



सत्यमेव जयते



# National framework for joint **TB-Diabetes** collaborative activities

Revised National Tuberculosis Control Programme (RNTCP)

National Programme for Prevention and Control of  
Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)

Directorate General of Health Services  
Ministry of Health & Family Welfare  
Government of India



# **National framework for joint TB-Diabetes collaborative activities**

**Revised National Tuberculosis Control Programme (RNTCP)**

**National Programme for Prevention and Control of  
Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS)**

**March 2017**

**Supported by WHO Country Office for India**



# Contents

<b>Foreword</b>	<b>i</b>
<b>Preface</b>	<b>ii</b>
<b>Acknowledgement</b>	<b>iii</b>
<b>Acronyms</b>	<b>iv</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Burden of TB and diabetes	1
1.2 TB and diabetes co-morbidity	1
1.3 National programmes for TB and diabetes	2
1.4 Response to the care and control of TB and diabetes	6
<b>2 National framework for joint TB and diabetes collaborative activities</b>	<b>7</b>
2.1 Purpose	7
2.2 Goal	7
2.3 Objectives	7
2.4 Implementation strategy	7
<b>3 Coordination mechanisms for collaboration between RNTCP and NPCDCS</b>	<b>9</b>
3.1 National Coordination Committee (NCC) for RNTCP and NPCDCS	9
3.2 State level coordination mechanisms	9
3.3 District level coordination mechanisms	9
3.4 Review of TB–diabetes collaborative activities	10
<b>4 TB and diabetes service delivery integration</b>	<b>11</b>
4.1 Procedure for referral of TB patients for screening for diabetes	11
4.2 Procedure for screening and referral of diabetic patients for TB	12
<b>5 Recording and reporting</b>	<b>14</b>
5.1 Recording and reporting for RNTCP	14
5.2 Recording and reporting for NPCDCS	16
<b>6 Roles and responsibilities of programme staff for collaborative activities</b>	<b>18</b>
6.1 Roles and responsibilities of the RNTCP staff	18
6.2 Roles and responsibilities of NPCDCS (NCD clinic) staff	19
<b>7 Sensitization and training of health staff for TB and diabetes collaborative activities</b>	<b>21</b>
<b>8 Information, Education and Communication activities</b>	<b>22</b>
<b>9 Implementation plan</b>	<b>23</b>

<b>10</b>	<b>Supervision, monitoring and evaluation</b>	<b>24</b>
10.1	Indicators for monitoring under RNTCP	24
10.2	Indicators for monitoring under NPCDCS	25
<b>11</b>	<b>Research activities</b>	<b>26</b>
	<b>Annexures</b>	<b>27</b>
Annexure 1	Composition and terms of reference of National Coordination Committee	27
Annexure 2	Composition and terms of reference of State Coordination Committee for TB and diabetes	28
Annexure 3	Composition and terms of reference of District Coordination Committee for TB and diabetes	29
Annexures 4	Criteria for diagnosing diabetes under NPCDCS guidelines	30
Annexure 5	Method of screening for diabetes by strip method	31
Annexure 6	Referral slip for referring suspected diabetes patient to NCD clinic	32
Annexure 7	Recording of TB status and details of treatment of TB-diabetic patient in NCD register	33
Annexure 8	Form 3A: CHC NCD clinic - NPCDCS Reporting Format	34
Annexure 9	Form 4: District NCD clinic - NPCDCS Reporting Format	35
Annexure 10	Form 5A: District NCD Cell - NPCDCS Reporting Format	36
Annexure 11	Form 6: State NCD Cell - NPCDCS Reporting Format	37
Annexure 12	Infection Control Measures Guidelines	38
Annexure 13 I.	RNTCP Laboratory Request Form to refer suspected TB patient	39
	II. RNTCP request form for examination of biological specimen for TB	40
Annexure 14	RNTCP Treatment Card	42
Annexure 15	RNTCP TB Notification Register	44
Annexure 16	Flow chart	46
	<b>References</b>	<b>48</b>



## Foreword

Diabetes Mellitus (diabetes) and Tuberculosis (TB) have existed for centuries. However, the situation has changed dramatically in the past few decades with the exponential increase in the occurrence of diabetes in India and the association between TB and diabetes. These two factors play a synergetic role in causing human suffering.

Diabetes increases the risk of developing TB. Consequently, rates of TB are higher in people with diabetes than in the general population. Moreover, diabetes can worsen the clinical course of TB, and TB can worsen glycemic control in people with diabetes.

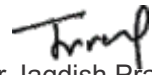
People suffering with both conditions thus require careful attention. Strategies are needed to ensure that optimal care is provided to patients with both diseases. TB must be diagnosed early in people with diabetes, and diabetes must be diagnosed early in people with TB.

The Revised National Tuberculosis Control Programme (RNTCP) has been recognized as the largest and the fastest expanding TB control programme in the world. Its goal 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. The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was launched in 2010 with the strategy of prevention, early detection, timely referral and treatment of common noncommunicable diseases.

A joint collaborative framework has been developed to strengthen the system response to deal with this double burden of disease. A series of consultations were organized through coordinated efforts of both programme divisions (NPCDCS and RNTCP) to draft this framework, which is based on evidence and review of existing operational guidelines.

The framework aims to guide national programmes, health personnel and others engaged in care of patients and prevention and control of diabetes and TB on how to establish a coordinated response to both diseases at the state, district and lower levels.

I am confident that the framework will be instrumental in guiding programme managers of RNTCP and NPCDCS in reducing morbidity and mortality due to TB and diabetes through prevention, bidirectional screening for early detection and prompt management of TB and diabetes.

  
(Dr Jagdish Prasad)







Ministry of Health and Family Welfare  
Government of India

## Preface

India has the largest number of Tuberculosis (TB) cases in the world (estimated at 2.8 million incident cases per annum) with an incidence rate of 217 per 100 000 per year. At the same time, there are an estimated 69 million people suffering from Diabetes Mellitus (diabetes) in India, mainly due to changes in lifestyle, socioeconomic factors, ageing and population growth. Available evidence shows that people with diabetes have a significantly increased risk of active TB, which is two to three times higher than people without diabetes. Modelling studies indicate that cause of 15–20% of all TB cases in India is attributable to diabetes. Recent data from Tamil Nadu and Kerala indicate a very high prevalence of diabetes (25–44%) among TB patients. In addition, preliminary evidence also shows that diabetes worsens TB treatment outcomes in terms of increased deaths, failure and relapse rates. The number of people with diabetes is expected to increase in the coming years. This can seriously threaten TB control in the country.

One of the key actions highlighted in both the operational guidelines of RNTCP and NPCDCS is intensified and early detection of tuberculosis and diabetes, respectively. Systematic screening for tuberculosis in people with diabetes and vice versa will improve early detection in our setting, i.e. given the high burden of both diseases. In order to address the challenge of TB–diabetes co-morbidities and to guide programme implementers, a series of national stakeholders' meetings were organized to implement the feasibility of bidirectional screening (screening TB patients for diabetes and diabetes patients for TB) within routine health-care services, and develop generic protocols thereof. As per the recommendations of stakeholders' meetings, a collaborative framework was developed jointly by the National NCD Division and Central TB Division. The purpose of the framework is to articulate the national strategy for tuberculosis–diabetes mellitus collaborative activities between RNTCP and NPCDCS so as to ensure reduction of TB and diabetes co-morbidity in India.

It is a pleasure to present this "National Framework for Joint TB–Diabetes Collaborative Activities" which has been developed as guidance tool for policy makers, programme managers, professionals at health facilities, health-care workers and partners, to strengthen the TB–diabetes collaborative activities in our country. The continued support from various organizations such as National Institute of Tuberculosis and Respiratory Diseases, Indian Council of Medical Research, The UNION and World Health Organization Country Office for India were instrumental in outlining the framework. We hope that all stakeholders in the fight against TB and diabetes will find this national framework document useful in the planning and implementation of their activities within the ambit of RNTCP and NPCDCS.

Dr Mohammed Shaukat  
Advisor (NCD)  
NPCDCS  
Dte. General of Health Services  
MoHFW/Gol, New Delhi

Dr Sunil D. Khaparde  
Deputy Director General  
Central TB Division  
Dte. General of Health Services  
MoHFW/Gol, New Delhi



## Acknowledgement

The 'National Framework for Joint TB-Diabetes Collaborative Activities' is a collaborative effort of the Ministry of Health & Family Welfare (MoHFW) and World Health Organization (WHO). Extensive discussions were held by the Central TB Division with team of National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular diseases, Cancer and Stroke (NPCDCS) to draft the collaborative framework. The outcome framework is based on the evidence generated through pilot studies done in India (India Tuberculosis-Diabetes Study Group) and two national level stakeholders consultation held in New Delhi (October 2011 & June 2015). Deliberations with senior officials from MoHFW, WHO, The Union, State Programme Managers from RNTCP and NPCDCS, representatives from civil society organization, academia, and developmental partners in stakeholder consultations has significantly contributed in shaping these guidelines.

We express our gratitude to Shri C. K. Mishra, Secretary (Health & Family Welfare), MoHFW, Government of India (GoI); Dr Jagdish Prasad, Director General Health Services, MoHFW, GoI; Dr A. K. Panda, Additional Secretary & Mission Director, National Health Mission, MoHFW, GoI; Shri Navdeep Rinwa, Joint Secretary, MoHFW, GoI; Shri Arun Kumar Jha, Economic Advisor, MoHFW, GoI; Dr Sunil D Khaparde, Deputy Director General-TB, Central TB Division, GoI; and Dr Mohammed Shaukat, Advisor, NCD, Directorate General of Health Services (Dte. GHS), GoI for their constant encouragement and guidance.

We are also thankful to Dr Henk Bekedam, WHO Representative to India; Dr Prakin Suchaxaya, Coordinator Health Programmes, WHO; and Dr Fikru Tullu, Team Leader, WHO for their valuable support.

We sincerely recognize the efforts of core team comprising of Dr Raghuram Rao (DADG, CTD); Dr Chinmoyee Das (DADG, Dte.GHS); Dr Malik Parmar (NPO, WHO); Dr Pradeep Joshi (NPO, WHO); Dr Bhavin Vadera (CTD Consultant); and Dr Mahesh Gorla (CTD Consultant) who in laboriously putting together the first draft and working on several revisions subsequently to give this document its final shape.

We would like to thank Dr Sadhana Bhagwat, Dr Rajani Ramachandran, Dr Sreenivas Achutan Nair, Dr Amar Shah, Dr Reshu Agarwal, Dr Jyoti Jaju, Dr Syed Imran Farooq and Dr Rana J. Singh for reviewing this document and providing insightful comments to enrich the document. We are also grateful to the communication team at WHO for editing and designing the framework.

These guidelines and their finalisation would not have been possible without the consistent technical assistance and support of The International Union Against Tuberculosis and Lung Disease (The Union), National Institute of TB & Respiratory Diseases, Indian Council of Medical Research, Madras Diabetes Research Foundation and Members of National Diabetes Task Force. We would like to acknowledge the special contribution of State TB Officers, State Nodal Officers from NPCDCS who provided their valuable inputs based on their experience on implementing the TB-Diabetes Collaborative activities in States.

This guideline is consistent with the Collaborative Framework for Care and Control of Tuberculosis & Diabetes (WHO-The Union) and aligned with NPCDCS Operational Guidelines (2013-2017); as also the RNTCP National Strategic Plan 2017-25.

# Acronyms

ANM	Auxiliary Nurse Midwife
BCC	Behaviour Change Communication
CBNAAT	Cartridge Based Nucleic Acid Amplification Test
CTD	Central Tuberculosis Division
DCC	District Coordination Committee
DGHS	Directorate General of Health Services
DM	Diabetes Mellitus
DMC	Designated Microscopy Centre
DNO	District Nodal Officer
DOTS	Directly Observed Treatment Short course
DST	Drug-Susceptibility Testing
DTO	District Tuberculosis Officer
FBS	Fasting Blood Sugar
IEC	Information, Education and Communication
LPA	Line Probe Assay
M&E	Monitoring and Evaluation
MoHFW	Ministry of Health and Family Welfare
NCC	National Coordination Committee
NCD	Noncommunicable Disease
NHM	National Health Mission
NPCDCS	National Programme for Cancer, Diabetes, Cardiovascular Diseases and Stroke
PHI	Peripheral Health Institution
RBS	Random Blood Sugar
RNTCP	Revised National Tuberculosis Control Programme
SCC	State Coordination Committee
SNO	State Nodal Officer
STLS	Senior Tuberculosis Laboratory Supervisor
STO	State Tuberculosis Officer
STS	Senior Treatment Supervisor
TB	Tuberculosis
TU	Tuberculosis Unit
WHO	World Health Organization

# 1

## Introduction

### 1.1 Burden of TB and diabetes

#### 1.1.1 Global burden of TB and diabetes

In 2015, there were 10.4 million incident cases of TB and about 1.4 million deaths globally from TB.<sup>1</sup> Diabetes accounts for about 415 million cases globally in 2015, and by 2040 it is projected that this number will rise to 642 million. About 75% of people with diabetes live in low- and middle-income countries and about half of them are unaware of their diabetes status. It is estimated that diabetes caused 5.0 million deaths globally in 2015.<sup>2</sup>

In the South East Asia Region, 4.7 million people fell ill with TB in 2015, and 710 000 people died due to the disease.<sup>1</sup> In this region, more than 78.3 million people have diabetes; this accounts for nearly one fifth of all adults with diabetes in the world.<sup>2</sup>

#### 1.1.2 National burden of TB and diabetes

India has a population of nearly 1.3 billion people (accounting for 17.5% of the world population). India has the largest number of TB cases in the world (estimated at 2.8 million incident cases per annum) with an incidence rate of 217 per 100, 000 per year in 2015. Treatment success for new and relapse TB cases registered in 2014 was 74%.<sup>1</sup>

As a consequence of urbanization as well as social and economic development, there has been a rapidly growing epidemic of Diabetes Mellitus (diabetes). India has the second largest number of diabetic people in the world. As per recent estimates, there are around 69.2 million diabetes cases, with a further 36.5 million people having impaired glucose tolerance.<sup>2</sup> Available data suggest that an estimated 11% of the urban population and 3% of rural people above the age of 15 years have diabetes. Among them, about half in rural areas and one third in urban areas are unaware that they have diabetes.<sup>3</sup>

### 1.2 TB and diabetes co-morbidity

The recent medical evidence on the interactions between TB and diabetes has shown the following:<sup>4,5,6,7,8,9</sup>

- About 10% of TB cases globally are linked to diabetes.

- People with a weak immune system as a result of chronic diseases such as diabetes are at a higher risk of progressing from latent to active TB. People with diabetes have a two to three times higher risk of getting infected with TB, compared to people without diabetes.
- A large proportion of people with diabetes as well as TB remain undiagnosed, or are diagnosed at a late stage. Due to lack of early detection and treatment, complications from TB–diabetes co-morbidity lead to high cost on treatment and out-of-pocket expenditure. Early detection can help improve care and control of both diseases.
- diabetes can lengthen the time for sputum culture conversion. Theoretically, this could lead to the development of drug resistance if a 4-drug regimen in the intensive phase of therapy is changed to a 2-drug regimen in the presence of culture-positive TB.
- People with TB and coexisting diabetes have a four times higher risk of death during TB treatment and higher risk of TB relapse after treatment. WHO recommended TB treatments should be rigorously implemented for people with TB–diabetes co-morbidity.
- diabetes is complicated by the presence of infectious diseases, including TB. It is important that proper care for diabetes be provided to patients suffering from TB–diabetes co-morbidity.
- TB is associated with worsening glycaemic control in people with diabetes. It has been argued that good glycemic control in TB patients can improve treatment outcomes.

The precise biological mechanisms that result in this interaction between diabetes and TB are still not clear. Epidemiological models have shown that diabetes accounts for 20% of smear-positive pulmonary TB<sup>10</sup> and recent analyses have indicated that the increase in diabetes prevalence in India has been an important obstacle to reducing TB incidence in the country.<sup>11</sup>

### **1.3 National programmes for TB and diabetes**

#### **1.3.1 Revised National Tuberculosis Control Programme**

The Revised National TB Control Programme (RNTCP), based on the internationally recommended Directly Observed Treatment Short course (DOTS) strategy, was launched in 1997 and expanded across the country in a phased manner with support from World Bank and other development partners. Full nationwide coverage of RNTCP was achieved by March 2006. In terms of treatment of patients, RNTCP has been recognized as the largest and the fastest expanding TB control programme in the world.

#### **Programme structure**

The structure of RNTCP comprises of five levels, as follows: (1) National (2) State (3) District (4) Sub-district (5) Peripheral Health Institutions. A major organizational change is the creation of a sub-district level – the Tuberculosis Unit (TU) for the systematic monitoring and supervision of diagnostic and treatment aspects of the programme.

### ***National level (Central TB Division)***

The Central TB Division (CTD) is a part of Directorate General Health Services, Ministry of Health and Family Welfare (MoHFW), and is responsible for tuberculosis control in the whole country. It is headed by a National Programme Manager – the Deputy Director General TB (DDG TB). The programme is being implemented under the umbrella of the National Health Mission (NHM).

### ***State level***

At the State level, the State Tuberculosis Officers (STOs) are responsible for planning, training, supervising and monitoring the programmes in their respective states as per the guidelines of the state health societies and technically following the instructions of the CTD for programme implementation.

### ***District level***

The district is the key level for the management of primary health-care services. The District Tuberculosis Centre (DTC) is the nodal point for TB control activities in the district. The District TB Officer (DTO) at the DTC has the overall responsibility of physical and financial management of RNTCP at the district level as per the guidelines of the District Health Society.

### ***Sub-district level -Tuberculosis Unit (TU)***

The TU is the nodal point for TB control activities in the sub-district. A team comprising a specifically designated Medical Officer–TB Control (MO–TC), Senior Treatment Supervisor (STS) and Senior Tuberculosis Laboratory Supervisor (STLS) at the TU have the overall responsibility of management of RNTCP at the sub-district level. There are 3644 TUs functioning in the programme. These TUs are being aligned with the block level.

### ***Peripheral Health Institutions (PHIs)***

At this level are the dispensaries, Primary Health Centres (PHCs), Community Health Centres (CHCs), referral hospitals, major hospitals, specialty clinics/hospitals (including other health facilities) within the district. Some of these PHIs will also be Designated Microscopy Centres (DMCs).

### ***Diagnostic facilities for TB detection and treatment***

RNTCP has a quality-assured laboratory network for bacteriological examination of sputum in a three-tier system of DMC, Intermediate Reference Laboratory (IRL), and National Reference Laboratory (NRL). DMC is the most peripheral laboratory under the RNTCP, catering to a population of around 100, 000 (50, 000 in tribal and hilly areas). There are more than 13, 000 DMCs across the country.

The Programme provides free testing facilities for patients and suspects, including Drug-Resistant TB (DR-TB), paediatric TB, HIV–TB and extrapulmonary TB. RNTCP laboratory services include state-of-the-art testing facilities and rapid testing methods such as Line Probe Assay (LPA) and Cartridge Based Nucleic Acid Amplification Test (CB NAAT), in addition to the range of conventional diagnostic

modalities like direct smear microscopy, LED–Florescence Microscopy (LED–FM), solid and liquid culture. Under the current strategy, the programme is rapidly expanding the laboratory and newer technology platform capacity to achieve universal access to quality assured diagnosis. As in December 2016, there were 65 culture and Drug-Susceptibility Testing (DST) labs, 51 LPA labs and 628 CB NAAT labs functional in the country.

All TB patients including patients with co-morbidities such as TB–HIV or TB–diabetes registered under the programme are provided free quality-assured treatment services through the network of providers, ranging from the community volunteers to dedicated tertiary-care institutions specialized in TB treatment and care.

The goal of RNTCP 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.

### **1.3.2 National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke (NPCDCS)**

The National Programme for Prevention and Control of Diabetes, Cardiovascular Disease and Stroke (NPDCS) was launched on 04 January 2008 as a pilot in 10 states covering one district each. The integrated NPCDCS programme was launched in 2010 by merging the National Cancer Control Programme with the pilot programme. By December 2016, the programme had covered 377 districts in 36 states/UTs in the country. The integration of services at district and below level has been brought under the umbrella of the NHM.

#### ***Objectives***

The objectives of NPCDCS are as follows:

- Health promotion through behaviour change with involvement of the community, civil society, community-based organizations, media, etc.
- Opportunistic screening at all levels in the health-care delivery system from sub-centre and above for early detection of diabetes, hypertension and common cancers. Outreach camps are also envisaged
- Prevent and control of chronic Noncommunicable Diseases (NCDs), especially cancer, diabetes, cardiovascular diseases (CVDs) and stroke
- Build capacity at various levels of health care for prevention, early diagnosis, treatment, Information, Education and Communication (IEC)/Behaviour Change Communication (BCC), operational research and rehabilitation
- Provide support for development of a database of NCDs through a surveillance system and monitor NCD morbidity and mortality and risk factors.

The strategies being adopted under the Programme are prevention through behaviour change, early diagnosis, treatment, capacity building of human resource and surveillance, monitoring and evaluation.



In the year April 2015 - March 2016, 1.29 crore (12.9 million) persons had been screened for diabetes and hypertension in NCD clinic. These suspected patients were referred to higher facilities for further management. By December 2016, the following infrastructure has been set up for NCD programme implementation:

- State NCD Cells in 36 states
- District NCD Cells in 377 districts
- District NCD Clinics in 367 districts
- CHC NCD Clinics in 2072 CHCs
- Cardiac Care Units in 124 districts

The NPCDCS currently aims at integration of NCD interventions in the NHM framework for optimization of scarce resources and provision of seamless services to the end users/patients, as also for ensuring long-term sustainability of interventions. Thus, the institutionalization of NPCDCS at district level within the district health society, sharing administrative and financial structure of National Health Mission (NHM) becomes a crucial programme strategy for NPCDCS.

The NCD Cells at various levels will ensure implementation and supervision of the programme activities related to health promotion, early diagnosis, treatment and referral and further facilitate partnership with laboratories in the private sector for early diagnosis. Simultaneously, it will attempt to create a wider knowledge base in the community for effective prevention, detection, referral and treatment strategies through convergence with the ongoing interventions of the NHM, National Tobacco Control Programme (NTCP), National Programme for Health Care of the Elderly (NPHCE), etc. and build a strong monitoring and evaluation system through the public health infrastructure.

All CHCs would be taken up for programme implementation in a phased manner. At each CHC, a free NCD clinic is being established for comprehensive management of patients referred from sub-centres/PHCs as well as those reporting directly. The following contractual staff is being supported for establishing the NCD clinic – medical officer, staff nurse, counsellor and data entry operator. A similar structure is present at the district NCD clinic at district headquarter level.

Financial Management Groups (FMGs) of programme management support units at state and district level, which are established under the NHM, will be responsible for maintenance of accounts, release of funds, expenditure reports, utilization certificates and audit arrangements. The total funds to be released to each state under NPCDCS would be based on the number of units to be taken up at different levels and will be on Centre share : State share basis as 60 : 40 (except NE states, where Centre share : State share is 90 : 10).

## 1.4 Response to the care and control of TB and diabetes

A national stakeholders meeting to review and discuss linkages between diabetes and TB, and the need for bi-directional screening between the RNTCP and NPCDCS was held in Delhi, India in June 2015.

A study to assess feasibility and challenges of bidirectional screening within health-care settings was done during January–September 2012 with collaborative efforts of divisions of both programmes. The study was divided in two parts: 1) screening TB patients for diabetes across eight tertiary care hospitals and eight TUs during February to September 2012; 2) screening diabetes patients for TB across eight tertiary care hospitals from January 2012 to September 2012.

In the first part of the study, nearly 98% of TB patients were screened for diabetes. About 13% were diagnosed to have diabetes based on fasting blood glucose, which included 8% of registered TB patients with a diagnosis of diabetes already known, and 5% having a new diagnosis of diabetes.<sup>11</sup>

Indicator	TOTAL
Number of patients with TB registered over the three quarters	8269
Number (%) with known diagnosis of DM	682 (8)
Number needing to be screened with RBG	7587
Number (%) actually screened with RBG	7467 (98)
Number with RBG $\geq$ 110 mg/dl and needing to be screened with FBG	2838
Number (%) screened with FBG	2703 (95)
Number (%) with FBG $\geq$ 126 mg/dl (newly diagnosed with DM)	402 (5)
Number (%) with known and newly diagnosed DM	1084 (13)
Number (%) with known and newly diagnosed DM referred to DM care	1033 (95)
Number (%) with known or newly diagnosed DM who reached DM care	1020

**Fig. 1. Results of screening TB patients for diabetes**

In the second part of study, 31,106 diabetes patients were screened for TB (26%, 52% and 48% in the first, second and third quarters of 2012, respectively). A total of 254 patients were identified with TB, of whom 46% had smear-positive pulmonary disease. There were 18 patients newly diagnosed with TB as a result of screening and referral, with the remainder being patients already diagnosed from elsewhere. TB case rates per 100,000 patients attending the diabetes clinic in each quarter were 859, 956 and 642, respectively. Almost 90% of patients with TB were recorded as starting or being on anti-TB treatment.<sup>12</sup>

# 2

## National framework for joint TB–diabetes collaborative activities

### 2.1 Purpose

The overall purpose is to articulate the national strategy for TB–diabetes collaborative activities between RNTCP and NPCDCS so as to ensure reduction of TB and diabetes co-morbidity in India.

### 2.2 Goal

To reduce morbidity and mortality due to TB and diabetes through prevention, bi-directional screening for early detection and prompt management of TB and diabetes.

### 2.3 Objectives

- To establish mechanisms for collaboration between RNTCP and NPCDCS for addressing TB and diabetes co-morbidity
- To improve screening and detection of active TB in diabetes patients in NCD clinics
- To intensify early screening and diagnosis of diabetes in registered TB patients in TB clinics
- To strengthen referral mechanisms across NPCDCS and RNTCP
- To strengthen management of TB–diabetes co-morbid condition in patients across the NPCDCS and RNTCP programmes
- To establish surveillance and M&E mechanisms for the collaborative activity.

### 2.4 Implementation strategy

The following strategy is proposed for collaboration between NPCDCS and RNTCP:

- Establishing joint planning and review committees for collaboration at national, state and district levels
- Establishing service delivery protocols that address joint activities as follows:
  - Activities to improve diagnosis and management of diabetes among TB patients:
    - o Screening of all registered TB patients for diabetes
    - o Ensuring diabetes management among TB patients

- Activities to improve diagnosis and management of TB among diabetic patients:
  - o Intensified detection of active TB disease among diabetes patients
  - o Ensuring TB infection control measures in health-care settings where diabetes is managed
  - o Ensuring TB treatment and management in diabetes patients
- Joint M&E with standardized reporting system shared between NPCDCS and RNTCP
- Joint training of key programme and field staff in TB–diabetes collaborative activities
- Awareness and IEC activities
- Operational research to strengthen implementation of TB–diabetes collaborative activities.

# 3

## Coordination mechanisms for collaboration between RNTCP and NPCDCS

### 3.1 National Coordination Committee (NCC) for RNTCP and NPCDCS

A National TB–diabetes Coordination Committee (NCC) comprising of key officials from NPCDCS and RNTCP, experts from World Health Organization (WHO), national institutes and civil society members will be constituted to improve networking and strengthening collaboration between RNTCP and NPCDCS programmes. The NCC will conduct meetings on a biannual basis to assess the progress of collaborative activities. The composition and terms of reference of the NCC is given in Annexure 1.

### 3.2 State level coordination mechanisms

#### 3.2.1 State Coordination Committee for TB–diabetes

To ensure smooth implementation and regular review of RNTCP and NPCDCS collaborative activities, a State Coordination Committee (SCC) on TB–diabetes comorbidities, chaired by MD NHM, will be established in all states. The states may not need to create a separate committee; instead, they may use any existing committee and could include concerned members of the RNTCP and NPCDCS in this committee.

The SCC should meet initially once a quarter to review and streamline TB-diabetes activities in the state. The terms of reference of the SCC are at Annexure 2. It may be organized along with RNTCP quarterly DTO review meetings to facilitate quick dissemination of decisions to districts. Based on deliberations and decisions, SCC nodal officers for RNTCP and NPCDCS in the state should send feedback to all districts. Actions taken by districts should be monitored and presented to SCC in its next meeting. Member-Secretary of SCC must share approved minutes of SCC meetings with NCD division at [npcdcs@gmail.com](mailto:npcdcs@gmail.com) and CTD electronically at [tbdm@rntcp.org](mailto:tbdm@rntcp.org).

### 3.3 District level coordination mechanisms

#### 3.3.1 District Coordination Committees for TB–diabetes

To ensure smooth implementation and regular review of TB-diabetes activities, District Coordination Committees (DCCs) will be established in each district in an existing committee in a similar way as at state level. DCC should meet initially on a

quarterly basis, preferably within 15 days of submission of the RNTCP quarterly report. The terms of reference of DCC are annexed at Annexure 3. Minutes of DCC meetings should be sent to the state NCD cells and State TB Cell.

### **3.4 Review of TB–diabetes collaborative activities**

#### **3.4.1 National level**

RNTCP and NPCDCS will conduct regular review meetings at national and state level. In the meetings at national level, joint review of TB–diabetes activities should be done with participation of programme managers of both the programmes. The schedule of review meetings for RNTCP should be communicated to NPCDCS and schedule of review meetings for NPCDCS should be communicated to RNTCP so that cross-participation is ensured.

#### **3.4.2 State level**

Similarly, during the review meeting held at state level by RNTCP and NPCDCS, joint review should be done for TB–diabetes with participation of programme officers from both programmes. The expenditure incurred on TA/DA of officers is to be borne from the respective programmes.

It is proposed that at least quarterly reviews and visits be done to review the progress of the collaborative activity. State programme managers of both divisions will appoint a review team to jointly review the implementation in the SCC meeting. Efforts will be made to harmonize the visit with the regular programme review. Review will be done at the district level on the performance indicators mentioned for the collaborative activity. Budget of the visit of officials will be booked in the respective programme divisions.

#### **3.4.3 District level**

CHC level review will be done by the district review team on a quarterly basis. Efforts will be made to harmonize the review with the routine programme visits of each programme division. District nodal officers of both divisions will be responsible for conducting such reviews based on the performance indicators outlined in the collaborative activity.

# 4

## TB and diabetes service delivery integration

### 4.1 Procedure for screening and referral of TB patients for diabetes

#### 4.1.1 Screening intervention and diagnosis of diabetes

All TB patients who have been diagnosed and registered under RNTCP will be referred for screening for diabetes. Referral of TB patients for screening of diabetes and its recording and reporting is the responsibility of the PHI where TB treatment is initiated.

Screening for diabetes will follow the guidelines stipulated by NPCDCS. Screening TB patients for diabetes should be conducted as early as possible after diagnosis of TB, but can be done at any time during the course of TB treatment. TB patients will initially be screened with a Random Blood Sugar (RBS) test using a glucometer. If the RBS is less than 140 mg/dL, this is a normal result and no further tests need be carried out. If the RBS is  $\geq 140$  mg/dL, this might indicate an abnormal glucose state and there is a possibility of diabetes. The patient will be referred to nearest NCD clinic for Fasting Blood Glucose (FBG) test with NCD clinic referral slip. FBS value  $\geq 126$  mg/dL indicates diabetes.

As stipulated in the operational guidelines of NPCDCS, the screening procedure and criteria for diagnosis of diabetes is summarized at Annexure 4 and the procedure of conducting the test is provided at Annexure 5.

Who will do the blood glucose test?

The blood glucose testing will be done by a person designated and trained for the purpose at every PHI. Though this would vary from site to site, the following general principles would apply.

Wherever NPCDCS is being implemented, the Auxiliary Nurse Midwife (ANM) has been trained to use a glucometer and screen patients for diabetes. In case this mechanism is not available, the laboratory technician working in the PHI will be trained to do the test. If a PHI does not have a laboratory technician, then either the staff nurse or any other staff designated by the MO PHI will be trained to do the test.

#### **4.1.2 Linkage of TB patients with diabetes for diabetes care and management**

In districts where NPCDCS is being implemented, TB patients with diabetes or with a RBS  $\geq$  140 mg/dL will be referred to the NCD clinic using a NPCDCS patient referral slip (Annexure 6) for definite diagnosis and management. A referral and feedback mechanism will be developed to enable timely exchange of information. Good cooperation and collaboration will need to be developed between the two sets of staff working in the different service areas. The NPCDCS referral slip can be procured for PHIs through NCD clinics. The procurement of the NCD referral slip will be the responsibility of MO PHI. The linkage flow chart is placed at Annexure 17.

At districts where NPCDCS is not implemented, TB patients should be referred to the nearest health-care facility for further diagnosis and management of TB–diabetes co-morbidity.

## **4.2 Procedure for screening and referral of diabetic patients for TB**

### **4.2.1 Screening and referral of diabetic patients for TB**

Four-symptoms complex screening for active TB in diabetes patients is to be done. Screening is expected to be carried out every time the patient visits the NCD clinic. Patients will be asked whether they are on TB treatment, and if not, they would be screened for four-symptoms complex:

- Cough that has persisted for more than two weeks,
- Fever of more than two weeks,
- Experiencing of significant weight loss and
- Night sweat

The screening results for TB are to be recorded in the patient NPCDCS register given at Annexure 7 and will be reported in Form 3A (CHC NCD clinics) and Form 4 (District NCD Clinics) given in Annexures 8 and 9 respectively. The reports will be compiled in the reporting proforma at the District NCD Cell (Form 5A) and subsequently at state NCD Cell (Form 6) given at Annexures 10 and 11 respectively. All NCD clinics will implement basic infection measures as stipulated in RNTCP guidelines. The staff nurse and counsellor at the NCD clinic will be responsible for implementing the infection control measures. The detailed guideline is given at Annexure 12.

#### *Who will do the screening of TB symptoms complex?*

All patients registered at the NCD clinic will be screened for the four-symptoms complex and will be referred to nearest DMC/PHI with referral slip if found positive for any one or more of the symptoms. MO-incharge of NCD clinic will ensure regular screening of patients attending the NCD clinic. Staff Nurse and Counselor attending to the NCD patient will enquire about the TB symptom complex and refer the patient. The staff nurse and counselor would be trained by the MO-Incharge to screen the TB symptom complex.



#### **4.2.2 Linkage of diabetic patients with TB for TB case management**

After screening, patients with one or more symptoms of TB symptom complex will be referred to the nearest DMC/PHI for diagnosis of TB. A referral and feedback mechanism will be developed to enable timely exchange of information. The staff nurse/counsellor will refer the patient with a RNTCP Laboratory Request Form to the nearest DMC for confirmation of TB disease. The form is provided at Annexure 13. The patients diagnosed with TB would be initiated on TB treatment by the TB clinic staff as per management guidelines stipulated in RNTCP. The DMC will return the results of the TB test to the NCD clinic through the counterfoil of the Laboratory Request Form with the patient. The RNTCP Laboratory Request Form for referring the patient from NCD clinics can be obtained from the nearest DMC. The MO in-charge of the NCD clinic will be responsible for obtaining the RNTCP Laboratory Request Form. The linkage flow chart is placed at Annexure 17.

# 5

## Recording and reporting

### 5.1 Recording and reporting for RNTCP

#### 5.1.1 Recording of diabetes status in TB treatment card and TB Notification Register

Appropriate modifications have been made in the TB treatment cards to capture the information on diabetes as follow:

**diabetes status:** Diabetic (D)/Non-diabetic (ND)/Unknown (U)

At the time of TB diagnosis, if a patient is found to be a known diabetic, the FBS values will be examined at the time of diagnosis of TB and after completion of the intensive phase of treatment.

If the FBS value is 110–126 mg/dl (at the time of TB diagnosis) and the patient is not getting sputum conversion at the end of intensive phase, repeat FBS test will be conducted.

The new TB treatment card incorporating information about the diabetes status is provided at the Annexure 14. The responsibility for collecting the information and updating the treatment card will rest with the TB treatment supporter in the periphery. The TB treatment card can be updated as per the existing system in RNTCP.

Provision will be made in NIKSHAY to capture this information and generate output report.

<b>I. HIV-related information</b>	
HIV Status: <input type="checkbox"/> Unknown <input type="checkbox"/> Reactive <input type="checkbox"/> NR Date_____ PID_____	
CPT delivered on: (1) (2) (3) (4) (5) (6)	
Initiated on ART: <input type="checkbox"/> No <input type="checkbox"/> Yes Date & ART No._____	
<b>II. Diabetes-related information</b>	
Diabetes status: <input type="checkbox"/> Unknown <input type="checkbox"/> Diabetic <input type="checkbox"/> Non-diabetic	
RBS_____	FBS_____ End IP_____ End treatment _____
Initiated on Diabetic Treatment: <input type="checkbox"/> No <input type="checkbox"/> Yes	
Date & No._____	
<b>III. Other co-morbidity</b>	
Details _____	

**Fig. 2. Co-morbidity information captured in TB treatment card**

This information from the treatment card will then be captured by the Senior Treatment Supervisor (STS) of the respective TB unit in a new column of the TB Notification Register created for the purpose as Diabetic (D)/Non-diabetic (ND)/Unknown (U). If new TB registers are not available remarks column of the existing registers can be utilized for recording this information (Annexure 15).

### 5.1.2 Reporting of TB–diabetes patients

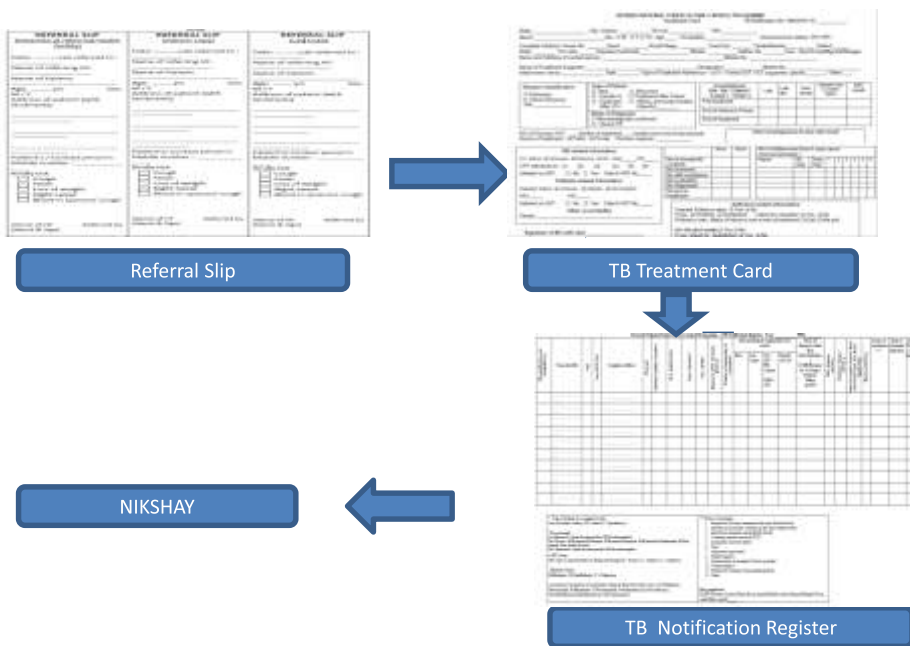
The aggregate number of TB patients screened for diabetes and the number who were confirmed as diabetic would be reported in 'Case Finding' available through NIKSHAY. The generated report will be shared with the District NCD Cell and State NCD Cell on a regular basis which will provide following information:

*Reporting TB–diabetes in case finding report– RNTCP*

<b>a) Number of TB patients screened for diabetes</b>	<b>b) of (a), number with confirmed diabetes</b>
---	--

a) Number of TB patients screened for diabetes: Among all the registered TB patients in the reporting cohort number who have been screened for diabetes. This can be obtained by counting the number of 'D' and 'ND' from the respective column of the TB notification register

b) of (a), Number with Confirmed diabetes: Among those screened for diabetes, number found to be having diabetes. This can be obtained by counting 'D' only.



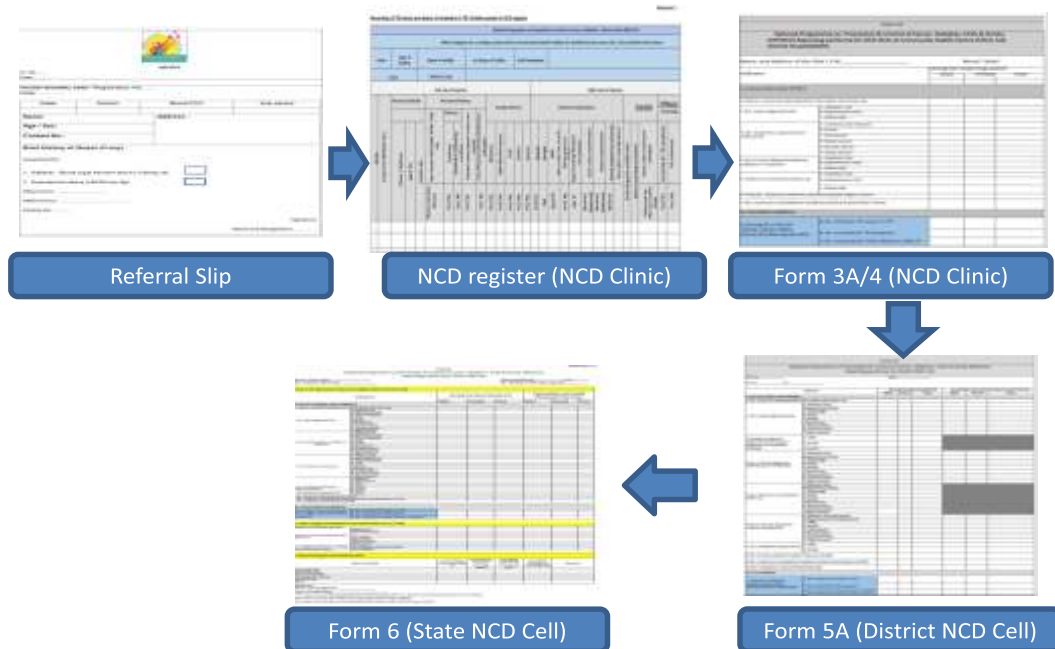
**Fig.3.Information Flowchart (RNTCP)\***

*\*The reporting formats mentioned in the figure are for indicative purpose. The detailed formats are mentioned in the annexures.*

## 5.2 Recording and reporting for NPCDCS

### 5.2.1 Recording of TB screening in diabetes patients at NCD clinics

As discussed in Section 4.2.1, the screening results for diabetes are to be recorded for the patient in the existing NCD clinic register at the NCD clinic (Annexure 7). The medical officer in-charge/staff nurse/counsellor at the NCD clinic will screen for four-symptom complex in all registered and follow up patients. Staff Nurse/Counselor at NCD clinic will refer cases with positive symptoms to the nearest DMC/PHI Data entry operator will compile reports from NCD clinic register in Form 3A (CHC NCD Clinic)/Form 4 (District NCD Clinic). This information will be subsequently captured in Form 5A (District NCD Cell) and Form 6 (State NCD Cell) (Annexures 8–11) reports.



**Fig.4.Information Flowchart (NPCDCS)\***

*\*The reporting formats mentioned in the figure are for indicative purpose. The detailed formats are mentioned in the annexures.*

### 5.2.2 Reporting of TB–diabetes patients

The aggregate number of diabetes patients screened for TB and diagnosed for TB–diabetes from NCD clinics will be reported in the monthly report for NPCDCS at the CHC level (Annexure 8) and district level (Annexure 9). The aggregate number of NCD patients screened for TB and number known to be having TB will be reported in the monthly report.

#### Reporting TB–diabetes in NPCDCS reporting formats

a) Number of diabetic patients screened for TB	b) of (a), number of diabetic patients confirmed with TB
--	--

- a) Number of diabetic patients screened for TB: This refers to all the registered diabetic patients in the reporting cohort who have been screened for TB. This can be obtained by counting the number of persons registered at NCD clinic from the respective columns of the NCD screening register format.
- b) Of (a), number with TB: This refers to those screened for TB who are found to be confirmed for TB.

The compilation of the district reports (Form 5 A) will be done at the state level in to Form 6 which will be shared with National NCD Cell (Annexure 11). The reports Form 5-A and Form 6 will also be shared with District TB Officer and State TB Officer receptively on timely basis.

# 6

## Roles and responsibilities of programme staff for collaborative activities

### 6.1 Roles and responsibilities of the RNTCP programme staff

#### State level – STO, Director, State Tuberculosis Training and Demonstration Centre (STDC), Assistant Programme Officer (APO), Data Entry Operator (DEO)

- Coordinate and attend the SCC TB–diabetes meetings on a quarterly basis
- Review districts' components of TB–diabetes collaborative activities on a quarterly basis
- Align the implementation of TB–diabetes collaborative activities in relation to expansion of NPCDCS programme in the districts
- Provide funds for relevant training pertaining to TB–diabetes collaborative activities
- Be involved in the joint supervision of collaborative activities with state NCD officials
- IEC activities regarding the collaborative activity to be done at state Level.

#### District level (DTO, District Programme Coordinator, MO-DTC, DEO)

- Coordinate and attend meetings of the DCC outlined for TB–diabetes collaborative activities
- Assist in training of sub-district staff and others staff involved in the management of NCDs for TB–NCD co-morbidities
- Collaborate with NCD clinics for the implementation of TB–diabetes activity
- Ensure submission of accurate and timely reporting of TB–diabetes formats to the state officials along with feedback about the progress of TB–diabetes collaborative activity
- Sharing of NIKSHAY output report with District NCD Cell
- Be involved in the joint supervision of collaborative activities with NCD clinic officials
- Ensure other RNTCP staff are appropriately involved in the collaborative activity
- Collaborate with relevant stakeholders to strengthen TB–diabetes activity in the district
- IEC activities regarding the collaborative activity to be done in district.

### **TB Unit level – MO TB Control (TC)/Block Medical Officer (BMO), Senior Treatment Supervisor (STS), senior treatment laboratory supervisor (STLS)**

- Information from the treatment card will be captured by the Senior Treatment Supervisor (STS) of the respective TB units in the TB register
- Ensure screening for diabetes during TB diagnosis and its report sharing with DTO
- Maintaining TB Notification Register
- Ensuring data entry pertaining to TB–diabetes information is fed into NIKSHAY.

### **DMC/PHI level – MO, Laboratory Technician (LT), ANM, staff nurse, health worker**

- Ensure the completeness of records, e.g. information related to diabetes screening in TB treatment card
- Update TB–diabetes information in NIKSHAY
- Ensure that the patient referred from TB clinic is screened for diabetes and feedback is shared
- The responsibility for collecting the information and updating the treatment card will rest with the institutional treatment supporter of the PHI/health worker.

## **6.2 Roles and responsibilities of NPCDCS (NCD clinic) staff**

### **Role of medical officer**

- Assist in training of NCD clinic staff and others staff involved in the management of NCDs for TB–diabetes co-morbidities
- Collaborate with district TU for the implementation of TB–diabetes activity
- Ensure screening of TB symptom complex at NCD clinic and its report sharing with district TB officer
- Ensure submission of accurate and timely reporting of TB–diabetes formats to the District NCD Cell along with feedback about the progress of TB–diabetes collaborative activity
- Ensure other NCD staff are appropriately involved in the collaborative activity
- Collaborate with relevant stakeholders to strengthen TB–diabetes activity in the district
- Prepare action plan for implementation of framework.

### **Role of counsellor**

- Conduct screening for TB symptom complex in persons attending the NCD clinic
- Ensure proper display of IEC material of TB–diabetes collaborative activity at NCD clinic
- Be involved in the training of TB–diabetes collaborative activity
- Ensure screening of TB symptom complex during domiciliary visits
- Assist MO in preparing the action plan.

**Role of staff nurse**

- Conduct screening for TB symptom complex in NCD clients attending the NCD clinic and at outreach camps
- Ensure completeness of the referral card filled for the suspected TB patient under the guidance of MO and refer using RNTCP Laboratory Request Form
- Ensure that the patient referred from TB clinic is screened for diabetes and feedback is shared
- Ensure that the suspected TB patient attends the TB clinic during his/her next NCD clinic visit.
- Maintain the NCD clinic register and assist data entry operator to complete the NCD formats

**Role of data entry operator**

- Ensure TB-diabetes co-morbidity data captured in NPCDCS format
- Compile accurate reports of TB–Diabetes collaborative activity in the formats mentioned in the collaborative framework
- Provide feedback to medical officer in any discrepancies on the indicators analysed
- Collaborate with the data entry operator of district TB unit to exchange the reports of TB–Diabetes collaborative activity
- Maintain the records of the TB–Diabetes collaborative activity along with other NCD records.

**Role of NCD Cell – State & District**

- Data Sharing with District TB Officer & State TB Officer
- Ensure proper reporting on indicators related to TB-diabetes activities
- Actively participate in the DCC and SCC to review the TB-diabetes activities implementation
- Be involved in the joint supervision of collaborative activities with District TB Officer
- Prepare action plan for implementation of framework
- Display of IEC materials at NCD clinics & coordinate necessary IEC activities at District & State level



# 7

## Sensitization and training of health staff for TB–diabetes collaborative activities

Sensitization workshop comprising of State Nodal Officers (SNOs) for NPCDCS, STOs and State RNTCP consultants will be done at the national level. Focal points of the states of both the programmes will conduct further sensitization training of focal points of districts. STOs, consultants and other RNTCP staff will be trained on TB–diabetes collaborative activities during their ongoing training on RNTCP Technical and Operational Guidelines.

Programme officers of NPCDCS will attend the TB–diabetes portion of training at the state and district level as per the RNTCP training plan and vice versa.

### **State level training**

- Training of State TB Officer, NPCDCS officer, DTOs, NCD district nodal officers (DNOs)
- Continuing Medical Education (CME)/workshops for Medical college faculty
- Other sectors

### **District level**

- Training of DTO, district NPCDCS officer, medical officers, key contractual staff of both the programmes

### **Sub-district/CHC level**

- Sensitization sessions for concern staffs at NCD clinic & TUs

Sensitization of stakeholders (administrators, partners) at state/local level is the responsibility of RNTCP staff at state and district level.

# 8

## Information, Education and Communication activities

Information, Education and Communication (IEC) activity for awareness generation is an important in the implementation of framework. As IEC is an integral part of both RNTCP and NPCDCS, it is considered one of the important cross-cutting areas for the collaborative activity. The IEC strategy for TB-diabetes will be included in both the programmes IEC and Advocacy, Communication and Social Mobilization (ACSM) plan.

Increased attention and focus will be given to primary health care workers who regularly interact with both TB and diabetes patients. Awareness activities will be prioritized for the programme and hospital staff to make them aware them about the purpose and mechanism of the collaboration. Relevant IEC and ACSM related materials will be developed and shared with the States for further adoption in the local languages. The States should prepare an IEC plan for the collaborative activity. Special emphasis will be given to generating awareness about the linkage of two diseases in the marginalized and deprived communities. The plan for implementing IEC activities includes the following:

- Designing content of IEC materials (posters, banners, flyers, pamphlets, leaflets, AV materials) jointly by both programme divisions;
- Display of IEC materials at TUs, DMCs and NCD Clinics in local language to inform about the joint collaborative activity;
  - Put up materials related to hygiene and TB awareness at the NCD clinics;
  - Put up IEC material about lifestyle modifications at TUs and DMCs;
- Dissemination of messages through various media - electronic, multi-media and print media;
- Every opportunity will be utilized to increase awareness about both diseases among patients and staff;
- Awareness activities will be conducted to sensitize all stakeholders (partners, policy makers, administrators);
- Budget for IEC activities will be borne from IEC/ ACSM budget of respective programmes.

# 9

## Implementation plan

While diabetes screening among TB patients will be carried out in districts, TB screening among diabetes patients will be limited to functional NCD clinics, to start with. The districts with functional NCD clinics will be prioritized for monitoring in the initial phase of implementation.

Procurement of glucostrips/ glucometers will primarily be the responsibility of NPCDCS and/or respective states from their state health budget.

**Table 1: Implementation Plan**

<b>S.No</b>	<b>Activities</b>	<b>Responsibility</b>
1.	CTD and NPCDCS to send appropriate directives to state focal points to prepare action plan for implementation of TB–diabetes collaborative activities	CTD/NCD Division (MoHFW)
2.	States to start implementing TB–diabetes collaborative activities as per state implementation plans	SNO (NPCDCS) and STO. RNTCP consultants to support
3.	Training of district and sub-district staff at state/regional level – for district level staff	SNO (NPCDCS) and STO. RNTCP consultants to support
4.	Sensitization of field level staff as a part of regular ongoing training	DTO/DNO for NPCDCS
5.	Sensitization of stakeholders (administrators, partners) at state and district level	SNO (NPCDCS) and STO. RNTCP consultants to support
6.	Joint implementation of IEC activities	SNO (NPCDCS) and STO. RNTCP consultants to support
7.	Sharing of data for bidirectional screening	SNO (NPCDCS) and STO. RNTCP consultants to support
8.	Joint visits by <ul style="list-style-type: none"><li>– State level officials to district and sub-district level</li><li>– National teams to states</li></ul>	CTD/NCD Division (MoHFW)

# 10

## Supervision, monitoring and evaluation

All TB patient registered under RNTCP will be screened for the diabetes. If the RBS value is 140 mg/dl or more, the patient will be referred to nearest NCD clinic for further investigation and management of diabetes. The recording and reporting of the diabetes status will be responsibility of the PHI where TB patient is registered.

Intensified TB case finding will be conducted in the NCD clinics for screening TB cases using four-symptoms complex. The TB symptomatics identified at NCD clinics will be referred to RNTCP facilities for TB diagnosis and further management. A person is diagnosed for TB-diabetes comorbidity has to visit NCD clinic & PHI as per programme guidelines.

DTOs & DNOs will participate in the monthly/quarterly review meetings of both the programmes along with district-level supervisors and coordinators of both the programmes. DTOs & DNOs will be responsible for collation and compilation of reports from NCD clinics and TB units and monthly reporting to the respective state level units, and sharing of data between the two programmes.

STOs & SNOs of both programmes should conduct a joint monitoring visit to districts, prioritized based on performance indicators and programme needs. STOs & SNOs will participate in the monthly/quarterly review meetings of both the programmes along with state-level supervisors/coordinators/consultants of both the programmes. STOs & SNOs will be responsible for collation and compilation of reports from districts and monthly reporting to the national level, including sharing of data between the two programmes.

### 10.1 Indicators for monitoring under RNTCP

#### 1. *Proportion of registered TB patients screened for diabetes*

Numerator = Number of TB patients screened for diabetes

Denominator = Number of TB patients registered

2. *Proportion of screened TB patients confirmed with diabetes*

Numerator = Number of screened TB patients diagnosed with diabetes

Denominator = Number of TB patients screened for diabetes

3. *Proportion of TB patients diagnosed with diabetes and linked with diabetes-care services*

Numerator = Number of TB patients diagnosed with diabetes linked with NCD clinic

Denominator = Number of screened TB patients diagnosed with diabetes

This information will be recorded in the TB treatment card and RNTCP TB Notification Register and the indicator will be reported in NIKSHAY. Information from the TB Treatment Card and TB Notification Register will be captured by the STS at the PHI.

## 10.2 Indicators for monitoring under NPCDCS

1. *Proportion of diabetics at NCD clinic screened for TB symptoms*

Numerator = Number of *diabetics* at NCD clinic screened for TB symptoms

Denominator = Total number of *diabetics* registered at NCD clinic

2. *Proportion of diabetics at NCD clinic found to be positive for TB symptoms and referred.*

Numerator = Number of *diabetics* found to be positive for TB symptoms

Denominator = Total number of *diabetics* at NCD clinic screened for TB symptoms

3. *Proportion of diabetics with confirmed TB*

Numerator = Number of *diabetics confirmed for TB and on ATT*

Denominator = Number of *diabetics registered at NCD clinic*

This information would be derived from the NCD register at NCD clinics in CHC and district levels and the monthly reporting formats would be filled up. Monthly records may be compiled to generate quarterly reports & shared with RNTCP

# 11

## Research activities

Operational Research (OR) is considered a vital activity to understand current gaps for the successful implementation of the collaborative framework. OR studies will also help to understand the different methods of overcoming bottlenecks in implementation. The results from OR will shed new light on how current TB-diabetes policies and practices can be 'fine-tuned' and further improved. It can also give important insight on how best new tools for TB-diabetes can be introduced in ways that deliver maximum benefits.

Appropriate research will be promoted to identify, develop and implement improved tools and strategies to address TB-NCD co-morbidities. Research activities will be encouraged to guide the service delivery system, care access and promote innovations. Priorities will be given to the research activities related to comorbid disease management and treatment outcomes, development of clinical algorithms, modalities for increasing awareness (Knowledge, Attitude and Practice) of TB-diabetes co-morbidity. Special research studies can be carried out to measure surveillance, monitoring and evaluation indicators when the information needed cannot be reliably obtained from the information system, for example, studies to identify prevalence and associated factors, quality assessment to determine levels of evidences for TB- diabetes.

Programme will support and encourage OR within the programme settings to generate more information and evidence to effect necessary changes in implementation and management practices. Guidance for conducting and strengthening OR project is available with respective programme technical documents. All relevant stakeholders including research institutes will be encouraged to be involved to strengthen the research priorities.

# Annexures

## Annexure 1

### Composition and terms of reference of National Coordination Committee

#### **Composition**

*Chairperson:* Deputy Director General (NCD), Dte. GHS, MoHFW

*Co-Chair:* Deputy Director General (TB), Dte. GHS, MoHFW

#### **Members:**

- Addl DDG–TB (in charge of TB–diabetes activities) at Central TB Division, MoHFW
- Addl DDG–Diabetes (in charge of diabetes activities) at NCD Division, MoHFW
- Representative from WHO TB programme
- Representative from WHO NCD Programme
- Representative from National TB institutes
- Representative from Civil Society Organisation
- Experts from academic and research institutes representing TB and NCD experts
- Programme managers/experts from NPCDCS and RNTCP

#### **Terms of reference**

- To strengthen joint planning, recording, reporting and monitoring, and review activities between NPCDCS and RNTCP at national, state and district levels
- To review and adopt policies for strengthening implementation of joint TB–diabetes activities
- To suggest strategies for roll-out and scale up of activities aimed at minimizing mortality and morbidity associated with TB and NCDs
- To provide guidance for implementation of joint TB–diabetes activities and identify key areas for strengthening
- To support in supervision and planning of TB–diabetes activities, including joint field visits, joint national level reviews, etc.
- To facilitate operational research to improve programme implementation and assess impact of joint TB–diabetes activities
- To support in development of normative tools and training material for TB–diabetes
- To review, optimize and plan for future NPCDCS–RNTCP collaborative activities.
- To develop & share IEC prototype with States/UTs

## Annexure 2

### Composition and terms of reference of State Coordination Committee for TB–diabetes

#### **Composition**

Inclusion in existing Committee chaired by PSH/MD NHM/Director (state specific)

#### **Additional members**

1. STO at State TB Cell
2. SNO for NPCDCS
3. Programme officers from NPCDCS and RNTCP
4. TB and NCD experts from academic and research institutes
5. Representatives from civil society, professional bodies (IMA, IAP, Diabetes Association, etc.).

#### **Terms of reference**

- To strengthen joint planning, IEC activities, recording, reporting, monitoring and review activities between NPCDCS and RNTCP at state and district levels
- To review and adopt strategies for strengthening implementation of collaborative activities between RNTCP and NPCDCS
- Planning of supervision of TB–diabetes activities, including joint field visits, joint state level reviews, etc.
- To review, optimize and plan for future NPCDCS–RNTCP collaborative activities.



## **Annexure 3**

### **Composition and terms of reference of District Coordination Committee for TB–diabetes**

#### ***Composition***

Inclusion in existing Committee chaired by District Magistrate

#### ***Additional members***

1. District TB Officer at District TB Cell.
2. District Nodal Officer for NPCDCS
3. TB and NCD experts from academic institutes
4. Representatives from civil societies, professional bodies (IMA, IAP, Diabetes association etc)

#### ***Terms of reference***

- To strengthen joint planning, recording and reporting, as well as monitoring and review activities between NPCDCS and RNTCP at District level.
- To review and adopt strategies for strengthening implementation of collaborative activities between RNTCP and NPCDCS.
- To review implementation of joint TB–diabetes activities and identify key areas for strengthening
- Planning of supervision of TB–diabetes activities, including joint field visits, joint district level review etc.

## Annexure 4

### Criteria for diagnosing diabetes under NPCDCS guidelines

Diagnosis	Fasting Blood Glucose (mg/dl)	2-hour Post-Glucose Load (mg/dl)
Diabetes Mellitus	≥126	≥200
Impaired Glucose Tolerance	< 110	>140 to <200
Impaired Fasting Glucose	≥110 to <126	

*\*WHO Definition 1999*

Criteria for suspected Diabetes case is reading of 140 mg/dl or more for Random Blood Sugar by glucostrip. The suspected case needs to undergo Fasting Blood Sugar test and Post Prandial tests to confirm diabetes.

## Annexure 5

### Screening for diabetes by strip method

Things Needed:

- A glucometer
- Test strips
- A Lancet
- Swab



**Fig. 5. Diabetic Check up**

#### ***Step 1***

Take out the glucometer and place on a flat surface

#### ***Step 2***

Remove a test strip from the container and place in the glucometer. One end will need to face the top of the glucometer; usually it has a darker colored line on it. This is where the blood will be placed for testing.

#### ***Step 3***

Turn on your glucometer.

#### ***Step 4***

Use a lancet to pierce the skin cleaned with swab and obtain blood from the tip of a finger.

#### ***Step 5***

Place the blood sample on the test strip. The test strip package will have exact instructions, including blood sample size. Usually, this is accomplished by placing the blood drop against the edge or top of the strip.


#### ***Step 6***

Watch the glucometer screen. It should show a "waiting" or "processing" symbol, and will emit a beep when the sample has been tested. The results will be displayed as a number on the screen.

Record your test results in your notebook and pass this information to Medical officer

## Annexure 6

### Referral slip for referring suspected diabetes patient to NCD clinic

 <p style="text-align: center;"><b>NPCDCS</b></p>			
Sr. No.....			
Date:.....			
<b>PATIENT REFERRAL CARD*</b>			
Registration No.....			
Date:.....			
State	District	Block/PHC	Sub centre
<b>Name:</b>		<b>Address :</b>	
<b>Age/Sex:</b>			
<b>Contact No.:</b>			
<b>Brief History of illness (if any)</b>			
Suspected and Referred for:			
1. Diabetes- Random Blood Sugar value above 140mg/dl		<input type="text"/>	
2. Hypertension- Blood Pressure value above 140/90 mm Hg		<input type="text"/>	
Referred to: .....			
Referred by:.....			
Signature			
Name and Designation.....			
Mobile No. ....			

\* To be kept by the patient for referral and follow up.



# Annexure 8

## Form 3A: CHC NCD Clinic

### NPCDCS Monthly Reporting Format

Form 3A			
National Programme for Prevention & Control of Cancer, Diabetes, CVDs & Stroke (NPCDCS) Reporting performa for NCD Clinic at Community Health Centre (CHC)/ Sub District Hospital(SDH)			
Name and Address of the SDH / CHC _____ Block/ Taluk/ Mandal/ Zone _____ District _____ State _____			
Month _____ Year _____			
Indicator	During the Reporting Month		
	Male	Female	Total
<b>I. Common NCDS under NPCDCS</b>			
1. Total no. of persons attended NCD Clinic (New and Follow up)			
2. No. newly diagnosed with	A. Diabetes Only		
	B. Hypertension Only		
	C. HTN & DM		
3. No. of persons suspected and referred for	A. Cardiovascular diseases		
	B. Stroke		
	C. Oral Cancer		
	D. Breast cancer		
	E. Cervical cancer		
	F. Other cancers		
4. No of newly diagnosed patients initiated on treatment	A. Diabetes Only		
	B. Hypertension Only		
	C. HTN & DM		
5. Patients on treatment Follow Up	A. Diabetes Only		
	B. Hypertension Only		
	C. HTN & DM		
6. Total No. of persons referred to District Hospital/ Higher Centres			
7. No. of persons counselled for health promotion & prevention of NCD			
<b>II. Comorbid Conditions</b>			
8. Among all confirmed Diabetic patients [New (2A+2C) & Follow up (5A+5C)]	A. No. of known TB cases on ATT		
	B. No. screened for TB Symptoms		
	C. No. suspected for TB & referred to DMC/PHI		

**Signature:**

**Name and Designation**

**Date of reporting** \_\_\_\_\_

*\*This report should be generated from CHC OPD screening data.*

*This report should be verified and signed by Medical Officer I/c CHC.*

*This report should be sent to District NCD Cell by 7th day of every month.*

## Annexure 9

### Form 4: District NCD Clinic

#### NPCDCS Monthly Reporting Format

Form 4 National Programme for Prevention & Control of Cancer, Diabetes, CVDs & Stroke (NPCDCS) Reporting performa for District NCD Clinic				
Name of Health Facility where located : _____ District _____ State _____ - Month_Year__				
All information below are for the reporting month				
Indicator	During the Reporting Month			Total
	Male	Female		
<b>I. Common NCDS under NPCDCS</b>				
<b>1. Total no. of persons attended NCD Clinic in the reporting month (New and Follow up)</b>				
<b>2. No. newly diagnosed with</b>	A.Diabetes Only			
	B. Hypertension Only			
	C. HTN & DM (Both)			
	D. CVDs			
	E. Stroke			
	F.Oral Cancer			
	G. Breast cancer			
	H.Cervical cancer			
	I.Other cancers			
<b>3. Suspected and referred cases of CVDs &amp; Cancer (In Resource limited settings where there are No capacity to perform confirmatory diagnosis)</b>	A.CVDs			
	C. Stroke			
	D. Oral Cancer			
	E. Breast cancer			
	F. Cervical cancer			
<b>4.No of newly diagnosed patients initiated on Treatment</b>	A.Diabetes Only			
	B. Hypertension Only			
	C. HTN & DM (Both)			
	D. CVDs			
	E. Stroke			
	F. Cancer (Including Day Care Centres)			
<b>5. No. of Patients treated at CCU</b>	A. CVDs			
	B. Stroke			
<b>6. No Of patients on follow up</b>	A. Diabetes Only			
	B. Hypertension Only			
	C. DM & HTN (Both)			
	D. CVD (Only OPD data)			
	E. Stroke (Only OPD data)			
	F. Cancer (Including Day Care Centres)			
<b>7.No. of person referred to Tertiary hospital/TCCC</b>	A.Diabetes			
	B. Hypertension			
	C. CVD			
	D.Stroke			
	E. Cancer			
<b>8. Patients attended Day Care facility for Cancer care</b>				
<b>9. No. of persons counselled for health promotion &amp; prevention of NCDs</b>				
<b>10. No. of patients underwent physiotherapy</b>				
<b>II. Comorbid Conditions</b>				
<b>11. Among all confirmed Diabetic patients [New (2A+2C) &amp; Follow up (6A+6C)]</b>	A. No. of known TB cases on ATT			
	B. No. screened for TB Symptoms			
	C. No. suspected for TB & referred to DMC/PHI			

# Annexure 10

## Form 5A: District NCD Cell

### NPCDCS Monthly Reporting Format

Form 5A							
National Programme for Prevention & Control of Cancer, Diabetes, CVDs & Stroke (NPCDCS)							
Reporting performa for District NCD Cell							
District _____				State _____			
Month _____ Year _____							
Indicator	During the Reporting Month			Cumulative since April during current Financial year			
	Male	Femal	Total	Male	Female	Total	
<b>I. Common NCDS under NPCDCS</b>							
<b>1. No. of persons attended NCD Clinics (New and follow up)</b>							
<b>2. No. newly diagnosed with</b>	A. Diabetes Only						
	B. Hypertension Only						
	C. HTN & DM						
	D. CVDs						
	E. Stroke						
	F. Oral Cancer						
	G. Breast cancer						
	H. Cervical cancer						
	I. Other cancers						
<b>3. Number of persons suspected (Confirmatory Diagnosis not available/ Pending)</b>	A. CVDs						
	B. Stroke						
	C. Cancers						
<b>4. No. of newly diagnosed patients put on Treatment</b>	A. Diabetes Only						
	B. Hypertension Only						
	C. HTN & DM						
	D. CVDs						
	E. Stroke						
	F. Oral Cancer						
	G. Breast cancer						
	H. Cervical cancer						
	I. Other cancers						
<b>5. No. of persons on treatment follow up</b>	A. Diabetes Only						
	B. Hypertension Only						
	C. HTN & DM						
	D. CVDs						
	E. Stroke						
	F. Oral Cancer						
	G. Breast cancer						
	H. Cervical cancer						
	I. Other cancers						
<b>6. No. of person referred to Tertiary hospital/TCCC</b>	A. Diabetes (Complications)						
	B. Hypertension (Complications)						
	C. CVDs						
	D. Stroke						
	E. Oral Cancers						
	F. Breast Cancer						
	G. Cervical Cancer						
	H. Other Cancers						
<b>7. No. of Patients treated at CCU</b>	A. CVDs						
	B. Stroke						
<b>8. No of cancer patients treated in Day Care facility</b>							
<b>9. No. of persons counselled for health promotion &amp; prevention of NCDs</b>							
<b>10. No. of patients underwent Physiotherapy</b>							
<b>II. Co-morbidities</b>							
<b>1. Among all confirmed Diabetic patients [New (2A+2C) &amp; Follow up (5A+5C)]</b>	A. No. of known TB cases on ATT						
	B. No. screened for TB Symptoms						
	C. No. suspected for TB & referred to DMC/PHI						



# Annexure 11

## Form 6: State NCD Cell

### NPCDCS Monthly Reporting Format

Form 6

National Programme for Prevention & Control of Cancer, Diabetes, CVDs & Stroke (NPCDCS)

Reporting Performa for State NCD Cell

Name of the State: .....

Reporting Month: .....Year.....

No. of district NCD Cells.....

No. Of District NCD Cells reported .....

#### Part A. Programme Data (Compiled data of Form 5A)

Indicator	During the Reporting Month			Cumulative since April (Financial Year Data)		
	Male	Female	Total	Male	Female	Total
<b>ij). Common NCDS under NPCDCS</b>						
<b>1. Total no. of persons attended NCD Clinics (New and Follow Up)</b>						
2. No. newly diagnosed with	A. Diabetes Only					
	B. Hypertension Only					
	C. HTN & DM (Both)					
	D. CVDs					
	E. Stroke					
	F. Oral Cancer					
	G. Breast cancer					
	H. Cervical cancer					
	I. Other cancers					
	3. No. of new patients initiated on treatment	A. Diabetes Only				
B. Hypertension Only						
C. HTN & DM (Both)						
D. CVDs						
E. Stroke						
F. Oral Cancer						
G. Breast cancer						
H. Cervical cancer						
I. Other cancers						
4. No. of Patients on Follow up		A. Diabetes Only				
	B. Hypertension Only					
	C. HTN & DM (Both)					
	D. CVDs					
	E. Stroke					
	F. Oral Cancer					
	G. Breast cancer					
	H. Cervical cancer					
	I. Other cancers					
	5. No. of Patients Referred to Tertiary Care/TCCC	A. Diabetes				
B. Hypertension						
C. CVDs						
D. Stroke						
E. Cancers						
6. No. of patients treated at CCU	A. CVDs					
	B. Stroke					
7. No. of persons attended day care centre						
8. No. of Persons counselled for health promotion and prevention of NCDs						
9. No. of patients attended physiotherapy						

<b>ii). Comorbid Conditions</b>						
10. Among all confirmed Diabetic patients [New (2A+2C) & Follow up (4A+4C)]	A. No. of known TB cases on ATT					
	B. No. screened for TB Symptoms					
	C. No. suspected for TB & referred to DMC/PHI					

#### Part B. Other Programme Markers (Compiled data of Form 5B)

<b>Total No. of NCD check ups done</b>						
Total No. Of Persons Suspected and referred for	Diabetes only					
	Hypertension Only					
No. of diagnosed patients on follow up in PHC and Sub centres	Oral Cancers					
	Breast Cancers					
	Cervical Cancers					
	Other Cancers					
HTN /Diabetes/ Both HTN and DM						
Cancer patients						

#### Part C. Physical targets and achievements

Name of Facility	Annual Target for the year 2016-17	Achievement during the reporting month	Cumulative achievement since 1st Apr 2016	Cumulative achievement since beginning	Remarks
District NCD Cells					
District NCD Clinics					
District CCU facilities					
District Day Care Centres					
CHC NCD Clinics					
Others					

Signature: \_\_\_\_\_

Name and Designation \_\_\_\_\_

Date of reporting \_\_\_\_\_

## **Annexure 12**

### **Infection Control Measures Guidelines**

#### **1. Location and design**

- a. NCD clinic should have a well - ventilated waiting and seating area. Separate, well-ventilated waiting area for respiratory symptomatic should be made available wherever possible.
- b. Adherence to ventilation standards for airborne infection control (>12-15 ACH throughout during all hours of operation, in all seasons) should be ensured.
- c. NCD clinic should be preferably located as away from Direct Microscopy Centre/DOT Centres.
- d. Open outdoor roofed additional waiting areas are encouraged, as are token systems to decompress crowded areas.
- e. As far as possible, use of re-circulating air conditioners in the waiting area should be avoided as these have been found to be leading to no air exchange.

#### **2. General Hygiene:**

- a. Hand washing facility (Universal Precaution) shall be in place for doctors, health care workers and patients
- b. Running water, soap and alcohol hand rub solution shall be provided
- c. Frequent wet mopping of the patient waiting area shall be undertaken
- d. Lavatory shall be kept clean
- e. An appropriate Waste segregation and Disposal system shall be in place

#### **3. Cough Hygiene for persons with respiratory infection:**

- a. Cover the mouth and nose with a handkerchief/tissue when coughing and dispose of used tissue in waste containers;
- b. Use a mask if coughing. Surgical mask may be issued to coughing patients
- c. Perform hand hygiene (use an alcohol-based hand rub or wash hands with soap and water) after contact with respiratory secretions; and
- d. Display sign boards requesting patients and family members with acute febrile respiratory illness to practice respiratory hygiene/cough etiquette.
- e. Educate HCWs, patients, family members, and visitors on the importance of containing respiratory aerosols and secretions to help prevent the transmission of influenza and other respiratory infections.

#### **4. Training of Hospital staff:**

- a. All the hospital staff should be trained in Universal Workplace Precaution, Waste segregation and disposal and Air borne Infection Control Practices, with special reference to tuberculosis prevention.

## Annexure 13

### I. RNTCP Laboratory Request Form to refer suspected TB patient

REFERRAL SLIP <u>(Retained at referring health facility-HF)</u>	REFERRAL SLIP <u>(Patient copy)</u>	REFERRAL SLIP <u>(Lab Copy)</u>
Date: .....Lab referred to : .....	Date: .....Lab referred to : .....	Date: .....Lab referred to : .....
Name of referring Health Facility (HF): .....	Name of referring Health Facility (HF): .....	Name of referring Health Facility (HF): .....
Name of Patient: .....	Name of Patient: .....	Name of Patient: .....
Age: ..... yrs Sex: M/F	Age: ..... yrs Sex: M/F	Age: ..... yrs Sex: M/F
Address of patient (with landmarks) .....	Address of patient (with landmarks) .....	Address of patient (with landmarks) .....
Patient's/Contact person's Mobile number : _____	Patient's/Contact person's Mobile number : _____	Patient's/Contact person's Mobile number : _____
Kindly tick	Kindly tick	Kindly tick
<input type="checkbox"/> Cough	<input type="checkbox"/> Cough	<input type="checkbox"/> Cough
<input type="checkbox"/> Fever	<input type="checkbox"/> Fever	<input type="checkbox"/> Fever
<input type="checkbox"/> Loss of weight	<input type="checkbox"/> Loss of weight	<input type="checkbox"/> Loss of weight
<input type="checkbox"/> Night sweat	<input type="checkbox"/> Night sweat	<input type="checkbox"/> Night sweat
<input type="checkbox"/> Blood in sputum/cough	<input type="checkbox"/> Blood in sputum/cough	<input type="checkbox"/> Blood in sputum/cough
Stamp of HF Referred by (Name and Sign)	Stamp of HF Referred by (Name and Sign)	Stamp of HF Referred by (Name and Sign)

## II. RNTCP request form for examination of biological specimen for TB

(Required for Diagnosis of TB, Drug Sensitivity Testing and follow up)

Patient Information			
Patient name		Age (in yrs): _____	Gender: <input type="checkbox"/> M <input type="checkbox"/> F <input type="checkbox"/> TG
Patient mobile no. or other contact no.		Specimen date of collection (DD/MM/YY) _____	<input type="checkbox"/> Sputum <input type="checkbox"/> Other (specify) _____
Aadhar no.		HIV Status: <input type="checkbox"/> Reactive <input type="checkbox"/> Non-Reactive <input type="checkbox"/> Unknown	
Patient address with landmark		Key populations: <input type="checkbox"/> Contact of known TB Patient <input type="checkbox"/> Diabetes <input type="checkbox"/> Tobacco <input type="checkbox"/> Prison <input type="checkbox"/> Miner <input type="checkbox"/> Migrant <input type="checkbox"/> Refugee <input type="checkbox"/> Urban slum <input type="checkbox"/> Health-care worker <input type="checkbox"/> Other(specify) _____	

Name and Type of referring facility (PHI/DMC/TU/ DTC/ICTC/ART/Medical College/DR-TB Centre/Private Others, specify): _____	CDL NIKSHAY ID: _____ - C - _____ RNTCP TB Reg No. _____ Or <input type="checkbox"/> Not Applicable
Health Establishment ID (NIKSHAY): _____	
State: _____	District: _____ Tuberculosis Unit (TU): _____

### Reason for Testing:

Diagnosis and follow up of TB			
Diagnosis (NIKSHAY ID _____)		Follow up (Smear and culture)	
H/O anti TB Rx for >1 month: <input type="checkbox"/> Yes <input type="checkbox"/> No		RNTCP TB Reg No _____ NIKSHAY ID: _____	
<input type="checkbox"/> Presumptive TB <input type="checkbox"/> Repeat Exam <input type="checkbox"/> Private referral <input type="checkbox"/> Presumptive NTM	Predominant symptom _____ Duration _____ days	Regimen: <input type="checkbox"/> New <input type="checkbox"/> Previously Treated Reason: <input type="checkbox"/> End IP <input type="checkbox"/> End CP Post treatment: <input type="checkbox"/> 6m <input type="checkbox"/> 12m <input type="checkbox"/> 18m <input type="checkbox"/> 24m	

Diagnosis and follow up Drug-resistant TB			
Drug Susceptibility Testing (DST)		Follow up (Culture)	
Presumptive MDR TB	<input type="checkbox"/> New <input type="checkbox"/> Previously treated	PMDT TB No _____ DR TB NIKSHAY ID: _____	
	<input type="checkbox"/> At diagnosis <input type="checkbox"/> Contact of MDR/RR TB <input type="checkbox"/> Follow up Sm +ve <input type="checkbox"/> Private referral <input type="checkbox"/> Discordance resolution	Regimen: <input type="checkbox"/> Regimen for INH mono/poly resistant TB <input type="checkbox"/> Regimen for MDR/RR TB <input type="checkbox"/> Shorter regimen* <input type="checkbox"/> Modified Regimen for MDR/RR-TB + FQ /SLI resistance <input type="checkbox"/> Regimen for XDR TB <input type="checkbox"/> Modified Regimen for mixed pattern resistance <input type="checkbox"/> Regimen with New Drug for MDR-TB Regimen + FQ/SLI resistance <input type="checkbox"/> Regimen with New Drug for XDR-TB <input type="checkbox"/> Regimen with New Drug for failures of regimen for MDR TB <input type="checkbox"/> Regimen with New Drug for failures of regimen for XDR-TB <input type="checkbox"/> Regimen with New Drug for mixed pattern resistance	
<input type="checkbox"/> Presumptive H mono/poly		Treatment <input type="checkbox"/> Month <input type="checkbox"/> Week : _____	
Presumptive XDR TB	<input type="checkbox"/> MDR/RR TB at Diagnosis <input type="checkbox"/> ≥ 4 months culture positive <input type="checkbox"/> 3 monthly for persistent culture positives (treatment month _____) <input type="checkbox"/> Culture reversion <input type="checkbox"/> Failure of MDR/RR-TB regimen <input type="checkbox"/> Recurrent case of second line treatment <input type="checkbox"/> Discordance resolution		

### Test requested:

<input type="checkbox"/> Microscopy <input type="checkbox"/> TST <input type="checkbox"/> IGRA <input type="checkbox"/> Chest X-ray <input type="checkbox"/> Cytopathology <input type="checkbox"/> Histopathology <input type="checkbox"/> CBNAAT <input type="checkbox"/> Culture <input type="checkbox"/> DST <input type="checkbox"/> Line Probe Assay <input type="checkbox"/> Gene Sequencing <input type="checkbox"/> Other (Please Specify) _____
Requestor Name, Designation and Signature: _____ Contact Number: _____ Email ID: _____

Results: NIKSHAY ID Generated: \_\_\_\_\_ CDL NIKSHAY ID: \_\_\_\_\_

Microscopy ( <input type="checkbox"/> ZN <input type="checkbox"/> Florescent)							
	Lab Sr. No	Visual appearance	Result				
			Negative	Scanty	1+	2+	3+
Sample A							
Sample B							
Date tested: _____ Date Reported: _____ Reported by: _____ (Name and Signature)							

Cartridge Based Nucleic Acid Amplification Test (CBNAAT)			
Sample	<input type="checkbox"/> A	<input type="checkbox"/> B	
M. Tuberculosis	<input type="checkbox"/> Detected	<input type="checkbox"/> Not Detected	<input type="checkbox"/> N/A
Rif Resistance	<input type="checkbox"/> Detected	<input type="checkbox"/> Not Detected	<input type="checkbox"/> Indeterminate <input type="checkbox"/> N/A
Test	<input type="checkbox"/> No Result	<input type="checkbox"/> Invalid	<input type="checkbox"/> Error – Error Code _____ (Please arrange for fresh sample)
Date tested:	_____	Date Reported:	_____ Reported by: _____ (Name and Signature)

Culture ( <input type="checkbox"/> LJ <input type="checkbox"/> LC)				
Lab Sr. No	Negative	Positive	NTM (write species)	Contamination
Date Result:	_____	Date Reported:	_____	Reported by: _____ (Name and Signature)

Line Probe Assay (LPA)	
<input type="checkbox"/> Direct <input type="checkbox"/> Indirect Lab serial _____	
First line LPA	
RpoB: -- locus control: <input type="checkbox"/> present <input type="checkbox"/> absent	
WT1: <input type="checkbox"/> present <input type="checkbox"/> absent WT2: <input type="checkbox"/> present <input type="checkbox"/> absent WT3: <input type="checkbox"/> present <input type="checkbox"/> absent WT4: <input type="checkbox"/> present <input type="checkbox"/> absent	
WT5: <input type="checkbox"/> present <input type="checkbox"/> absent WT6: <input type="checkbox"/> present <input type="checkbox"/> absent WT7: <input type="checkbox"/> present <input type="checkbox"/> absent WT8: <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT1 (D516V): <input type="checkbox"/> present <input type="checkbox"/> absent MUT2A (H526Y): <input type="checkbox"/> present <input type="checkbox"/> absent MUT2B (H526D): <input type="checkbox"/> present <input type="checkbox"/> absent MUT3 (S531L): <input type="checkbox"/> present <input type="checkbox"/> absent	
Kat G: --- locus control: <input type="checkbox"/> present <input type="checkbox"/> absent	
WT1 (315): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT1 (S315T1): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT2 (S315T2): <input type="checkbox"/> present <input type="checkbox"/> absent	
Inh A: --- locus control: <input type="checkbox"/> present <input type="checkbox"/> absent	
WT1 (-15, -16): <input type="checkbox"/> present <input type="checkbox"/> absent WT2 (-8): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT1 (C15T): <input type="checkbox"/> present <input type="checkbox"/> absent MUT2 (A16G): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT3A (T8C): <input type="checkbox"/> present <input type="checkbox"/> absent MUT3B (T8A): <input type="checkbox"/> present <input type="checkbox"/> absent	
Second line LPA	
gyrA:--	gyrB:---
locus control: <input type="checkbox"/> present <input type="checkbox"/> absent	locus control: <input type="checkbox"/> present <input type="checkbox"/> absent
WT1 (85-90): <input type="checkbox"/> present <input type="checkbox"/> absent	WT1 (536-541): <input type="checkbox"/> present <input type="checkbox"/> absent
WT2 (89-93): <input type="checkbox"/> present <input type="checkbox"/> absent	
WT3 (92-97): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT1 (A90V): <input type="checkbox"/> present <input type="checkbox"/> absent	MUT1 (N538D): <input type="checkbox"/> present <input type="checkbox"/> absent
MUT2 (S91P): <input type="checkbox"/> present <input type="checkbox"/> absent	MUT2 (E540V): <input type="checkbox"/> present <input type="checkbox"/> absent
MUT3A (D94A): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT3B (D94N/Y): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT3C (D94G): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT3D (D94H): <input type="checkbox"/> present <input type="checkbox"/> absent	
rrs:-----	eis:-----
locus control: <input type="checkbox"/> present <input type="checkbox"/> absent	locus control: <input type="checkbox"/> present <input type="checkbox"/> absent
WT1 (1401-02): <input type="checkbox"/> present <input type="checkbox"/> absent	WT1 (37): <input type="checkbox"/> present <input type="checkbox"/> absent
WT2 (1484): <input type="checkbox"/> present <input type="checkbox"/> absent	WT2 (14, 12, 10): <input type="checkbox"/> present <input type="checkbox"/> absent
	absent
	WT3 (2): <input type="checkbox"/> present <input type="checkbox"/> absent
	MUT1 (C-14T): <input type="checkbox"/> present <input type="checkbox"/> absent
MUT1 (A1401G): <input type="checkbox"/> present <input type="checkbox"/> absent	
MUT2 (G1484T): <input type="checkbox"/> present <input type="checkbox"/> absent	
Final LPA Interpretation: ---	
MTB result <input type="checkbox"/> MTB positive <input type="checkbox"/> MTB Negative	
RIF <input type="checkbox"/> Sensitive <input type="checkbox"/> Resistant <input type="checkbox"/> Indeterminate	
Quinolone <input type="checkbox"/> Sensitive <input type="checkbox"/> Resistant <input type="checkbox"/> Indeterminate	
INH <input type="checkbox"/> Sensitive <input type="checkbox"/> Resistant <input type="checkbox"/> Indeterminate	
SLID <input type="checkbox"/> Sensitive <input type="checkbox"/> Resistant <input type="checkbox"/> Indeterminate	
Date Result:	_____ Date Reported: _____ Reported by: _____ (Name and Signature)

Drug Susceptibility Test (DST) results																			
Lab Sr.No	1 <sup>st</sup> line drugs							SLI			FQ			Other					
	R	H	(INH)	H	S	E	Z	Km	Cm	Am	Lfx	Mfx (0.5)	Mfx (2)	Eto	PAS	Lzd	Cfz	Clr	Azi
Date Result:	_____							Date Reported: _____			Reported by: _____ (Name and Signature)								
<i>R: Resistant; S: Susceptible; C: Contaminated; -- Not done</i>																			

Other tests for TB diagnosis	
Test (Please Specify):	_____
Result:	_____
Date reported:	_____ Reported by: _____ (Name and Signature)

# Annexure 14

## Revised National Tuberculosis Control Programme

### Treatment Card

TB Notification No / NIKSHAY ID \_\_\_\_\_

State: \_\_\_\_\_ City / District: \_\_\_\_\_ TB Unit: \_\_\_\_\_ PHI: \_\_\_\_\_ Area: Tribal / Rural / Urban / Urban slum  
 Name: \_\_\_\_\_ Sex:  M  F  TG Age: \_\_\_\_\_ Marital status: \_\_\_\_\_ Occupation: \_\_\_\_\_ Socioeconomic status: APL/ BPL  
 Complete Address: House No. \_\_\_\_\_ Road: \_\_\_\_\_ Important landmark: \_\_\_\_\_ Ward/Village: \_\_\_\_\_ Town/City: \_\_\_\_\_  
 Taluka/Mandal: \_\_\_\_\_ Pin code: \_\_\_\_\_ Mobile: \_\_\_\_\_ Aadhaar No.: \_\_\_\_\_ Key population: Contacts / Miners / Refugees / Migrants / Prison inmates  
 Name and Address of contact person \_\_\_\_\_ Mobile No. \_\_\_\_\_

Name of Treatment Supporter \_\_\_\_\_ Designation \_\_\_\_\_ Mobile No.: \_\_\_\_\_  
 Initial home visit by \_\_\_\_\_ Date \_\_\_\_\_ Type of Treatment Adherence – DOT / Family DOT / ICT supported, specify \_\_\_\_\_ / Other \_\_\_\_\_  
 Predominant symptom \_\_\_\_\_ Duration \_\_\_\_\_ day Number of health care providers visited before diagnosis for current episode: \_\_\_\_\_

<b>Site of disease</b> <input type="checkbox"/> Pulmonary <input type="checkbox"/> Extra Pulmonary Site _____	<b>Type of Patient</b> <input type="checkbox"/> New <input type="checkbox"/> Recurrent <input type="checkbox"/> Transferred in <input type="checkbox"/> Treatment After Failure <input type="checkbox"/> Treatment after lost to followup <input type="checkbox"/> Others, previously treated (Specify) _____	<b>Case Definition</b> <input type="checkbox"/> Microbiologically confirmed <input type="checkbox"/> Clinically diagnosed TB
<b>Investigations (ZN / FM / CBNAAT / Liquid C / Solid C)</b> Pre-treatment _____ End of Intensive Phase _____ End of treatment _____	<b>Lab. No.</b> _____ <b>Lab</b> _____ <b>Date</b> _____	<b>Test result</b> _____ <b>Sample sent to CDST (date)</b> _____ <b>DST result</b> _____

H/O of Previous ATT: \_\_\_\_\_ months of treatment \_\_\_\_\_ months since end of last episode  
 Source of treatment:  Public  Private Previous regimen: \_\_\_\_\_

<b>HIV related information</b> HIV Status: <input type="checkbox"/> Unknown <input type="checkbox"/> Reactive <input type="checkbox"/> NR Date _____ PID _____ CPT delivered on: (1) (2) (3) (4) (5) (6) Initiated on ART: <input type="checkbox"/> No <input type="checkbox"/> Yes Date & ART No. _____		No of children less than 6 years given chemoprophylaxis = Name _____ Wt _____ Dose (mg) _____ (Kg) _____ 1 2 3 4 5 6	
<b>Diabetes related information</b> Diabetes Status: <input type="checkbox"/> Unknown <input type="checkbox"/> Diabetic <input type="checkbox"/> Non-Diabetic RBS _____ FBS _____ End IP _____ End treatment _____ Initiated on ADT:* <input type="checkbox"/> No <input type="checkbox"/> Yes Date & ADT No. _____		<6yrs _____>6yrs _____	
<b>Other co-morbidity</b> Details _____		<b>Addiction related information</b> Current Tobacco user <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, <input type="checkbox"/> Smoking <input type="checkbox"/> Smokeless <input type="checkbox"/> Linked for cessation <input type="checkbox"/> Yes <input type="checkbox"/> No If tobacco user, status of tobacco use at end of treatment <input type="checkbox"/> Quit <input type="checkbox"/> Not quit If/ Alcohol intake <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, linked for deaddiction <input type="checkbox"/> Yes <input type="checkbox"/> No	

**Signature of MO with date** \_\_\_\_\_

\*ADT Number - NPCDCS registration Number



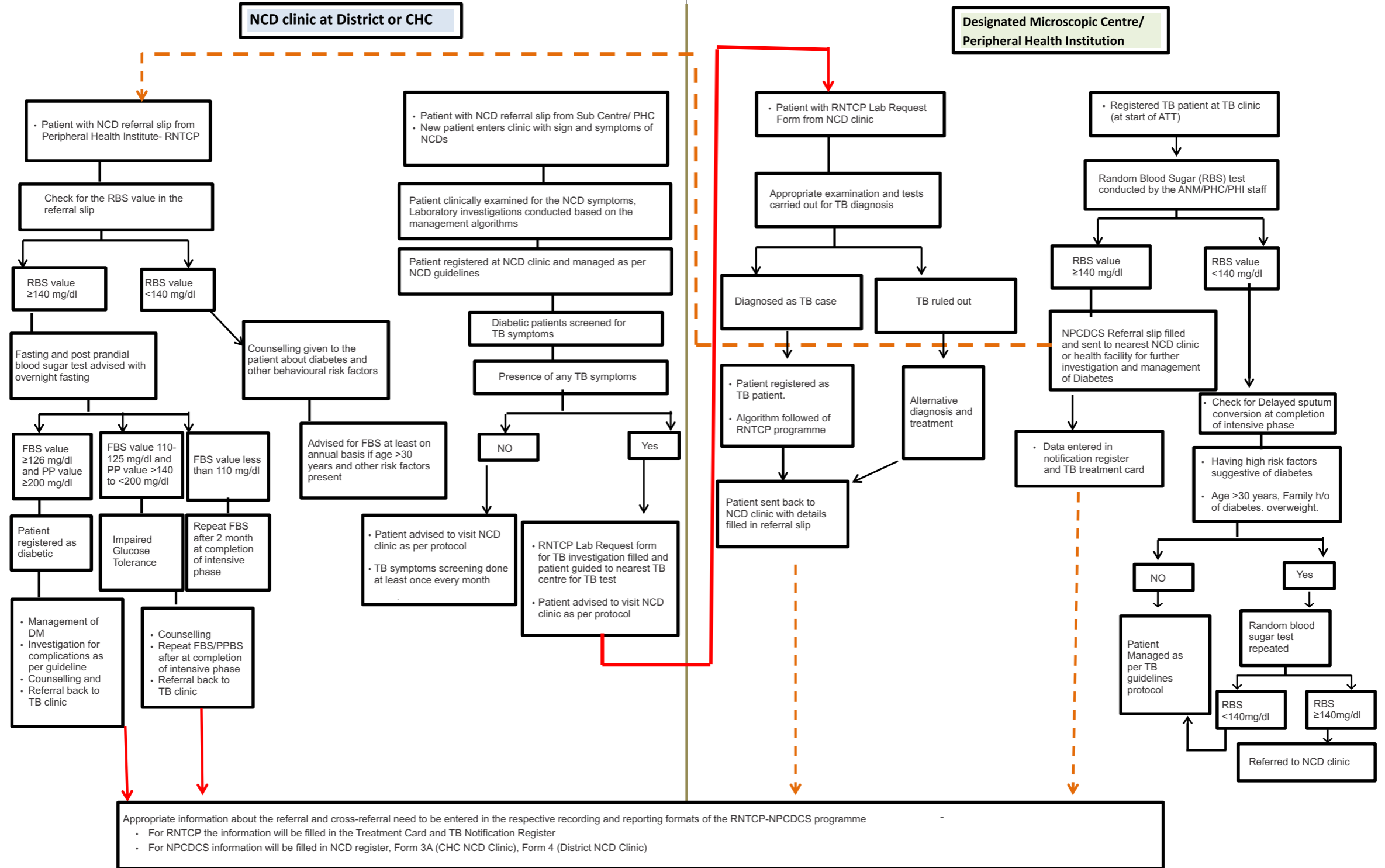






**Annexure 16**  
**Flow Chart**

**Flow Chart for joint TB - diabetes Collaborative Activities**



## References

1. Global Tuberculosis Report 2016. Geneva: World Health Organization; 2016.
2. IDF Diabetes Atlas: seventh edition. International Diabetes Federation; 2015.
3. Indian Council of Medical Research. Assessment of Burden of NCDs in India. New Delhi: Indian Council of Medical Research; 2005.
4. Stevenson CR, Critchley JA, Forouhi NG, Roglic G, Williams BG, et al. Diabetes and the risk of tuberculosis: a neglected threat to public health? *Chronic Illn*. 2007;3:228–45.
5. Jeon CY, Murray MB. Diabetes mellitus increases the risk of active tuberculosis: a systematic review of 13 observational studies. *PLoS Med*. 2008;5:e152.
6. Dooley KE, Chaisson RE. Tuberculosis and diabetes mellitus: convergence of two epidemics. *Lancet Infect Dis*. 2009;9:737–46.
7. Ruslami R, Aarnoutse RE, Alisjahbana B, van der Ven AJ, van Crevel R. Implications of the global increase of diabetes for tuberculosis control and patient care. *Trop Med Int Health*. 2010;15:1289–99.
8. Baker MA, Harries AD, Jeon CY, Hart JE, Kapur A, et al. The impact of diabetes on tuberculosis treatment outcomes: A systematic review. *BMC Med*. 2011;20119: 81.
9. Stevenson CR, Forouhi NG, Roglic G, Williams BG, Lauer JA, et al. Diabetes and tuberculosis: the impact of the diabetes epidemic on tuberculosis incidence. *BMC Public Health*. 2007;7: 234.
10. Dye C, Bourdin Trunz B, Lonnroth K, Roglic G, Williams BG. Nutrition, diabetes and tuberculosis in the epidemiological transition. *PLoS One*. 2011;6:e21161.
11. Kumar A, Members of Tuberculosis-Diabetes Study Group. Screening of patients with tuberculosis for Diabetes Mellitus in India. *Tropical Medicine and International Health*. 2013. 18 ( 5);636–45. doi:10.1111/tmi.12084.
12. Kumar A, Members of Tuberculosis-Diabetes Study Group. Screening of patients with Diabetes Mellitus for tuberculosis in India. *Tropical Medicine and International Health*. 2013. 18 ( 5);646–54. doi:10.1111/tmi.12083.







COUNTRY OFFICE FOR

**World Health  
Organization**

**India**

Developed for Ministry of Health & Family Welfare by WHO Country Office for India