“Triple trouble”: Malnutrition, TB and HIV

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FANTA-2/AED

HIV and TB: What’s the Latest and Greatest?
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Overview

• Nutrition and HIV
• Nutrition and TB
• WHO Consultation on Nutrition and TB
• Discussion: your input!
Links between Nutrition and HIV

**Malnutrition’s Effect on HIV**
- Weakened immune system
- Increased susceptibility to OI
- Increased mortality risk
- Slower healing
- Poorer response to treatment
- Possibly more rapid disease progression

**HIV’s Effect on Nutrition**
- Reduced food intake
- Increased nutrient needs
  - Asymptomatic: + 10% energy
  - Symptomatic adults: + 20-30% energy
- Altered nutrient absorption and metabolism
Integration of Nutrition into National HIV Responses

- Training of health care workers (in-service, pre-service)
- Job aids, IEC materials, anthropometric equipment
- Mentoring, QA/QI, supervision, M&E
Integration of Nutrition into National HIV Responses

- Nutrition assessment
- Nutrition education and counseling
- Specialized food products
- Micronutrient supplementation
- Water purification and hygiene
- Food security support
Package of Nutrition Services at Clinical HIV Care and Tx Sites

- Nutrition assessment and counseling
- Micronutrient supplementation
- Specialized food
- Water purification
Food-by-Prescription Approach

- Provision of set of nutrition services at clinical facilities as part of HIV care and Tx
- Clearly defined entry and graduation criteria for specialized food products
- Prescriptions used for take-home food packages
- Food packaged in daily consumption “doses” and aimed at improving individual nutrition and health status
Lessons

• Clinical facilities a good entry point for PLHIV nutrition services. But also need to integrate into community services and establish two-way referral mechanisms between facility and community services.

• Importance of *integration* into existing system – patient flow, information flow, etc. Ownership by medical stakeholders.
Nutrition and TB

- Latent TB
- Active TB
- Malnutrition

Nutritional support

Diagram:
- Nutritional support
- Malnutrition
- Nutritional support

Arrow directions:
- Latent TB to Active TB
- Active TB to Malnutrition
Malnutrition as a risk factor for TB

• General malnutrition reduces expression of mycobactericidal substances ➔ may compromise cell-mediated immunity leading to active TB
  – Intervention: Nutritional support to at-risk populations (where latent TB is common)?

• Challenging to study relationship between malnutrition and incidence of TB—limited data
Malnutrition as a consequence of TB

• Active TB associated with:
  – Wasting: both fat and fat-free mass reduced
    • Multiple factors involved: poor appetite, increased energy expenditure (due to infection), altered protein metabolism
  – Micronutrient deficiencies (retinol, vitamins C and E, zinc, iron and selenium)
  – Anemia
TB treatment and nutritional status

- TB treatment improves nutritional status, but limited to gains in fat mass
  - Alterations in protein metabolism may continue during treatment
  - Typical diet may be inadequate to support lean mass repletion
    - Randomized controlled trial that provided an energy-protein supplement to TB patients receiving treatment showed gains in lean mass, and greater grip strength (Paton et al, 2004)

- Role for nutritional support during and after TB treatment, but limited data exist on most effective (and cost-effective) approach and needed duration of support
Incorporating nutrition into TB programs (1)

- Limited programmatic evidence of nutritional support for TB prevents firm recommendations
- Limited documentation on the role of nutritional support in TB programs
- Some recommendations* include:
  - Nutritional assessment for determination of nutritional status and referrals
  - Nutritional counseling/education on symptom management and improved dietary intake during/after TB treatment

*Source: Africa’s Health in 2010, Nutrition and Tuberculosis: A review of the literature and considerations for TB control programs. 2008
Incorporating nutrition into TB programs (2)

• Recommendations (cont’d)
  – Targeted micronutrient supplementation: vitamin B6, vitamin D
  – Food support for treatment of malnutrition in TB and TB/HIV co-infected patients
  – Food support to increase treatment adherence
WHO Consultation

• “Scoping meeting for the development of guidelines on nutritional/food support to prevent TB and improve health status among TB patients”
  – Nov. 2-4 2009
  – Convened by WHO Nutrition department, in collaboration with WHO Stop TB, UNAIDS and the World Food Programme
  – Invited participants: scientists, partner organizations with experience in food support to TB patients, selected countries with TB/food support experience, WHO guideline review committee
WHO Consultation: Objectives

- Review evidence base on TB and nutrition
- Review potential for collaboration between TB and HIV programs and nutrition
- Identify knowledge and research gaps and identify questions to be answered with systematic reviews of existing research
- Agree on a scope of guidelines on nutrition and TB, and establish a guideline group
WHO Consultation: Review of evidence

• Undernutrition as a risk factor for TB infection and active TB disease

• Effectiveness, cost and cost-effectiveness of nutritional support for:
  – improvement of TB treatment outcomes
  – improvement of TB treatment adherence
  – nutritional rehabilitation of TB patients
  – reducing TB incidence

• Special considerations for TB patients with HIV, MDR-TB, diabetes, and children

• Lessons learned from Nutrition-HIV
Discussion (1)

• Drawing on your own experience…
  – What nutritional/food support are being provided to TB patients? What is the objective of the nutritional/food support (e.g., treatment adherence, rehabilitation)?
  – What challenges and opportunities exist to integrating nutrition support into TB programs? Or integrating nutrition, TB and HIV programs?
Discussion (2)

– What key research questions related to TB and nutrition are needed to improve programming?

– What lessons from nutrition and HIV programs can be transferred to the development of nutrition support in TB programs?

– What about using nutrition to *prevent* active TB? Is that feasible? A priority? What are the program platforms for doing this?
Discussion (3)

– What type of guidance, or for which special groups of TB patients (e.g., TB/HIV co-infected, children) is guidance most critical?
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