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Ministry of Health and Family Welfare
Government of India

National Guidance on Differentiated TB Care

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National TB Elimination Programme

Central TB Division Ministry of Health & Family Welfare
Government of India

National Guidance on Differentiated TB Care

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अपर सचिव एवं मिशन निदेशक (रा.स्वा.मि.)
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सत्यमेव जयते

आज़ादी का अमृत महोत्सव

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MESSAGE

Tuberculosis (TB) remains a major public health challenge in India, requiring a patient- centered and health system-strengthening approach to ensure equitable access to quality care. As we progress toward TB *Mukt Bharat*, it is imperative to integrate differentiated TB care within the broader healthcare system, ensuring that services are tailored to meet the diverse needs of patients across different levels of care.

A differentiated TB care model is essential to enhance accessibility, optimize resources, and improve patient outcomes by ensuring the right care is provided at the right place and time. Strengthening TB care at primary, secondary, and tertiary healthcare facilities will enable early diagnosis, effective treatment, and seamless continuity of care. This includes integrating TB services with Ayushman Arogya Mandirs, Health and Wellness Centers (HWCs), district hospitals, and medical colleges, ensuring that services are patient-friendly, decentralized, and well-coordinated.

District hospitals will play a pivotal role in triaging and managing complicated TB cases, handling comorbidities, and providing inpatient care where necessary. Medical colleges and institutions of national importance will lead the way in capacity-building, research, and implementation of innovative TB care models. These institutions will also serve as referral centers for managing complex TB cases, thereby strengthening continuum of care across different healthcare levels.

A well-structured referral and linkage system is being developed to strengthen coordination between primary, secondary, and tertiary facilities. This will ensure that patients receive comprehensive diagnostic, treatment, and support services without unnecessary delays. Expanding access to rapid molecular diagnostics, drug susceptibility testing (DST), and standardized treatment protocols at the block and district levels will significantly reduce diagnostic and treatment delays.

The integration of TB care within the general healthcare system is essential for ensuring a holistic, person-centered approach. By linking TB services with non-communicable disease (NCD) clinics, HIV care, maternal and child health programs, and nutrition support schemes, we can address the broader determinants of health, leading to better treatment adherence and improved outcomes. Strengthening infection prevention and control (IPC) measures, including adequate ventilation, dedicated TB care units, and personal protective equipment (PPE), will further safeguard healthcare workers and patients.

To achieve these goals, capacity-building and skill enhancement for healthcare providers at all levels—including general physicians, nurses, and private healthcare providers—is crucial. Ensuring that healthcare workers are equipped with updated knowledge and guidelines will enhance the quality and effectiveness of TB services. Multi-sectoral collaboration with social welfare programs, mental health services, and community-based organizations will further strengthen patient support mechanisms, improving adherence and treatment outcomes.

By mainstreaming TB care into routine health services, optimizing referral pathways, and leveraging technology for real-time monitoring and patient support, India is taking a systematic and structured approach to differentiated TB care. With sustained commitment, collaborative action, and innovations in TB service delivery, we are making significant strides toward a TB-free India—ensuring that no patient is left behind, and every individual receives timely, accessible, and high-quality TB care.

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Message

As India advances toward TB *Mukt Bharat*, strengthening differentiated TB care is critical to ensuring efficient, patient-centred, and responsive healthcare services. The National TB Elimination Programme (NTEP) has prioritized a structured approach to triaging, risk stratification, referral pathways, and comprehensive TB patient management, ensuring that every person with TB receives the right level of care at the right time.

Triaging and risk stratification play a key role in streamlining TB care by identifying high-risk individuals, assessing disease severity, and tailoring care accordingly. TB patients will be classified into non-severe and severe disease based on red flag criteria easily understandable by the family members or community health workers to guide appropriate interventions or referral. Those with mild and uncomplicated TB can be effectively managed at primary health centres (PHCs) and Ayushman Arogya Mandir (AAMs), while patients with severe disease, comorbidities, or drug-resistant TB (DR-TB) will be referred to district hospitals or tertiary care centres or medical colleges for specialized management.

To strengthen risk stratification, in addition to the clinical judgement by the treating physician, NTEP is integrating systematic screening tools, artificial intelligence-based digital radiology solutions, molecular diagnostic platforms and artificial intelligence-based solutions to identify patients at risk of lost to follow-up or death. This evidence-based approach will ensure early detection of high-risk patients, timely clinical interventions, and personalized treatment strategies.

A well-defined referral system is essential for effective TB management. Primary healthcare facilities, including Ayushman Arogya Mandirs (AAMs), serve as the first point of contact for TB screening and treatment initiation. District hospitals are strengthened to manage complicated TB cases, adverse drug reactions (ADRs), and comorbid conditions such as diabetes, HIV, and malnutrition. Medical colleges and specialized centres will function as referral hubs for severe DR-TB cases, surgical interventions, and advanced case management. Digital referral tracking within Ni-kshay will facilitate seamless patient navigation, ensuring uninterrupted care and treatment adherence.

(DOT) through community volunteer treatment supporters supplemented by Digital Adherence Technologies (DATs) will enhance treatment success rates and reduce TB-related mortality.

Comprehensive patient support services, including nutritional assistance, mental health counselling, adverse drug reaction (ADR) monitoring, and direct benefit transfers, will further improve treatment completion rates. Community engagement, peer support groups, and decentralized TB services ensure that TB care is accessible, equitable, and patient-friendly.

By reinforcing triaging, strengthening risk stratification, optimizing referral systems, and personalizing patient management, through this guidance we are making significant strides toward differentiated TB care that is efficient, responsive. With continued innovations in TB diagnostics, treatment regimens, digital health solutions, and community-based care, India is building a stronger and more resilient healthcare system that will accelerate progress toward TB elimination.

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Message

Embedding differentiated TB care into the broader healthcare system is essential for delivering care that is efficient, patient-focused, and equitable. Enhancing the overall health infrastructure plays a crucial role in driving better TB treatment outcomes. Differentiated TB care is not a parallel system but a core component of comprehensive healthcare strengthening, ensuring that TB services are seamlessly embedded within existing health structures.

Early detection (triaging) and risk stratification are critical components of this approach. By leveraging AI-driven digital radiology, molecular diagnostics, and systematic screening tools, the health system can identify, triage, and categorize TB cases efficiently. Mild and uncomplicated cases will be managed at primary healthcare centers (PHCs) and Ayushman Arogya Mandirs (AAMs), while severe disease, and comorbid cases will be referred to district hospitals, tertiary care centers, or medical colleges for advanced management. A structured referral system, integrated with Ni-kshay digital tracking, will ensure seamless patient movement across different levels of care, strengthening the continuum of care within the general health system.

Risk prediction models driven by artificial intelligence will support healthcare providers in identifying patients at risk of loss to follow-up or poor outcomes, enabling targeted interventions. To enhance integration and accessibility to address various comorbidities in TB patients, services to be mainstreamed into general healthcare programs, including HIV care, non-communicable disease (NCD) management, maternal and child health services, and nutrition programs. This multi-sectoral approach will ensure that TB care is not an isolated service but an essential function of a strong health system. Investments in health system strengthening will be central to achieving sustainable and effective differentiated TB care. Upgrading district hospitals, expanding referral networks, and reinforcing primary healthcare infrastructure will not only improve TB outcomes but also enhance overall healthcare delivery.

Differentiated TB care will be facilitating a resilient, responsive, and patient-friendly healthcare system that prioritizes early diagnosis, personalized treatment, and comprehensive support services. TB care must not be viewed as a standalone program but as an integral part of strengthening primary, secondary, and tertiary healthcare services. With sustained investments, multi-sectoral collaboration, and health system-wide innovations, India is ensuring that TB care is owned by the general health system, making TB elimination a reality through strong and sustainable healthcare infrastructure.

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Acknowledgment

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Abbreviations

AAM	Ayushman Aarogya Mandir
ACF	Active Case Finding
ADR	Adverse Drug Reactions
ANM	Auxiliary Nurse Midwife
ART	Antiretroviral Therapy
ASHA	Accredited Social Health Activist
CBC	Complete Blood Count
CHC	Community Health Centre
CTD	Central TB Division
DM	Diabetes Mellitus
DBT	Direct Benefit Transfer
DTCC	District TB-comorbidity Coordination Committee
DR-TB	Drug-Resistant TB
DDR-TBCs	District Drug-Resistant TB Centre
DS-TB	Drug Sensitive TB
EPTB	Extrapulmonary TB
FDSI	Free Diagnostic Service Initiative
Hb	Haemoglobin
HWC	Health and Wellness Centres
LFU	Lost to Follow-up
MCH	Maternal and Child Health
MDR-TB	Multi-Drug-Resistant Tuberculosis
MUAC	Mid-Upper Arm Circumference
NAAT	Nucleic acid amplification test
NPHCE	National Programme for Health Care of the Elderly
NP-NCD	National Programme for Prevention and Control of non-communicable disease
NFHS	National Family Health Survey
NTCP	National Tobacco Control Programme
NTEP	National TB Elimination Programme
PATO	Prediction of Adverse TB Outcomes
PwTB	Person with TB
PHC	Primary Health Centre
PM-JAY	Pradhan Mantri Jan Arogya Yojana
RAN	Rashtriya Arogya Nidhi
RBS	Random Blood Sugar
RKS	Rogi Kalyan Samiti
SACS	State AIDS Control Society
STC	State TB Cell
STO	State Tuberculosis Officer
STS	Senior Treatment Supervisor
TAS	TB Aarogya Sathi
TBSA	Tuberculosis Social Autopsy
WIFS	Weekly Iron and Folic Acid Supplementation

Executive Summary

Tuberculosis (TB) remains a significant public health challenge in India, accounting for 27% of the global TB burden and causing an estimated 315,000 TB-related deaths in 2023.(1) The **Differentiated TB Care** framework addresses these challenges through a patient-centered, tiered healthcare approach that prioritizes high-risk populations and ensures targeted, efficient, and equitable care.(2, 3) These guidelines aim to reduce TB-related morbidity and mortality by implementing evidence-based interventions and leveraging technological tools to optimize patient outcomes.

The core objectives of the Differentiated TB Care model include early identification of high-risk individuals to prevent complications and reduce early deaths, which account for 70% of TB-related fatalities.(1) Comprehensive risk stratification is emphasized to address clinical and socio-demographic factors such as severe undernutrition, HIV, diabetes, and other comorbidities.(4, 5) Strengthened referral pathways are designed to ensure timely and appropriate care for severe cases, while integrated follow-up mechanisms promote treatment adherence, manage complications, and prevent relapse.(6) The guidelines also prioritize addressing social determinants of health through nutritional supplementation, counseling, and community engagement.(7-9)

Key strategies of the Differentiated TB Care framework include systematic triaging at all levels of care to rapidly identify high-risk cases, risk stratification for ongoing patient management, and the establishment of standard referral protocols to link patients to specialized care.(10) Digital platforms like **Ni-kshay** and AI-driven tools are utilized to predict adverse outcomes, monitor patient progress, and streamline decision-making.(11) Frontline workers and community health volunteers play a critical role in the differentiated TB care, ensuring early detection, regular follow-ups, and enhanced adherence support.(12)

The Differentiated TB Care framework is characterized by its flexibility to tailor interventions for vulnerable populations, including children, individuals with drug-resistant TB (DR-TB), and those with extrapulmonary TB.(13) It also introduces the concept of **TB Social Autopsy (TBSA)** to investigate and address systemic and social barriers contributing to TB deaths.(14, 15) Furthermore, recognizing the significant role of undernutrition in TB outcomes, the framework integrates nutritional support into inpatient and outpatient care plans.(8)

The implementation framework adopts a decentralized, multi-tiered approach.(16) At the community and primary levels, facilities like Ayushman Arogya Mandirs, PHCs, and CHCs focus on early detection and basic care.(16, 17) AAMs/ PHCs/ CHCs handle comprehensive risk stratification and moderate case management, while tertiary centers / District Hospitals/ medical colleges manage severe and drug-resistant cases with advanced diagnostics and inpatient care.(16, 17)

By reducing TB mortality and morbidity, improving treatment adherence, and addressing clinical and socio-economic barriers, the Differentiated TB Care framework aims to accelerate progress toward the **End TB** targets. It provides a scalable, patient-centered solution adaptable to diverse healthcare settings, aligning with India's goal of eliminating TB as a public health threat.

01 Introduction

1.1 Background:

Tuberculosis (TB) continues to pose a significant public health challenge in India, which accounts for 27% of the global TB burden—the highest contribution worldwide.(1) The **Global TB Report 2024** estimated **315,000** TB related deaths in India in 2023, corresponding to a mortality rate of **22 per 100,000 population**.(1) Although the National Tuberculosis Elimination Programme (NTEP) has made progress in increasing TB notification rates and treatment coverage, substantial gaps remain in addressing TB mortality and managing high-risk populations.(18) To achieve the SDG **End TB** targets, the NTEP aims to accelerate the annual reduction in TB mortality, from the current **22 per 100,000 population** to ~3.2 per 100,000 **population**(19). Achieving this goal necessitates the implementation of a **differentiated care framework** tailored to the needs of high-risk individuals to prevent complications and mitigate mortality, particularly among those with TB and drug-resistant TB (DR-TB).(2, 16, 17, 20)

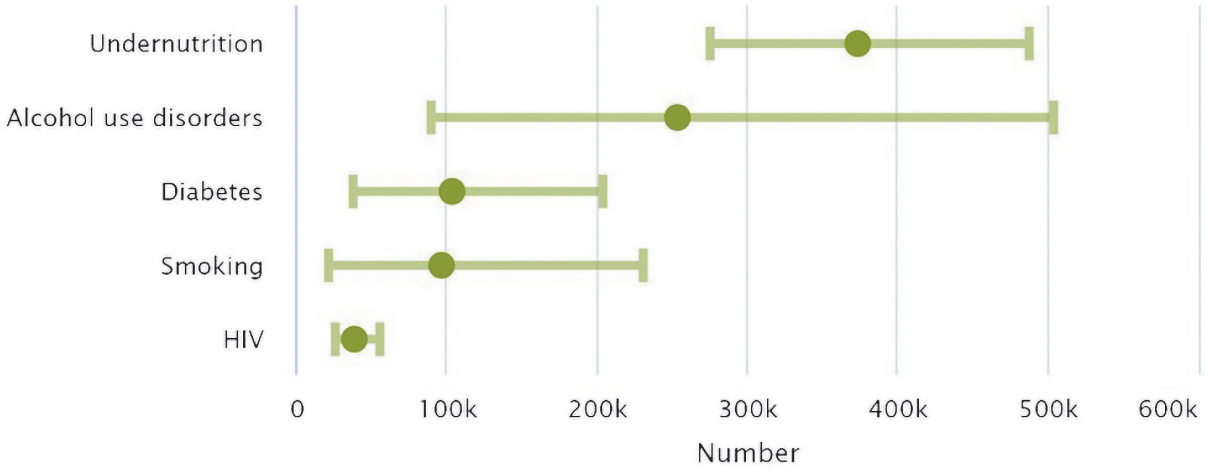
1.1.1 Mortality Drivers inTB and Associated High-Risk Groups

TB mortality in India is primarily influenced by severe disease complications and coexisting comorbidities, including **severe undernutrition, advanced HIV infection, diabetes mellitus, alcohol use disorder (AUD), smoking,** and other chronic conditions.(21)

- Undernutrition was associated with an estimated **373,000 TB cases** in 2023.(18)

- **AUD** and **diabetes** contributed to estimated **253,000** and **103,000 TB cases**, respectively, in 2023. (18) Although **74%** of individuals diagnosed with TB were screened for alcohol use in 2023, only **33%** of those identified with AUD were linked to de-addiction services, underscoring critical gaps in the management of risk factors.(18)
- In 2023, estimated 96,000 and 38,000 TB cases were attributable to smoking and HIV respectively
- 181,000 (8%) were diagnosed with DM and 113,000 (62%) were initiated on anti-DM treatment.(18)
- These comorbidities exacerbate the severity of TB, complicate its management, and significantly increase the risk of adverse outcomes.(22)

Fig 1: Estimated number of incident TB cases in 2023 attributable to selected risk factors in India



1.1.2 Leading socio-demographic factors contributing toTB morbidity and mortality:

Socio-demographic determinants, including **poverty, migration, stigma, and poor health seeking behavior**, further exacerbate TB-related mortality.(9) Structural barriers, such as limited access to advanced diagnostic tools, delays in treatment initiation, **high out-of-pocket expenditure** and inadequate outreach to marginalized populations, disproportionately affect rural and socioeconomically deprived populations.(21) Apart from the underlying medical conditions listed above, many other social, economic, and access-related factors too may increase the risk of morbidity and mortality among persons with TB.(9, 32-35) These include:

- Socio-economic and Demographic determinants- Poverty, migration, livelihood constraints, living conditions, lack of awareness and low literacy levels
- Stigma associated with TB

- Age and Gender-related issues
- Health-seeking behaviors of vulnerable populations
- Substance abuse/alcohol/tobacco use
- Access to the nearest health facility
- High out-of-pocket expenditure on healthcare
- Sub-optimal outreach activities
- Limited sample collection and transport mechanisms
- Limited access to tools like X-rays, and NAAT

Notably, the majority of TB-related deaths occur within the first **two months of treatment**, highlighting the need for early identification of high-risk individuals and prompt, targeted interventions to prevent disease progression and complications.(23, 24)

1.2 Rationale for differentiated TB care

In high-burden countries, the majority of tuberculosis (TB)-related deaths occur within the first two months of treatment initiation, a period referred to as the early phase of management.(36) This highlights the urgent need for timely identification and management of high-risk patients—those with serious comorbidities or severe TB complications—at the time of diagnosis and during the course of treatment.(2) Differentiated TB care plays a crucial role in addressing this challenge by tailoring care to the unique needs of each patient.(16)

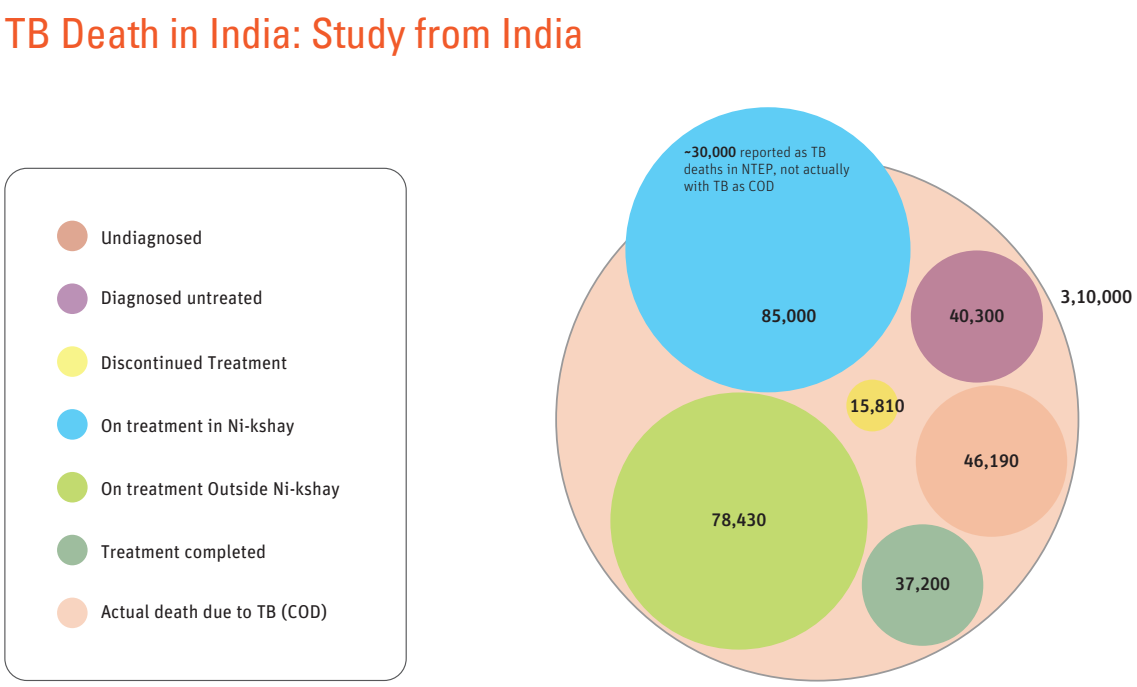
Basic assessments, which can be conducted even at peripheral health facilities, help identify individuals at high risk of mortality.(17) Early identification of such cases enables targeted interventions, including prompt initiation of appropriate treatment regimens and comorbidity management, to prevent avoidable deaths.(17) Additionally, systemic assessments to detect severely ill patients and connect them to appropriate care, such as inpatient treatment and therapeutic support, are critical for improving outcomes.(17)

The differentiated care framework allows flexibility at the **state level**, enabling local health systems to adapt interventions to their unique epidemiological and resource constraints. This decentralized approach facilitates optimal resource allocation to address systemic bottlenecks.

1.2.1 The Differentiated TB Care: An Evidence-Based Approach

(a) A survey was done by Central TB Division (CTD) & Public Health Foundation of India (PHFI) in 2023-24 in nationally representative population of 10,00,000 from 9 states for the deaths between January 2019 and December 2022 to understand epidemiology of deaths due to TB in India.

Fig 2: Tuberculosis Treatment and Mortality Statistics in India.



(b) Among various factors, undernutrition is a strong risk factor for early death during TB treatment (increasing the risk of death 2-4 times) and is also a marker for extensive disease and other complications, for example, secondary bacterial infections, and can also lead to a higher risk of drug-induced adverse effects.(4, 8) In India, around 30-40% and globally 21% of TB incidence is attributed to undernutrition.(1) Undernutrition emerges as the most prevalent co-morbidity among Persons with TB, often reaching severe and life-threatening levels.(1)

(c) Nearly 50% of adult men and women with TB in India weigh less than 43 kg and 38 kg, respectively.(26) The National Family Health Survey (NFHS 5) suggests that 32% of India's population is undernourished.(27) State-specific data shows that approximately 50% of adults with TB have undernutrition (BMI<18.5 kg/m^2), 25% have severe undernutrition (BMI<14 kg/m^2), and 6% have very severe undernutrition (BMI<14 kg/m^2) at diagnosis. (10) Persons with very severe undernutrition require inpatient care and therapeutic nutrition, particularly in states with a higher general burden of undernutrition. (28) Additionally, anemia—caused by micronutrient deficiency or inflammation—commonly worsens TB-related morbidity and mortality.(29)

(d) In the RATIONS trial, body weight, performance status, and diabetes were identified as simple and easily assessed predictors of tuberculosis mortality, with weight gain, particularly in the first 2 months, being associated with a decreased hazard of death. Undernutrition is a major comorbidity in TB patients, contributing to high mortality rates. The study provided food rations (1200 kcal and 52g protein per day) and micronutrient supplements to 2800 adult TB patients for six months or longer if severely undernourished. Results showed

that nutritional support significantly improved treatment success (93.7%), reduced TB mortality (3.9%), and facilitated weight gain, particularly in the first two months, which was associated with a reduced risk of death. Patients with severe undernutrition had better survival rates when they gained at least 5% of their body weight within two months. The findings emphasize the need for integrating nutritional support into TB care programs to enhance treatment outcomes and reduce mortality (7).

(e) A study conducted by R. Singla et al. (30), identifies five key risk parameters—SpO2 ≤90%, tachypnea, hypotension, advanced disease on chest radiography, and tachycardia—that are independently associated with TB mortality and are easy to measure in field conditions. A proposed scoring system in this study was based on these parameters, which could help clinicians at peripheral health facilities identify severely ill TB patients early for timely referral to specialized centers, potentially reducing mortality and improving treatment outcomes. This approach may also minimize the need for pulmonary rehabilitation and prevent post-treatment complications.

(f) A study by Sharma S et al (31) on mortality in children with TB showed high mortality was associated with female gender, extensive pulmonary TB, disseminated EP-TB, DR-TB and delay in seeking care. A high index of suspicion and early referral for diagnosis and treatment of pediatric TB is important to reduce mortality.

(g) In a thesis study (unpublished) of deaths among admitted TB patients at Rajan Babu Institute of Pulmonary Medicine and Tuberculosis (RBIPMT), Delhi, 30% had BMI < 18.5 kg/m2 and 90.9% of these patients died early. Being underweight, fever, breathlessness, increased respiratory rate and low SpO2 were significantly associated with early mortality. Among laboratory parameters, anemia, abnormal serum albumin, bilirubin and total protein were significantly associated with early mortality.

(h) Tamil Nadu Kasanoi Erappila Thittam (TN-KET) is an innovative differentiated TB care model introduced by the Tamil Nadu government ICMR-NIE, with support from ICMR-NIRT and WHO India. The model focuses on early detection, personalized care, and digital adherence support to improve TB treatment outcomes in the state (10, 16, 17) Implemented across 30 districts (excluding Chennai), TN-KET triages all adult (≥15 years) TB patients at diagnosis using a single paper-based tool to identify those with severe undernutrition, respiratory insufficiency, or poor performance status for immediate referral to one of 150 nodal inpatient care facilities. The program integrates paper-based and digital tools, including the Severe TB Web Application (TB SeWA) and an online monitoring tool for real-time data tracking. Since April 2022, 80-90% of severely ill patients have been admitted within a day of diagnosis, with a median hospital stay of six days. In 2023, the focus shifted to enhancing quality inpatient care, particularly addressing very severe undernutrition, which affects half of the admitted patients. TN-KET tracks mortality trends and aims for a 30% reduction in TB deaths, with plans to expand follow-up triaging at two months to further lower mortality rates. Key project learnings included (a) patients referred through the red-flag criteria showed better outcomes

due to timely hospitalization and access to advanced care facilities, (b) nutritional support, combined with inpatient care for severe cases, resulted in significant weight gain and improved functional status among patients, (c) feedback from field staff indicated that the simplified red-flag checklist was easy to use, even in resource-limited settings.

1.2.2 DifferentiatedTB care model: A comprehensive and adaptive approach

Differentiated TB care is a comprehensive and adapative approach, which includes the following components:

1. **Comprehensive Clinical Care:**
    - Medical history assessments.
    - Basic clinical examinations, such as vital signs and general condition evaluation.
    - Diagnostic investigations, including advanced imaging and laboratory tests.

2. **Individualized and Resource-Efficient Care:**
    - Structured care pathways ensure that patients receive the right care at the right time while optimizing resource use.
    - High-risk patients are prioritized for intensive care, while low-risk patients receive regular assessments and follow-ups at the community level.

3. **Adaptability and Sustainability:**
    - The model is designed to be flexible, allowing adaptation to regional healthcare capacities and epidemiological trends.

4. **Integrated Monitoring and Feedback:**
    - Robust follow-up mechanisms ensure that patients are closely monitored throughout their treatment journey.
    - Tools like the TB Social Autopsy (TBSA) investigate TB-related deaths to identify systemic gaps and refine care delivery processes.

5. **Technological Integration (Potential Role of AI):**
    - Artificial Intelligence (AI) tools rapidly identify high-risk patients by analyzing clinical and diagnostic data. AI enhances decision-making and ensures prompt interventions, particularly for patients with severe disease or comorbidities.

1.2.3 Strategic Implications for Mortality Reduction

The implementation of a differentiated TB care model has the potential to substantially reduce TB-related complications and mortality among individuals with TB and DR-TB. Key enablers include:

- Strengthening **health system infrastructure** to support comprehensive patient care.
- Expanding access to **advanced diagnostic modalities** and effective treatment regimens.
- Integrating **holistic support systems** addressing socio-economic determinants and behavioral health needs.

This strategic model aligns with the NTEP's overarching goals and provides a scalable framework that can be adapted for other high-burden, resource-limited settings globally. By addressing both clinical and structural barriers, differentiated care can significantly advance the End TB strategy, contributing to the global elimination of TB as a public health threat.

1.3 Goal and Objectives:

1.3.1 Goal:

To reduce TB-related morbidity and mortality significantly and strengthen health system capacities to effectively combat DS-TB and DR-TB through systemic approach, contributing to the achievement of TB elimination targets.

1.3.2 Objectives

- To implement a differentiated TB care model that prioritizes high-risk TB patients with the aim of preventing complications and reducing mortality rates among person with TB & DR-TB.
- To develop specialized skills of frontline workers trained to provide differentiated TB care services tailored to the individual needs of patients.

1.4 Scope:

The Differentiated TB care model to be applied to all TB patients, however, the patients with following groups are likely to be benefited more -

- **High-risk populations:** Individuals with severe TB or DR-TB, those with comorbidities (e.g., HIV, diabetes, or undernutrition etc.), and those presenting with severe disease complications.
- **Vulnerable groups:** Patients in socio-economically disadvantaged settings, including

undernourished individuals, people living in poverty, and marginalized communities (e.g., tribal populations, migrants, and urban slum dwellers).

- **Age-specific focus:** Priority will be given to vulnerable populations such as children, the elderly, and pregnant women, who may require specialized treatment protocols and care.
- **DR-TB patients**: Focused care for patients with drug-resistant TB (MDR-TB, Pre-XDR-TB, XDR-TB and H mono/poly DR-TB), who require intensive, tailored treatment regimens and frequent monitoring.

1.5 Guiding principles: Core values of the care model

The differentiated TB care model is guided by core principles that ensure patient-centered, equitable, and effective care. It emphasizes individualized treatment plans that respect patients' dignity and empower them through education. Equity is central, focusing on underserved and vulnerable populations while addressing barriers like stigma and financial hardship. The model prioritizes quality and safety through evidence-based practices, integrated comorbidity management, and robust infection control. Early detection and prompt treatment for high-risk patients are critical to reducing mortality. Collaboration with communities and multi-sectoral partnerships strengthens care delivery, while sustainability and scalability ensure long-term impact. Data-driven monitoring and continuous evaluation further enhance accountability and service improvement, aligning efforts toward TB elimination.

1.6 Process of the development of the document

With the view to improve treatment outcomes of TB patients, the first technical guidance for comprehensive package for differentiated care of TB patients was developed by NTEP in the year 2021. The development process was initiated with a **situational analysis followed by** the consultative meetings of the experts and stakeholders, including pulmonologists, epidemiologists, public health specialists, nutritionist. NTEP officials shaped critical components of the guidelines, wherein the detailed analysis highlighted the need for a differentiated care model tailored to high-risk groups, prioritizing timely identification, treatment, and follow-up.

The current guidelines incorporated the findings to enhance the effectiveness, adaptability, and sustainability of TB care models across diverse healthcare settings. The insights from various studies on their operationalization and implementation across different states and "National Consultative Workshop on Differentiated TB Care" in May 2023, further consolidated learnings from these state-specific experiences.

The document development process combined a rigorous evidence-based approach, experts consultation stakeholder engagement, and learnings from different differentiated TB care models implemented as projects at states and districts across India to design a patient-centric framework that aligns with India's National TB Elimination Program (NTEP).

02 Differentiated TB Care Approach

Considering WHO estimates for deaths because of TB in India and mortality study conducted by CTD and PHFI in 2023-24, the following strategies will provide a comprehensive reduction for mortality in PwTB:

- Early Diagnosis & Prompt DST based Treatment
- Active Case Finding, Asymptomatic Case Finding, Intensified Case Finding, Screening in IPD, Awareness among public about symptoms, vulnerabilities, social determinants & availability of services for TB
- Differentiated TB Care
- Comprehensive Private health sector engagement including indigenous system of medicine, informal & faith-based health sector
- Rigorous follow-up and use of digital technologies to maintain treatment adherence to prevent LTFUs (Loss to follow ups)
- Rigorous post-treatment-follow-up to prevent post treatment deaths

Operational definitions

For implementation of differentiated TB care under programmatic settings, the operational definitions for Red Flag, Triage positive, High risk, Severe TB are being used in this document.

2.1 DifferentiatedTB Care Approach:

- The Differentiated TB Care Approach is a patient-centered framework designed to prioritize high-risk populations, prevent complications, and reduce mortality among persons with TB (PwTB) and DR-TB.
- This approach is built on a tiered healthcare delivery model that ensures patients receive care tailored to their needs across different levels of the system, from family and community-level services to primary health centers (PHCs), community health centers (CHCs), district hospitals, and tertiary-level hospitals/ medical colleges.
- A key component of this model is the development of specialized skills among frontline workers, who are trained to deliver differentiated TB care services. These workers play a critical role in identifying high-risk cases, facilitating early interventions, and ensuring that patients receive appropriate care based on their clinical and social needs.

2.2 Unique features of differentiatedTB care approach

The Differentiated TB Care Approach stands out due to its innovative, tiered healthcare delivery model, which assigns distinct and complementary roles to each level of the healthcare system. This ensures that patients receive care tailored to their specific needs while optimizing resource utilization.

1. **Integration of facility-level-wise differentiated care**:
    - **Community and family level**: Frontline workers, including ASHAs and health volunteers, are trained to identify patients with potential red flag criteria. They perform initial triaging and connect high-risk individuals to appropriate care pathways using structured referral protocols.
    - **Primary Health Centers (PHCs) and Community Health Centers (CHCs)**: Serve as intermediaries to conduct comprehensive clinical assessments, manage moderate cases, and stabilize patients before escalation to higher care levels, if needed.
    - **District and tertiary-level hospitals**: Handle advanced diagnostics, inpatient care, and management of severe TB cases or complex comorbidities, such as advanced HIV or uncontrolled diabetes or others.
2. **Seamless coordination between levels**:

This approach ensures continuity across the patient's treatment journey by leveraging clear communication and referral pathways. The multi-tiered system minimizes delays in care, prevents complications, and addresses gaps in service delivery that are often seen in traditional models.

3. **Focus on high-risk populations**:

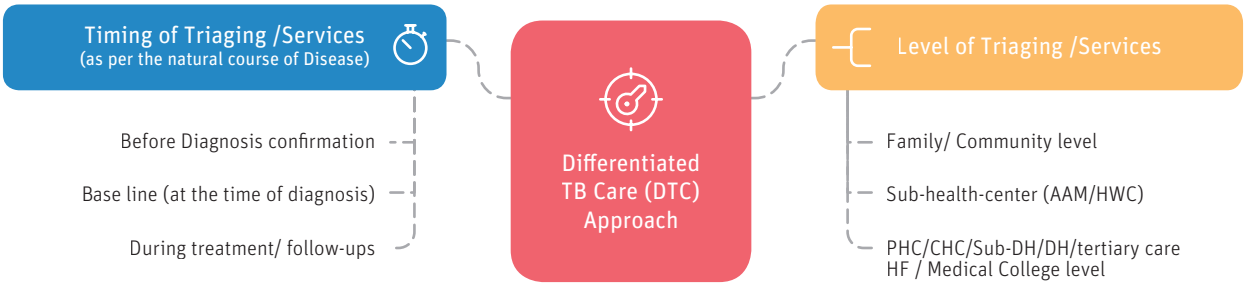
The integration of red-flag symptom checklists and structured risk stratification ensures early identification of severe cases, particularly among vulnerable groups, including those in rural and underserved areas.

4. **Scalability and adaptability**:

The model is designed to be flexible, allowing states and regions to adapt it based on their specific healthcare resources and needs. This makes it sustainable and applicable across diverse contexts.

2.3 Steps of implementation

Fig 2.1 Approach to Differentiated TB Care



The Differentiated TB Care Approach follows a systematic care pathway designed to ensure a continuum of care, addressing patients' needs at every stage of their treatment. This pathway integrates triaging, referral, management, and robust follow-up mechanisms to minimize lapses and improve outcomes.

2.3.1 Systematic Triaging

Patients are classified as triage-positive or triage-negative based on the presence of any of the "signs and symptoms with red-flag" at community level, and at the health facility with red-flag criteria, clinical evaluation and supporting investigations to indicate higher risks of severe disease or complications. High-risk patients are the PwTB with complications and more chances of unfavorable outcomes. Severe TB is defined as PwTB who require in-door patient care (hospital admission) with enhanced monitoring and interventions with specialized treatments, including nutritional support, oxygen therapy, and management of comorbidities such as HIV, diabetes etc. based on clinician's decision.

Red-flag criteria include the presence of signs and symptoms which are critically important, can be assessed at community level personnel and are to be mandatorily assessed at all levels of health facilities. Early identification through this triaging system ensures high-risk patients are referred promptly for advanced care.

- Patient confined to bed
- Breathlessness - at rest, speaks with difficulty-unable to complete a sentence without a pause, unable to take feed, on 10-15 feet walk or on attending nature's call
- Severe pain: chest pain/abdominal pain
- Altered consciousness or convulsions or limb weakness
- Coughing out blood ≥ 1 cup
- Recurrent vomiting/ diarrhoea
- Symptoms of ADR

Box 2.1 Differentiated TB Care (DTC) – Triaging framework

Person responsible for triaging/Services	Level of Triaging /Services	Timing of Triaging as per the course of Disease	Activities to be done for Triaging
Family member/ Treatment supporter/ ASHA	Family/ Community Level	• Before diagnosis • During follow Up of TB case	✓ Identification of **Presumptive TB Symptoms and Red flag criteria** for Differentiated care ✓ **ADRs** during TB treatment
CHO/TB HV/ STS/ STLS	Ayushman Arogya Mandir (AAM)	• Before diagnosis • Base line at the time of diagnosis • During follow Up of TB case	✓ Identification of **Presumptive TB Symptoms and Red flag criteria** for Differentiated care ✓ **ADRs** during TB treatment
Medical Officer/ Experts	PHC/CHC/ SDH/DH/ TCHF/ Medical college	• Before diagnosis • Base line at the time of diagnosis • During follow Up of TB case	✓ Identification of **Presumptive TB Symptoms and Red flag criteria** for Differentiated care ✓ **ADRs** during TB treatment

* **1. Cough >2 weeks, 2. Fever, 3. Night sweat, 4. Hemoptysis, 5. Chest pain, 6. Shortness of breath, 7. Weight Loss, 8. Loss of apatite, 9. Fatigue, 10. Swelling in neck and other extrapulmonary sighs/Symptoms**

Triaging Process

Triaging consists of classifying PwTB into **Triage-positive** or **Triage-negative** categories:

a. Quick Assessment (InitialTriage)

- Rapidly screen patients using critical clinical parameters (as suggested in the document).
  - If any of the red-flag criteria is present, the patient is labeled as triage-positive.
  - **At Health Facilities with Doctors/ Medical Officers,** additional clinical and laboratory evaluations for patients (e.g., respiratory rate, SpO2, BMI, pedal edema, laboratory tests etc.) to be done as suggested in this document or as clinically indicated and availability of the services at the facility.

- **Actions for Triage-Positive Patients**:
  - Stabilization of vitals & or facilitate immediate referral to RHFs for hospitalization and specialized care.
  - Inform referral centers and ensure smooth patient transfer.

b. Comprehensive Assessment for Triage-Negative Patients

- **At Health Facilities with Doctors/ Medical Officers,** additional clinical and laboratory evaluations for patients to be done as suggested in this document or as clinically indicated and availability of the services at the facility.
- Triage negative patients categorized as “non-severe TB” need to be screened at regular interval for red-flag criteria by health staff/ treatment supporter/ family member at community level.
- Triage-negative patients with deteriorating conditions may still be referred for higher-level care.

2.3.2 Referral and Initial Evaluation

Triage-positive patients are referred immediately to higher-level health facilities, such as CHCs or district hospitals, tertiary level health institutions for hospitalization and further assessment. At these referral centers, patients undergo detailed clinical evaluations, including:

- Vital signs: Temperature, pulse rate, respiratory rate and blood pressure.
- Diagnostic imaging: Chest X-rays.
- Laboratory tests: Hemoglobin (Hb), complete blood count (CBC), random blood sugar (RBS), and HIV screening etc. & as advised by the treating physician.

2.3.3 Risk Stratification and Management

The patient is to be stratified at health facilities into categories based on the initial evaluation and supporting investigations as advised by the treating physician.

- **Non-severe TB**: managed through outpatient care with regular follow-ups.
- **Severe TB**: PwTB who require in-door patient care (hospital admission) with enhanced monitoring and interventions with specialized treatments, including nutritional support, oxygen therapy, and management of comorbidities such as HIV, diabetes etc. based on clinician’s decision.

Special Considerations for Risk Stratification

- **Pediatric Patients**: Assess growth parameters, risk of disseminated TB, and vaccination status.
- **Pregnant Women**: Monitor for anemia, fetal well-being, and TB-related complications.
- **Elderly Patients**: Screen for comorbidities like diabetes, hypertension, and chronic respiratory conditions.

Table 2.1 Difference between triaging and risk stratification

Aspect	Triaging	Risk Stratification
Timing	Immediate (at diagnosis/first contact) and during follow-up in case of triage-negative PwTB.	After treatment initiation and during follow-ups.
Focus	Rapid identification of high-risk cases.	Detailed evaluation of comorbidities and complications.
Level of Care	All levels of care.	Primarily PHC/CHC and tertiary levels.
Outcome	Immediate referral for urgent care.	Long-term management and tailored interventions.

2.3.4 Referral after risk stratification

a. Objectives of the Referral Process

The referral process is designed to achieve the following objectives:

1. **Patient-Centered Care:** Ensure that PwTB requiring advanced care (e.g., inpatient management, specialized diagnostics) are promptly referred to the appropriate facility.
2. **Efficient Coordination:** Streamline communication between referring and receiving facilities to minimize delays and enhance continuity of care.
3. **Improved Health Outcomes:** Reduce mortality and morbidity by facilitating timely interventions for high-risk and complex cases.

b. Key Considerations for Referrals

i) Selection of Referral Facility

The choice of referral facility depends on the patient's clinical condition, risk level, and the availability of specialized services:

1. **Community to PHC/CHC Level**
   - **For Triage-Positive Cases**: Patients identified as high-risk by ASHAs, ANMs, or community health workers are referred to the nearest PHC or CHC for basic diagnostics, stabilization, and monitoring.
2. **PHC/CHC to District or Tertiary Level**
   - **For High-Risk Cases Identified During Risk Stratification**: Patients with comorbidities (e.g., HIV, diabetes, severe anemia) or complications (e.g., organ dysfunction, chest abnormalities) are stabilized and referred to district hospitals or tertiary care facilities.
3. **Specialized Facilities for DR-TB**
   - **For DR-TB or Severe Complications**: Patients with drug-resistant TB (DR-TB) or conditions like pneumothorax, pleural effusion, or multi-organ dysfunction are referred to specialized centers such as:
     - District/ Nodal Drug-Resistant TB Centers (D/NDR-TBCs).
     - Medical colleges

ii) Patient Orientation

Effective referral requires clear communication with patients and their families to ensure cooperation and compliance:

1. **Explain the purpose of referral**
   - Communicate why referral is necessary (e.g., for advanced care, evaluation, or hospitalization).
   - Emphasize the benefits of timely intervention in improving outcomes.
2. **Provide facility information**
   - Share details about the referral facility, including location, available services, and navigation guidance.
   - Offer contact numbers and instructions to ease the process.
3. **Collaborative decision-making**
   - If multiple facilities are available, involve the patient and family in selecting the most convenient and accessible option.

iii) Coordination with Referral Facility

Coordination between referring and receiving facilities is critical to ensure timely and efficient care:

1. **Notify the Receiving Facility**
   - Inform the referral center about the patient's condition to enable preparation (e.g., arrange diagnostic tests or inpatient beds).
2. **Provide Support During Transit**
   - Offer stabilization care, such as oxygen or intravenous fluids, during transport if required.
   - Arrange transportation using resources like **ambulance services (104/108)**, Rogi Kalyan Samiti (RKS), PM-JAY, or local transport networks.

iv) Teleconsultation for Reluctant Patients

- For patients unwilling or unable to visit referral centers, provide **teleconsultation services** through platforms like **e-Sanjeevani.**
- Use these services to:
  - Address patient concerns.
  - Offer basic clinical management remotely.
  - Encourage follow-up visits when necessary.

v) Support for Referrals

- **Detailed Instructions**: Offer step-by-step guidance for navigating the referral process, including maps, transport options, and facility contact numbers.
- **Patient Counseling**: Address barriers to referral, such as stigma or financial concerns, and emphasize the importance of advanced care.

2.3.5 Discharge and Follow-Up

After stabilization, patients are discharged and referred to their communities for continued monitoring and follow-up by community health workers. This ensures a seamless transition from hospital to home-based care and reduces the risk of relapse or complications.

The success of this approach is reinforced by a structured follow-up system that creates a safety net for patients. Key elements include:

1. Monthly weight monitoring **to track nutritional recovery**
2. Adherence counseling **to ensure completion of treatment**
3. Periodic investigations **to detect early signs of complications or clinical deterioration**

Community health workers, supported by resources such as **Ayushman Aarogya Mandir,** play a critical role in follow-ups. Patients who fail to respond or show signs of decline are flagged for re-evaluation and, if necessary, readmission. This robust system will lead to significant improvements in TB mortality rates and patient outcomes.

2.3.6 Monitoring and Reassessment

Through continuous follow-up mechanisms, patients are reassessed regularly to ensure ongoing recovery. Non-responders or those showing clinical deterioration are identified promptly and provided with additional interventions, ensuring no patient is left behind.

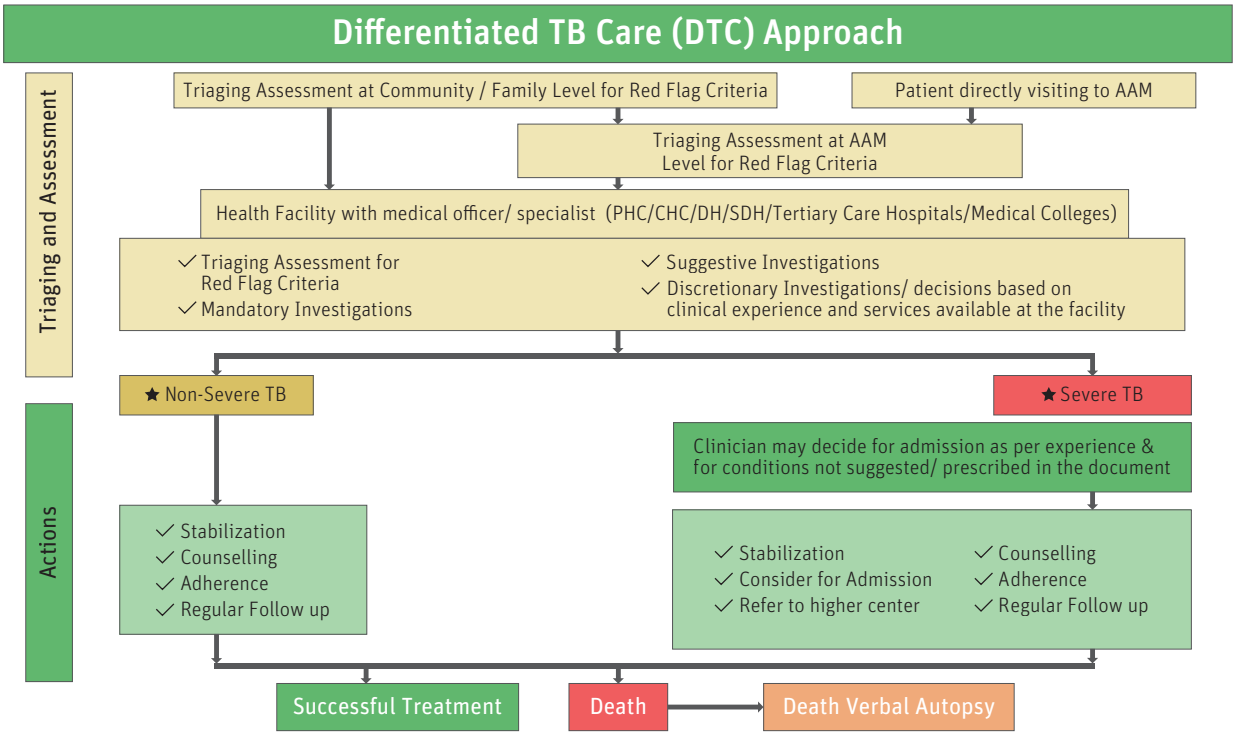
2.3.7 TB Social Autopsy (TBSA)

TB social autopsy (TBSA) plays an pivotal role to improvise the differentiated TB care approach. TBSA investigates TB-related deaths to identify and address systemic, social, and medical barriers. Insights from TBSA are to be used strengthening DTC by:

- Refine care delivery processes
- Address service delivery gaps
- Develop actionable solutions to prevent avoidable deaths

By integrating TBSA findings, the approach remains dynamic, continually adapting to improve outcomes and reduce mortality.

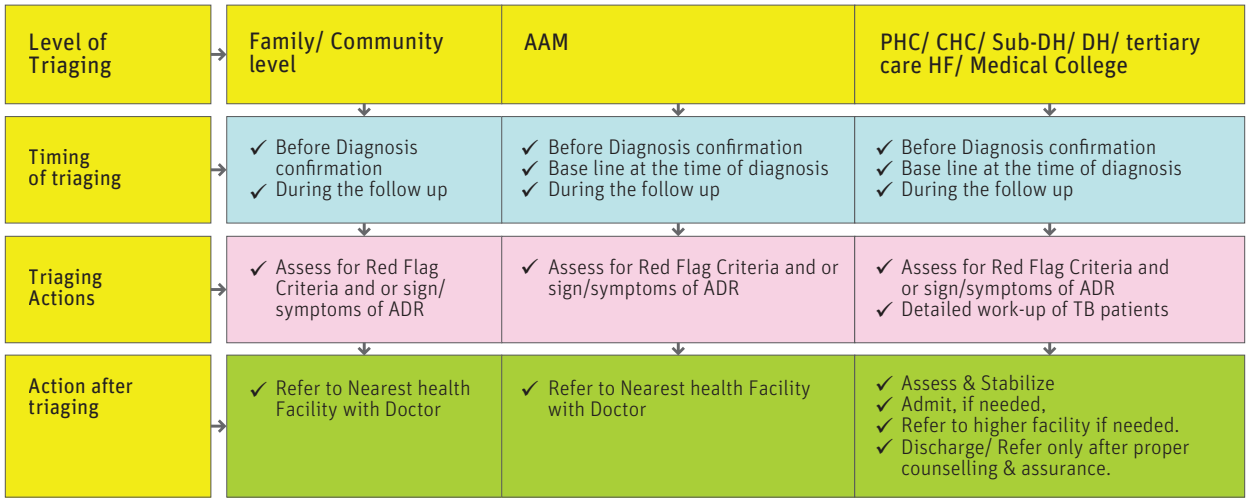
Fig 2.2 Patient flow under differentiated TB care



***Severe TB:** may require in-door patient care (hospital admission) with enhanced monitoring and interventions with specialized treatments, including nutritional support, oxygen therapy, and management of comorbidities such as HIV, diabetes etc

2.4 Key features of the approach

Fig 2.3 Differentiated TB care approach-Key features



The differentiated TB care approach integrates clinical, diagnostic, and technological advancements to provide a holistic framework for TB management.

The Differentiated TB Care Approach outlines triaging levels, timing, actions, and follow-up responses at different healthcare levels. The triaging process is structured into three levels: Family/Community Level, AAM Level, and PHC/CHC/SDH/DH/Tertiary Care/Medical College Level. At each level, triaging occurs before diagnosis confirmation, at baseline during diagnosis, and during follow-up. The primary action at all levels is to assess for red flag criteria, adverse drug reactions (ADR), and TB-related complications. At the family/community level, suspected TB patients showing warning signs are referred to the nearest health facility with a doctor. At higher health facility levels, patients undergo comprehensive assessments, stabilization, admission if needed, and referral to specialized centers when necessary. Discharge or further referrals occur only after proper counseling and assurance, ensuring structured TB management and improved patient outcomes.

Key messages:

- The Differentiated TB Care Guidelines 2025 builds incorporate lessons learned, updated evidence, and enhanced flexibility to meet regional needs. It outlines a structured care pathway that includes:
  - Systematic Triaging
  - Referral and Initial Evaluation
  - Risk Stratification and Management
  - Referral
  - Discharge and Follow-Up
  - Monitoring and Reassessment
- The guidance allows states to adapt the model based on their resources, challenges, and priorities, while maintaining a unified focus on reducing TB mortality and improving treatment outcomes.
- To ensure successful implementation, the guidance emphasizes strengthening health system capacities, addressing operational bottlenecks, and mobilizing necessary resources. This coordinated, level-wise approach ensures no patient is left behind, prioritizes high-risk cases, and fosters collaboration across all levels of care.
- The Differentiated TB Care Approach, thus provides a scalable, patient-centered solution to improve treatment outcomes, prevent complications, and support the national goal of eliminating TB. By streamlining care across healthcare levels and leveraging advanced tools like AI, this model ensures that TB management is both effective and equitable, offering hope for a TB-free future.

03 Strengthening the infrastructure for differentiated TB care

3.1 Introduction

A robust infrastructure is the backbone of the **differentiated TB care approach**, enabling timely and effective care for TB patients, particularly those at high risk of severe outcomes. This chapter elaborates on the designation of **Triaging Health Facilities (THFs)** and **Referral Health Facilities (RHFs)**, emphasizing early intervention and systematic care pathways within the existing health system at state, district, block level including **Ayushman Aarogya Mandir.** These efforts aim to minimize TB-related mortality through better risk stratification, timely referrals, and enhanced inpatient care.

3.2 Prioritizing early intervention

TB-related mortality is disproportionately high in the early stages of treatment, with 70% of deaths classified as early deaths, and 50% occurring within the first two months of diagnosis. (8) To combat this, early intervention must become the cornerstone of TB care.

1. **Key Interventions at Diagnosis**: Conduct comprehensive clinical assessments for all patients at diagnosis to identify high-risk cases. Prioritize systematic triaging at the time of diagnosis over triaging during follow-up to reduce mortality.
2. **Timely Referrals and Inpatient Care**: High-risk patients (triage-positive) should be referred to RHFs promptly for advanced care and stabilization.

3. **Strategic Resource Allocation:** States and districts must prioritize early triaging and care for triage-positive patients while ensuring adequate follow-up support at treatment facilities within the health system resources.
4. **Data-Driven Decision-Making**: Leverage data from Ni-kshay and other national databases to track patient outcomes and refine triaging protocols.

3.3 Triaging Health Facilities (THFs)

Every facility involved in TB diagnosis or treatment, will serve as a **THF** including **Ayushman Aarogya Mandir.** The designation of THFs plays a critical role in the early identification and management of high-risk TB patients.

- **Systematic mapping**: Facilities should be mapped to identify their current diagnostic, therapeutic, and human resource capabilities. Gaps in infrastructure and service availability should be addressed through targeted capacity-building initiatives.
- **Establishing seamless linkages**: THFs should be linked to RHFs based on the level of care required. Clear referral pathways and transportation systems should be established to ensure prompt movement of triage-positive patients.
- **Capacity Building for THFs & RHFs**: Facilities should be equipped with essential diagnostic tools like pulse oximeters, MUAC measurement tapes, basic laboratory equipment for risk assessment etc. Training healthcare providers in early detection, patient counseling, and triaging protocols will be crucial.

THFs are the first point of contact for TB patients, making them crucial for early detection and care. Their responsibilities include:

1. **Risk Stratification**: Conduct basic clinical assessments, including vital parameters and general physical evaluations. Use AI-enabled tools like Prediction of Adverse TB Outcomes (PATO) to enhance risk stratification accuracy.
2. **Basic Management**: Address common comorbidities (e.g., diabetes, anemia) and provide nutritional support. Offer patient counseling on adherence and preventive care measures.
3. **Informed referral and coordination**: Ensure immediate referral of high-risk cases to RHFs. Coordinate with transport services to minimize delays.
4. **Community Engagement**: Leverage community health workers (e.g., ASHAs, ANMs) to track high-risk patients and support follow-up care.

3.4 Referral Health Facilities (RHFs)

RHFs are centers equipped to manage complicated TB cases and severe comorbidities; it could be PHC/ CHC/ subdistrict hospital/ district hospital/ medical college. Their key roles include:

1. **Inpatient care for triage-positive cases**: Admit high-risk patients, to assigned wards as clinically indicated and advised by the treating physician.
2. **Advanced Diagnostics and Management**: Perform investigations, including chest X-rays, complete blood count (CBC), and testing for comorbidities like diabetes and HIV etc. as advised by the treating physician. Implement individualized treatment plans under the guidance of experts, if required.
3. **Dual role as triaging centers and referral health facilities**: RHFs also act as secondary triaging hubs for incoming referrals, ensuring continuity of care for the most critical patients.
4. **Capacity for specialized care**: For identified seriously ill cases who may require critical care, may be admitted to the secondary/ tertiary level institution/ medical colleges for further management. Offer psychosocial and nutritional support to aid recovery.

Table 3.1 Triaging and Referral Health Facilities Features

Parameter	Triaging Health Facilities (THFs)	Referral Health Facilities (RHFs)
Primary Role	Early detection, triaging, and basic management of TB cases.	Advanced care for high-risk TB cases and further diagnostics or inpatient care.
Services Provided	- Clinical assessments (vitals, BMI/MUAC, SpO_2, etc.)	- Inpatient care for triage-positive patients
	- Nutritional support	- Advanced diagnostics (X-rays, CBC, HIV tests, etc.)
	- Basic comorbidity management	- Management of severe cases and comorbidities
	- Patient counseling	
Key Equipment	- Pulse oximeters	- Isolation beds
	- Weighing scales	- Diagnostic labs (NAAT, X-ray, CBC, etc.)
	- MUAC measurement tapes	- PPE for airborne infection control (AIC)
	- BP monitors	
Triage / Referral HF Personnel	- General physicians/ Experts	- Specialists (pulmonologists, infectious disease experts)
	- Trained nurses, CHOs	- Nutritionists
	- Counselors	- Counselors
	- Community health workers Family members (e.g., ASHAs, Treatment supporters, Family Attendants)	- Nursing staff trained in critical care
Referral Mechanism	Immediate referral of triage-positive patients Nearest HF with MO/ Experts	Serve as the next-level care facility for THFs, ensuring timely admission and advanced management.
Patient Flow	- Patients assessed for high-risk conditions	- Patients referred from THFs or directly presenting at RHFs are admitted or treated as needed.
	- Non-critical cases managed locally, others referred	
Indicators for Monitoring	- Percentage of patients triaged	- Time to admission for referrals
	- Referral compliance rate	- Outcomes of high-risk cases
	- High-risk cases identified	- Mortality rates
Capacity Building Needs	- Training in triaging protocols	- Training in AIC compliance
	- Use of diagnostic tools (MUAC, pulse oximetry)	- Advanced diagnostic skills
	- Counseling techniques	- Multidisciplinary case management

The above features are suggestive and not exhaustive. States/ Districts may consider to include additional features.

04 Roles and responsibilities

The **Differentiated TB Care Framework** adopts a **patient-centered approach** to managing TB, ensuring care is tailored to the clinical severity and social needs of PwTB. This framework emphasizes a **three-tiered healthcare delivery system**, where each level of care has clearly defined roles and responsibilities. By integrating care across these levels, the framework creates an **optimized pathway** for efficient resource utilization and better health outcomes. The Differentiated TB Care Framework organizes service delivery into **three levels** to ensure that patients receive care appropriate to their condition's complexity:

4.1 Family or Community Level

This level focuses on **early identification** and **support** for PwTB within their homes or communities.

- **Personnel Involved**: Family members, ASHAs, ANMs, or other community health volunteers
- **Key Responsibilities**:
  - **Immediate Screening**: Identify severe symptoms such as extreme weakness, severe malnutrition, or persistent cough.
  - **Patient Education**: Educate families about TB symptoms and the importance of early care-seeking.
  - **Referral Support**: Facilitate referrals for suspected high-risk cases to the nearest PHC or CHC.

- **Follow-Up Protocol**:
  - Track referred patients to ensure they visit the health facility.
  - Monitor treatment adherence and recovery during follow-up visits.

Box 4.1 Differentiated TB Care (DTC) - Evaluation & Triaging at Family / Community Level

Assess for red flag criteria of severe TB disease
1. Patient confined to bed
2. Breathlessness - at rest, speaks with difficulty-unable to complete a sentence without a pause, unable to take feed, on 10-15 feet walk or on attending nature's call
3. Severe pain: chest pain/abdominal pain
4. Altered consciousness or convulsions or limb weakness
5. Coughing out blood ≥ 1 cup
6. Recurrent Vomiting/ diarrhoea
7. Symptoms of Adverse Drug Reactions

4.2 Ayushman Arogya Mandir/ PHC/CHC Level

This level serves as the first facility level point of clinical care, acting as THFs where patients are assessed for risk and severity.

- **Personnel Involved**: Community Health Officers (CHOs), PHC/ CHC staff, or medical officers.
- **Key Responsibilities**:
  - **Comprehensive Screening**: Conduct detailed clinical and nutritional assessments using parameters outlined in the document (e.g., BMI, respiratory rate, SpO_2).
  - **Triage-Positive Cases**: Refer patients with high-risk parameters to district or tertiary facilities for urgent care.
  - **Triage-Negative Cases**: Monitor patients for signs of deterioration and conduct follow-ups.
- **Follow-Up Protocol**:
  - For Triage-negative cases, schedule reassessments every **two weeks during the intensive phase** and **monthly during the continuation phase**.

Box 4.2 Differentiated TB Care (DTC) - Evaluation & Triaging at Ayushman Arogya Mandir (AAM)/ TB Unit

ASSESS RED FLAG SYMPTOMS OF SEVERE TB DISEASE	ASSESS FOR SIGNS & INVESTIGATIONS
Patient confined to bed	Impaired mobility: patient unable to stand without support during examination
Breathlessness at rest or on walking 10-15 feet: speaks with difficulty-unable to complete a sentence without a pause, on attending natures call, unable to take feed	SpO2 < 94% or
Severe pain: chest pain/abdominal pain	Respiratory rate > 24 breaths/ min or
Altered consciousness or convulsions or limb weakness	BP-Systolic BP < 90 mm Hg or ≥140 mm Hg; Diastolic BP < 60 mm Hg or ≥ 90 mm Hg
Coughing out blood ≥ 1 cup	Pulse rate > 120 or <60 beats/min
Recurrent Vomiting/ diarrhoea	BMI < 14 kg/m2 or BMI < 16 kg/m2 with pedal/dependent area edema
Symptoms of Adverse Drug Reactions	Jaundice and or ascites

4.3 District Hospital/Tertiary Hospital/ Medical College Hospital Level

These facilities serve as RHFs for the management of complex or severe TB cases.

- **Personnel Involved**: Specialist healthcare providers, such as pulmonologists, intensivist, TB specialists, medicine specialists etc.
- **Key Responsibilities**:
  - **Advanced screening and management**: Handle Triage-positive cases referred from lower levels, using advanced diagnostics like imaging, lab tests, and comorbidity evaluations etc.
  - **Comprehensive care**: Manage complications, provide inpatient care, and perform pre-treatment evaluation for TB patients, as clinically indicated.
- **Follow-Up Protocol**:
  - Monitor patients' post-hospitalization and coordinate their referral back to lower-level facilities once stabilized.

Figure 4.1 Differentiated TB Care (DTC) Evaluation, Triaging & Management at PHC/CHC/SDH/DH/tertiary care HF / Medical College level

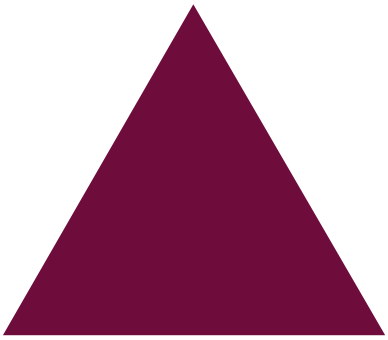
Box 4.3 Differentiated TB Care (DTC) Evaluation, Triaging & Management at PHC/CHC/SDH/DH/ tertiary care HF / Medical College level

ASSESS RED FLAG SYMPTOMS OF SEVERE TB DISEASE	ASSESS FOR SIGNS & INVESTIGATIONS	
Patient confined to bed	**Impaired mobility:** patient unable to stand without support during examination	Chest x-ray with extensive disease (bilateral/ cavitation/>2 Zones/miliary TB)
Breathlessness at rest or on walking 10-15 feet: speaks with difficulty-unable to complete a sentence without a pause, on attending natures call, unable to take feed	SpO2 < 94% or	Assess Hb
Severe pain: chest pain/abdominal pain	Respiratory rate > 24 breaths/ min or	**Blood glucose (BG):** Random BG ≥ 200 mg/dl with diabetes symptoms or FBG ≥ 126 mg/dl or PPBS ≥ 200 mg/dl or HbA1c ≥ 6.5%
Altered consciousness or convulsions or limb weakness	Systolic BP < 90 mm Hg or ≥140 mm Hg; Diastolic BP < 60 mm Hg or ≥ 90 mm Hg	CD4 < 100 cells/µl in patients with HIV infection
Coughing out blood ≥ 1 cup	Pulse rate > 120 or <60 beats/min	**In patients with liver disease or drug toxicity:** AST/ALT > 3 times the upper limit of normal; In patients with liver disease or drug toxicity: Total Bilirubin > 2.0 mg/dl or Albumin < 3.0 gm/dl
Recurrent Vomiting/ diarrhoea	**BMI** < 14 kg/m2 or BMI < 16 kg/m2 with pedal/dependent area edema	

Box 4.4 Differentiated TB Care (DTC) Evaluation, Triaging & Management at PHC/ CHC/ SDH/ DH/ tertiary care HF / Medical College level

Assess for ADR	Suggestive investigations	
1. Assess the patient's conditions for potential ADR because of the anti TB drug or any other ancillary drug being used by the patient 2. Based on the organ involvement/ the type of the ADR 3. Identify the culprit drug, de-challenge, interrupt, and rechallenge it. If needed the regimen may be modified or changed as per programme guidelines.	• Investigations for ADR depends on the level of health facility at which the ADR is being managed • CBC, • LFT • KFT	• Serum electrolytes • As advised by the treating physician • Investigations for co-morbid conditions • Referral to higher centre may be done as and when clinically indicated

Box 4.4 Differentiated TB Care (DTC) Evaluation, Triaging & Management at PHC/ CHC/ SDH/ DH/ tertiary care HF / Medical College level



Discretionary Activities:

These decisions for-
1. Additional investigations, work-up & management for DTC and/or
2. Referral to higher facilities, are to be made by treating clinician of any level of health facility , based on i. Expertise & experience of the clinician, ii. The services available at the the health facility

05 Patient Management at the Referral Health Facility

The **management of PwTB** at referral health facilities is a cornerstone of the **Differentiated TB Care Framework**. These facilities are equipped to provide **specialized, comprehensive care** for high-risk patients, including those with severe clinical conditions, significant comorbidities, or complications identified during triaging and risk stratification.

In addition to clinical care, referral health facilities play a vital role in **training healthcare workers**, ensuring **continuity of care**, and reducing TB-related mortality and morbidity through patient-centered approaches.

5.1 Objectives of Management at Referral Health Facilities

1. **Comprehensive Evaluation**
    - Conduct in-depth assessments to address the clinical, nutritional, and comorbidity-related needs of each patient.
2. **Specialized Care**
    - Manage TB complexities, DR-TB cases, associated complications such as organ dysfunction, severe anemia, adverse drug reactions, co-morbid conditions, mental health issues including substance abuse etc.
3. **Continuity of Care**
    - Ensure seamless coordination between referral facilities and follow-up providers to maintain treatment adherence and long-term outcomes.

4. **Capacity Building**
    - Provide training and guidance to healthcare workers on managing TB cases, including inpatient care and home-based care protocols.

5.2 Role of Referral Health Facilities

Referral health facilities are responsible for **delivering advanced care** and ensuring proper management of PwTB referred after triaging and risk stratification. Their responsibilities are divided into **level-specific roles**:

i) PHC/CHC as referral health facility for community/ family

- Conduct **initial investigations**, such as CBC, blood sugar screening, and basic imaging.
- **Stabilize and manage** high-risk patients identified during triaging.

ii) District/ Tertiary facilities as referral health facility for PHC/ CHC

- Perform **advanced diagnostics** (e.g., chest X-rays, liver/renal function tests) and initiate specialized care for patients flagged during risk stratification.
- Manage TB complexities, DR-TB cases, associated complications such as organ dysfunction, severe anemia, adverse drug reactions, co-morbid conditions, mental health issues including substance abuse etc.
- Offer rehabilitative services, as needed.

5.3 Comprehensive Patient Assessment

Patients referred to referral health facilities must undergo **comprehensive evaluations** to guide individualized care plans. This process includes:

i) Clinical History

- Record detailed clinical history including focus on:
    - **Hemoptysis History**: Document episodes of coughing up blood and assess severity.
    - **Addictions**: Identify substance use (e.g., alcohol, tobacco) and address the need for de-addiction interventions.

- **Chronic Conditions**: Review prior TB treatments and histories of chronic illnesses, such as occupational lung diseases.

ii) General Condition

Assess the overall condition and functional ability of the patient:

- **Ambulatory Status**:
  - Can the patient walk unassisted?
  - Are they bedridden but conscious and oriented?
- **Level of Consciousness**: Determine whether the patient is fully alert, drowsy, or disoriented.

iii) Nutritional and Vital Assessments

- **BMI or MUAC**:
  - Calculate BMI to evaluate undernutrition.
  - Use MUAC (Mid-Upper Arm Circumference) if weight/height cannot be measured.
- **Vitals**: Monitor:
  - Pulse rate (beats/min).
  - Body temperature (°C).
  - Respiratory rate (breaths/min).
  - Oxygen saturation (SpO_2) (%).
  - Blood pressure (systolic/diastolic in mm Hg).
- **Signs of Edema/Icterus**: Document the presence of pedal edema or jaundice.

iv) Laboratory Investigations

- **Complete Blood Count (CBC)**: Assess hemoglobin levels, white blood cell count, and platelets.
- **HIV Testing**: Confirm HIV status and evaluate ART adherence for HIV-positive patients.
- **Blood Sugar Screening**:
  - Perform random blood sugar (RBS) tests.
  - If RBS ≥110 mg/dL, follow up with fasting/post-prandial glucose and HbA1C.
- **Liver and Renal Function Tests (LFTs, RFTs)**: Assess for organ dysfunction.
- The other investigations as decided by the treating physician.

v) Radiological and Advanced Diagnostics

- **Chest Radiograph**: Evaluate for TB-related abnormalities (e.g., cavitations, bilateral consolidation, pleural effusion).
- **Advanced Imaging**: Perform additional diagnostics (e.g., CT scans) as needed.

vi) Evaluation ofTB-Related Complications/ Co-morbidities

- Identify and manage complications such as pleural effusion, cavitary disease, or severe lung damage.
- Address associated comorbidities, including diabetes, hypertension, or severe anemia.

5.4 Facility Requirements for High-Quality Care

To deliver effective care, referral health facilities must be equipped with:

1. Qualified Healthcare Staff
    - Identify a **nodal physician** to oversee TB care.
    - Ensure adequate staffing of trained personnel (e.g., physicians, nurses) familiar with TB care protocols.
2. Necessary Equipment and Resources
    - Diagnostic tools for **imaging, blood tests**, and **vital monitoring**.
    - Oxygen therapy and emergency medical supplies.
3. Therapeutic Services
    - Comprehensive inpatient care services, including treatment for DR-TB and severe TB-related complications.
    - Intensive Care Unit services

5.5 Hospitalization: Guidance and Protocols for Inpatient Care

Hospitalization may be essential for stabilizing high-risk PwTB and managing complications. Referral facilities must adhere to the following principles:

5.5.1 Principles of Hospitalization

1. **Individualized Management of High-Risk Cases**
    - Prioritize triage-positive patients with severe undernutrition, respiratory insufficiency, or poor performance status.
2. **Hospitalization**
    - Prolonged hospitalization may be necessary for severe complications or advanced conditions, as determined by the treating clinician.
3. **Clinician's Role**
    - The treating clinician plays a critical role in:
        - Determining admission needs.
        - Balancing clinical necessity, patient preferences, and resource availability.

5.5.2 Benefits of Hospitalization

1. **Enhanced Clinical Monitoring**
    - Hospitalization provides intensive monitoring and reduces the risk of unfavourable outcomes.
2. **Patient and Family Education**
    - Patients and families receive counseling on TB management, treatment adherence, and lifestyle adjustments.
3. **Post-Discharge Continuity**
    - Ensure smooth continuity to follow-up care providers to maintain long-term outcomes.

5.6 Management of Patient's Health Conditions

1. **Health Professionals:** Pulmonologist/ Internal Medicine Expert/ respective specialist for EP-TB/ Medical Officers (at PHC/CHC) will be required for managing the patients.
2. **Management of Undernutrition:** The patient with undernutrition are to be managed as per national Guidance Document - Nutritional Care & Support for TB patients in India available at https://tbcindia-wp.azurewebsites.net/guidance-document-nutritional-care-support-for-tb-patients-in-india/.
3. **Management of Other Co-morbid health conditions:** to be managed by experts for co-morbid health conditions and/or internal medicine expert.

4. **Management of ADRs-**The management of adverse drug reactions are to be done as per existing guidelines.

    (a) The detailed guidelines are to be followed by the treating physician

    (b) For identification of common ADRs and referral, by the family members/ community level personnel-treatment supporter/ TB champions/ ASHA workers, pamphlets are to be made available to the users in local vernacular languages for common ADRs of drugs in each regimen (i.e. Regimen for- DS-TB, H-Mono/Poly resistance TB, BPaLM treatment, Shorter Oral & Longer Oral treatment).

5.7 Discharge Protocol

1. Discharge Summary
    - Provide a comprehensive summary that includes:
    - Treatment details during hospitalization.
    - Post-discharge care instructions.
    - Contact details for follow-up providers.
2. Continuity of Treatment
    - Ensure patients return to their diagnosing facility or preferred healthcare provider.
    - Communicate with follow-up facilities to ensure continuity of care.
3. Record Maintenance
    - Maintain detailed clinical records for programmatic quality assurance.
    - Update patient information and discharge status in the Ni-kshay portal.

06 Follow-Up Examinations of PwTB

Follow-up examinations are a crucial step in the Differentiated TB Care Framework, ensuring treatment adherence, monitoring clinical progress, and addressing complications throughout the course of TB treatment. Building on prior steps such as triaging, risk stratification, referral, and inpatient care, follow-ups provide continuity of care while tailoring interventions to meet individual patient needs. These follow-ups are designed to empower patients and their families, improve outcomes, and promote programmatic efficiency.

6.1 Objectives of Follow-Up Examinations

1. **Monitor Clinical Progress**
    - Evaluate the patient's response to treatment, manage complications, and ensure adherence to treatment.
2. **Personalized Follow-Up**
    - Alongwith the regular scheduled follow-up, customize the frequency and focus of follow-ups based on patient risk levels, comorbidities, and clinical needs.
3. **Programmatic Efficiency**
    - Leverage tools like **Ni-kshay** and field staff engagement to ensure comprehensive and structured follow-ups.

4. **Patient Empowerment**
    - Encourage self-monitoring and active participation in the treatment process.

6.2 Frequency of Follow-Ups

i) General Follow-Up Requirements

- **High-Risk Patients**:
    - Require fortnightly for initial two months or more frequent follow-ups as determined by the treating physician or medical officer.
- **All other Patients:**
    - Monthly follow-ups during the **intensive phase** of treatment, regardless of risk stratification.

ii) High-RiskTB Patients

- **Role of Field Staff**:
    - Patients with red-flag criteria should be provided additional attention to mitigate risks such as non-adherence or complications under the guidance of treating physician.
    - Field staff (e.g., STS, TBHV, CHOs, and Treatment Supporters) must ensure regular follow-ups and closely monitor adherence for high-risk TB patients.

iii) Location of Follow-Up Visits

- **Community-Based Follow-Ups**:
    - CHO/Treatment supporters/ TB champions/ ASHA workers/ Family Members in rural or tribal areas should be utilized for convenient and localized follow-ups for improving patient compliance.
- **Convenience for the Patient**:
    - Follow-ups should be conducted at the **most accessible health facility** (e.g., PHC, CHC, or **Ayushman Arogya Mandir** [AAM]).

6.3 Field Staff Responsibilities

Field staff act as the critical link between programmatic goals and patient needs. Their responsibilities include:

1. **Monitoring Treatment Adherence**
    - Ensure patients take medications as prescribed.
    - Address barriers to treatment completion, such as side effects or logistical challenges.
2. **Identifying Early Warning Signs**
    - Field staff should assess for red flag criteria during routine follow-ups.
3. **Providing Counseling and Support**
    - Educate patients about treatment goals, the importance of adherence, and how to manage minor side effects.

6.4 Follow-Up Framework

6.4.1 Structured Follow-Up on Ni-kshay Divas

Ni-kshay Divas, a fixed-day monthly follow-up initiative, ensures comprehensive patient engagement and monitoring.

1. **Comprehensive Patient Interaction**
    - Invite all patients on treatment to attend monthly Ni-kshay Divas sessions, fostering a sense of community and belonging.
    - Identify and address patient challenges through direct interaction.
2. **Provision of Additional Services**
    - Involve dietitians, physicians, and specialists to address:
        - Nutritional counseling.
        - Comorbidity management.
        - Adverse drug reactions.
3. **Monitoring and Assessment**
    - Conduct clinical follow-ups, including triaging, evaluation of treatment response, and vital sign monitoring.

6.4.2 Clinical and Investigative Follow-Up

1. **Baseline Parameter Monitoring**
   - Baseline parameters are used as reference points.
   - Reassess abnormal baseline parameters (e.g., hemoglobin, random blood sugar) during the first month of follow-up or as clinically indicated.
   - Perform chest X-rays at the end of two months or as clinically indicated.
2. **Monthly Triaging and Clinical Examination**
   - Follow established triaging protocols to identify deterioration or clinical progress.
   - Document findings for programmatic tracking (**Annexure 1-** Supplementary Treatment Card-Differentiated TB care).
3. **Referral for High-Risk Patients**
   - Promptly refer patients flagged as triage-positive or high-risk during follow-ups for advanced care or inpatient management.

Table 6.1 List of the parameters for Monthly follow-up of a person with TB*

Sr. No	Follow-up Examination	Parameters	Risk stratification and referral during follow-up
1	History	• Any adverse signs and symptoms, including Adverse Drug Reactions, dose consumption and adherence status H/O Haemoptysis	For any mild drug reaction, provide counselling and symptomatic care For Moderate and Severe Grades, send the patient to a referral health facility.
2	Clinical Examination	• Weight & Height (BMI)/MUAC Vitals – Temperature, Pulse, Respiratory Rate, Blood Pressure, Oxygen Saturation, Pedal Oedema, General Condition, Icterus	If any parameter is abnormal, consult a medical officer or conduct a teleconsultation.
3	Blood Investigations	• If baseline Hb, TC, or RBS was derailed, offer a follow-up test during the first-month follow-up. If required, another test can also be offered.	If test results are abnormal, refer the patient to a referral health facility. Consider teleconsultation if the patient is unwilling to go to the referral health facility.
4	Imaging	• Chest X-ray (At the end of 2 Months and as clinically indicated)	Consult a medical officer

* Continue with follow-up investigations (microscopy, X-rays, etc.) and assessments as recommended per the programmatic guidelines for DS/DR Persons with TB.
If the patient is not at high risk during the initial assessment, the CHO of Ayushman Arogya Mandir will conduct a follow-up assessment to reduce the patient's travel time.

6.5 Patient Engagement and Empowerment

Empowering patients to take ownership of their treatment enhances outcomes and fosters trust in the healthcare system.

6.5.1 Monitoring Progress

1. **Weight Gain as a Prognostic Indicator**
    - Weight gain is a critical marker of recovery. Encourage patients to monitor their weight monthly.
    - Use the Adult BMI Chart (Annexure 4: Adult BMI chart) to communicate individualized weight goals.
2. **Monthly Monitoring for Triage-Positive Patients**
    - Regularly track high-risk variables (e.g., weight, adherence, and symptoms) identified at diagnosis or during treatment.

6.5.2 Tools for Patient Empowerment

1. **TB Aarogya Sathi (TAS) Application**
    - Provide patients with access to:
        - Test results.
        - Direct Benefit Transfer (DBT) payments.
        - Educational materials (e.g., FAQs on TB care).
    - Encourage patients to use TAS for tracking treatment adherence and staying informed.
2. **Daily Logs**
    - Patients should maintain logs to track:
        - Medication intake.
        - Weight measurements.
        - Symptoms or adverse drug reactions.
    - These logs promote self-awareness and facilitate early detection of complications.

6.5.3 Family and Community Involvement

1. **Family Caregiver (Ni-kshay Saathi) Engagement**
    - Train Ni-kshay Saathi to support adherence and monitor the patient's progress.
    - Educate them about desired weight targets and strategies to assist with daily treatment needs.

2. **TB Champion/ Treatment supporter/ ASHA/ AWW**

   - Engage community supporters to provide motivation, nutritional counselling, assess for red flag criteria, and reinforce the importance of adherence and follow-ups.

6.6 Post treatment follow-up

For patients nearing the completion of their treatment, a structured follow-up protocol ensures continuity of care along with 6 monthly follow-ups:

1. **Comprehensive Assessment**
   - Evaluate patients for residual symptoms or comorbidities.
   - Provide post-treatment counseling on maintaining health and preventing reinfection.
2. **Documentation**
   - Update the Ni-kshay portal to reflect treatment completion.
   - Provide the patient with a summary of their treatment journey and discharge recommendations.
3. **Community Integration**
   - Link patients to support groups or TB Champions for ongoing motivation and monitoring during follow-up.

07 Baseline Assessment and Health Institution Strengthening for Differentiated TB Care

Effective implementation of differentiated TB care requires a well-prepared health system that integrates triaging, risk stratification, referral coordination, and comprehensive patient management. **Baseline assessments** of health facilities are critical to identify gaps in infrastructure, workforce capacity, and service delivery to ensure alignment with national and state priorities.

This chapter outlines the key components of baseline assessments, facility categorization, resource mobilization, capacity building, and monitoring mechanisms necessary for institutionalizing differentiated TB care services.

7.1 Baseline Assessment of Health Facilities

Baseline assessments should be integrated with State Development/ Action Plans to align strategic priorities for differentiated TB care.

a. Key Focus Areas

1. **Diagnostics and Therapeutics**
    - Assess the availability of essential and desirable resources for TB diagnosis and treatment, as outlined in **Annexure 4.**

2. **Human Resources and Skills**
    - Evaluate workforce capacity, identify training needs, and ensure staff availability for triaging, risk stratification, and patient management.
3. **Data Management**
    - Review **Ni-kshay data entry processes** to ensure proper documentation of patient information, including baseline assessments, referrals, and outcomes.
4. **Risk Status**
    - Evaluate adverse treatment outcomes (e.g., death or loss to follow-up) recorded in Ni-kshay & using potential AI-based risk stratification.

b. Assessment Tools and Reporting

- Use the standardized (Annexure 5- Facility-wise essential and desirable diagnostics and therapeutics) checklist for conducting gap assessments at THF and RHF.
- Findings should be compiled into State and District Health Facility Assessment Reports to:
    - Identify training and resource needs.
    - Establish a robust referral network.

c. Alignment with National Standards

- All facilities must be upgraded in accordance with **Indian Public Health Standards (IPHS)** and guidelines issued by the Ministry of Health.

d. Utilization of Free Diagnostics and Drug Schemes

- Address resource gaps using provisions under the Free Diagnostic Initiative and Free Drugs Scheme, ensuring all facilities meet the mandatory requirements for clinical assessments and investigations for DTC.

e. Active Involvement of District and Block Authorities

- Engage the **Chief Medical Officer (CMO)** and **Block Medical Officers (BMOs)** to channelize resources effectively and ensure smooth implementation.

Figure 7.1 Algorithm for implementing differentiated TB care

7.2 Categorization of Health Facilities

After resource mapping and baseline assessments, health facilities should be categorized into **Triaging Health Facilities (THFs)** and **Referral Health Facilities (RHFs)** to streamline service delivery.

7.2.1 Triaging Health Facilities (THFs)

THFs are responsible for **triaging, basic management, and follow-up care** for PwTB.

i) Functions

- Conduct triaging, risk stratification, and follow-up care.
- Identify and train nodal staff to effectively manage triaging and referrals.
- Ensure essential equipments (e.g., for SpO_2, respiratory rate, and BMI measurements) are available .

ii) Preparations

- Use **Annexure 5** to assess the readiness of facilities for triaging services and reporting mechanisms.
- Address identified gaps before initiating triaging activities under differentiated TB care.

7.2.2 Referral Health Facilities (RHFs)

RHFs provide **clinical management for high-risk TB patients**, including hospitalization and treatment of severe cases.

i) Functions

- Offer designated inpatient beds and resources to manage severe comorbidities in PwTB.
- Designate nodal physicians/medical officers at public and private facilities for effective coordination with THFs.

ii) Preparations

- Identify at least one referral health facility per district, with additional facilities as needed for patient admission and specialized care.
- Patients may also be linked, as needed, to:
  - **NCD Clinics**
  - **CHCs**
  - **Urban Health Centers**
  - **PHCs**
  - **ART Centers**

iii) Linkages

- Ensure each THF is linked to at least one RHF for seamless patient care.

7.3 Coordination and Planning

i) District-Wise Plans

A detailed plan must be developed and shared with all health facilities, including:

1. **Ambulance Services**
   - Ensure timely referrals by making ambulance services available through **PM-JAY, RKS,** or local initiatives.
2. **Referral Directory**
   - Prepare a district-wise directory with contact details of key stakeholders, such as:
     - District TB Officer (DTO)
     - District Program Coordinator (DPC)

- Senior Treatment Supervisor (STS)
- GoI-WHO Technical Support Network (GoI-WHO TSN)
- **Nodal facility names** and **contact details of nodal physicians**

This directory will facilitate inter-district referrals and improve coordination among stakeholders.

7.4 Designing and Costing the Service Delivery Package

i) Resource Mobilization

- Address resource gaps through free diagnostics and drug schemes under existing healthcare programs.

ii) Budgeting

- If additional resources are required:
  - Estimate costs and include them in the **NHM Program Implementation Plan (PIP).**
  - Use existing resources under the NHM or state budget as an initial setup.

7.5 Capacity Building of Staff

Train healthcare staff across all levels using a standardized curriculum to enhance service delivery for differentiated TB care.

i) KeyTraining Areas

1. **Clinical Parameters and Risk Stratification**
   - Measurement of normal and abnormal clinical values.
   - Identification of high-risk cases and management of triage-negative patients.
2. **Referral Management**
   - Proper use of referral slips and follow-up mechanisms based on patient risk scores.
3. **Patient Management**
   - Triaging, risk stratification, referral coordination, and inpatient care for high-risk TB cases.
4. **Inpatient Care and Therapeutic Nutrition**
   - Roles of nodal facilities in providing comprehensive inpatient care.

5. **Roles and Responsibilities**
    - Define roles for healthcare staff, as outlined in **Annexure 6**.
6. **Data Management**
    - Ni-kshay data entry for routine and differentiated TB care, including AI-based risk stratification.

ii) Orientation Workshops

- Conduct one-day workshops for staff at health facilities, covering the above training areas.

7.6 Monitoring and Feedback

A strong **monitoring and evaluation framework** is essential to track the implementation of differentiated TB care.

i) Key Components

1. **Progress Tracking**
    - Monitor triaging, referrals, and patient management to ensure adherence to programmatic goals.
2. **Feedback Mechanisms**
    - Establish mechanisms to collect feedback from health facilities and districts, using findings to inform policy updates and corrective actions.
3. **Supplementary Records**
    - Ensure all treatment cards (at facilities and with treatment supporters) are regularly updated and recorded in Ni-kshay.

08 Integrating Differentiated TB Care in the Private Sector

The **private healthcare sector** plays a crucial role in supporting the NTEP due to its extensive reach, resources, and ability to deliver high-quality services. Integrating the private sector into the framework for Differentiated TB Care is essential to improve early detection, risk stratification, and comprehensive management of TB patients, particularly those at high risk. This chapter outlines strategies for engaging the private sector and creating a collaborative system to strengthen TB care delivery.

8.1 Role of the Private Sector in DifferentiatedTB Care

1. **Advocacy and Awareness**
    - **Promote Differentiated TB Care**: Advocate for the adoption of NTEP's differentiated care model among private healthcare providers.
    - **Patient Awareness**: Educate patients about the availability of high-quality TB care in private facilities and emphasize the importance of seeking care from trained providers.
2. **Expanding Coverage**
    - **Leverage Private Infrastructure**: Address gaps in TB care access, particularly in urban and underserved areas, through the private sector's extensive reach.
    - **Participation in NTEP Initiatives**: Encourage private providers to actively engage in NTEP initiatives, scaling up high-quality TB services as per the Guidance document of Partnerships 2019 and the private health facilities may be engaged as RHF.

8.2 Strategic Actions for Integration

8.2.1 Development of Private Sector Care Models

- **Tailored Care Models**: Design evidence-based models that integrate Differentiated TB Care into the private sector, ensuring alignment with NTEP protocols.
- **Standardized Workflows**: Define workflows for **triaging, referrals**, and **follow-ups** to ensure consistency across private and public sectors.
- **Innovative Approaches**: Incorporate telemedicine, e-consultations, and AI-driven tools to enhance the identification and management of high-risk TB patients.

8.2.2 Capacity Building and Training

- **Training Programs**: Develop structured training for private healthcare providers & PPSAs on:
  - Triaging, risk stratification, and comorbidity management.
  - Referral and follow-up mechanisms.
  - Digital tools like Ni-kshay for patient tracking and risk assessment.
- **Partnerships**: Collaborate with professional associations (e.g., **Indian Medical Association [IMA], Federation of Obstetric and Gynaecological Societies of India [FOGSI])** and medical colleges to engage a larger network of private providers.

8.2.3 Strengthening Referral Mechanisms

- **Robust Referral Systems**: Develop systems to integrate private-sector patients with NTEP services, ensuring seamless continuity of care.
- **Linkages with Public Sector**: Facilitate connections between private providers and public-sector nodal THFs for managing complicated cases, if needed.
- **Referral Tools**: Provide private THFs with:
  - **Standardized referral slips**
  - District-level **contact directories** containing details of linked RHF

8.2.4 Documentation and Monitoring

- **Recording Key Data**: Ensure private facilities record:
  - Baseline assessments, comorbidity management, and clinical evaluations.

- Referral status, outcomes, and linkage progress.
- Follow-up visits and treatment adherence during the course of TB care.

- **Digital Platforms**: Enable private providers to utilize **Ni-kshay** for:
  - Real-time data entry and risk updates.
  - Monitoring treatment outcomes and adverse events.

8.2.5 Patient Support and Follow-Up

- **Coordinated Follow-Up Care**: Facilitate follow-ups for high-risk TB patients treated in private facilities by:
  - Engaging public-sector treatment supporters and health workers.
  - Ensuring alignment of follow-up of care plans between private and public providers.
- **Treatment Cards**: Promote the use of **supplementary treatment cards** to maintain consistency in patient records across sectors.

8.3 Key Outcomes of Private Sector Integration

Integrating Differentiated TB Care into the private sector yields the following benefits:

1. **Increased Reach**
   - Expands the network of healthcare facilities offering TB care services, improving access for underserved populations.
2. **Early Identification**
   - Enhances detection of high-risk TB patients through private-sector screening and triaging.
3. **Improved Continuity of Care**
   - Strengthens linkages between private providers and NTEP services, ensuring seamless referrals and better patient outcomes.
4. **Stronger Monitoring and Accountability**
   - Improves documentation and tracking of patient data, enabling better monitoring through digital platforms like Ni-kshay.
5. **Enhanced Collaboration**
   - Builds synergy between public and private healthcare systems, creating a unified approach to TB elimination.

8.4 Successful PPP integration

1. **Capacity Building**: Continuously train private-sector providers on the latest protocols, digital tools, and referral mechanisms.
2. **Feedback Loops**: Develop mechanisms for private-sector feedback to improve program implementation and identify bottlenecks.
3. **Public-Private Partnerships (PPPs)**: Foster partnerships between the public sector, professional bodies, and private providers to ensure coordinated efforts.

09 Differentiated TB Care for Paediatric TB Cases

Implementing **Differentiated TB Care** for pediatric TB cases requires a tailored, child-centric approach that addresses the unique clinical, epidemiological, and psychosocial challenges faced by children. By integrating clinical management with nutritional, social, and psychological support, this model aims to reduce pediatric TB mortality and improve long-term outcomes.

9.1 Clinical Challenges in Paediatric TB

Pediatric TB often presents atypically, with symptoms and manifestations distinct from those seen in adults. Effective management necessitates careful clinical assessment and the use of child-appropriate diagnostic and treatment strategies.

9.1.1 Thorough Clinical Assessment

1. **Identify High-Risk Factors**
    - **Malnutrition**: A major driver of TB-related morbidity and mortality in children.
    - **HIV Coinfection**: Significantly worsens disease outcomes and complicates treatment.
    - **Immunodeficiency Disorders**: Includes both congenital and acquired conditions that heighten susceptibility to TB.
    - **Comorbidities**: Chronic conditions such as diabetes or congenital heart disease increase vulnerability.

2. **Age-Appropriate Diagnostic Tools**
    - **Diagnostic Techniques**:
        - Gastric aspirate sampling or stool-based testing for Mycobacterium tuberculosis.
        - Use of better sensitivity tool for TB testing in children.
    - **Screening Tools**: Incorporate clinical tools like symptom-based screening combined with chest X-rays and tuberculin skin tests for children with suspected TB.

9.1.2 Nutritional Assessment and Support

1. **Nutritional Evaluation**
    - Assess **BMI-for-age, weight-for-height,** or **MUAC** to determine malnutrition levels.
    - Screen for micronutrient deficiencies, eg., Vit A, iron etc.
2. **Nutritional Rehabilitation**
    - Incorporate **therapeutic diets**, locally adapted high-protein nutritional supplements, into treatment plans.
    - Provide ongoing nutrition counseling for caregivers to sustain improvements post-treatment.

9.2 Addressing Social Determinants of Health

Social determinants, including socioeconomic status and living conditions, significantly impact pediatric TB outcomes. Addressing these factors is critical for ensuring equitable care.

9.2.1 Socioeconomic Factors

- **Poverty and Overcrowding**:
    - Assess household poverty levels and living conditions to identify at-risk children.
    - Extend outreach services to underserved communities to reduce diagnostic and treatment delays.
- **Healthcare Access**:
    - Address barriers such as long travel distances, financial constraints, or limited awareness among caregivers.

9.2.2 Parental and Caregiver Education

- Educate caregivers about:
    - TB prevention, infection control, and treatment adherence.

- The importance of timely follow-ups and reporting any new symptoms.

- Counter **stigma** and **misconceptions** around TB through culturally sensitive health education initiatives.

9.2.3 Family Support Systems

- Engage families in support groups or community outreach programs to strengthen their role in treatment adherence.

9.3 Psychosocial Support for Paediatric TB Patients

Children with TB often experience unique psychological challenges, requiring holistic psychosocial interventions.

9.3.1 Mitigating Stigma and Isolation

- **Community Awareness Campaigns**: Conduct school-based education programs to normalize TB and reduce stigma.
- **Peer Support Groups**: Create child-friendly support networks for children and families affected by TB.

9.4 Differentiated Care Framework for Pediatric TB

9.4.1 Risk Stratification

- Stratify children based on **clinical severity** and **social vulnerabilities.**
- **High-Risk Cases**: Children with severe malnutrition, comorbidities, or TB-HIV coinfection should be referred to specialized care centers equipped with hospitalization and advanced diagnostic facilities.

9.4.2 Integration of Nutritional and Psychosocial Support

- **Nutritional Programs**: Include therapeutic nutrition as part of standard TB care.
- **Psychosocial Counseling**: Provide mental health and emotional support during all phases of care.

9.4.3 Follow-Up and Treatment Adherence

- Establish a robust follow-up mechanism to track treatment progress, nutritional recovery, and medication adherence.
- Use **digital tools** like **Ni-kshay** to monitor adherence, send reminders to caregivers, and record follow-up visits.

9.5 Holistic Paediatric TB Care Approach

A comprehensive approach integrates clinical care, social interventions, and caregiver engagement to address the unique needs of pediatric TB patients.

9.5.1 Multi-Disciplinary Collaboration

- Facilitate collaboration among pediatricians, nutritionists, counselors, and social workers for patient-centered care.

9.5.2 Caregiver Engagement

- Involve caregivers in every aspect of care, from adherence monitoring to nutritional recovery plans.
- Empower families with the knowledge and resources needed to support children effectively.

9.5.3 Addressing Barriers to Care

- Tackle social and financial barriers, including stigma, transportation challenges, and out-of-pocket expenses.

10 Recording and Reporting

Effective recording and reporting mechanisms are integral to the implementation of the Differentiated TB Care Framework. These processes ensure accurate tracking of patient data, programmatic progress, and outcomes at all levels of the health system. By standardizing data entry and enhancing real-time reporting, the framework supports evidence-based decision-making and continuous quality improvement.

10.1 Objectives of Recording and Reporting

1. **Patient Tracking:**

   Ensure seamless monitoring of PwTB throughout their care journey, from diagnosis to treatment completion.

2. **Data-Driven Interventions:**

   Provide actionable insights for tailoring interventions based on patient and program data.

3. **Accountability and Compliance:**

   Enable healthcare providers to adhere to NTEP guideline, maintain accurate records for program monitoring and thereby strengthening the health system.

4. **Outcome Monitoring:**

   Evaluate treatment adherence, identify challenges, and monitor clinical progress and program outcomes.

10.2 Components of Recording and Reporting

1. **Patient Records:**
    - **Supplementary Treatment Card (Annexure 1):** Used at all health facility levels to record clinical, diagnostic, and treatment details.
    - **Risk Stratification Documentation:** Capture results of initial triaging, follow-up assessments, and AI-based risk scores (e.g., PATO).
    - **Inpatient Care Logs:** Record details of hospitalization for triage-positive patients, including therapeutic interventions and outcomes.
2. **Digital Platforms:**
    - **Ni-kshay Portal:** Centralized platform for recording patient data, tracking referrals, and monitoring treatment adherence and outcomes.
    - **AI Tools (PATO):** Automate risk stratification and generate alerts for high-risk cases.
3. **Referral Records:**
    - Referral slips should include details about the patient's condition, the referring facility, and the receiving facility.
    - All clinical data in referrals from THF to RHF to be documented in Ni-kshay to ensure follow-up and accountability.
4. **Periodic Reports::**

    The auto-generated periodic reports from Ni-kshay to be used for review.

10.3 Recording and Reporting Process

1. **Data Entry:**
    - Ensure that all patient information is entered into the Ni-kshay portal at the time of diagnosis, including baseline assessments, risk stratification results, and referral details.
    - Update patient records at every follow-up visit, noting clinical progress and adherence to treatment.
2. **Real-Time Updates:**
    - Utilize mobile or web-based interfaces for immediate data entry by healthcare providers.
    - Leverage AI tools for automated flagging of adverse treatment outcomes and alerts for missed follow-ups.
3. **Integration Across Levels:**
    - Synchronize data flow between community health workers, PHCs/CHCs, and tertiary care centers to maintain continuity in patient records.
    - Align reporting formats across levels to standardize data collection and analysis.

10.4 Key Monitoring indicators

Monitoring within the National Tuberculosis Elimination Programme (NTEP) is crucial for ensuring effective implementation of differentiated TB care. It involves the systematic and continuous collection, collation, analysis, and interpretation of data from Ni-kshay, reports, and registers. This process aims to detect deviations from expected norms, allowing for timely feedback and corrective actions.

Effective monitoring facilitates the ongoing observation of whether services are delivered as planned. By systematically tracking key performance indicators, the NTEP can ensure that differentiated care framework are reaching target populations and delivering quality services. This proactive approach allows for the identification of bottlenecks and the implementation of targeted interventions, ultimately improving patient outcomes and contributing to the goal of TB elimination. The objectives of the monitoring indicators are to assess the following:

1. **Treatment Progress:**
    - Proportion of PwTB completing treatment milestones.
    - Number of patients gaining weight or showing clinical improvement.
2. **High-Risk Case Management:**
    - Percentage of triage-positive patients referred and admitted to referral facilities.
    - Outcomes for high-risk patients (e.g., mortality, complications, treatment adherence).
3. **Programmatic Performance:**
    - Coverage of follow-up visits and missed-dose tracking.
    - Rate of AI-based adverse outcome predictions versus actual outcomes.

Monitoring indicators.

No	Indicator	Numerator	Denominator
Triaging and referral			
1a	Proportion of TB cases triaged for Differentiated TB Care at the family or community level at baseline	Total no. of TB cases triaged for differentiated TB care at family or community level at baseline	Total no. of notified TB cases
1b	Proportion of TB cases marked as red flag criteria positive at the family or community level at baseline	Total no. of TB cases marked as red flag criteria positive at the family or community level at baseline	Total no. of TB cases triaged for differentiated TB care at family or community level

2a	Proportion of TB cases **triaged** for Differentiated TB Care by triaging health facility at baseline	Total no. of TB cases triaged for differentiated TB care by the triaging health facility at baseline	Total no. of notified TB cases
2b	Proportion of TB cases have been **triage -ve** based on red flag criteria and other investigations at the triaging health facility at baseline	Total no. of TB cases have been triage -ve based on red flag signs & symptoms and other investigations at the triaging health facility at baseline	Total no. of TB cases triaged for differentiated TB care by the triaging health facility at baseline
2c	Proportion of **triage -ve** TB cases **followed up** for reassessment by the triaging health facility after 2 weeks	Total no. of triage -ve TB cases followed up for reassessment by the triaging health facility after 2 weeks	Total no. of TB cases have been triage -ve based on red flag signs & symptoms and other investigations at the triaging health facility
2d	Proportion of TB cases have been **triage +ve** based on red flag criteria and other investigations at the triaging health facility	Total no. of TB cases have been triage +ve based on red flag criteria and other investigations at the triaging health facility	Total no. of TB cases triaged for differentiated TB care by the triaging health facility at baseline
2e	Proportion of triage +ve TB cases **referred** to the referral health facility for further evaluation and advanced care	Total no. of triage +ve TB cases referred to the referral health facility for further evaluation and advanced care	Total no. of TB cases have been triage +ve based on red flag signs & symptoms and other investigations at the triaging health facility
Risk stratification			
1a	Proportion of TB cases assigned severe TB for adverse outcome by PATO	Total no. of TB patients assigned as severe TB for adverse outcome by PATO	Total no. of notified TB cases
1b	Proportion of TB cases assigned severe TB by PATO, screened at the triaging health facility	Number of TB cases assigned severe TB by PATO, screened at the triaging health facility	Total no. of TB patients assigned as severe TB for adverse outcome by PATO
2	Proportion of TB cases found to be having **non-severe disease among triage +v**e at the referral health facility and referred back to the triaging health facility for continuation of treatment and follow-up	Total no. of TB cases found to be having non-severe disease among triage +ve at the referral health facility and referred back to the triaging health facility for continuation of treatment and follow-up	Total no. of triage +ve TB cases referred to the referral health facility for further evaluation and advanced care
3a	Proportion of TB cases found to be having **severe disease among triage +ve** at the referral health facility	Total no. of TB cases found to be having severe disease among triage +ve at the referral health facility	Total no. of triage +ve TB cases referred to the referral health facility for further evaluation and advanced care
3b	Proportion of TB cases **hospitalized for management** of the disease among triage +ve at the referral health facility	Total no. of TB cases hospitalized for management of the disease among triage +ve at the referral health facility	Total no. of TB cases found to be having severe disease among triage +ve at the referral health facility
Outcome			
3c	Proportion of TB cases **successfully discharged among those hospitalized** for management of the disease	Total no. of TB cases successfully discharged among those hospitalized for advanced management of the disease	Total no. of TB cases hospitalized for management of the disease among triage +ve at the referral health facility
3d	Proportion of TB cases **died** among those hospitalized for management of the disease	Total no. of TB cases died among those hospitalized for management of the disease	Total no. of TB cases hospitalized for management of the disease among triage +ve at the referral health facility

Follow-up after hospitalization			
4a	Proportion of TB cases **reassessed for red flag criteria** after 2 months among those hospitalized and successfully discharged	Total no. TB cases reassessed for red flag criteria after 2 months among those hospitalized and successfully discharged	Total no. of TB cases successfully discharged among those hospitalized for advanced management of the disease
4b	Proportion of TB cases **re-hospitalized** among those reassessed for red flag signs after 2 months	Number of TB cases re-hospitalized among those reassessed for red flag signs after 2 months	Total no. TB cases reassessed for red flag signs after 2 months among those hospitalized and successfully discharged
4c	Proportion of TB cases **died** among re-hospitalized	Number of TB cases died among re-hospitalized	Number of TB cases re-hospitalized among those reassessed for red flag signs after 2 months
Verbal autopsy			
5a	Proportion of **Facility-based TB Social Autopsy** conducted	Number of Facility-based TB Social Autopsy conducted	Total no. of TB cases died among those hospitalized for advanced management of the disease
5b	Proportion of **Community-based TB Social Autopsy** conducted	Number of Community-based TB Social Autopsy conducted	Total no. of TB cases died among notified

* These indicators are cohort based. which are geographic and time period sensitive

10.5 Feedback and Learning Loops

1. **Feedback Mechanisms:**
   - Generate monthly summary reports for each district, highlighting gaps in recording and reporting.
   - Provide regular feedback to healthcare providers to improve compliance and accuracy.
2. **Learning and Adaptation:**
   - Use data insights to refine triaging and risk stratification protocols.
   - Incorporate patient feedback into reporting processes to improve care delivery and monitoring.

Workflows in Ni-kshay

The healthcare worker, as designated by the medical officer, will fill out the information from the physical records in Ni-kshay.

For data entry in Ni-kshay, the healthcare worker has to undergo training with materials available on Ni-kshay portal. https://nikshay.in/

11 Social Autopsy and Review of TB Deaths

The **TBSA** is a systematic approach designed to investigate the medical and social factors contributing to all TB-related deaths. By analyzing these factors, TBSA provides actionable insights to address programmatic gaps, reduce TB mortality, and enhance patient outcomes. The social autopsy focuses on identifying delays in care, barriers to treatment adherence, and systemic barriers, allowing targeted interventions and community-driven solutions to be developed.

11.1 Objectives of TB Social Autopsy

The primary objectives of the TBSA process are:

1. **Identify Delays in TB Care**
   - Investigate delays in:
     - Healthcare-seeking behavior by the patient.
     - Referral processes for presumptive TB cases.
     - Diagnosis and initiation of Anti-Tuberculosis Drugs (ATD).
     - Management of adverse drug reactions (ADRs) or complications.
2. **Understand Social Barriers**
   - Assess barriers such as stigma, financial hardship, or inadequate healthcare access that hinder timely diagnosis and treatment.

3. **Strengthen Community Knowledge**
    - Analyze community attitudes and practices to guide educational campaigns and reduce stigma.
4. **Facilitate Targeted Interventions**
    - Use findings to design interventions addressing gaps in care and barriers to treatment adherence.
5. **Enhance Accountability**
    - Establish a robust **TB Death Surveillance and Response (TDSR)** mechanism through systematic reviews of TB deaths.
6. **Reduce Financial Burden**
    - Identify catastrophic out-of-pocket expenses incurred by TB patients and provide targeted support mechanisms to alleviate financial hardship.

11.2 Components of TBSA

TBSA has two components viz., verbal autopsy, exploring the causes/ circumstances leading to death and social autopsy, exploring the patients' social determinants of TB or TB death.

11.2.1 Verbal Autopsy

- **Definition**: Verbal autopsy involves gathering information about the circumstances and symptoms leading up to the patient's death through interviews with family members or caregivers.
- **Utility**:
    - Useful in settings where medical certification of death is unavailable or infeasible.
    - Enables assignment of the cause of death using **standard VA tool**.
- **Implementation**: A verbal autopsy questionnaire has been provided for TB-related deaths in annexure 8.

11.2.2 Social Autopsy

- **Definition**: Social autopsy delves into the **social context** of the patient's illness and death to identify barriers to care access and retention.
- **Barriers Identified**:
    - Financial constraints.
    - TB-related stigma.
    - Lack of awareness about available services.
    - Geographical or transportation challenges.

- Comorbidities or other contributing conditions.

- **Utility**: By addressing these barriers, TBSA empowers policymakers to design interventions that are tailored to the needs of affected communities.

11.3 Adapting the Maternal Death Review (MDR) Framework forTB Deaths

The Maternal Death Review (MDR) process in India offers a proven model for reducing maternal mortality. This framework has been adapted to TB deaths to systematically investigate care gaps and inform targeted strategies.

11.3.1 Benefits of Adopting the MDR Framework forTB Deaths

1. **Improved Understanding of TB Mortality**
   - Provides detailed insights into the factors contributing to TB deaths, enabling data-driven interventions.
2. **Guided Interventions**
   - Identifies programmatic gaps, prioritizing resources to address critical challenges like care delays or treatment non-adherence.
3. **Accountability and Community Engagement**
   - Engages stakeholders across levels, fostering responsibility and collaboration to strengthen TB care services.

11.3.2 Steps for Adapting the MDR Process toTB Deaths

1. **Identification of TB Deaths**
   - Leverage health systems, community networks, and digital platforms (e.g., Ni-kshay) to track and record TB deaths systematically.
2. **Data Collection**
   - Collect comprehensive data, including:
     - Medical history.
     - Socio-economic challenges.
     - Barriers to accessing care.
     - Delays in diagnosis or treatment initiation.

3. **Analysis of Causes and Contributing Factors**
    - Analyze data to identify:
        - Medical reasons for the death.
        - Social determinants (e.g., stigma, financial hardship).
        - Systemic gaps (e.g., delays in referral or inadequate care).
4. **Action Plan Development**
    - Use findings to create actionable interventions, such as:
        - Strengthening access to care.
        - Addressing programmatic and systemic gaps.
        - Reducing delays in TB diagnosis and treatment.

11.4 Stakeholders in TB Death Reviews

The TB death review team should comprise of the following:

1. **National Tuberculosis Elimination Program (NTEP)**: Provides oversight and leads implementation.
2. **Healthcare Providers**: Offer medical assessments and clinical insights.
3. **Community Health Workers**: Facilitate family and community engagement during the review process.
4. **Civil Society Organizations**: Support awareness campaigns and resource mobilization.

Ensure multi-stakeholder engagement, fostering accountability and actionable outcomes.

11.5 Review Mechanism for TB Deaths

The community-based TB death review form should be used for all TB deaths and facility-based TB death review form should be used for deaths reported by the health institutions. The review process involves distinct levels of analysis as detailed below:

11.5.1 Community-Based TB Social Autopsy

- **Purpose**:
    - Understand the family's perspective on factors contributing to the TB patient's death.

- **Method**:
  - Conduct within **21 days** of the patient's death using a prescribed format (Annexure7).
- **Focus Areas**:
  - Social, cultural, and logistical barriers delaying diagnosis or treatment.

11.5.2 Facility-BasedTB Social Autopsy

- **Purpose**:
  - Assess the quality of institutional care provided during the patient's hospital stay.
- **Method**:
  - Conduct within **21 days** of death at the concerned facility using a prescribed format (Annexure 8).
- **Focus Areas**:
  - Quality of care, adherence to treatment protocols, and management of complications.

11.5.3 District-LevelTB Death Review

- **Responsible Authority**: District nodal officer of Medical and/or health.
- **Frequency**: Conducted **monthly.**
- **Scope**:
  - Includes all TB deaths in the district, including deaths of district residents who passed away outside the district.
- **Focus**:
  - Systemic issues, delays in care, and programmatic gaps.

11.5.4 District Magistrate (DM) Review

- **Responsible Authority**: District Magistrate (DM).
- **Frequency**: Quarterly review of **two TB death cases** or more as deemed necessary.
- **Focus**:
  - Cross-departmental collaboration to address socio-economic barriers and ensure accountability.

11.5.5 State-Level Review

- **Responsible Authority**: State TB Officer (STO).

- **Frequency**: Conducted **monthly** or as required.
- **Input**:
  - Seek expert opinions to guide systemic improvements and develop targeted interventions.

11.6 Suggestive List of Nodal Officers forTB Verbal and Social Autopsy

To ensure effective implementation, nodal officers should be appointed at various administrative and healthcare levels:

1. **District Nodal Officer (DNO)**:
   - The District Tuberculosis Officer (DTO) oversees TB death reviews at the district level.
2. **Facility Nodal Officer (FNO)**:
   - Designated by the administrative head (e.g., Superintendent) at each health facility.
3. **Sub-Division Nodal Officer (SDNO)**:
   - The Assistant Chief Medical Officer of Health (ACMOH) is responsible for sub-division-level reviews.
4. **State Nodal Officer (SNO)**:
   - The State TB Officer (STO) coordinates TB death reviews at the state level.
5. **State Co-Nodal Officer**:
   - The Epidemiologist at the State TB Demonstration and Training Centre (STDC) serves as the Co-Nodal Officer.

Annexure

Annexure1: Assessment Card forTB Patient

Red flag criteria: 1. Patient confined to bed, 2. Breathlessness - at rest, speaks with difficulty-unable to complete a sentence without a pause, unable to take feed, on 10-15 feet walk or on attending nature's call, 3. Severe pain: chest pain/abdominal pain, 4. Altered consciousness or convulsions or limb weakness, 5. Coughing out blood 1 cup, 6. Recurrent Vomiting/ diarrhoea, 7. Symptoms of Adverse Drug Reactions

Patient Name:			**Ni-kshay Patient ID:**				
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Remarks, if any
Date							
Red flag criteria identified? (Yes/ No)							
If yes, mention the red flag criteria							
If yes, patient assessed by Medical Officer? (Yes/No)							
Subsequent sections to be filled in cases where red-flag criteria are identified or as and when clinically indicated							
Clinical examination	Date						Clinician's Notes
SpO2 < 94%							
Respiratory rate > 24 breaths/ min							
Blood pressure - Systolic BP < 90 mm Hg or ≥140 mmHg; Diastolic BP < 60 mm Hg or ≥90 mm Hg							
Pulse rate > 120 or <60 beats/min							
Weight in kg							
Height in cm							
Body Mass Index							
Inability to stand without support (yes/no)							
Pedal oedema (Yes/No)							
Icterus (Yes/No)							
Haemoptysis (Yes/No)							
Pulse rate							
Temperature							
Hb (g/dl)							
RBS (mg/dl)							
Chest X-ray							
Kidney Function Test							
Liver Function Test							
Pulmonary Function Test							
Others, please specify							
Any other comorbidity, please specify							
Provisional/final diagnosis							
Management Plan (Tick appropriate option)	☐ Ambulatory Care ☐ Referral to higher centre for further management ☐ Referral for hospitalization						
Name and designation of staff filling out the card					Name, Signature of Medical Officer		

Annexure 2: Comprehensive DTC Assessment Case Form

***To be filled for a Triage-positive adult with TB**
****Attach a copy of the 'filled' Triaging tool with this form**

Details to be filled by the diagnosis PHI before referral

Diagnosis District Name	Diagnosis TB Unit name:	Diagnosis Health Facility name:
Nikshay ID (Episode ID of the current TB episode):	Date of diagnosis (dd/mm/yyyy):	Date of referral (dd/mm/yyyy):
Name and contact number of Nodal physician of the spoke facility/ designated official:		

Comprehensive assessment – details to be filled in by the nodal physician of the inpatient care facility

For every screen-positive patient referred, the following assessments and investigations (not restricted to) have to be done.

Date of comprehensive assessment (dd/mm/yyyy): _____
Name of the referral care facility: _____
Name of nodal physician: _____

History of Haemoptysis (yes/no): General condition (able to walk, not able to walk but conscious / oriented, conscious not oriented, drowsy):	History of addictions and assess the level of addiction (alcohol addiction and CAGE, tobacco use and Fagerstrom test of nicotine dependence):	History of known chronic conditions and other relevant past medical history, including occupational lung diseases:
Weight (kg) Height (cm) BMI (kg/m2) ____ MUAC (cm) (if not able to stand for weight or height measurement) _____ Undernutrition status (check the inpatient care guide Ch 3a for criteria) Severe undernutrition: Yes No Very Severe undernutrition: Yes No AI-based risk status of the TB patient for adverse TB treatment outcome – High/ Low	Pulse rate (per minute) _____ Temperature (Celsius) ____ Respiratory rate (per minute) __ Oxygen saturation (%) _____ Icterus (yes/no) _____ Pedal Oedema (yes/no): _____ Blood pressure (mm Hg) _____ Chest radiograph findings: Liver function tests: Renal function tests:	Haemoglobin (g%) ___ Total white blood cell count (per mm^3): __ HIV status (yes/no) ____ ART status (yes/no) ____ ART start date if applicable: _____ Screening with random blood sugar: If>/= 110 mg/dl, check fasting and postprandial venous plasma glucose. RBS _____ PPPS _____ FPS_____ HbA1C _____
Any further necessary evaluation of TB complications detected/comorbidities identified/Follow-up tests based on results of the above assessment (mention details here):		

Confirmed severely ill (yes/no):

If severely ill, is HDU/ICU care required (yes/no/not applicable): _____

if the total score is more than three or the presence of very severe undernutrition or the nodal physician recommends HDU/ICU care, mention yes

If severely ill, identify the issues that need to be addressed during inpatient care (reasons for severe illness)

☐ Very severe undernutrition ☐ Alcohol addiction ☐ Other addiction(s) ☐ Uncontrolled diabetes ☐ Severe Anaemia ☐ HIV related ☐ Secondary Bacterial infection ☐ Liver complications ☐ Renal complications ☐ Mental illness ☐ Haemoptysis ☐ Severe COPD ☐ Restrictive lung diseases ☐ Special populations (e.g. elderly, pregnancy)	☐ Pneumothorax / Hydropneumothorax / Bilateral consolidation ☐ Respiratory failure / ARDS / septic shock Post-TB pulmonary (and related) complications ☐ Deep venous thrombosis and pulmonary embolism ☐ Immune Reconstitution Inflammatory Syndrome (IRIS) ☐ Complications to anti-TB treatment (adverse drug reaction) ☐ Extrapulmonary TB related and complications ☐ High-grade fever ☐ COVID-19 complications or post COVID-19 sequelae ☐ Neurological complications ☐ Others (Patient is sick but not classified into above categories) If the response of others, mention the reason here: _____

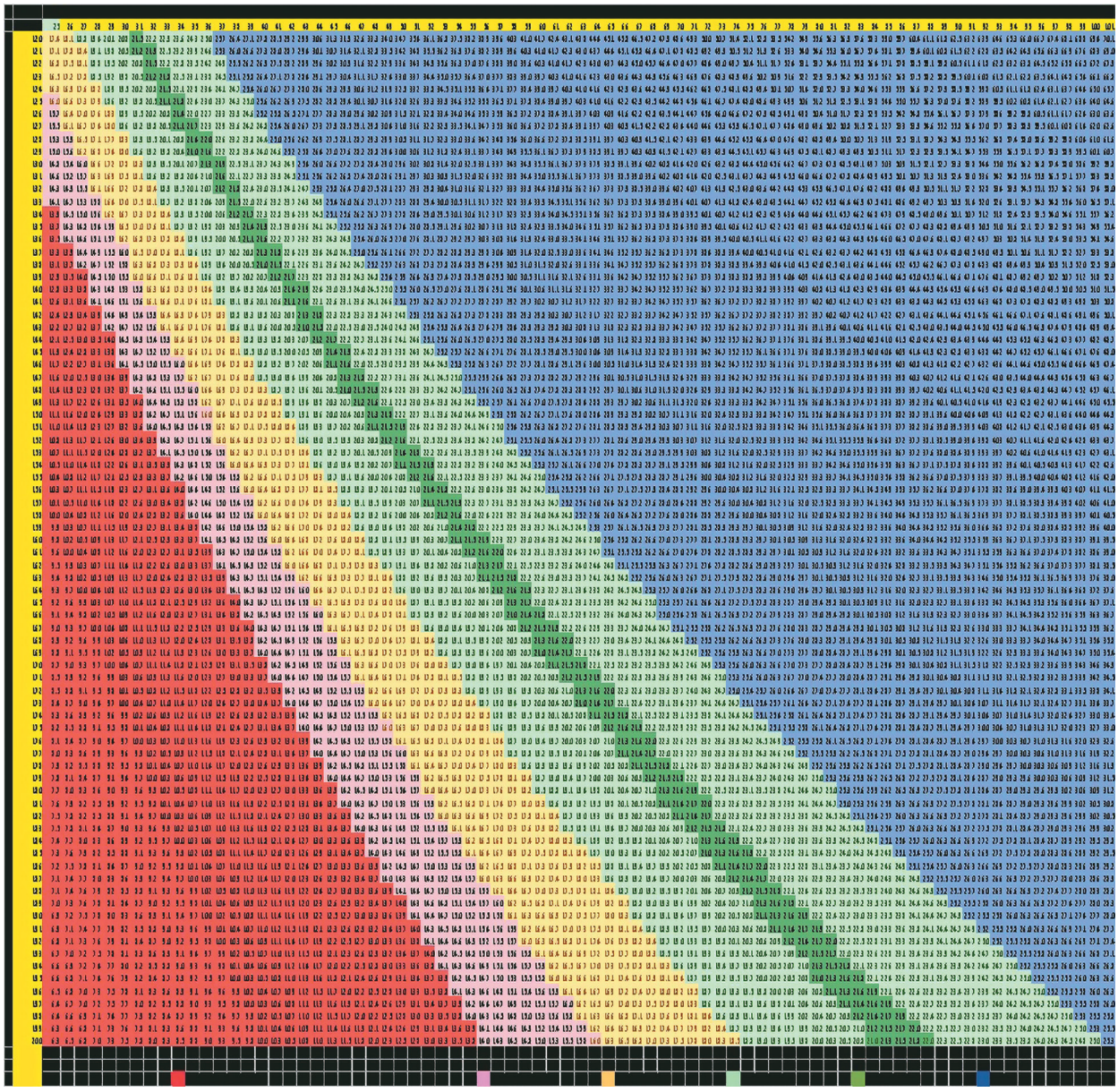
If admitted, date of admission (dd/mm/yyyy): _____
Date of discharge (dd/mm/yyyy): _____
Outcome of admission. If a patient is referred from one referral facility to another, please mention the final admission outcome)

☐ Discharged for ambulatory DOT ☐ Death ☐ Leave Against Medical Advice (LAMA) ☐ Referred elsewhere and outcome unknown	Name of nodal physician: Signature: Date:

Annexure 3: Adult BMI chart

Use the chart for the following purpose

1. Calculate BMI as per body weight (kg) and height (cm)
2. Calculate targeted weight to indicate the patient's BMI is <14 or <16 kg/m2



Annexure 4: Facility-wise essential and desirable diagnostics and therapeutics

Facility-wise essential and desirable diagnostics.

	Essential Diagnostics	SHC	PHC	CHC	SDH	DH
		AB- HWC	AB-HWC	FDSI	FDSI	FDSI
1	Chest radiography	N	N	Y	Y	Y
2	Pulse oximetry	Y	Y	Y	Y	Y
3	Complete blood count	N	Y	Y	Y	Y
4	HIV testing and Blood sugar	Y	Y	Y	Y	Y
5	Renal function tests	N	Y	Y	Y	Y
6	Liver function tests	N	Y	Y	Y	Y
7	Blood grouping	N	Y	Y	Y	Y
8	Weighing machine,	Y	Y	Y	Y	Y
9	Stadiometer/staturemeter,	Y	Y	Y	Y	Y

Essential wherever the NPCDCS Programme is Being Implemented FDSI – Free Diagnostic Service Initiative

- Essential Therapeutics
  - Oxygen
  - Broad-spectrum antibiotics, including intravenous drugs
  - Hydrocortisone, vasopressor drugs
  - Multivitamins and iron supplements
  - Blood transfusion facility
  - Management of severe acute malnutrition
  - Oral potassium, oral rehydration solution including rehydration solution for malnutrition, enteral feeding
- Desirable therapeutics
  - Non-invasive ventilation for co-existing acute type 1 respiratory
  - failure, COPD exacerbations.
  - Facilities for invasive ventilation
  - Surgical expertise: Chest tube insertion for pneumothorax and empyema, laparotomy, ventriculoperitoneal shunt, spinal decompression, decortication surgery
  - Bronchial artery embolism for control of massive hemoptysis

These services have been mapped against different levels of health facilities as per the expected norms of Indian Public Health Standards (IPHS).

States are expected to prepare a line-list of such referral facilities and details of therapeutic services available in them. This line list and contact details should be available at all health facilities to enable smooth referral pathways.

Annexure 5: Roles and responsibilities of stakeholders

Cadre	Role
Accredited Social Health Activist (ASHA)/ TB Champions	• Facilitate patient referral process as suggested by health facility for managing co-morbidities. • Facilitating TB patients by availing risk stratification done every month. • Carry out awareness among Persons with TB and the general population: • Regularly monitor basic clinical parameters and routine investigations of persons with TB. • Health promotion activities
Multipurpose Worker/Auxiliary Nursing Midwife (MPW/ANM)	• Identify and refer Persons with TB to appropriate nearby AAM/public health facilities. • Prioritize patients with TB and other comorbidities, such as diabetes, hypertension, and nutrition, while they complete the Community-based Assessment Checklist (CBAC). • Support ASHAs in their role to create awareness. • Help CHO for regular monitoring of basic clinical parameters viz. Temperature, Pulse, Respiratory rate, BMI, BP, RBS, etc. • Supervision and monitoring of ASHA for differentiated care-related activities
Senior Treatment Supervisor (STS)/ TB- HV/District PPM Coordinator	• Coordinate with the PHI/AAM team (and health facilities under other Ministries) and monitor triaging, referral, and follow-up of persons with TB. • Coordinate with the PPSA agency to ensure all Persons with TB from the private sector are also being followed up for regular health status monitoring. • Ensure supplementary treatment card is filled and Ni-kshay data entry • Build capacity of frontline workers to use Ni-kshay information for better patient management • The district PPM Coordinator must ensure these services are available for patients seeking care in the private sector. • Check the AI-based risk status of the TB patient (for adverse TB treatment outcome) on Nikshay and follow them monthly to identify non-adherence to treatment or the emergence of any risk factor for adverse TB treatment outcome (death or LFU).
Community Health Officer (CHO)	• Ensure monthly monitoring of vitals as per the guidelines of Persons with TB, carry out a basic clinical assessment of the patients in the catchment area of AAM, stratify patients based on risk, and ensure appropriate referral to patients identified with special risk. • Use of telemedicine platform for specialist consultation wherever possible. • Fill out the supplementary treatment card for TB Patients for the parameters assessed at AAM
Medical Officer (MO)	• Carrying out a basic clinical assessment of the patients, stratifying them by risk, and ensuring appropriate referral to patients identified with special risk. • Fill out the supplementary treatment card for Persons with TB for the tests carried out at PHC/ CHC. • Identify alternate facilities where investigations such as serum creatinine and serum urea can be carried out if the same is not available at the PHC/AAM • Ensure timely and complete data entry on Nikshay at the time of treatment initiation • Monitor Differentiated TB Care-related activities at Ayushman Arogya Mandir.
Patient-Provider Support Agency (PPSA)	• Ensure the linkage of persons with TB with nearby public health facilities or private health facilities if the patient desires to ensure all patient assessments are carried out as per the guidelines. • Create awareness among private practitioners on the need for regular monitoring of basic clinical parameters (vitals, general conditions, etc.) and routine investigations of active Persons with TB • Ensure timely and complete data entry on Nikshay at the time of treatment initiation
District Tuberculosis Officer (DTO)	• Ensure that baseline assessments of health facilities are carried out to identify the appropriate health facility to monitor clinical parameters and routine investigations. • Coordinate with the District and State NHM authorities to ensure appropriate investigations are available in the health facilities per the various program guidelines. • Identify appropriate health facilities for inpatient care to Persons with TB based on the referral criteria listed in the guidelines, both public as well as PMJAY empanelled private hospitals for benefit packages covered in PMJAY for the eligible beneficiaries • Ensure timely and complete data entry on Nikshay at the time of treatment initiation • Monitoring the indicators related to Differentiated TB Care

Annexure 6: Verbal Autopsy Form

Name of the head of household | NIKSHAY ID: | YEAR:

Full Name of the deceased:

Section 11 Details for respondent and deceased

Details of respondent

1. Name of respondent

2. Relationship of respondent with deceased

☐ 1. Wife/Husband ☐ 7. Brother-in-law! Sister-in-law

☐ 2. Brother/Sister ☐ 8. Parent-in-law

☐ 3. Son/Daughter ☐ 9. Grandfather/Grandmother

☐ 4. Mother/Father ☐ 10. Other relative

☐ 5. Grandchild ☐ 11. Neighbour/No relation

☐ 6. Son-in-law/ ☐ 99. Unknown

Daughter-in-law

3_ Did the respondent live with the deceased during the events that led to death?

☐ 1. Yes ☐ 2. No ☐ 99. Unknown

4. Respondent's age in completed years

5. Respondent's sex ☐ ., Male ☐ 2. Female

6. What is the highest standard of education the respondent has completed?

☐ 0. Illiterate and literate with no format education

☐ 1. literate, Primary or below ☐ 4. Literate. Class XII

☐ 2. Literate, Middle ☐ 5. Graduate and above

☐ 3. Literate, Metric Class-X ☐ 99. Unknown

7. Religion of the Head of the household

☐ 1. Hindu

☐ 2. Muslim

☐ 3. Christen

☐ 4. Sikh

☐ 5. Buddhist

☐ 6. Jain

☐ 7. No religion

☐ 8. Other

☐ 99. Unknown

Details of deceased

8. Deceasen's Sex ☐ 1. Male ☐ 2. Female

9. Age of Deceased Years: ☐☐

10. Relationship of the deceased with the head of the household

☐ 1. Wile/Husband ☐ 7. Brother-In-law/

☐ .2 Brother/Sister Sister-in-law

☐ 3. Son/Daughter ☐ 9. Parenlein-law

☐ 4. Mother/Father ☐ 9. Grandfather/Grandmother

☐ 5. Grandchild ☐ 10. Other relative

☐ 6. Son-in-law/ ☐ 11. Neighbour/No relation

Daughter-in-law ☐ 12 Self ☐ 99. Unknown

11. What is the highest standard of education the deceased had completed?

☐ 0. Illiterate and literate with no format education

☐ 1. literate, Primary or below ☐ 4. Literate. Class XII

☐ 2. Literate, Middle ☐ 5. Graduate and above

☐ 3. Literate, Metric Class-X ☐ 99. Unknown

12. What was the occupation of the deceased?

☐ 1. Non-worker ☐ 6. Agricultural wage labour

☐ 2. Salaried ☐ 7. Non agricultural wage labour

☐ 3. Wage earner ☐ 8. Student

☐ 4. Profession/Business ☐ 9. Other

☐ 5. Cultivator/Farmer ☐ 49. Unknown

13. Date of Death D D/M M/Y Y Y Y ☐☐/ ☐☐/ ☐☐☐☐

14. How many years did the deceased live at this address?

15. Place of Death?

☐ 1. Home ☐ 4. District Hospital ☐ 99. Unknown

☐ 2. On way to health facility ☐ 5. Private Hospital

☐ 3. PHC/CHC/Rural Hospital ☐ 6. Other place

16. House address of the deceased

_____

_____

_____

16B. PIN ☐☐☐ ☐☐☐

17. What did the respondent think that this person died or? (Allow the respondent to tell the illness in his or her own words)

_____

_____

_____

Section 2: Past history

Had a doctor EVER slated that the deceased had the following diseases?

	1 Yes	2. No	99. Unknown
18. Hypertension	☐	☐	☐
19. Heart disease	☐	☐	☐
20. Stroke	☐	☐	☐
21. Cholesterol problem	☐	☐	☐
22. Diabetes	☐	☐	☐
23. Tuberculosis	☐	☐	☐
24. HIV/AIDS	☐	☐	☐
25. Cancer (write site in narrative)	☐	☐	☐
26. Asthma	☐	☐	☐
27. Other chronic Illness (specify in narrative)	☐	☐	☐

28.Was the deceased taking any medications regularly during the last five years? (Record up to three in Hindi or English only).

1. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
2. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
3. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

First, ask the following questions for the deceased (First Column), and then ask them for the main respondent (second column)

Tobacco, alcohol and diet	Deceased (Ask first)	Respondent (Ask second)
29A. Did s/he smoke tobacco within the last 5 years?	1. Definite Yes 2. Definite No 99. Unknown	1. Definite Yes 2. Definite No 99. Unknown
29B. If yes, how many bidis per day?		
29C. If yes, how many cigarettes per day?		
29D. Any other tobacco smoked?	1. Definite Yes 2. Definite No 99. Unknown	1. Definite Yes 2. Definite No 99. Unknown
30A. Did s/he chew tobacco within the last 5 years?	1. Definite Yes 2. Definite No 99. Unknown	1. Definite Yes 2. Definite No 99. Unknown
30B. Did s/he apply tobacco within the last 5 years?	1. Definite Yes 2. Definite No 99. Unknown	1. Definite Yes 2. Definite No 99. Unknown
31A. Did s/he normally drink alcohol (use local term) at least once a week during most weeks in the last 5 years?	1. Definite Yes 2. Definite No 99. Unknown	1. Definite Yes 2. Definite No 99. Unknown
31B. If yes, whatwas the average no of days per week Who drank?	_____ days OR Unknown	_____ days OR Unknown
31C. If yes, what type of alcohol was most commonly consumed?	1. Country liquor 3. Indian made foreign liquor 2. Toddy 4. Beer 5. Other	1. Country liquor 3. Indian made foreign liquor 2. Toddy 4. Beer 5. Other
32. Was s/he a pure vegetarian (consumed no egg, meat or fish) for the last 5 years?	1. Definite Yes 2. Definite No 99. Unknown	1. Definite Yes 2. Definite No 99. Unknown

For female deaths aged 15-49 ask:

33. Was she either known or suspected to be pregnant or within 42 days of delivery or abortion?

1. Yes 2. Definite No if YES to question Q33 then DO NOTcomplels narrative below complete Farm 10C and copy the Form 10D number here all that apply, and then use symptom list for narrative)

34. Key symptoms preceding death (check all that apply, and then use symptom list for narrative)

1. Coughing of blood
2. Severe shortness of breath
3. Fainting or giddiness
4. Vomitting, loss of appetite, pain in abdomen
5. Yellowish discolouration of eyes and urine
6. Sudden chest pain
7. Irrelevant behavior or talk
8. Palpitations
9. Seizures/fits
10. Fever
11. Weight loss
12. Paralysis/stroke
13. Urinary problems
14. Diarrhoea/dysentery
15. Odeme (swelling)
16. Severe Weakness

35. Narrative language code

Section 3: Written narrative in local language

Please describe the symptoms in order of appearance, doctor-consulted or hospitalization, history of similar episodes, enter the results from reports of the investigations If available.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Respondent's cooperation: 1. Good 2. Poor

Interviewer name: Desig:

Date: dd / mm / yy

Signature/Impresion
Respondent
Interviewer

Annexure 7: Community BasedTB Death Review

District: TU Name:

SECTION A : General information

A1. Name of the head of the household : _____
A2. Name of the deceased : _____
A3. Date of Death : _____
A4. Patient Died in IP / CP : _____
A5. Place of death : _____
[At Home / In Transit / Health Facility (AAM, PHC, BPHC, RH, SDH/SGH, DH, MCH, Pvt. Hosp.)]
A6. Name of the institution with address : _____
(if institutional death) _____
A7. Nikshay ID : _____
A8. Type of case (DSTB / DRTB) : _____

SECTION B : Details of the Respondent

B1. Name of the respondent : _____
B2. Relationship of the respondent with the deceased : _____
B3. Age of Respondent (Yrs) : _____
Sex of respondent (M/F/T) :_____ Contact no :_____
B4. Respondent ever suffered from TB : _____
B5. Respondent ever attended any community meeting where TB disease discussed? (Y/N) :_____
B6. If yes, the where : _____

SECTION C : Details of the Deceased

C1 . Age in years when died : _____
C2 . Sex of the deceased (M/F/T) : _____
C3 . Religion (Hindu, Muslim, Christian, Other) : _____
C4 . Caste (Gen, OBC, SC, ST, Other) : _____
C5 . Education Standard (Illiterate, 4th, 8th, 10th, 12th, Graduate) : _____
C6 . Occupation (Non- worker, Wage earner, Student, Farmer, Salaried,
Business, Professional) : _____

C7 . Residential address:

Village : _____ Town : _____ Ward : _____ Building name : _____

Street Name : _____ Sub Division : _____ District : _____ State : _____

C8 . Name of ASHA of the area Mobile no of ASHA

C9 . Name of the Sub Centre (SC)

Name of 1st ANM Mobile no

Name of 2nd ANM Mobile no

Name of the GP /ward

Name of GP Supervisor Mobile no

C10.Name of the PHC / UPHC

Name of MOIC Mobile no

C11.Name of the BPHC

Name of BMOH

Mobile no

C12. Cause of death in Death Certificate : _____ (If available)

SECTION D : Past History

D1. Patient suffered from any of the following disease (yes/ no) If yes then duration

D1.1 - Tuberculosis	Y/N		D1.8 - Lipid disorder	Y/N	
	Last episode Days back			Duration (Days)	
D1.2 - Hypertension	Y/N		D1.9 - Stroke/ CVA	Y/N	
	Duration (Days)			Last episode Days back	
D1.3 - Asthma	Y/N		D1.10 - HIV/AIDS	Y/N	
	Duration (Days)			Duration (Days)	
D1.4 - Heart disease	Y/N		D1.11	If HIV reactive on ART, Started on	
	Duration (Days)			If HIV reactive on CPT, Started on	
D1.5 - Cancer	Y/N			Date of starting TPT (if ever)	
	Duration (Days)		D1.12	was the person on treatment for any of the diagnosed co-morbidities?)	
D1.6 - Diabetes	Y/N				
	Duration (Days)				
D1.7 - Other chronic disease, if any	Y/N				
	Name of the disease				
	Duration (Days)				
	Last episode Days back				

SECTION E : Other Vulnerability information of the deceased

		Y/N	Duration (Days)		
E1	Migrant				
E2	Worker in mine/brick field				
E3	Worker in Stone crusher/ Cement factory				
E4	Used smoke tobacco in last 5 years			Type of tobacco (If E4 yes) – (Bidi / Cigarette)	
E5	Chewed tobacco in last 5 years				
E6	Alcoholic			(If E6 yes) - (Everyday / Occasional)	Type of alcohol (If E6 yes)- (Country,Foreign)

SECTION F : Current Tuberculosis Treatment Details

Sl. No.	Particular	Details
F1	Case Type	Microbiologically Confirmed / Clinically Confirmed
F2	If Microbiologically confirmed diagnosed by	Microscopy BM / Microscopy FM/ TrueNAAT/ CBNAAT/ Culture/ other (specify)
F3	If Clinically confirmed basis of diagnosis	Clinical, CXR, MRI / CT, FNAC, Other (specify)
		Specify if other :
F4	Site of disease	Pulmonary, Extra- Pulmonary
F5	Type of Case according to past TB Rx	New, Retreatment-Recurrent, Retreatment-Treatment after failure, Retreatment-Treatment after lost to follow-up
F6	If Microbiologically Confirmed Pulmonary case, grade of sputum result (if applicable)	
F7	Date of development of current symptoms	

Sl. No.	Particular	Details
F8	Number of visits within last six month by field staff (ANM/ASHA) made to patient before he/she attended first time in health facility for current Diagnosis?	
	If the pt visited heath centre, earlier to this visit then date of visit	
	Brief report of examination details of that visit	
F9	Date of 1st visit by health staff while current symptoms developed & referred	
F10	If patient not attended health facility next visit done by Health Staff on	
F11	Date of health facility visited by patient for same ailment followed by referral of health staff	
F12	Name of Health Facility visited by patient	
F13	Type of facility (Govt. / Pvt)	
F14	Date of Govt. health facility visit by patient for same ailment	
F15	Sputum sample given on	
F16	Place of Sputum Sample collection	Home, SC, DMC PHI, Non DMC PHI, Pvt.
F17	1st sample collection date	
F18	2nd sample collection date	
F19	Sputum sample result delivered on (date)	
F20	How many times sputum examined in government health facility for same ailment?	
F21	How many times sputum examined in private health facility for same ailment?	
F22	CXR done along with Sputum microscopy? (Y/N)	
F23	Date of CXR	
F24	Where CXR done ?	(Gvot. / Pvt)
	Name of the facility	
F25	Date report delivery	
F26	Impression of CXR--	

Sl. No.	Particular	Details
F27	If diagnosed based on microscopy then sample sent for UDST (Y/N)	
F28	Date of sample sent for UDST	
F29	Date of put on DSTB treatment on	
F30	Gap of days between symptoms developed and diagnosis? (No. of Days)	
F31	Gap of days between diagnosis and treatment initiated? (No. of Days)	
	Gap of days between diagnosis and sample sent for UDST (No. of Days) if gap > 3 days then what is the reason	
F32	Date of collection of sample for UDST	
F33	Place of collection (Name of the institution)	
F34	Date of sending for UDST	
F35	Name of the lab sent for UDST	
F36	Sample received at laboratory for UDST on	
F37	Sample tested for UDST on	
F38	UDST Result delivered on	
F39	Initiated on treatment? (Yes/ No)	
F40	Type of regimen	1. DS-TB regimen 2. H mono/poly DR-TB regimen 3. BPaLM regimen 4. Shorter oral MDR-TB regimen 5. Longer oral M/XDR-TB regimen 6. Any other regimen (specify)
F41	Date of treatment initiation	
F42	Gap in no. of days between diagnosis and treatment initiation	
F43	When was the last dose of ATT taken?	
F44	Is the patient counselled by MO/ any health staff?	(Y/N)
F45	Date of initial home visit	

Sl. No.	Particular	Details
F46	Initial home visit done by	
F47	Who was the treatment supporter?	
F48	If family DOTs then DOT provider supervised by whom and how frequently?	
F49	How many times supervised by ASHA/ Community Volunteer/ AWW etc. within last 30 days before death?	
F50	latest date of supervision on	
F51	How many times supervised by ANM/ CHO/ MPHW/ MPHS etc. 30 days before death?	
F52	How many times supervised by STS 30 days before death?	
F53	Latest date of supervision by STS on	
F54	Family members are well aware about probable side effects of medicine?	(Y/N)
F55	What sign and symptoms developed before terminal illness of patient?	
F56	Date of development of illness	
F57	Does patient visited MO for those symptoms ?	(Y/N)
F58	Name of facility where visited?	
F59	Date of visit to MO:	
F60	Gap between development of symptom & consultation (No. of Days)	
F61	Name treating physician?	
F62	Advise given by MO	
F63	Does Field staff followed up after returning from health facility?	(Y/N)
F64	Date of follow up	
F65	Does the illness information percolated to MOTC / BMOH?	(Y/N)
F66	Date of intimation	
F67	Intimated by whom with designation	

Sl. No.	Particular	Details
F68	Action taken by BMOH/ MOTC	
F69	Was the illness information percolated to DTO?	(Y/N)
F70	Date of intimation	
F71	Intimated by whom with designation	
F72	Action taken by DTO	

SECTION G : Adherence

Sl. No.	Particular	Details
G1	Do patient taking medicine regular?	(Y/N)
G2	If G1 is no then what is the number of missed dose?	
G3	Reason for missed dose	
G4	Does pt received medicine in due time without gap?	(Y/N)
G5	If not supplied then reason	
G6	If pt is irregular whether retrieved?	(Y/N)
G7	Retrieved by whom?	
G8	How many doses are missed before pt is retrieved?	
G9	Date of intimation about irregularities to DTO on	
G10	What action taken by DTO	
G11	Date of sputum microscopy FU end of IP in DSTB	
G12	Delay in end IP FU test DSTB	
G13	Reason for delay	
G14	Expected number of FU (DRTB)	
G15	Number of FU tested	
G16	If FU less number of FU expected, then reason	
G17	Whether Bank account tagged in Nikshay for NPY?	(Y/N)
G18	Whether benefit generated?	(Y/N)
G19	Does patient received upto date benefit of NPY?	(Y/N)
G20	any other reason for not receiving NPY benefit	

SECTION H : ADR Adrressal

H1	Whether any side effects (ADR) reported	(Y/N)
H2	Date of ADR reporting	
H3	Date of ADR development	
H4	ADR reported to whom?	
H5	Is ADR addressed by MO?	(Y/N)
H6	Date of ADR addressed by MO	
H7	FU of ADR is done by whom?	
H8	Date of ADR FU	
H9	Whether ADR resolved on day of FU	(Y/N)
H10	If not then what action taken?	

SECTION I : Reproductive health care history (If Female patient)

I1	Is patient pregnant?	(Y/N)
I2	if I1 yes, Whether attended ANC clinic	(Y/N)
I3	No of visit	
I4	Latest date of visit	
I5	Is patient post natal period?	(Y/N)
I6	No of visit	
I7	Latest date of visit	
I8	Is there any pregnancy related complication identified?	(Y/N)
I9	if I8 yes, then what action is taken?	

SECTION J : Key symptoms preceding death

J1	Coughing of blood	(Y / N)
J2	Vomiting, loss of appetite	(Y / N)
J3	Pain abdomen	(Y / N)
J4	Irrelevant talk	(Y / N)
J5	Fever	(Y / N)
J6	Palpitation	(Y / N)
J7	Sudden chest pain	(Y / N)
J8	Paralysis	(Y / N)
J9	Urinary problems	(Y / N)
J10	Weight loss	(Y / N)
J11	Oedema	(Y / N)
J12	Severe weakness	(Y / N)
J13	Yellowish discoloration of urine	(Y / N)
J14	Fits/seizures	(Y / N)
J15	Shortness of breath	(Y / N)
J16	Diarrhoea / dysentery	(Y / N)
J17	Fainting	(Y / N)
J18	Other	(Y / N)

SECTION K : Interviewer input

K1	Narrative in local language (by the interviewer about the symptoms in order of appearance, doctor consulted, hospitalization, history of similar episodes, and enter the reports from the investigations if available)	
K2	Name of the interviewer Designation	
K3	Contact number	
K4	Date of interview	

Remarks (if any) :

Date :

Place: Signature of Team Members

Annexure 8: Facility BasedTB Death Review (FBTBDR) Form

1. Name of the District : ___
2. Name and Type of Health Facility:_____
3. Name of TB Unit (TU) : __
4. Name of Facility Nodal Officer:__Contact No. ___
5. Date of FBTBDR Committee Meeting:____/_____/_____

Background information of the deceased TB patient:

6. Name of deceased TB patient: ___
7. Age:_____Sex: ___ Religion :_____Inpatient No.__
8. Complete address _____
9. Contact / Mobile no. (if available) _____
10. Education: Upto 4th class / Upto 8th class/ Upto 10th class/ Upto 12th class/ Graduate/ Post Graduate
11. **Below Poverty Line – BPL certified / Self certified BPL / Not BPL**
12. Date and Time of admission:
13. Date and time of Death:
14. Duration of Hospital stay: _____Days___Hours
15. Duration of ICU stay (if applicable):_____ Days__Hours
16. Admission – Death interval:_____Days___Hours
17. Complaints at the time of admission:
18. Condition on admission:
    a. Stable
    b. Semi conscious responds to verbal commands
    c. Semi conscious responds to painful stimulus
    d. Unconscious
    e. Brought dead
19. Whether the patient was referred in from other / peripheral hospital: Yes / No.
20. Name of the referring hospital (if applicable):
21. Provisional diagnosis on admission:
22. Vital signs on admission:

23. Underlying medical condition / comorbidity if any: (e.g. severe under nutrition, HIV, uncontrolled diabetes, substance abuse, severe kidney disease, silicosis, organ transplant, malignancy, Covid – 19, mental illness, on immune-suppression therapy etc.)

24. History of past illness:

    a. Any major illness:

    b. H/o Tuberculosis:

25. History of present Tuberculosis treatment:

    a. Patient started taking ATD from which date –

    b. Regular ATD intake – Yes / No

    c. Whether Follow – up examination done – Yes / No

    d. Latest examination / investigation done –

        • Tests done with date -

        • Result of the tests -

26. Details of investigations done at the present hospital – (mention the investigations done with their results – chronologically),

27. Details of co-morbid conditions (if any) along with treatment details.

28. Details of Treatment given in the present hospital:

29. Whether Blood transfusion was given ? Yes / No.

30. If yes, mention of no. of units transfused –

    a. Whole Blood -

    b. PRBC -

    c. FFP -

    d. Platelets –

31. Specify if any transfusion reaction occurred ? Yes / No.

32. Primary diagnosis / condition leading to death__

33. Cause of Death:

    a. Primary cause –

    b. Antecedent causes –

        • Due to or as a consequence of ___

        • Due to or as a consequence of ___

        • Due to or as a consequence of ___

34. Whether Autopsy done - Yes / No.

- If performed please report the final diagnosis and send the detailed report later.

35. IN YOUR OPINION WERE ANY OF THESE FACTORS PRESENT ?

System	Issues	Yes	No	Not known
Deceased TB patient / Family	Delay in seeking help by the deceased or their family members			
	Refusal of treatment or admission			
	Refusal of admission in previous facility			
Logistical Problems	Lack of transport from home to health care facility			
	Lack of transport between health care facilities			
	Lack of assured referral system			
Facilities	Lack of facilities, equipment or consumable			
HR problems	Lack of human resources			
	Lack of expertise, training or knowledge			

36. CASE SUMMARY (please provide a short summary of the events surrounding hospital stay and the death of the TB patient):

Remarks (if any) :
Date :
Place: Signature of Team Members

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