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# TB India 2003

RNTCP Status Report

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"DOTS  
cured me,  
it will cure  
you too!"



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**“The successive reports from India on the progress of the national DOTS programmes for TB have astonished and delighted me. All concerned deserve the greatest credit for facing up to this enormous challenge with such speed and such success. India is an example to the world.”**

**— Sir John Crofton**

## Foreword

India today accounts for nearly one third of the global TB burden. Though the disease is nearly hundred percent curable, yet many people die of TB every year. It is perhaps the only disease that kills more adults than any other infectious disease. Over the years it has become one of the most serious impediments to sustained human development in the country. Combating the disease has been a challenge faced by the health practitioners and the policy makers in the country. The problem gets aggravated due to the close link between TB and poverty.

Over the years, the medical fraternity in the country has successfully devised strategies to combat TB through the Directly Observed Treatment, Short-course (DOTS) strategy to TB patients implemented as the Revised National Tuberculosis Control Programme (RNTCP) in India. The strategy has borne fruit. The DOTS programme now covers more than half of the country and it is the second largest Programme in the world. The Government of India is firmly committed to provide DOTS services to nearly 850 million of the country's population by 2004 and to the entire country by 2005.

Providing quality diagnosis and treatment of TB in India is a remarkable international public health success story. Each month more than 50,000 patients are being initiated on treatment under the RNTCP. In 2001, the Programme treated more than 470,000 cases—more than any country in the world in a single year. During 2002, over 620,000 TB cases were initiated for treatment. Till date, the Programme has initiated over 1.6 million patients for free treatment, thus saving additional 290,000 lives. I am happy that despite a rapid expansion of the Programme, the quality of both diagnosis and treatment has not deteriorated.

This year's theme for the World TB Day "People with TB" and the slogan



“DOTS cured me—it will cure you too” is particularly relevant. It emphasizes the importance of including cured TB patients as advocates in efforts to control TB and to banish the stigma attached to the disease. The theme stresses the need to involve people with TB as equal partners in our efforts to achieve global TB control. The theme supports case detection and DOTS expansion, urging stakeholders to accelerate action which is crucial if we are to reach to global targets, 70% detection of infectious TB cases and an 85% cure rate.

While congratulating all those associated with the Programme I would like to emphasize that there is room for everyone to contribute to the Programme. Through education, awareness building and social mobilization, each one of us can play a proactive role of increasing awareness about the disease and measures needed to combat it. It is only working together as a community that we can create people-friendly delivery systems for tackling the disease effectively.

I am glad that an annual report of the TB Programme is being published for the third consecutive year. I hope the publication of this report will facilitate in sharing of experiences and achievements of the Programme amongst those who are confronting TB in India and the world.



***Shrimati Sushma Swaraj***  
Union Minister of Health and Family Welfare

# TB Facts

- Each year, nearly 2 million people in India develop TB and over 450,000 die from it.
- TB is a major barrier to economic development, costing India Rs 12,000 crore (US\$ 3 billion) a year.
- Directly Observed Treatment, Short-course (DOTS) is the most cost-effective health intervention available for TB control.
- The Revised National TB Control Programme (RNTCP), based on the principles of DOTS, now covers 60% of the country's population. It has initiated more than 1.6 million patients on treatment, saving 290,000 additional lives.

For more information, visit our website: [www.tbcindia.org](http://www.tbcindia.org)

The screenshot displays the website for Tuberculosis Control - India, part of the Directorate General of Health Services, Ministry of Health and Family Welfare. The page features a green header with the national emblem and a search bar. A prominent banner states "TB can be cured!" and displays two key statistics: "Patients Treated" at 1,653,519 and "Lives Saved" at 291,633. A navigation menu on the left lists various resources such as "About the RNTCP", "Documents (Downloadable)", and "Performance Indicators". A map of India is shown with a call to action: "Click above to see RNTCP implementation in India". A "Login Here" button is also visible for program officers.

Category	Value
Patients Treated	1,653,519
Lives Saved	291,633

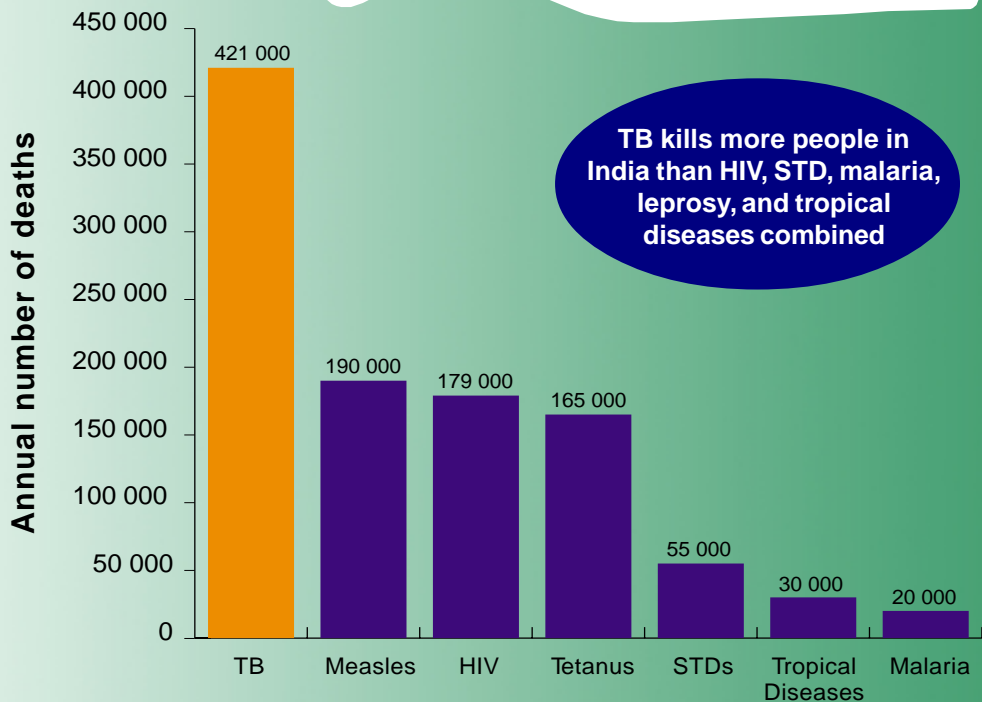
# Burden of TB in India

## Social Burden

- TB kills more women than all causes of maternal mortality combined
- More than 100,000 women are rejected by their families on account of TB
- More than 300,000 children leave school to work as a result of parental TB

## Economic Burden

- Direct and indirect costs of TB amount to Rs 12,000 crore (US\$ 3 billion)/year
- Direct costs amount to Rs 30 crore (US\$ 300 million)
- 100 million productive work days lost due to TB



## Burden of TB

Tuberculosis (TB) is one of the commonest causes of death among adults despite being nearly 100% curable.

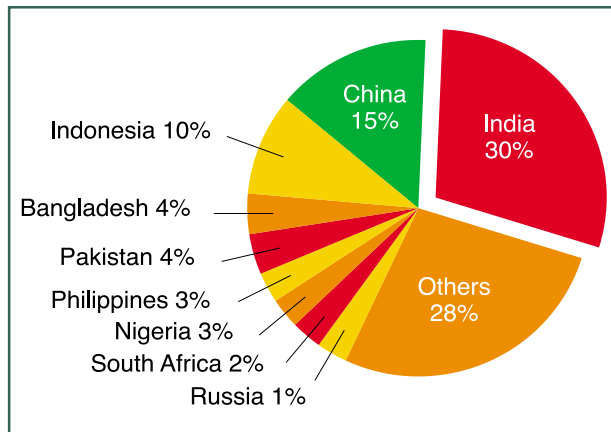
- Each year, over 450,000 people die of TB in India.
- TB affects the most productive age group of 15–54 years, thus affecting the economic development of the country.
- On average, 3–4 months of work time are lost if an adult has TB, resulting in the loss of 20–30% of annual household income. An average of 15 years of income is lost if any individual dies from the disease.

## Social Burden

- Social stigma is of major concern to women with TB in India as they often lose their status as a wife or mother.
- TB in the family also has serious implications for children.

## Poverty and TB

- Although the poor and malnourished are more vulnerable to TB, it spreads across all socio-economic strata.



India alone accounts for almost one third of the global burden of TB.

### *“Indirect” costs include:*

- loss of employment
  - travel to health facilities
  - sale of assets to pay for treatment-related costs
  - funeral expenses and lost productivity from illness and premature death
- Poverty and TB form a vicious circle; TB decreases a person’s capacity to work and adds the burden of treatment expenses.
  - The poor seek and receive inadequate health care that often inhibits the detection of TB and adds to the impact of the disease.
  - Of people infected with TB disease, more than 80% are in

the economically productive age group. Thus, the economic and social costs to TB patients and to their families are enormous.

## **HIV and TB**

In India, there are an estimated 3.97 million people living with HIV. Amongst AIDS cases, it is estimated that approximately 60% have TB disease. The potential social and economic burden of the TB and HIV co-epidemic could overwhelm the resources of a developing country such as India.

### **Link between HIV and TB**

TB is the most common opportunistic disease in people living with HIV. The virus breaks the immune system down making people living with HIV highly susceptible to TB. HIV is the most powerful risk factor for progression from TB infection to TB disease with the HIV epidemic leading to a doubling or tripling of TB cases in some countries. TB in turn accelerates the progression of HIV to AIDS and shortens the survival of patients with HIV infection. TB and HIV are, therefore, closely interlinked.

## **Treatment**

Directly Observed Treatment, Short-course (DOTS) is equally effective in treating TB in people living with HIV as well as those who do not have HIV. DOTS cures patients and results in longer and relatively healthier lives. Recognizing the serious threat posed by HIV/AIDS and TB, the Government of India (GOI) is strengthening the collaboration between the TB and AIDS control programmes to ensure better management of people living with HIV and TB.

### **Coordination between CTD and NACO**

An action plan on HIV/TB programme coordination has been formulated at the centre between the Central TB Division (CTD) and the National AIDS Control Organization (NACO). The purpose of the coordination is to ensure optimal synergy between the two programmes for the prevention and control of both diseases through:

1. Sensitization of key policy makers regarding the need for collaboration.

**An estimated 50–60% of people living with HIV in India will develop TB in their lifetime as compared to 10% in persons who do not have HIV**





A patient being counselled at a voluntary counselling and testing centre, New Delhi

*Photograph courtesy NACO, New Delhi*

2. Service delivery coordination and cross-referral through training, provision of additional services, and establishment of voluntary counselling and testing centre VCTC-RNTCP linkages.
3. Expansion of community outreach of both programmes by sensitization and involvement of NGOs and private practitioners.
4. Infection control to prevent the spread of TB in facilities caring for persons living with HIV, and to prevent the spread of HIV through safe injection practices in the RNTCP.
5. Joint information, education, communication (IEC) efforts, particularly with regard to destigmatization and ensuring confidentiality of HIV- and TB-related information.

# Why DOTS



**Government commitment**



**Sputum microscopy**



**Recording and supervision**

## DOTS



**Short-course chemotherapy  
under directly observed  
treatment**

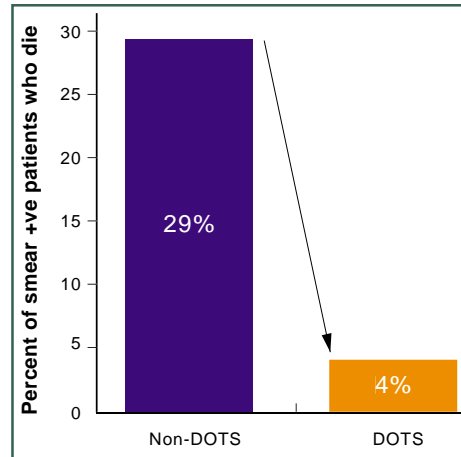


**Uninterrupted supply of  
anti-TB drugs**

## Why DOTS?

Directly Observed Treatment, Short-course (DOTS) was formally launched as a strategy of the Revised National Tuberculosis Control Programme (RNTCP) in 1993 as a pilot project. A full fledged Programme started in 1997 and is being expanded in a phased manner. Since then DOTS has been widely advocated and successfully applied. It has increased coverage 30-fold and increased cure rates to almost 85%.

DOTS is the most effective strategy available for controlling TB. The emphasis of the strategy is that the patient is the VIP of the Programme and the responsibility of ensuring regular and complete



In India, DOTS cuts TB-deaths 7-fold

treatment of the patient falls on the health system. It is important for the patient and the health provider to forge a relationship. This will help build patient confidence in the public health system.

### The five key components of DOTS are:

- 1 Political commitment to sustained TB control activities.
- 2 Case detection by sputum smear microscopy among symptomatic patients.
- 3 Standardized short-course chemotherapy regimens for all TB cases, to be given under direct observation.
- 4 Regular, uninterrupted supply of anti-TB drugs.
- 5 Systematic recording and reporting system that allows assessment of treatment results for each and every patient and of the whole TB control programme.

**TB is curable and DOTS is the strategy for cure**



Chief Minister of Andhra Pradesh, Chandrababu Naidu, giving anti-TB drugs to a patient

### Why political commitment is essential?

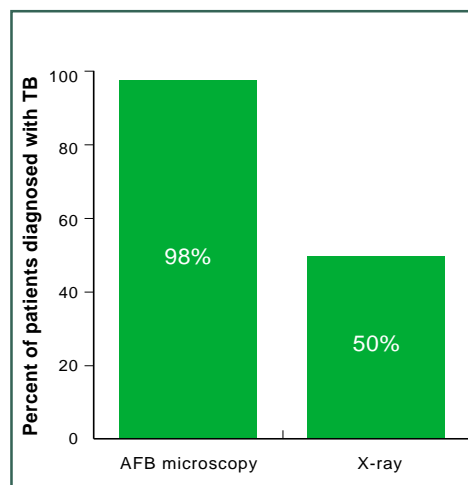
Political commitment is essential to implement the other four components of DOTS. Commitment is measured in terms of funds granted, human resources and administrative support. The RNTCP bears testimony to the commitment of the government.

### Why detection by sputum microscopy?

Sputum microscopy is the best tool for detection as it provides information on the infectiousness of the patient, aids in categorization of the patient for treatment and is an objective method to monitor the patient's progress.

Other advantages of sputum

microscopy are that it is relatively easy to perform and less expensive when compared to X-ray. The result is available within 2 days and correct treatment can be started without delay.



Sputum microscopy is more specific than X-ray for diagnosis

## Why short-course chemotherapy under direct observation?

Short-course chemotherapy (SCC) regimens reduce the duration of treatment and facilitate directly observed treatment (DOT) for both the patient and health worker. SCC given under DOT achieves high success rates and reduces relapse rates.

Under optimal conditions, results of treatment without observation can give 60% success rate, whereas direct observation results in 85–95% success rate.

DOT ensures that the patient adheres to treatment. The responsibility of treating the patient and ensuring that the patient does not miss even a single dose falls on the health provider. DOT does not just mean supervised swallowing but the building of a human bond with the patient. It means that the *right drugs* in the *right doses* are taken at the *right interval* for the *right duration*.

## Why is it necessary to have an uninterrupted supply of anti-TB drugs?

An uninterrupted supply of anti-TB

- Controlled clinical trials show intermittent treatment to be as effective as daily treatment
- Intermittent treatment causes slightly less toxicity than daily treatment
- Intermittent treatment must *only* be given in a programme of DOT

drugs ensures patient adherence, patient develops faith in the reliability of the system, and prevents the development of multi-drug resistant tuberculosis (MDR-TB).

## Why is monitoring and supervision a must?

The patient is the VIP of the Programme. Monitoring, support and supervision of each patient is important to achieve the targets and objectives of the Programme. It also ensures the health care provider's accountability.

This results-oriented system enables quality assurance of

**“India has shown the world how quality DOTS programmes are key to controlling the tuberculosis epidemic. The Indian Government has shown great commitment and foresight in establishing a national DOTS programme. India’s DOTS strategy will undoubtedly be one of this century’s most significant public health achievements.”**

**—Dr JW Lee, Director General Designate, WHO, Geneva**

programme implementation, and the effective treatment and cure of TB patients. Data collected as part of TB programme management is also a useful indicator of access to and quality of the general health system.

## Treatment

The World Health Organization (WHO)-recommended treatment regimen for DOTS is SCC. It is divided into two phases—the intensive and continuation phases.

In India:

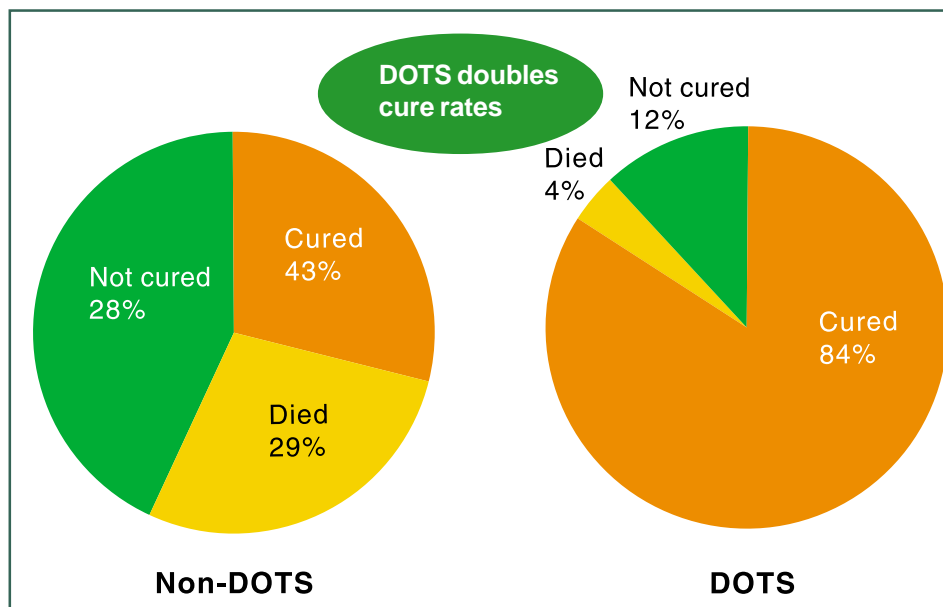
- In the intensive phase (2–3 months)—each dose is administered under direct observation.
- In the continuation phase (4–5 months)—at least one dose given thrice weekly is administered under direct observation.

The actual treatment regimen and duration administered depends on the category of treatment of the patient.

Category of treatment	Type of patient	Regimen
Category I	New sputum smear-positive Seriously ill sputum smear-negative Seriously ill extra-pulmonary	$2H_3R_3Z_3E_3/4H_3R_3$
Category II	Previously treated Sputum smear-positive relapse Sputum smear-positive failure Sputum smear-positive treatment after default	$2S_3H_3R_3Z_3E_3$ $/1H_3R_3Z_3E_3$ $/5H_3R_3E_3$
Category III	New sputum smear-negative, not seriously ill Extra-pulmonary, not seriously ill	$2H_3R_3Z_3/4H_3R_3$

H: isoniazid; R: rifampicin; Z: pyrazinamide; S: streptomycin; E: ethambutol

Note: The number before the letters refers to the number of months of treatment. The subscript after the letter refers to the number of doses per week



Source: Joint TB Programme Review India, February 2000. Delhi: WHO, 2000

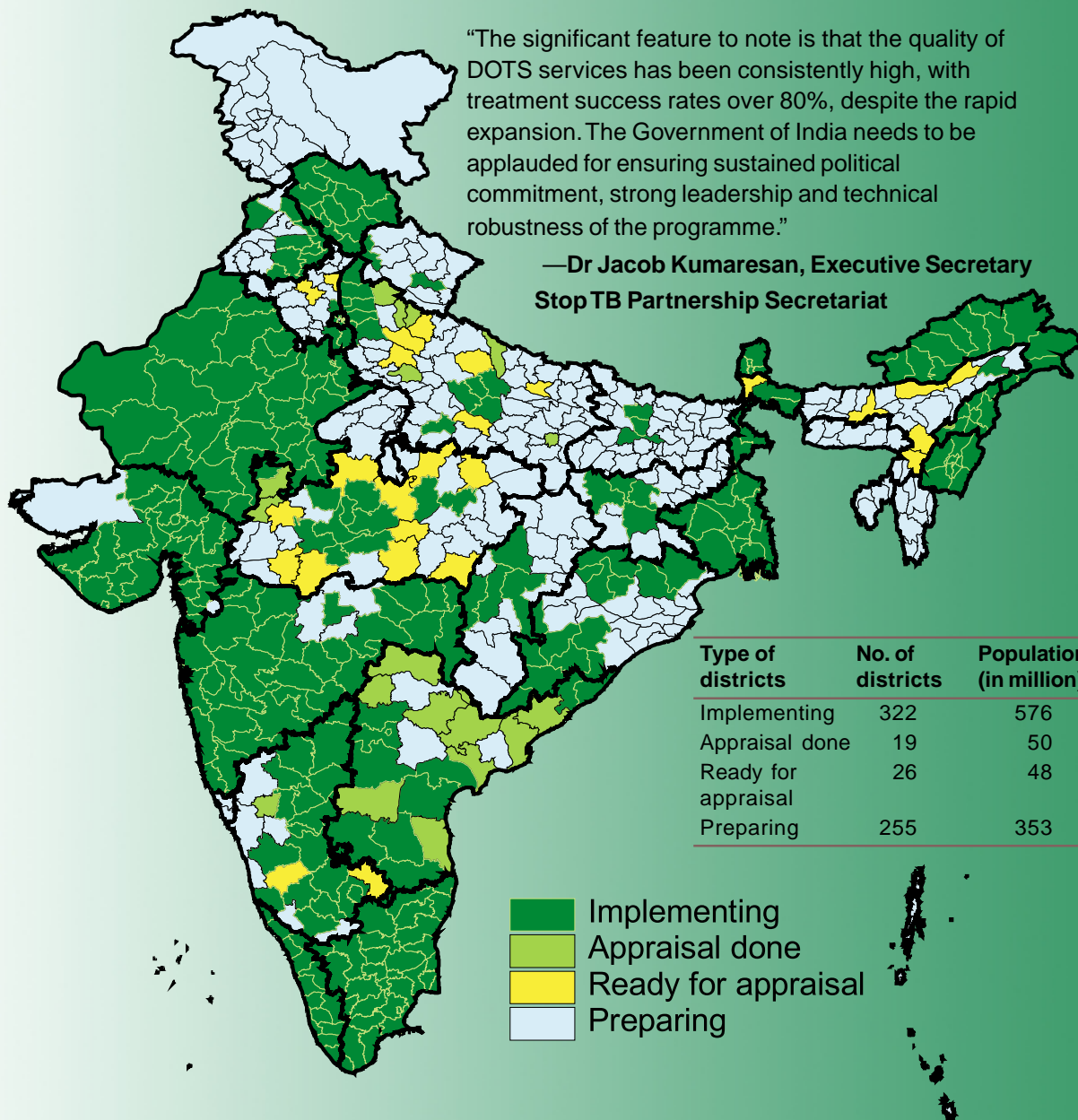
## Benefits of DOTS

- DOTS more than doubles the accuracy of TB diagnosis
- DOTS results in success rates of up to 95%
- DOTS prevents the spread of tuberculous bacilli, thus reducing the incidence and prevalence of TB
- DOTS helps in alleviating poverty by saving lives, reducing the duration of illness and preventing new infectious cases; thus, losing fewer years of employment
- DOTS improves the quality of care and overcomes stigma
- DOTS prevents treatment failure and the emergence of MDR-TB by ensuring patient adherence and an uninterrupted supply of anti-TB drugs
- DOTS lends credence to TB control efforts
- DOTS provides a model for strengthening health services

# Status and Expansion of RNTCP in India

"The significant feature to note is that the quality of DOTS services has been consistently high, with treatment success rates over 80%, despite the rapid expansion. The Government of India needs to be applauded for ensuring sustained political commitment, strong leadership and technical robustness of the programme."

—Dr Jacob Kumaresan, Executive Secretary  
Stop TB Partnership Secretariat



RNTCP status as of February 15, 2003



The Revised National Tuberculosis Control Programme (RNTCP) is an application of the DOTS principles to the Indian context. Following a comprehensive review of national TB control activities in 1992, the GOI adopted the RNTCP using the WHO-recommended DOTS strategy. RNTCP was implemented in pilot areas at the beginning of 1993. Large-scale expansion of DOTS began in late 1998.

From a coverage of 18 million in mid-1998, the RNTCP has now expanded to cover a population of more than 600 million. The GOI plans RNTCP expansion to cover 85% of the country by 2004 and to bring the entire country under RNTCP by the year 2005 in order to meet the global targets for TB control.

## Present Coverage

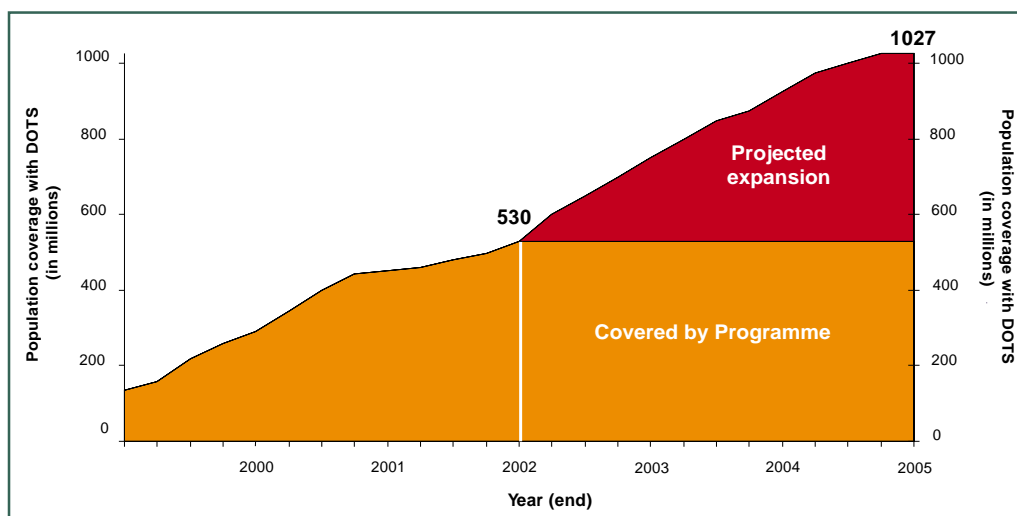
By March 2003, more than 600 million population in over 300 districts in 25 states/Union Territories will have access to DOTS. Nine states/Union Territories are fully covered under the RNTCP.

## RNTCP Accomplishments

- More than 30-fold expansion of DOTS in the past 4 years.
- Second largest Programme in the world in terms of population coverage and the largest in terms of patients initiated on treatment.
- One of the fastest DOTS expansion in the world to have taken place.
- In 1999 alone, India accounted for more than one third of the global increase in DOTS coverage.

## RNTCP Implementation Time-line

- **1992:** National review of the TB programme. DOTS strategy adopted and RNTCP developed.
- **1993:** RNTCP pilot tested in a population of 18 million.
- **1997:** soft loan of Rs 604 crores (US\$ 142 million) obtained from the World Bank to implement RNTCP in one third of the country and to prepare the rest of the country for adopting RNTCP at a later date.
- **1999:** RNTCP expanded 7-fold to become the second largest programme in the world.
- **2001:** 450 million population covered under RNTCP.
- **2002:** More than half of the country (530 million) covered under RNTCP.
- **2004:** Population of 850 million planned to be covered under RNTCP.
- **2005:** Entire country planned to be covered under RNTCP.



Multiyear DOTS expansion plan 2002–2005

- In 2000, 2001 and 2002, India accounted for more than half of the global increase in DOTS coverage.
- In 2002, more than 620,000 patients were initiated on treatment, more patients under DOTS than any other country in the world.
- To date, the RNTCP has placed more than 1.6 million patients on treatment and prevented more than 290,000 additional deaths.

## Progress Made in 2002

### Population/services

- Population coverage increased from 450 million (end 2001) to 530 million (end 2002).
- In 2002, India initiated more than

620,000 patients on treatment under RNTCP.

- Each month, more than 50,000 patients are being initiated on DOTS.
- New smear-positive detection in DOTS area increased from 55% in 2001 to 59% in 2002.
- More than 8 out of 10 patients are successfully treated.
- More than 254,000 health workers cumulatively have been trained.

### Funds

- Funds for full state-wide RNTCP coverage in Orissa and Andhra Pradesh committed by DANIDA and DFID, respectively.
- Global TB Drug Facility assistance for drugs for a population of 200 million granted.

- The Global Fund for AIDS, TB and Malaria (GFATM) will provide financial assistance in:
  - Chattisgarh, Jharkhand and Uttaranchal—Round 1 of GFATM/additional 56 million population
  - Bihar and Uttar Pradesh—Round 2 of GFATM/additional 110 million population
- USAID, through WHO, will assist state-wide implementation of RNTCP in Haryana.

## Others

- Through meetings of professional bodies and medical college workshops, consensus has evolved that DOTS is the most effective strategy to control TB in India.
- At a national level workshop of medical colleges identified as RNTCP nodal centres, a plan of action for the establishment of RNTCP/medical colleges task forces in the states/zones was developed.

- An internal evaluation of RNTCP was conducted.

## Future Directions

- Maintain quality of RNTCP implementation
  - Establish better patient-friendly services
  - Ensure uninterrupted drug supply
  - Train and re-orient staff of RNTCP
- Continue RNTCP expansion
  - Mobilize resources for expansion
- Strengthen supervision, monitoring and evaluation
  - Conduct in-depth reviews and periodic internal evaluations of selected districts
  - Achieve complete electronic connectivity of all RNTCP-implementing districts and states
- Proactively involve other sectors in planning, policy-making, and

**“The programme demonstrates that even limited resources, when wisely allocated, can make a huge difference in the health of many. The leaders and backers of this programme and the more than 200,000 personnel on the front lines of care deserve congratulations for their work. But even without external recognition, the sense of fulfillment that comes from seeing a patient whose life one has made better is one of the unique rewards of our profession; reading the story of this success in India makes us all proud.”**

**—Jeffrey M Drazen. Editorial.**

***New England Journal of Medicine 2002; 347 (18):1444***



Review of RNTCP in Madhya Pradesh by Secretary (H), GOI; along with Principal Secretary, Government of MP; Joint Secretary, GOI; December 2002

- implementation of RNTCP
- Public sectors (ESI, CGHS, Railways, Sanatoria)
  - Medical colleges
  - Private practitioners/NGOs
  - Start service delivery in the already approved areas
  - Accelerate the preparatory activities
  - Strengthen the State TB Cells and State TB training and Demonstration Centres
  - Operationalize the RNTCP/ medical colleges Nodal Task Forces for effective involvement of medical colleges in RNTCP.



Involvement of Railways, West Bengal



## States that have Achieved Full Coverage

### Delhi

Delhi was the first state to be fully covered under the RNTCP.

Total population 13.8 million; 20 districts

- 1996—pilot DOTS project started in 2 chest clinics
- October 2001—achieved full coverage

### Special features

- Service delivery based on a network of chest clinics, not district TB centres.
- Large migratory population, leading to difficulty in case holding and achievement of success rate target.

### Tamil Nadu

Total population 62 million; 30 districts

- 1999—RNTCP implemented in 2 districts
- December 2001—full coverage achieved

### *Special features*

- IEC activities such as street plays, *villupattu* conducted.
- One block in each district studying the health-seeking behaviour of smear-positive cases.

### **Arunachal Pradesh**

Total population 1 million; 13 districts

- December 2002—began implementing in all districts
- December 2002—achieved full coverage

### **Sikkim**

Total population 540,000; 4 districts

- March 2002—began implementation
- March 2002—achieved full coverage

### *Special features*

The strength of the state is a good health infrastructure, trained and dedicated staff, and effective management of drugs and equipments.

### **Union Territory of Chandigarh**

Total population 901,000; 1 district

- January 2002—began implementation

- January 2002—achieved full coverage

### *Special features*

- Compact population
- Good infrastructure
- Public and administrative support
- Large migrant population

### **Manipur**

Total population 2.4 million; 9 districts

- 1998—started RNTCP service delivery in 2 districts in 3rd quarter
- December 2002—achieved full coverage

### *Special feature*

The state has trained manpower and good infrastructure.

### **Rajasthan**

Total population 56 million; 32 districts

- 1998—pilot project began in 2 districts
- 2000—achieved full coverage

### *Special features*

- Operational research being carried out which will help in improving and providing quality service. Various research issues have been identified. “A Study on Prevalence of Chest Symptoms among Patients Attending Health Facilities” has been completed.
- The first issue of the quarterly



Appraisal team in Katni, Madhya Pradesh

RNTCP News Bulletin was released on 20 July 2002.

### **Himachal Pradesh**

Total population 6 million; 12 districts

- 2000—began implementation in 3 districts
- December 2001—achieved full coverage

#### *Special feature*

DOT is provided in all health institutions in the state including

Ayurvedic Health Centres, ESI Hospitals and Dispensaries.

### **Kerala**

Total population 31 million; 14 districts

- June 2000—began implementation in 1 district
- December 2000—achieved full coverage

#### *Special feature*

COMBI Plan is being pilot tested with technical assistance from CTD and Stop TB Partnership, Geneva.

# Success Stories

**You can contribute to the success of the DOTS strategy:**

- As a citizen—by being a DOT provider
- As NGOs and private practitioners—by referring patients suspected with TB, treating TB patients, and by being a part of RNTCP
- As a cured TB patient—by telling people how you benefited from DOTS and about the free services available under RNTCP





## Global Theme and Slogan for World TB Day

The theme for World TB Day 2003 is **People with TB**, and the slogan is **DOTS cured me—it will cure you too!** The theme and slogan emphasize the urgency of educating the public about DOTS, getting people with TB diagnosed and treated in a DOTS programme.

This year's campaign focuses on

transforming cured patients into advocates for TB control. They are the living proof that TB can be cured and that DOTS works!

These cured patients have the potential to be powerful educators and spokespersons for RNTCP. They also have the potential to encourage others to visit DOTS clinics for diagnosis and treatment. In addition, involving cured patients will help in reducing the social stigma attached to TB.



A cured TB patient addressing a gathering on World TB Day 2002 in Solan, Himachal Pradesh

These are only some of the many stories of how the Programme has saved lives and provided hope. These are stories of how we can all make a difference if we try.

## West Bengal

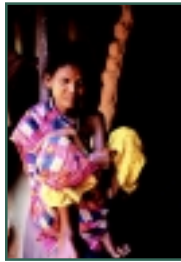


Councillor of Bhirbhum district giving DOT to a patient

## A politician as a DOT provider

**Mr Gurupada**, a politician by profession, is a DOT provider. He provides DOT to 4 patients from a local club which has now become a DOT centre. Local patients are very happy as they no longer have to travel long distances to receive treatment. He also helped retrieve a patient who missed the doses. This goes to show how anyone in the community can contribute to TB control.

## Orissa



Lata Naik before and after treatment



## A cured TB patient

**Lata Naik** had symptoms of cough and fever after her delivery. Despite being treated by a private practitioner for TB, she was no better. Her husband then took her to the peripheral health institute where she was successfully treated with DOTS. Today, her baby and she are both well and healthy, thanks to the Programme.

*Photographs courtesy DANTB, New Delhi*

## Maharashtra

### A religious leader as a DOT provider

**Renuka Das Mantekar** is a lifesaver in the Trambakeshwar temple of Nashik district. He is also a cured TB patient. Apart from saving people from drowning during their holy dip, he creates awareness about TB among the devotees. He often uses a loudspeaker to give messages on DOTS and RNTCP to thousands who throng the temple. He is a shining example of a cured patient being an advocate for the Programme.

## Chandigarh

### A cured patient as a DOT provider



Sarwan Kumar (left) giving DOT to a patient

**Sarwan Kumar**, a labourer, lost both his parents to TB. His brother and he both contracted TB from their parents. As he had lost both his parents to TB, he was determined to fight the disease. He religiously followed his treatment schedule and was cured. He then persuaded his brother to do the same.

Presently, both the brothers refer patients for diagnosis and work as DOT providers. Sarwan Kumar not only ensures that his patients take their medicines but also motivates them to live a disease-free life by taking regular medicines and follow-up sputum examination. He is a strong advocate of DOTS.

**Kerala****STS as a DOT provider**

**Krishnan**, a tribal, was diagnosed as a case of sputum-positive pulmonary TB and put on treatment. After stopping treatment twice, the Senior Treatment Supervisor (STS) again contacted Krishnan only to be told that he did not need any medicines as God would cure him. Krishnan had recently joined a religious group.

The STS made several attempts to bring him back on treatment. As a last resort, the STS told him that he had seen God in his dream and had given him medicines for Krishnan as a gift. He also told him that not only had God specifically mentioned Krishnan's name but also asked him to take the medicines regularly else God would be angry with him. From that day onwards Krishnan took the treatment regularly. It was the ingenuity of the provider that helped retrieve a patient and save his life.

**Gujarat****RNTCP staff team of DOT providers**

This is a story of dedicated health staff members. Dahod has a difficult and hilly terrain, making it difficult for patients to reach their health centre for treatment. So the staff of Dahod came up with the solution that all of its staff would provide DOTS to patients living close to their homes. This helped patients reduce the time and money spent on collecting the drugs from the District TB Centre. As a result there has been a decrease in the default rate of patients in Dahod district.



Staff of Dahod

The entire staff is *voluntarily* providing DOT to the patients from their homes which is more convenient to the patients both in terms of time and location. This was possible because of the constant motivation and support of the District TB Officer, Dr Mrs Rathod. Their mission "To cure our patients and improve our programme further".

## Uttar Pradesh

### A cured patient

Anil is a cured TB patient but there was a time when he nearly died of TB. The cost of treatment was too much for Anil to bear with a family of seven to feed. Then, his employer told him about DOTS and RNTCP. Today, he is cured and believes that TB patients should not lose heart and discontinue treatment. He says that the programme took care of even the smallest of details such as disposable needles or a glass of water. He did not have to spend any money on treatment. His DOT provider would come to the house to look for him if he missed a single dose. DOTS was the best thing that could have happened to him.



Anil with his family and DOT provider

## Delhi

### DOTS saved him

Baidnath was diagnosed with TB but kept missing his appointments or medicines were not available when he was being privately treated. He did not inform his employers due to fear of discrimination. Eventually he discontinued treatment.

When he had a relapse of TB, he was put on DOTS under RNTCP. Today, he is cured. He believes he was saved only because of directly observed treatment and monitoring.



Baidnath receiving medicines from his DOT provider

**DOTS cured me, it will cure you too!**

# RNTCP Activities in 2002

“Currently, about 500 NGOs and nearly two thirds of medical colleges in RNTCP implementing areas are providing RNTCP services. This is not enough and there is room for more participation and involvement. . . .

Reliable means for detection and cure of tuberculosis is within our reach. We have the technical skills, manpower and resources to conquer this disease. I take this opportunity to request each and every one of you to join hands together and spare no efforts to win the battle against tuberculosis.”



—Dr SP Agarwal, Director General of Health Services,  
Ministry of Health and Family Welfare, Government of India,  
(TAI Conference) Goa 2002



## HIV/TB Coordination Activities

- Coordination between the RNTCP and National AIDS Control Programme (NACP) has started in the 6 highly HIV/AIDS prevalent states of Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland and Tamil Nadu. At a later stage, this will be expanded to cover the entire country.
- Sensitization workshops for key policy makers have been held in these 6 States.
- Supplementary training material on HIV/TB has been prepared at the central level and reciprocal training of service providers of both programmes has been conducted.
- Referral linkages between VCTCs and RNTCP sites are being established and reporting of HIV/TB cases at the level of VCTCs has already started.
- NGOs participating in the NACP are being encouraged to open DOTS centres under RNTCP.

The future challenges are to strengthen the existing coordination at the district level to ensure full RNTCP coverage in these states without compromising on its quality and to scale up the HIV/TB programme collaboration to other states with medium- and low-prevalence of TB.

## Internal Evaluation of the RNTCP

In 2002, a systematic internal evaluation of the status of RNTCP implementation was conducted in 35 randomly selected districts. The evaluation was conducted by 16 teams, consisting of Programme staff, who interviewed randomly selected 411 patients and key RNTCP staff, in addition to reviewing records and reports.

*Key findings* of the evaluation were that almost 99% of patients received free drugs and free microscopy services, while nearly three-quarters (73%) of patients received treatment under direct observation during the intensive phase as per RNTCP guidelines. Smear conversion rates and cure rates reported to the CTD were consistent with those in the Tuberculosis Unit (TU) reports and the TB registers.

Inconvenient services and low awareness about TB on the part of the patients were strongly associated with non-observation of treatment—stressing the need for further strengthening of supervision and monitoring, and ensuring the full participation of all Medical Officers in the programme.

CTD and state authorities will conduct similar reviews of randomly selected districts using a standardized format developed for this purpose.

## Involvement of the Private Sector

### Private practitioners

India has the largest private sector in the world which is used by rural and urban patients. Private practitioners (PPs) are often the first point of contact for people with TB and have an important role in the RNTCP. They can support the RNTCP by:

- Ensuring prompt referral of patients with cough for 3 weeks or

more for sputum examination.

- Providing reassurance that TB is curable.
- Treating TB patients with RNTCP-recommended drug regimens.
- Administering rifampicin-containing regimens only if treatment can be directly observed and completion ensured.
- Involvement in RNTCP through one of the approved GOI schemes.

## Hoshangabad: RNTCP Preparations

Hoshangabad district has demonstrated how a dedicated programme officer, good administrative support, and excellent teamwork can work wonders in completing RNTCP preparatory activities in just 4 months.

### Activities undertaken

- Preparatory activities given top priority, time-bound and reviewed every month.
- Civil works completed in just one month by the Public Works Department.
- A micro plan prepared for training of Medical Officers



DOT in Hoshangabad

(MOs), laboratory technicians and field workers.

- MOs trained at the state level within 3 months.
- Training of each batch at the TU was supervised by district headquarter officials to ensure training standards were being met.
- Well-qualified and motivated contractual workers selected.



## More than 1500 private practitioners are involved in RNTCP

### *Maharashtra*

Patients receiving DOT from PPs

- Navi Mumbai (25–30% of district total); Thane Municipal Corporation (20%); Pimpri Chinchwad (18%)

### *Andhra Pradesh*

- Out of 460 PPs involved, 330 PPs are in the Mahavir Project, Hyderabad

### *Kerala*

- In Kannur district, 38 private facilities are providing RNTCP services

### *Assam*

- 62 tea estate hospitals under

Dibrugarh DTC functioning as DOT centres

- Assam Branch of the Indian Tea Association is ready to start 3 RNTCP DMCs
- Maligaon Railway Hospital, Kamrup district, is functioning as a DMC

### *Other states*

- 268 PPs involved in the RNTCP in Gujarat
- Nearly 1000 patients treated by Faleh-e-alam Hospital in Meerut (UP) in the past 1.5 years
- Delhi Medical Association recently completed a pilot project on PP involvement



Sensitization workshop for private practitioners in Rajgarh, Madhya Pradesh

### Schemes for PPs Under the RNTCP

**Scheme 1: *Referral.*** Persons suspected with TB are referred by the PP to a designated microscopy centre (DMC) for smear microscopy examination. If smear negative and further care is required, patients are to be referred to the PP for non-TB care.

**Scheme 2: *Provision of treatment observation.*** PP or staff to provide DOT to patients, ensure sputum collection and default retrieval. Maintain records, and permit on-site monitoring by supervisory staff as per RNTCP guidelines.

**Scheme 3A: *Designated paid microscopy centre—microscopy only.*** A private health facility with its own laboratory can function as an RNTCP DMC and charge service fees. DTC to provide training and supervision of the laboratory technician and other staff. Annual review of approval.

**Scheme 3B: *Designated paid microscopy centre—microscopy and treatment.*** As in Scheme 3A, but in addition the private health facility can serve as a treatment centre. Service fees may be charged but not for the anti-TB drugs administered. Diagnosis, categorization, treatment, record keeping and supervision must follow RNTCP guidelines. In addition, PPs must complete an RNTCP modular training. Address verification must be ensured by PPs before start of treatment. DTCs to train the PPs, supervise quality of care and assist in default retrieval.

**Scheme 4A: *Designated microscopy centre—microscopy only.*** A private health facility with its own laboratory may function as an approved RNTCP DMC that provides free services. The required laboratory materials for microscopy services are provided to DMC by RNTCP. PPs to ensure RNTCP policy is followed, a TB Lab Register maintained, and patients informed of availability of free drugs under RNTCP and/or refer for treatment to a RNTCP DOT centre. DTC to provide training, technical guidance and ensure quality of laboratory services.

**Scheme 4B: *Designated microscopy centre—microscopy and treatment.*** A private health facility can serve as both an approved RNTCP DMC and a treatment centre. Diagnostic services and treatment are provided free of charge, and the required laboratory material are provided to the DMC by RNTCP. All services provided are to follow RNTCP guidelines and as in Scheme 3B.

For details, please refer to the book *Involvement of Private Practitioners in the Revised National Tuberculosis Control Programme*.

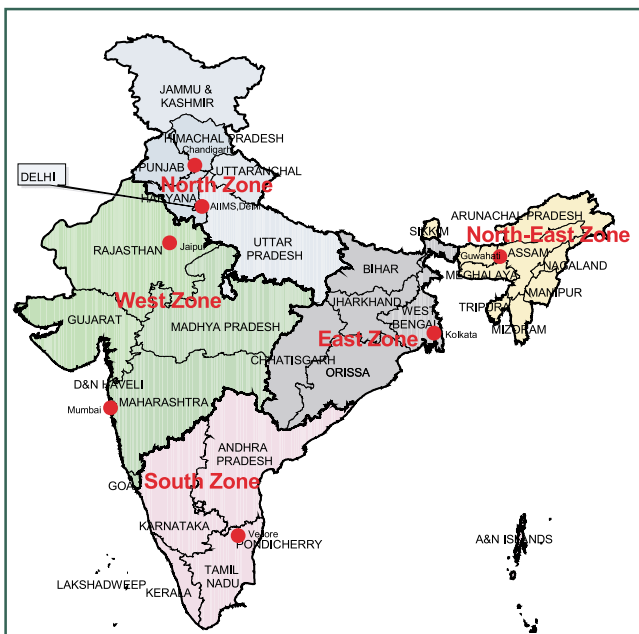
## Medical colleges

The involvement of medical colleges in RNTCP is important because of the large number of TB patients treated at medical colleges, and the respect and trust of the community. They also play an important role in introducing the principles of DOTS as part of the medical curriculum and as advocates for the Programme.

After a series of sensitization seminars and national level workshops, there is a growing consensus that DOTS is the most effective strategy to control TB in India. Increasing number of medical colleges have opened DMC cum DOT centres in their hospitals. RNTCP provides logistic support and additional contractual staff to run

the DMC wherever required.

A national level workshop was convened at the All India Institute of Medical Sciences, New Delhi in October 2002 to take the involvement of medical colleges forward. A National Task Force consisting of representatives from the nodal centres, central institutes and CTD has been formed. Task forces will also be established at the zonal and state level. Zonal workshops are being organized by the nodal centres and their respective State TB Offices to establish the zonal level task force/nodal centre in their respective zones. Members of the zonal level task force will then facilitate the establishment of the state level task force.



Medical colleges identified as zonal nodal centres

- SMS Medical College, Jaipur
- RG Kar Medical College, Kolkata
- LTMM College, Sion, Mumbai
- AIIMS, New Delhi
- Christian Medical College, Vellore
- Guwahati Medical College, Guwahati
- PGI, Chandigarh

The roles and composition of the different level task forces; the ways for coordination with the existing RNTCP structure, identification and prioritization of activities and next steps were identified during the Delhi

workshop. The main objective is to increase the number of medical colleges to adopt and implement RNTCP. Activities identified at the workshop are summarized in the table below.

**Table. Priority activities for medical colleges**

**1. Training/teaching of RNTCP amongst**

- Faculty members to ensure cooperation and internal referrals
- Residents and interns
- Paramedical staff (LTs and nursing staff)
- Undergraduates and postgraduates
- Programme staff where necessary
- Conducting sensitization workshops/CMEs for medical colleges/private sector

**2. Delivery of RNTCP services**

- Establishment of microscopy and DOT centres in all medical colleges
- Strengthen the infrastructure of the laboratory where required
- Involvement in quality assurance network
- Consultation and management of difficult TB cases

**3. Advocacy of RNTCP**

- Sensitization/training through the Indian Medical Association and other professional bodies
- Dissemination through newsletter, press and other media
- Involvement of the Medical Council of India to raise the profile of TB in the medical curriculum

**4. Operational Research**

- To increase case detection of smear-positive cases
- To improve and ensure DOT services (more “patient friendly”), and increase cure rates
- To develop consensus guidelines for the diagnosis and management of childhood TB and extra-pulmonary forms of TB
- Treatment outcomes of TB patients with MDR-TB, and people living with HIV and TB under RNTCP



Inauguration of the nodal college workshop by the Additional Secretary, Meenakshi Dutta Ghosh



Deputy Director General (TB), Dr LS Chauhan, at the nodal college workshop, New Delhi



Joint Secretary, Deepak Gupta, addressing the audience at the nodal college workshop

### Non-governmental organizations (NGOs)

*Why the need for NGO involvement?*  
NGOs play an active role in health promotion in the community and many patients seek treatment through them. With the widespread network of NGOs all over India, it becomes essential to involve them in RNTCP.

Five schemes have been developed for the involvement of NGOs in RNTCP.



NGOs creating awareness about TB through street plays in Orissa

## Schemes for the Involvement of NGOs

**Scheme 1: *Health education and community outreach.*** Train volunteers, disseminate information, counsel families and patients, and retrieve patients who have stopped treatment.

**Scheme 2: *Provision of directly observed treatment.*** Identify, train and supervise volunteers providing directly observed treatment.

**Scheme 3: *In-hospital care for tuberculosis disease.*** Provide smear microscopy for outpatients and hospital care for those who need it. Ensure adherence to diagnostic and treatment policies, and follow-up and record keeping.

**Scheme 4: *Microscopy and treatment centre.*** The NGO operates as a microscopy and treatment centre as per RNTCP policy.

**Scheme 5: *Tuberculosis Unit Model.*** Provides all RNTCP services of diagnosis, treatment, direct observation, defaulter retrieval, recording and registration, and supervision, for a TU (0.5 million population).

## NGOs in RNTCP

The number of NGOs involved in the Programme has grown over time. This is an indication of their commitment to RNTCP and their satisfaction with the schemes developed for their involvement.

There are now 512 NGOs involved in the RNTCP. The maximum number of NGOs are involved in schemes 1, 2 and 4.

Many more NGOs need to be involved to ensure greater accessibility to RNTCP services for patients. As rapid expansion of RNTCP is taking place, the number of NGOs involved

State	Number of NGOs
Gujarat	24
Karnataka	22
Kerala	27
Maharashtra	170
Manipur	40
Sikkim	27
Tamil Nadu	75
West Bengal	32
In other states, the number of NGOs is less than 20	

is expected to grow at the same pace. Greater involvement of NGOs will further contribute to the success of the Programme.

## Other sectors

### *Employee State Insurance Scheme (ESIS)*

ESIS covers a large number of industrial workers and their families. Therefore, it is important that ESIS be involved. This will help provide uniformity of diagnosis, treatment and monitoring services through a wider service base.

An example is the plan for involvement of Ahmadabad Municipal Corporation (AMC).

- **First phase:** First 2 months, ESIS dispensaries refer chest symptom-atics to DMCs belonging to AMC for diagnosis and treatment.

- **Second phase:** Patients and their family members covered under ESIS, after diagnosis in an AMC facility, should be referred for DOTS services to the nearest ESIS dispensary.
- **Third phase:** Designated ESIS LTs to be trained in RNTCP. These LTs would then provide diagnostic services in ESIS laboratories designated as RNTCP DMCs. Patients would receive treatment from the nearest ESIS dispensary or other RNTCP centre.

To date, 2 ESIS laboratories are acting as RNTCP DMCs in AMC, Ahmadabad.



RNTCP implementation under ESIS in West Bengal

**“After having introduced the RNTCP to our hospitals, I have learned more about it. I wish that all doctors and eligible hospitals in India implement RNTCP so that tuberculosis can be eradicated.”**

**—Dr S Arul Rhaj, National President IMA**



Creating awareness about TB in a jail in Mumbai, Maharashtra

## Information, Education and Communication

The main objective of information, education and communication (IEC) is to create awareness, change attitudes and motivate people to access services. It aims at achieving better patient satisfaction, ensuring

greater involvement of the private sector, and continue advocacy efforts to keep TB control at the top of opinion leaders' agenda.

IEC helps improve the quality of care given to TB patients by imparting information not only to patients but also to health providers.

### Role of IEC

#### *National Level*

- Developing a broad IEC framework
- Monitoring and supervision of state and district level IEC activities, with capacity building training for key programme managers
- Formulation of standardized messages to be used at state and district levels

#### *State level*

- Planning state–district level IEC

- Health provider sensitization activities
- Production of state-specific IEC material
- Event management around World TB Day, seminars
- Capacity building of key personnel

#### *District level*

- Implementation
- Dissemination of material
- Use of local media, e.g. *Nautanki* (plays), *Haat/Bazaar*, puppet shows





Puppet show as part of IEC in Gurgaon, Haryana

## IEC Activities in 2002

The key area emphasized in 2002, besides IEC activities at all levels, was a two-way flow of information and sharing of experiences between the field and the central level.

### *National level*

1. Mass media agency hired to oversee:

- media campaign
- public relations

- develop creatives using the on-going KAP study findings, and initiation of mass media activities around World TB Day 2003
  - develop RNTCP logo for launch around World TB Day
  - help in development of prototype IEC material
2. A national level workshop was organized for capacity building of

### **“Question-answer programme”: a novel experiment**

Kerala State TB Control Society (KSTCS) conducted two IEC activities for the general public at the 7-day *Gramasree Mela* and World Ayurveda Congress both held in Ernakulum district during August and October 2002, respectively. KSTCS had an exhibition set up at both events. A small booklet in Malayalam on TB and RNTCP was distributed and a quiz organized with prizes being awarded. The combined use of the booklet and quiz not only helped in promotion and dissemination of information but also in retention of information among the general public.

key programme managers in the planning and implementation of IEC activities. Future meetings are planned to get regular feedback from the states.

3. Production of a film “Laxmi” by the TB Association of India
4. Advertisement on inland letters
5. Production of IEC material with the help of Voluntary Health Association of India.

The COMBI strategy (Communication for Behavioral Impact) is being pilot tested in Kerala, with support from the STOP TB Partnership. The strategy first identifies the behaviour of people that needs to be modified in order to achieve programme objectives, and then accordingly plans campaigns towards modifying that behaviour.

Several innovative schemes have been initiated for IEC such as puppet shows, *Rangoli*, street plays, *Bhavai* (Gujarat). This is one example using local media.



The MO-TC addressing the audience, *Ratha Yathra* in Mandya

***Ratha Yathra***

A *Ratha Yathra* was organized in

Mandya District of Karnataka. The *Ratha Yathra* went around the district for 6 months, covering all Taluks, Blocks and most major villages in the district and finally returning to Mandya. The *Yathra* carried messages written in the local languages about TB, the symptoms, free diagnosis and treatment, and emphasizing the need for DOTS for all TB patients.

The *Ratha Yathra* covered all the local temple festivals, weekly fairs and markets and drew the attention of the public with pre-recorded messages. The Medical Officer TB Control of the respective peripheral health institutions addressed the gathering when the *Ratha Yathra* passed through.

## Electronic Connectivity

RNTCP is steadily progressing to achieve complete electronic connectivity in the country. The Programme has its own website, *www.tbcindia.org*, which posts quarterly reports, important TB-related documents, e-mail facilities, links to other sites, etc. So far, 55% of quarterly reports from districts are sent via electronic media. Ongoing development of the website under the TB Programme Information System project to provide online facilities to district and State TB Officers for the submission of quarterly reports is being undertaken in collaboration with WHO New Delhi.

## Drug Procurement and Management

One of the most important aspects of the RNTCP is to maintain an uninterrupted supply of anti-TB drugs. Drugs are procured through an independent agency, with CTD planning the schedule, requirements, technical specifications and consignee

details approved by the Technical Committee.

## Distribution of drugs

Drugs are supplied by the manufacturers either directly to the districts, and/or in cases of those states with a state drug store to the respective states.

## Monitoring

Monitoring of the stocks received, quantities consumed, closing stock and further requirements is checked through the quarterly reports.

## Quality assurance

- Each batch of anti-TB drugs is checked before dispatch.
- Government medical store depots check stored drugs on a regular basis.
- Central and state drug inspectors check drug samples intermittently and on receiving complaints.
- An independent laboratory to check drug quality will shortly be established.

So far, only 8 states have state drug stores.

# Research Activities

Scientific research provides the foundation of a sound TB control programme. The scientific activities of the national institutes are a tribute to the basic principle that research should be used to make data-driven public health policy.



Drug resistance surveillance specimen being processed, NTI  
Bangalore

The RNTCP has identified priority areas for operational research in order to continuously improve Programme performance. Priority has been given to addressing the constraints to achieving the cure rate of at least 85% of the registered new smear-positive pulmonary TB (NSP+) cases and detecting at least 70% of the estimated NSP+ cases existing in the community. These are listed in the table (see facing page). Research questions need to be asked to find solutions to the constraints. RNTCP encourages submission of relevant operational research proposals to the CTD for funding. Details on the research agenda and format for submitting the proposals are available on the RNTCP website [www.tbcindia.org](http://www.tbcindia.org).

## Annual Risk of TB Infection

A tuberculin survey to estimate the Annual Risk of Infection (ARI) was conducted in different parts of India by the National Tuberculosis Institute (NTI), Bangalore from 2000 to 2003, with support from the Tuberculosis Research Centre (TRC), Chennai and others. The ARI is the preferred epidemiological indicator of the TB situation in a community, as it expresses the overall impact of various factors affecting the transmission of infection, i.e. the load

of infectious cases in the community and efficiency of case finding and treatment programmes.

For the survey, the country was stratified into four zones, viz. north, south, east and west. The survey was designed to estimate the ARI of TB infection in each of the four zones. A sample of 6 districts was selected from each of the north, south and west zones, and 8 districts in the east zone. The total number of clusters to be surveyed in each zone was distributed between the rural and urban areas in proportion to the population. Data analysis has been completed for three zones. Average ARI is 1.9%, 1.8% and 1.4% in the north, west and south zones respectively.

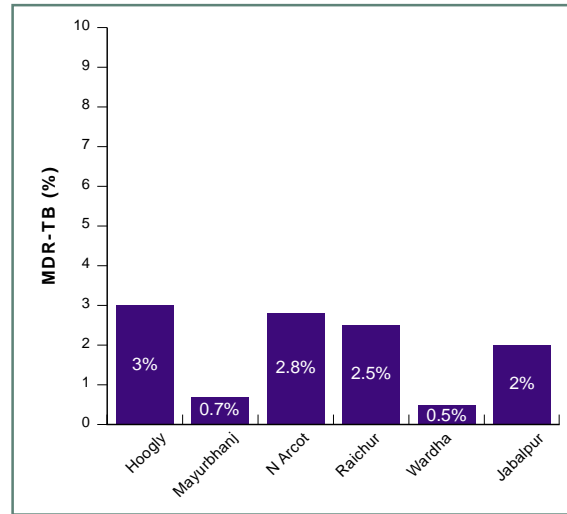
Thus the ARI results suggest inter-regional differences in the rate of transmission of infection. In addition, significantly higher rates of transmission of infection were observed in urban areas compared to rural areas in all the three zones analysed to date.

The results of the survey provide useful information on the prevailing epidemiological situation of TB in different parts of India and shall serve as baseline data for the evaluation of the impact of disease control measures and epidemiological trends in the coming years.

**Table. Operational research agenda**

Objective	Priority research areas
<i>Cure at least 85% of the registered NSP+ cases</i>	<ol style="list-style-type: none"> <li>1 High default rates in some districts</li> <li>2 Varying levels of application of DOT</li> <li>3 Varying quality of DOT by DOT providers</li> <li>4 Inpatient care: indications for inpatient care, treatment outcomes, cost effectiveness of inpatient care</li> <li>5 Impact of HIV/TB and MDR on RNTCP outcomes</li> <li>6 Others: impact of MO-TCs' involvement; role of incentives; treatment of paediatric TB cases; management and outcome of patients treated in the private sector</li> </ol>
<i>Detect at least 70% of the estimated NSP+ cases existing in the community</i>	<ol style="list-style-type: none"> <li>1 Health-seeking behaviour of patients</li> <li>2 Application of RNTCP diagnostic algorithm</li> <li>3 Quality assurance of smear microscopy services</li> <li>4 Lack of awareness of TB and RNTCP amongst the community</li> <li>5 KAP of RNTCP amongst medical colleges and TB hospitals</li> <li>6 KAP of RNTCP amongst the private sector</li> <li>7 Annual risk of TB infection</li> <li>8 Others: impact of HIV/AIDS stigma on people presenting with suspected TB; impact of involving VCTC in RNTCP; HIV seroprevalence amongst TB patients at sentinel sites; infection control practices at the field level; economic impact/cost-effectiveness of RNTCP implementation</li> </ol>

Prevalence of initial MDR-TB is below 4% in selected districts



## Surveillance of Drug Resistance

Surveillance of drug resistance was carried out in the districts of Hoogly, Jabalpur, Mayurbhanj, North Arcot, Raichur, and Wardha to determine the proportion of initial drug resistance among self-reporting new smear-positive cases. This multi-centric project was undertaken by TRC, Chennai, a WHO-recognized centre of excellence in mycobacteriology, and NTI, Bangalore. The WHO/IUATLD guidelines were followed for the study procedure.

Two sputum samples were collected from each of the 350 new smear-positive cases detected in each district. Drug susceptibility testing were carried out on the samples of culture positive patients.

Results from 6 districts show that the prevalence of MDR-TB is below

4% among previously untreated patients. This data is valuable in order to monitor the impact of RNTCP over time and also to ensure that treatment regimens used are appropriate.

These results are reassuring because MDR-TB rates are not high, but require that RNTCP be expanded to the whole country so that high cure rates be maintained through strict adherence to DOT.

## Other Studies

In addition to the above, baseline studies on accessibility and utilization of RNTCP services by the marginalized sectors (SC/ST, women, people living with HIV/AIDS) have been initiated. A special study on the infrastructure implementation mechanism of the RNTCP is also to be initiated in the near future.

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India accounts for 30% of the global TB burden along with which it has to combat MDR-TB and HIV-TB. Only by coordinating between various sectors is it possible to achieve national coverage while maintaining quality services. Operational and biomedical research in priority areas must be carried out with the aim to translate research into policy. The study concludes that by balancing basic science and public health it is possible to strengthen the operational aspects of the programme. *Indian J Pediatr* 2002; 69 Suppl 1:S50–S56.

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The study analyses the effects of new policies introduced in 1993 that resulted in increased resources, improved laboratory-based diagnosis, direct observation of treatment, and standardized anti-TB regimens and reporting system. By September 2001, more than 200,000 health workers were trained and more than 436 million (40%) people had access to services. About 3.4 million patients were evaluated for TB and nearly 800,000 received treatment with a success rate greater than 80%. The study concludes that the improved Programme has prevented an estimated 200,000 deaths with indirect savings of more than US\$ 400 million—more than eight times the cost of implementation. *New Engl J Med* 2002; 347:1420–1425.

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Most private pharmacies in India dispense prescriptions for TB drugs from private practitioners. In a cross-sectional study, the dispensing practices for TB and knowledge about the national TB programme of 300 pharmacies were assessed. Monthly, 2800 prescriptions were dispensed by the pharmacies. Doctors' prescriptions were for several months duration, but half of the patients bought drugs one dose at a time for self-administration. Although 95% of pharmacists were not aware of the existence of the TB programme, 97% were willing to learn and contribute towards TB control. The need and the potential of private pharmacies for participation in TB control are highlighted. *Int J Tuberc Lung Dis* 2002; 6:171–173.

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The study sought the reasons behind the delay in diagnosis and treatment. Men tended to delay treatment more than women. The study concluded that it was imperative to increase awareness in the community about TB, and existence of free diagnosis and treatment. Better referral mechanisms between the private and public providers are needed. Both private and government practitioners need to be alert to TB symptoms while examining outpatients. *Int J Tuberc Lung Dis* 2002; 6:789–795.

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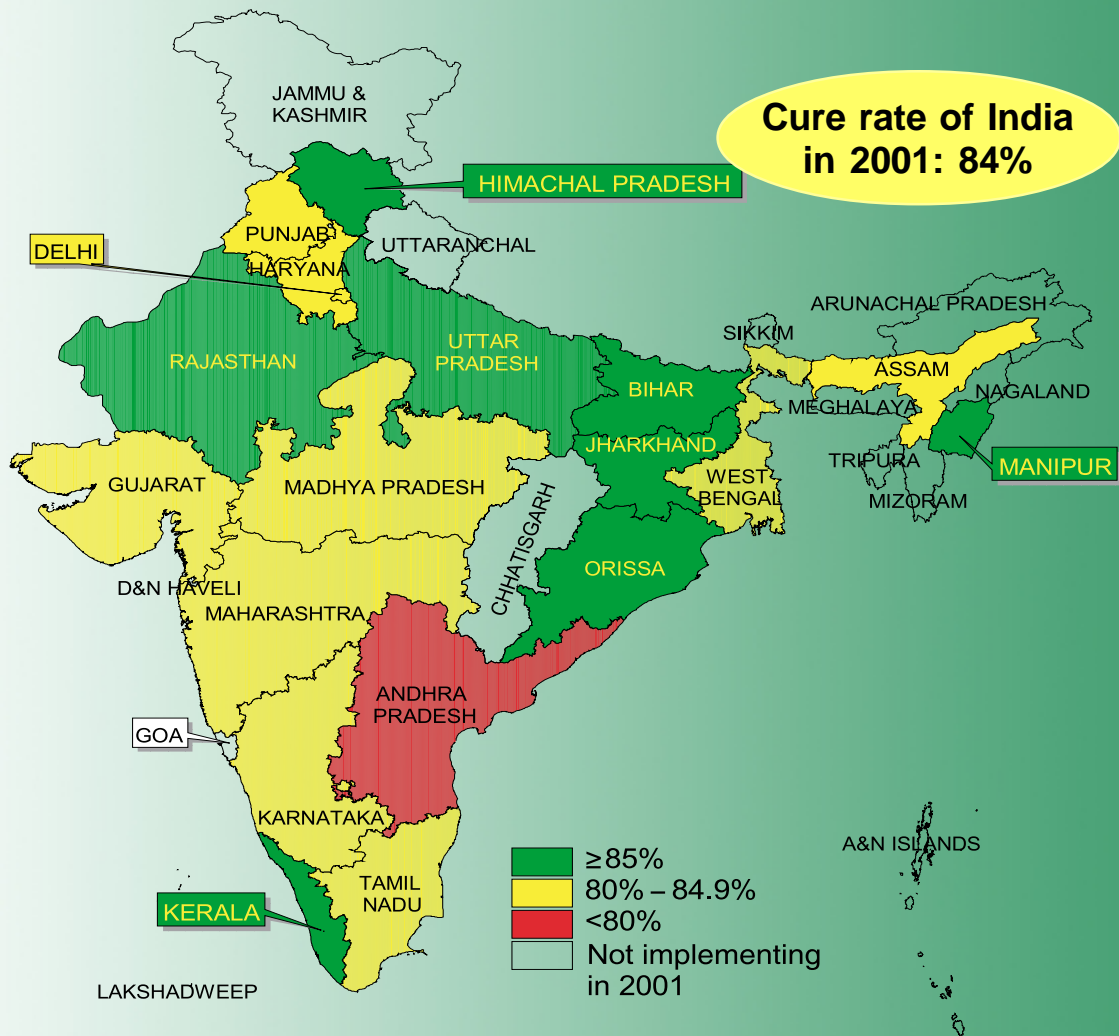
Survey of annual risk of TB infection: house-to-house registration in Nagpur

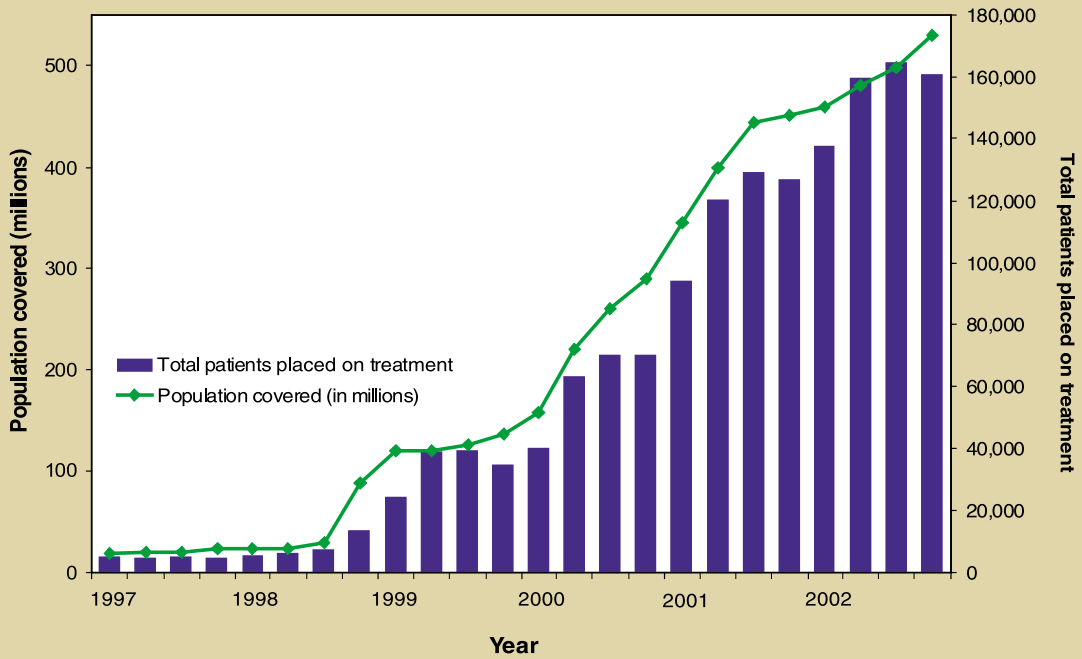
- 23 Vaidyanathan PS, Chadha VK, Jagannatha PS. Annual risk of tuberculous infection in rural areas of Junagadh district. *Indian Journal of Communicable Disease* 2002; 33:231–240.
- 24 Vijay S, Balasangameshwar VH, Jagannatha PS, Saroja VN, Shivashankar B, Jagota P. Retreatment outcome of smear positive tuberculosis cases under DOTS in Bangalore City. *Indian J Tuberculosis* 2002; 49:195–204.

#### Book

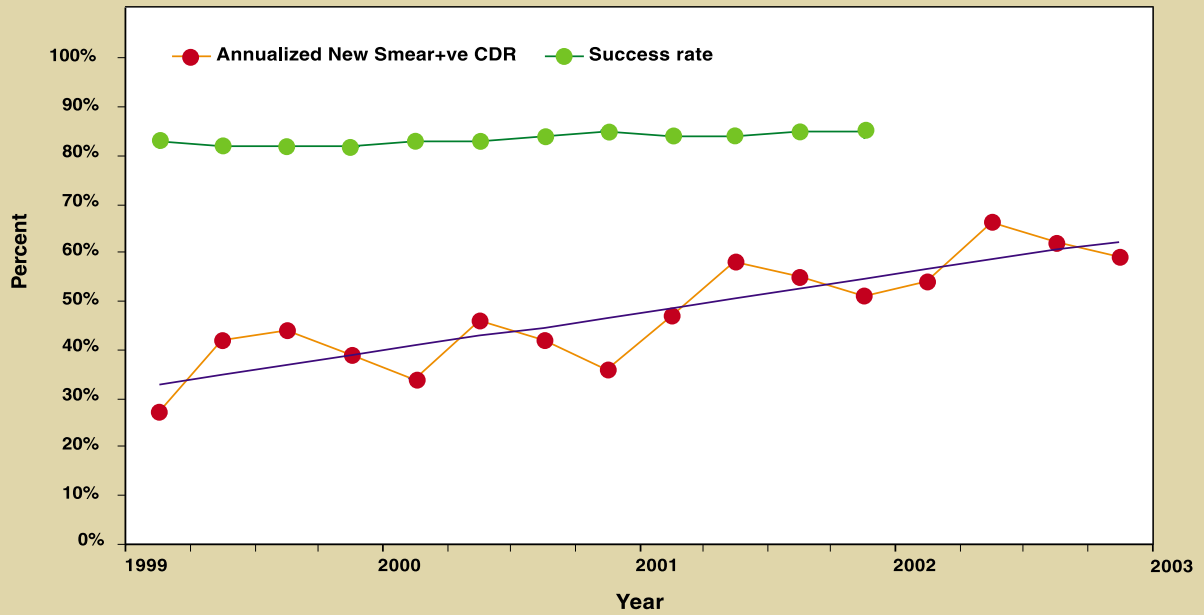
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# Performance of the RNTCP





**Population coverage and patient numbers, 1997–2000**



**Case detection and success rate**

## RNTCP Annual Summary 2002

### Performance of states

**Case finding (2002), smear conversion (Quarters 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)**

State	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No./100,000 (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
Andhra Pradesh	382	39216	139	16577	60 (71)	0.7	85%	78%	81%
Arunachal Pradesh	11	417	139	232	76 (89)	0.3	96%		
Assam	12	1749	149	778	66 (78)	0.5	87%	84%	86%
Bihar	112	10514	94	4462	40 (47)	0.8	94%	91%	92%
Chandigarh	9	1244	164	453	59 (69)	0.7	83%		
Chhatisgarh	91	3218	110	1222	41 (48)	1.0	82%		
Delhi	138	32604	236	10738	78 (92)	0.7	86%	82%	84%
Gujarat	480	57274	120	22974	48 (57)	0.6	89%	81%	82%
Haryana	51	7504	146	2770	54 (64)	0.8	85%	81%	83%
Himachal Pradesh	61	12448	206	4555	75 (65)	0.6	93%	90%	90%
Jharkhand	50	5470	112	2460	50 (59)	0.8	95%	90%	90%
Karnataka	218	26769	125	11346	53 (62)	0.8	89%	81%	82%
Kerala	318	23923	75	10039	32 (63)	0.6	90%	88%	89%
Madhya Pradesh	76	9041	136	3084	46 (54)	1.2	85%	83%	84%
Maharashtra	876	90156	121	31915	43 (50)	1.0	89%	84%	85%
Manipur	24	5478	244	1615	72 (72)	1.3	90%	85%	85%
Nagaland	17	84		45		0.4			
Orissa	139	17633	136	8715	67 (79)	0.6	89%	85%	86%
Punjab	72	1537	75	662	32 (38)	0.4	90%	80%	82%
Rajasthan	565	93462	166	36470	65 (76)	0.7	91%	85%	86%
Sikkim	5	993	219	445	95 (111)	0.6	88%		
Tamil Nadu	621	80895	130	31135	50 (59)	1.0	89%	82%	83%
Uttar Pradesh	207	30356	147	12802	62 (73)	0.8	92%	90%	90%
Uttaranchal	19	44		22		0.1			
West Bengal	747	70844	103	29535	43 (51)	0.8	88%	82%	84%
<b>Grand Total</b>	<b>5299</b>	<b>622873</b>	<b>128</b>	<b>245051</b>	<b>51 (59)</b>	<b>0.8</b>	<b>89%</b>	<b>84%</b>	<b>85%</b>

\*Values are not expected for blank spaces; red indicates below/above RNTCP targets. To derive an annualized rate and to account for districts that started implementation in 2002, CDR was calculated for the full quarters of implementation and then this rate applied to the additional quarter(s). Method of calculation of CDR: For example, districts starting in quarter 2, 2002 are calculated by adding the NSP cases for quarters 3 and 4 divided by 2 (no. of full quarter implementation) and then multiplied by 4 to get the Annualized NSP cases (ANSP). This ANSP is then used with the population of the district to determine the rate per 100,000 population. CDR calculation is based on Census population (115/100,000) and Manipur (100/100,000). For other states, estimated total NSP cases (85/100,000).

\*\*Cure and success rates are not expected for states that began implementing RNTCP after 4th quarter, 2001.

## Performance of districts

Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
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### Andhra Pradesh

Anantapur	36	5585	153	2399	66 (78)	0.7	83%	76%	78%
Chittoor	37	4630	124	2104	56 (66)	0.6	71%	65%	69%
Cuddapah	26	1158		392		0.0			
Guntur	44	1707		606		0.0			
Hyderabad	37	4520	123	1730	47 (55)	0.9	91%	83%	84%
Mahbubnagar	35	4582	131	2063	59 (69)	0.6	78%	50%	64%
Medak	27	2860	107	1192	45 (53)	1.0	89%	82%	87%
Nellore	27	NR***		NR***		NR***			
Prakasam	31	863		287		0.0			
Rangareddi	35	3675	105	1542	44 (52)	0.6	88%	84%	84%
Srikakulam	25	4345	172	1903	75 (89)	1.2	85%	72%	87%
Vizianagaram	22	5291	236	2359	105 (124)	0.9	93%	92%	92%

### Arunachal Pradesh

Along	1	44	154	18	62 (73)	0.3	100%		
Bomdila	2	66	149	43	94 (110)	0.2	100%		
Deomali	2	54	85	33	57 (67)	0.2	100%		
Pashighat	1	58	169	34	93 (109)	0.2	100%		
Tezu	2	102	183	61	107 (126)	0.2	100%		
Zero	3	93	124	43	54 (63)	0.5	83%		

### Assam

Dibrugarh	12	1749	149	778	66 (78)	0.5	87%	84%	86%
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### Bihar

Muzaffarpur	37	3576	96	1071	29 (34)	1.3	90%	88%	90%
Patna	47	4010	85	1820	39 (45)	0.7	95%	92%	92%
Vaishali	27	2928	108	1571	58 (68)	0.6	96%	93%	93%

### Chandigarh

	9	1244	164	453	59 (69)	0.7	83%		
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\*\*\*NR: Not reported as of 15 February 2003

## Performance of districts

### Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
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#### Chhatisgarh

Bilaspur-CG	20	797	121	306	45 (52)	1.0	86%		
Durg	28	864	101	311	34 (40)	1.1	78%		
Raipur	30	978	99	433	45 (53)	0.8	81%		
Rajnandgaon	13	579	139	172	42 (49)	1.6	85%		

#### Delhi

BJRM Chest Clinic	3	944	315	334	111 (131)	0.5	86%	77%	77%
DDU Chest Clinic	7	3136	448	966	138 (162)	0.8	81%	62%	74%
GTB Chest Clinic	8	1952	244	560	70 (82)	0.5	85%	83%	83%
Gulabi Bagh	9	1266	141	462	51 (60)	0.5	93%	89%	89%
Jhandewalan	5	1019	204	329	66 (77)	0.7	87%	84%	84%
Karawal Nagar	9	3049	339	1049	117 (137)	0.8	77%	72%	75%
Kingsway	7	1265	181	455	65 (76)	0.6	92%	89%	92%
LN Chest Clinic	3	273	91	124	41 (49)	0.2	80%	84%	84%
LRS	16	3212	201	1077	67 (79)	0.6	89%	88%	88%
Moti Nagar	5	1290	258	323	65 (76)	1.1	87%	78%	80%
Narela	5	835	167	283	57 (67)	0.9	85%	85%	85%
NDMC	5	548	110	176	35 (41)	0.6	92%	86%	86%
NDTC	2	516	258	143	72 (84)	0.6	85%	89%	89%
Nehru Nagar	14	2759	197	1063	76 (89)	0.6	83%	81%	81%
Patparganj	7	1980	283	668	95 (112)	0.7	88%	84%	84%
RK Mission	7	1476	211	521	74 (88)	0.7	91%	86%	86%
RTRM Chest Clinic	6	781	130	285	48 (56)	0.5	86%	82%	82%
SGM Chest Clinic	10	3444	344	948	95 (112)	0.9	91%	86%	87%
Shahadra	5	1871	374	567	113 (133)	0.7	85%	83%	84%
SPM Marg	5	988	198	405	81 (95)	0.4	85%	84%	84%

#### Gujarat

Ahmadabad	25	2209	87	841	33 (39)	0.8	94%	87%	88%
AMC	35	5847	166	1693	48 (57)	0.7	89%	75%	75%
Amreli	14	1362	98	584	42 (49)	0.5	92%	85%	85%



## Performance of districts

### Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
<b>Gujarat (continued)</b>									
Anand	19	3103	167	1491	80 (94)	0.5	86%	80%	80%
Banas Kantha	27	3734	137	1211	44 (52)	1.0	91%	81%	81%
Bharuch	19	2122	128	1101	67 (78)	0.4	73%		
Bhavnagar	25	2762	112	1088	44 (52)	0.5	90%	75%	76%
Dahod	16	2560	157	1023	63 (74)	0.5	93%	83%	84%
Gandhinagar	6	883	155	385	67 (79)	0.7	95%	83%	83%
Jamnagar	19	1999	104	740	39 (45)	0.7	93%	84%	85%
Junagadh	30	3134	105	1273	43 (50)	0.7	86%	78%	79%
Kheda	20	2904	144	1157	57 (67)	0.5	90%	81%	82%
Mahesana	17	2111	126	930	55 (65)	0.7	93%	88%	88%
Mansa-GJ	16	2195	135	957	59 (69)	0.7	93%	87%	87%
Panch Mahals	20	3572	176	1472	73 (86)	0.7	91%	82%	82%
Rajkot	32	3173	100	1136	36 (42)	0.7	91%	82%	83%
Sabar Kantha	21	3103	149	1308	63 (74)	0.6	93%	83%	84%
Surat	15	1007	66	571	38 (44)	0.4	85%	82%	83%
Surat Municipal Corp	24	1357	56	510	21 (25)	0.8	84%	82%	82%
Surendranagar	15	1000	66	364	24 (28)	0.5	92%	81%	81%
Vadodara	14	1523	107	750	53 (62)	0.5	92%	82%	82%
Vadodara Corp	13	1348	103	416	32 (37)	1.0	90%	79%	79%
Valsad	26	2604	99	1146	43 (51)	0.5	87%	78%	79%
Vyara (Surat)	10	1662	159	827	79 (93)	0.6	86%	76%	79%
<b>Haryana</b>									
Faridabad	22	3402	155	1292	59 (69)	0.9	84%	83%	83%
Gurgaon	17	2420	146	957	58 (68)	0.6	86%	79%	82%
Sonapat	13	1682	132	521	41 (48)	1.1	87%	81%	82%
<b>Himachal Pradesh</b>									
Bilaspur-HP	3	696	204	297	87 (76)	0.5	91%	91%	92%
Chamba	5	617	144	233	52 (45)	0.7	90%		

## Performance of districts

### Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
<b>Himachal Pradesh (continued)</b>									
Hamirpur-HP	4	842	204	319	77 (67)	0.7	91%	92%	92%
Kangra	13	2594	194	979	73 (64)	0.6	93%	92%	92%
Kinnaur	1	149	177	58	69 (60)	0.8	98%	100%	100%
Kullu	4	1479	389	435	115 (100)	0.9	92%	91%	91%
Lahul & Spiti	0.3	46	138	10	30 (26)	1.3	88%	91%	91%
Mandi	9	2483	276	883	98 (85)	0.6	92%	89%	89%
Shimla	7	1240	172	416	58 (50)	0.6	93%	89%	89%
Sirmaur	5	906	198	342	75 (65)	0.5	94%	86%	88%
Solan	5	828	166	387	77 (67)	0.5	95%	89%	89%
Una	4	568	127	196	44 (38)	0.9	90%	89%	89%
<b>Jharkhand</b>									
Palamu	21	3079	147	1543	74 (87)	0.6	96%	91%	92%
Ranchi	28	2372	85	912	33 (39)	1.1	93%	88%	89%
Hazaribagh	1	19		5		2.0			
<b>Karnataka</b>									
Bagalkot	17	1959	119	841	51 (60)	1.0	91%	87%	87%
Bangalore City	50	4479	89	1660	33 (39)	0.6	89%	84%	85%
Bangalore Rural	19	1906	122	860	54 (63)	0.7	84%		
Bangalore U	15	1516	100	711	47 (55)	0.6	88%	85%	85%
Bellary	20	3450	170	1488	73 (86)	1.0	83%	69%	70%
Bijapur	18	1923	106	728	40 (47)	1.0	90%	83%	83%
Chitradurga	15	2561	170	1193	79 (93)	0.8	91%	81%	84%
Davanagere	18	2324	130	814	45 (54)	1.3	90%	83%	83%
Koppal	12	1482	124	725	61 (71)	0.6	91%	82%	82%
Mandya	18	2491	141	1117	63 (75)	0.7	84%	74%	74%
Raichur	16	2678	162	1209	73 (86)	0.7	95%	91%	91%
<b>Kerala</b>									
Alappuzha	21	1958	93	756	36 (72)	0.8	91%	90%	90%

## Performance of districts

### Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1-3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
<b>Kerala (continued)</b>									
Ernakulam	31	2446	79	1022	33 (66)	0.7	88%	87%	87%
Idukki	11	530	47	213	19 (38)	0.5	89%	88%	88%
Kannur	24	1993	83	805	33 (67)	0.5	92%	90%	90%
Kasaragod	12	771	64	341	28 (57)	0.6	88%	88%	89%
Kollam	26	2284	88	985	38 (76)	0.8	91%	90%	90%
Kottayam	20	1695	87	753	39 (77)	0.5	90%	88%	89%
Kozhikode	29	1888	66	728	25 (51)	0.6	89%	87%	90%
Malappuram	36	2007	55	814	22 (45)	0.7	90%	88%	90%
Palakkad	26	2187	84	958	37 (73)	0.5	90%	87%	87%
Pathanamthitta	12	835	68	378	31 (61)	0.4	92%	89%	89%
Thiruvananthapuram	32	2334	72	918	28 (57)	0.7	89%	87%	88%
Thrissur	30	2272	76	1099	37 (74)	0.4	88%	86%	86%
Wayanad	8	723	92	269	34 (68)	1.0	88%	90%	90%
<b>Madhya Pradesh</b>									
Bhopal	18	2653	144	1026	56 (66)	0.9	85%	88%	88%
Hoshangabad	11	225		96		0.7			
Raisen	11	1461	130	414	37 (43)	1.8	85%	79%	79%
Rajgarh	13	1767	141	518	41 (49)	1.5	88%	82%	84%
Sehore	11	1013	94	331	31 (36)	1.2	86%	82%	82%
Vidisha	12	1922	158	699	58 (68)	1.1	84%	77%	79%
<b>Maharashtra</b>									
Ahmednagar	41	2115	52	561	14 (16)	1.6	88%	77%	77%
Aurangabad-MH	20	2083	102	787	38 (45)	1.0	94%	87%	87%
Aurangabad MCorp	9	810	93	302	35 (41)	0.7	90%	85%	85%
Bhandara	11	969	111	403	43 (50)	0.6	77%		
Bid	22	1542	71	581	27 (32)	0.9	84%	67%	67%
Chandrapur	21	492		183		0.9			
Dhule	17	2356	138	825	48 (57)	1.4	89%	81%	81%

## Performance of districts

Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
<b>Maharashtra (continued)</b>									
Gadchiroli	10	283		114		0.9			
Gondiya	12	1010	185	378	68 (80)	1.0	91%		
Jalgaon	37	3943	107	1605	44 (51)	0.9	89%	76%	76%
Jalna	16	2181	135	791	49 (58)	1.1	89%	81%	84%
Kalyan Dombivli MC	12	963	108	384	43 (50)	0.8	79%		
Kolhapur	30	3171	105	1201	40 (47)	1.0	91%	87%	87%
Kolhapur Mun Corp	5	683	141	232	48 (56)	1.0	93%	72%	72%
Latur	21	1431	69	503	24 (28)	0.7	84%	79%	79%
Mumbai	119	22688	190	7117	60 (70)	0.9	90%	86%	86%
Nagpur Muni Corp	20	49		18		0.9			
Nagpur Rural	19	885	79	332	27 (31)	0.7	92%		
Nanded	29	136		94		0.2			
Nandurbar	13	1702	130	752	57 (68)	1.0	87%	82%	90%
Nasik	39	5074	131	2004	52 (61)	0.9	92%	88%	88%
Nasik Corp	11	687	62	213	19 (23)	1.1	81%	71%	75%
Navi Mumbai	7	1315	187	425	60 (71)	1.2	83%	66%	68%
Osmanabad	15	981	67	307	21 (25)	1.4	91%	94%	94%
Parbhani	15	151		47		1.3			
Pimpri Chinchwad	10	1583	157	571	57 (67)	0.6	95%	89%	89%
Pune	25	3323	131	1314	52 (61)	0.6	94%	89%	89%
Pune Rural	37	2928	80	1049	29 (34)	1.0	91%	87%	87%
Raigarh-MH	22	3247	147	1230	56 (66)	1.0	91%	87%	87%
Ratnagiri	17	2259	133	814	48 (56)	0.9	88%	80%	83%
Sangli	21	2271	106	771	36 (42)	0.9	89%	80%	80%
Sangli Muni Corp	4	498	114	198	45 (53)	0.6	83%	72%	72%
Satara	28	3337	119	1156	41 (49)	1.2	89%	81%	82%
Sindhudurg	9	1146	133	392	45 (54)	1.0	84%	74%	79%
Solapur	30	2224	75	716	24 (28)	1.3	72%	72%	72%
Solapur Muni Corp	9	1133	130	336	38 (45)	1.2	62%	41%	41%
Thane	45	4804	107	1811	40 (47)	1.1	89%	86%	86%
Thane Muni Corp	13	2190	174	713	57 (66)	0.8	86%	82%	82%

## Performance of districts

### Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
<b>Maharashtra (continued)</b>									
Wardha	12	587	120	319	65 (76)	0.5	88%		
Yavatmal	25	926	115	366	43 (50)	0.7	77%		
<b>Manipur</b>									
Bishnupur	2	493	252	179	90 (90)	0.8	91%		
Chandel	1	372	326	111	102 (102)	1.3	94%		
Churachandpur	2	742	331	190	86 (86)	1.4	89%		
Imphal	8	1918	230	593	71 (71)	1.3	92%	85%	85%
Imphal East	4	174	44	49	12 (12)	1.7	84%	80%	80%
Imphal West	4	307	70	94	21 (21)	1.3	97%	86%	86%
Senapati	4	361	100	126	34 (34)	0.9	85%		
Tamenglong	1	99	96	31	31 (31)	1.3	82%		
Thoubal	4	718	261	153	56 (56)	2.2	82%		
Ukhrul	1	294	241	89	75 (75)	0.7	89%		
<b>Nagaland</b>									
Kohima	3	1		0					
Mokokchung	2	12		2		0.0			
Mon	3	16		13		0.2			
Phek	1	1		1		0.0			
Tuensang	4	43		18		1.0			
Wokha	2	7		7		0.0			
Zunheboto	2	4		4		0.0			
<b>Orissa</b>									
Debagarh	3	223	81	106	39 (45)	0.6	89%	93%	93%
Gajapati	5	554	182	265	85 (100)	0.5	84%		
Jharsuguda	5	706	139	288	57 (67)	0.8	90%	91%	91%
Kalahandi	13	934	90	590	57 (67)	0.3	88%		
Kandhamal	6	609	128	379	73 (86)	0.2	77%		

## Performance of districts

Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
<b>Orissa (continued)</b>									
Kendujhar	16	1993	128	837	54 (63)	0.9	90%	87%	88%
Koraput	12	1263	107	758	64 (76)	0.2	93%	87%	87%
Malkangiri	5	727	151	432	90 (106)	0.3	83%	68%	72%
Mayurbhanj	22	4033	182	1994	90 (106)	0.7	91%	89%	89%
Nabarangapur	10	745	73	456	45 (53)	0.3	84%	74%	80%
Nuapada	5	450	143	202	61 (72)	0.7	87%		
Rayagada	8	1263	158	720	89 (105)	0.4	76%	77%	78%
Sambalpur	9	1050	113	418	45 (53)	0.8	93%	86%	88%
Sundargarh	18	3083	169	1270	69 (82)	0.8	93%	90%	90%
<b>Punjab</b>									
Bathinda	12	27		14		0.4			
Ludhiana	30	117		46		0.4			
Patiala	18	1377	75	594	32 (38)	0.4	90%	80%	82%
Rupnagar	11	16		8		0.3			
<b>Rajasthan</b>									
Ajmer	22	4245	195	1681	77 (91)	0.7	93%	89%	90%
Alwar	30	4319	144	1758	59 (69)	0.8	90%	83%	84%
Banswara	15	2783	185	1208	81 (95)	0.6	93%	87%	91%
Baran	10	2078	203	780	76 (90)	0.8	92%	87%	88%
Barmer	20	2232	114	810	41 (49)	1.1	88%	80%	83%
Bharatpur	21	2533	121	985	47 (55)	0.8	91%	89%	90%
Bhilwara	20	4409	219	1505	75 (88)	0.7	93%	90%	90%
Bikaner	19	2566	135	1020	54 (63)	0.6	92%	81%	82%
Bundi	10	1677	174	676	70 (83)	0.8	93%	85%	85%
Chittaurgarh	18	2847	158	1148	64 (75)	0.5	94%	89%	90%
Churu	17	3053	180	1094	64 (76)	0.8	90%	83%	84%
Dausa	13	2239	170	832	63 (74)	0.8	92%	90%	90%
Dhaulpur	10	1521	155	494	50 (59)	0.8	90%	83%	84%

## Performance of districts

### Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1-3, 2002) and treatment outcomes (2001)

District	Popn covered in 100,000 by 31.12.02	Total cases treated	Annual total detection rate*	New S +ve cases treated	Annual S +ve detection rate* No. (%)	Ratio S -ve to S +ve patients	3-month conversion rate of new S +ve patients	Cure rate of new S +ve patients**	Success rate of new S +ve patients**
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#### Rajasthan (continued)

Dungarpur	11	2630	238	1391	126 (148)	0.4	89%	76%	78%
Ganganagar	18	2730	153	1278	71 (84)	0.5	89%	79%	80%
Hanumangarh	15	2474	163	962	63 (75)	0.5	91%	83%	84%
Jaipur	53	9878	188	3354	64 (75)	0.9	91%	86%	86%
Jaisalmer	5	712	140	256	50 (59)	1.1	92%	89%	89%
Jalore	14	1677	116	621	43 (50)	0.9	90%	82%	83%
Jhalawar	12	1654	140	643	54 (64)	0.8	91%	83%	84%
Jhunjhunun	19	2824	148	1077	56 (66)	0.7	90%	85%	85%
Jodhpur	29	3459	120	1121	39 (46)	1.5	91%	84%	86%
Karauli	12	2291	190	887	74 (87)	0.5	86%	85%	89%
Kota	16	2391	152	850	54 (64)	0.9	94%	88%	89%
Nagaur	28	3908	141	1367	49 (58)	1.0	92%	86%	87%
Pali	18	2851	157	1183	65 (77)	0.8	94%	93%	94%
Rajsamand	10	1804	183	756	77 (90)	0.6	88%	84%	84%
Sawai Madhopur	11	2336	209	901	81 (95)	0.6	93%	90%	91%
Sikar	23	3401	149	1190	52 (61)	0.9	91%	88%	89%
Sirohi	9	1486	175	722	85 (100)	0.5	86%	79%	79%
Tonk	12	2846	235	1340	111 (113)	0.5	93%	91%	94%
Udaipur	26	5608	213	2580	98 (115)	0.4	87%	78%	81%

#### Sikkim

East	2	457	223	235	111 (130)	0.6	86%		
North	0.4	87	254	35	98 (115)	0.5	90%		
South	1	267	237	100	84 (99)	0.6	88%		
West	1	182	181	75	74 (87)	0.5	95%		

#### Tamil Nadu

Chennai	42	6438	153	2158	51 (60)	1.2	91%	86%	87%
Coimbatore	42	4323	102	1582	37 (44)	0.9	90%	80%	81%
Cuddalore	23	3170	139	1151	50 (59)	1.0	92%	88%	88%

## Performance of districts

Case finding (2002), smear conversion (Quarter 4, 2001 and Quarters 1–3, 2002) and treatment outcomes (2001)

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<b>Tamil Nadu (continued)</b>									
Dharmapuri	28	2221	78	996	35 (41)	0.5	92%	85%	85%
Dindigul	19	2962	154	1060	55 (65)	1.1	90%	85%	86%
Erode	26	3025	118	1464	57 (67)	0.7	87%	76%	77%
Kancheepuram	29	4356	152	1534	53 (63)	1.3	88%	74%	77%
Kanniyakumari	17	2054	123	652	39 (46)	1.2	93%	85%	85%
Karur	9	1233	132	498	53 (63)	1.0	82%	79%	79%
Madurai	26	2594	101	852	33 (39)	1.5	86%	69%	69%
Nagapattinam	15	1448	97	593	40 (47)	1.0	89%	85%	85%
Namakkal	15	1962	131	698	47 (55)	1.0	91%	83%	84%
Perambalur	12	1465	124	590	50 (59)	0.9	91%	75%	75%
Pudukkottai	15	2136	147	891	61 (72)	0.8	89%	82%	84%
Ramanathapuram	12	2053	173	747	63 (74)	1.0	87%	80%	80%
Salem	30	3072	103	1566	52 (62)	0.3	89%	89%	89%
Sivaganga	12	1434	125	485	42 (50)	1.4	91%	84%	84%
Thanjavur	22	2678	121	992	45 (53)	0.9	90%	74%	75%
Theni	11	2073	189	705	64 (76)	1.4	89%	76%	76%
The Nilgiris	8	613	80	275	36 (42)	0.5	91%	83%	83%
Thiruvallur	27	4756	174	1966	72 (84)	0.9	77%	58%	65%
Thiruvarur	12	1182	113	468	47 (56)	1.0	86%		
Tiruchirappalli	24	2759	115	1256	53 (62)	0.7	97%	92%	92%
Tirunelveli	28	5515	197	1771	63 (74)	1.4	86%	83%	84%
Tiruvanmalai	22	2375	109	1134	52 (61)	0.8	93%	78%	78%
Toothukudi	16	2269	145	987	63 (74)	0.9	92%	79%	79%
Vellore	35	4130	119	1786	51 (60)	0.7	95%	90%	90%
Viluppuram	29	3729	127	1393	47 (56)	1.0	89%	82%	83%
Virudhunagar	18	2870	164	885	51 (59)	1.7	90%	80%	80%
<b>Uttaranchal</b>									
Almora	6	9		4		0.0			
Dehradun	13	35		18		0.1			



## Performance of districts

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#### Uttar Pradesh

Baghpat	12	1553	133	568	49 (57)	1.0	88%	83%	84%
Barabanki	27	3512	131	1520	57 (67)	0.7	86%	87%	88%
BCM Hospital Sitapur	1	266	266	99	99 (116)	0.7	89%	93%	93%
Gautam Budh Nagar	12	1535	129	631	53 (62)	0.6	92%	86%	88%
Ghaziabad	33	5364	163	2276	69 (81)	0.7	92%	87%	88%
Lucknow	37	5210	142	2219	60 (71)	0.6	91%	93%	93%
Meerut	30	6548	218	3102	103 (122)	0.7	95%	93%	93%
Rae Bareli	29	3426	119	1373	48 (56)	1.2	94%	90%	90%
Unnao	27	2942	109	1014	38 (44)	1.3	90%	87%	87%

#### West Bengal

Bankura	32	4139	130	1967	62 (73)	0.6	92%	87%	88%
Bardhaman	69	8755	127	3472	50 (59)	0.9	89%	82%	82%
Birbhum	30	3556	118	1718	57 (67)	0.7	87%	80%	82%
Haora	43	4796	112	1723	40 (47)	0.9	86%	79%	81%
Hugli	50	6704	133	2460	49 (57)	1.0	81%	80%	84%
Jalpaiguri	34	4755	140	2246	66 (78)	0.6	91%	84%	84%
Koch Bihar	25	1221	98	611	49 (57)	0.5	83%		
Kolkata	46	4644	101	1939	42 (50)	0.5	89%	89%	89%
Maldah	33	4403	134	1941	59 (69)	0.8	85%	68%	73%
Medinipur East	44	831	36	275	12 (14)	1.1	89%		
Medinipur West	52	2023	76	960	36 (43)	0.5	88%		
Murshidabad	59	6936	118	2830	48 (57)	1.0	90%	84%	87%
Nadia	46	4518	98	1842	40 (47)	0.9	91%	86%	86%
North 24 Parganas	89	7364	82	2901	32 (38)	0.7	87%	80%	80%
Puruliya	25	933	117	422	51 (60)	0.8	91%		
South 24 Parganas	69	5266	76	2228	32 (38)	0.7	88%	82%	83%

<b>Total</b>	<b>5299</b>	<b>622873</b>	<b>128</b>	<b>245051</b>	<b>51 (59)</b>	<b>0.8</b>	<b>89%</b>	<b>84%</b>	<b>85%</b>
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The impact of TB on our society is tremendous. It is in all our interests to educate people that TB is curable and treatment is available FREE of cost.

Everyone has to be aware that people with TB should not face discrimination.

Remember, millions of Indians have had TB. You or one of your family could become ill with TB. To successfully control TB, the Programme and people with TB need your help. So give your support and encouragement.

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## Tuberculosis Control: 3 Truths

- Every patient with cough for more than 3 weeks should have 3 sputum smears examined in a competent laboratory. No patient should start treatment for pulmonary TB without 3 sputum tests.
- All tuberculosis patients must be effectively treated, most importantly the smear-positive (infectious) cases. Only observed treatment with proven regimens can ensure cure.
- The public system has a responsibility to monitor the diagnosis and treatment of every tuberculosis patient, most importantly the smear-positive (infectious) cases.

