Revised National Tuberculosis Control Programme

-An Overview

Central TB Division
Ministry of Health & Family Welfare
New Delhi
Overview of the presentation

- Introduction
- The problem of TB - Indian Scenario
- Evolution of TB Control Programme in India
- RNTCP - Objectives, structure and key activities
- Programme surveillance, supervision & monitoring
- Achievements of RNTCP
- Linkages with NRHM
- Challenges
- Future plans
Introduction

• TB is a disease caused by bacterium M.tb
• Airborne transmission
  – Any individual can be infected
• An individual infected with M. tb has only 10% life time risk to develop active TB disease
  – Co-infection with HIV or any immuno-deficient condition increases this risk
• More than 80% TB affects the lungs
  – About 50% are sputum smear positive and are infectious
• Any other organ of the body (except hair and nails) can be affected- Extra- Pulmonary TB
• The best way to control TB is early detection and cure of infectious pulmonary TB cases
The problem of TB in India
India is the highest TB burden country accounting for one fifth of the global incidence

Global annual incidence = 9.1 million
India annual incidence = 1.9 million

India is 17th among 22 High Burden Countries (in terms of TB incidence rate)

Non-HBCs 20%
Other 13 HBCs 16%
Philippines 3%
Indonesia 6%
Ethiopia 3%
Pakistan 3%
Bangladesh 4%
South Africa 5%
China 14%
Nigeria 5%

Source: WHO Geneva; WHO Report 2008: Global Tuberculosis Control; Surveillance, Planning and Financing
Why TB Control is a priority?

- **Incidence:** 1.9 million new TB cases annually
  - Incidence more in north and in urban areas

- **Prevalence:** 3.8 million bacteriologically positive (2000)

- **Deaths:** about 325,000 deaths due to TB each year

- 2.6 million people living with HIV; ~1.2 million co-infected with HIV and TB
  - ~5% of TB patients estimated to be HIV positive
- **MDR-TB** in new TB cases is ~3% and in previously treated cases is ~12%
- TB affects predominantly economically productive age group leading to huge socio-economic impact
Evolution of RNTCP
Piloting of RNTCP

• In 1992, NTP (started in 1962) was jointly reviewed by GOI, SIDA and WHO, and they concluded that:
  – NTP suffered from managerial weakness,
  – inadequate funding,
  – over-reliance on x-ray with low case detection,
  – low rates of treatment completion, and
  – lack of systematic information on treatment outcomes

• Following 1992 review, RNTCP designed based on internationally recommended DOTS strategy

• Started on a pilot scale in 1993
Directly Observed Treatment, Short-course (DOTS) - a five point strategy

- Political commitment
- Diagnosis by microscopy
- Adequate supply of Short Course drugs
- Directly observed treatment
- Accountability
From pilot project to National Programme

• RNTCP launched as a national programme in 1997

• Expansion was planned in a phased manner

• Prior to starting service delivery, the preparatory activities in the district were certified by an appraisal mechanism

• Entire country covered under RNTCP by March’06
Operational structure of RNTCP in the state

State TB Cell
- STO, Deputy STO
- MO, Accountant, IEC Officer, SA, DEO

District TB Centre
- DTO, MO-DTC, LT, DEO, Driver
- Urban TB Coordinators, Communication Facilitator

Tuberculosis Unit
- MO-TCSTS, STLS

Microscopy Centre
- MO, LT

DOT Centre
- DOT Provider – MPW, NGO, PP, Comm Vol

- Designated IRL and DOTS-Plus site TB-HIV Coordinator
- Nodal point for TB control
- One/ 5 lakh (2.5 lakh in hilly/difficult/tribal area)
- One/ lakh (0.5 lakh in hilly/difficult/tribal area)
- TBHV
Implementation of RNTCP

District Health Society

District TB Officer

DEO/Accountant

STS/STLS TBHVs (Urban)

Contractual LTs (20-50%)

TB Unit for every 250,000/500,000 population

TB Unit (Sub-district Hospital/CHC) (MO-TC)

DMC for every 50,000/100,000 population

DMC (PHC/CHC)

DMC (PHC/CHC)

DMC (PHC/CHC)

DMC (PHC/CHC)

DMC (PHC/CHC)

PHC

PHC

PHC

SC SC SC SC SC

Community Volunteers – AWW; ASHA; PPs; NGOs etc
### THE STOP TB STRATEGY

<table>
<thead>
<tr>
<th><strong>VISION</strong></th>
<th>A TB-free world</th>
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<tbody>
<tr>
<td><strong>GOAL</strong></td>
<td>To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals and the Stop TB Partnership targets</td>
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| **OBJECTIVES** | • Achieve universal access to quality diagnosis and patient-centred treatment  
• Reduce the human suffering and socioeconomic burden associated with TB  
• Protect vulnerable populations from TB, TB/HIV and drug-resistant TB  
• Support development of new tools and enable their timely and effective use |
| **TARGETS**    | • MDG 6, Target 8: Halt and begin to reverse the incidence of TB by 2015  
• Targets linked to the MDGs and endorsed by Stop TB Partnership:  
  – 2005: detect at least 70% of infectious TB cases and cure at least 85% of them  
  – 2015: reduce prevalence of and deaths due to TB by 50%  
  – 2050: eliminate TB as a public health problem |
Components of STOP TB Strategy

1. Pursuing quality DOTS expansion and enhancement

   Additional components

2. Addressing TB/HIV and MDR-TB
3. Contributing to health system strengthening
4. Engaging all care providers
5. Empowering patients and communities
6. Enabling and promoting research (diagnosis, treatment, vaccine, OR)
RNTCP – Goal and Objectives

• Goal
  – The goal of TB control Programme is to decrease mortality and morbidity due to TB and cut transmission of infection until TB ceases to be a major public health problem in India.

• Objectives:
  – To achieve and maintain a case detection of at least 70% of new sputum positive TB patients
  – To achieve and maintain a cure rate of at least 85% in such patients
Major activities under RNTCP

- Case detection
- Treatment of TB patients
- Surveillance and Monitoring
- TB/HIV collaborative activities
- DOTS-Plus for management of MDR-TB
- Public-private-mix (PPM)
- Advocacy, Communication and Social Mobilization (ACSM)
RNTCP provides free and quality assured diagnosis by sputum microscopy

~ 12,500 DMCs established
27 State level IRLs
4 National Reference Labs
Case detection

• Sputum microscopy is the primary tool for diagnosis

• Diagnosis using standard diagnostic algorithms
  – Pulmonary TB
  – Pediatric TB
  – Guidance on some forms of Extra-pulmonary TB

• Guidelines for Laboratory quality assurance developed and implemented
RNTCP Laboratory Network

Central TB Division

National Reference Lab

Lab Committee

State TB Cell

Intermediate Reference Lab

District TB Centre

TU

MC 1

MC 2

MC 3

National level

State level

District level

4 NRLs

27 IRLs

>12,000 DMCs

(one per 50,000-100,000 population)

Staff concerned with sputum microscopy
EQA: DTO, STLS and Lab Technicians

DOTS—sure cure for TB.
Quality Assurance (QA)

External Quality Assessment (EQA)
- 1. On Site Evaluation (OSE)
- 2. Panel Testing
- 3. Random Blinded Rechecking (RBRC)

Internal Quality Assurance (Quality Control)
- 1. Instrument checks
- 2. Reagent quality check

Quality Improvement (QI)
- 1. Data Collection
- 2. Data Analysis
- 3. Solving problems
RNTCP Treatment Regimens and Quality of drugs
Patient flow

TB suspect (Cough > 2 weeks)

- Diagnosis
- Categorization
- Start of treatment
- Registration

Follow-up and outcome reporting

DOTS—sure cure for TB.
# RNTCP Categories and Regimens

<table>
<thead>
<tr>
<th>Category of Treatment</th>
<th>Type of Patient</th>
<th>Regimen*</th>
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<tbody>
<tr>
<td><strong>Category I</strong></td>
<td>New sputum smear-positive</td>
<td>$2H_3R_3Z_3E_3+$</td>
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<tr>
<td></td>
<td>Seriously ill** new sputum smear-negative</td>
<td>$4H_3R_3$</td>
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<tr>
<td></td>
<td>Seriously ill** new extra-pulmonary</td>
<td></td>
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<tr>
<td></td>
<td>Sputum smear-positive Relapse</td>
<td>$2H_3R_3Z_3E_3S_3 +$</td>
</tr>
<tr>
<td></td>
<td>Sputum smear-positive Failure</td>
<td>$1H_3R_3Z_3E_3 +$</td>
</tr>
<tr>
<td></td>
<td>Sputum smear-positive Treatment After Default</td>
<td>$5H_3R_3E_3$</td>
</tr>
<tr>
<td></td>
<td>Others***</td>
<td></td>
</tr>
<tr>
<td><strong>Category II</strong></td>
<td>New Sputum smear-negative, not seriously ill</td>
<td>$2H_3R_3Z_3 +$</td>
</tr>
<tr>
<td></td>
<td>New Extra-pulmonary, not seriously ill</td>
<td>$4H_2R_3$</td>
</tr>
<tr>
<td><strong>Category III</strong></td>
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Patient-wise drug boxes

A unique feature of RNTCP are the patient-wise drug boxes (for adult and paediatric cases), which improve patient care, adherence, and drug supply and drug stock management.
Directly Observed Treatment
All patients receive free drugs under direct observation by a DOT provider (health worker or community based volunteer) accessible and acceptable to the patient and accountable to the health system.
Why Directly Observed Treatment (DOT)?

• Necessary to prevent patients from interrupting treatment throughout the duration of treatment

• Ensures that patients receive
  – the right drugs
  – in the right doses
  – for the right duration of treatment
Mechanism of DOT

• DOT-provider can be anybody who is accessible and acceptable to the patient and accountable to the health system and who is not a family member
  – Can be health care workers, ASHA, Anganwadi Workers, NGO workers, private practitioners, community volunteers, shop keepers, cured patients, etc.

• During intensive phase (first 2-3 months), all doses are given to the patients under the direct observation of the DOT provider

• During continuation phase (remaining part of treatment), the first dose of the week is given to the patients under direct observation of the DOT provider
Programme surveillance, supervision & Monitoring Strategy
The need for intensive supervision and monitoring

- Over all good performance but many districts continue to perform poorly
- Large number of newly implementing districts where good practices need to be established & sustained
- Over the time people tend to forget things, may falter as they slip into routine practices
- Need for continuous supervision & monitoring in order to identify problems and implement corrective actions
- RNTCP has shifted the onus of curing patients from the patients to the health system
  - Therefore the need for **sense of accountability at all levels**

**What gets supervised ‘gets done’**
RNTCP “Supervision and Monitoring strategy”

- Programme has a well defined strategy for S & M
- It has checklists for all levels of staff
- It has a compendium of indicators
Existing inputs for facilitating supervision and monitoring

- Clear technical and operational guidelines in RNTCP
- Comprehensive modular training to all staff
- Robust recording/reporting system
- Additional full-time sub-district level supervisory staff (STS, STLS) with two-wheelers
- Full time district/ state level programme managers
- Adequate funds for mobility/operationalization
- Technical assistance through RNTCP consultants
Essential components of the strategy

1. Supervision
   – Protocol for Supervisory visits/ Check list/ Supervisory register

2. Programme surveillance system
   – Records/ Reports/ Monitoring indicators

3. Review meetings
   – Stated frequency – district-state-national level
   – Programme review checklist for CMO/ DM; DHS/ HS

4. Evaluations
   – Internal – 2 districts per state per quarter; 1 state per month by Central team
   – External – Joint Monitoring Mission; every 3 years
Proper documentation using standard Records and Registers
Programme Surveillance System

Peripheral Health Institute (DMC and other PHIs)

Monthly PHI Report

Tuberculosis Unit

Quarterly CF, SC, RT, PM Reports

System electronic from district level upwards

District TB Centre

Electronic reports)

Additional Feedback

Quarterly Reports

CF, SC, RT, PM

Central TB Division

State TB Cell

Quarterly Feedback

District TB Centre

Additional Feedback
EPI-CENTRE: RNTCP Data processing system
External Evaluations undertaken

• Joint Monitoring Mission (JMM) by WHO and other development partners in 2000, 2003 and 2006
• Conclusions
  – JMM 2000
    • RNTCP is succeeding and its results have been excellent
  – JMM 2003
    • Extra-ordinarily rapid expansion of the programme & highly economical
  – JMM 2006
    • Excellent system of recording & reporting with indicators for monitoring & evaluation; well integrated into general health system
• Future plan
  – JMMs planned in 2009 and 2012
Programme Surveillance System

Peripheral Health Institute (DMC and other PHIs)

Monthly PHI Report

Tuberculosis Unit

Quarterly CF, SC, RT, PM Reports

Cohort analysis

System electronic from district level upwards

Additional Feedback

District TB Centre Electronic reports)

Quarterly Reports CF, SC, RT, PM

Central TB Division

State TB Cell

Quarterly Reports CF, SC, RT, PM

Feedback

Central TB Division

State TB Cell
TB HIV Collaboration
TB/HIV collaborative activities

• **TB/HIV Action Plan** - implemented by RNTCP and NACP jointly, focusing on:
  – Training of service providers
  – Service delivery linkages
  – Monitoring
  – Information, Education, and Communication

• Implementation started:
  – in 2001, in 6 high HIV prevalent States (population 311 million)
  – expanded in 2004, to 8 additional States (population 323 million)
  – New TB-HIV National framework in 2008 and under this the entire country covered
Drug resistant TB
Addressing Drug Resistant TB

• Prevention by implementing quality DOTS

• Diagnosis of drug resistant TB by
  – A network of quality assured culture and DST reference laboratories

• Treatment
  – With second line drugs using standardized regimen (24-27 months), supervised treatment, bacteriological & clinical follow-up and reporting of outcomes.
  – 300 times costly than 1st line drugs, more toxic and less effective
• **Status**
  
  – Accredited labs
    • 6 IRLs (GJ, MH, AP, DL, KE & TN)
    • 2 private labs (BPRC, Hyderabad & CMC Vellore)
  
  – 7 states initiated treatment services
    (GJ, MH, AP, DL, HR, KE & WB)
  
  – 2 states have initiated identification of MDR suspects (RJ and TN)
Opportunities for Public Private Mix
Revised NGO/PP schemes

- Scheme for ACSM
- Scheme for Sputum Collection
- Scheme for Transport
- Scheme for Microscopy center
- LT Scheme
- Culture and DST Scheme
- Scheme for Treatment Adherence
- Scheme for Urban Slums
- Scheme for the Tuberculosis Unit
- Scheme for TB/HIV
Achievements of RNTCP
DOTS Coverage by District, India
31st March 2006

Total districts: 632
Total population: 1,114 million

Nation wide DOTS coverage
632 districts – 1,114 million people covered under RNTCP
Achievements under RNTCP

Since implementation
- > 40 million TB suspects examined
- > 9 million pts placed on treatment
- > 1.6 million lives saved

Achievements in line with the global targets
Quality diagnostic and treatment services

- ~12,500 decentralized designated microscopy centers established
- EQA system for sputum microscopy as per international guidelines
- Quality assured drugs
- Patient wise drug boxes
- Patient friendly DOT services
Network of nearly 0.4 million DOT providers:

- Private doctor in Pune
- Unani doctor in Jaipur
- NGO Worker in Andhra
- Homeo doctor in Pune

Quality of DOT ensured through Supervision
PPM activities for involvement of all health care providers

- Involvement of NGOs and Private Practitioners
  - Schemes revised in 2008
  - Presently > 2500 NGOs, 17,000 PPs involved
- Involvement of professional bodies like IMA, IAP
- Other Central government departments/PSUs
  - CGHS, Railways, ESI, Mining, Shipping
- Corporate sector
  - ~150 Corporate Houses participating
- Involvement of FBOs like CBCI
- Involvement of Medical Colleges
  - Task Forces and Core Committees formed
  - 260 Medical colleges involved
Well defined IEC Strategy

- Web based resource centre
- Communication facilitators provided to support IEC at district level
- Ongoing capacity building of programme managers for planning and implementing need based IEC activities
Progress towards Millennium Development Goals

- **Indicator 23**: between 1990 and 2015 to halve prevalence of TB disease and deaths due to TB

  ![Graph showing prevalence and mortality rates](image)

- **Indicator 24**: to detect 70% of new infectious cases and to successfully treat 85% of detected sputum positive patients
  - The global NSP case detection rate is 61% (2006) and treatment success rate is 85%
  - RNTCP consistently achieving global bench mark of 85% treatment success rate for NSP; and case detection rate 70% (2007)
Linkages and integration with NRHM
Role of State and District TB Control Societies under NRHM

- NRHM has provided an “umbrella” in all states
  - Repositioning of RCH and NDCPs in integrated State/District Health Societies

- TB Program Committee - Similar structure as the STCS/ DTCS

- Member Secretary of TB Programme Committee (or Joint Secretary of Health Society) should be the STO/DTO
  - The Programme officers would continue to administer, supervise and monitor all programme activities

- No change in implementation of RNTCP

- The RNTCP-TB account would continue to be maintained independently, with the programme officer being one of the signatory
Monitoring under NRHM

- Gaps in infrastructure and service delivery to be addressed through “Additionalities under NRHM”
- NRHM opens an window of opportunity for strengthening DOTS implementation
  - Over all health systems strengthening
  - Up gradation of laboratories
  - ASHA as active community DOT providers
  - Use of untied funds to support patient care services
- The programme would report to NRHM on key performance indicators quarterly
  - RNTCP recording and reporting would continue
  - RNTCP Annual Action Plans would be incorporated into the NRHM PIP
Challenges
Challenges

• Achieving universal access while maintaining and further improving the quality of services across the country

• Continued motivation of human resources to perform optimally and maintaining the efficiency levels.

• Promoting rational use of first line and second line anti-TB drugs outside the programme for prevention of MDR and XDR TB

• Scaling up culture & DST and treatment services for MDR-TB.

• Scaling up of PPM activities to link all providers to the national programme

• TB-HIV collaboration

• Promote operational research to address the local challenges

• Introduction of new tools for diagnosis and drugs for treatment
Future plan
Future plan

- Maintaining/improving quality and reach of DOTS
- Scaling up of MDR-TB management
- Engaging all care providers
- Promoting community involvement and ownership
- Further strengthening TB-HIV collaborative activities
- Introduction of newer diagnostics
Thank you
Treatment Outcome of Smear Positive Cases registered under RNTCP DOTS, 1993-2Q07

**NSP**
N = 3,303,525

- Transferred out; 19,753; 1%
- Default; 221,068; 7%
- Failed; 79,326; 2%
- Died; 149,632; 5%
- Treatment Completed; 64,870; 2%
- Cured; 2,768,876; 83%

**Sp + Retreatment**
N = 1,215,303

- Transferred out; 14,302; 1%
- Default; 190,285; 16%
- Failed; 64,084; 5%
- Died; 88,628; 7%
- Treatment Completed; 156,951; 13%
- Cured; 701,053; 58%
Extra-pulmonary TB – By Site

<table>
<thead>
<tr>
<th>Year</th>
<th>Total New Cases</th>
<th>Extra-pulmonary TB</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Case Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>2004</td>
<td>991,010</td>
<td>15% (144,375)</td>
</tr>
<tr>
<td>2005</td>
<td>1,067,786</td>
<td>16% (171,259)</td>
</tr>
<tr>
<td>2006</td>
<td>1,137,336</td>
<td>16% (183,180)</td>
</tr>
<tr>
<td>2007</td>
<td>1,198,254</td>
<td>17% (206,744)</td>
</tr>
<tr>
<td>2008 (1Q+2Q)</td>
<td>621,297</td>
<td>18% (110,245)</td>
</tr>
</tbody>
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Source of pie-diagram: RNTCP Data from 13 Districts, Q3 2004
Treataement outcome of New Extra-Pulmonary Patients registered under RNTCP DOTS (1Q05-2Q07) (all forms of EP TB)

Total cases (n = 461,424)

- Completed: 420,241, 92%
- Died: 11,042, 2%
- Failure: 750, 0%
- Defaulted: 24,346, 5%
- Tran Out: 5,045, 1%
RNTCP: Assessment of Impact

• Nation wide ARTI Survey – 2008-10
  – Co-ordinated by NTI, Bangalore in association with
    • New Delhi TB Centre (North Zone)
    • MGIMS, Wardha (West Zone)
    • LRS Institute, New Delhi (East Zone)
    • CMC, Vellore (South Zone)

• Disease prevalence Surveys – 2007-09
  – TRC Chennai – MDP project
  – NTI, Bangalore
  – MGIMS, Wardha
  – PGI, Chandigarh
  – AIIMS, New Delhi
  – JALMA, Agra
  – RMRCT, Jabalpur

  } Symptomatic screening + CXR + Sputum Smear + Culture

  } Symptomatic screening + Sputum Smear + Culture

• Repeat ARTI and Disease prevalence surveys planned in 2015