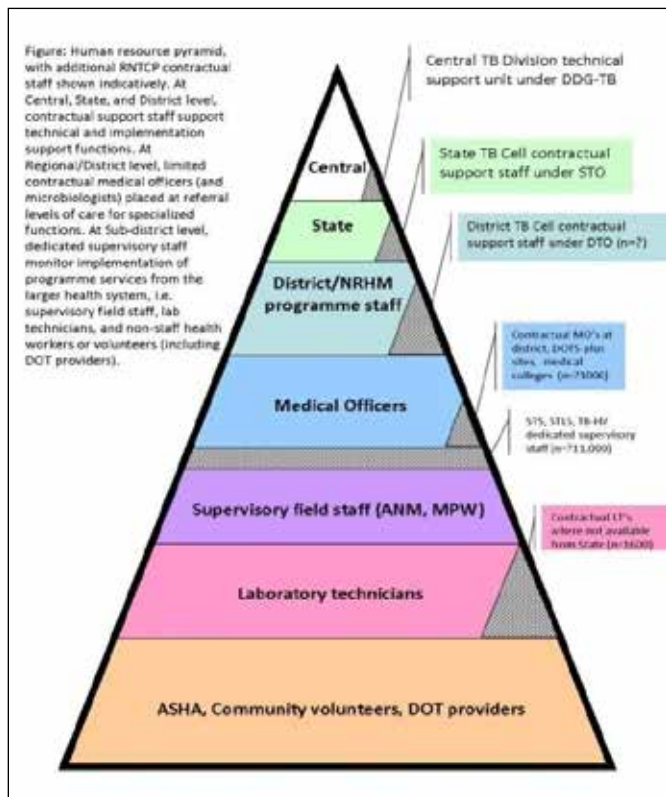
Functions of the State TB Cell, State TB Demonstration Center, and TB Unit Team, National and Intermediate Reference Laboratories, the Medical College Task Forces and core committees are well spelled out. The responsibilities of state TB cell staff, district-level staff and PHI staff are

clearly defined. Nonfinancial incentives like awards on World TB Day have created a motivated workforce. Preference for candidates with experience of working for TB control for higher positions has further motivated the peripheral hired staff giving them career pathways.

Technical expertise hired additionally under program and existing within the system, do continuously need updation of knowledge in view of policy updates/refreshing existing knowledge, etc. Training institutes (both National and State) play pivotal role in capacity building of all concerned. National training institutes like National TB Institute (NTI), Bangalore; National Institute for TB and Respiratory Diseases (previously called Lala Ram Sarup Institute of TB and Lung Diseases), New Delhi and National Institute for Research in Tuberculosis (previously called Tuberculosis Research Center), Chennai are capacity building arms of Central TB Division, MoHFW-GoI. Many efficient state level institutes have also come up as regional level training hubs – e.g., State TB Training and Demonstration Center (STDC) of Ahmedabad/Hyderabad/Kochi, etc.

The STDC is a technical arm of State TB Cell. It is responsible for training along with other responsibilities as Lab. Support, Supervision and Monitoring, Quality Assurance, Operational Research, Information Education and Communication, etc. Formation of group of master trainers within the State and capacity building for imparting quality training at district and peripheral level is also taken up at STDC level. Evaluation of training activities in the State and development of training material in local languages as per need would be taken care by the STDC.

There are many conventional methodologies accepted for TB trainings; including modular training, on job training, etc. However, e-modules, Audio-Visual modules, Webinars etc. are widely accepted and appreciated methods as well. Customized training tools and modalities that suit the training needs as per need assessment would be used for the trainings at different levels. Training for private providers, associations and different stakeholders at National, State, District and peripheral level, trainers from State TB Training and Demonstration Centers, teachers and researchers of the Medical Colleges and other institutes from all over the country are also trained at national institutes.



The flow diagram depicts the human resources available at every service point to a patient for getting optimum TB care services:

PRIMARY LEVEL OF CARE	SECONDARY LEVEL OF CARE	TERTIARY LEVEL OF CARE
➤ Medical Officer of Peripheral Health Institution	➤ Medical Officer at Community Health Centers	➤ Faculties at Medical Colleges
➤ Private Medical Practitioners at Village Level	➤ Specialists available at Subdivision Hospitals	➤ Specialists at Corporate Hospitals
➤ Senior TB Treatment Supervisor	➤ Specialists available at district level.	➤ Private Practitioners in the city
➤ Senior TB Lab Supervisor	➤ Chest and TB Specialists doing Private Practice	➤ Senior MO at DRTB Site
➤ Tuberculosis Health Visitor	➤ General Practitioners	➤ State Tuberculosis Officer
➤ ASHA	➤ DRTB site Senior MO	➤ Microbiologist (IRL)
➤ Community Health Guides	➤ District Tuberculosis Officer	➤ Microbiologist (EQA)
➤ Swasthya Shayayika	➤ Medical Officer at DTC	➤ Epidemiologist
➤ Members of Gram Panchayat	➤ Dist PPM Coordinator	➤ Treatment Monitor
➤ Laboratory Technicians	➤ Dist Program Coordinator	➤ Medical Officer of State TB Cell
➤ Rural Health Practitioners	➤ Dist DRTB-HIV Coordinator	➤ DRTB Coordinator
➤ Chemists	➤ Counselor	➤ PPM Coordinator
➤ Members of Self-help Group	➤ Statistical Assistant	➤ TBHIV Coordinator
➤ Non Governmental Organizations	➤ District Accountant	➤ State Accountant
	➤ Laboratory Technician	➤ Pharmacist at SDS
		➤ Data Analyst
		➤ Technical Officer - Procurement
		➤ Senior LT and other LTs of IRL
		➤ Data Entry Operators

Private sector is an equally important partner to achieve universal access of TB care in community. The Government of India had passed gazette of TB case notification in May 2012. All private sector stake holders are to be sensitized by the program on the Standard of TB care in India, which is the TB care continuum, which should be followed by all stakeholders.

# CHAPTER 12: INFRASTRUCTURE

The central theme of Country's 12th 5-year Plan (2012-2017) is the goal of "Universal Access to quality TB diagnosis and treatment for all TB patients in the community". This entails sustaining the achievements till date, finding unreached TB cases before they can transmit infection, and treating all of them more effectively, preventing the emergence of MDR-TB. These ambitious goals are achievable because the TB program has established a robust management infrastructure, focused on effective implementation, decentralizing patient-friendly services to impoverished and vulnerable populations, and improving quality of care for all. The program is now focusing on re-engineering program system for optimal alignment with NRHM at block level. The current basic program management unit for RNTCP, the "Tuberculosis Unit" for 5,00,000 persons is now being realigned nationwide with the NRHM health blocks and urban wards anticipating NUHM expansion. The program has also effectively engaged the community in creating awareness and providing DOTS treatment through community volunteers.

Considering the technical and operational feasibility, the RNTCP built up its infrastructure, wherein, the RNTCP has quality assured laboratory network for bacteriological examination of sputum in three tier system of Designated Microscopy Centre (DMC), Intermediate Reference laboratory (IRL) and National Reference laboratory (NRL). DMC is the most peripheral laboratory under the RNTCP catering to a population of around 1,00,000 (50,000 in tribal and hilly areas). There are more than 13,000 DMCs across the country.

Currently, there are six NRLs-NTI, Bangalore, NIRT-Chennai, NITRD-Delhi, JALMA-Agra, RMRC-Bhubaneswar and BMHRC-Bhopal. The NRLs work closely with IRLs, monitor and supervise the IRL activities and also undertake periodic training for the IRL staff in EQA, culture and Drug Susceptibility Testing activities. The first National Drug Resistance Survey is being conducted by NTI, Bangalore with the support of CTD and WHO India. The program has strengthened the IRLs at the state level to supervise and monitor the DMC and efficiently achieve the external quality assurance function (EQA) by providing human resource support. Laboratories with a capacity to diagnose drug-resistant bacilli using different technologies including solid culture, liquid culture and line probe assay (LPA) and Cartridge-based Nucleic Acid Amplification

Tests (CB-NAAT) have been established which carry out Culture and Drug Susceptibility testing. The program provides free-testing facilities for patients and suspects of multidrug-resistant (MDR), TB-HIV coinfecting, pediatric and extrapulmonary TB. Quality assured diagnosis is being provided by laboratories through LPA, liquid culture, solid culture and CB-NAAT labs across the country for rapid diagnosis of drug resistance tuberculosis. Under the current strategy, Program is rapidly expanding the laboratory and newer technology platform capacity to achieve universal access to quality assured diagnosis. All TB patients including patients with co-morbidities such as TB-HIV, TB- Diabetes, registered under the program are provided free quality assured treatment services through the network of providers, ranging from the community volunteers to tertiary care dedicated institutions specialized in TB treatment and care. Currently, there are more around 4.6 lac DOT centers, 127 specialized drug-resistant TB centers providing services across the country. For further decentralizing and making treatment services patient friendly for DR-TB patients, 53 linked DR-TB centers have been established in states like Andhra Pradesh and Gujarat.

Procurement, Supply and Logistics Unit has been established in Central TB Division (CTD) for procurement and logistics functions at the Central level. Government Medical Stores Depots (GMSDs) are the primary stocking points, for receipt of first-line anti-TB drugs from the manufacturers and distribution to State Drug Stores across the country. In case of second-line drugs, the suppliers are required to deliver drugs directly to the consignees which are the State Drug Stores of the implementing State.

Currently, there are 6 GMSDs at Karnal, Mumbai, Kolkata, Chennai, Guwahati and Hyderabad, 39 SDSs and 675 DDSs for stacking and distribution of drug stocks. Receipts from GMSDs/SDSs (in other states) are coordinated by CTD and are usually in response to quarterly reports/additional stock requests made by State TB Officers (STO) and/or District TB Officers (DTO). The Deputy Director General (DDG), Additional Deputy Director General (ADDGs), representative from National Institutes, NRL, RNTCP Consultants and representative from partners constitute the Central Monitoring Unit for supervision, monitoring and surveillance of TB control activities in the country.

# CHAPTER 13: RNTCP PERFORMANCE: NOTIFICATION AND TREATMENT OUTCOME TRENDS

Every quarter, Central TB Division (CTD) receives aggregate case-finding, program management, sputum conversion and treatment outcome information for patients registered under the program from over 3,394 Tuberculosis Units nationwide. RNTCP follows the global method of cohort analysis for describing case finding and treatment outcomes. Timely data collection and dissemination are hallmarks of the RNTCP surveillance and data management systems. Till now, EPI-CENTRE based aggregated reporting continued; and from 2015, reporting will be based on case based electronic system (Nikshay). 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 program was formally initiated in the year 1997 and the quarterly reporting mechanism was in place since inception, the data presented below extend from the year 1999, when approximately about 10% of the country's population was covered onwards. The rapid pace of DOTS expansion over the past decade complicates longitudinal data analysis in a number of ways. District-by-district scale-up of RNTCP services over several years changes the denominator of population covered every quarter. Basic demographic characteristics of implementing districts differed over the expansion years, as well as the expected evolution of services and TB epidemiology in areas implementing RNTCP over longer time periods.

For the purposes of this analysis, districts implementing RNTCP <1 year during the initial year of implementation were attributed to cover a population proportionate to the number of days in the first year that services were available in each district. The rates presented in this section are all per 1,00,000 populations after adjusting for the number of days of implementation by individual districts till year 2006. Also the population of the districts

is based on 2001 census and 2011 Census India for these 2 years and estimated for the rest of the years based on these two Censuses. Though the population in the tables is complete population of services covered as on 31st December of that year.

## Sputum Microscopy Services and TB Suspect Examination

Over the 13-year analysis period, the population covered increased from 139 million to 1.26 billion populations (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 7.8 million. Over the same time period, the rate of TB suspect examination increased by 50%, from 421 per 1,00,000 population covered by RNTCP services to 694 per 1,00,000 population in 2014. Similarly, the rate of sputum smear positive cases diagnosed by microscopy has increased by 20%, from 65 to 79 per 1,00,000 population by the year 2008, remained at that level for 4 years and has started decreasing to 50 per 1,00,000 in year 2014 (Fig. 1). The average number of suspects examined for every sputum smear positive case diagnosed has gradually increased at the rate of 2% per year, from 2001 to 2014, the number of suspects examined per smear positive case diagnosed has increased by almost 50% from 6.4 to 9.5 suspects (Fig. 2) still suggesting that yield is progressively decreasing per unit case finding activity. Total and sputum smear positive case notification is also shown in Table 1. An average difference of 10 smear positive cases per 1,00,000 population are diagnosed and missed from treatment. This is one of the challenge program will have to address in coming quarters, for which registration of each TB case at diagnosis would be first step to bring in more accountability to treat each diagnosed cases in the country.

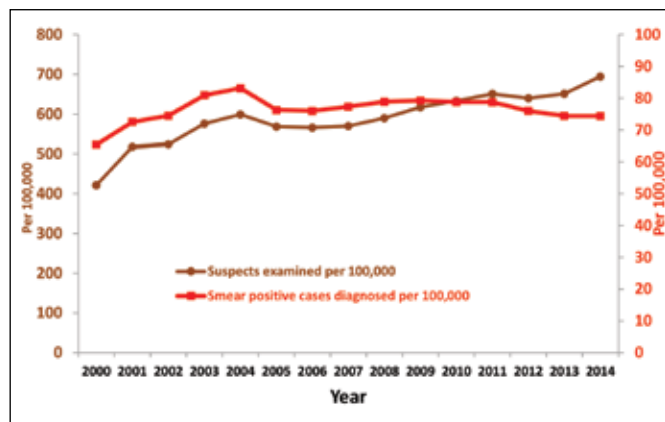
Table 1. TB Case Finding Activities and Notification Rates (1999-2013)

Year	Total population covered under RNTCP (millions)	Sputum Microscopy Services (RNTCP)						Case Notification					
		Suspects examined		Sputum smear positive cases diagnosed		Total sputum smear positive cases notified (RNTCP)		Total TB cases notified (RNTCP)		Total TB cases notified outside RNTCP (public sector)		Total TB cases notified (private sector)	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1999	139	n/a		n/a		61,103	46	1,33,918	101	n/a	n/a	n/a	n/a
2000	241	9,56,113	421	65	1,31,100	58	2,40,835	106	n/a	n/a	n/a	n/a	n/a
2001	441	20,46,039	517	73	2,52,878	64	4,68,360	118	n/a	n/a	n/a	n/a	n/a
2002	528	25,07,455	524	75	3,27,519	68	6,19,259	129	n/a	n/a	n/a	n/a	n/a
2003	761	39,55,395	576	81	4,73,378	69	9,06,638	132	n/a	n/a	n/a	n/a	n/a
2004	920	51,28,852	599	83	6,15,343	72	11,88,545	139	n/a	n/a	n/a	n/a	n/a
2005	1,058	56,84,860	569	76	6,76,542	68	12,94,550	129	n/a	n/a	n/a	n/a	n/a
2006	1,105	62,16,509	566	76	7,46,149	68	14,00,340	127	n/a	n/a	n/a	n/a	n/a
2007	1,138	64,83,312	570	77	7,90,463	69	14,74,605	130	n/a	n/a	n/a	n/a	n/a
2008	1,156	68,17,390	590	79	8,15,254	71	15,17,363	131	n/a	n/a	n/a	n/a	n/a
2009	1,174	72,47,895	617	79	8,25,397	70	15,33,309	131	n/a	n/a	n/a	n/a	n/a
2010	1,192	75,50,522	633	79	8,31,429	70	15,22,147	128	n/a	n/a	n/a	n/a	n/a
2011	1,210	78,75,158	651	79	8,44,920	70	15,15,872	125	n/a	n/a	n/a	n/a	n/a
2012	1,228	78,67,194	640	76	8,17,234	67	14,67,585	119	441	0.04	3,106	0.3	
2013	1,247	81,21,514	651	74	7,98,414	64	14,10,880	113	4,555	0.4	38,596	3.1	
2014	1,266	87,83,551	694	73	7,94,046	63	14,43,942	114	9,900	0.8	1,06,414	8.4	

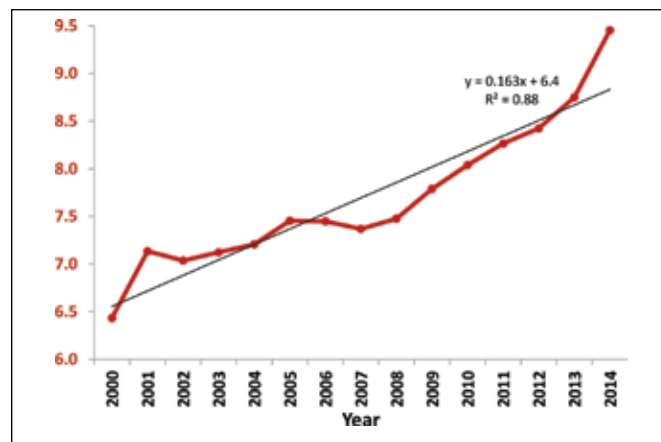
Population is total covered at respective year end till 2006 and rates adjusted for number of days of implementation for newer areas.

Estimated population based on 2001 and 2011 Census.





**Figure 1.** Rate of TB suspect examined and smear positive TB cases diagnosed per 1,00,000 population (2000-2014).



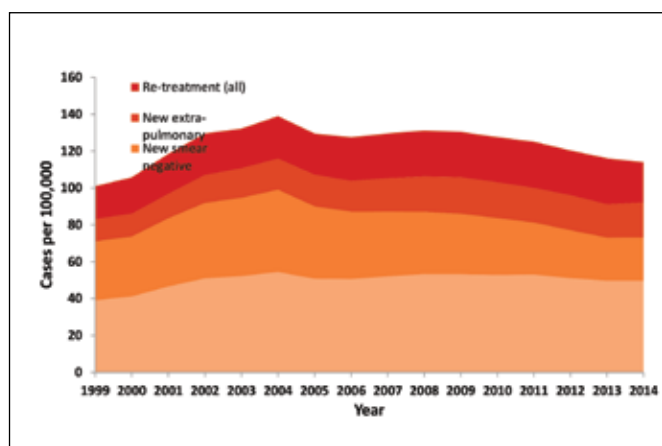
**Figure 2.** Trends in suspects examined per smear positive TB case diagnosed (2000-2014).

## Notification Rates of TB Cases

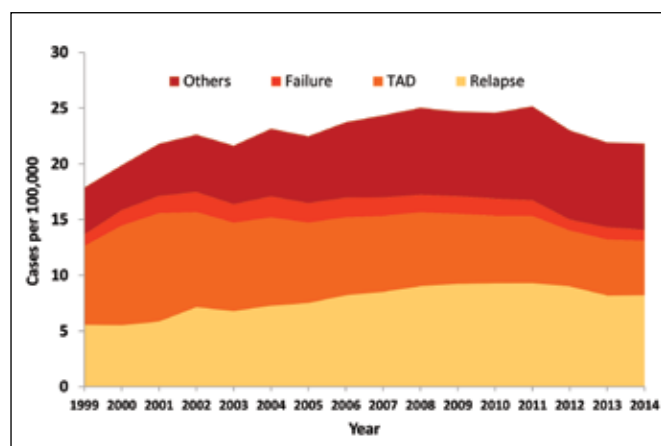
Overall, case notification has increased over the 14-year analysis period, and the notification rates of most types of TB cases has steadily increased or remained stable, with the exceptions of new smear-negative (Table 2 and Fig. 3) and “treatment after default” later suggesting overall improvement in program though indirectly (Table 2 and Fig. 4). The total case notification rate has increased from 101 cases per 1,00,000 population in 1999 to 139 per 1,00,000 population in 2004, remained near 130 till 2009 and started decreasing since 2010 stooping to 114 per 1,00,000 population in 2014 (Table 1). The NSP case notification rate has increased from 39 cases per 1,00,000 population in 1,999 to 53 per 1,00,000 population in the year 2008, and has remained at around 53/1,00,000 till 2011 but has decreased to 50 per 1,00,000 population in year 2014. The NSN notification rates have shown a decreasing trend from 45 per 1,00,000 population in

2004 to 23 per 1,00,000 population in 2014 (Table 2 and Fig. 3), and continues to fall. Some of the arguments for this are increased efforts to get the sputum examined and bacilli demonstrated with increasing availability and application of quality sputum smear microscopy services expanded under the program.

The notification rate of re-treatment cases has increased by 40% over first few years, from 18 per 1,00,000 population in 1999 to 26 per 1,00,000 population in 2008, but has started showing decline to 22 per 10,000 population by 2014. The increase in retreatment notification rates appears to be driven largely by increases in the notification rates of the ‘relapse’ and ‘others’ types of re-treatment cases. The ‘re-treatment others’ notification rate has almost doubled from 4 per 1,00,000 population in 1999 to 8 per 1,00,000 population by the year 2008 and continues to at that level in 2013. The notification rate of failure-type re-treatment cases has remained almost stable from 2002 to 2010 at the rate of 2 cases



**Figure 3.** Trends in type of TB case notification rate (1999-2014).



**Figure 4.** Trends in type of re-treatment TB case notification rate (1999-2014).

Table 2. Notification Rates of Different Types of TB Under RNTCP, 1999-2012 (Numbers and Notification Rates Per 1,00,000 Population)

Year	Population covered (millions)	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	
		Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1999	139	51,627	39	42,180	32	16,015	12	7,334	6	9,326	7	1,401	1.0	5,541	4	1,33,918	101
2000	241	93,359	41	73,714	32	28,004	12	12,511	6	20,288	9	3,183	1.0	9,115	4	2,40,835	106
2001	441	1,83,970	47	1,46,145	37	52,373	13	23,122	6	38,400	10	6,195	2.0	18,450	5	4,68,360	118
2002	528	2,43,529	51	1,95,798	41	72,288	15	34,143	7	40,767	9	8,684	2.0	24,578	5	6,19,259	129
2003	761	3,58,490	52	2,91,062	42	1,09,777	16	46,577	7	54,353	8	11,560	2.0	35,983	5	9,06,638	132
2004	920	4,65,616	54	3,81,656	45	1,44,182	17	62,251	7	67,657	8	16,296	2.0	51,929	6	11,88,545	139
2005	1,058	5,07,089	51	3,92,679	39	1,70,783	17	75,054	8	72,021	7	17,710	2.0	59,845	6	12,94,550	129
2006	1,105	5,54,914	51	4,01,384	37	1,83,719	17	90,153	8	76,699	7	19,496	2.0	74,270	7	14,00,340	127
2007	1,138	5,92,262	52	3,98,707	35	2,06,701	18	96,781	9	77,397	7	19,012	2.0	83,746	7	14,74,605	130
2008	1,156	6,16,027	53	3,90,260	34	2,20,185	19	1,04,210	9	76,583	7	18,434	2.0	89,995	8	15,17,363	131
2009	1,174	6,24,617	53	3,84,113	33	2,33,026	20	1,08,361	9	73,549	6	18,870	2.0	88,976	8	15,33,309	131
2010	1,192	6,30,165	53	3,66,381	31	2,31,121	19	1,10,691	9	72,110	6	18,463	2.0	91,708	8	15,22,147	128
2011	1,210	6,42,321	53	3,40,203	28	2,26,965	19	1,12,508	9	72,787	6	17,304	1.0	1,01,832	8	15,15,872	125
2012	1,228	6,29,589	51	3,17,616	26	2,34,029	19	1,06,463	9	64,782	5	16,400	1.0	96,567	8	14,67,585	119
2013	1,247	6,19,923	50	2,90,543	23	2,25,619	18	1,02,101	8	62,509	5	13,881	1.1	94,774	8	14,10,880	113
2014	1,266	6,28,491	50	2,97,284	23	2,40,280	19	1,03,888	8	61,667	5	12,701	1.0	97,739	8	14,43,942	114

Population is total covered at respective year end till 2006 and rates adjusted for number of days of implementation for newer areas .

Estimated population based on 2001 and 2011 Census.

per 100,000 population. But after that, decreasing trend is evident with expansion of PMDT services across the country with DST being offered earlier to high risk patients.

The “Treatment after default” notification rates have declined from 10/100,000 population in 2001 to 5/100,000 population in 2014 (Table 2 and Fig. 4).

## All New (Incident) TB Case Notification

The number and rate of all new (incident) cases notified in the country has steadily increased at the rate of 7% annually for several years initially in the implementation of the program starting from 83 per 1,00,000 population in 1999 to 116 per 1,00,000 population in 2004, with almost 40% increase in half a decade (Fig. 5).

The decline began after complete coverage in the country, and all new (incident) TB case notification rate has decreased from 116 per 1,00,000 population in 2004 to 92 per 1,00,000 population in year 2014 showing a decline of 20%, almost 2% annually. This is corroborative with the findings of repeat ARTI surveys, suggesting declining transmission rates in the community.

## Treatment Outcomes of Notified TB Cases

Treatment outcomes of pulmonary sputum-positive cases notified under RNTCP is summarized in Table 3. Among NSP cases, the treatment success rate has been >85% since the year 2001. The death rate and failure rate has been about 5% and 2% respectively. The default rates has decreased from 9% for the cohort of TB patients registered in 1999 to 6% for the cohort of patients registered in 2013. Among smear positive re-treatment cases the treatment success rate has been ~ 70% since implementation.

The death rate has shown increase from 7% to 8%, failure rate about 5%. High default rates >13% has been an area of concern among the re-treatment cases. The treatment success rate has been relatively less favorable among re-treatment TAD cases and failure cases (Table 4) when compared to the treatment success rate among other smear-positive TB cases (NSP and relapse). Death rates among re-treatment cases have been higher when compared to the death rates among new smear-positive TB cases (Table 3 and Table 4). Among re-treatment cases, the death rates among failure cases has been consistently higher by about 1-2% when compared to the death rates among other types of re-treatment cases.

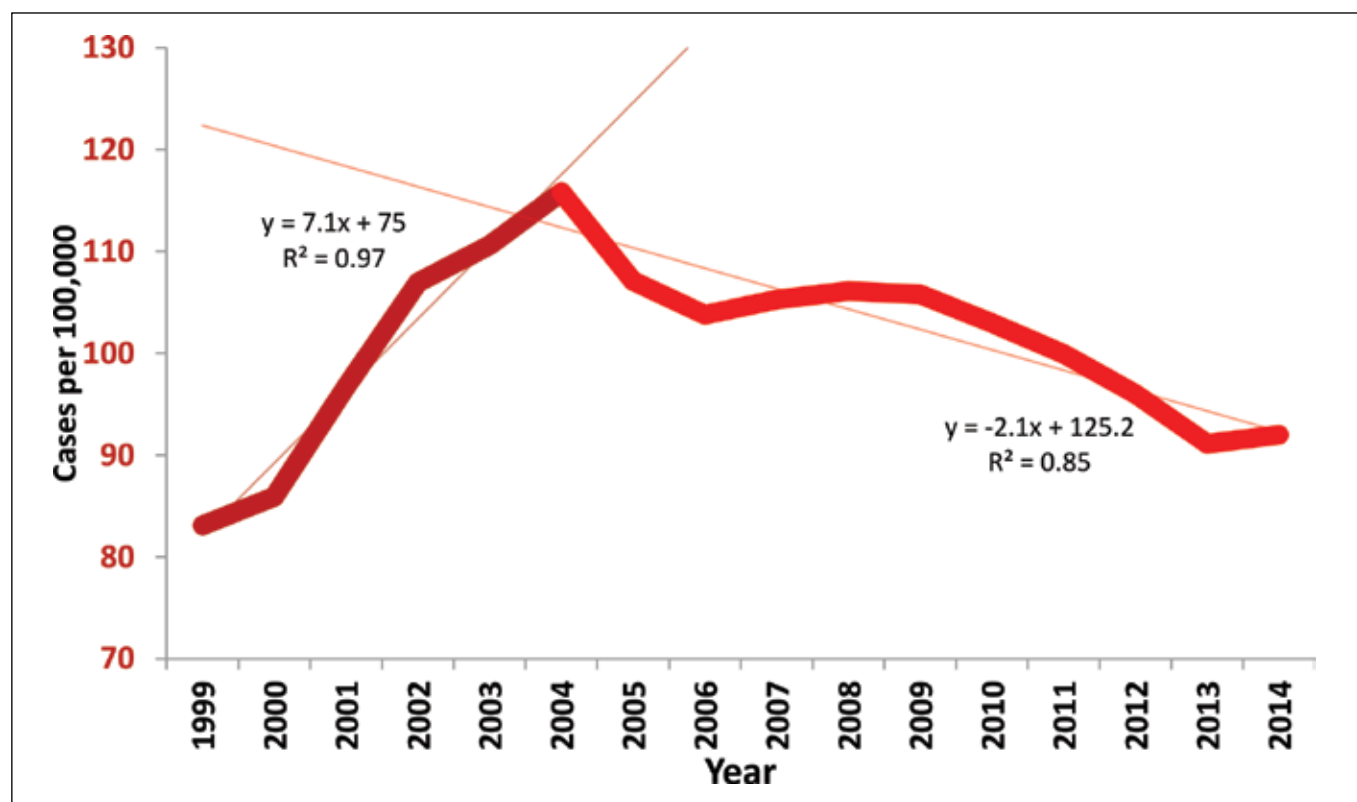


Figure 5. Trend in incident TB case notification rate (1999-2013).

Table 3. Treatment Outcomes among Notified New TB Cases (1999-2013)

Year	New smear-positive				New smear-negative				New Extrapulmonary			
	Success	Death	Failure	Default	Success	Death	Failure	Default	Success	Death	Failure	Default
1999	82%	5%	3%	9%	85%	4%	1%	9%	91%	2%	0%	6%
2000	84%	4%	3%	8%	86%	3%	1%	9%	91%	2%	0%	7%
2001	85%	5%	3%	7%	86%	4%	1%	8%	91%	2%	0%	6%
2002	87%	4%	3%	6%	87%	4%	1%	7%	92%	2%	0%	5%
2003	86%	5%	2%	6%	87%	4%	1%	7%	92%	2%	0%	5%
2004	86%	4%	2%	7%	87%	4%	1%	8%	92%	2%	0%	5%
2005	86%	5%	2%	7%	87%	4%	1%	8%	91%	2%	0%	6%
2006	86%	5%	2%	6%	87%	4%	1%	8%	90%	3%	0%	5%
2007	87%	5%	2%	6%	87%	3%	1%	8%	91%	2%	0%	5%
2008	87%	4%	2%	6%	88%	3%	1%	7%	92%	3%	0%	4%
2009	87%	4%	2%	6%	88%	3%	1%	7%	92%	2%	0%	4%
2010	88%	4%	2%	6%	89%	3%	1%	7%	93%	3%	0%	4%
2011	88%	4%	2%	5%	89%	3%	0%	7%	93%	2%	0%	4%
2012	87%	4%	2%	6%	89%	4%	0%	6%	93%	2%	0%	3%
2013	88%	4%	2%	6%	90%	4%	0%	6%	93%	3%	0%	3%

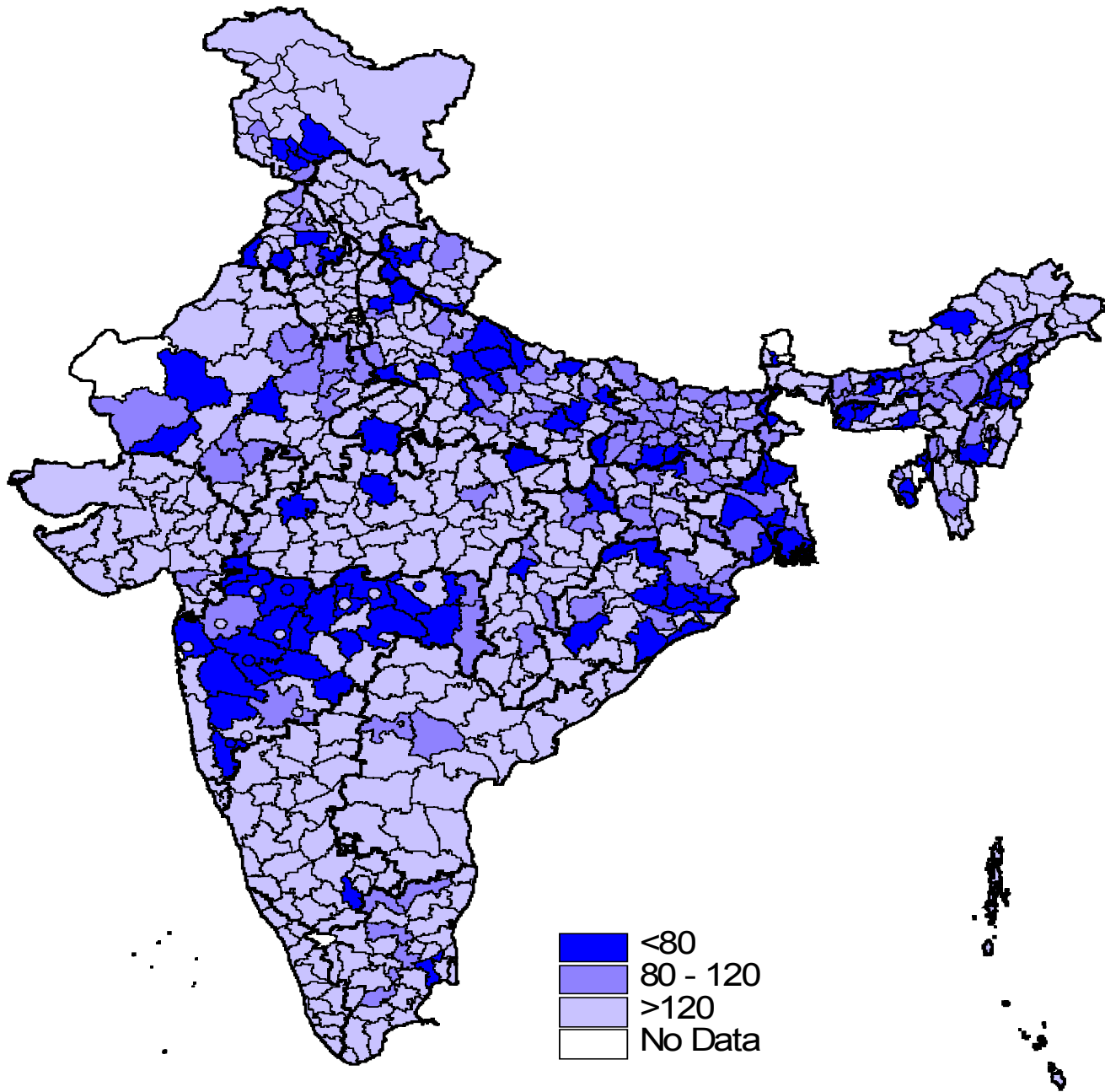
The year shown is the year of registration.

Table 4. Treatment Outcomes among Notified Smear-positive Re-treatment TB Cases (1999-2013)

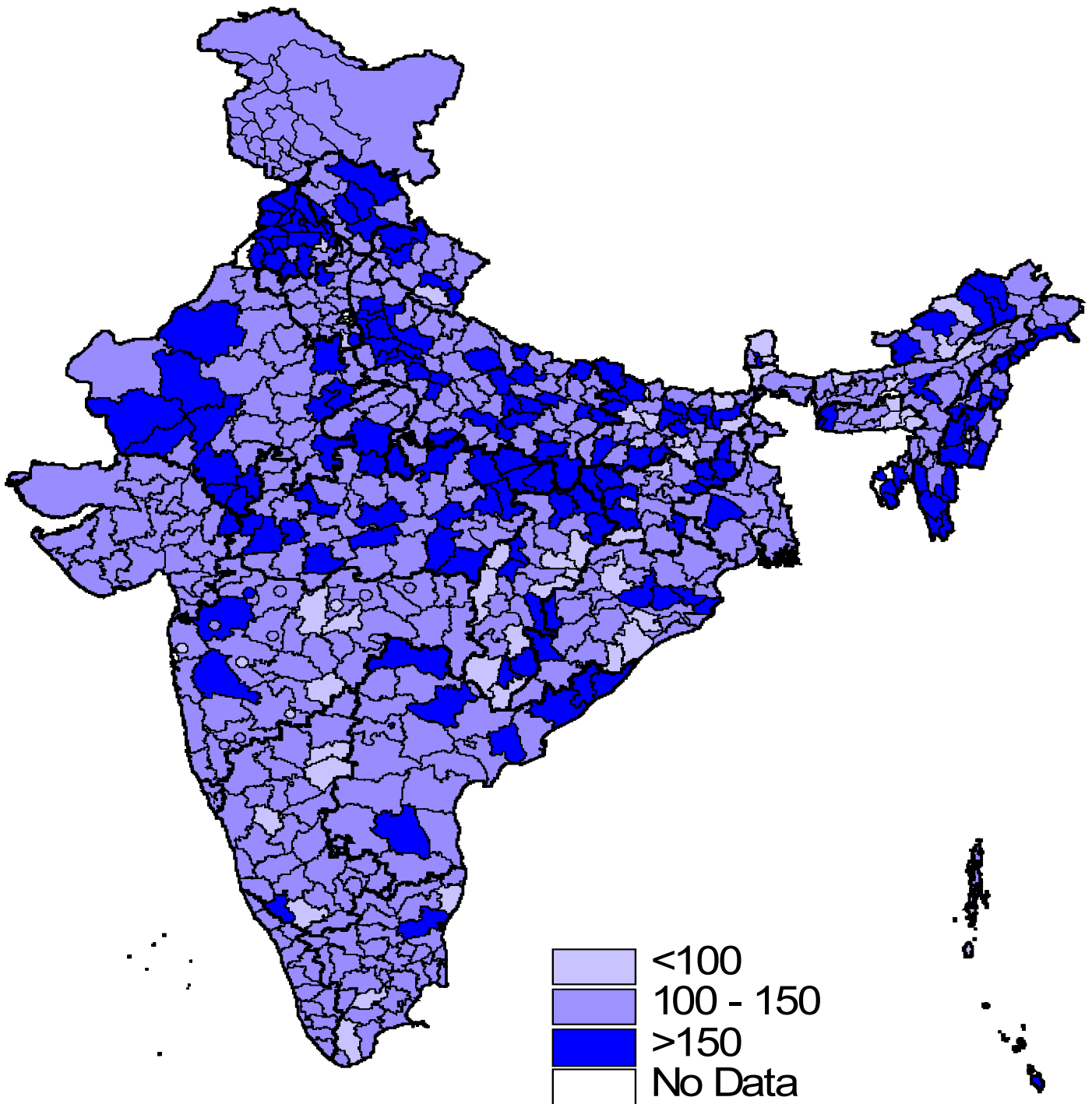
Year	Relapse			Failure			Treatment After Default			Total Smear-positive Re-treatment						
	Success	Death	Failure	Default	Success	Death	Failure	Default	Success	Death	Failure	Default				
1999	73%	7%	6%	13%	61%	7%	13%	17%	65%	7%	6%	21%	68%	7%	6%	18%
2000	73%	7%	6%	14%	57%	9%	14%	19%	69%	7%	5%	17%	69%	7%	6%	16%
2001	74%	7%	6%	12%	59%	9%	15%	16%	71%	7%	5%	16%	71%	7%	6%	15%
2002	75%	7%	6%	12%	60%	8%	15%	16%	71%	7%	5%	16%	72%	7%	6%	14%
2003	75%	7%	5%	12%	60%	9%	14%	16%	69%	8%	5%	18%	70%	8%	6%	15%
2004	74%	7%	5%	13%	62%	8%	13%	16%	69%	7%	4%	18%	71%	7%	6%	16%
2005	73%	7%	5%	14%	59%	8%	14%	18%	67%	8%	4%	20%	69%	7%	6%	17%
2006	73%	7%	5%	14%	58%	9%	14%	18%	66%	8%	4%	19%	69%	8%	6%	16%
2007	74%	7%	4%	12%	60%	9%	13%	16%	68%	8%	4%	18%	70%	8%	5%	15%
2008	75%	7%	5%	12%	59%	9%	14%	16%	68%	8%	4%	17%	71%	8%	5%	14%
2009	75%	7%	5%	12%	58%	10%	16%	15%	68%	8%	4%	17%	71%	8%	6%	14%
2010	75%	7%	5%	12%	57%	10%	15%	16%	68%	8%	4%	18%	71%	8%	5%	14%
2011	75%	7%	5%	11%	55%	10%	15%	16%	68%	8%	4%	17%	71%	8%	5%	14%
2012	74%	7%	4%	11%	54%	9%	12%	15%	66%	8%	3%	17%	70%	8%	5%	14%
2013	75%	7%	4%	11%	57%	9%	11%	13%	66%	8%	4%	17%	71%	8%	5%	13%

The year shown is the year of registration.

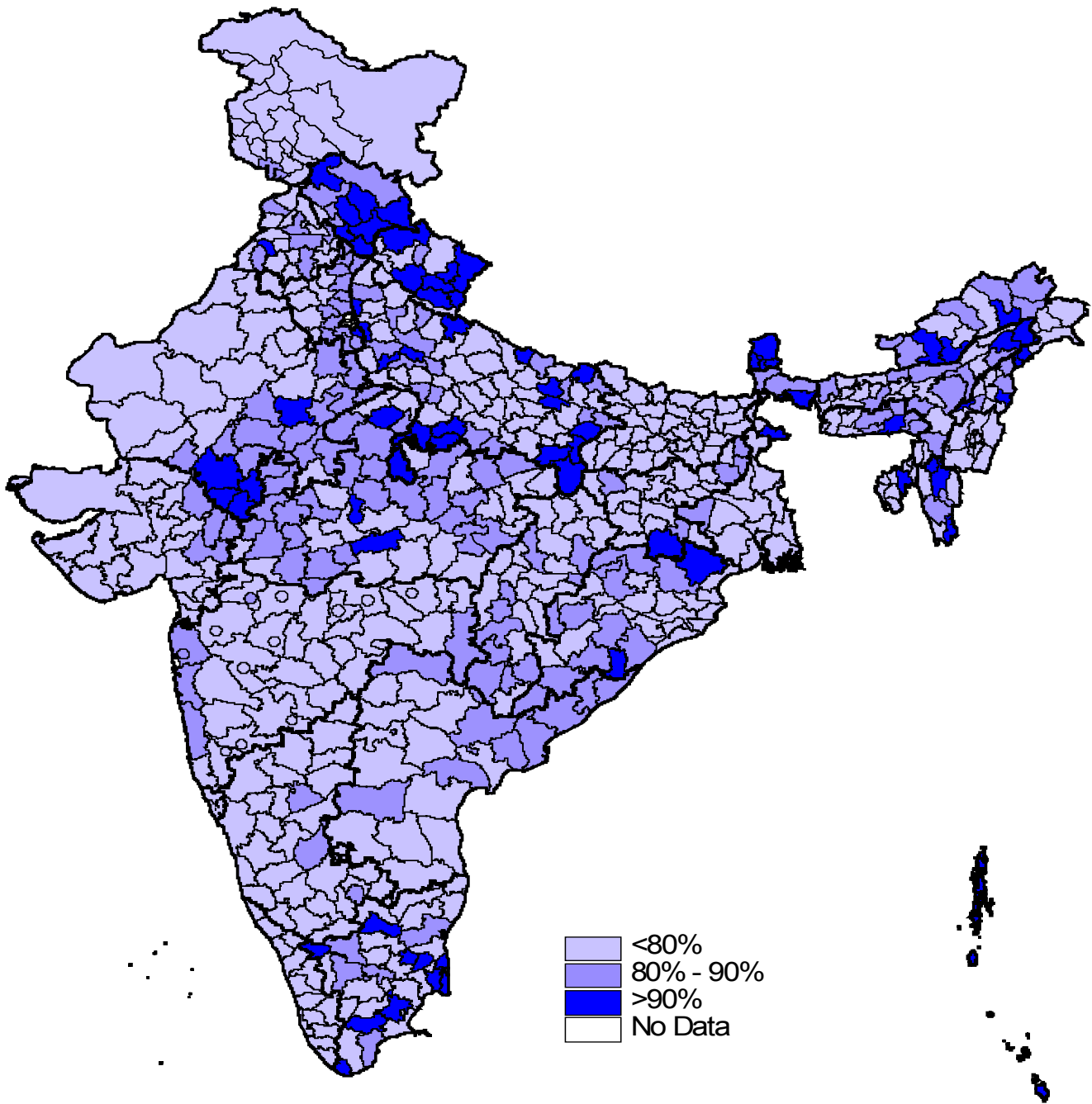
## TB Suspects examined per 1,00,000 Population per Quarter, by Districts, India 2014



## Incident TB Case notified per 1,00,000 Population by District, India 2014

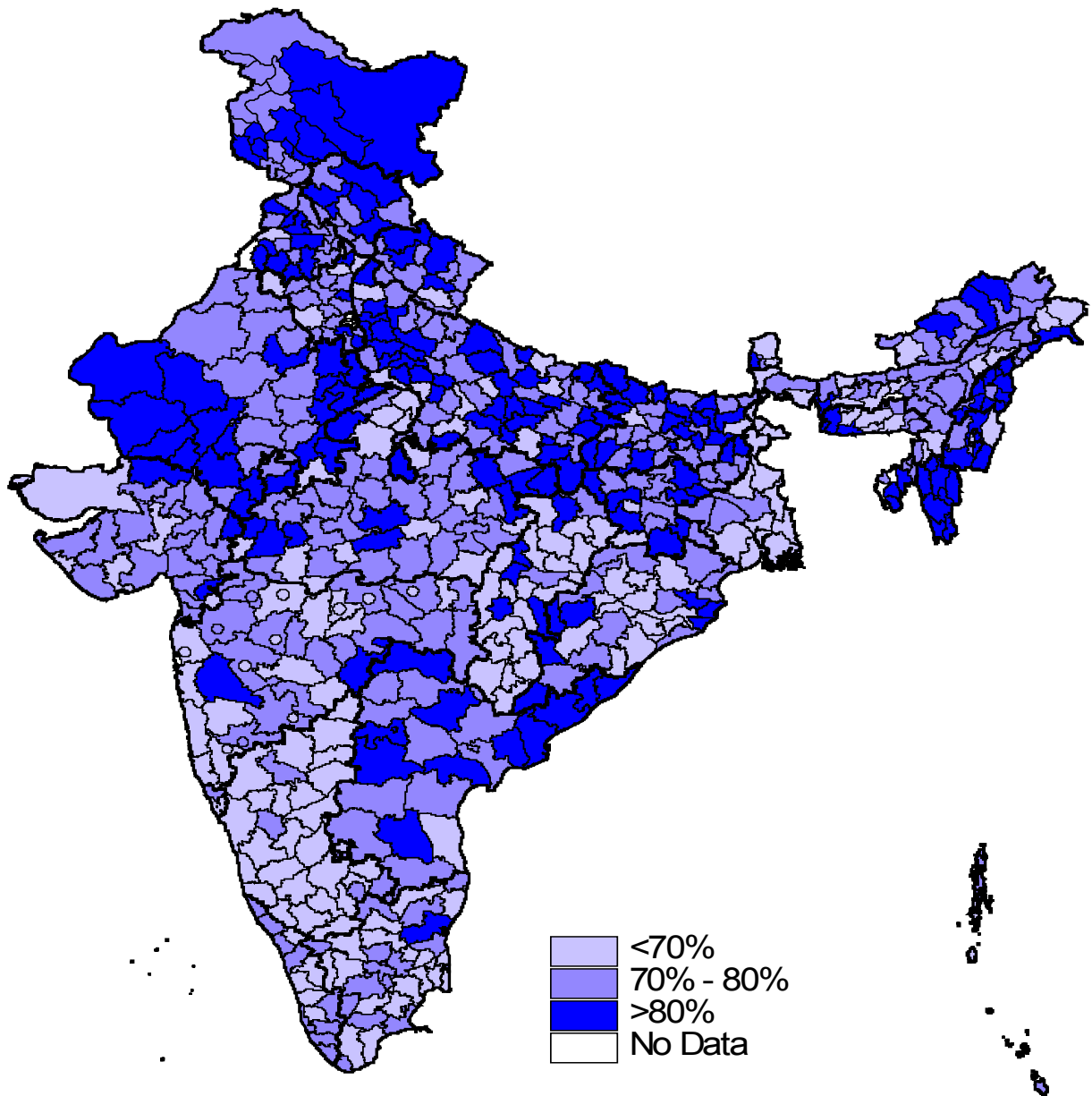


# Treatment Success Rate of New Smear-positive Cases by District, India 2013





## Treatment Success Rate of Re-treatment Smear-positive Cases by District, India 2013



## Performance of RNTCP: Case and Notification in 2014

State	Population (in lakh) covered by RNTCP <sup>1</sup>	No. of suspects examined	Suspects examined per lakh population/ Qtr	Rate of change in suspects examined per lakh population (compared to same quarter in previous year)	No of Smear positive patients diagnosed <sup>2</sup>	Suspects examined per smear positive case diagnosed	Rate of change in suspects examined per s+ case diagnosed (compared to same quarter in previous year)	Annual smear positive case notification rate (reported by RNTCP DMCS)	Annual smear positive case notification rate [from CFR: sm + cases (NSP + Rel + TAD) / Pop]	Total patients registered for treatment <sup>3</sup>	Annual total case notification rate	Annual new smear positive case notification rate	Annual new smear negative case notification rate	Annual new extra pulmonary case notification rate
Andaman and Nicobar	4	3262	215	-22%	257	13	2%	68	84	756	199	16	51	53
Andhra Pradesh	865	585283	169	9%	75083	8	9%	87	73	107293	124	57	24	17
Arunachal Pradesh	15	11031	189	1%	1346	8	5%	92	85	2691	185	64	32	42
Assam	325	158477	122	9%	23216	7	4%	72	62	38317	118	52	28	18
Bihar	1108	469849	106	4%	46265	10	8%	42	36	67991	61	30	15	4
Chandigarh	11	15486	354	-21%	1888	8	5%	173	121	2869	262	94	28	94
Chhattisgarh	270	154163	143	28%	14808	10	16%	55	50	28824	107	45	36	14
Dadar and Nagar Haveli	4	6288	408	46%	385	16	30%	100	56	450	117	42	15	35
Daman and Diu	3	3097	284	-5%	218	14	27%	80	43	279	102	28	40	13
Delhi	175	181388	258	14%	23620	8	10%	135	112	54037	308	78	50	110
Goa	15	17273	291	10%	1090	16	20%	73	51	1660	112	40	16	35
Gujarat	635	515083	203	7%	61364	8	8%	97	80	77395	122	59	12	17
Haryana	267	205126	192	11%	25897	8	12%	97	78	39498	148	53	28	29
Himachal Pradesh	71	85591	303	34%	8339	10	6%	118	106	14441	204	75	32	51
Jammu and Kashmir	133	70295	132	-22%	4617	15	27%	35	43	10243	77	32	11	20
Jharkhand	351	181702	129	9%	22509	8	11%	64	59	35907	102	51	29	7
Karnataka	635	528797	208	3%	43689	12	6%	69	53	61328	97	41	17	18
Kerala	337	354276	263	-3%	13240	27	10%	39	37	23439	69	32	10	18
Lakshadweep	1	784	301	-32%	17	46	-36%	26	23	27	42	23	9	5
Madhya Pradesh	765	554269	181	15%	58427	9	10%	76	66	100034	131	54	38	18
Maharashtra	1168	959184	205	8%	76789	12	14%	66	57	135465	116	45	22	23
Manipur	29	30085	263	264%	2522	12	36%	88	35	2198	77	28	17	18
Meghalaya	32	23712	186	-6%	2427	10	-6%	76	68	4944	155	54	23	45
Mizoram	11	10884	237	25%	912	12	-1%	79	58	1993	174	45	31	66
Nagaland	20	9727	121	-33%	1329	7	-21%	66	79	3298	164	60	31	38
Odisha	434	210683	121	4%	26169	8	11%	60	56	45777	105	47	21	22
Pondicherry	13	14935	281	-40%	1837	8	-8%	138	61	1409	106	48	12	28
Punjab	287	212384	185	13%	25400	8	7%	89	72	38152	133	53	23	29
Rajasthan	724	483595	167	6%	56723	9	20%	78	69	94908	131	51	34	20
Sikkim	6	40303	1610	419%	8119	5	-49%	1298	120	1630	260	95	46	69
Tamil Nadu	752	701297	233	5%	53636	13	5%	71	62	84570	112	48	24	21
Tripura	38	28220	187	40%	2510	11	-2%	67	42	2507	67	36	11	10
Uttar Pradesh	2105	1296575	154	3%	171452	8	7%	81	73	255364	121	60	26	15
Uttarakhand	106	92387	217	42%	13260	7	6%	125	72	14429	136	51	29	24
West Bengal	942	568060	151	0%	59683	10	4%	63	57	89819	95	47	14	18
<b>Grand Total</b>	<b>12656</b>	<b>8783551</b>	<b>174</b>	<b>7%</b>	<b>929043</b>	<b>9</b>	<b>8%</b>	<b>73</b>	<b>63</b>	<b>1443942</b>	<b>114</b>	<b>50</b>	<b>23</b>	<b>19</b>

<sup>1</sup> Projected population based on census population of 2011 is used for calculation of case-detection rate. 1 lakh = 100,000 population.

<sup>2</sup> Smear-positive patients diagnosed include new smear-positive cases and smear-positive retreatment cases, data from DMCS.

<sup>3</sup> Total patients registered for treatment includes new sputum smear-positive cases, new smear-negative cases, new EP cases, new others, relapse, failure, TAD and retreatment others.

Annual previously treated case notification rate	Annual previously treated smear positive case notification rate	No (%) of pediatric cases out of all New cases		3 month conversion rate of new smear positive patients	3 month conversion rate of retreatment patients	No (%) of all Smear Positive cases started RNTCP DOTS within 7 days of diagnosis		No (%) of all Smear Positive cases registered within one month of starting RNTCP DOTS treatment		No (%) of all cured Smear Positive cases having end of treatment follow-up sputum done within 7 days of last dose		No (%) of cases (all forms of TB) registered receiving DOT through a community volunteer		Proportion of all registered TB cases with known HIV status	Proportion of TB patients known to be HIV infected among tested	Proportion of TB patients known to be HIV infected among registered	Proportion of HIV infected TB patients put on CPT( RT report)	Proportion of HIV infected TB patients put on ART ( RT report)
		No	%			No	%	No	%	No	%	No	%					
34	25	46	7%	92%	70%	154	64%	224	93%	136	92%	189	37%	87%	0%	0%	100%	0%
26	17	3550	4%	92%	77%	59374	92%	62940	98%	42797	85%	92422	87%	98%	9%	9%	98%	94%
45	22	326	16%	90%	71%	1208	96%	1256	100%	951	93%	1122	46%	78%	0%	0%	#DIV/0!	#DIV/0!
20	11	1453	5%	88%	68%	17916	87%	19128	93%	11571	81%	15886	42%	31%	1%	0%	64%	81%
13	7	3885	7%	86%	71%	35648	88%	39611	98%	23410	80%	54687	84%	45%	3%	1%	56%	75%
47	30	230	10%	93%	81%	1007	94%	1045	98%	836	97%	807	36%	98%	1%	1%	79%	75%
12	7	1236	5%	89%	71%	12545	91%	13340	97%	7852	78%	17397	59%	73%	2%	1%	85%	91%
25	16	28	8%	91%	73%	207	93%	215	96%	141	90%	43	17%	73%	1%	0%	100%	100%
20	15	18	8%	81%	66%	72	63%	46	40%	47	64%	113	40%	100%	3%	1%	100%	100%
69	36	5828	14%	89%	74%	17856	89%	19985	100%	14480	96%	3018	7%	78%	2%	1%	71%	92%
20	13	103	8%	90%	73%	733	92%	763	96%	681	99%	243	16%	98%	7%	6%	99%	92%
33	22	3128	6%	92%	74%	48007	93%	50212	98%	37784	92%	49267	64%	96%	4%	4%	99%	96%
38	27	1790	6%	90%	76%	19047	90%	19820	93%	14489	87%	15214	43%	81%	1%	1%	68%	74%
45	32	603	5%	93%	81%	7316	97%	7279	96%	5504	92%	3451	28%	68%	2%	1%	67%	77%
14	11	598	7%	88%	75%	4144	98%	4198	99%	3750	93%	1126	19%	59%	1%	0%	37%	63%
16	8	1354	4%	90%	78%	18225	88%	20613	99%	12734	75%	29634	83%	57%	1%	1%	26%	86%
20	13	3150	6%	88%	64%	30010	87%	33077	95%	21458	82%	33504	55%	94%	12%	12%	99%	91%
9	7	1668	8%	84%	68%	10598	89%	10779	91%	7891	83%	14340	68%	94%	2%	2%	83%	90%
5	0	6	25%	88%	#DIV/0!	15	100%	15	100%	9	100%	7	100%	0%	#DIV/0!	0%	#DIV/0!	#DIV/0!
20	12	8395	10%	91%	70%	44374	89%	48232	97%	29073	79%	63676	68%	61%	1%	0%	69%	91%
26	14	6933	7%	90%	67%	60748	91%	65861	98%	45097	86%	63379	48%	92%	8%	8%	98%	92%
15	8	70	4%	84%	69%	2164	88%	2370	97%	1640	80%	2935	63%	72%	8%	6%	69%	64%
32	17	404	10%	85%	63%	1912	93%	1911	92%	1227	83%	2059	51%	34%	2%	0%	86%	86%
32	15	146	9%	91%	80%	888	98%	893	98%	635	93%	857	34%	78%	12%	11%	92%	63%
35	22	364	14%	94%	81%	1115	95%	1169	100%	877	94%	690	39%	83%	8%	6%	68%	61%
15	9	1991	5%	88%	70%	19281	84%	22481	98%	12964	75%	34086	80%	68%	2%	1%	66%	74%
18	15	71	6%	90%	76%	1320	84%	1555	99%	1062	81%	2883	96%	98%	3%	3%	100%	100%
27	20	1955	6%	89%	77%	19380	92%	20483	98%	15485	91%	15068	42%	88%	2%	1%	89%	90%
26	19	3564	5%	92%	79%	39928	83%	45976	96%	32699	83%	18668	22%	69%	1%	0%	92%	94%
51	30	101	8%	84%	66%	3151	79%	3870	96%	2640	81%	3979	54%	85%	0%	0%	100%	100%
20	15	3689	5%	85%	64%	38087	83%	44628	97%	27121	81%	22439	29%	93%	7%	6%	95%	91%
10	7	53	2%	86%	63%	1852	79%	2328	99%	1273	68%	1192	30%	68%	1%	0%	83%	83%
21	14	11631	5%	91%	75%	137437	90%	150269	98%	110416	87%	181773	75%	45%	1%	0%	30%	63%
31	22	747	7%	87%	72%	8129	88%	8998	97%	6416	86%	10850	65%	59%	1%	0%	79%	73%
16	11	3193	4%	88%	68%	44782	83%	51616	96%	37078	87%	20081	24%	71%	2%	1%	89%	81%
<b>22</b>	<b>14</b>	<b>72307</b>	<b>6%</b>	<b>89%</b>	<b>72%</b>	<b>708630</b>	<b>89%</b>	<b>777186</b>	<b>97%</b>	<b>532224</b>	<b>85%</b>	<b>777085</b>	<b>56%</b>	<b>72%</b>	<b>4%</b>	<b>3%</b>	<b>94%</b>	<b>91%</b>

## TB Case Notification in 2014

State	Population (in lakh) covered by RNTCP <sup>1</sup>	Number of health facilities registered (Laboratories - Private)	Number of health facilities registered (Single clinic - Private)	Number of health facilities registered (Multi-clinic - Private)	Total number of health facilities registered (Private)	Number of patients notified by (Laboratories - Private)	Number of patients notified by (Single clinic - Private)	Number of patients notified by (Multi-clinic - Private)	No of TB patients notification by private sector	No of TB cases notified by private sector per 1,00,000 population
Andaman and Nicobar	4	0	0	3	3	0	0	0	0	0.0
Andhra Pradesh	865	441	1462	3264	5167	0	6148	4050	10198	11.8
Arunachal Pradesh	15	0	1	12	13	0	141	18	159	10.9
Assam	325	33	324	112	469	0	657	1030	1687	5.2
Bihar	1108	307	2451	257	3015	2	519	8432	8953	8.1
Chandigarh	11	2	107	3	112	1	115	33	149	13.6
Chhattisgarh	270	179	790	415	1384	457	1880	923	3260	12.1
Dadar and Nagar Haveli	4	9	44	20	73	0	19	0	19	4.9
Daman and Diu	3	0	8	0	8	0	0	0	0	0.0
Delhi	175	178	1025	419	1622	0	1547	118	1665	9.5
Goa	15	25	505	34	564	0	20	134	154	10.4
Gujarat	635	276	3883	1475	5634	814	7316	7549	15679	24.7
Haryana	267	83	187	493	763	0	3202	1096	4298	16.1
Himachal Pradesh	71	75	298	115	488	2	460	97	559	7.9
Jammu and Kashmir	133	238	217	62	517	0	10	78	88	0.7
Jharkhand	351	91	389	296	776	0	479	663	1142	3.3
Karnataka	635	610	6668	1801	9079	0	1137	478	1615	2.5
Kerala	337	1004	2377	1412	4793	2	1161	138	1301	3.9
Lakshadweep	1	0	0	0	0	0	0	0	0	0.0
Madhya Pradesh	765	204	1676	603	2483	7	5042	5866	10915	14.3
Maharashtra	1168	1271	18342	5910	25523	1	11275	9027	20303	17.4
Manipur	29	8	1	10	19	0	308	308	308	10.8
Meghalaya	32	3	30	14	47	1	217	133	351	11.0
Mizoram	11	6	64	12	82	0	3	3	3	0.3
Nagaland	20	0	11	6	17	1	92	140	233	11.6
Odisha	434	18	196	78	292	0	422	478	900	2.1
Pondicherry	13	0	14	0	14	0	0	0	0	0.0
Punjab	287	256	661	651	1568	0	801	306	1107	3.9
Rajasthan	724	36	343	479	858	33	7392	4290	11715	16.2
Sikkim	6	0	2	0	2	0	0	0	0	0.0
Tamil Nadu	752	229	5057	1869	7155	113	2623	1129	3865	5.1
Tripura	38	74	4	10	88	0	0	0	0	0.0
Uttar Pradesh	2105	249	2132	691	3072	10	1867	2754	4631	2.2
Uttarakhand	106	9	19	18	46	0	486	663	1149	10.8
West Bengal	942	888	2066	1179	4133	0	8	8	8	0.0
<b>Grand Total</b>	<b>12656</b>	<b>6802</b>	<b>51354</b>	<b>21723</b>	<b>79879</b>	<b>1444</b>	<b>55339</b>	<b>49631</b>	<b>106414</b>	<b>8.4</b>

<sup>1</sup> Projected population based on census population of 2011 is used for calculation of case notification rate 1 lakh = 1,00,000 population.

<sup>2</sup> Notification information as per information in Nikshay.

<sup>3</sup> Cohort for 2013 is based on Date of diagnosis reported.

## Treatment Outcome of New TB Cases Registered in 2013

State	New Smear-positive <sup>1</sup>										New Smear-Negative <sup>2</sup>										New Extrapulmonary <sup>2</sup>				
	Registered	Cured	Comp-leted	Died	Failure	Defaulted	Trans out	Switched to Cat. IV	Reg-ist-ered	Comp-leted	Died	Failure	Defaulted	Trans out	Switched to Cat. IV	Reg-ist-ered	Comp-leted	Died	Fail-ure	Defaulted	Trans out	Switched to Cat. IV			
Andaman and Nicobar	224	82%	0%	5%	3%	4%	3%	2%	204	88%	4%	1%	5%	1%	1%	181	93%	4%	1%	2%	0%	0%			
Andhra Pradesh	47764	86%	3%	5%	2%	4%	0%	0%	21269	90%	5%	0%	4%	0%	0%	13815	94%	4%	0%	2%	0%	0%			
Arunachal Pradesh	908	88%	2%	2%	3%	2%	1%	2%	438	92%	3%	1%	4%	0%	0%	530	93%	3%	0%	3%	1%	0%			
Assam	15273	81%	5%	5%	2%	7%	1%	0%	8570	84%	5%	1%	10%	1%	0%	5348	91%	3%	0%	5%	1%	0%			
Bihar	33106	74%	14%	3%	1%	7%	0%	0%	15943	90%	2%	0%	7%	1%	0%	3867	89%	2%	0%	5%	5%	0%			
Chandigarh	1024	90%	0%	2%	3%	2%	2%	1%	354	97%	1%	1%	0%	2%	0%	1016	97%	1%	0%	1%	1%	0%			
Chhattisgarh	8308	79%	34%	4%	33%	33%	2%	2%	6917	117%	4%	1%	18%	1%	0%	2489	95%	2%	0%	2%	1%	0%			
Daadar and Nagar Haveli	105	84%	0%	4%	2%	6%	5%	0%	44	86%	0%	0%	7%	7%	0%	104	92%	4%	0%	3%	1%	0%			
Daman and Diu	85	72%	6%	4%	1%	15%	2%	0%	110	75%	1%	1%	20%	3%	0%	36	89%	0%	0%	11%	0%	0%			
Delhi	12969	85%	0%	4%	3%	6%	2%	1%	8262	93%	2%	1%	4%	1%	0%	17919	97%	1%	0%	2%	1%	0%			
Goa	674	81%	1%	5%	4%	5%	2%	2%	235	93%	1%	0%	6%	0%	0%	526	94%	3%	0%	2%	1%	0%			
Gujarat	36932	87%	1%	5%	2%	4%	1%	1%	7155	88%	6%	0%	6%	1%	0%	10381	94%	3%	0%	3%	0%	0%			
Haryana	14023	85%	2%	4%	3%	6%	1%	0%	7099	89%	3%	1%	7%	1%	0%	7062	94%	1%	4%	6%	2%	0%			
Himachal Pradesh	5130	88%	2%	4%	2%	3%	1%	0%	1997	93%	3%	1%	3%	0%	0%	3469	96%	2%	0%	2%	0%	0%			
Jammu and Kashmir	4989	83%	6%	3%	1%	4%	3%	0%	1397	90%	2%	0%	5%	2%	0%	2674	92%	2%	0%	4%	3%	0%			
Jharkhand	18099	84%	6%	4%	1%	5%	0%	0%	9705	89%	3%	0%	7%	0%	0%	2258	93%	2%	0%	4%	1%	0%			
Karnataka	26420	81%	1%	6%	3%	7%	1%	0%	10581	85%	7%	0%	7%	1%	0%	11643	90%	5%	0%	4%	1%	0%			
Kerala	11038	82%	3%	5%	5%	5%	0%	1%	4167	91%	4%	0%	4%	1%	0%	5817	92%	3%	0%	4%	1%	0%			
Lakshadweep	12	75%	0%	8%	0%	0%	0%	17%	0	-	-	-	-	-	7	100%	0%	0%	0%	0%	0%	0%			
Madhya Pradesh	38094	86%	4%	4%	1%	5%	0%	0%	26795	91%	2%	0%	6%	0%	0%	12203	95%	2%	0%	3%	0%	0%			
Maharashtra	52588	83%	1%	6%	2%	5%	1%	2%	26794	87%	5%	0%	6%	2%	0%	24966	92%	3%	0%	3%	1%	0%			
Manipur	811	80%	4%	4%	2%	8%	0%	1%	568	86%	2%	0%	11%	1%	0%	562	94%	2%	0%	4%	1%	0%			
Meghalaya	1731	79%	3%	4%	5%	6%	1%	1%	923	92%	2%	1%	4%	1%	0%	1494	92%	3%	0%	5%	1%	0%			
Mizoram	465	97%	1%	3%	3%	3%	0%	0%	313	99%	4%	0%	4%	0%	0%	748	101%	3%	0%	4%	0%	0%			
Nagaland	1144	90%	1%	2%	3%	3%	0%	1%	692	87%	8%	1%	4%	0%	0%	691	84%	14%	0%	2%	0%	0%			
Odisha	20797	80%	6%	5%	1%	7%	1%	0%	9186	87%	5%	0%	7%	1%	0%	9047	91%	3%	0%	5%	1%	0%			
Pondicherry	688	86%	0%	5%	4%	5%	0%	1%	155	91%	5%	1%	3%	0%	0%	390	97%	3%	0%	0%	0%	0%			
Punjab	12233	82%	12%	6%	2%	4%	2%	0%	4888	89%	5%	0%	4%	1%	0%	6344	92%	5%	0%	2%	1%	0%			
Rajasthan	36659	87%	3%	4%	1%	5%	0%	0%	24397	91%	3%	0%	5%	0%	0%	14277	95%	2%	0%	3%	0%	0%			
Sikkim	511	78%	1%	4%	5%	1%	1%	11%	283	93%	2%	1%	1%	0%	2%	468	97%	2%	0%	1%	0%	0%			
Tamil Nadu	34975	82%	2%	5%	2%	7%	1%	1%	16720	89%	5%	0%	3%	1%	2%	14455	95%	3%	0%	2%	0%	0%			
Tripura	1149	88%	3%	4%	1%	3%	1%	0%	404	91%	5%	0%	3%	0%	0%	316	93%	3%	0%	4%	0%	0%			
Uttar Pradesh	127268	85%	4%	3%	1%	6%	1%	0%	55465	90%	2%	0%	7%	1%	0%	29298	94%	1%	0%	3%	1%	0%			
Uttarakhand	5167	76%	8%	4%	2%	8%	2%	0%	2718	86%	3%	1%	8%	2%	0%	2508	94%	2%	0%	4%	0%	0%			
West Bengal	44246	84%	2%	4%	3%	7%	1%	1%	12531	84%	7%	0%	7%	1%	0%	16643	88%	6%	0%	4%	1%	0%			
<b>Grand Total</b>	<b>615609</b>	<b>84%</b>	<b>4%</b>	<b>4%</b>	<b>2%</b>	<b>6%</b>	<b>1%</b>	<b>1%</b>	<b>287279</b>	<b>90%</b>	<b>4%</b>	<b>0%</b>	<b>6%</b>	<b>1%</b>	<b>0%</b>	<b>223552</b>	<b>93%</b>	<b>3%</b>	<b>0%</b>	<b>3%</b>	<b>1%</b>	<b>0%</b>			

### Outcome of Smear-positive Re-treatment Cases for India 2013 (Excluding “Others”)

Type of retreatment case	No. registered	Cured	Success	Defaulted	Died	Failure	Transferred out	Switched to Cat IV
Relapse	101326	67%	75%	11%	7%	4%	1%	4%
Failure	13756	50%	57%	13%	9%	11%	1%	9%
Treatment after default	62244	57%	66%	17%	8%	4%	3%	3%
<b>Total</b>	<b>177326</b>	<b>63%</b>	<b>71%</b>	<b>13%</b>	<b>8%</b>	<b>5%</b>	<b>2%</b>	<b>4%</b>

### State-wise Outcome of Smear-positive Re-treatment Cases 2013 (Excluding “Others”)

State	Relapse								Failure								TAD							
	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out	Switched to Cat IV	No. registered	Died	Failure	Defaulted	Transferred out	Switched to Cat IV	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out	Switched to Cat IV		
Andaman and Nicobar	56	66%	66%	14%	5%	4%	5%	5%	12	33%	33%	25%	0%	8%	20	30%	40%	15%	20%	10%	0%	33%		
Andhra Pradesh	6993	71%	77%	7%	4%	8%	1%	3%	1299	55%	64%	11%	10%	10%	5906	65%	74%	8%	4%	11%	1%	4%		
Assam	215	69%	72%	3%	3%	7%	1%	14%	39	64%	64%	5%	8%	5%	81	59%	68%	4%	1%	12%	0%	18%		
Bihar	1884	60%	72%	8%	4%	12%	0%	4%	371	48%	55%	10%	9%	18%	1266	47%	58%	9%	3%	24%	2%	6%		
Chandigarh	3126	63%	78%	5%	3%	11%	1%	2%	435	58%	58%	8%	8%	14%	4394	57%	77%	6%	2%	12%	1%	11%		
Chhattisgarh	227	81%	81%	6%	4%	2%	3%	4%	46	59%	59%	15%	13%	2%	44	64%	66%	9%	5%	16%	4%	7%		
Dadar and Nagar Haveli	536	62%	215%	8%	140%	13%	2%	6%	95	48%	60%	12%	13%	12%	459	52%	73%	9%	71%	20%	3%	1%		
Daman and Diu	28	61%	61%	11%	0%	18%	0%	11%	4	25%	25%	25%	0%	25%	10	50%	50%	20%	10%	10%	0%	25%		
Delhi	28	46%	46%	7%	7%	32%	0%	7%	2	50%	50%	0%	0%	50%	14	43%	43%	0%	7%	29%	0%	0%		
Goa	3953	72%	72%	6%	4%	8%	2%	9%	467	52%	52%	10%	10%	11%	1830	63%	64%	6%	4%	14%	3%	14%		
Gujarat	7881	71%	73%	9%	5%	12%	1%	2%	35	66%	66%	9%	17%	9%	67	45%	46%	7%	6%	36%	0%	0%		
Haryana	4570	71%	76%	6%	5%	12%	1%	2%	771	52%	54%	12%	13%	17%	4549	66%	68%	9%	4%	16%	1%	4%		
Himachal Pradesh	1795	74%	81%	8%	3%	5%	1%	3%	639	53%	60%	13%	12%	15%	2046	58%	66%	10%	9%	20%	3%	6%		
Jammu and Kashmir	1215	69%	80%	3%	4%	7%	5%	1%	168	57%	63%	7%	11%	7%	209	59%	67%	11%	4%	12%	1%	13%		
Jharkhand	1613	66%	77%	6%	2%	9%	1%	4%	103	54%	61%	8%	11%	16%	316	55%	68%	7%	5%	14%	4%	1%		
Karnataka	4386	60%	65%	10%	6%	15%	2%	3%	154	48%	62%	9%	6%	14%	941	64%	72%	8%	2%	13%	1%	8%		
Kerala	1178	68%	74%	8%	5%	8%	1%	4%	946	40%	44%	12%	15%	20%	3582	45%	50%	14%	5%	25%	1%	8%		
Lakshadweep	0	0	0	0	0	0	0	0	612	65%	70%	5%	10%	11%	590	46%	54%	11%	4%	27%	1%	4%		
Madhya Pradesh	4850	63%	74%	7%	3%	11%	1%	3%	0	43%	57%	10%	9%	14%	0	0	0	0	0	0	0	0		
Maharashtra	10346	59%	63%	10%	3%	11%	2%	10%	675	43%	57%	10%	9%	14%	3733	53%	68%	9%	3%	16%	1%	9%		
Manipur	115	75%	76%	4%	6%	10%	0%	3%	1301	41%	46%	11%	10%	13%	4534	51%	55%	10%	3%	19%	3%	17%		
Meghalaya	343	61%	66%	5%	8%	10%	2%	9%	22	59%	59%	14%	9%	5%	78	56%	74%	4%	3%	18%	0%	14%		
Mizoram	121	84%	87%	7%	2%	2%	1%	7%	130	37%	42%	5%	20%	12%	164	38%	47%	9%	4%	32%	7%	15%		
Nagaland	253	72%	80%	7%	1%	8%	0%	4%	13	46%	54%	0%	8%	0%	16	50%	69%	19%	0%	6%	0%	38%		

State	Relapse										Failure										TAD									
	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out	Switched to Cat IV	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out	Switched to Cat IV	No. registered	Cured	Success	Died	Failure	Defaulted	Transferred out	Switched to Cat IV						
Odisha	1972	57%	72%	8%	2%	14%	1%	2%	256	49%	62%	8%	9%	13%	1%	7%	1623	46%	61%	10%	2%	23%	3%	1%						
Pondicherry	105	73%	74%	7%	10%	5%	1%	4%	35	51%	51%	9%	34%	3%	0%	3%	47	70%	70%	11%	4%	11%	2%	2%						
Punjab	3627	70%	78%	8%	3%	7%	2%	2%	309	60%	66%	8%	9%	11%	1%	5%	884	64%	70%	11%	4%	12%	2%	1%						
Rajasthan	8827	72%	80%	6%	2%	9%	0%	2%	686	59%	67%	9%	6%	14%	0%	4%	4518	66%	75%	7%	2%	13%	0%	3%						
Sikkim	130	73%	73%	3%	2%	2%	0%	19%	38	55%	55%	3%	3%	3%	3%	34%	19	47%	47%	5%	0%	0%	0%	47%						
Tamil Nadu	4822	64%	69%	7%	4%	14%	1%	5%	608	48%	52%	12%	12%	17%	1%	7%	4214	50%	58%	9%	3%	22%	3%	5%						
Tripura	152	77%	78%	9%	5%	6%	1%	1%	20	45%	45%	10%	15%	20%	0%	10%	29	62%	69%	7%	3%	21%	0%	0%						
Uttar Pradesh	17704	70%	79%	6%	2%	11%	1%	1%	1524	53%	64%	7%	10%	14%	1%	4%	11871	62%	73%	6%	2%	14%	3%	2%						
Uttarakhand	1456	64%	75%	6%	4%	11%	3%	2%	145	54%	63%	6%	12%	11%	0%	8%	736	50%	58%	6%	4%	18%	12%	2%						
West Bengal	6685	68%	71%	7%	5%	10%	1%	5%	1739	49%	52%	9%	10%	10%	1%	18%	3351	50%	54%	11%	5%	23%	3%	4%						
<b>Grand Total</b>	<b>101326</b>	<b>67%</b>	<b>75%</b>	<b>7%</b>	<b>4%</b>	<b>11%</b>	<b>1%</b>	<b>4%</b>	<b>13756</b>	<b>50%</b>	<b>57%</b>	<b>9%</b>	<b>11%</b>	<b>13%</b>	<b>1%</b>	<b>9%</b>	<b>62244</b>	<b>57%</b>	<b>66%</b>	<b>8%</b>	<b>4%</b>	<b>17%</b>	<b>3%</b>	<b>3%</b>						

## Program Infrastructure, Staffing and Training Center Status 2014

Implementing states	Total no. of reporting units (Districts / DTC)	Implementing district details			Involvement of Other sectors			Number of key staff in position							In Place and trained in RNTCP	
		No. of TB Units	No. of DMCs	NGO	PP	Medical College	DTO	2nd MO	MO-TC	STS	STLS	LT	MO	Para Staff		
Andaman and Nicobar	3	3	13	0	0	0	3	0	1	3	3	47	100%	100%		
Andhra Pradesh	24	236	993	74	12	38	17	20	185	200	166	934	85%	86%		
Arunachal Pradesh	14	19	35	16	0	0	14	2	14	19	16	46	66%	56%		
Assam	27	76	345	12	2	6	27	9	50	76	76	423	76%	67%		
Bihar	38	188	725	292	2	9	29	34	164	135	143	705	57%	76%		
Chandigarh	1	3	18	3	1	2	1	0	1	3	3	17	100%	90%		
Chhattisgarh	27	88	362	131	271	4	27	3	65	76	53	353	79%	85%		
Dadar and Nagar Haveli	1	1	7	0	0	0	1	0	0	2	1	7	67%	100%		
Daman and Diu	2	2	4	0	0	0	2	0	1	2	1	4	100%	100%		
Delhi	25	0	196	50	0	8	25	13	22	42	39	189	75%	33%		
Goa	2	4	20	110	0	1	2	0	4	5	4	21	100%	100%		
Gujarat	36	203	850	108	6	19	28	17	200	202	141	803	92%	92%		
Haryana	21	77	257	43	0	6	19	10	71	74	51	260	73%	64%		
Himachal Pradesh	12	49	196	3	34	3	12	1	41	49	46	167	77%	72%		
Jammu and Kashmir	14	42	175	15	11	5	14	15	40	38	41	230	85%	93%		
Jharkhand	24	82	314	32	4	3	21	10	72	65	67	395	75%	73%		
Karnataka	31	150	679	143	176	0	28	6	145	146	130	625	86%	88%		
Kerala	14	73	499	63	26	24	13	12	68	77	69	619	87%	67%		
Lakshadweep	1	1	9	0	0	0	1	0	0	1	1	19	100%	100%		
Madhya Pradesh	50	177	759	14	30	12	47	7	125	139	141	787	81%	79%		
Maharashtra	79	396	1418	289	450	40	65	60	343	379	297	1416	70%	79%		
Manipur	9	28	86	196	6	2	9	8	18	26	21	101	62%	53%		
Meghalaya	7	12	61	11	0	1	6	0	10	11	12	61	82%	69%		
Mizoram	8	11	40	5	22	0	7	0	11	13	10	41	93%	92%		
Nagaland	11	13	35	19	3	0	8	0	2	10	9	26	87%	39%		
Odisha	31	120	523	43	0	6	28	5	95	102	74	433	72%	81%		
Pondicherry	1	7	36	4	0	9	1	1	6	7	7	35	100%	100%		
Punjab	22	80	297	34	16	9	21	5	57	58	45	277	90%	71%		
Rajasthan	34	176	825	426	58	9	31	9	159	153	141	823	70%	79%		
Sikkim	4	18	62	0	0	1	4	0	17	10	12	63	79%	79%		
Tamil Nadu	34	219	800	104	116	29	27	28	184	206	114	749	81%	90%		
Tripura	6	15	71	5	0	2	7	2	13	13	7	52	83%	91%		
Uttar Pradesh	75	482	1881	150	7	28	70	41	453	467	381	1952	63%	57%		
Uttarakhand	13	54	179	10	2	4	13	5	36	61	36	174	60%	65%		
West Bengal	29	202	813	138	10	13	26	7	174	196	190	776	83%	74%		
<b>Grand Total</b>	<b>732</b>	<b>3394</b>	<b>13583</b>	<b>2543</b>	<b>1265</b>	<b>293</b>	<b>654</b>	<b>330</b>	<b>2847</b>	<b>3066</b>	<b>2548</b>	<b>13630</b>	<b>77%</b>	<b>78%</b>		



## Treatment Outcome among All HIV-infected New TB Cases

State	Total New Cases	Treatment Success	Died	Failure	TAD	Transfer Out	Switch to CAT 4
Andaman and Nicobar	1	0%	100%	0%	0%	0%	0%
Andhra Pradesh	7502	83%	12%	1%	4%	0%	1%
Arunachal Pradesh	0	0	0	0	0	0	0
Assam	66	77%	15%	0%	3%	2%	3%
Bihar	593	89%	12%	1%	4%	1%	-7%
Chandigarh	23	65%	17%	0%	4%	13%	0%
Chhattisgarh	160	35%	6%	21%	4%	1%	49%
Dadar and Nagar Haveli	0	0	0	0	0	0	0
Daman and Diu	2	100%	0%	0%	0%	0%	0%
Delhi	417	82%	6%	0%	7%	2%	2%
Goa	63	78%	16%	0%	5%	2%	0%
Gujarat	2167	80%	11%	1%	6%	1%	0%
Haryana	195	81%	13%	3%	7%	2%	1%
Himachal Pradesh	65	88%	14%	2%	0%	0%	-3%
Jammu and Kashmir	6	50%	0%	17%	0%	33%	0%
Jharkhand	164	74%	17%	1%	6%	0%	2%
Karnataka	5478	77%	15%	1%	7%	1%	0%
Kerala	295	76%	14%	2%	3%	3%	1%
Lakshadweep	0	0	0	0	0	0	0
Madhya Pradesh	363	76%	13%	2%	6%	2%	1%
Maharashtra	7351	76%	14%	1%	5%	2%	2%
Manipur	109	76%	6%	1%	11%	3%	3%
Meghalaya	6	50%	50%	0%	0%	0%	0%
Mizoram	165	84%	8%	1%	7%	1%	0%
Nagaland	114	83%	8%	1%	6%	0%	2%
Odisha	369	74%	17%	0%	8%	1%	0%
Pondicherry	31	90%	10%	0%	0%	0%	0%
Punjab	206	65%	18%	2%	9%	4%	0%
Rajasthan	264	81%	11%	0%	7%	0%	1%
Sikkim	3	100%	0%	0%	0%	0%	0%
Tamil Nadu	3011	79%	13%	1%	6%	2%	0%
Tripura	9	44%	44%	0%	0%	11%	0%
Uttar Pradesh	363	76%	13%	1%	9%	2%	-2%
Uttarakhand	32	66%	25%	0%	9%	3%	-3%
West Bengal	801	79%	14%	1%	5%	1%	0%
<b>Grand Total</b>	<b>30394</b>	<b>79%</b>	<b>13%</b>	<b>1%</b>	<b>5%</b>	<b>1%</b>	<b>1%</b>

## Treatment Outcome among All HIV-infected Re-treatment TB Cases

States	Total Retreatment Cases	Treatment Success	Died	Failure	TAD	Transfer Out	Switch to CAT 4
Andaman and Nicobar	0	0	0	0	0	0	0
Andhra Pradesh	2669	76%	14%	3%	6%	1%	1%
Arunachal Pradesh	1	0%	0%	0%	0%	100%	0%
Assam	24	50%	25%	4%	4%	13%	4%
Bihar	233	78%	13%	0%	6%	0%	2%
Chandigarh	5	80%	20%	0%	0%	0%	0%
Chhattisgarh	100	44%	9%	1%	4%	0%	42%
Dadar and Nagar Haveli	2	100%	0%	0%	0%	0%	0%
Daman and Diu	1	100%	0%	0%	0%	0%	0%
Delhi	328	81%	8%	4%	6%	2%	0%
Goa	32	72%	9%	3%	9%	6%	0%
Gujarat	978	73%	14%	1%	11%	1%	1%
Haryana	136	74%	16%	1%	8%	0%	1%
Himachal Pradesh	41	66%	17%	0%	2%	5%	10%
Jammu and Kashmir	13	62%	8%	8%	8%	15%	0%
Jharkhand	68	74%	16%	1%	4%	3%	1%
Karnataka	1796	68%	17%	2%	10%	2%	1%
Kerala	107	63%	14%	3%	11%	8%	1%
Lakshadweep	0	0	0	0	0	0	0
Madhya Pradesh	113	71%	15%	1%	11%	1%	2%
Maharashtra	3717	68%	15%	1%	8%	2%	5%
Manipur	23	57%	22%	0%	9%	9%	4%
Meghalaya	8	100%	0%	0%	0%	0%	0%
Mizoram	50	72%	16%	0%	10%	0%	2%
Nagaland	67	82%	7%	0%	6%	1%	3%
Odisha	131	70%	19%	2%	8%	0%	0%
Pondicherry	15	73%	0%	0%	13%	7%	7%
Punjab	165	78%	11%	1%	10%	1%	-1%
Rajasthan	199	78%	14%	1%	7%	1%	1%
Sikkim	3	67%	0%	0%	33%	0%	0%
Tamil Nadu	1860	69%	13%	2%	7%	9%	1%
Tripura	3	33%	67%	0%	0%	0%	0%
Uttar Pradesh	209	68%	12%	0%	11%	3%	6%
Uttarakhand	20	55%	30%	5%	10%	0%	0%
West Bengal	436	67%	16%	2%	12%	2%	2%
<b>Total</b>	<b>13553</b>	<b>71%</b>	<b>14%</b>	<b>2%</b>	<b>8%</b>	<b>3%</b>	<b>2%</b>

**State and District Wise  
Annualized Performance 2015**



# Andaman & Nicobar Islands

Population: 3,80,581

Male: 2,02,871, Female: 1,77,710

Sex Ratio: 876

Literacy Rate: 86.27%

Male: 90.11%, Female: 81.84%

Infrastructure:

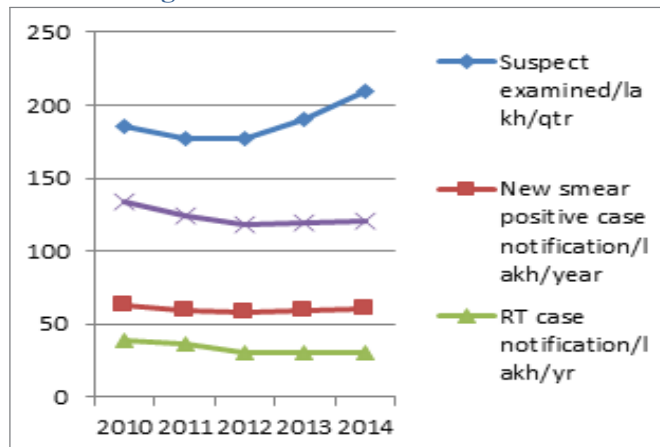
RNTCP reporting districts: 03

Tuberculosis Units: 03

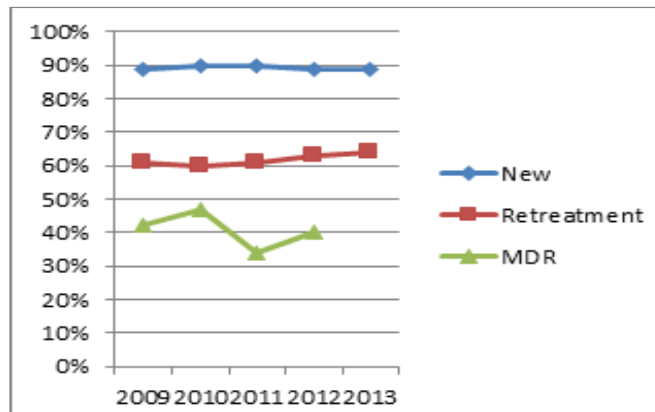
Designated Microscopy Centres: 13, CDST Labs: 01

CBNAAT: 04, DRTB Centre: 01

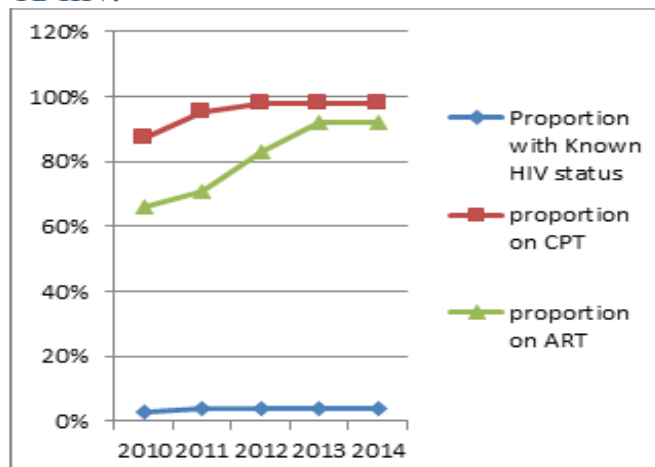
## Case Finding:



## Treatment Success:



## TB HIV:



## Human Resource:

Position	Sanctioned	In place
MO-STC	1	1
State DRTB Coordinator	-	-
State TBHIV Coordinator	1	0
IEC Officer	1	1
State accountant	1	1
DEO-STC	1	1
PMDT TBHIV Supervisor	3	3
SA DRTB Site	5	4
DEO District	3	3
STS	9	3
STLS	4	3
TBHV	4	3

ACSM

PP meeting: 37

Community Meeting: 38

School activities: 21

Outdoor Publicity: 4

# Andhra Pradesh

Population: 49,386,799

Male: 24,738,068, Female: 24,648,731

Sex Ratio: 996

Literacy Rate: 67.66%

Male: 75.56%, Female: 59.74%

Infrastructure:

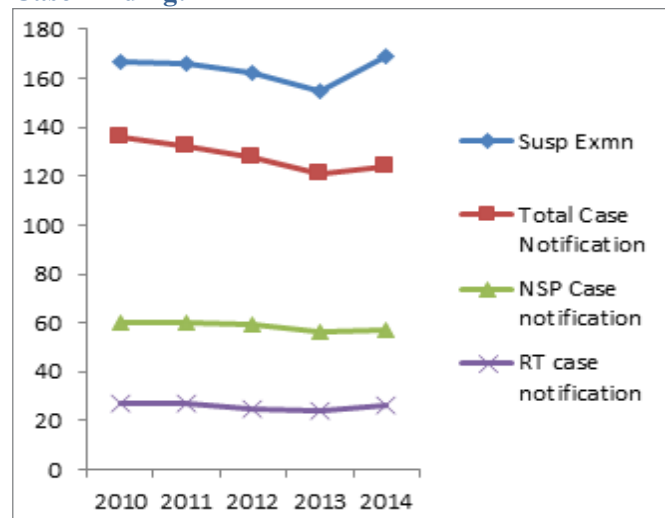
RNTCP reporting districts: 13

Tuberculosis Units: 134

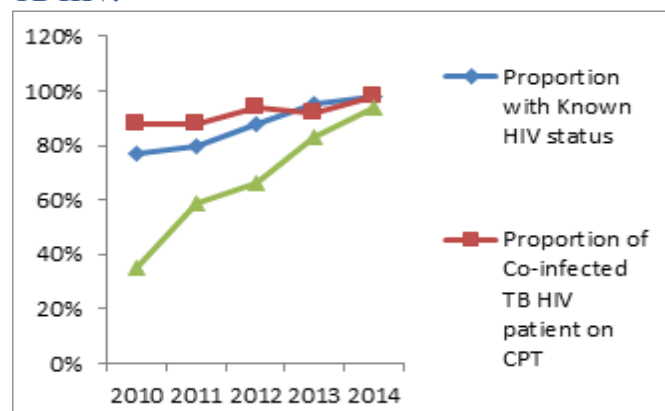
Designated Microscopy Centres: 606, CDST Labs: 05

LPA: 01, CBNAAT: 03, DRTB Centre: 09

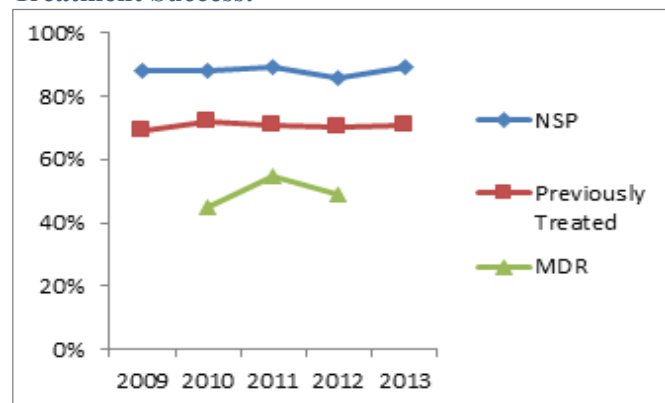
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	0
IEC Officer	1	0
State accountant	1	1
DEO (IRL)	1	0
Sr. PMDT TBHIV Supervisor	1	0
DEO District	13	13
STS	134	84
STLS	134	123

## Partnerships:

CDST Lab: 02

TU Scheme: 02

DMC scheme: 10

TB HIV scheme: 04

Treatment Adherence: 07

Sputum collection & Transport: 02

ACSM: 02

## Innovations:

Use of a web based solution, "E-smart" for strengthening management and reporting of TB patients.

# Arunachal Pradesh

Population: 1,383,727

Male: 7,13,912 Female: 6,69,815

Sex Ratio: 938

Literacy Rate: 66.95%

Male: 73.69%, Female: 59.57%

Infrastructure:

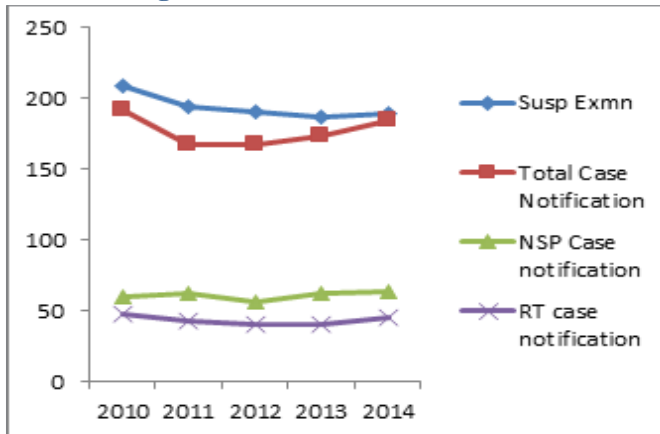
RNTCP reporting districts: 18

Tuberculosis Units: 20

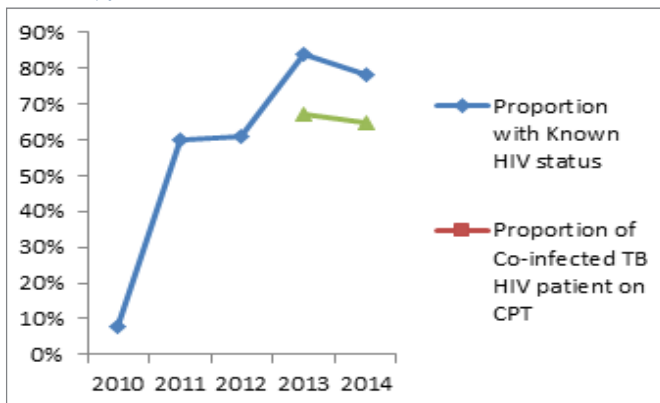
Designated Microscopy Centres: 35, CDST Labs: 01

CBNAAT: 01, DRTB Centre: 02

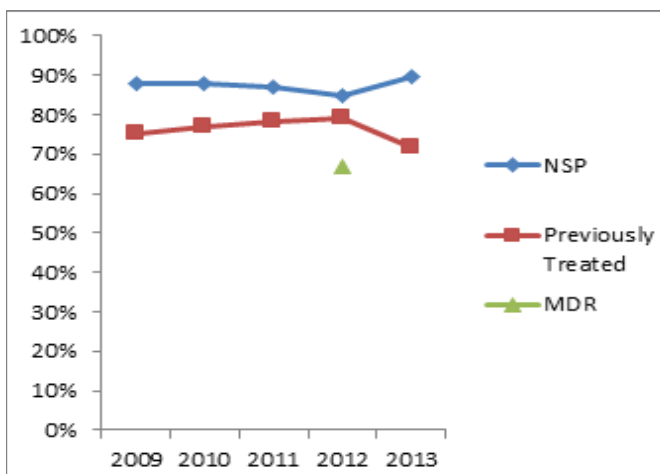
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	1
State accountant	1	1
DEO (IRL)	1	1
MO DRTB Site	2	2
SA DRTB Site	2	2
DEO District	18	17
STS	20	19
STLS	20	16

## Partnerships:

ACSM: 01

Sputum collection & Transport: 01

Treatment adherence scheme: 01

DMC scheme: 02

## Innovations:

Improving accessibility of services: 3 new DTC's approved and 7 new Designated Microscopy proposed in areas with difficult access.

# Assam

**Population: 31,205,576**

**Male: 15,939,443, Female: 15,266,133**

**Sex Ratio: 918**

**Literacy Rate: 73.18%**

**Male: 78.81%, Female: 67.27%**

**Infrastructure:**

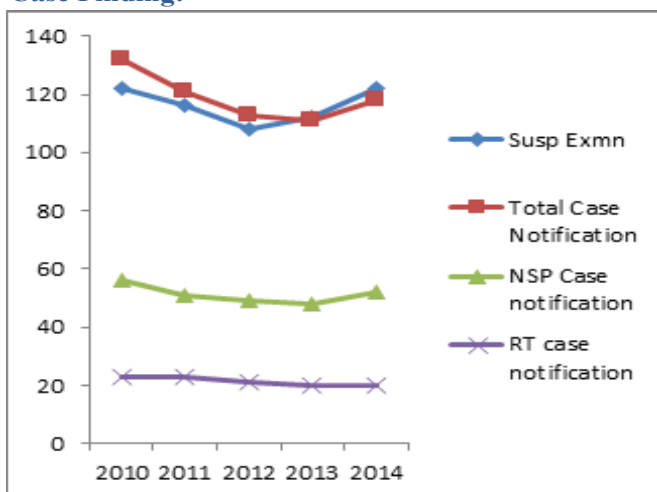
**RNTCP reporting districts: 27**

**Tuberculosis Units: 76**

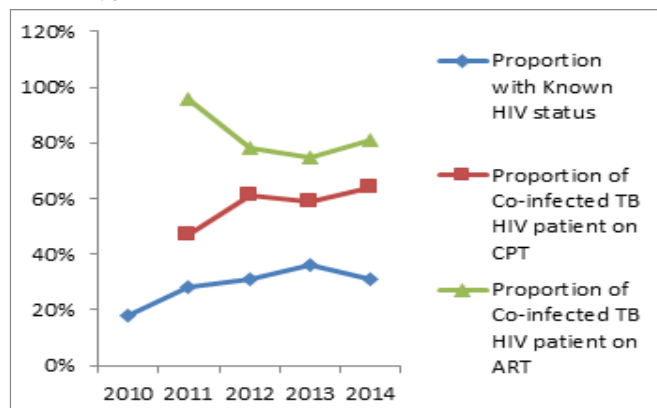
**Designated Microscopy Centres: 346, CDST Labs: 01**

**CBNAAT: 02, DRTB Centre: 03**

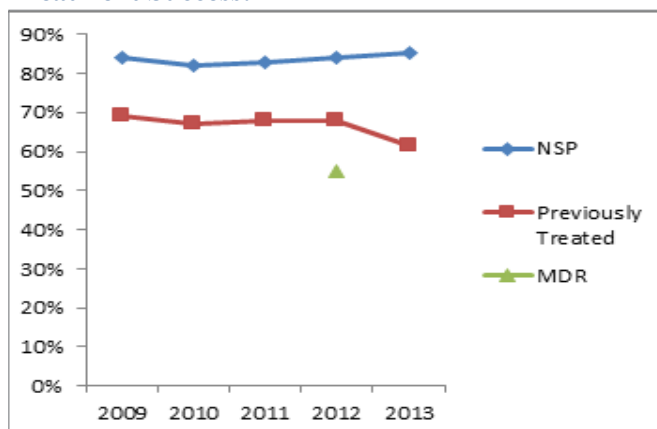
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	27	27
MO DRTB Site	3	3
STS	76	76
STLS	76	76

## ACSM:

PP meeting: 481

School activities: 83

Community meeting: 277

Outdoor Publicity: 36

## Partnerships:

ACSM: 1

Sputum Collection: 02

Sputum collection & Transport: 02

DMC: 8

## Innovations:

- Established additional DMCs in riverine areas of Barpeta and Nalbari districts with LT from NHM solar energy giving power back-up.
- ABITA declared 2014 as "TB Year" in all the tea gardens with special activities for TB control.
- "Nutritional Support Program" for the Tea Garden TB patients implemented in Jorhat district.



# Bihar

Population: 103,804,637

Male: 54,278,157, Female: 49,821,295

Sex Ratio: 918

Literacy Rate: 63.82%

Male: 73.39%, Female: 53.33

Infrastructure:

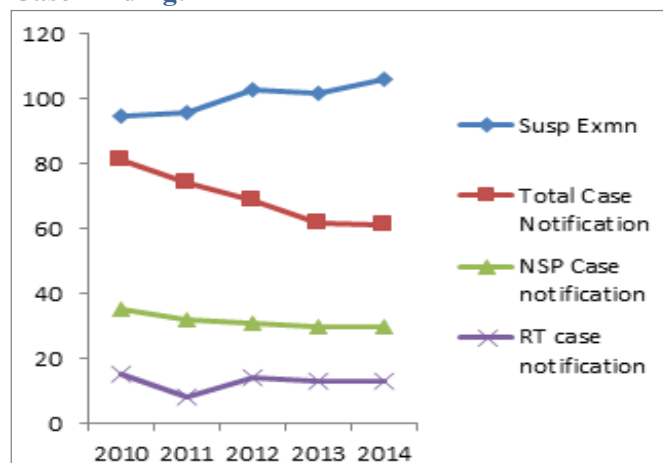
RNTCP reporting districts: 38

Tuberculosis Units: 183

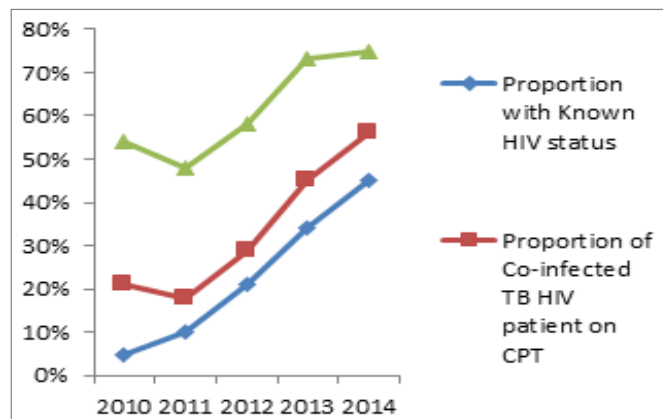
Designated Microscopy Centres: 742

CDST Labs: 02, CBNAAT: 03, DRTB Centre: 04

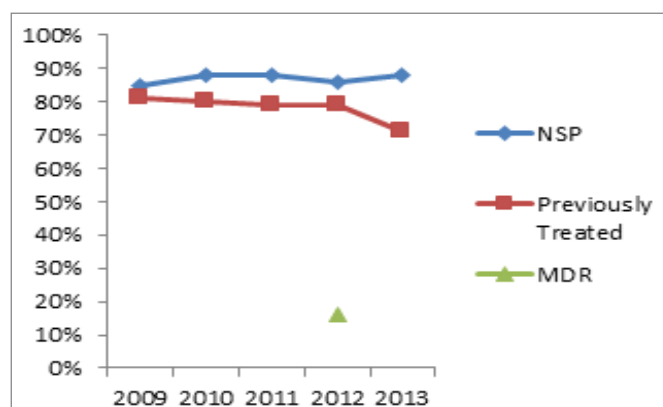
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	38	29
MO DRTB Site	4	4
SA DRTB Site	4	3
DEO District	38	34
MOTC	203	198
STS	183	135
STLS	183	143

## Partnerships:

Collaboration with IMA, CBCI, Project Axshaya through MAMTA and ADRA, IPAQT field officers project.

## Innovations:

- Piloting of Universal access to TB care in Urban Patna, wherein free Anti-TB drugs are provided to TB patients through chemists.
- 99 DOTS: A low cost approach to monitor TB patients adherence through mobile phone.

# Chandigarh

Population: 1,055,450

Male: 5,80,663, Female: 4,74,787

Sex Ratio: 918

Literacy Rate: 86.43%

Male: 90.54%, Female: 81.38%

Infrastructure:

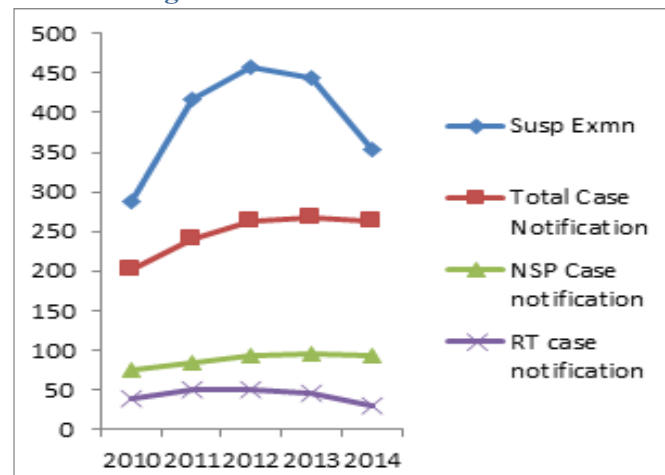
RNTCP reporting district: 1

Tuberculosis Units: 3

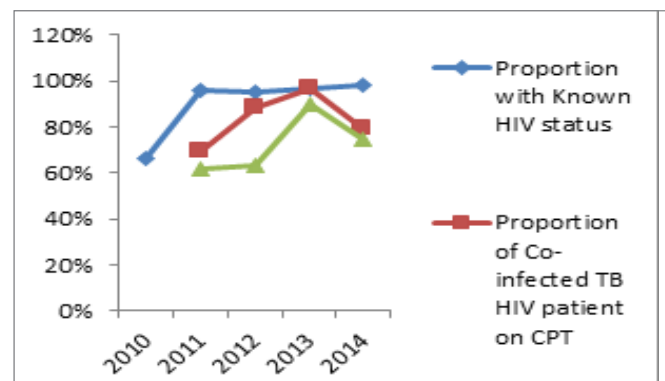
Designated Microscopy Centres: 17

CDST Labs: 1, CBNAAT: 0, DRTB Centre: 01

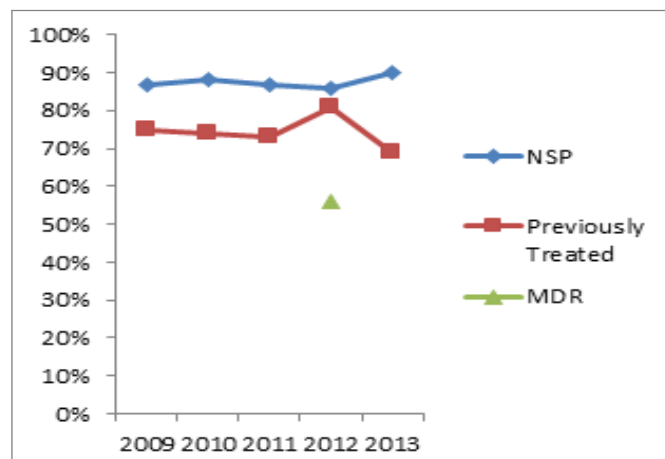
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
MO-STC	1	1
State DRTB Coordinator	0	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
STS	3	3
STLS	3	3
TBHV	16	16

### ACSM:

PP meeting: 186

Community meeting: 93

School activities: 69

Outdoor publicity: 136

### Partnerships:

Adherence scheme: 78

Urban Slum scheme: 02

DMC scheme: 01

# Chhattisgarh

Population: 25,545,198

Male: 12,832,895, Female: 12,712,303

Sex Ratio: 991

Literacy Rate: 71.04%

Male: 81.45, Female: 60.59%

Infrastructure:

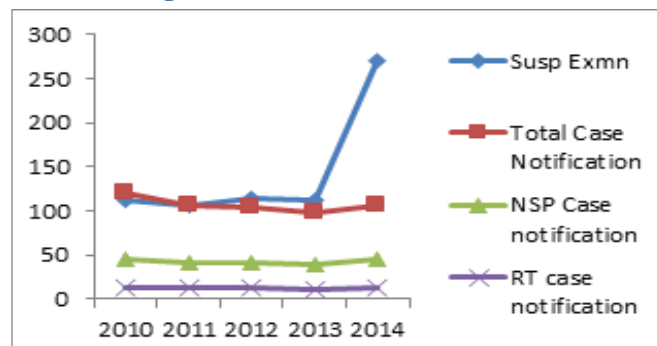
RNTCP reporting districts: 27

Tuberculosis Units: 88

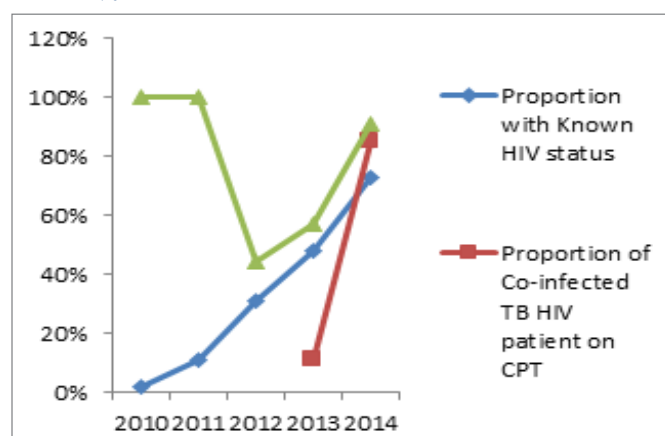
Designated Microscopy Centres: 362

CDST Labs: 01, CBNAAT: 02, DRTB Centre: 03

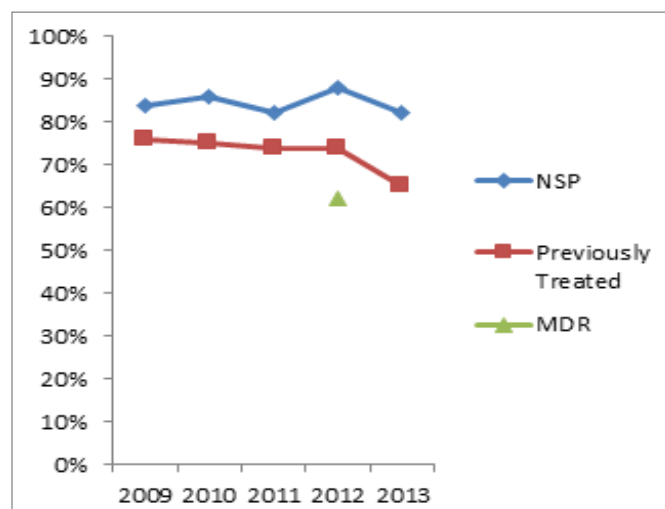
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	0
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	27	25
MO DRTB Site	4	1
SA DRTB Site	4	3
DEO District	27	26
STS	86	74
STLS	67	50

## Partnerships:

ACSM: 01  
 Sputum Collection & Transport: 09  
 DMC: 04  
 Urban Slum: 01  
 LT Scheme: 01

## Innovations & Initiatives:

- Developed short training modules for BMOs and ANMs in collaboration with SIHFW.
- Phase wise implementation of Direct Beneficiary transfer through CPSMS also called Public Finance Management system for e-payment of incentives to DOT Providers.

# Dadra & Nagar Haveli

Population: 3,43,709

Male: 1,93,760, Female: 1,49,949

Sex Ratio: 774

Literacy Rate: 77.65%

Male: 86.46%, Female: 65.93%

Infrastructure:

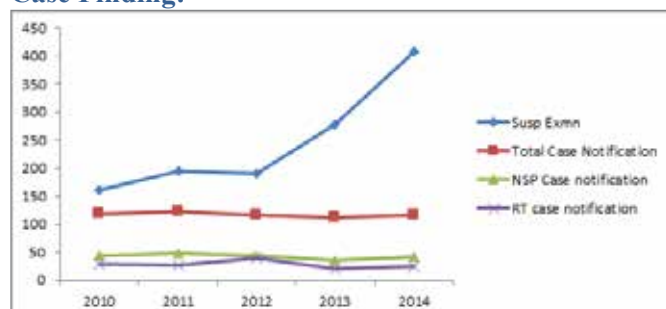
RNTCP reporting district: 01

Tuberculosis Unit:01

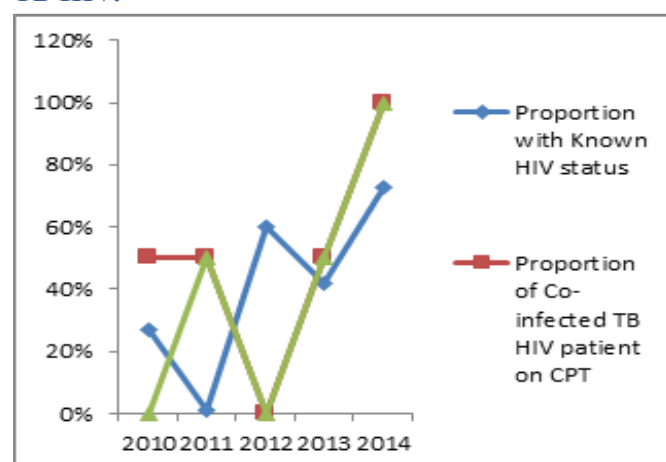
Designated Microscopy Centres: 07

CDST Labs: 0, CBNAAT: 0, DRTB Centre: 0

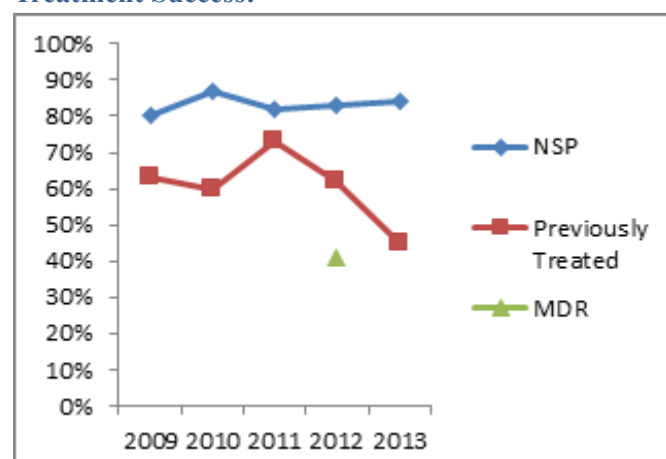
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr LT-IRL	1	1
Sr. PMDT TBHIV Supervisor	1	1
DEO District	1	1
STS	2	2
STLS	1	1

## ACSM:

PP meeting: 38

Community meeting: 62

School activities: 43

Outdoor publicity: 37

# Daman & Diu

Population: 2,43,247

Male: 1,50,301, Female: 92,946

Sex Ratio: 618

Literacy Rate: 87.07%

Male: 91.48%, Female: 79.59%

Infrastructure:

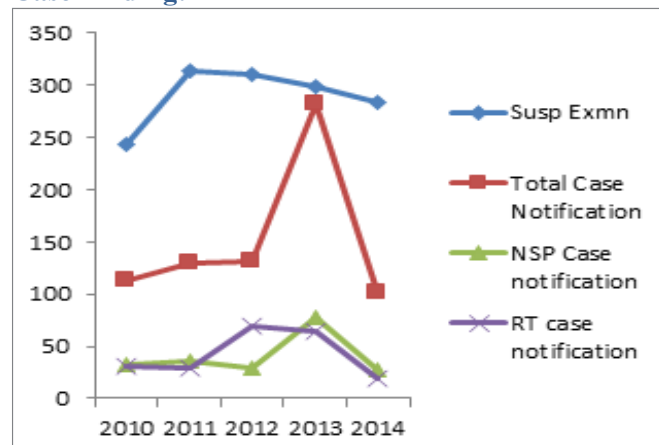
RNTCP reporting districts: 02

Tuberculosis Units:02

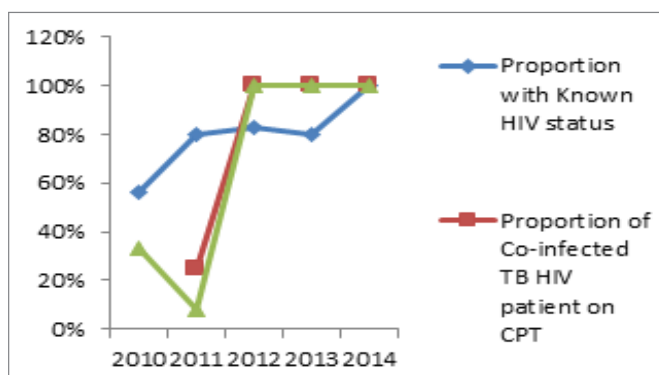
Designated Microscopy Centres: 04

CDST Labs: 0, CBNAAT: 0, DRTB Centre: 0

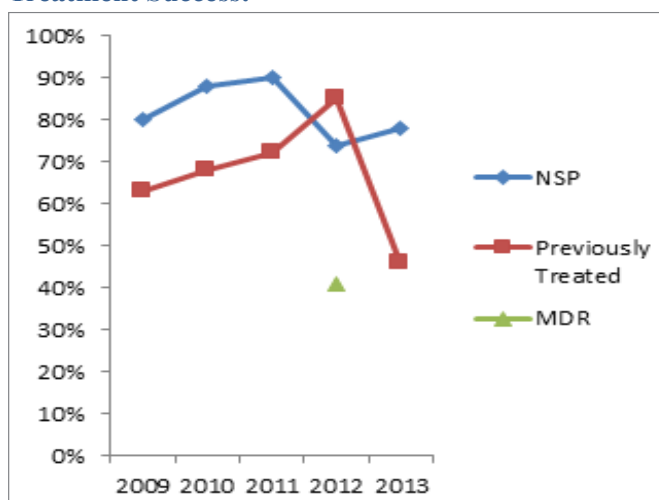
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
Sr. PMDT TBHIV Supervisor	1	0
DEO District	2	2
STS	2	2
STLS	2	1

## Initiatives:

- State is initiating presumptive HIV testing of TB suspects and TB DM screening.
- Active case finding initiated in slum areas.

## Innovations:

- Systematic TB Screening in high risk areas.
- Use of Whatsapp application for diagnosing smear negative TB.
- E-vouchers program in Mehsana for Universal access to TB drugs.

# Delhi

Population: 16,787,941

Male: 8,987,326, Female: 7,800,615

Sex Ratio: 868

Literacy Rate: 86.34%

Male: 91.03%, Female: 80.93%

Infrastructure:

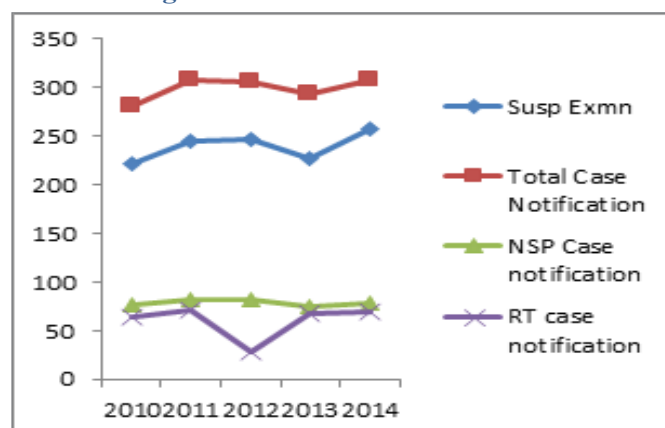
RNTCP reporting districts: 25, Tuberculosis Units: 38

Designated Microscopy Centres: 201

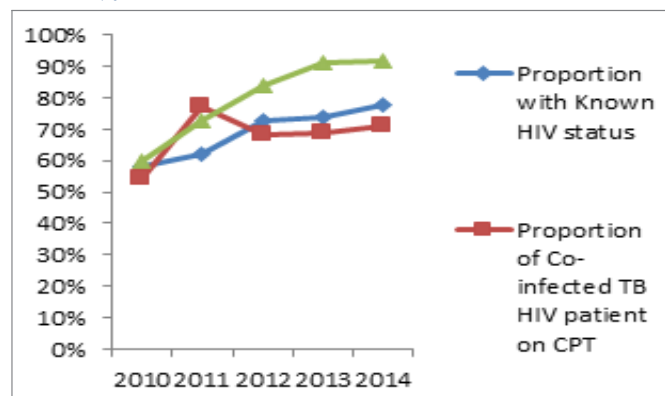
CDST Labs: 03, CBNAAT: 03, LPA: 03

DRTB Centre: 04

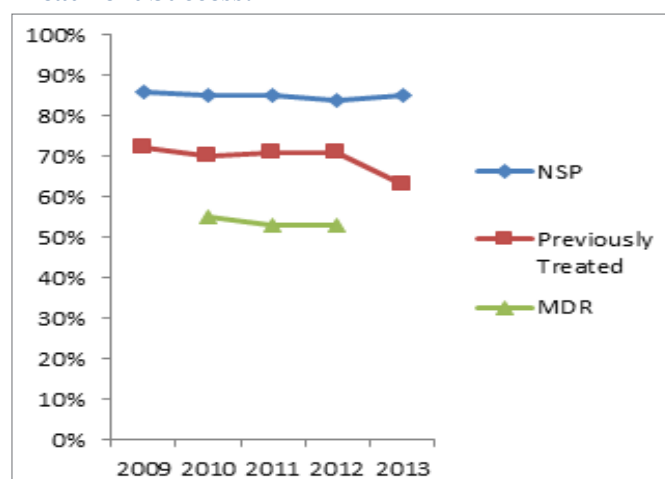
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	0
IEC Officer	1	0
State Accountant	1	0
Sr. PMDT TBHIV Supervisor	25	24
MO DRTB Site	4	4
SA DRTB Site	4	4
DEO District	25	23
STS	89	41
STLS	44	44
TBHV	270	250

## Partnerships:

DMC: 16

Sputum Collection: 25

Sputum Transport: 25

Treatment Adherence: 78

Sensitisations and CME's through DMA

Notifications from Private laboratories through CHAI

Project Axshay in 4 districts for ACSM activities

## Innovations:

Partnership with NGO's for provision of DOT to marginalized groups residing in night shelters, orphans and elderly in welfare homes, pavement dwellers, transgenders.

Social support to MDR-TB patients through NGO interface.

# Goa

Population: 1,458,545

Male: 7,39,140, Female: 7,19,405

Sex Ratio: 973

Literacy Rate: 87.40%

Male: 92.81%, Female: 81.84%

Infrastructure:

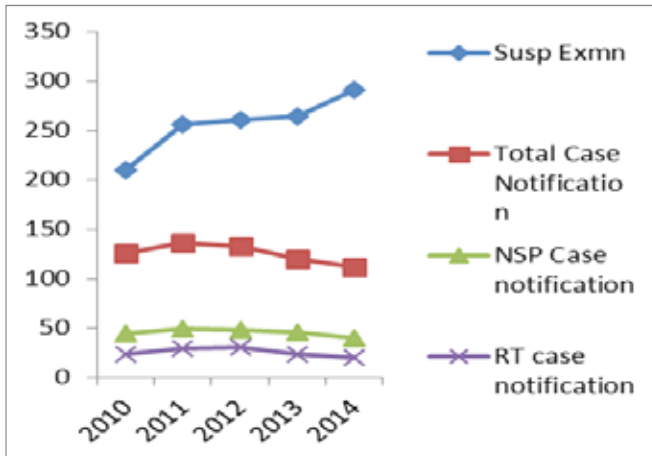
RNTCP reporting districts: 02

Tuberculosis Units: 02

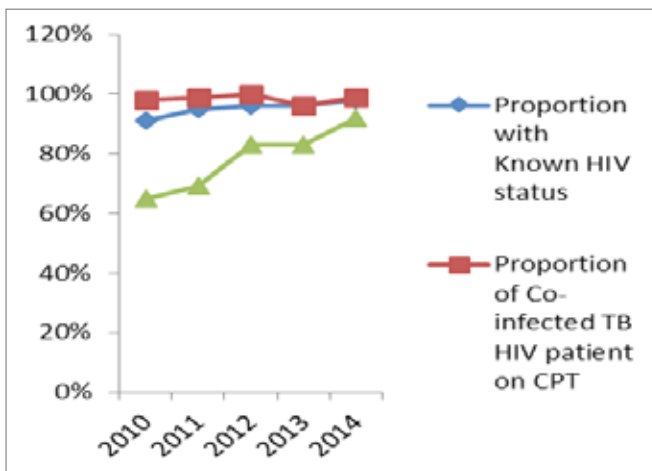
Designated Microscopy Centres: 20

CDST Labs: 01, LCBNAAT: 0, DRTB Centre: 01

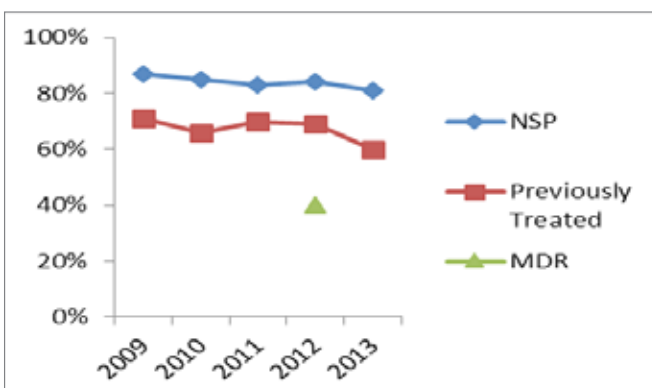
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator		
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	2	2
MO DRTB Site	1	1
SA DRTB Site	1	1
DEO District	2	2
STS	6	4
STLS	4	4
TBHV	4	2

## Partnership:

Urban Slum Scheme: 02

Treatment Adherence Scheme: 53

## ACSM:

School activities: Aailed services of retired teachers. 119/400 schools covered.

Sensitization of Panchayats, through involving Gram Sabha.

Using IMA as a platform for advocacy for TB notification.

Involving Alcoholic Anonymous for spreading awareness.

# Gujarat

Population: 6.03 Crore (4.99% of India's Population)

Male: 31,482,282, Female: 28,901,346

Sex Ratio: 918

Literacy Rate: 79.31%

Male: 87.23%, Female: 70.33%

Infrastructure:

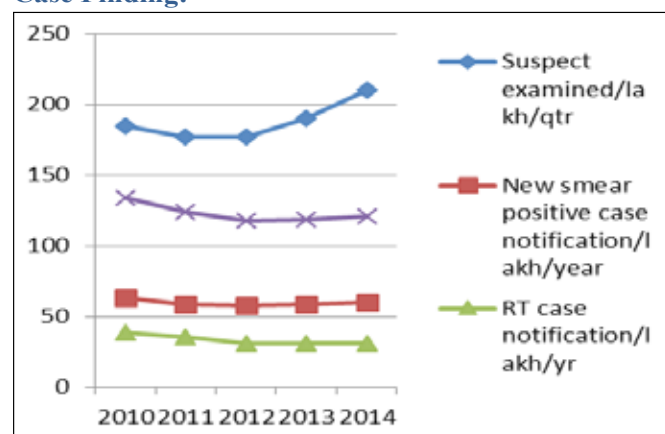
RNTCP reporting districts: 36

Tuberculosis Units: 203

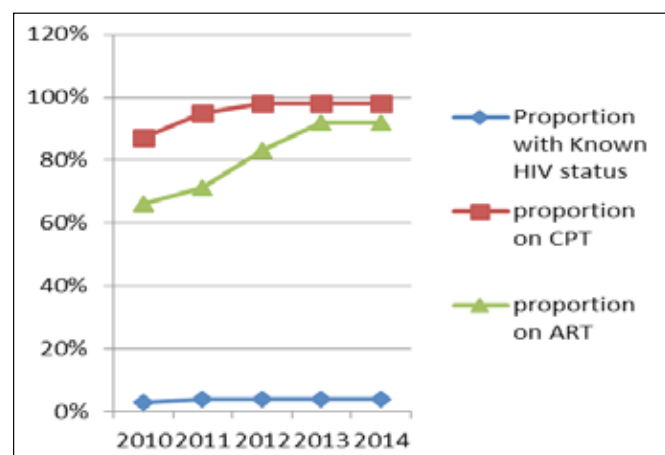
Designated Microscopy Centres: 765

CDST Labs: 02, LPA: 02, CBNAAT: 04, DRTB Centre: 05

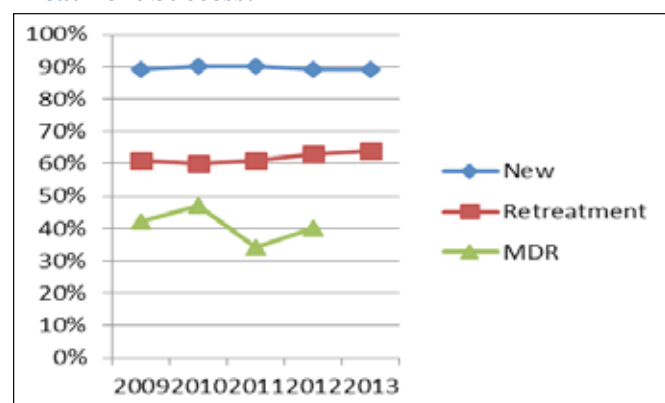
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
MO-STDC	3	3
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr LT-IRL	1	1
Sr. PMDT TBHIV Supervisor	30	29
MO DRTB Site	5	4
SA DRTB Site	5	4
DEO District	30	29
MOTC	203	198
STS	203	202
STLS	144	137
TBHV	218	190

### ACSM:

PP meeting: 4,476

Community meeting: 4,480

School activities: 896

Sensitization of PPs: 336

Outdoor Publicity: 868

### Partnerships:

ACSM: 36

Sputum Collection & Transport: 10

DMC: 30

Urban Slum: 18

TBHIV: 01

CDST: 01

### Innovations:

- Systematic TB screening in high risk areas.
- Use of Whatsapp application for diagnosing smear-negative TB.
- E-vouchers program in Mehsana for Universal access to TB drugs.



# Haryana

Population: 25,351,462

Male: 13,494,734, Female: 11,856,728

Sex Ratio: 879

Literacy Rate: 76.64%

Male: 85.38%, Female: 66.77%

Infrastructure:

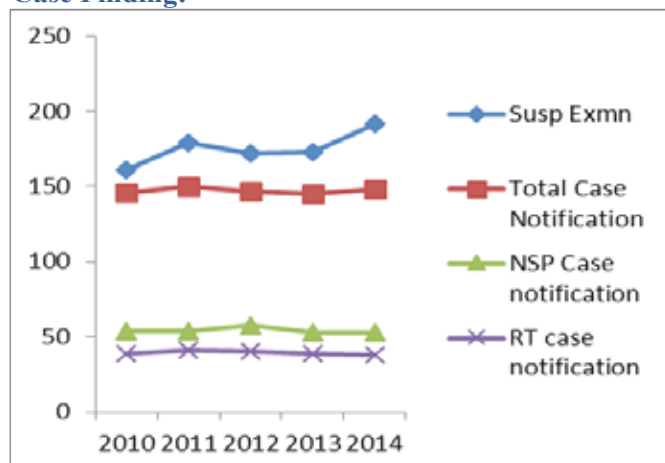
RNTCP reporting districts: 21

Tuberculosis Units: 74

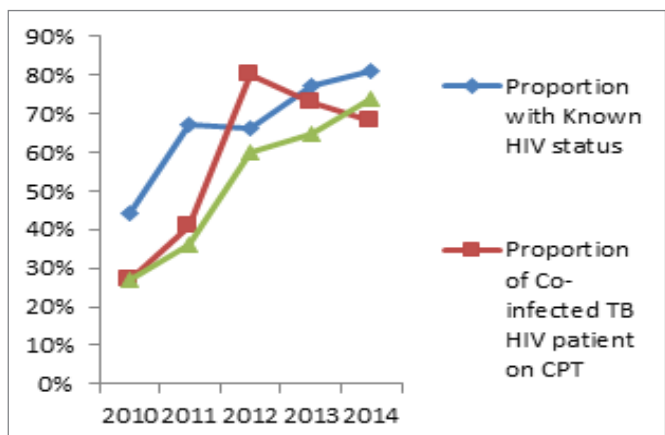
Designated Microscopy Centres: 256

CDST Labs: 01, CBNAAT: 01, LPA:01, DRTB Centre: 02

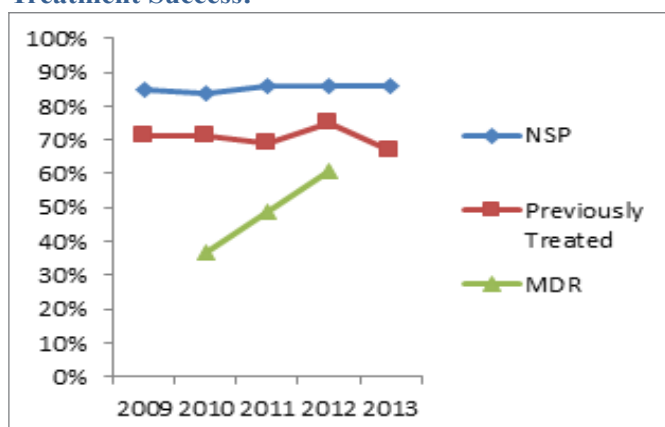
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	21	21
MO DRTB Site	03	0
SA DRTB Site	03	1
STS	74	71
STLS	54	50

## ACSM:

PP meeting: 348

Community meeting: 540

School activities: 148

Sensitisation of PPs: 115

Outdoor publicity: 48

## Initiatives:

- Intensified case finding in slums launched in 5 districts.
- Coordination with Dept. of NCD to manage diabetes in TB patients in 4 districts.
- Nutritional support for enabling adherence in TB patients is being advocated.

# Himachal Pradesh

Population: 68,64,602

Male: 34,81,873, Female: 33,82,729

Sex Ratio: 972

Literacy Rate: 83.78%

Male: 90.83%, Female: 76.60%

Infrastructure:

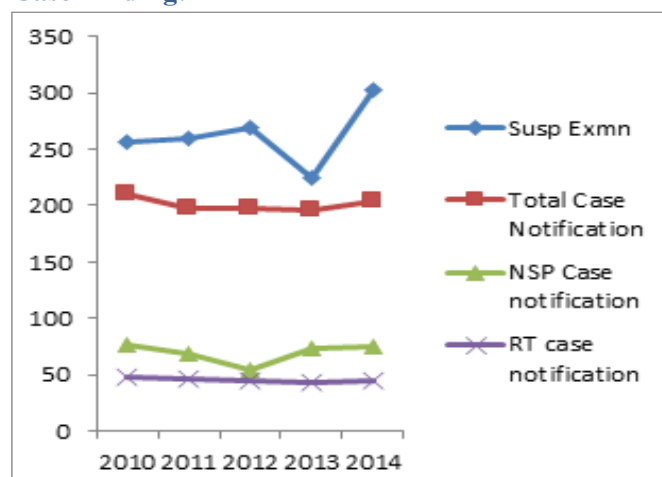
RNTCP reporting districts: 12

Tuberculosis Units: 49

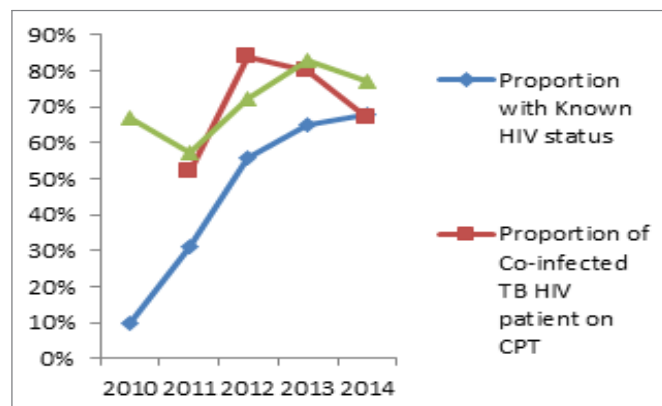
Designated Microscopy Centres: 195, CDST Labs: 02

CBNAAT: 01, LPA: 01, DRTB Centre: 02

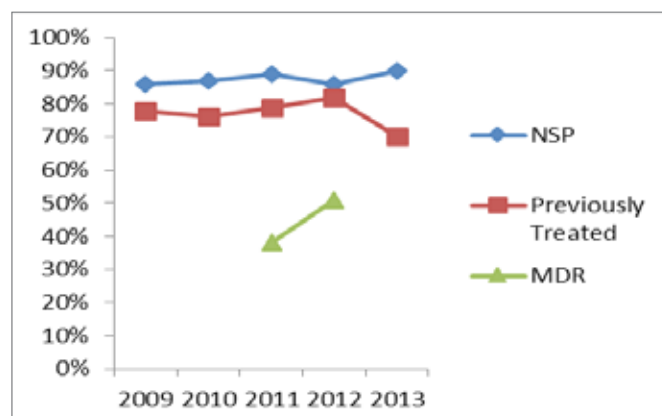
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	0
IEC Officer	1	0
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	12	11
MO DRTB Site	2	1
SA DRTB Site	2	0
DEO District	12	10
STS	72	49
STLS	46	46

## Partnership & ACSM:

NGO involvement; 02 ACSM, 01 DMC B scheme, 01 in adherence.

PP involvement: 44 in ACSM, 17 in DMC B and 01 in adherence.

Cement Factory in Barmana (Bilaspur) is providing TB care through RNTCP and also does ACSM activities in its catchment areas.

Focused ACSM activities in the Industrial slums of Solan and Sirmaur.

# Jammu & Kashmir

Population: 12,541,302

Male: 66,40,662

Female: 59,00,640

Sex Ratio: 889

Literacy Rate: 86.61%

Male: 87.26%, Female: 85.23%

Infrastructure:

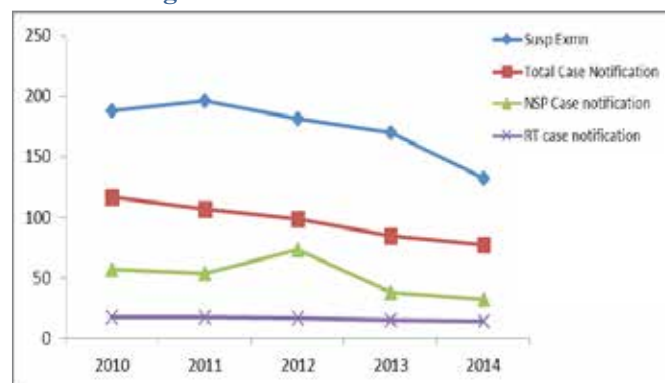
RNTCP reporting districts: 14

Tuberculosis Units: 42

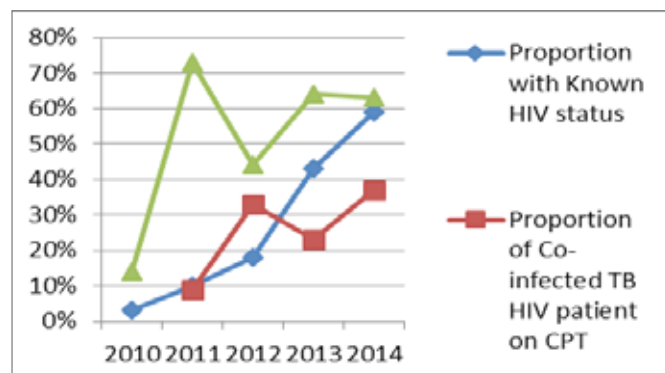
Designated Microscopy Centres: 174

CDST Labs: 02, CBNAAT: 04, LPA: 01, DRTB Centre: 03

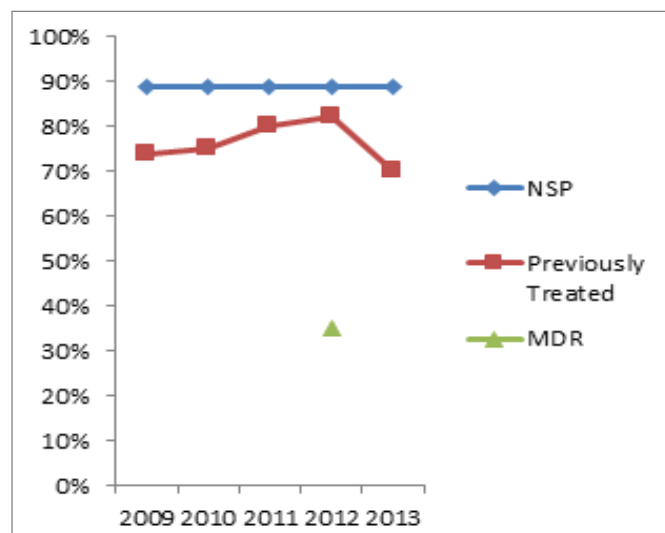
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	0
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	2	2
Sr LT-IRL	1	1
MO DRTB Site	03	02
SA DRTB Site	03	01
DEO District	14	14
STS	42	38
STLS	42	41

## ACSM & Partnerships:

School activities: 29

Sensitization of PRIs and NGOs: 14

Community meetings: 38

# Jharkhand

Population: 32,988,134

Male: 16,930,315, Female: 16,057,819

Sex Ratio: 948

Literacy Rate: 67.63%

Male: 78.45%, Female: 56.21%

Internet/Mobile penetration:

Infrastructure:

RNTCP reporting districts: 24

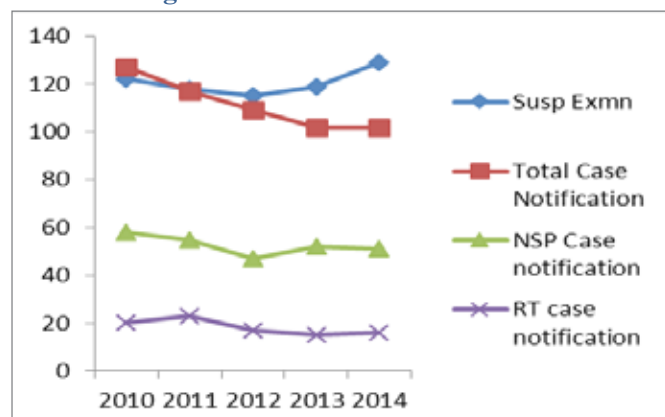
Tuberculosis Units: 81

Designated Microscopy Centres: 313

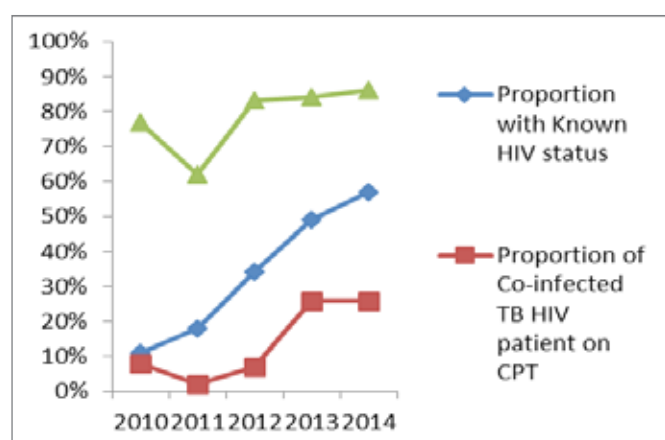
CDST Labs: 01, CBNAAT: 02, LPA: 01

DRTB Centre: 03

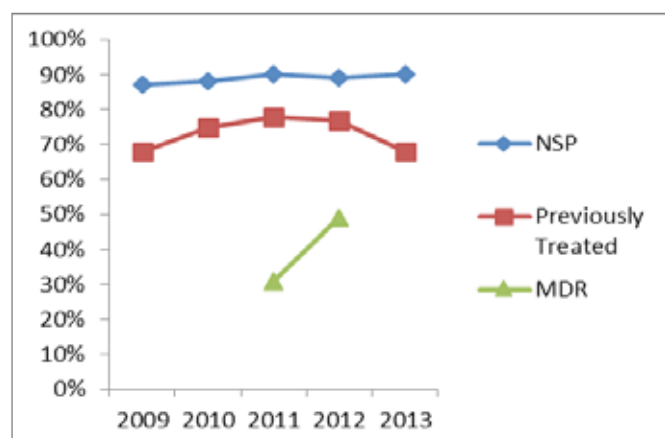
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	24	21
MO DRTB Site	3	0
SA DRTB Site	3	1
DEO District	24	21
STS	81	66
STLS	81	66

## Partnership:

8 corporate and 24 PSU hospitals involved as DOT centers, for presumptive TB referral and as DMC.

## ACSM:

ACSM activities by involving the corporates and PSUs like Tata Steel Rural Development Society, HINDALCO, Jindal Steel & Power, Birla Gold Cement and ACC.

## Nutritional Support to TB patients:

In collaboration with Social Welfare Department, support for nutrition to BPL patients in the districts of Palamu, Garhwa, Latehar & Giridig.

In 7 districts 10 NGO hospitals are providing nutritional support to ~2,000 patients annually.

# Karnataka

Population: 61,095,297

Male: 30,966,657, Female: 30,128,640

Sex Ratio: 973

Literacy Rate: 75.60%

Male: 82.85%, Female: 68.13%

Infrastructure:

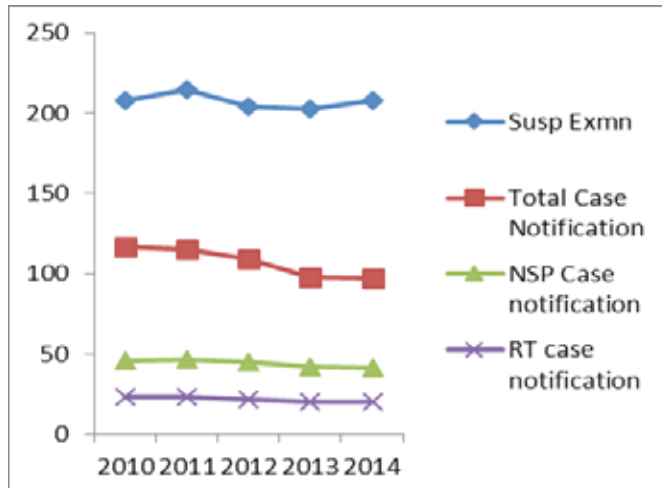
RNTCP reporting districts: 31

Tuberculosis Units: 149

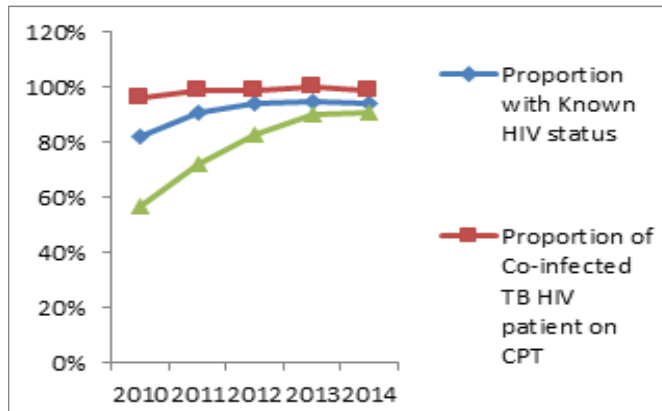
Designated Microscopy Centres: 678

CDST Labs: 02, LPA: 02, CBNAAT: 04, DRTB Centre: 06

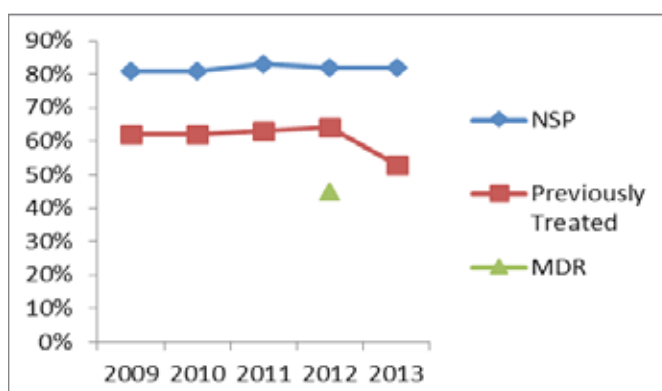
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	0
IEC Officer	1	0
State Accountant	1	1
Sr. PMDT TBHIV Supervisor	31	31
MO DRTB Site	6	4
SA DRTB Site	6	5
DEO District	31	31
STS	153	145
STLS	133	129
TBHV	256	228

## Partnerships:

ACSM: 07	
Sputum collection: 03	Adherence: 01
Sputum collection & transport: 03	Urban Slum: 03
DMC: 18	TBHIV: 05
LT scheme: 03	TU scheme: 01

## Innovations & Initiatives:

SHOPS TB (PIIA Model) in 12 Dist, 42 towns, 672 slums.

- 4,500 providers mapped & 875 networked.
- A third of the patients benefitted from sputum collection & transport.
- ~8000 TB patients notified through SHOPS.
- DOTS Mitra, telephone based careline.

# Kerala

Population: 33,406,061

Male: 16,027,412, Female: 17,378,649

Sex Ratio: 1,084

Literacy Rate: 93.91%

Male: 96.02%, Female: 91.98%

Infrastructure:

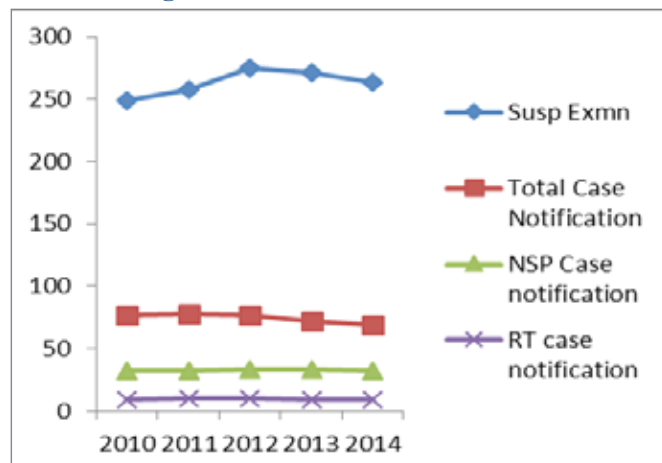
RNTCP reporting districts: 14

Tuberculosis Units: 73

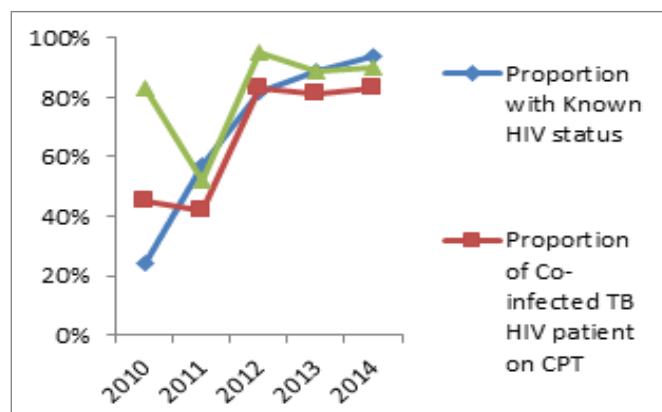
Designated Microscopy Centres: 511

CDST Labs: 01, DRTB Centre: 02

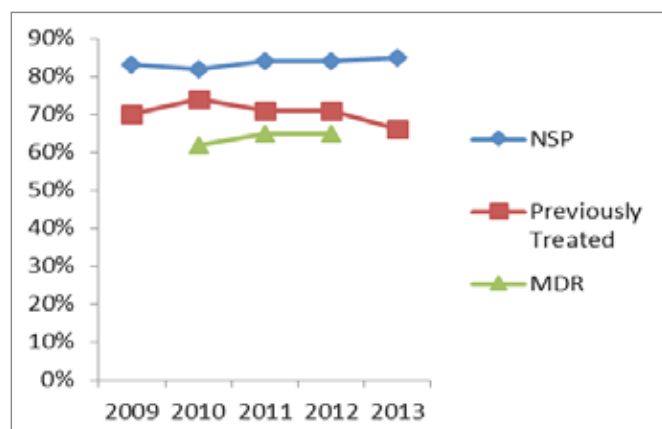
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr LT-IRL	1	1
Sr. PMDT TBHIV Supervisor	14	14
MO DRTB Site	2	2
SA DRTB Site	2	2
DEO District	14	14
STS	73	73
STLS	73	73

## ACSM:

Sensitization meetings with NGO/PRI: 416

Community meetings: 4,467

## Innovations & Initiatives:

Forming treatment support groups:

- DOT triad: Patient, DOT provider, MPW
- PRI members, ASHA, NGO, religious leaders and counselors are members
- Group provides counseling, nutritional support and retrieval of interrupters.

Treatment support for DR TB patients:

- Patient linked to nutritional support through local self-government in 8/14 districts
- Each patient receives ₹ 1,000/- p.m. from revenue department
- BPL patient gets ₹ 1,000/- p.a. from state TB Association.

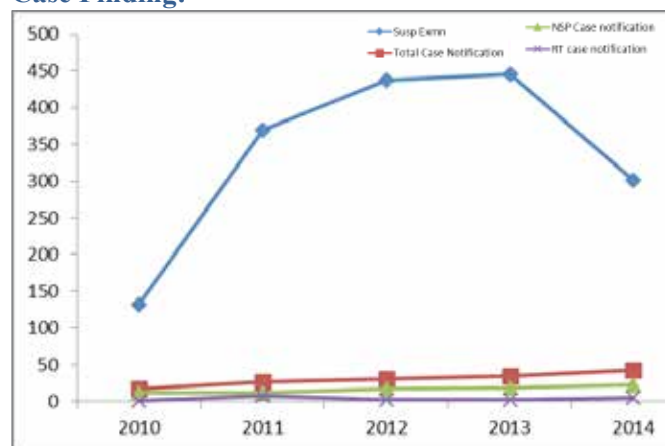
All Diabetic TB patient get insulin from the TB Association.

# Lakshadweep

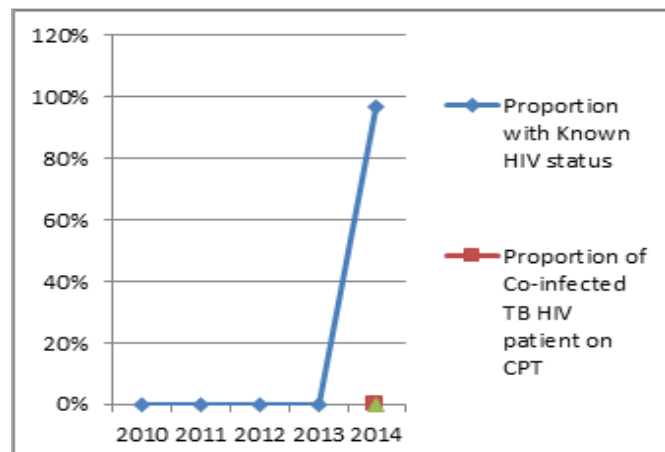
Population: 64,473  
 Male: 33,123, Female: 31,350  
 Sex Ratio: 946  
 Literacy Rate: 92.28%  
 Male: 96.11%, Female: 88.25%

Infrastructure:  
 RNTCP reporting district: 1  
 Tuberculosis Unit: 1  
 Designated Microscopy Centres: 9  
 CDST Labs: 0, CBNAAT: 0, DRTB Centre: 0

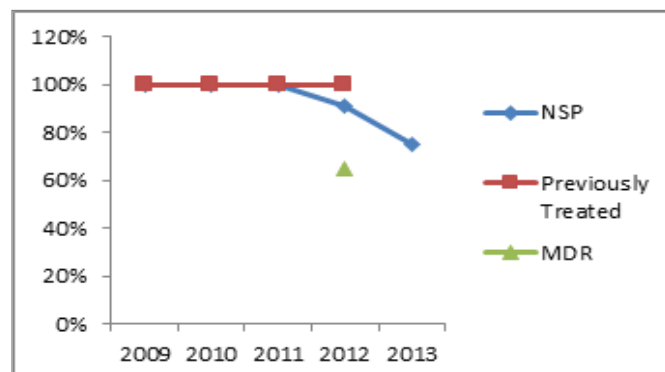
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
STO	1	1
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO	1	1
STS	1	1
STLS	1	1

## Facts:

- There are no loss to follow ups.
- Treatment success rate is 100%.
- Low number of cases and captive population makes it convenient to observe treatment.

# Maharashtra

Population: 121,455,333

Male: 58,243,056, Female: 54,131,277

Sex Ratio: 929

Literacy Rate: 83.2%

Male: 89.82%, Female: 75.48%

Infrastructure:

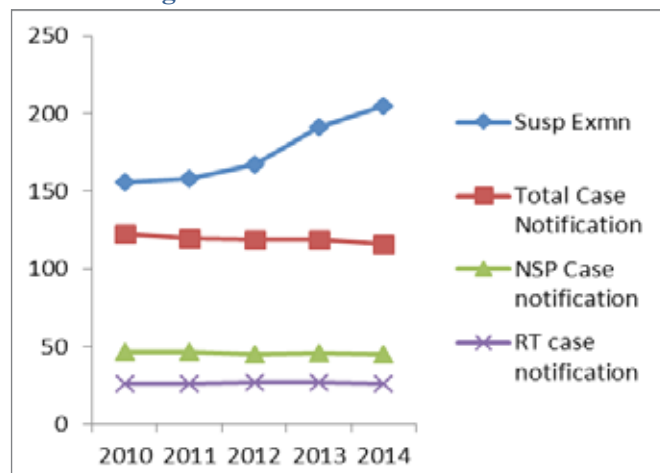
RNTCP reporting districts: 79

Tuberculosis Units: 416

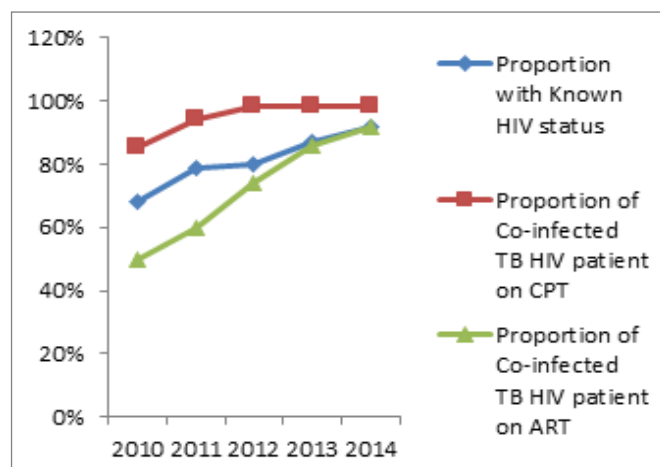
Designated Microscopy Centres: 1,459

CDST Labs: 08, LPA: 05, CBNAAT: 13, DRTB Centre: 16

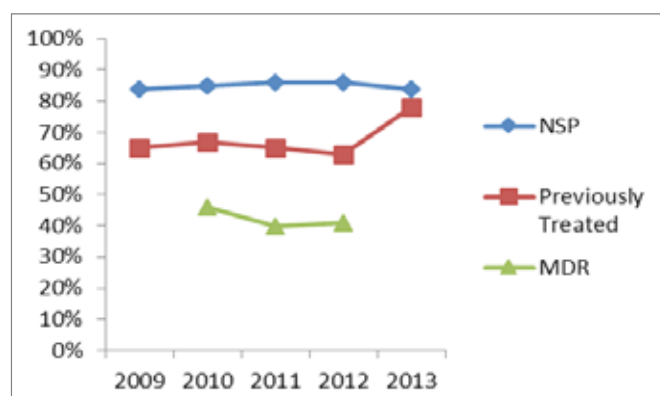
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	2	2
Sr. PMDT TBHIV Supervisor	84	82
MO DRTB Site	16	16
SA DRTB Site	16	12
DEO District	79	79
STS	417	401
STLS	318	313
TBHV	512	474

## Initiatives:

Intensive case finding initiatives:

- Mission mode TB Control in Mumbai Corporation
- Systematic screening of chest symptomatics in the Corporations of Nashik, Mira Bhayender and Nandurbar
- Active case finding in the slums of Akola MC.

Strengthening Urban TB Control:

- State procuring 30 fluorescent microscopes
- Nutritional supplement to DRTB patients.

Use of telemedicine to read X-rays of smear-negative presumptive TB in Nandurbar and Sindhudurg.

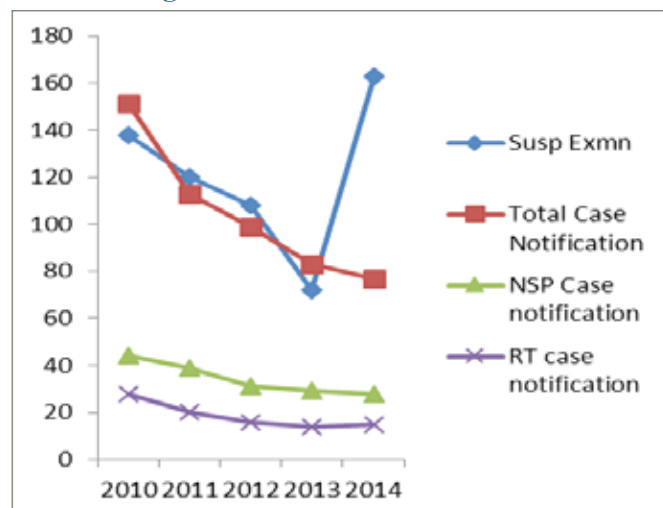


# Manipur

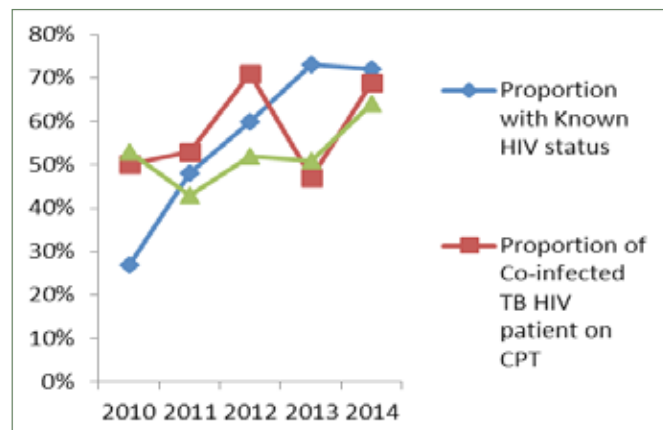
Population: 2,721,756  
 Male: 1,290,171, Female: 1280219  
 Sex Ratio: 992  
 Literacy Rate: 79.85%  
 Male: 86.49%, Female: 73.17%

Infrastructure:  
 RNTCP reporting districts: 9  
 Tuberculosis Units: 13  
 Designated Microscopy Centres: 55  
 CDST Labs: 01, CBNAAT: 01, DRTB Centre: 02

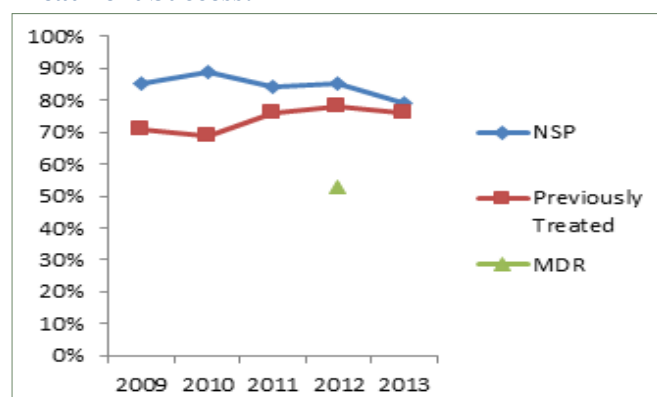
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
MO DRTB Site	2	2
SA DRTB Site	2	2
DEO District	9	9
STS	13	12
STLS	13	13

## ACSM & Partnerships:

520 Teachers and 344 schools in the valley districts have been sensitised on Tuberculosis in a systematic manner. 18 NGOs are working under various schemes. IMA, CBCI and Project Axshay are supporting in spreading awareness on notification of TB. MSF is supporting for DRTB patients in Churachandpur.

## Innovation:

Electricity supply is erratic in most parts of the state. An innovative source of light for BM by using chargeable/portable. LED at the cost of ₹ 400 has been introduced by an STLS.

## Innovations:

- Systematic TB Screening in high risk areas.
- Use of Whatsapp application for diagnosing smear negative TB.
- E-vouchers program in Mehsana for Universal access to TB drugs.

## Partnerships:

ACSM: 36	Urban Slum: 18
Sputum Collection & Transport: 10	TBHIV: 01
DMC: 30	CDST: 01

# Meghalaya

Population: 2,966,889

Male: 1,491,832, Female: 1,475,057

Sex Ratio: 989, Literacy Rate: 75.48%

Male: 77.17%, Female: 73.78%

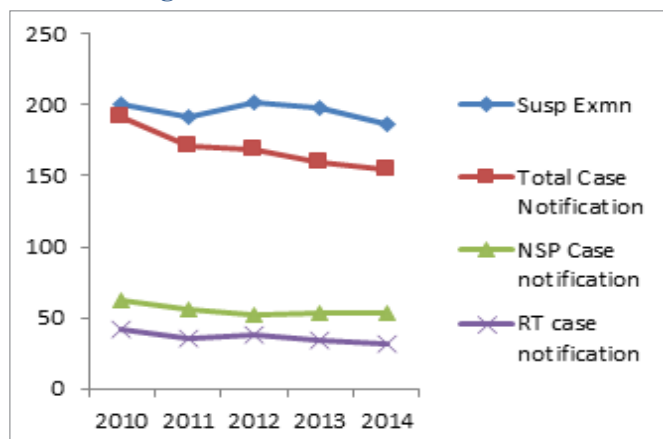
Infrastructure:

RNTCP reporting districts: 11

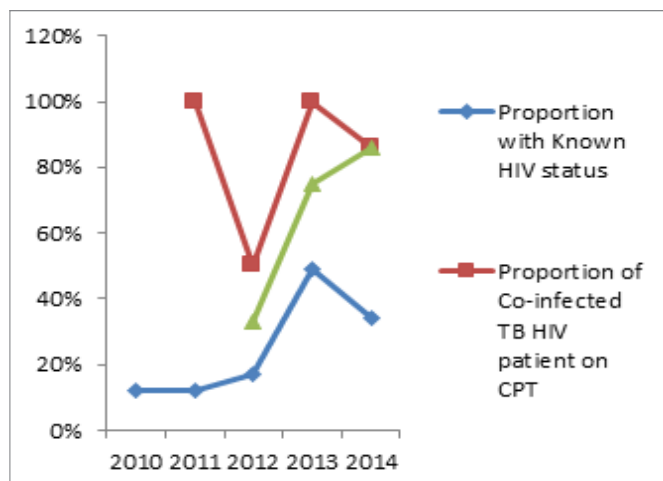
Tuberculosis Units: 13, Designated Microscopy Centres: 64

CDST Labs: 01, LPA: 01, DRTB Centre: 02

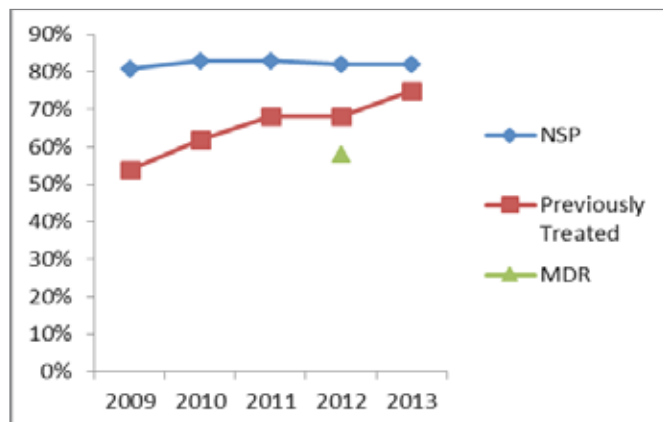
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	11	11
MO DRTB Site	2	2
SA DRTB Site	2	2
DEO District	11	11
STS	13	13
STLS	13	13

## ACSM and Partnerships:

Intensified ACSM activities in the coal mines of Jaintia hills about TB and HIV.

Improving the accessibility to diagnostic services by providing sputum collection and transport by CMAI.

Sputum Collection & Transport scheme: 05

Adherence scheme: 04

DMC scheme: 01

ACSM scheme: 01

TBHIV scheme: 01

CDST scheme: 01 (Nazareth Hospital)

# Mizoram

Population: 1,097,206

Male: 5,55,339, Female: 5,41,867

Sex Ratio: 976, Literacy Rate: 91.58%

Male: 93.72%, Female: 89.40%

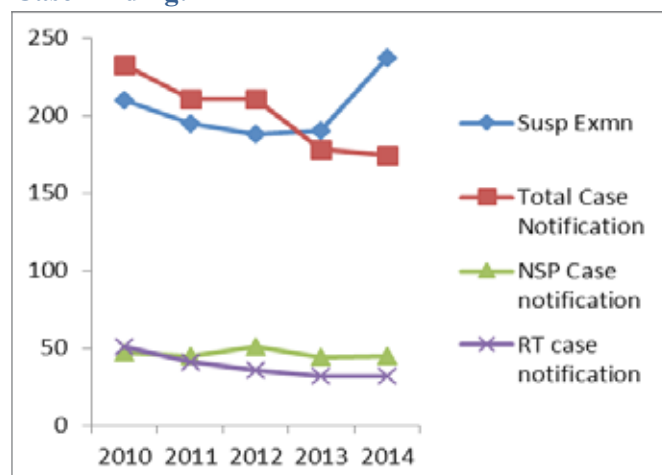
Infrastructure:

RNTCP reporting districts: 8

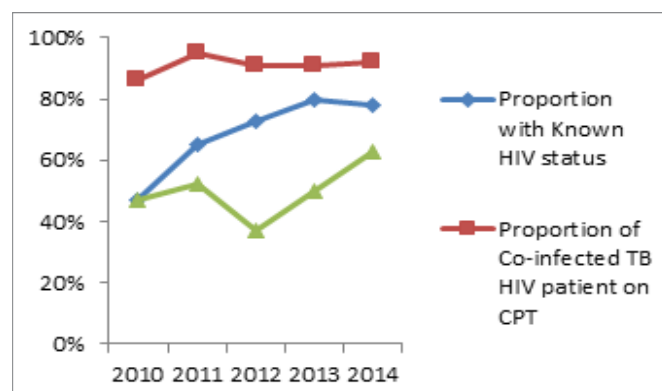
Tuberculosis Units: 12, Designated Microscopy Centres: 34

CBNAAT: 01, DRTB Centre: 01

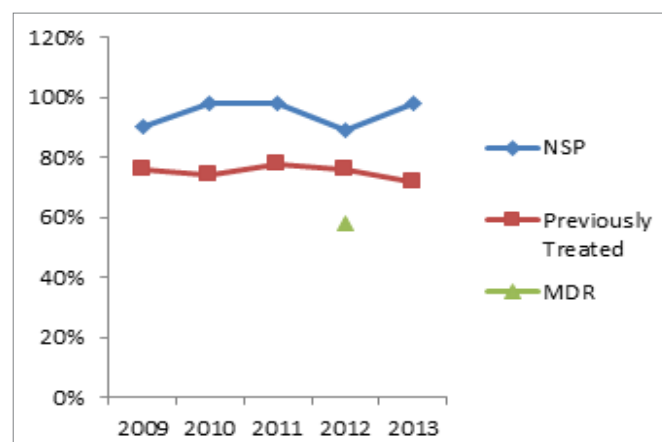
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	8	5
MO DRTB Site	1	1
SA DRTB Site	1	1
DEO District	12	12
STS	12	12
STLS	12	12

## Partnerships:

Sputum collection & Transport: 03  
DMC scheme: 03

## Innovations/Interventions:

- Sputum collection from far & difficult to reach villages after symptomatic screening.
- Doorstep sputum sample collection from presumptive DRTB patients who cannot reach the collection/microscopy centres.
- West Mizoram is inhabited by the Chakma and Bru tribes. Regular awareness is done through public address systems.

# Madhya Pradesh

Population: 72,626,809

Male: 37,612,306, Female: 35,014,503

Sex Ratio: 931

Literacy Rate: 70.63%

Male: 80.53%, Female: 60.02%

Infrastructure:

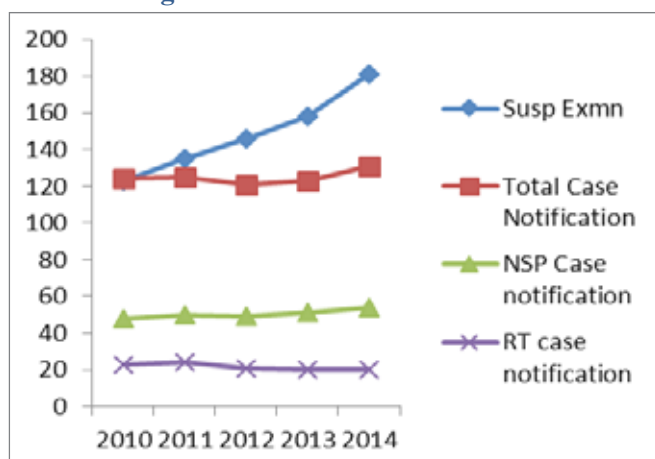
RNTCP reporting districts: 50

Tuberculosis Units: 176

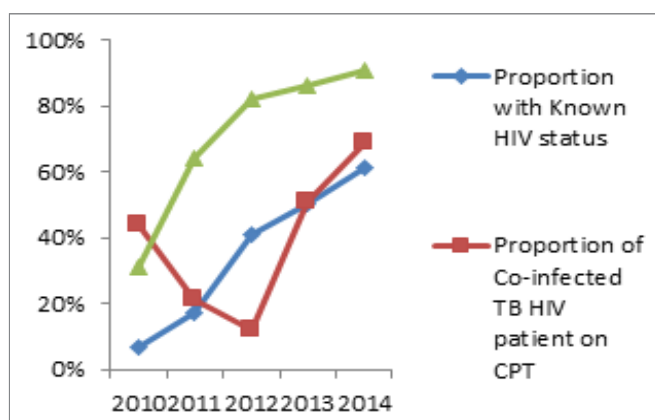
Designated Microscopy Centres: 784

LPA: 02, CBNAAT: 06, DRTB Centre: 07

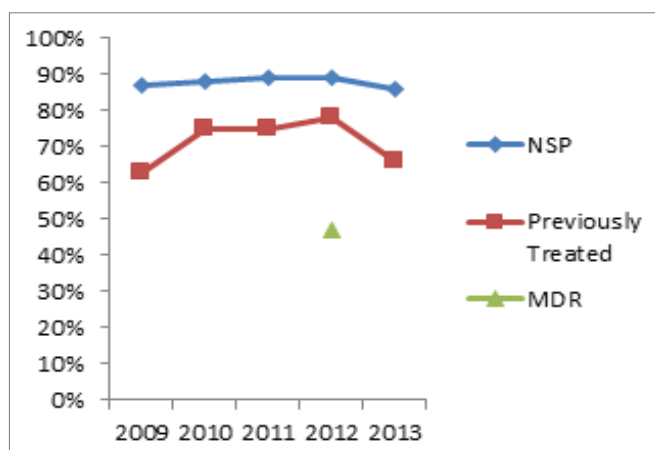
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	0
State Accountant	2	2
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	50	43
MO DRTB Site	7	7
SA DRTB Site	7	7
STS	176	139
STLS	176	141

## Partnerships:

Project Axshay providing sputum collection & transport.

CBCI: Involved in sputum collection & transport in two places and is running 04 Designated Microscopy Centers and also conducting school-based activities.

## Initiatives:

Intervention among Saharia tribe in 4 districts.

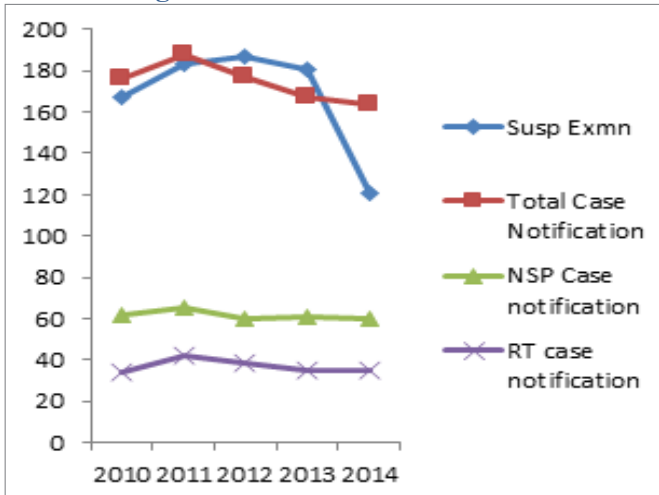
- Identification of community stake holders
- Intensified awareness campaign
- Sputum collection & transport
- Cluster based TB patient sensitization
- Linkage of patients and their family to social welfare schemes.

# Nagaland

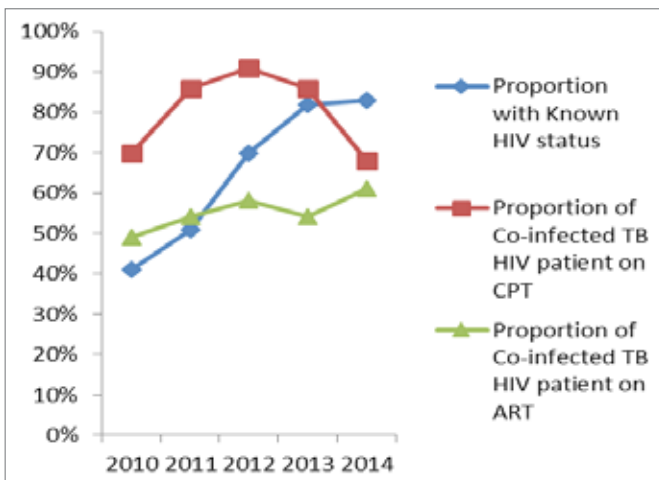
Population: 1,978,502  
 Male: 10,24,649, Female: 9,53,853  
 Sex Ratio: 931  
 Literacy Rate: 80.11%  
 Male: 83.29%, Female: 76.69%

Infrastructure:  
 RNTCP reporting districts: 11  
 Tuberculosis Units: 13  
 Designated Microscopy Centres: 44  
 CBNAAT: 01, DRTB Centre: 02

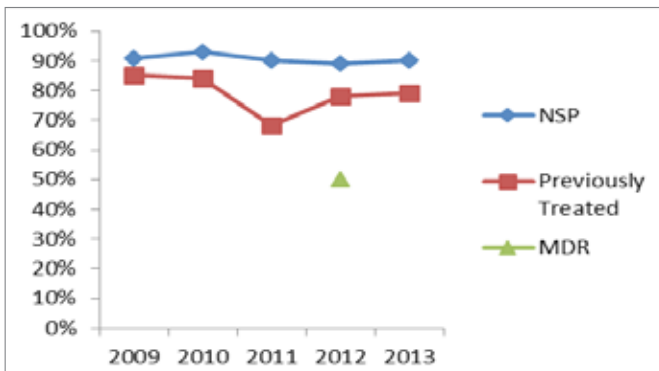
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
Sr. PMDT TBHIV Supervisor	11	11
MO DRTB Site	2	2
SA DRTB Site	2	2
DEO District	11	10
STS	13	13
STLS	13	13
TBHV	2	2

## ACSM:

Community Meeting: 59  
 School activities: 15  
 Sensitization of PPs and NGOs: 48

## Partnerships:

The program has collaborated with Assam Rifles, India Reserve Battalion, Nagaland Armed Police stationed at different locations for referral of presumptive TB and also supporting as DOT centers.

# Odisha

Population: 41,974,218

Male: 21,212,136, Female: 20,762,082

Sex Ratio: 979, Literacy Rate: 72.9%

Male: 82.4%, Female: 64.36%

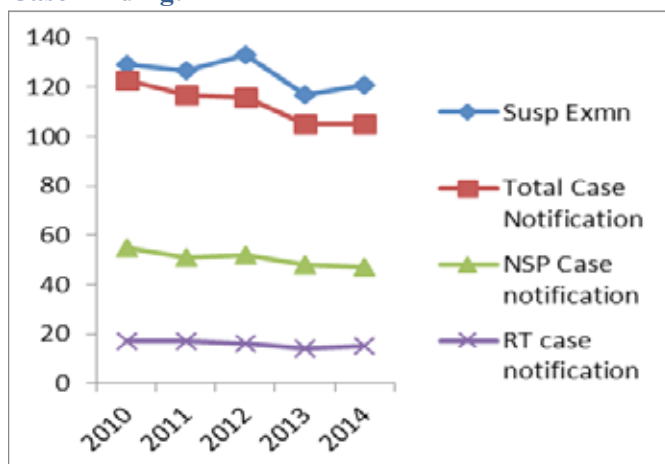
Infrastructure:

RNTCP reporting districts: 31, Tuberculosis Units: 159

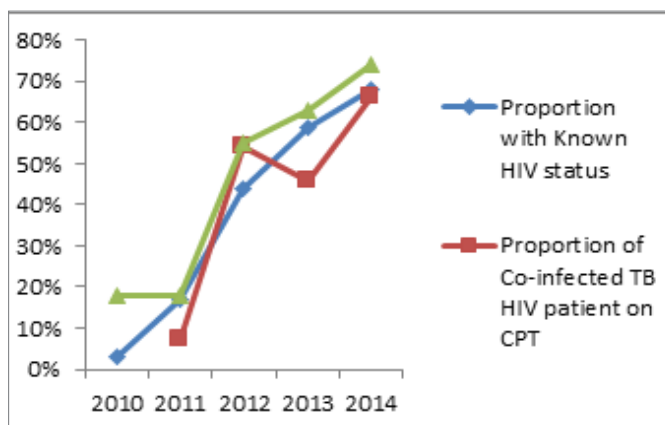
Designated Microscopy Centres: 549

CDST Labs: 02, LPA: 02, CBNAAT: 01, DRTB Centre: 03

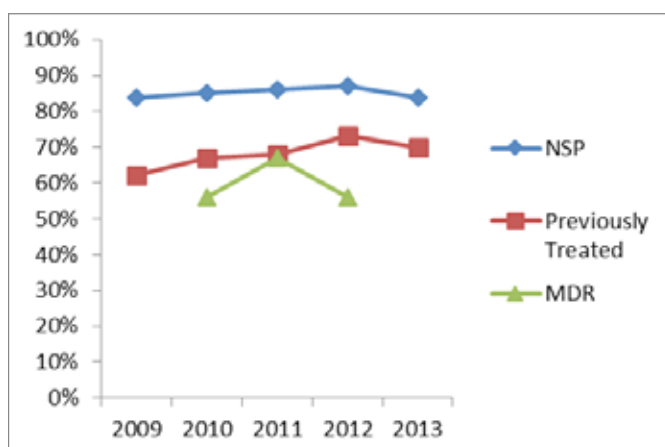
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	0
State Accountant	1	1
DEO (IRL)	1	1
Sr LT-IRL	1	1
Sr. PMDT TBHIV Supervisor	31	27
MO DRTB Site	3	3
SA DRTB Site	3	3
DEO District	31	26
MOTC	203	198
STS	159	115
STLS	109	81
TBHV	66	47

## Partnerships:

LT scheme: 09	Sputum transport: 14
Slum scheme: 02	Sputum collection: 06
DMC scheme: 07	ACSM: 07

## Initiatives:

Intensified case finding activity in 10 coastal districts.

Performance appraisal tool developed and implemented by the state for all categories of contractual staff.

Intensified case finding through Gene Xpert has been functional at Capital Hospital TU, and Sukinda TU in collaboration with AIPH Bhubaneswar through "TB Reach".

# Puducherry

Population: 12,47,953

Male: 6,12,511, Female: 6,35,442

Sex Ratio: 1,037, Literacy Rate: 86.55%

Male: 92.12%, Female: 81.22%

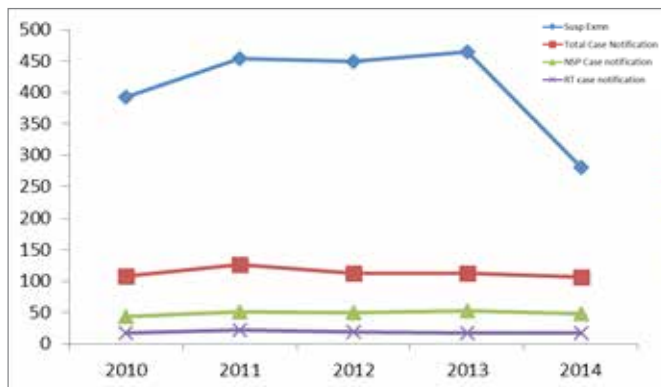
Infrastructure:

RNTCP reporting districts: 1

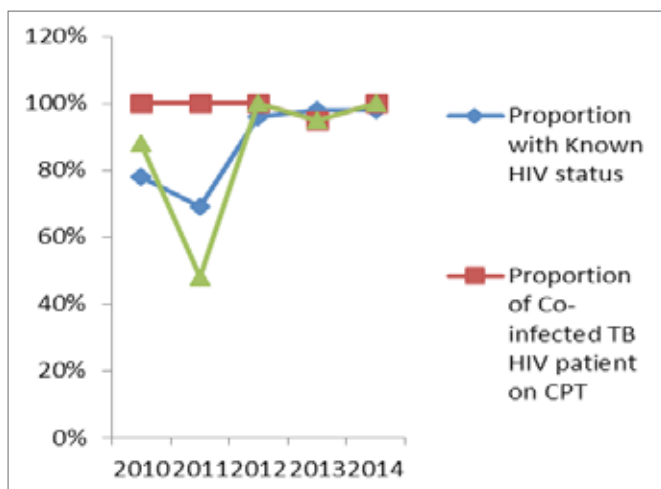
Tuberculosis Units: 5, Designated Microscopy Centres: 27

CDST Labs: 01, LPA: 01, DRTB Centre: 01

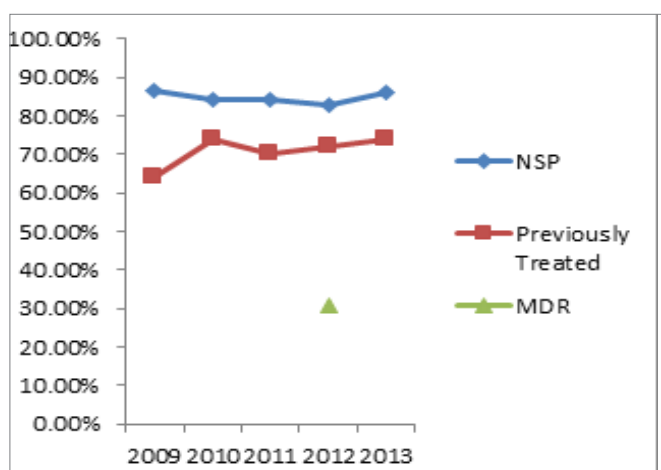
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	1	1
MO DRTB Site	1	0
SA DRTB Site	1	1
DEO District	30	29
MOTC	203	198
STS	7	6
STLS	5	5
TBHV	19	17

## Partnerships:

Adherence: 03

Sputum collection and transport: 01

Medical Colleges supporting RNTCP: 09

# Punjab

Population: 27,743,338

Male: 14,639,465, Female: 13,103,873

Sex Ratio: 895, Literacy Rate: 76.6%

Male: 81.48%, Female: 71.34%

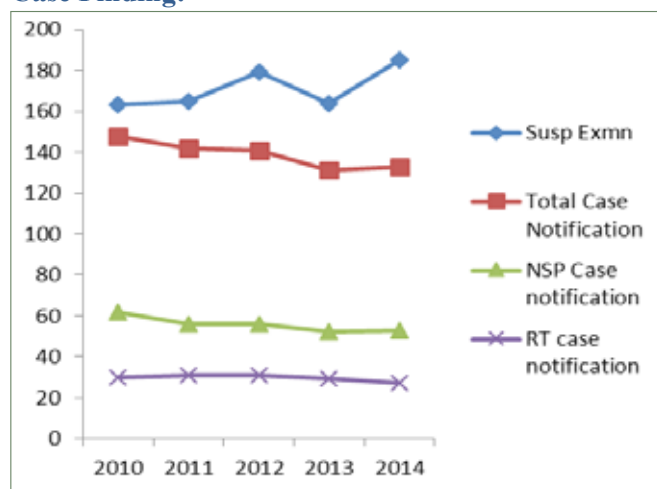
Infrastructure:

RNTCP reporting districts: 22

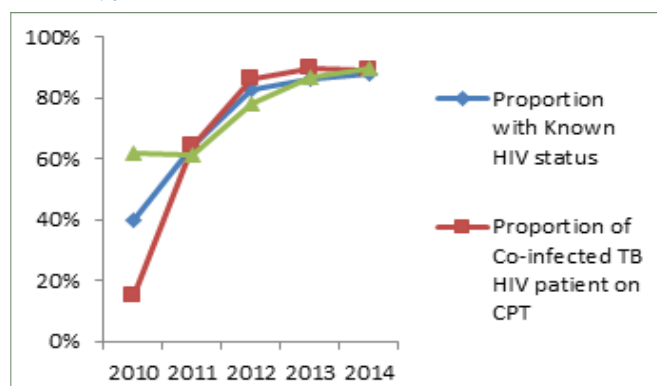
Tuberculosis Units: 134, Designated Microscopy Centres: 283

CDST Labs: 01, LPA: 01, CBNAAT: 03, DRTB Centre: 03

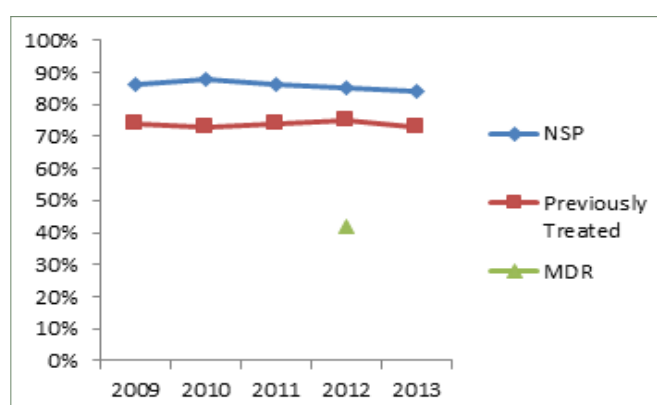
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr LT-IRL	1	1
Sr. PMDT TBHIV Supervisor	22	18
MO DRTB Site	3	1
SA DRTB Site	3	2
DEO District	22	17
MOTC	203	198
STS	134	54
STLS	59	42
TBHV	97	65

## Advocacy:

- With Dept. of Rural Development and Panchayat for sensitization of all MOs in Rural dispensaries.
- Punjab Medical Council for TB notification.
- With Education Dept. for ACSM activities in school.

## Innovations/Initiative:

- 59 sputum collection & transport centers made functional with the help of NGOs and community volunteers.
- 24 Mobile Medical Units being used for sputum collection.



# Rajasthan

Population: 68,548,437

Male: 35,550,997, Female: 32,997,440

Sex Ratio: 928

Literacy Rate: 67.06%

Male: 80.51%, Female: 52.66%

Infrastructure:

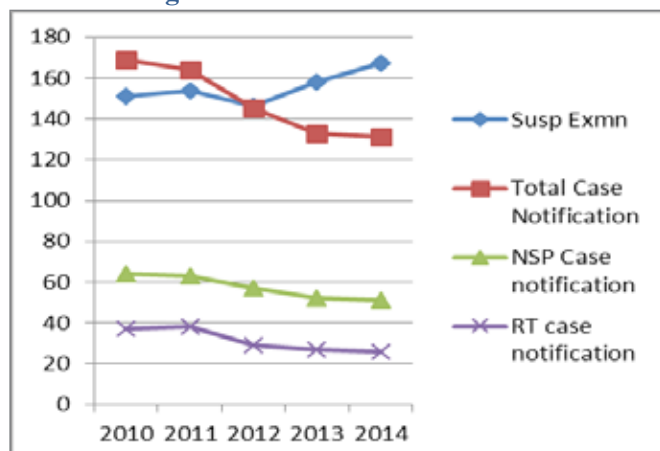
RNTCP reporting districts: 34

Tuberculosis Units: 186

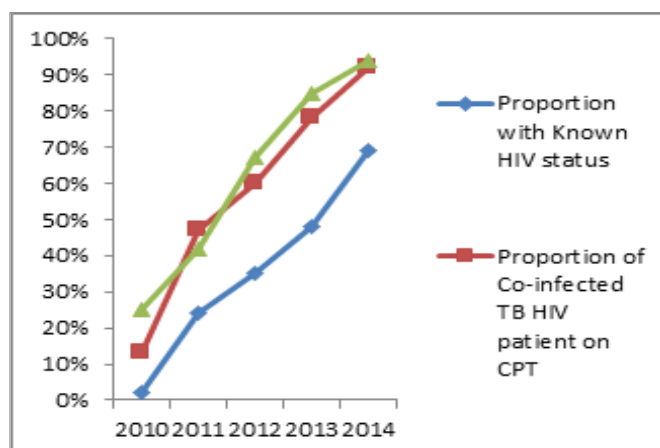
Designated Microscopy Centres: 847

CDST Labs: 03, LPA: 03, CBNAAT: 03, DRTB Centre: 07

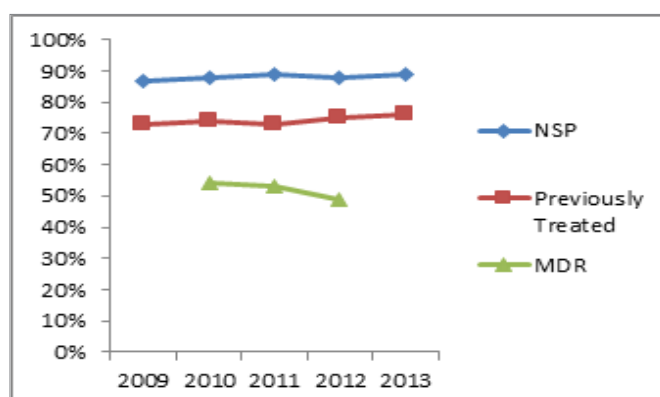
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	1
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	2	1
DEO (IRL)	1	1
MO DRTB Site	7	5
SA DRTB Site	7	5
DEO District	30	29
MOTC	203	198
STS	186	159
STLS	152	142

## Partnerships:

- 15,002 notifications from IMA.
- PSI, MAMTA and VHAI supporting the program with referral of presumptive TB, sputum collection and transport and with awareness generation in the community.

## Initiatives:

- RNTCP has engaged with Rajasthan Medical Services Corporation and has anti-TB drugs in its EDL.
- All the peripheral health institutions have sputum examination centre thus making services accessible.
- All patients undergoing chest X-ray also subjected to sputum smear microscopy except medico-legal and injury case.
- Online payment of honorarium for ASHA through Online portal.

## Innovations:

- Systematic TB Screening in high risk areas.
- Use of Whatsapp application for diagnosing smear-negative TB.
- E-vouchers program in Mehsana for Universal access to TB drugs.

# Sikkim

Population: 6,10,577

Male: 3,23,070, Female: 2,87,507

Sex Ratio: 890

Literacy Rate: 82.20%

Male: 87.29%, Female: 76.43%

Infrastructure:

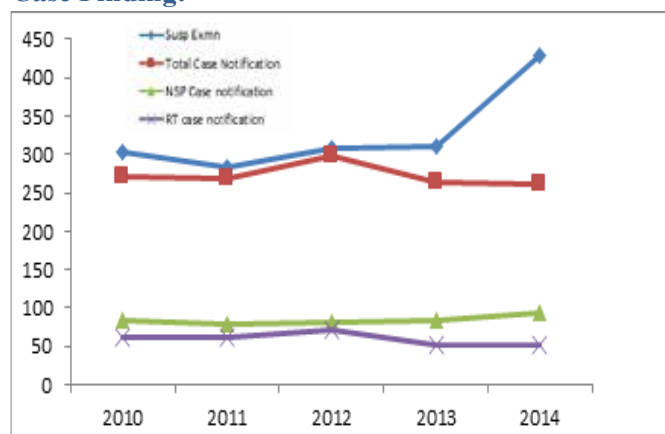
RNTCP reporting districts: 05

Tuberculosis Units:05

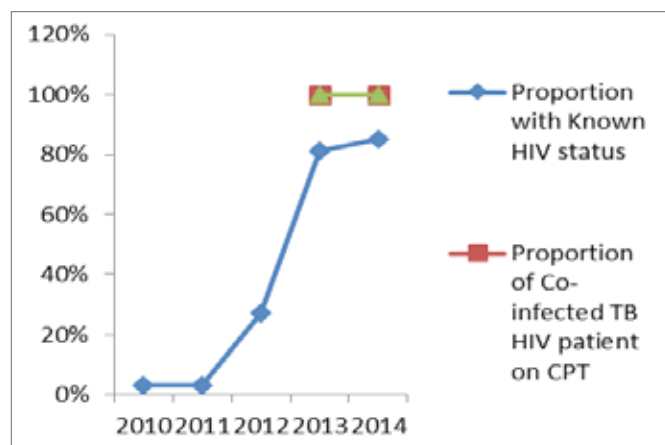
Designated Microscopy Centres: 20

CDST Labs: 01, CBNAAT: 01, DRTB Centre: 01

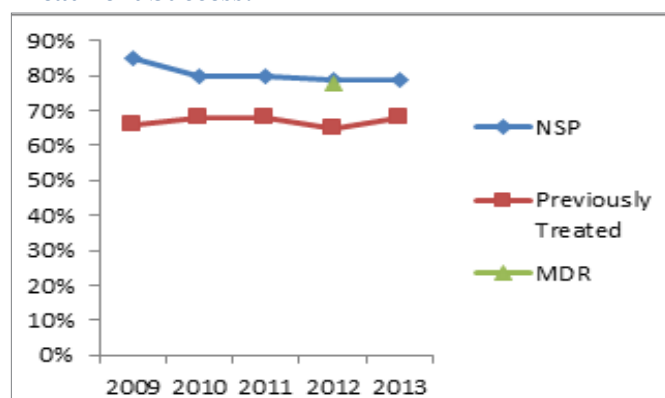
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	1
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	1
DEO (IRL)	1	1
Sr LT-IRL	1	1
Sr. PMDT TBHIV Supervisor	5	4
MO DRTB Site	1	0
SA DRTB Site	1	1
DEO District	5	4
STS	5	4
STLS	5	5

## ACSM:

School activities: 20

Sensitization with NGOs/PRI: 01

Community meetings: 28

Sensitization of monks on Tuberculosis conducted at different monasteries.

# Tamil Nadu

Population: 72,147,030

Male: 36,137,975, Female: 36,009,055

Sex Ratio: 996

Literacy Rate: 80.33%

Male: 86.81%, Female: 73.86%

Infrastructure:

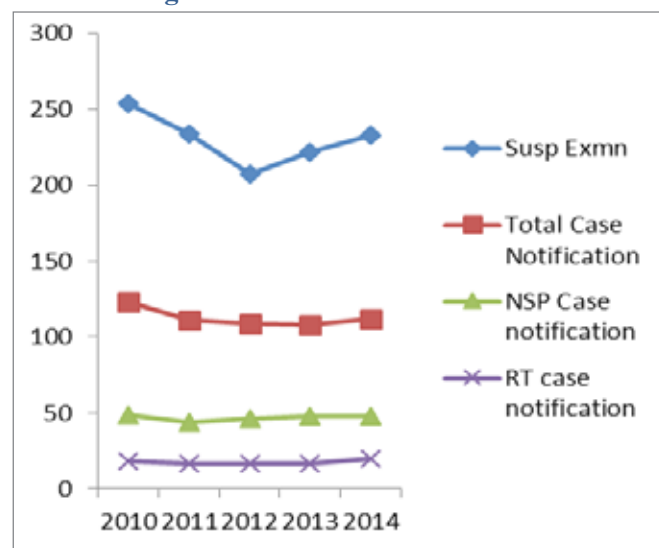
RNTCP reporting districts: 33

Tuberculosis Units: 220

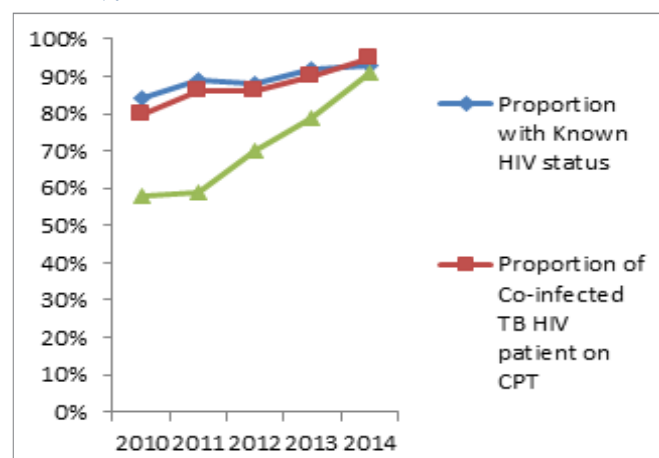
Designated Microscopy Centres: 802

CDST Labs: 04, LPA: 01, CBNAAT: 12, DRTB Centre: 06

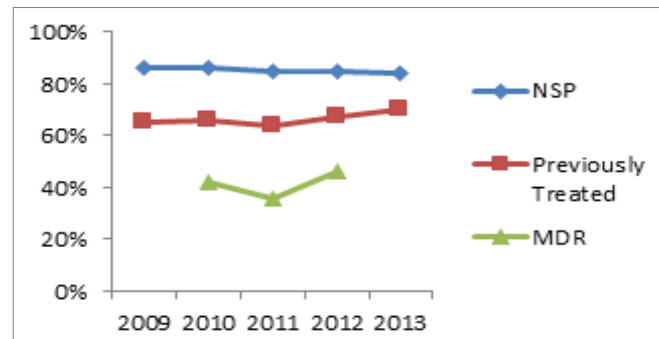
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	0
State Accountant	1	1
DEO (IRL)	1	1
Sr. PMDT TBHIV Supervisor	34	30
MO DRTB Site	8	4
SA DRTB Site	8	5
DEO District	34	27
STS	342	207
STLS	141	109
TBHV	369	187
LT	765	726

## Partnerships:

ACSM scheme: 13  
 Sputum collection & transport: 9  
 Sputum collection scheme: 11  
 DMC scheme: 30  
 Slum scheme: 3  
 TBHIV scheme : 01  
 Adherence scheme: 08  
 TB HIV scheme: 01

## Innovations/interventions:

- Urban TB Control plan proposed for Chennai.
- 142 Urban PHCs will have designated Microscopy centers.
- Evening clinics and involvement of self help groups for sample collection & transport.
- Linking of patients to social support schemes.

# Telangana

**Population: 35,193,978**

**Male: 42,442,146, Female: 42,138,631**

**Sex Ratio: 990**

**Literacy Rate: 67.66%\***

**Male: 75.56%, Female: 59.74%**

**Infrastructure:**

**RNTCP reporting districts: 11**

**Tuberculosis Units: 96**

**Designated Microscopy Centres: 391**

**CDST Labs: 05**

**LPA: ....., CBNAAT: 06**

**DRTB Centre: 07**

The district has reported annual case notification of 106/lakh/year. The outcome reports are awaited for the cohort of patients registered in Telangana after the creation of this state.

## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	1
IEC Officer	1	1
State Accountant	1	0
Sr. PMDT TBHIV Supervisor	11	11
MO DRTB Site	7	2
SA DRTB Site	7	2
DEO District	30	29
STS		
STLS		
TBHV	218	190

## System Integration:

- IRL Hyderabad providing services to Andhra Pradesh in addition to Telangana State.
- BPHRC providing C&DST follow-up services in the state under PPM Scheme.
- Decentralized sample collection and transportation to DMC level for diagnosis & f-up of PMDT cases.
- SDS Hyderabad serving Andhra Pradesh in addition to Telangana State.
- Good linkages developed for Local procurement of drugs processed through TSMSIDC.

# Tripura

Population: 3,673,917

Male: 1,874,376, Female: 1,799,541

Sex Ratio: 960

Literacy Rate: 87.75%

Male: 92.18%, Female: 83.15%

Infrastructure:

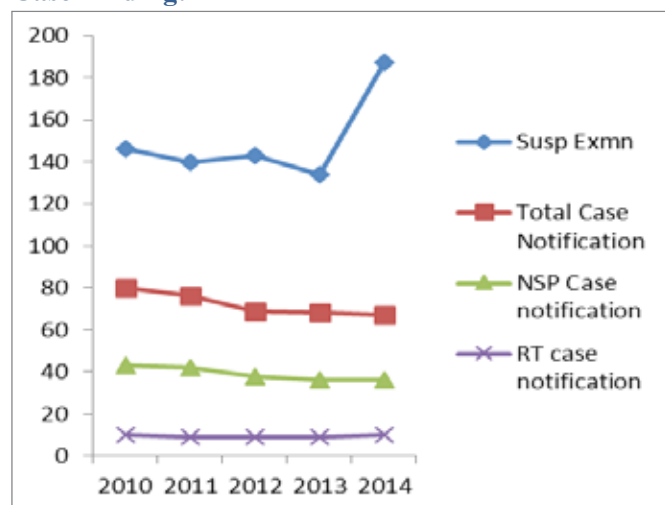
RNTCP reporting districts: 5

Tuberculosis Units: 11

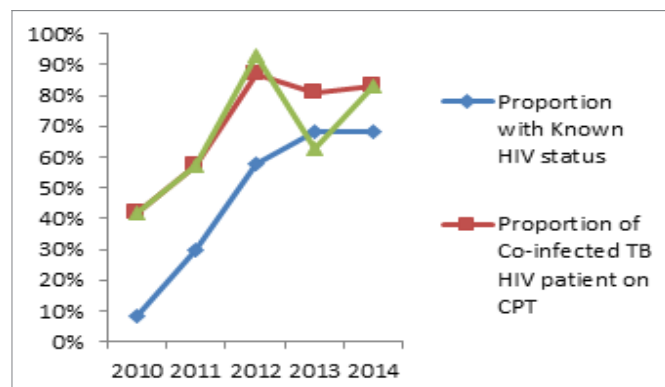
Designated Microscopy Centres: 56

CDST Labs: 0, LPA: 0, CBNAAT: 0, DRTB Centre: 01

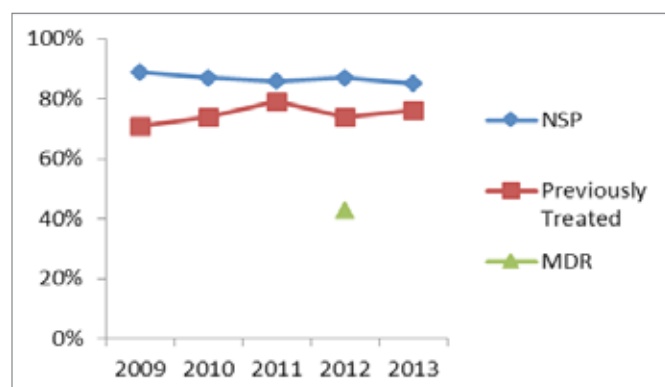
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	0	0
State TBHIV Coordinator	1	0
IEC Officer	1	1
State Accountant	1	1
Sr LT-IRL	1	1
Sr. PMDT TBHIV Supervisor	5	5
MO DRTB Site	1	1
SA DRTB Site	1	1
DEO District	5	5
STS	5	5
STLS	5	5

## Partnerships:

ACSM scheme: 04

Sputum collection & transportation: 02

## Innovations/Interventions:

- Convergence with Information & Cultural Affairs Dept. for involving them in ACSM activities of RNTCP.
- Workshops on X-ray reading is being conducted in phased manner for Periphery Medical Officer through medical college.
- Session on RNTCP conducted during training of PRI members/ASHA/ICDS workers organized by State institute of Public administration and rural development.

# Uttarakhand

Population: 10,086,292

Male: 5,137,773 Female: 4,948,519

Sex Ratio: 963, Literacy Rate: 79.63%

Male: 88.33%, Female: 70.70%

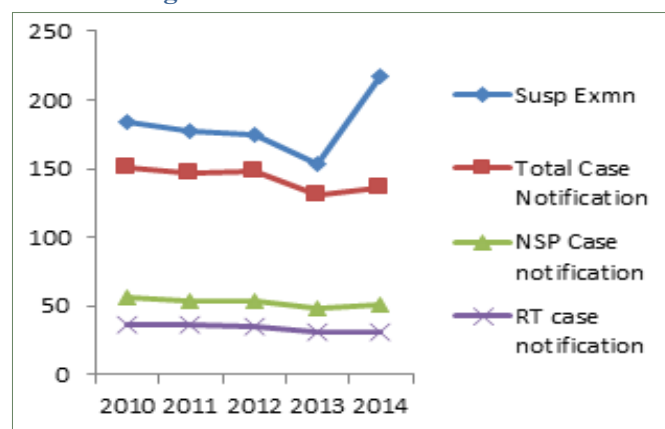
Infrastructure:

RNTCP reporting districts: 13

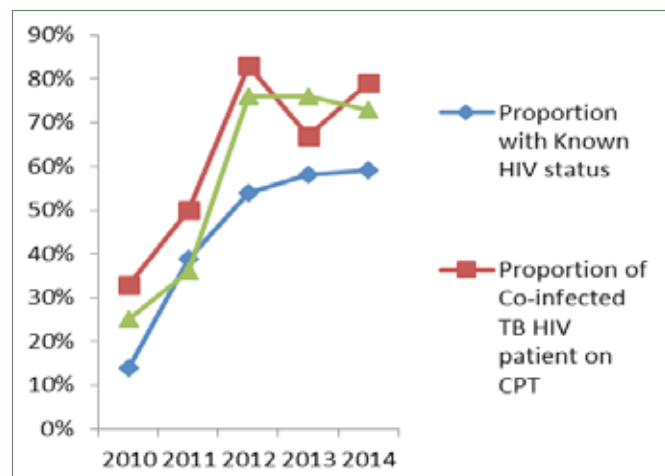
Tuberculosis Units: 58, Designated Microscopy Centres: 151

CDST Labs: 01, LPA: 01, CBNAAT: 02, DRTB Centre: 02

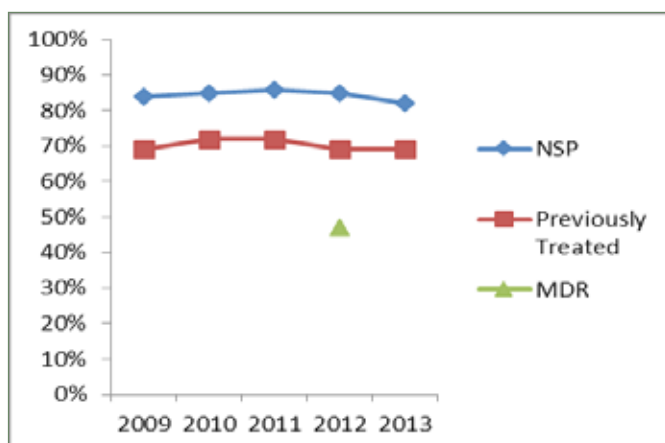
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	1	0
State DRTB Coordinator	1	0
State TBHIV Coordinator	1	0
IEC Officer	1	1
State Accountant	1	1
DEO (state)	1	1
Sr. PMDT TBHIV Supervisor	13	13
MO DRTB Site	2	1
SA DRTB Site	2	2
STS	61	48
STLS	31	31
TBHV	28	28

## Partnerships:

Through project Axshay, community meetings, mid media activities and sputum collection & transport is being conducted.

The IMA is facilitating notifications by conducting CMEs.

## ACSM:

Community Meeting: 13

School activities: 42

Sensitisation of PPs: 19

# West Bengal

Population: 91,276,115

Male: 46,809,027, Female: 44,467,088

Sex Ratio: 950

Literacy Rate: 77.08%

Male: 82.67%, Female: 72.16 %

Infrastructure:

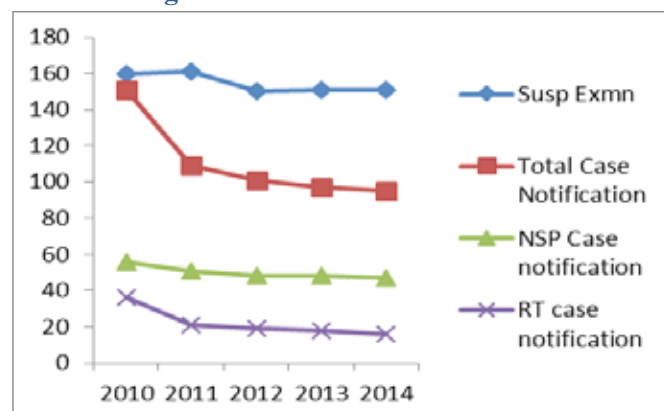
RNTCP reporting districts: 29

Tuberculosis Units: 204

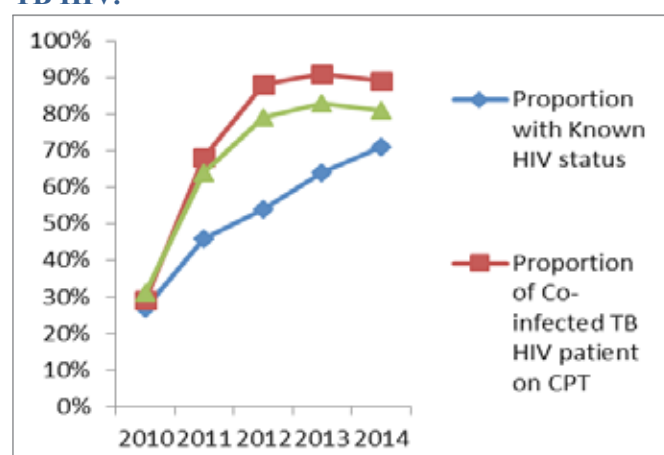
Designated Microscopy Centres: 833

CDST Labs: 03, LPA: 02, CBNAAT: 04, DRTB Centre: 07

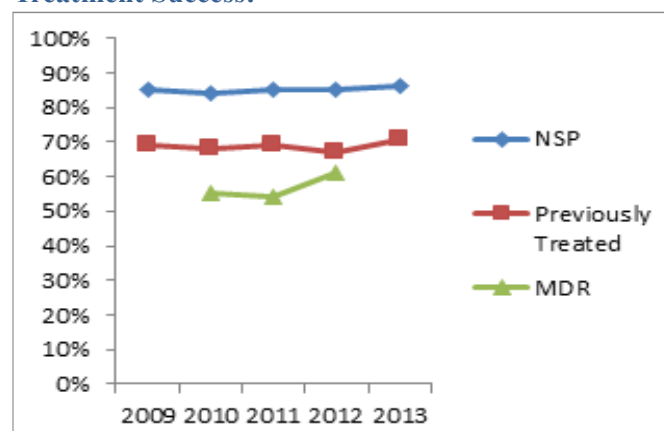
## Case Finding:



## TB HIV:



## Treatment Success:



## Human Resource:

Position	Sanctioned	In place
APO	2	1
State DRTB Coordinator	2	0
State TBHIV Coordinator	2	0
IEC Officer	2	2
State Accountant	1	1
DEO (State)	2	1
Sr. PMDT TBHIV Supervisor	30	29
MO DRTB Site	5	4
SA DRTB Site	5	4
DEO District	30	29
MOTC	203	198
STS	203	202
STLS	144	137
TBHV	218	190
LT	765	726

## ACSM:

Community Meeting: 228

School activities: 341

Sensitisation of PRI and council members

## Innovations/initiatives:

Intersectoral coordination: Convergence with the Social Welfare Department of the state in extending social benefits to TB patients.

Convergence with the Department of Panchayat in extending nutritional support to TB patients.

Improving accesibility of sevice through boat clinics in the Sundrebans with an NGO SHIS.

## Programmatic Management of Drug Resistant TB (PMDT) Implementation, Diagnosis, 6 months Interim, 12 months Culture Conversion and Treatment Outcome of MDR-TB Case (Reported by DR-TB Centers of Implementing States - 2014

State	Indicators on Coverage of MDR TB Services			Indicators on MDR-TB Case Finding						Indicators on 6 months interim report						
	Total Population (In lacs)	Total number of districts	Number of DR-TB Centers functional in the state	Estimated number of MDR-TB suspects in Criteria C	Number of MDR-TB Suspects subjected to C-DST	MDR Suspects examined per lakh population	Number of MDR-TB Cases detected	Number of MDR-TB Cases detected that were registered and initiated on treatment in 2014	Indicators on MDR-TB Case Finding	Number of MDR-TB Case registered and initiated on Cat IV in the 4 cohorts 6-9 months prior (2q13 to 1q14) (a)	Out of a, No. (%) who are alive, on treatment and culture negative	Out of a, No. (%) who died	Out of a, No. (%) who defaulted			
Andaman & Nicobar	4	3	1	265	110	41%	42	39	1	24	13	54%	5	21%	1	4%
Andhra Pradesh	865	24	17	51452	27919	54%	1673	1489	79	1701	1085	64%	186	11%	156	9%
Arunachal Pradesh	15	14	2	1017	986	97%	186	206	3	181	125	69%	5	3%	28	15%
Assam	325	27	3	16453	3647	22%	370	360	4	352	214	61%	35	10%	37	11%
Bihar	1108	38	4	32450	6544	20%	1024	970	4	585	341	58%	61	10%	50	9%
Chandigarh	11	1	1	1092	781	71%	52	45	7	46	29	63%	4	9%	4	9%
Chhattisgarh	270	27	3	13557	2412	18%	196	141	1	126	63	50%	16	13%	15	12%
Delhi	175	25	4	16157	11504	71%	1338	1572	118	1280	764	60%	116	9%	176	14%
Goa	15	2	1	633	513	81%	31	36	7	41	21	51%	5	12%	6	15%
Gujarat	635	39	5	41586	29440	71%	2154	1971	269	1768	932	53%	205	12%	217	12%
Haryana	267	21	2	17295	4210	24%	625	561	8	495	315	64%	69	14%	35	7%
Himachal Pradesh	71	12	2	6142	2607	42%	239	236	13	267	153	57%	23	9%	6	2%
Jammu & Kashmir	133	14	3	4598	1190	26%	100	97	2	118	71	60%	12	10%	12	10%
Jharkhand	351	24	3	16630	3187	19%	187	225	1	230	151	66%	13	6%	8	3%
Karnataka	635	31	5	27934	7425	27%	816	733	9	691	354	51%	96	14%	93	13%
Kerala	338	15	2	10510	5789	55%	196	198	25	222	144	65%	25	11%	18	8%
Madhya Pradesh	765	50	6	40875	13083	32%	1587	1116	17	900	569	63%	91	10%	76	8%
Maharashtra	1168	79	16	54512	37561	69%	4738	5072	490	4880	2346	48%	636	13%	503	10%
Manipur	29	9	1	825	195	24%	41	38	0	51	44	86%	3	6%	1	2%
Meghalaya	32	7	2	1849	518	28%	158	204	3	151	102	68%	15	10%	10	7%
Mizoram	11	8	1	550	397	72%	48	47	1	31	15	48%	1	3%	5	16%
Nagaland	20	11	2	1298	674	52%	74	75	0	75	44	59%	3	4%	2	3%
Odisha	434	31	3	19619	4017	20%	342	244	13	215	105	49%	20	9%	21	10%
Puducherry	13	1	1	678	685	101%	29	28	0	15	7	47%	4	27%	1	7%
Punjab	287	22	3	16742	7367	44%	557	437	28	433	233	54%	60	14%	54	12%
Rajasthan	724	34	7	40415	21435	53%	2050	1663	72	1735	973	56%	209	12%	184	11%
Sikkim	6	4	1	625	1085	174%	215	242	4	209	148	71%	20	10%	13	6%
Tamil Nadu	752	33	6	37954	34273	90%	1477	1136	20	1217	673	55%	123	10%	119	10%
Tripura	38	6	1	1291	104	8%	11	14	0	11	7	64%	1	9%	0	0%
Uttar Pradesh	2105	75	11	123962	8443	7%	2976	2798	28	2240	1289	58%	266	12%	175	8%
Uttarakhand	106	13	1	6198	1856	30%	297	281	3	181	135	75%	20	11%	7	4%
West Bengal	942	28	7	44735	15451	35%	1823	1799	32	1436	983	68%	124	9%	139	10%
<b>Grand Total</b>		<b>728</b>	<b>127</b>	<b>649897</b>	<b>255408</b>	<b>39%</b>	<b>25652</b>	<b>24073</b>	<b>1262</b>	<b>21907</b>	<b>12448</b>	<b>57%</b>	<b>2472</b>	<b>11%</b>	<b>2172</b>	<b>10%</b>

\* Data from Daman-Diu & Dadra Nagar Haveli is included in Gujarat; Data from Lakshadweep is included in Kerala.

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

^ Numerator includes smear negative retreatment cases registered in the district.



	Indicators on 12 months Culture Conversion Report											Indicators on Treatment Outcome of MDR-TB Cases											
	Number of MDR-TB cases registered in the 4 cohorts, 12-15 months prior (4q12 to 3q13) (b)	Out of b, No. (%) who are alive, on treatment and culture negative			Out of b, No. (%) who are alive, on treatment and culture positive			Out of b, No. (%) who are alive, on treatment and culture not known			Out of b, No. (%) who died		Out of b, No. (%) who defaulted		Number of MDR-TB cases registered in the 4 cohorts, 31-33 months prior (3q11 to 2q12) (c)	Out of c, No. reported as Cured	Out of c, No. reported as Treatment Completed	Out of c, Success Rate	Out of c, No. (%) who died		Out of c, No. (%) who defaulted		Out of c, No. (%) who failed treatment
	19	9	47%	3	16%	1	5%	5	26%	1	5%	5	2	0	40%	2	40%	1	20%	0	0%		
	1666	879	53%	85	5%	123	7%	286	17%	254	15%	765	318	54	49%	179	23%	155	20%	21	3%		
	157	103	66%	2	1%	10	6%	9	6%	27	17%	42	14	14	67%	7	17%	6	14%	1	2%		
	394	231	59%	26	7%	13	3%	59	15%	44	11%	31	14	3	55%	3	10%	6	19%	1	3%		
	441	260	59%	17	4%	49	11%	64	15%	42	10%	19	3	0	16%	6	32%	5	26%	2	11%		
	44	29	66%	2	5%	0	0%	7	16%	1	2%	9	0	5	56%	2	22%	0	0%	0	0%		
	101	42	42%	4	4%	31	31%	11	11%	7	7%	13	5	3	62%	2	15%	1	8%	0	0%		
	1337	700	52%	20	1%	82	6%	189	14%	261	20%	1131	457	144	53%	220	19%	226	20%	22	2%		
	37	21	57%	2	5%	1	3%	5	14%	5	14%	15	6	0	40%	4	27%	2	13%	0	0%		
	1671	717	43%	143	9%	140	8%	254	15%	316	19%	1126	387	80	41%	292	26%	201	18%	100	9%		
	420	233	55%	6	1%	71	17%	66	16%	37	9%	105	61	3	61%	30	29%	11	10%	0	0%		
	222	112	50%	10	5%	53	24%	32	14%	4	2%	49	2	23	51%	11	22%	5	10%	0	0%		
	125	65	52%	9	7%	15	12%	17	14%	11	9%	20	7	0	35%	7	35%	1	5%	0	0%		
	254	126	50%	8	3%	73	29%	27	11%	15	6%	53	17	9	49%	9	17%	8	15%	5	9%		
	586	260	44%	29	5%	73	12%	110	19%	78	13%	74	33	0	45%	23	31%	8	11%	0	0%		
	206	131	64%	5	2%	10	5%	29	14%	23	11%	256	145	22	65%	35	14%	36	14%	1	0%		
	698	394	56%	41	6%	56	8%	99	14%	100	14%	152	67	5	47%	36	24%	23	15%	16	11%		
	4555	1793	39%	326	7%	468	10%	783	17%	702	15%	1511	433	180	41%	334	22%	312	21%	46	3%		
	51	39	76%	0	0%	0	0%	5	10%	3	6%	19	10	0	53%	4	21%	0	0%	0	0%		
	149	98	66%	7	5%	6	4%	22	15%	15	10%	33	16	3	58%	4	12%	5	15%	0	0%		
	45	34	76%	1	2%	0	0%	4	9%	6	13%	24	12	2	58%	3	13%	4	17%	1	4%		
	80	41	51%	3	4%	25	31%	4	5%	7	9%	12	4	2	50%	1	8%	3	25%	0	0%		
	205	90	44%	15	7%	52	25%	16	8%	23	11%	72	24	16	56%	12	17%	7	10%	8	11%		
	19	9	47%	1	5%	0	0%	4	21%	4	21%	16	4	1	31%	4	25%	4	25%	0	0%		
	460	223	48%	25	5%	31	7%	78	17%	85	18%	67	24	4	42%	13	19%	17	25%	5	7%		
	1910	897	47%	103	5%	232	12%	310	16%	325	17%	1010	417	74	49%	235	23%	209	21%	42	4%		
	203	127	63%	8	4%	6	3%	23	11%	17	8%	18	13	1	78%	2	11%	2	11%	0	0%		
	1305	652	50%	54	4%	210	16%	188	14%	184	14%	192	62	26	46%	40	21%	43	22%	1	1%		
	14	10	71%	1	7%	0	0%	3	21%	0	0%	7	1	2	43%	1	14%	0	0%	0	0%		
	1348	729	54%	99	7%	78	6%	239	18%	146	11%	57	20	2	39%	18	32%	11	19%	4	7%		
	188	134	71%	15	8%	1	1%	18	10%	16	9%	34	7	9	47%	11	32%	3	9%	4	12%		
	1177	769	65%	76	6%	45	4%	126	11%	134	11%	352	190	24	61%	66	19%	44	13%	22	6%		
	<b>20087</b>	<b>9957</b>	<b>50%</b>	<b>1146</b>	<b>6%</b>	<b>1955</b>	<b>10%</b>	<b>3092</b>	<b>15%</b>	<b>2893</b>	<b>14%</b>	<b>7289</b>	<b>2775</b>	<b>711</b>	<b>26%</b>	<b>1616</b>	<b>22%</b>	<b>1359</b>	<b>19%</b>	<b>302</b>	<b>4%</b>		

# ANNEXURE

## Culture DST Labs

Sl. no.	Name of the States	Sl. no. of Laboratory	Name of Laboratory	Type of Technology		
				Solid	LPA	Liquid
1	Andaman & Nicobar	1	RMRC, Port Blair	C		
2	Andhra Pradesh	2	IRL, Hyderabad	C	C	C
		3	Govt. Medical College, Vishakhapatnam	P	C	
		4	BPHRC, Hyderabad	C	C	
		5	DFIT Lab, Nellore	C	C	
		6	SVIMS Medical College, Tirupati	P		
3	Arunachal Pradesh	7	IRL, Naharlagun	P		
4	Assam	8	IRL, Guwahati (Guwahati Medical College)	P	C	P
5	Bihar	9	RMRC, Dibrugarh	C		
		10	IRL, Patna	P	C	
		11	RMRI, Patna	P		
		12	Central Diagnostics, Patna		P	P
		13	DFIT Lab, Darbhanga	P	C	
6	Chandigarh	14	PGI, Chandigarh	C	C	C
7	Chhattisgarh	15	IRL, Raipur	C	C	P
8	Delhi	16	NITRD, Delhi	C	C	C
		17	IRL, Delhi (New Delhi TB Center)	C	C	P
		18	Dept. of Medicine, AIIMS	C	C	C
		19	Dept. of Laboratory Medicine, AIIMS		C	P
		20	Dept. of Microbiology, AIIMS, New Delhi	P		P
		21	Dept. of Microbiology, Safdarjung Hospital, New Delhi	P		
9	Goa	22	IRL, Goa	C		
10	Gujarat	23	IRL, Ahmedabad	C	C	C
		24	Govt. Medical College, Jamnagar	C	C	C
		25	Govt. Medical College, Surat	P		
		26	Microcare, Surat	C		

Sl. no.	Name of the States	Sl. no. of Laboratory	Name of Laboratory	Type of Technology		
				Solid	LPA	Liquid
11	Haryana	27	IRL, Karnal	C	C	P
		28	Quest Diagnostics, Gurgaon			P
		29	SRL, Gurgaon			P
12	Himachal Pradesh	30	IRL, Dharampur	C	C	
		31	Govt. Medical College, Tanda	P		
13	Jammu & Kashmir	32	IRL, Jammu (Jammu Medical College)	C		
		33	IRL, Srinagar	C	P	
		34	Sher-I-Kashmir Institute of Medical Sciences, Srinagar	P	P	
14	Jharkhand	35	IRL, Ranchi (Itki TB Sanatorium)	C	C	P
		36	RIMS, Ranchi			P
15	Karnataka	37	NTI, Bangalore	C	C	C
		38	IRL, Bangalore	P	C	C
		39	SRL, Bangalore			P
		40	KIMS, Hubli	P	P	
		41	KMC, Manipal		P	P
		42	JSS Medical College, Mysore	P		
16	Kerala	43	IRL, Thiruvananthapuram	C	C	C
		44	Calicut Medical College, Calicut	P		
17	Madhya Pradesh	45	IRL, Indore	C	C	C
		46	BMHRC, Bhopal	C	C	
		47	Choitram Hospital, Indore	C		
		48	RMRCT, Jabalpur	C		
18	Maharashtra	49	IRL, Nagpur	C	C	C
		50	IRL, Pune	C	C	C
		51	PD Hinduja Hospital, Mumbai		C	C
		52	Govt. Medical College, Aurangabad	P	C	
		53	SRL, Mumbai			C
		54	JJ Hospital, Mumbai	C	C	C
		55	KJ Soumiya Medical College, Mumbai	P		
		56	KEM Hospital, Mumbai	P		
		57	Sewari TB Hospital, Mumbai	P	C	
		58	Metropolis Healthcare, Mumbai		C	C
		59	BJ Medical College, Pune	C		
		60	MGIMS, Wardha	C		
19	Manipur	61	IRL, Imphal, Manipur	P	P	
20	Meghalaya	62	Nazareth Hospital, Shillong		C	P
21	Odisha	63	IRL, Cuttack	C	C	C
		64	RMRC, Bhubaneswar	C		

Sl. no.	Name of the States	Sl. no. of Laboratory	Name of Laboratory	Type of Technology		
				Solid	LPA	Liquid
22	Puducherry	65	IRL, Pondicherry	C	C	C
23	Punjab	66	IRL, Patiala	P	C	P
		67	Govt. Medical College, Faridkot	P		
		68	Dayanand Medical College, Ludhiana		P	
		69	SRL, Amritsar		P	
24	Rajasthan	70	IRL, Ajmer	C	C	P
		71	SMS, Jaipur	C	C	C
		72	SN Medical College, Jodhpur	P	C	
		73	DMRC, Jodhpur	P		
		74	RNT Medical College, Udaipur	P		
		75	Kota Medical College, Kota	P		
25	Sikkim	76	IRL Gangtok, Sikkim	P		
26	Tamil Nadu	77	NIRT (TRC), Chennai	C	C	C
		78	IRL, Chennai	C	C	P
		79	VRF Referral Laboratory, Sankara Nethralaya			C
		80	CMC, Vellore	C		P
		81	Madurai Medical College, Madurai	P		
		82	PSG Medical College, Coimbatore	P		
		83	Trichy Medical Colleges, Trichy	P		
27	Uttar Pradesh	84	JALMA, Agra	C	C	C
		85	IRL, Lucknow (CSMMU, earlier KGMU)	C	C	
		86	IRL, Agra	P	C	P
		87	Sri Ram Murti Medical College, Bareilly			P
		88	IMS, Banaras Health University, Varanasi	P	C	P
		89	MLN Medical College, Allahabad	P		
		90	Subharti Medical college, Meerut		C	P
		91	JN Medical College, Aligarh	P	C	
		92	SGPGIMS, Lucknow			P
		93	RMLIMS, Lucknow			
		94	RIIMS, Etawah	P	P	
28	Uttarakhand	95	IRL, Dehradun	C	C	
		96	Microbiology, Dept. IGMC, Simla			P
29	West Bengal	97	IRL, Kolkata	C	C	C
		98	SRL, Kolkata			C
		99	North Bengal Medical College, Siliguri	P	C	P
		100	Bengal TB Association, Kolkata		P	







सत्यमेव जयते  
Government of India



Ministry of Health and Family Welfare

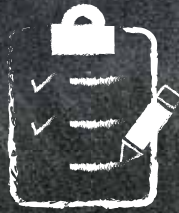


NATIONAL TB ELIMINATION PROGRAMME



NATIONAL MISSION FOR TB CONTROL

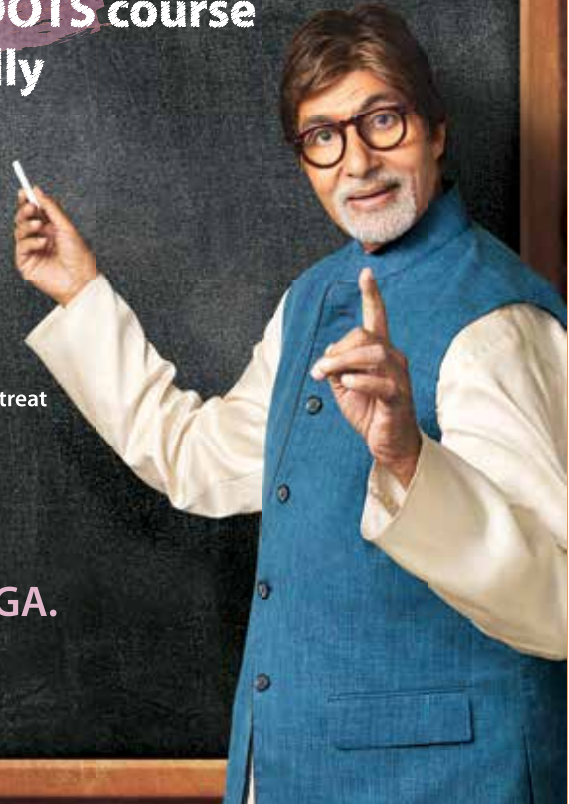
## Complete your full DOTS course to cure TB successfully



- TB becomes more complex and difficult to treat
- Cost of treatment increases
- Can increase chances of side effects
- Treatment gets prolonged

**TB HAREGA, DESH JEETEGA.**

For more information, consult your doctor.





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