



# Revised National Tuberculosis Control Programme

# OUTLINE OF PRESENTATION

- Introduction
- Burden Of The Disease
- Evolution Of RNTCP
- Goals And Objectives Of RNTCP
- DOTS
- Stop TB Strategy
- Organization
- RNTCP Endorsed TB Diagnostics
- Newer Initiatives
- TB-HIV,
- Pediatric TB & MDR-TB
- National Strategic Plan

# Tuberculosis

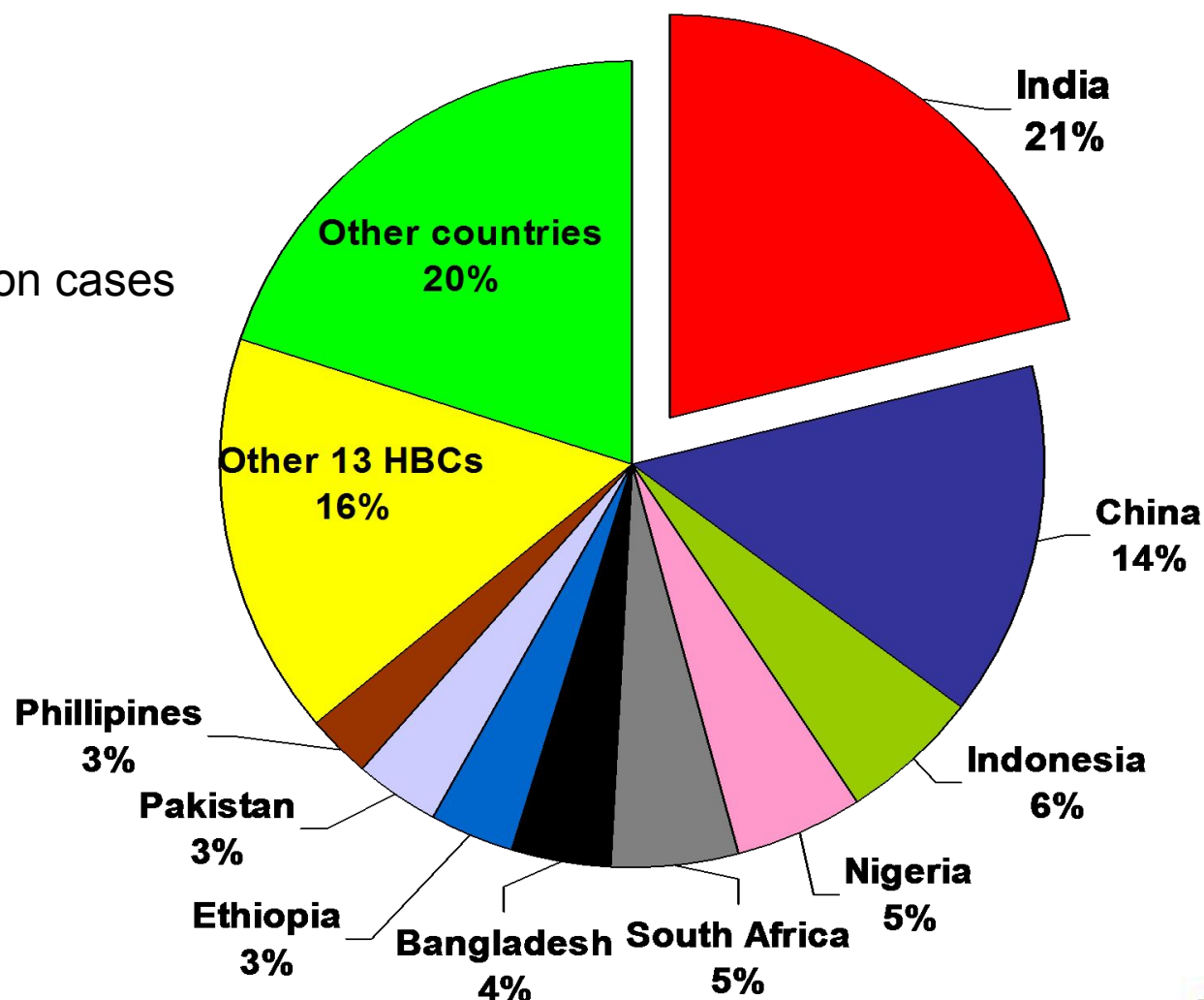
- An infectious disease caused by bacteria – *Mycobacterium tuberculosis*
- Spreads through air
  - cough and sneeze of a person suffering *sputum positive pulmonary TB*
- Most common site is lungs (pulmonary TB)-80%
- Many risk factors for progression from infection to disease – HIV, DM, Malnutrition, Smoking, alcoholism, indoor air pollution etc
- 1 untreated smear +ve pulmonary TB case can infect 10-15 individuals per year

# Burden of the disease

# India is the highest TB burden country accounting more than one fifth of the global incidence

Global incidence: 9 million cases  
Deaths: 1.5 million  
(global TB report 2014)

**Global Rank:**  
**Number of TB cases –**  
**1<sup>st</sup>**  
**Incidence – 17<sup>th</sup> highest**



# Estimated Total TB Burden in India

- **Incidence\* of TB disease:**
  - 2.2 million new TB cases annually;
- **Prevalence\* of TB disease:** 2.8 million TB cases
- **Deaths\*:** ~2,70,000 deaths due to TB each year
- **MDR-TB\*:** in new TB cases ~2.2% **and** 15% in Re-treatment cases
- **TB/HIV\*:** 5.6% of TB patients (1,30,000 HIV-infected TB patients/year)

\* Source: WHO 2014, Global TB report

# Evolution of RNTCP

## TB control efforts in India

- 1962 National TB Programme (NTP) launched
- 1992 NTP review - only 30% diagnosed; of these, only 30% completed treatment
- 1993 RNTCP started as a national programme incorporating the “DOTS Strategy”
- 1998 only 2% total population of India has covered
- 1998 Large scale RNTCP expansion began
- 2000 135 million population covered
- 2003 741 million population covered
- Mar 2006 100% population covered

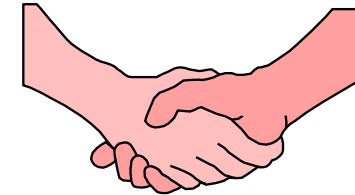
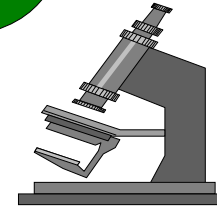


## RNTCP – Goal and Objectives

- 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 cure rate of at least 85% among new sputum positive TB patients
  - To achieve and maintain a case detection of at least 70% of such cases (Estimated incidence)

# Directly Observed Treatment, Short-course (DOTS) – Components

- Political commitment
- Diagnosis by microscopy
- Adequate supply of SCC drugs
- Directly observed treatment
- Accountability



*Note: Directly Observed Treatment (DOT) is only one of the five components of DOTS strategy*

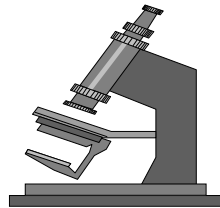
# 1.POLITICAL COMMITMENT



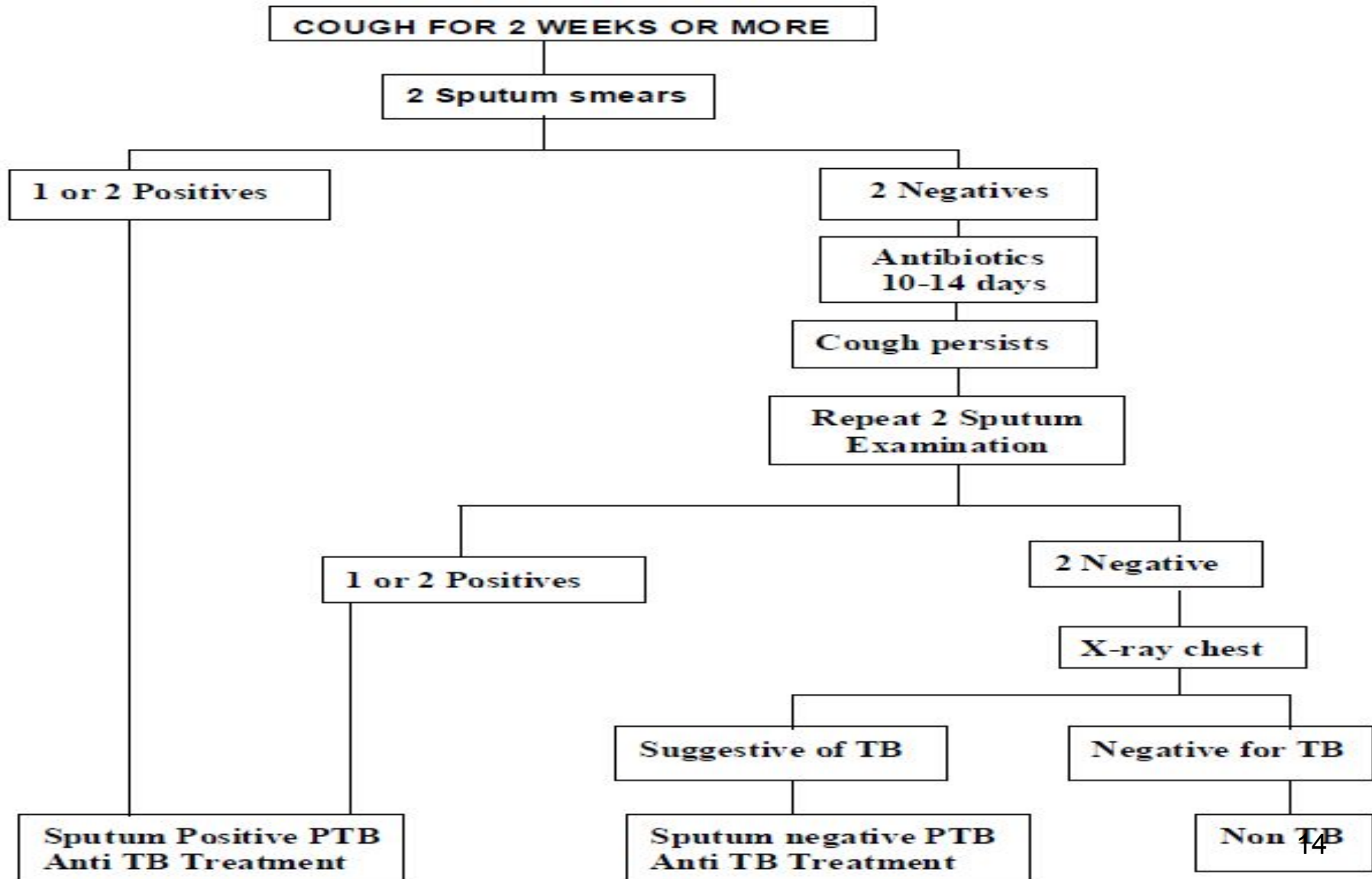
# Pol i t i c a l Commi t m e n t

- Political and Administrable commitment for financial support -for the diagnosis of EPTB, financial aid.
- Special incentives for promotion of referrals and notification rates
- Strong coordination, advocacy meetings and liaison at State/ District level.

## 2. Diagnosis by microscopy



# Diagnosis of Pulmonary TB



## Quality-assured diagnostic services



- Sputum microscopy is the primary tool for diagnosing and follow up of infectious pulmonary TB cases
  - ~12,688 decentralized designated microscopy centers upgraded in the General Health System
- External Quality Assurance (EQA) system for sputum microscopy supports quality

### 3. Adequate supply of SCC drugs





# RNTCP Treatment

New Cat I	New smear-positive; New sputum smear Negative New Extra pulmonary New others	2 H <sub>3</sub> R <sub>3</sub> Z <sub>3</sub> E <sub>3</sub> / 4 H <sub>3</sub> R <sub>3</sub>
Previously treated (Cat II)	Smear Positive relapse Smear positive failure Smear positive treatment after default Others	2 H <sub>3</sub> R <sub>3</sub> Z <sub>3</sub> E <sub>3</sub> S <sub>3</sub> / 1 H <sub>3</sub> R <sub>3</sub> Z <sub>3</sub> E <sub>3</sub> / 5 H <sub>3</sub> R <sub>3</sub> E <sub>3</sub>

All treatment thrice weekly. Cat I and Cat II extended one month if smear+ at end of initial intensive phase

# Quality treatment services



- Quality-assured drugs in patient-wise boxes and *no stock-outs at any District since RNTCP began*
- Adult boxes and Pediatric boxes contains whole course of treatment
- All RNTCP patients treated under direct observation by a accessible, acceptable and accountable DOT provider
  - DOT provider may be health worker or community-based volunteer
- Referral and feedback system for continuity
- All patients initiated on treatment are monitored individually
- Treatment outcomes are reported through cohort analysis

## 4. Directly observed treatment



# Network of nearly 0.4 million DOT providers

Private doctor in Pune



Unani doctor in Jaipur



NGO Worker in Andhra



Homeo doctor in Pune

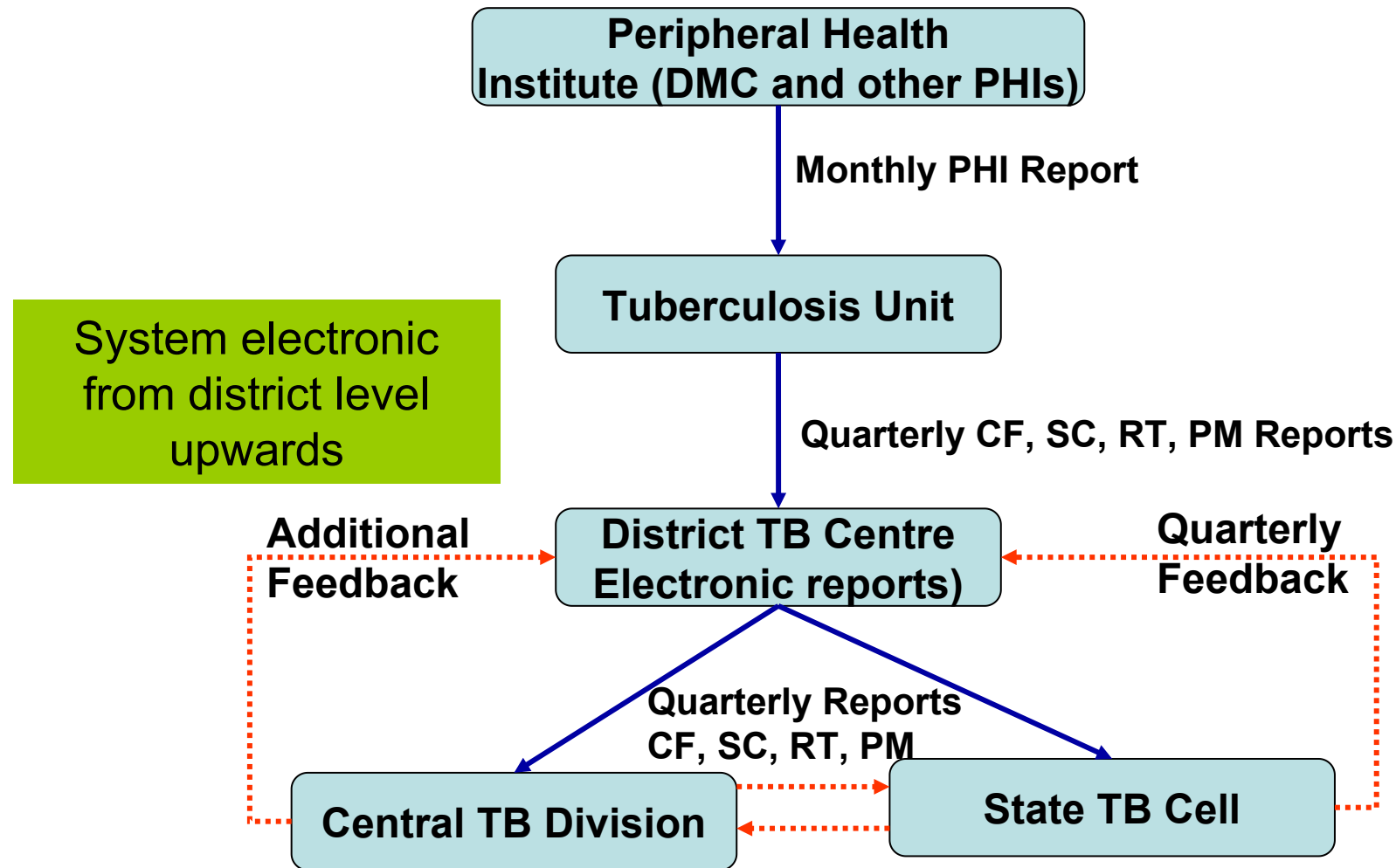


Quality of DOT ensured predominantly through Supervision by DTOs, MOTCs,<sup>20</sup> STS

## 5. Accountability



# Programme Surveillance System





World Health  
Organization

# THE STOP TB STRATEGY

## VISION

## A WORLD FREE OF TB

### GOAL

To dramatically reduce the global burden of TB by 2015 in line with the Millennium Development Goals and the Stop TB Partnership targets

### OBJECTIVES

- Achieve universal access to high-quality diagnosis and patient-centred treatment
- Reduce the human suffering and socioeconomic burden associated with TB
- Protect poor and vulnerable populations from TB, TB/HIV and multidrug-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:
  - By 2005: detect at least 70% of new sputum smear-positive TB cases and cure at least 85% of these cases
  - By 2015: reduce prevalence of and deaths due to TB by 50% relative to 1990
  - By 2050: eliminate TB as a public health problem (<1 case per million population)

## COMPONENTS OF THE STOP TB STRATEGY

### 1 PURSUE HIGH-QUALITY DOTS EXPANSION AND ENHANCEMENT

- a. Political commitment with increased and sustained financing
- b. Case detection through quality-assured bacteriology
- c. Standardized treatment with supervision and patient support
- d. An effective drug supply and management system
- e. Monitoring and evaluation system, and impact measurement

### 2 ADDRESS TB/HIV, MDR-TB AND OTHER CHALLENGES

- Implement collaborative TB/HIV activities
- Prevent and control multidrug-resistant TB
- Address prisoners, refugees and other high-risk groups and special situations

### 3 CONTRIBUTE TO HEALTH SYSTEM STRENGTHENING

- Actively participate in efforts to improve system-wide policy, human resources, financing, management, service delivery, and information systems
- Share innovations that strengthen systems, including the Practical Approach to Lung Health (PAL)
- Adapt innovations from other fields

### 4 ENGAGE ALL CARE PROVIDERS

- Public-Public, and Public-Private Mix (PPM) approaches
- International Standards for TB Care (ISTC)

### 5 EMPOWER PEOPLE WITH TB, AND COMMUNITIES

- Advocacy, communication and social mobilization
- Community participation in TB care
- Patients' Charter for Tuberculosis Care

### 6 ENABLE AND PROMOTE RESEARCH

- Programme-based operational research
- Research to develop new diagnostics, drugs and vaccines

In addition to  
implementing core  
DOTS activities,  
India is  
implementing  
almost all the  
additional  
components of the  
Stop TB Strategy-  
2006



# COMPONENTS OF THE **STOP TB** STRATEGY

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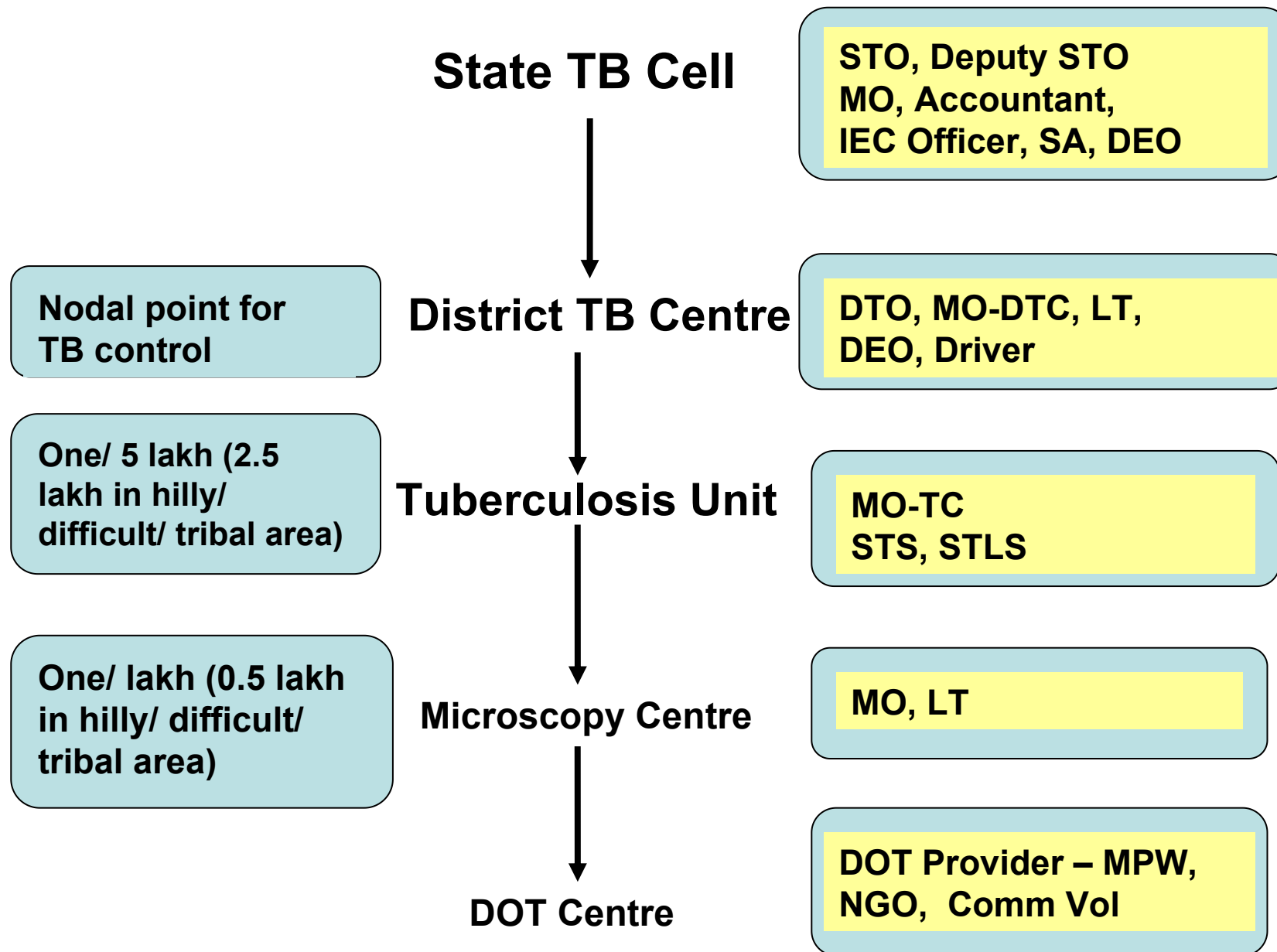
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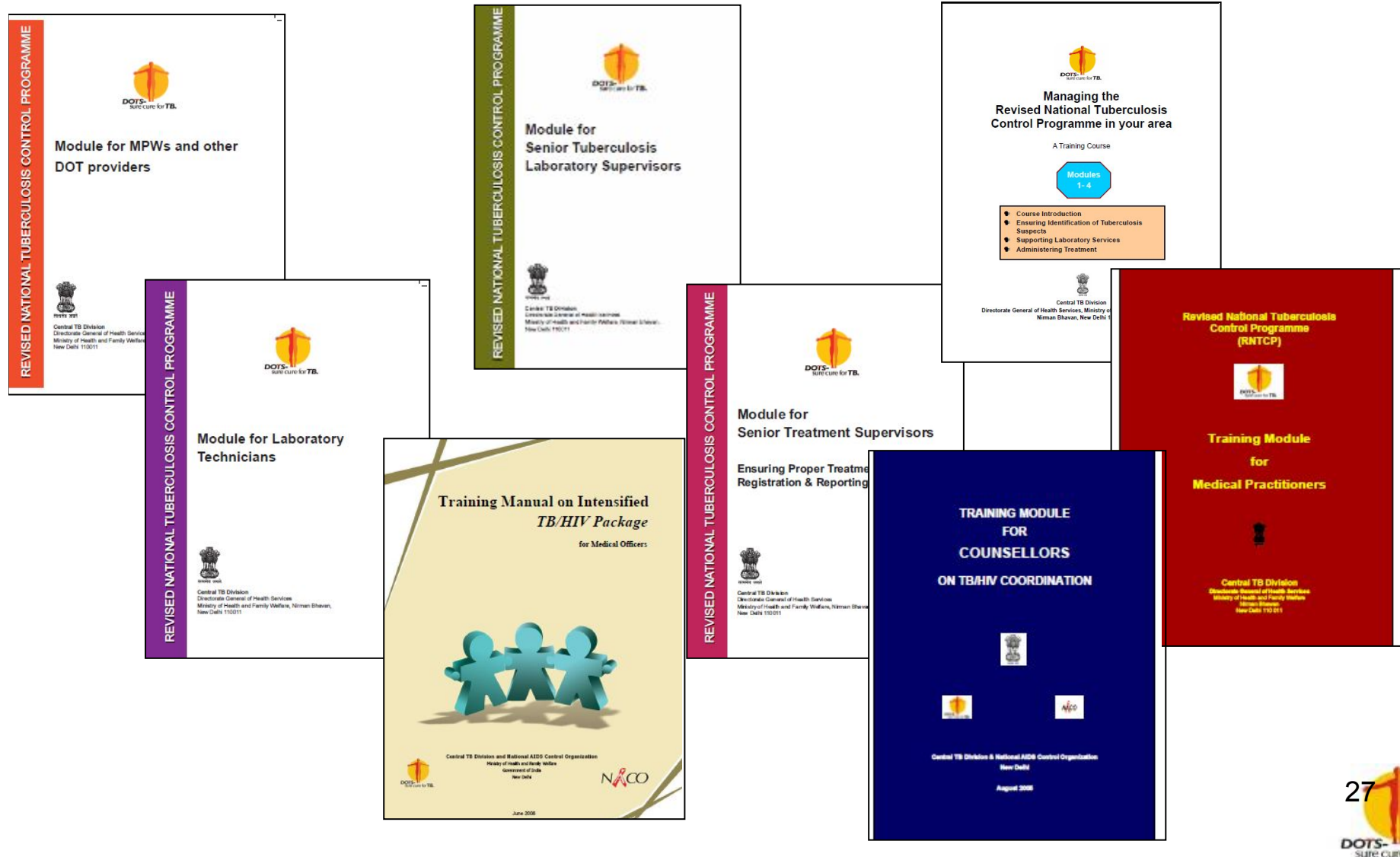
# Structure of RNTCP at State level



# Guidelines for Programme Implementation



# Training Modules – RNTCP seeks to reach and train *each and every* health care provider



# RNTCP ENDORSED TB DIAGNOSTICS

1. Smear microscopy for AFB
  - a. Sputum smear stained with Z-N staining. or
  - b. Florescence stains and examined under direct or indirect microscopy with or without LED.

## 2.Culture

- a. Solid (LJ Media) or
- b. Liquid media (middle brook) using manual semi automatic or automatic machines e.g., Bactec, MGIT

3. Rapid diagnostic molecular test
  - a. Conventional PCR based line probe assay for MTB COMPLEX; or
  - b. Real-time PCR based Nucleic Acid Amplification test NAAT for MTB complex..e.g., GeneXpert

# NEWER INITIATIVES

- RNTCP currently using **CB NAAT** for the diagnosis of TB and MDR-TB
- in high risk population like HIV positive and pediatric group.

# Drug resistance surveillance(DRS) under RNTCP

- Aim of the DRS is to determine the prevalence of anti-mycobacterial resistance ,  
among new sputum smear positive PTB patients and previously treated PTB patients.
- As per the surveys, MDR-TB to be about 2.2% in new case and 15% in retreatment cases.
- Counselling project to enhance treatment adherence among DRTB patients



# Nikshay-Case Based Web Based recording and reporting system

The screenshot displays the Nikshay web application interface within a browser window. The address bar shows the URL <http://nikshay.gov.in/User/Lc>. The page header features the Government of India emblem and the title "REVISED NATIONAL TUBERCULOSIS CONTROL PROGRAMME (MINISTRY OF HEALTH AND FAMILY WELFARE, GOVERNMENT OF INDIA)". A navigation bar includes links for HOME, FAQs, and CONTACT US. On the left, there is a "Sign in to Nikshay" section with input fields for "User Name:" and "Password:", and a "gdjxz" button. Below this is a circular logo for "DOTS- Pura Course | Pakka Itaj" featuring a stylized human figure. The main content area is titled "About RNTCP" and contains the following text:

*In India today, two deaths occur every three minutes from tuberculosis (TB). But these deaths can be prevented. With proper care and treatment, TB patients can be cured and the battle against TB can be won.*

Tuberculosis (TB) is an infectious disease caused by a Bacterium, *Mycobacterium tuberculosis*. It is spread through the air by a person suffering from TB. A single patient can infect 10 or more people in a year.

India has a long and distinguished tradition of research in TB. Studies from the Tuberculosis Research Centre in Chennai and the National Tuberculosis Institute in Bangalore provided key knowledge to improve treatment of TB patients all around the world.

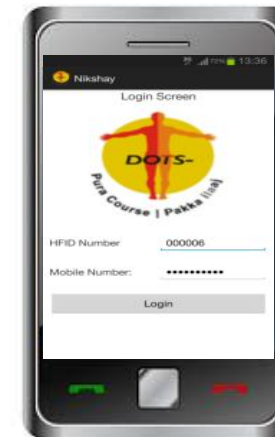
Modern anti-TB treatment can cure virtually all patients. It is, however, very important that treatment be taken for the prescribed duration, which in every case is a minimum of 6 months. Because treatment is of such a long duration and patients feel better after just 1-2 months, and because many TB patients face other problems such as poverty and unemployment, treatment is often interrupted.

The browser's taskbar at the bottom shows various application icons and the system clock indicating 16:54 on 16-08-2012.

# Tuberculosis surveillance using

Nikshay (Case Based online software)

TB Patients Registered under RNTCP	32,37,354
Peripheral Health Institutes (PHI) registered	44,001
Tuberculosis Officials details	2791
District TB Officers details	696
State TB Officers details	35
Contractual Employees details	7734
Non-RNTCP Health Establishments registered	78,908
Non-RNTCP Patients registered	1,28,844
Culture & Drug Resistant Labs Patients registered	68,024
Drug Resistant Tuberculosis Patients registered	6160



Mobile app for notification



Nikshay received - National E-Governance Award (Gold) from Ministry of IT, Ministry of Administrative reforms , GOI

During 17<sup>th</sup> National E-Governance Conference

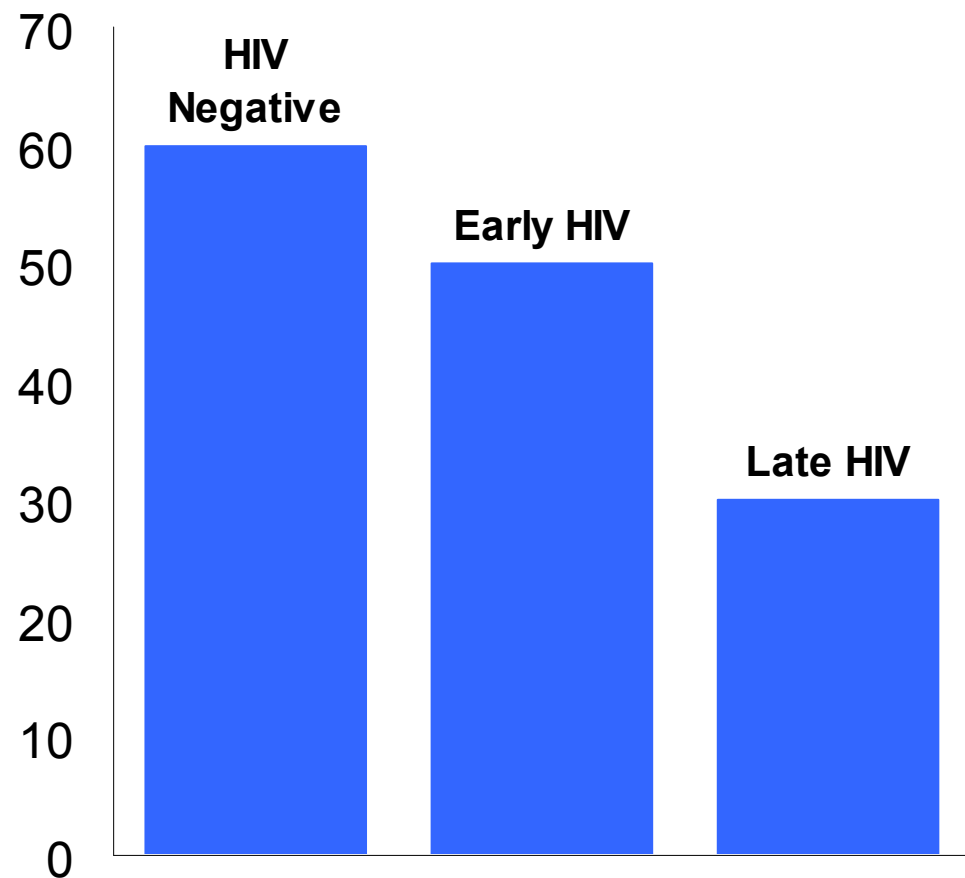


# TB-HIV

# Diagnosis of TB in HIV+ Persons

- Diagnosis of TB in HIV-infected persons is more difficult
  - ◆ More non-TB respiratory disease
  - ◆ More smear-negative and extrapulmonary TB
  - ◆ X-rays are even less specific

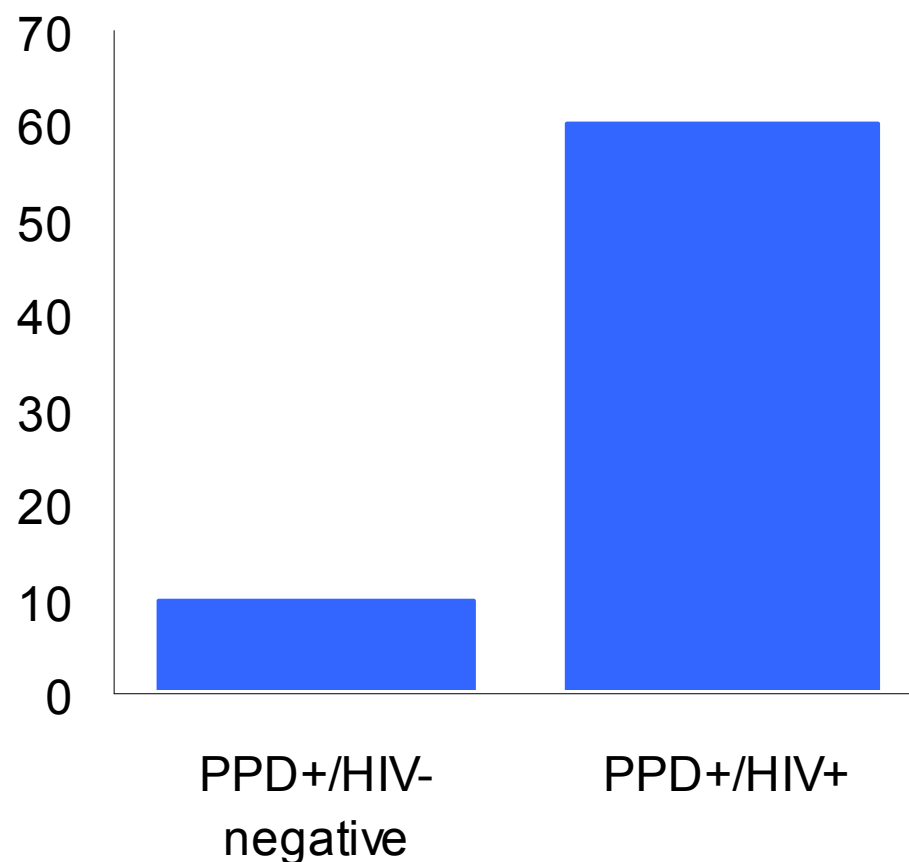
Proportion of patients with pulmonary TB who have positive AFB smears



# TB and HIV

- HIV-infected persons are at greatly increased risk of TB
- Without HIV, the lifetime risk of developing TB in TB-infected people is about 10%, compared with at least 50% in HIV-infected, TB-infected people
- The HIV epidemic could rapidly increase the incidence of TB

**Lifetime Risk of TB**



# *PEDIATRIC TUBERCULOSIS*

# *PEDIATRIC TUBERCULOSIS*

- Accounts 6-8 % of all TB cases.
- As per consensus with Indian Academy of Pediatricians , separate algorithms for diagnosis of PTB and EPTB has been issued.
- Pediatric Patient Wise Boxes recommended by expert Committee and Specifications developed by Technical Committee

- For the first time in the world, PWBs are to be introduced for Pediatric patients
- Rifampicin to be made available in tablet form
- Patients grouped in weight bands(6-10,11-17,18-25,26-30Kg
- Only two generic boxes to be used across four weight bands



# Multidrug resistant Tuberculosis (MDR-TB)

# MDR TB CASE

- Confirmed MDR-TB case: An MDR-TB suspect whose sputum culture is positive and whose TB is due to *Mycobacterium tuberculosis* that are resistant *in-vitro* to at least isoniazid and rifampicin (the culture and DST result being from an RNTCP accredited laboratory).
- Patients who are not MDR but have any Rifampicin resistance will also be treated with Cat IV regimen. .

# Causes of inadequate treatment

Providers/Programmes : Inadequate regimens	Drugs: Inadequate supply/quality	Patients: Inadequate drug intake
<ul style="list-style-type: none"> <li>• Absence of guidelines or inappropriate guidelines</li> <li>• Non-compliance with guidelines</li> <li>• Inadequate training of health staff</li> <li>• No monitoring of treatment</li> <li>• Poorly organized or funded TB control programmes</li> </ul>	<ul style="list-style-type: none"> <li>• Non-availability of certain drugs (stock-outs or delivery disruptions)</li> <li>• Poor quality</li> <li>• Poor storage conditions</li> <li>• Wrong dosages or combination</li> </ul>	<ul style="list-style-type: none"> <li>• Poor adherence (or poor DOT)</li> <li>• Lack of information</li> <li>• Non-availability of free drugs</li> <li>• Adverse drug reactions</li> <li>• Social and economic barriers</li> <li>• Malabsorption</li> <li>• Substance abuse disorders</li> </ul>

***Leads to Multi Drug Resistant TB***

## MDR-TB Suspect can be any of the following:

- Any TB patient who fails an RNTCP Category I treatment regimen;
- Any RNTCP Category II patient who is sputum smear positive at the end of the fourth month of treatment or later; or
- Close contacts of MDR-TB patients who are found to have smear positive pulmonary TB (PTB) disease

## **RNTCP Response to MDR/XDR-TB**

- **Prevention of drug resistance through sustained high-quality DOTS implementation**
  - **Promote rational use of anti-TB drugs in the country**
- **Improve laboratory capacity to diagnose MDR-TB and monitor treatment**
- **Effective treatment of MDR-TB patients through implementation of RNTCP DOTS-Plus (Category IV services)**
- **Evaluate the extent of the threat of second-line anti-TB drug resistance and provide for XDR-TB treatment**

# DOTS-Plus strategy

- Sustained government commitment;
- Accurate, timely diagnosis through quality assured culture and drug susceptibility testing;
- Appropriate treatment utilizing second-line drugs under strict supervision;
- Uninterrupted supply of quality assured anti-TB drugs; and
- Standardized recording and reporting system.

# Treatment

**RNTCP CATEGORY IV REGIMEN: 6  
(9) Km Lvx Eto Cs Z E / 18 Lvx Eto  
Cs E**

# *NATIONAL STRATEGIC PLAN(2012-2017)*

- Objectives:
  - 90/90
  - Detection of at least **90%** of all incident TB Cases Including DRTB and HIV associated TB.
  - Successfully treat at least **90%** of new smear positive cases and at least 85% of previously treated TB patients
  - Reduction in default rate of new TB cases to less than 5% retreatment TB cases to less than 10%



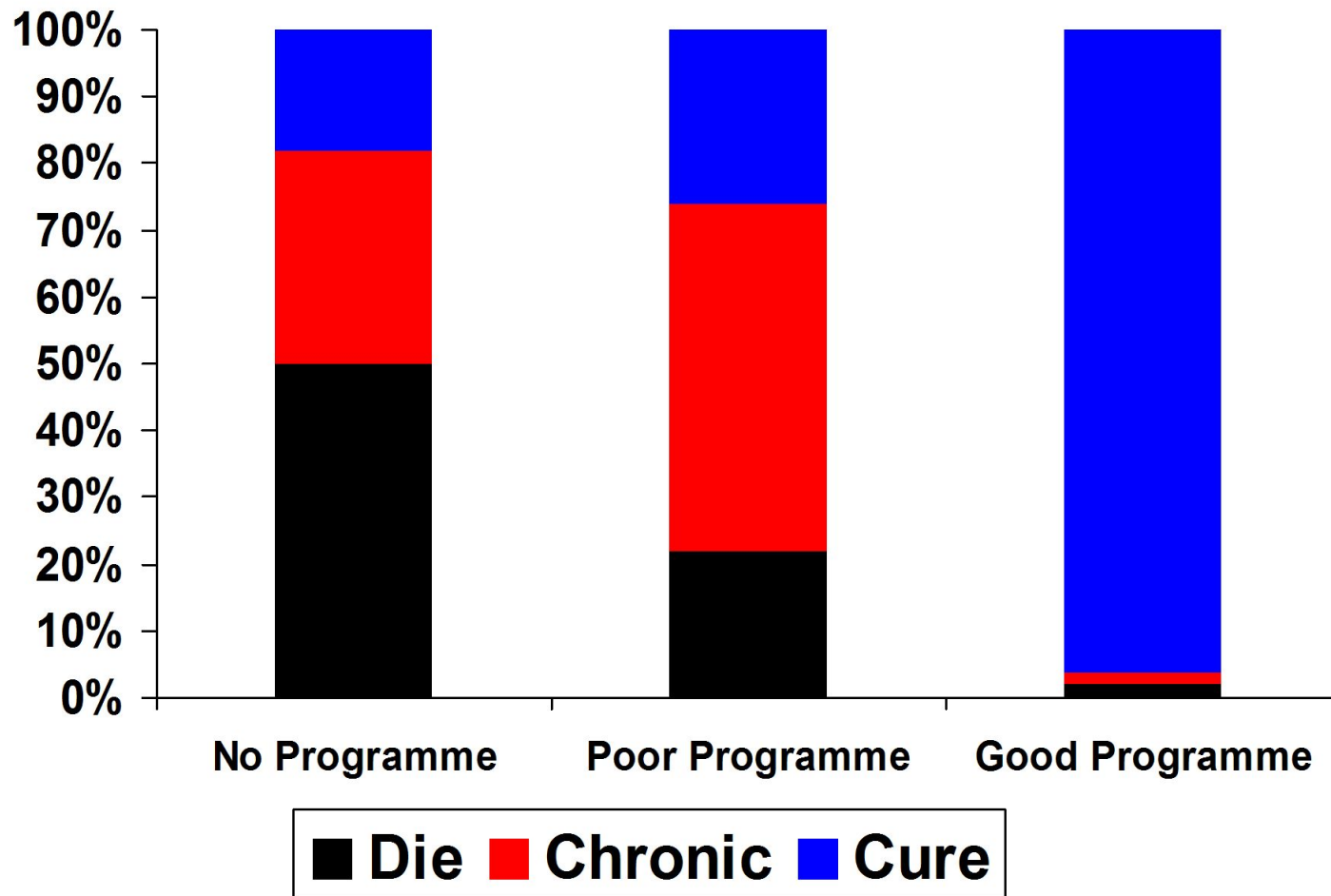
- Initial screening of all re-treatment smear positive till 2015 and all smear positive TB by 2017 for DRTB and provision of treatment services for MDRTB patients.
- Extend RNTCP services to patients diagnosed and treated in private sector.

- Targets:
  - Detection and treatment of 87 lakhs tuberculosis patients during the 12th five year plan.
  - Detection and treatment of at least 2 lakh MDRTB patients
  - Reduction in delay in diagnosis and treatment of all types of TB
  - Increase in access to services to marginalized and hard to reach populations, and high risk and vulnerable groups

# Achievements of RNTCP

- Covers whole country since 2006
- Treatment success rate has more than trebled from 25 %in 1998 to 88% in 2013
- Death rates brought down several folds from 29% to 4%
- More than 16 million patients have been initiated in treatment , saving almost 2.8 million lives.

# Fate of Pulmonary TB under different programme conditions



# Thanks