

Stop  Partnership

Nutrition

STOP TB PARTNERSHIP

38th BOARD MEETING

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Suvanand Sahu

New compelling scientific evidence on nutrition as a preventive tool for TB

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

Anurag Bhargava, Madhavi Bhargava, Ajay Meher, Andrea Benedetti, Banurekha Velayutham, G Sai Teja, Basilea Watson, Ganesh Barik, Rajeev Ranjan Pathak, Ranjit Prasad, Rakesh Dayal, Adarsh Kibballi Madhukeshwar, Vineet Chadha, Madhukar Pai, Rajendra Joshi, Dick Menzies, Soumya Swaminathan

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- Randomized trial on the effect of nutritional support on tuberculosis incidence in **household contacts** in Jharkhand state of India
- “...the nutritional intervention was associated with substantial **(39–48%) reduction** in tuberculosis incidence in the household during 2 years of follow-up.”

Turning research finding into policy

The potential impact on tuberculosis of interventions to reduce undernutrition in the WHO South-East Asian Region: a modelling analysis

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Summary

Background Undernutrition is a major risk factor for TB incidence in the WHO South-East (SE) Asia Region. We examined the potential impact of addressing undernutrition as a preventive measure, for reducing TB burden in region.

Methods We developed a deterministic, compartmental mathematical model, capturing undernutrition and its associated excess risk of TB, amongst countries in the Region. We simulated two types of interventions: (i) nutritional



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Clinical Infectious Diseases

MAJOR ARTICLE



Nutritional Supplementation Would Be Cost-Effective for Reducing Tuberculosis Incidence and Mortality in India: The Ration Optimization to Impede Tuberculosis (ROTI-TB) Model

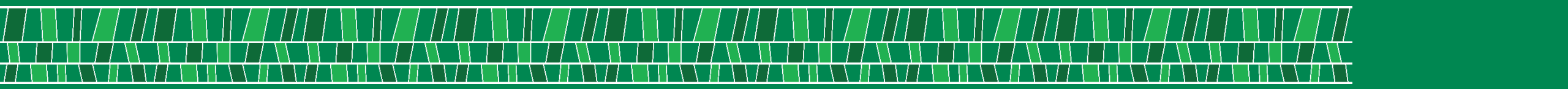
Pranay Sinha,^{1,2} Subitha L. Lakshminarayanan,² Chelsie Cintron,³ Prakash Babu Narasimhan,² Lindsey M. Locks,^{3,4} Nalin Kulatilaka,⁵ Kimberly Maloomian,^{6,7} Senbagavalli Prakash Babu,² Madeline E. Carwile,^{1,2} Anne F. Liu,⁸ C. Robert Horsburgh Jr.,^{1,4,9} Carlos Acuna-Villaorduna,¹ Benjamin P. Linas,^{1,2} and Natasha S. Hochberg^{1,2,4}



Food: the tuberculosis vaccine we already have

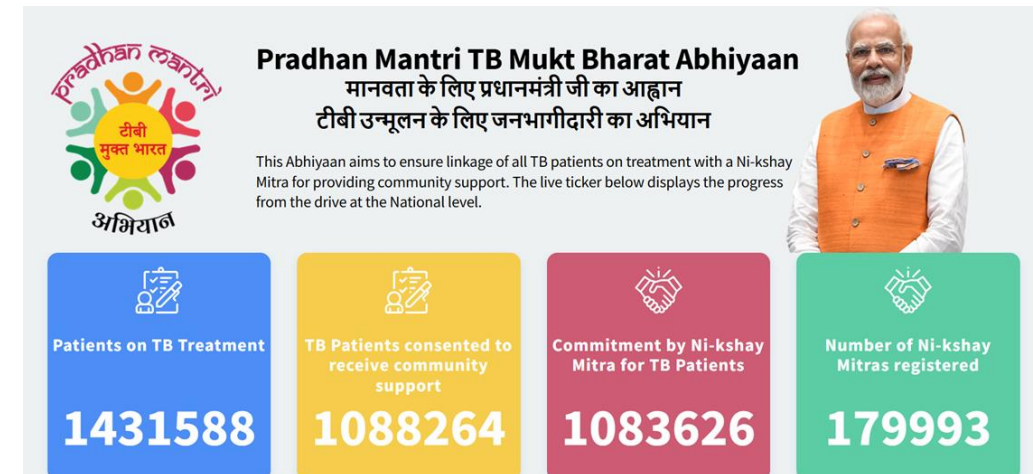
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Something marvellous occurred in the USA in Winter (1944–45) was a potent reminder of the speed with which the onset of undernutrition can destabilise tuberculosis elimination efforts.³ Conversely, British prisoners of war, who received supplemental rations the 20th century. Between 1900 and 1944, deaths from tuberculosis plummeted from about 200 people per 100 000 to approximately 50 people

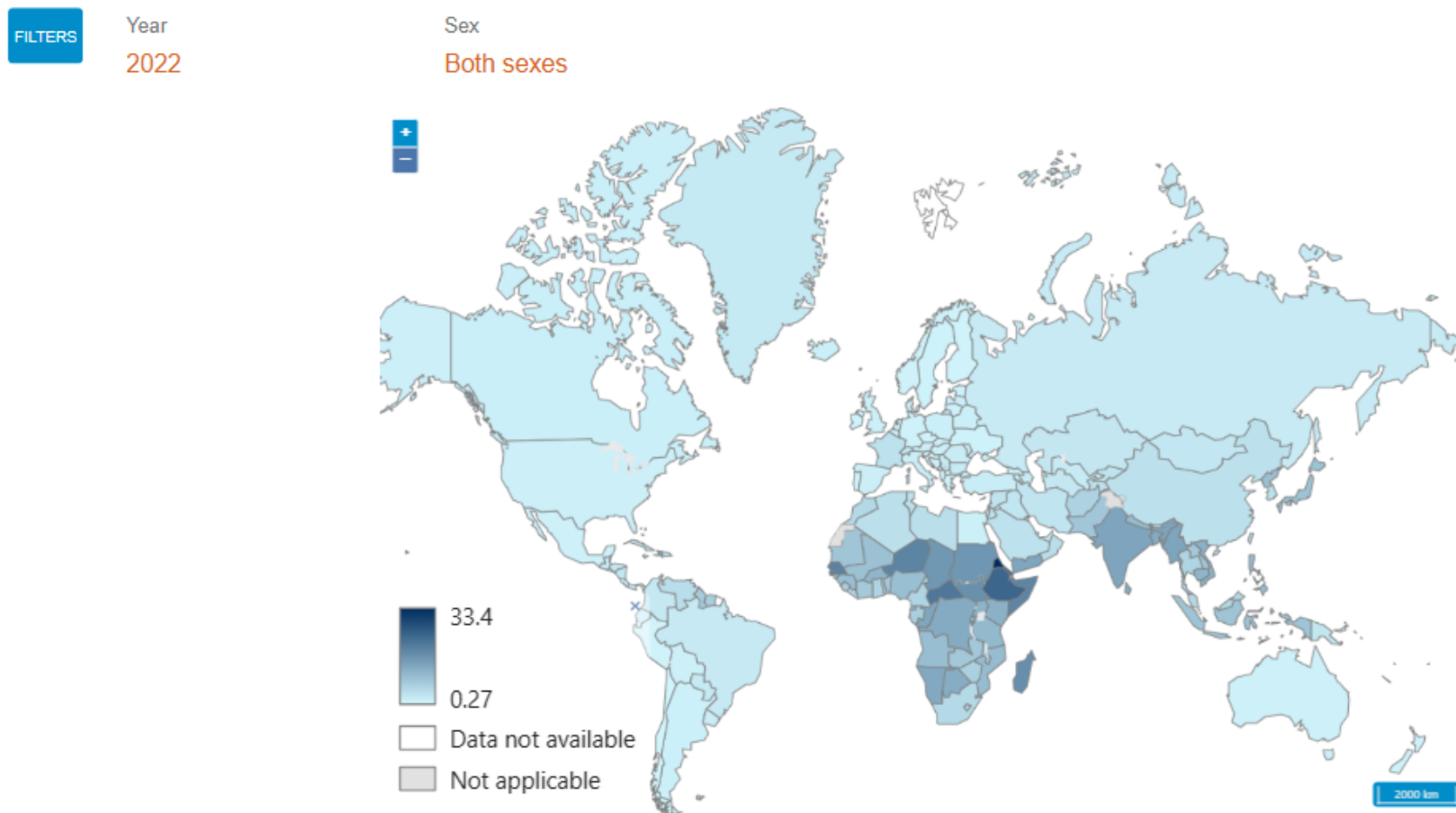


Financing for Nutrition support- India example


- Govt, funded: “Nikshay Poshan Yojana”
 - Cash transfer- since 2018- more than 10 million people with TB given cash for nutrition support
 - 30 billion Rupees (350 million USD)
- Society funded: Pradhan Mantri TB Mukta Bharat Abhiyan (Prime Minister TB Free India campaign)
 - Rs 6000(\$75)/per person food packets
 - 1 million people with TB
 - US\$ 75million
 - Recently expanded to include household contacts
- Private companies funded CSR:
 - Rs 2500 million (30 million US\$)



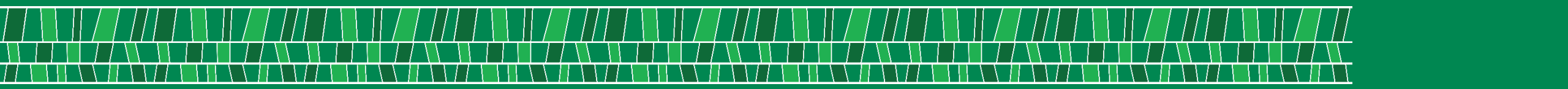
Prevalence of underweight among adults, BMI < 18 (crude estimate) (%)



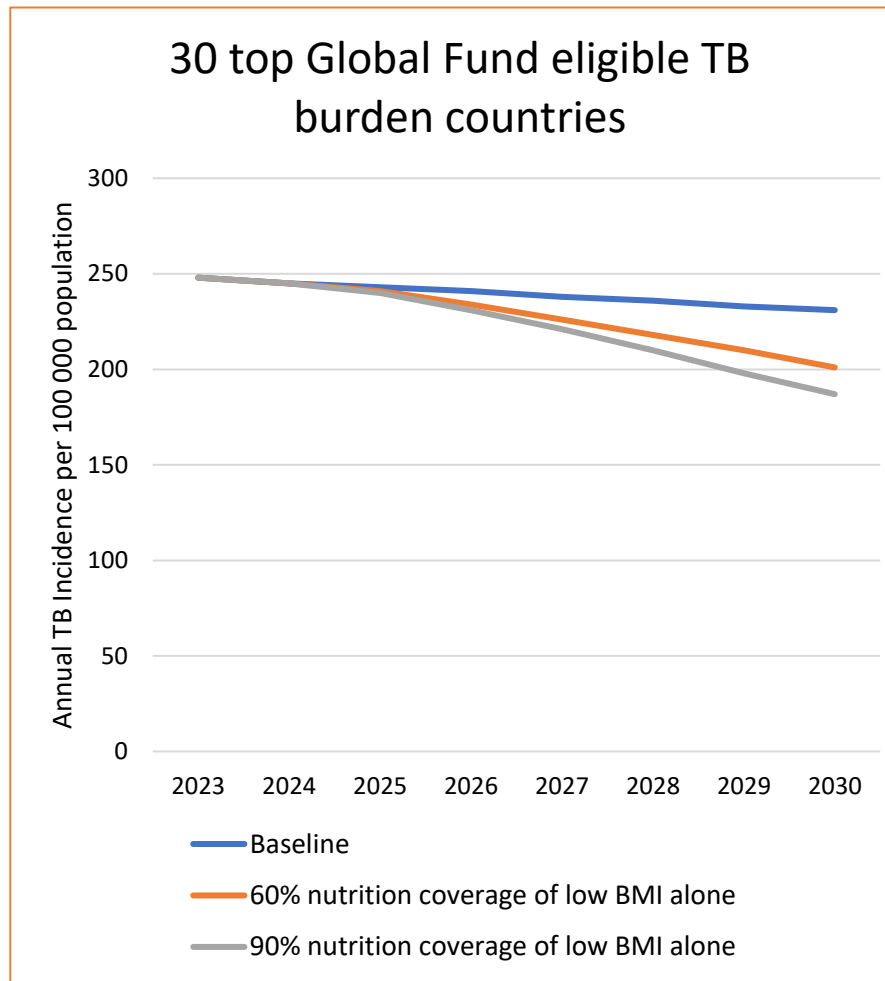
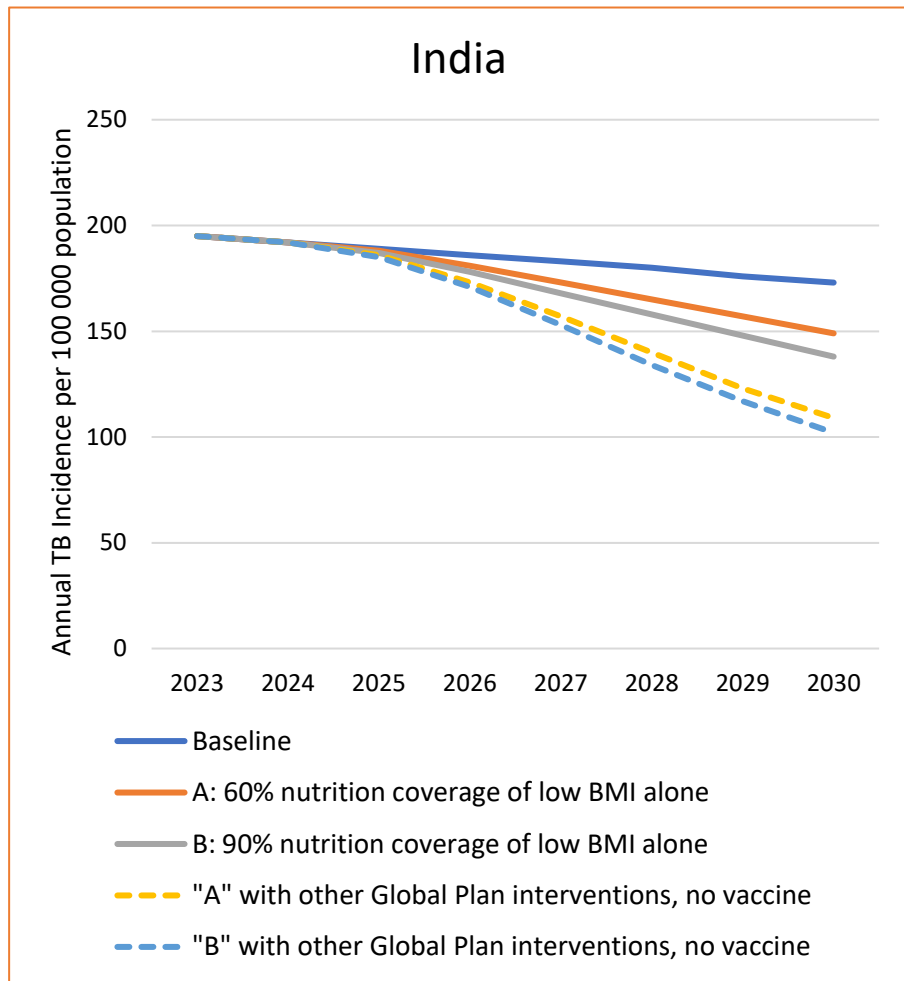
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- Prevalence of underweight (low BMI) when mapped overlaps very well with prevalence of TB
- What if nutrition is provided to people with low BMI?
 - What will be the impact on TB incidence?
 - What will be the cost?



Nutrition provided to underweight (low BMI): Impact on TB incidence (modeling results)



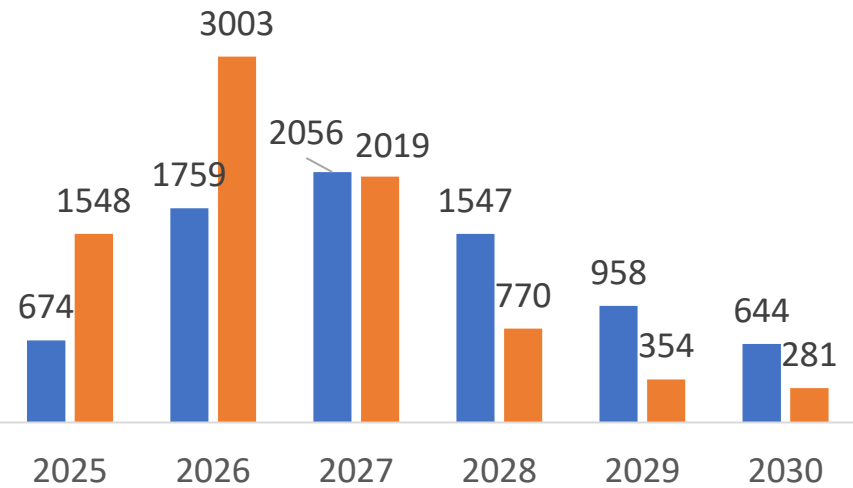
Incremental reduction of TB incidence rate in 2030 Vs 2023		
	India	30 countries
60% nutrition coverage	12%	12%
90% nutrition coverage	18%	17%

Mandal S, Srinath S, Carel P, Nair S, Sahu S

Nutrition provided to underweight (low BMI): Costs

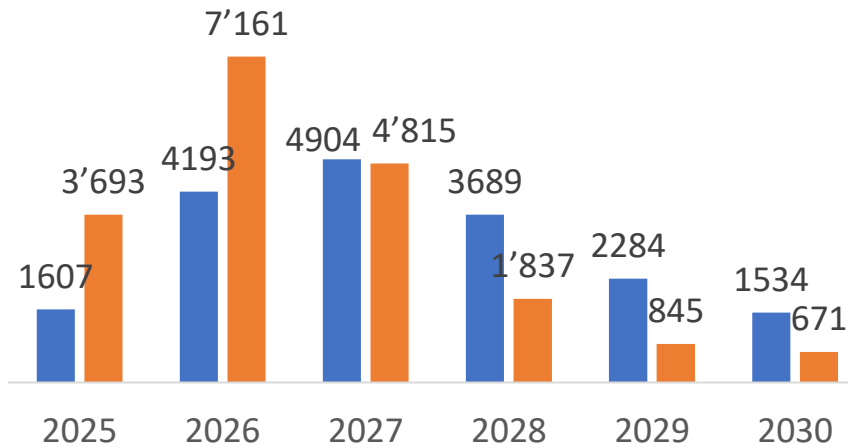
Annual Cost in US\$ millions, India

■ 60% coverage ■ 90% coverage



Annual cost in US\$ millions, 30 countries

■ 60% coverage ■ 90% coverage



Average per year (US\$ millions)

	India	30 countries
60% coverage	1273	3035
90% coverage	1329	3170

Mandal S, Srinath S, Carel P, Nair S, Sahu S

Summary

- Nutrition is a powerful TB prevention tool
- India TB response includes nutrition at scale – recently extended to contacts
- Modelling and costing shows that 17% decline in TB incidence can be achieved in 30 countries (accounting for >80% of global TB burden) by spending US\$3 billion per annum on nutrition
- What is needed?
 - Make aware SDG2 (Zero Hunger) partners
 - Collaborate with SDG2 partners to focus nutrition initiatives (food/cash transfers) on families and contacts of people with TB, population vulnerable for TB and undernourished population



Thank you

