

POLICY CONSIDERATIONS ON TB AND NUTRITION

This policy brief has been developed in collaboration with the Global Coalition against TB, a multi-partisan group of parliamentarians, and Global Health Strategies. It provides recommendations based on the evidence generated by the RATIONS (Reducing Activation of Tuberculosis by Improvement of Nutritional Status) trial and other relevant publications.

Key messages

1. TB treatment outcomes can be improved by providing nutrition support to people with TB.
2. Deaths among TB patients can be reduced by providing nutrition support.
3. Number of persons developing TB disease (incidence) can be reduced by providing nutrition support to the undernourished and vulnerable groups.
4. Catastrophic costs to families afflicted by TB can be reduced by providing nutrition support.
5. All persons with TB should be regularly assessed for malnutrition at the start and during treatment

Background

The bi-directional relationship between Tuberculosis (TB) and nutrition has been well established¹². WHO South-East Asia Region that bears a disproportionately high burden of TB with nearly 5 million persons developing the disease in 2022. Among these among more than 1 million were attributable to undernutrition. There were also more than 630,000 deaths due to TB in the same year³.

Undernutrition, characterized by deficiencies in essential nutrients, weakens the immune system, making individuals more susceptible to developing the TB disease⁴⁵. A compromised immune response due to poor nutrition can reduce the body's ability to contain TB, thereby increasing the risk of active disease development. According to the WHO, undernourished TB patients are twice at-risk of dying, as compared to non-malnourished patients. Malnutrition not only raises the likelihood of contracting TB but also exacerbates its severity⁶.

Undernourished patients have delayed recovery and higher mortality rates when treated; on the other hand, nutritional status usually improves with TB chemotherapy⁷.

While this relationship has been routinely acknowledged and has even inspired policy action by certain National TB Programmes (NTPs), new evidence has added a new dimension to our understanding of this bi-directional relationship between TB and nutrition. The pathbreaking RATIONS (Reducing Activation of Tuberculosis by Improvement of Nutritional Status) trial⁸, conducted between 2019 and 2021, highlights the vital role of nutrition in reducing deaths among people living with active TB, as well as preventing incidence among household contacts of TB patients. The study results published in *The Lancet*, showed that early weight gain in patients can lead to a host of positive TB outcomes, including a 60% lower risk of TB mortality and a higher treatment success rate. Similarly, nutritional support to household contacts of PTB patients can reduce incidence of all forms of TB by 40% and infectious TB by 50%⁹. The trial, thus, underlines the potential role of nutrition as a public health intervention.

Considering the new empirical evidence generated through the RATIONS trial, it is critical to strengthen the existing policies regarding nutritional support to TB patients and their families.

Policy suggestions

Several nutrition as well as cash transfer benefits schemes are being implemented within different SEAR countries. While some of the Member States have specific nutritional support schemes for TB patients, there are also a wide range of social and nutritional support schemes for vulnerable populations, which may support TB patients as well. Listed below are some of the schemes.

Reducing mortality among TB patients and improving adherence – an immediate priority

Suggestions

- Mandate nutritional assessment of all TB patients at the time of diagnosis, during the treatment of TB disease, and during post-treatment follow up.
- The treating team should also assess the food security status of the TB patients and their families and arrange support as per risk assessment.
- Earmark beds for severely undernourished patients in public health facilities (with adequate infection prevention and control measures in place) and provide them with specialised in-patient care for a stipulated period to improve their nutritional status while they undergo treatment.
- To accomplish the above activities
 - Undertake capacity building for health care workers and programme managers to improve assessment and referrals of undernourished TB patients.

- The ambit of National Health Insurance Programs may be expanded to cover the costs of hospitalisation for severely undernourished TB patients at empanelled private hospitals, akin to the support to severely acute malnourished children.
- NTPs may engage with allied ministries, and private or not-for-profit entities to develop standardized nutritional kits for TB patients.

Providing nutritional support to prevent TB disease among household contacts of persons with TB

Suggestions

- Extend benefits of nutrition support to families and household contacts of persons with TB. Consider nutritional assessments for families of TB patients during contact tracing drives.
- Leverage existing government data sets that track malnutrition, food insecurity and juxtapose those with available data on TB prevalence and incidence to identify population groups that are at a higher risk of developing active TB; such data sets may be utilized to extend specialized nutritional support to all vulnerable groups. These data sets may also be utilized to facilitate targeted case finding drives.
- Design integrated approaches that leverage existing infrastructure and resources available under other nutritional and food support schemes (e.g., programs that provide food security support and ration to eligible population groups)
- Consider expanding the ambit of existing food security and nutritional support schemes to include families of TB patients as the potential benefits may outweigh the costs.

Disseminating the findings and raising awareness in the community and health workers

Suggestions

- TB programmes may consider revising its existing guidance documents on nutritional care and support to patients, as well as the guidelines for differentiated TB care.
- Organize sensitization programmes for
 - Parliamentarians, local/ village level governments, and leaders at subnational level
 - TB officials as well as frontline healthcare workers to inform them about the guidelines, and their roles and responsibilities to manage undernutrition among TB patients and their families, including patient counselling.
- Include targeted messaging on the importance of nutrition as part of TB awareness campaigns using locally relevant media including social media. Special emphasis must be laid on the importance of nutrition to reduce deaths, aid long-term recovery and prevent infection within the family.

Building evidence through research and innovation

Suggestions

- TB programmes, academic institutes and research institutes may consider studying the long-term outcomes of the intervention by tracking the status of trial participants for a defined period after the intervention and treatment completion.
- Provide grants to social entrepreneurs, private organizations and researchers/institutes, to develop cost-effective products for patients and household contacts that provides the adequate nutritional requirements.

- Explore use of newer tools to better assess and track body mass composition (fat vs protein) in persons with TB and their families.

¹ Schwenk & Macallan 2000,

² Padmapriyadarsini et al. 2016,

³ Global tuberculosis report 2023. Geneva: World Health Organization; 2023

⁴ Bhargava 2016,

⁵ Padmapriyadarsini et al. 2017

⁶ Tuberculosis and malnutrition factsheet 2024. World Health Organisation. Accessed [here](#).

⁷ Johnston et al. 2009, Gupta et al. 2009, WHO ENA 2019c

⁸ Bhargava A., Bhargava M., et al. 2023. Nutritional supplementation to prevent tuberculosis incidence in household contacts of patients with pulmonary tuberculosis in India (RATIONS): a field-based, open-label, cluster-randomised, controlled trial. *Lancet*. 402 (10402). 627-640

⁹ Bhargava A., Bhargava M., et al. 2023. Nutritional support for adult patients with microbiologically confirmed pulmonary tuberculosis: outcomes in a programmatic cohort nested within the RATIONS trial in Jharkhand, India. *Lancet Global Health*. 11(9). 1402-1411.