1. Background

The WHO Global Tuberculosis Programme (GTB) aims to guide the global response to the tuberculosis (TB) epidemic and facilitate partnerships; provide evidence-based norms, standards and policies; support Member States in adapting and adopting the End TB Strategy; measure global progress, monitor and assess national programme performance, financing and impact; and enable progress across the continuum of TB research, linked within a wider health research strategy. Globally, TB is a leading cause of ill health and mortality from an infectious disease. In 2021, an estimated 10.6 million people developed TB disease, and 1.6 million people died from TB. Undernourishment is one of the most important risk factors that drive the TB epidemic; according to the Global TB Report, an estimated 2.2 million new TB episodes were attributed to undernutrition in 2021.

The End TB Strategy outlines the global approach to reducing TB incidence, deaths and catastrophic costs attributable to TB and has the goal of ending TB as a public health problem. Pillar 1 of the End TB Strategy (integrated patient-centred care and prevention) includes the scale-up of integrated, collaborative action on TB and comorbidities. The Political Declaration of the 2018 United Nations General Assembly high-level meeting on the fight against tuberculosis includes a commitment to the provision of health services for integrated care for related health conditions and risk factors for TB, including undernutrition.

Previously, WHO published Nutritional care and support for patients with tuberculosis. Since then, additional evidence on nutritional care and support for people with TB disease and their contacts has been published. To support Member States in implementing the End TB Strategy, and in recognition of the large burden of TB attributable to undernutrition, the WHO Global Tuberculosis Programme (GTB) is developing the WHO Consolidated guidelines on tuberculosis: Module 6: TB and comorbidities, which will contain updated recommendations on TB and nutrition. These guidelines will be informed by updated systematic reviews which is the topic of these terms of reference. The guidelines will be complemented by a section on TB and nutrition in the WHO operational handbook on tuberculosis: Module 6: TB and comorbidities.

2. Purpose of work and objectives

- To perform systematic reviews and meta-analyses of the published and unpublished literature on TB and nutrition to inform the development of WHO recommendations on TB and nutrition for the WHO Consolidated guidelines on tuberculosis: Module 6: TB and comorbidities.
- To assess the evidence gaps for informing the research agenda on TB and nutrition
- To conduct quality assessment of the identified evidence, following the GRADE framework and WHO’s Handbook on guideline development, 2nd edition.

Reviews will be conducted according to the methodologies outlined in the Cochrane Handbook for Systematic Reviews and reported according to the WHO Style Guide and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).
3. Proposed research questions

Background questions
1. What is the optimal composition of the diet for people receiving treatment for TB disease?
2. What is the optimal duration of nutritional supplementation for people with or recovering from TB disease?
3. What is the cost-effectiveness of nutritional supplementation for people with TB disease?
4. What is the acceptability of nutritional supplementation for people with TB disease?
5. What is the feasibility of assessing nutritional status and managing undernutrition in people with TB disease?

Questions for Guideline Development Group Review
6. Should nutritional interventions be recommended to improve the physical and mental health and wellbeing of people with or without undernutrition being treated for TB disease?
7. Should micronutrient supplements alone be recommended to improve the physical and mental health and wellbeing of people with or without undernutrition being treated for TB disease?
8. Should nutritional interventions be recommended for household contacts of people with TB disease to reduce further TB incidence in the household?

4. Deliverables
- Technical protocol for conducting systematic reviews and meta-analyses, including refining of proposed PICO questions, definitions of interventions and outcomes, search strategy, inclusion/exclusion criteria, plan for evidence quality (certainty) assessment and statistical analysis plan. (the protocol should adhere to the guidance in PRISMA-P).
- GRADEpro summary of evidence profiles, complete with ratings of the certainty of evidence.
- A comprehensive slide set containing all of the results of the statistical analyses and evidence grading for each of the research questions.
- Presentation of findings at the online meetings convened by WHO GTB including at the Guideline Development Group meeting;
- A database of studies included in the systematic reviews.
- Finalized report and co-authored papers for publication.

5. Timeline (dates are indicative)
- Draft systematic review and evidence assessment protocol – 1 September 2023
- Draft written report of findings and GRADEpro summary evidence profiles completed at least 1 week prior to the Guideline development group meeting – January 2024
- Presentation of findings to the Guideline Development Group – February 2024
- Finalized report incorporating revisions based on feedback from WHO – March 2024
- Co-authored publication submitted for publication – March 2024

6. Other requirements
- The selected entity will be expected to be available for calls/meetings with WHO/GTB team and to proactively reach out to WHO to flag any potential bottlenecks hampering the potential successful implementation of the task or achievement of the key deliverables.
- A WHO confidentiality agreement and declaration of conflict of interest need to be signed prior to conducting this work.
7. **Qualifications, experience, technical skills required:**

The successful systematic review team will have the experience, technical skill-set and collective capacity to deliver the work. The lead applicant and one or more of the team members will have the following qualifications, experience and technical skills:

**Qualifications**
- **Essential:** An advanced postgraduate degree in epidemiology, biostatistics, quantitative social science or relevant fields;
- **Desirable:** Medical degree or training in infectious diseases, preferably tuberculosis.

**Experience**
- **Essential:**
  - At least 15 years’ experience in epidemiological data analysis skills;
  - Documented experience in conducting high-quality systematic reviews of the medical or public health literature, in line with Cochrane methodology, including in rating strength of evidence, and in preparing GRADE evidence profiles for WHO guidelines;
  - Documented experience in managing and analysing a wide range of public health data, including data from clinical trials and/or other studies;
  - Previous work with WHO, other international organizations and/or major institutions in the field of tuberculosis and systematic reviews is also essential.

**Desirable:**
- Experience in the field of tuberculosis and undernutrition, or TB and related comorbidities
- Excellent planning, organisation and facilitation skills;
- Ability to handle multiple tasks simultaneously and flexibly

**Skills/Knowledge:**
- Excellent oral and written communication skills;
- Excellent epidemiological data analysis skills;
- Ability to research, analyse and present complex information/data;
- Strong analytical and presentations skills as demonstrated by past work experience;
- Proven ability to work as part of a multicultural and multidisciplinary team.

**Languages and level required (essential):**
- Excellent level of English (reading, writing, speaking)

8. **Remuneration and Budget**

The remuneration will be in accordance with the WHO remuneration scales for international consultancy groups. The number of working days needs to be defined as per submitted proposal. In line with WHO norms, payment will be made in instalments upon satisfactory completion of the deliverables.

Please send your submissions (comprising a proposal for the work including a budget, as well as the CV of the lead applicant) to the WHO Global Tuberculosis Programme at: baddeleya@who.int by 14 July 2023. The expressions of interest received will go through a review process and the selected candidate will be notified on completion of the review process.

9. **Place of assignment**

Offsite. The work will be done remotely, with no travel required.