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Universal health coverage and tuberculosis care in India in the times of Covid-19: Aligning Ayushman Bharat (National Health Assurance Scheme) to improve case detection, reduce deaths and catastrophic health expenditure

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ABSTRACT

India has the largest global burden of new cases of tuberculosis (TB) and deaths due to TB. These occur predominantly in the poor who suffer catastrophic costs during diagnosis and treatment. The National Tuberculosis Elimination Programme has ambitious goals of 80% reduction of incidence of TB, 90% reduction in mortality due to TB by 2025 and 0% occurrence of catastrophic costs to households affected by TB by 2020. The Covid-19 pandemic and the resulting disruption to TB services are expected to worsen the situation. There are gaps in case finding at the peripheral level and access to care at the higher level for patients with TB. An estimated 32% patients with active TB do not access diagnostic services, while catastrophic costs associated with hospitalization are a barrier to access for seriously ill patients. Deaths due to TB in India occur largely at home and not in medical facilities, and are preventable with appropriate inpatient care. The Ayushman Bharat scheme with its Health and Wellness Centres (HWCs) and coverage for inpatient care under the Pradhan Mantri Jan Arogya Yojana (PM-JAY) can facilitate, the achievement of the goals of TB elimination. The HWCs provide an opportunity to close the case-finding gap as first point of contact by enabling sputum transport services to the designated microscopy centres. This will facilitate case detection, reduce diagnostic delays, and decrease community transmission and the incidence of TB. The benefit package of PM-JAY can cover patients with pulmonary TB, inpatient evaluation for other forms of TB, enhance the allocation for treatment and cover management of comorbid conditions such as severe undernutrition, anaemia, HIV and diabetes.

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INDIA AND THE END TB STRATEGY

Globally, India has the highest burden of tuberculosis (TB), with over 2.7 million new cases and an estimated 440 000 deaths annually.[1] We are committed to the WHO's End TB strategy and a time-bound reduction in three global indicators—incidence of TB, deaths due to TB and catastrophic costs incurred by families affected by TB.[2] The WHO targets for 2030 are to reduce deaths by 90% and incidence by 80%, and the Government of India (GoI) has committed to reaching these targets by 2025, 5 years ahead of the schedule. So, we have the task of achieving 0% catastrophic costs, a reduction of deaths to 312 000 by the end of 2020. Although there is a well-designed National Strategic Plan (NSP), increase in resources and political commitment, these milestones and targets are ambitious unless we optimize diagnostic and treatment services for TB.[3] The incidence of TB in India in 2015 was 2.84 million, which declined to 2.69 million in 2018, representing a cumulative decline of 5.3% in 3 years as against the required 20% reduction for the 2020 milestone. Similarly, the estimated number of deaths due to TB in India in 2015 was 48 000 which declined to 44 000 in 2018 representing a cumulative decline of 8.3%.[1,4] We are likely to fall considerably short of the 35% reduction required in deaths of TB to fulfil the 2020 milestone.

Challenges for TB case detection and treatment outcomes during the Covid-19 pandemic

The Covid-19 pandemic and the nation-wide response to it has implications for the vulnerability of individuals and populations to TB. This could be because of unemployment, loss of income, worsening of nutritional status and also prolonged household contact with any undiagnosed cases with active TB at home or in the community. A study estimated that this worsening of poverty and nutrition in India could increase the new cases by an estimated 186 000.[5] The access to and the provision of TB-related services have been impacted by the restriction on movements and the mobilization of community health workers, laboratory technicians and doctors for the Covid-19 response. In the 3 weeks after the lockdown was imposed, there was a decline of 75% in TB case notifications in the NIKSHAY portal, compared to the corresponding period in 2019.[6] Now, when TB services are being resumed, we may anticipate patients with more extensive disease after a diagnostic delay leading to worse outcomes. According to a modelling study, a 25% reduction of TB case detection for 3 months could increase the TB-deaths by 13% in 2020, reversing any gains made in reduction of deaths due to TB over the past 5 years. Deaths due to TB could increase by about 88 000 in 2020 according to estimates in India.[5] To avert this catastrophe, there is an urgent need to minimize delays in case detection, improve treatment services for those who may be seriously ill and at higher risk of death.

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Ongoing challenges in TB diagnosis, treatment outcomes and expenses incurred by patients

The National Tuberculosis Elimination Programme (NTEP) has plans to reach the unreached through decentralized TB diagnostic services and universal access to care.[7] However, challenges remain such as the issue of accessibility to TB services in the public sector for rural and marginalized populations and that of quality and cost in the private sector in India. The patient care pathway in India is marked not only by delay in seeking healthcare by patients, but also a considerable health system delay (composite of diagnostic and treatment delay), with a median time to diagnosis of 2 months or more.[8] The patient care cascade for TB has clarified the gaps in the diagnosis, initiation and adherence to treatment in India (Fig. 1).[9] As shown in Fig. 2, of the 2.8 million patients with incident TB in India in 2013, 32% did not access a TB diagnostic test.[9] This is a major gap in the TB care cascade and a challenge to the achievement of the objectives of the NSP (2017–2025).[10]

It is important to close the case-finding gap in the NTEP by providing TB diagnostic services at or near the point of first contact. The NSP emphasizes early identification of presumptive TB cases, and states that 'patients with presumptive TB should be identified at the first point of care, be it public or private sectors'.[10] The technical guidelines recommend smear microscopy and a chest X-ray in the diagnostic algorithm of all adults with presumptive pulmonary TB, and as essential screening test in the algorithm of diagnosis of children with pulmonary TB.[11] However,

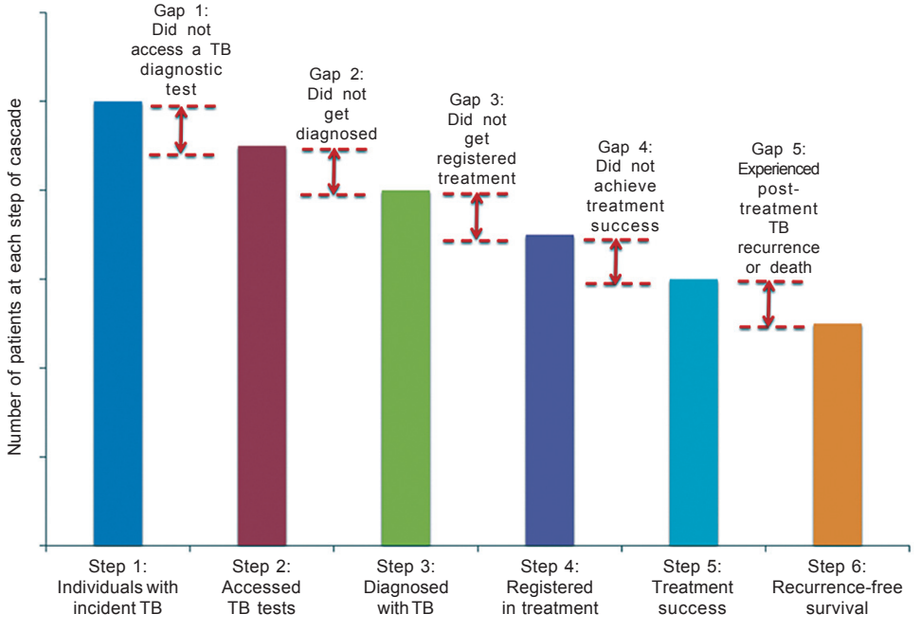

FIG 1. A generic tuberculosis (TB) care cascade illustrating the steps and gaps[9] (reproduced with permission)

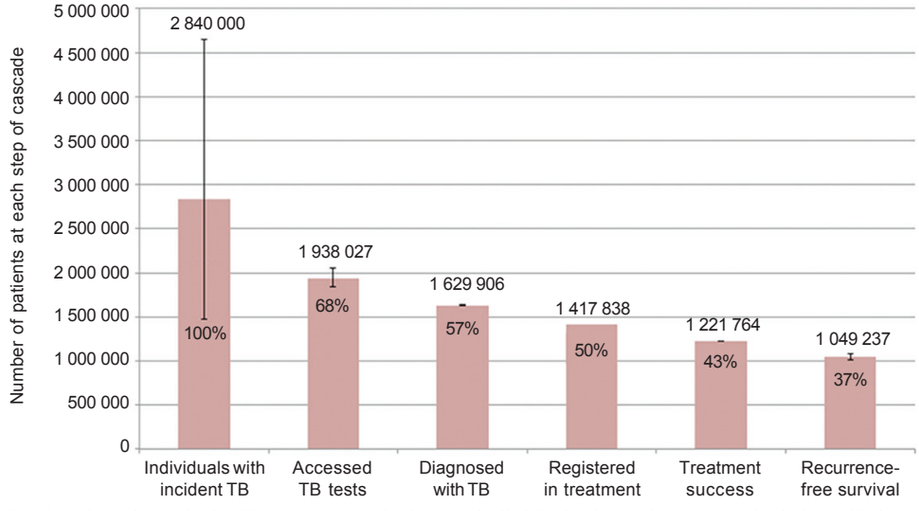

FIG 2. The tuberculosis (TB) care cascade for any individual with active tuberculosis in India in 2013[9] (reproduced with permission)

currently, a designated microscopy centre (DMC), which is the first point of diagnosis of active TB, serves a population of 100 000 people (50 000 in tribal areas). The distance that the patients need to travel often results in significant pre-treatment loss to follow-up and delayed initiation of treatment.[12] Access to radiology services is also difficult although these are recommended as an essential part of the Indian Public Health Standards for community health centres (CHCs). A survey found that nearly half to two-thirds of CHCs did not have a functioning X-ray facility due to the absence of equipment or a technician.[13] These problems of accessing TB diagnostic services are likely to be amplified after the onset of the Covid-19 pandemic.

Access to appropriate care for seriously ill patients with TB is critical in prevention of deaths and assumes importance in the light of the projected increase in deaths due to TB. These deaths are multifactorial in causation and are related to extensive disease (often due to delay in diagnosis and initiation of treatment), effects of comorbid conditions (severe undernutrition, severe anaemia, HIV infection, chronic respiratory disease, diabetes) and drug-resistant TB.[14] Many of these lives can be saved with risk assessment at the time of diagnosis and comprehensive clinical care including access to good quality inpatient services.[14] An estimated 85% of deaths in India occur at home and only a small fraction reach the hospital.[15] This is a reflection of poor access to inpatient care for severe disease, because of physical, economic and health system-related barriers.

A deterrent for seriously ill poor patients with TB in India to access inpatient care is the catastrophic costs incurred on hospitalization.[16] A study based on the 71st round of the National Sample Survey provides insights into patterns of hospitalization in patients with TB, costs incurred and the effects on the households.[16] The overall frequency of hospitalization was 3700/100 000 and that for TB was the lowest (50/100 000 population).[16] Of these, 64% of hospitalizations occurred in the public sector while 36% occurred in the private sector. The mean expenditure on hospitalization was ₹13 121 of which only 1% was reimbursed.[16] Forty-two per cent of TB affected households had to undergo catastrophic health expenditure and had to resort to distress financing by taking loans or selling assets.[16]

In a study from southern India, done largely on patients accessing care from the NTEP, more than 75% of patients were from households with a per capita income of less than US$ 1 per day, and incurred costs which exceeded 40% of their annual income.[17] More than 80% of this expense was incurred during the pre-diagnostic phase.

Thus, there is a need for improved and equitable access to TB diagnostic services at the primary care level and better access to secondary and tertiary care facilities. This will reduce delays, prevent deaths due to TB and eliminate catastrophic costs incurred in accessing outpatient and inpatient care.

Universal health coverage as a means to realizing the End TB goals

Universal health coverage (UHC) is defined by the WHO as ensuring that all people have access to needed health services of sufficient quality to be effective while also ensuring that the use of these services does not expose the user to financial hardship. In the End TB strategy, UHC is an important component of Pillar-2 and envisaged as the tool to reduce TB incidence and deaths. Universal access to diagnostic services will decrease diagnostic delays, which in turn will reduce the period of infectivity. Similarly, provision of quality treatment services including inpatient care for sick patients and those with comorbid conditions will reduce mortality.

ALIGNING THE NATIONAL HEALTH ASSURANCE SCHEME WITH TB ELIMINATION GOALS DURING THE PANDEMIC

The National Health Assurance Scheme 'Ayushman Bharat' is a Government of India initiative, launched with the goal of providing UHC in India.[18,19] It has two major components—the Health and Wellness Centres (HWCs) aimed at enabling primary care within a 30-minute travel time, and the Pradhan Mantri Jan Arogya Yojana (PM-JAY). The latter is a health insurance scheme that provides cashless cover of ₹500 000 per annum (US$ 6700) to the eligible disadvantaged households for inpatient treatment of listed conditions in secondary and tertiary care facilities.[18]

The National Health Assurance Scheme needs to be better aligned to address reaching the unreached through decentralized TB diagnostic services, community-based case finding and access to quality inpatient care to help achieve the TB-related targets.[15] In a high TB burden tribal area, case-finding increased by 58% and notification by 84% when persons with presumptive TB were screened by community health workers and encouraged to provide sputum, which was later transported to DMCs for examination.[20] When patients were provided referral to the DMC there was no uptake of the diagnostic services, because of issues of access.[20] We propose that in the rural and underserved populations, HWCs with their associated community health workers could be a sustainable loci of community-based active and passive case-finding, with provision of sputum collection and transport services, and this should be covered by Ayushman Bharat. There is currently a bottleneck of sputum transport from DMCs to the cartridge-based nucleic acid amplification test (CB-NAAT) machines at the district level. We need to cover the transport cost of smears from HWCs to DMCs and from DMCs to centres performing CB-NAAT.

There is a gap for patients, especially the poor, who are seriously ill and require inpatient care for extensive TB, its complications or comorbid conditions. The access to diagnostic services and inpatient care for such patients is limited in the PM-JAY, and needs urgent revision in five key areas.[21] First, the PM-JAY benefit packages do not include patients with pulmonary TB and they contribute to many deaths due to TB in India.[21] The coverage is currently limited to the management of patients with pleural, pericardial and neuro-tuberculosis,[21] but should be expanded to management of other forms of TB such as skeletal and vertebral, genitourinary and peritoneal TB. Second, the PM-JAY needs to cover the diagnostic procedures for serious forms of TB such as meningeal, intestinal and spinal TB where the costs are substantial. Third, there is a need to cover the management of comorbid conditions such as severe undernutrition, anaemia, uncontrolled diabetes and advanced HIV disease. Fourth, the daily limit of benefit provided for any condition associated with TB is ₹1800 (US$ 24) and is often inadequate to prevent catastrophic costs and this allocation needs enhancement.[21] Finally, in the case of a death due to TB, poor families find it difficult to pay for the hearse service, which has led to tragic incidents widely reported in the national and global media.[22] There should be a provision of transport without charge in such an eventuality. Any potential misuse of the scheme of hospitalization by private care providers can be prevented by outlining the criteria for hospitalization and regulatory oversight. A set of criteria for referral and inpatient care based on severity of malnutrition,

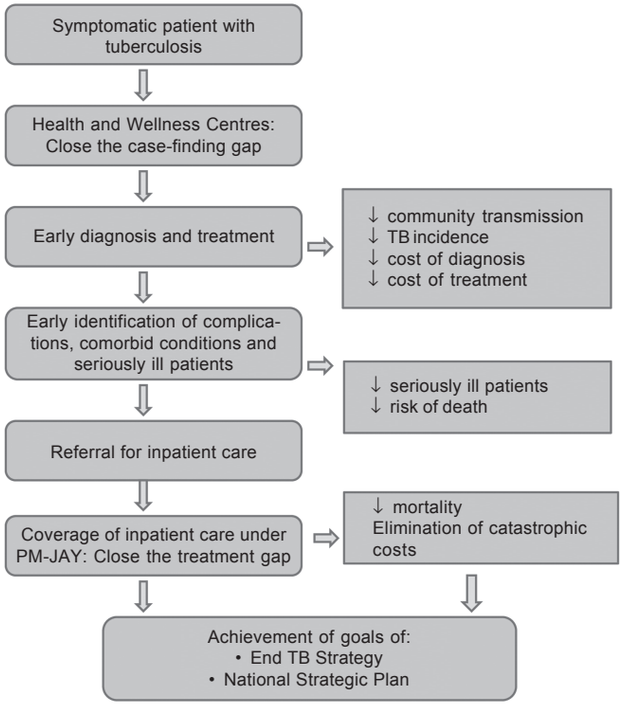

FIG 3. Aligning the National Health Assurance Scheme with goals of the National Strategic Plan for elimination of tuberculosis (TB) (2017–2025)

instability of vital signs, complications of disease, comorbid conditions and adverse effects in a NTEP document can be implemented.[23] Figure 3 describes this alignment of PM-JAY with the End TB strategy and NSP.

CONCLUSIONS

The NTEP has ambitious goals of reducing the incidence of and mortality due to TB and elimination of catastrophic costs for patients with TB. But any gains in the past few years are under threat during the Covid-19 pandemic. The Ayushman Bharat scheme (HWCs and PM-JAY) is currently India's vehicle for delivery of UHC at multiple levels and requires urgent alignment with the NTEP goal. We suggest community-based active and passive case-finding and decentralization of diagnostic services involving HWCs by enabling establishment of sputum transport services. There is a need to close the treatment gap for poor patients who are seriously ill and require inpatient care to reduce deaths due to TB. PM-JAY should provide coverage to patients with pulmonary TB, expand coverage to cover diagnostic and therapeutic procedures for all forms of TB, raise the allocation per day for management of seriously ill patients, cover management of comorbid conditions such as severe undernutrition, anaemia, HIV and diabetes and provide free hearse services to poor families for transport of patients dying of TB.

Disclaimer

The opinions expressed in this article are those of the authors and do not reflect the view of Yenepoya (Deemed to be University) or National Institute for Research in Tuberculosis.

Conflicts of interest. None declared

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