



# Long-term TB Outcomes

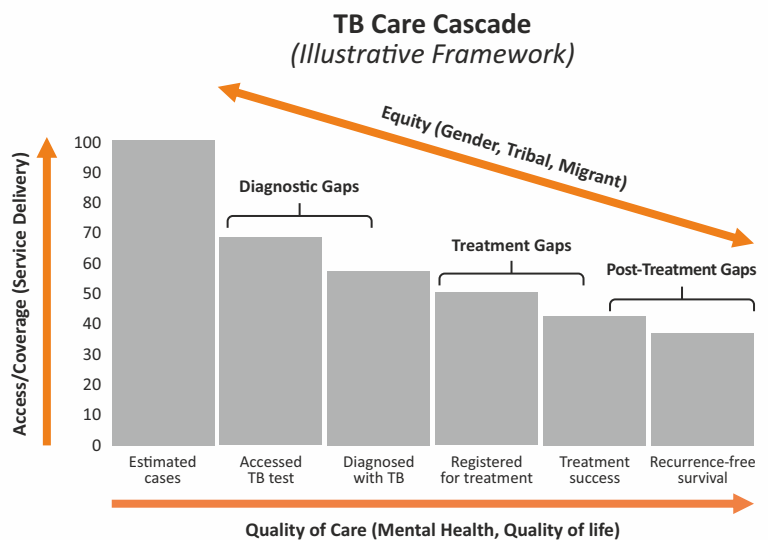
## Early detection and management of TB recurrence and pulmonary rehabilitation

### Project Brief

**Closing the Gaps in TB Care Cascade (CGC)** is a four-year (2020-2024) project funded by USAID and implemented by World Health Partners (WHP)-led consortium consisting of Indian Institute of Public Health Gandhinagar (IIPHG); Everwell Health Solutions; Harvard Medical School; and Leapfrog to Value. It is implemented in 4 districts: Ranchi & East Singhbhum (Jharkhand) and Surat & Gandhinagar (Gujarat).

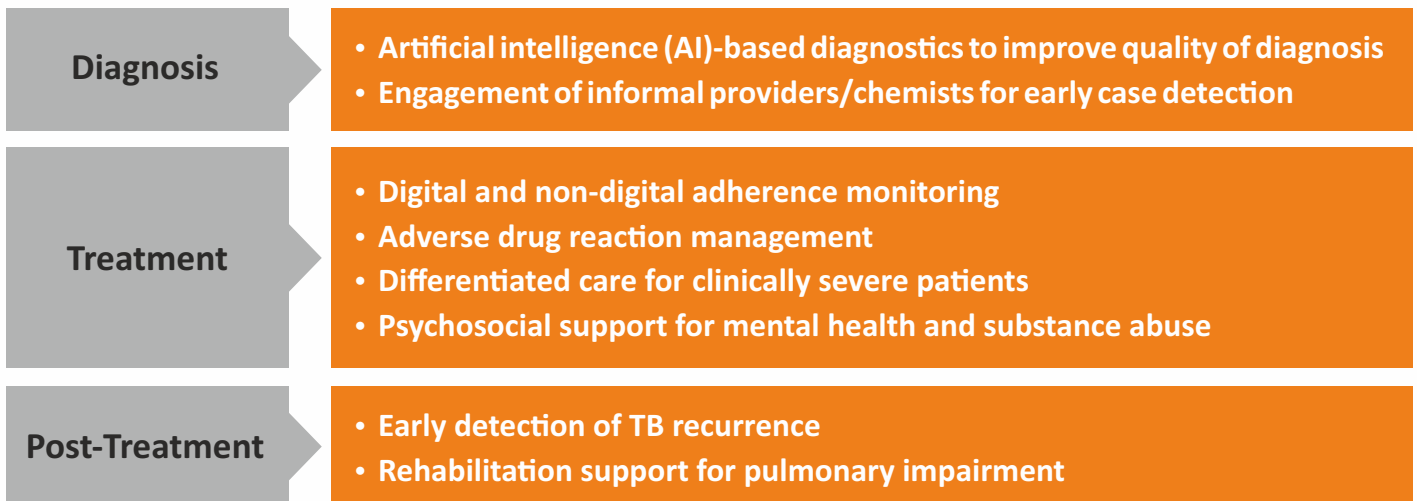
The TB care cascade visualizes various stages of gaps in TB care delivery. The gaps represent patient losses in the ability to access a TB diagnostic test; receive an accurate diagnosis; access TB treatment; adhere to daily medication; and remain TB-free post-treatment. CGC care cascades are monitored at a district level, aligned with local TB epidemiology and local health systems guided by Access, Quality, and Equity of TB care.

CGC builds on demonstration models by employing five key cross-cutting solutions to overcome and address care cascade gaps, critical barriers, and achieve fundamental change to support Government of India's (GoI's) vision of a 'TB-Free India'.



- 1. Behavioural Design:** Deployed to understand and improve patient engagement. Existing services, products, environment, and barriers are identified to map out a preferred behavior continuum from the first sign of symptom (cough) to treatment completion (cure).
- 2. Quality Improvement:** Routine monitoring of cascade gaps to iterate interventions and optimize processes. Systems thinking, routine measurement, and data-informed assessments are applied to routinely diagnose, and improve shortcomings in processes.
- 3. Value-based Care:** Monitoring quality of life metrics, as prioritized by patients. Care-oriented program metrics are aligned and linked to program dashboards and patient-centric outcomes.
- 4. Systems Strengthening:** Sensitize NTEP staff on ongoing developments and interventions to coordinate the care cascade. Nikshay development to support workflows and digital training platforms for more rapid and efficient reach.
- 5. Impact Evaluation:** Baseline and end line evaluation of gaps in the district care cascade.

CGC applies a monitoring framework and implements interventions to address diagnostic, treatment, and post-treatment gaps at each sequential stage of the TB care cascade.



Twenty-eight Care Coordinators are engaged in the intervention districts for demonstration, capacity building, and transition to the district health system. WHP will establish a technical support unit (TSU) to integrate care cascade monitoring frameworks into health systems. Project learnings will be translated to policy guidance documents for the National Tuberculosis Program.

## Intervention: Long-term TB Outcomes

### Background

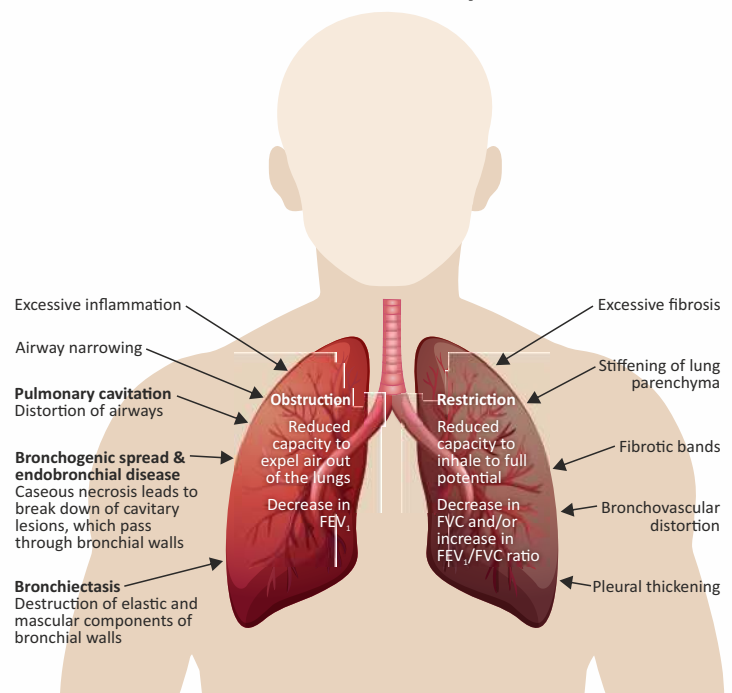
Patients who finish TB treatment remain at risk of experiencing a second episode of TB (recurrence) or death post-treatment, partially reflecting the quality of care patients received through the care cascade. Undiagnosed drug resistance and medication non-adherence are examples of factors associated with increased risk.

Even if recurrence or death is not observed, pulmonary TB survivors frequently experience structural and functional lung impairment. Up to half of TB survivors have some form of persistent pulmonary dysfunction despite microbiological cure, ranging from minor abnormalities and, severe breathlessness to the development of chronic lung disease.<sup>1</sup>

As per the National Tuberculosis Elimination Programme (NTEP) guidelines, successfully treated TB patients should be followed-up at 6, 12, 18 & 24 months' post-treatment. TB symptomatic patients should subsequently undergo diagnostic testing.

However, no routine surveillance is currently conducted for long-term TB outcomes, and little is understood about quality of life post-treatment.

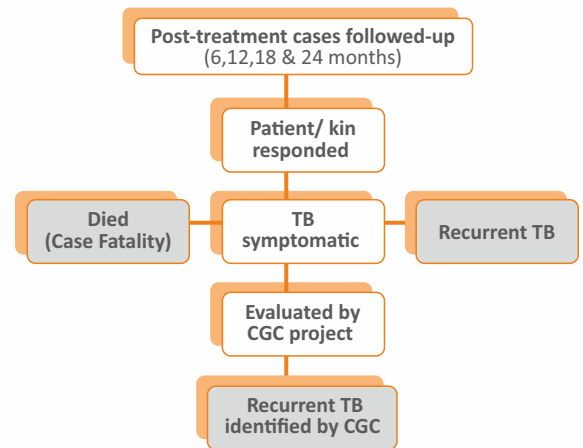
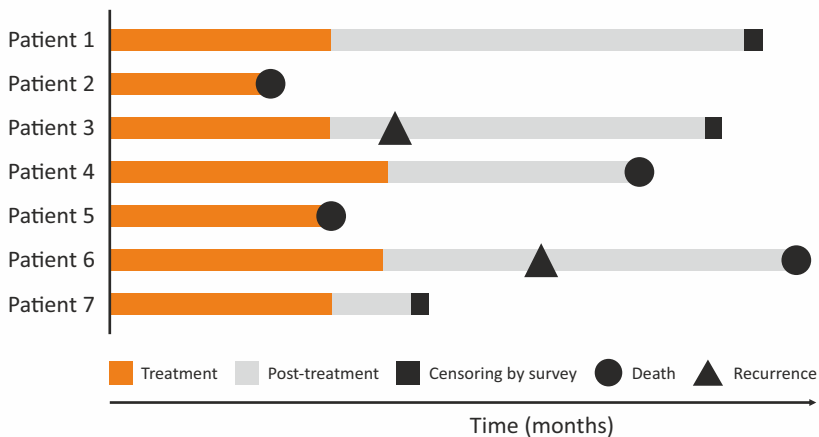
**Features Associated with Pulmonary Impairment in Patients with a History of TB<sup>1</sup>**



1. Tuberculosis and lung damage from epidemiology to pathophysiology Shruthi Ravi Mohan, Hardykorflid, Drewwissman, Gregoryp. Bisson European Respiratory review 2018 27: 170077

## Intervention Workflow

### Treatment initiation



## Pulmonary Rehabilitation

Care Coordinators conduct assessments and facilitate case management of patients suffering from pulmonary impairment.

Assessment	Case Management
<p>Eligible patients are assessed post-treatment for pulmonary impairment:</p> <ul style="list-style-type: none"> <li>• Medical history of the patient</li> <li>• Assess breathlessness with Modified Medical Research Council (mMRC) dyspnoea scale</li> <li>• Assess exercise capacity with walk tests</li> </ul>	<p>Patients meeting screening criteria are enrolled in pulmonary rehabilitation programs.</p> <ul style="list-style-type: none"> <li>• Facilitation of 8 to 12-week home-based exercise &amp; training programs to improve lung capacity</li> <li>• Severe conditions are referred to a network of pulmonologists with the required care coordination</li> </ul>

## Early Findings

Initial data for the intervention are indicated below:

*15th October 2020 to 30th June 2021*

**N=29,999 follow-ups completed**

% Patients reporting a subsequent episode of TB: **4.6% (1,383)**

Case Fatality: **5.3% (1,587)**

**16.5% (229 TB episodes out of 1,383)** additional detection of recurrent cases by CGC

## Subsequent Learnings

- Risk factors associated with TB recurrence to inform care cascade interventions
- Prevalence and severity of pulmonary impairment among post-treatment patients
- Eligibility for rehabilitation support and establishment of referral network
- Dissemination of findings with respective state government



**About WHP:** World Health Partners (WHP) is a non-profit Indian society that sets up programs to bring sustainable healthcare within easy access to underserved and vulnerable communities. It innovatively harnesses already available resources more efficiently by using evidence-based management and technological solutions. WHP is best known for its programs focused on early detection and treatment of tuberculosis in urban and rural settings supported by community-based activities to ensure prevention. The organization uses all available resources--both in the public and private sectors to ensure that people living in any part of the country will have access to high-quality treatment.

For more information, please contact : Ms. Prachi Shukla, Country Director, World Health Partners (WHP), A 151 , Block A, Sector - 72, Noida - 201301, India, [info@whpindia.org](mailto:info@whpindia.org)