Food and Nutrition Assistance in TB programming – rationale & practice

Dr. Saskia de Pee and Nils Grede

London, 15 February 2012
Objectives

Explain role of food and nutrition in context of TB

- What is the relationship between food and nutrition and TB?
- Along what causal pathways do food and nutrition increase TB treatment success?
- How to design a comprehensive food and nutrition package for TB?

Review WFP Policy on TB and Nutrition

The demand side of health care: case detection, access and adherence

Findings of WFP/WHO review of Food assistance in TB programs
Malnutrition drives TB and vice versa

Latent TB - 1/3 of world’s population - 5% lifetime risk of developing TB disease

However, weakened immune system markedly increases the risk
  • Malnutrition - A lower BMI is associated with an increased risk of active TB (Lonroth 2009)
  • HIV coinfection weakens immune system

Many people start TB or ARV treatment in a malnourished state, both pre-existing and disease induced
  • TB highly prevalent among the poor and in low income countries
  • TB disease causes wasting, rebuilding tissues while on treatment requires a variety of nutrients, to be provided by the diet

Close relationship between (1) TB and (2) malnutrition and food insecurity

- Reduced appetite and ability to take food
- Reduced ability of body to absorb nutrients
- Reduced access to food due to morbidity/low productivity
- Increased nutritional needs through metabolic changes

- Higher likelihood of progression from latent infection to active disease when malnourished or weakened immune system
- Increased risk of mortality for those with low BMI (on treatment)
TB fatality has declined in UK due to development, improved health, hygiene and nutrition – before TB drugs and vaccines

Tuberculosis deaths, England & Wales, 1838-1970
Food assistance can contribute to treatment success through multiple pathways

1. **Nutritional recovery**
   - Increased strength of immune system
   - Faster weight gain (rebuilding of body tissues that were lost)
   - Faster sputum clearance?
   - Reduced mortality?

2. **Access to treatment**
   - Improved case detection?
   - Increased treatment uptake?
   - Increased treatment adherence (WFP paper forthcoming)

**Food and nutrition interventions**

For all patients:
- Nutrition Assessment, Education and Counselling (NAEC)

When malnourished, add:
- Food supplements

When food insecure, add:
- HH support

**Treatment success**

- Reduced morbidity
- Reduced mortality
- Reduced transmission
# Broad body of evidence on positive effects of food support on nutritional recovery and treatment access

## Findings

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<td>Martins N, Morris P, Kelly PM. BMJ. 2009 Oct 26;339:b4248. doi: 10.1136/bmj.b4248.</td>
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<td>Tulsky JP, Hahn JA, Long HL, Chambers DB, Robertson MJ, Chesney MA, Moss AR. Int J Tuberc Lung Dis. 2004 Jan;8(1):83-91.</td>
<td>• Simple, low cost incentives (incl. food) can be used to improve adherence to TB preventive therapy in indigent adults (USA)</td>
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## Selection of studies

### Nutritional stabilization and recovery

- **Findings**
  - Patients receiving midday meal and take home ration had 10.1% weight gain over 7.5% in controls (Timor-Leste)
  - Patients who received food supplements showed a significant increase in body weight (8.6% versus 2.6%) (India)
  - TB patients on early food intervention with greater increase in body weight (2.57 +/- 1.78 compared with 0.84 +/- 0.89 kg), total lean mass than control group (Singapore)

### Access to treatment

- **Findings**
  - Patients who received supplements had a significant higher treatment completion rate (India)
  - Incentive program patients were more likely than control patients to complete therapy within 32 and 52 weeks (USA)
  - Simple, low cost incentives (incl. food) can be used to improve adherence to TB preventive therapy in indigent adults (USA)
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The demand side of health care: case detection, access and adherence

Findings of WFP/WHO review of Food assistance in TB programs
WFP’s policy aims to enhance treatment success and mitigate effects of HIV/TB

Comprehensive food and nutrition approach

| Care and treatment (Curative) | NAEC: Nutrition assessment, education and counselling for all TB-dots clients¹  
Specialized food products for nutritional rehabilitation of malnourished patients |
|-------------------------------|--------------------------------------------------------------------------|
| Mitigation and safety nets (Enabling/preventive) | Income transfer (food/cash/voucher assistance) for affected HH  
- May be tied to curative support or based on vulnerability of HH  
Support design and implementation of TB-sensitive safety nets  
Community-based support to strengthen linkages between health sector and community |

F&N interventions part of broader approach - enabler to “make the money work”

¹ Including feeding practices for Pregnant and Lactating Women  
² Including PLW and their children attending maternal child health and nutrition services
WFP with HIV and TB programmes in 44 countries providing support to over 2.5 million beneficiaries

Geographical presence (HIV and TB)

Key facts on WFP TB programs (2010)

In 2010, WFP provided nutritional support to 121,000 index clients and 338,000 household beneficiaries in 25 countries:

- 17 countries in Africa
- 3 countries in Asia (Cambodia, Myanmar, Afghanistan)
- 5 countries in the Middle Eastern Region (Tajikistan, xx, xx, xx, xx)

1. 'Emergency' relates to WFP EMOP programmes, 'recovery' to PRRO, 'development' to DEV/CP
Sources: WFP annual performance review 2010
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Findings of WFP/WHO review of Food assistance in TB programs
Food and nutrition can help address multiple barriers faced by DOTS patients to access treatment and adhere to it...

Loss to follow-up in HIV – in TB challenge is case detection, uptake and adherence

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F&N supports adherence

1 **Socio-economic barriers**
   - Helps cope with competing demands between costs of obtaining food and costs of treatment (e.g., transportation)

2 **Physiological barriers**
   - Ability to satisfy appetite increased through DOTs, which may otherwise lead to treatment disruption

3 **Psycho-social barriers**
   - Dispels perceived risks of taking drugs on an empty stomach
   - Reduces likelihood of forgetting to take drugs (e.g., after long days of farming)
   - Increases drug refills if jointly distributed with food support
   - Helps deal with stigma?

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*Consequences of inadequate treatment adherence include suboptimal health outcomes (morbidity and mortality) and decreased cost effectiveness*
### Leverage strengths of health sector and communities

**Intervention design (in low-income, food-insecure settings)**

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**Activities**

- Nutritional assessment
- Nutritional counselling
- Infrastructure (e.g., equipment)
- Training/knowledge of staff
- Ability to steer, monitor centrally

**‘Comparative advantage’**

- Nutritional assessment
- Decision on entry/exit to program
- Nutritional counselling
- Food support for finite period
- Further education and counselling
- Livelihood activities
- Additional activities linked to F&N interventions, e.g.,
  - psycho-social support
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- Knowledge of local setting
- Integration with other community activities

**Referral to community**

**Referral to broader social protection mechanisms**
WFP conducts research project on how food and nutrition can facilitate access to HIV care and support services

Care and support package

- Food and nutrition element of HIV care and support package
- Individual elements with strong overlaps in terms of implementation modalities

Study design

- Research objectives
  1. To what extent are HIV care and support interventions currently provided as complements to F&N activities?
  2. How can F&N delivery mechanisms support non-food related HIV care and support interventions?

- Timing: 22 weeks starting in Q2 2012
- Pilot countries (candidates currently in discussion)
  - Ethiopia
  - Malawi
  - Mozambique
  - Swaziland
  - Zimbabwe
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Findings of WFP/WHO review of Food assistance in TB programs
WHO/WFP survey ‘08/’09 got response from half of all high TB burden countries

20 NTP representatives from 19 countries (46% of high burden countries), out of 41

15 representatives of implementing partners from 15 countries
- 14 are WFP TB programme staff

Survey was conducted to provide baseline for WHO nutrition guideline development process (“NUGAG”)
Most countries provide not only advice, but also a food transfer.

**Nutritional advice is provided to TB patients in 84% of surveyed countries (16 out of 19)**
- 12 out of 16 responding countries reported on the type of nutritional advice.
- The following messages are communicated:
  - TB decreases appetite and causes malnutrition;
  - Good and balanced nutrition during TB treatment is very important;
  - Patients should strive for full, balanced diet

**84% provide nutritional support to TB patients:**
- In 44% of these countries, the nutritional support is provided by WFP.
- 56% provide nutritional support to all TB patients, other 44% to some TB patients
- 16% do not provide nutritional support to the patients
Nutrition support mainly used to improve patients’ nutritional status and increase treatment adherence

**Stated objectives of support vary**
- 69% provide nutritional support to TB patients with the objective of improving patients’ nutritional status;
- 63% do so with the objective of increasing treatment adherence;
- 25% do so with the objective of improving the access to treatment;
- Other reasons: poverty, reduce treatment side effects, improve recovery

**9 out of 15 countries provide a food ration (staples, animal source foods, plant source proteins, fortified foods, RUFs)**
- 1 provides micronutrient supplements;
- 5 provide cash;
- 1 provides vouchers.
Lack of technical support and funding are primary issues

69% of respondent countries state they require technical assistance in order to provide nutritional support during TB management, mostly on
- Policy and guidelines development
- Training materials for nutritional counselling and follow up

Lack of funding represents biggest obstacle

- 59% reported that food assistance is included in GFATM proposals, 85% also reported other sources: WFP, UNHCR, USAID, NGOs
- Some countries report that they are unable to provide nutritional support in a sustained manner to all TB patients.
- Countries also report issues such as:
  - Nutritional support to TB patients not seen as a national priority;
  - Lack of storage capacity;
  - Lack of transportation capacity;
  - Security.
Conclusions

Malnutrition increases risk of TB and TB worsens malnutrition

Malnutrition among TB patients is associated with higher mortality risk

Recovering from malnutrition requires TB treatment and adequate nutrition for rebuilding tissues and replenishing deficient MN stores

Poverty and food insecurity are associated with poor dietary quality and quantity, as well as reduced treatment access, initiation and adherence

Lowering treatment costs and providing income transfer can support treatment and mitigate impact of TB on patient and household members

Most high burden countries provide food and nutrition support, but

- Funding is a major barrier
- Need better guidance and operational research
Unused slides
## Increasing number of scientific studies demonstrate effects of malnutrition on TB induced mortality

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<td>• Retrospective cohort study in an area with low MDR TB and HIV incidence, shows malnutrition as independently associated with mortality (AOR=3.2)</td>
<td>• Rao VK et al. (1998): The impact of co-morbidity on mortality following in-hospital diagnosis of tuberculosis</td>
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<td>• In patients with TB (80% HIV-coinfected), significant risk factors for early mortality (within four weeks of admission) include increasing degrees of malnutrition (AOR: 1.8 for BMI cut-off of 17)</td>
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<td>• Early initiation of therapy preserves susceptibility to first-line drugs &amp; improves outcomes for MDR TB, low hematocrit (AOR: 4.09) and BMI (AOR: 3.23) both are significant predictors of mortality</td>
<td>• Mitnick C et al. (2003): Community-based therapy for multidrug-resistant tuberculosis</td>
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<td>• Without ART, mortality among HIV-infected TB patients is high despite the use of effective anti-TB therapy (30%). HIV infection is the strongest independent predictor of mortality in this cohort. Low baseline hemoglobin is also a predictor of mortality (AOR:5)</td>
<td>• Mugusi FM et al. (2009): Factors associated with mortality in HIV-infected and uninfected patients with pulmonary tuberculosis</td>
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<td>• Retrospective case control study shows that anaemia in HIV-negative (4% HIV+) TB patients to be a good predictor of mortality (AOR:5.24)</td>
<td>• Risk factors for mortality among adult patients with newly diagnosed tuberculosis in Samara, Russia</td>
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<td>• Simple, low cost incentives (incl. food) can be used to improve adherence to TB preventive therapy in indigent adults (USA)</td>
<td>• Tulsky JP et al. (2004): Can the poor adhere? Incentives for adherence to TB prevention in homeless adults</td>
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## WFP’s policy aims to enhance treatment success and mitigate effects of HIV/TB

### Care and treatment

**Objective**

*Curative*
Nutritional recovery and treatment access
→ Treatment success and survival

**Intervention**

- Nutrition Assessment, Education and Counselling (NAEC)
- Food rations: FBF or RUFs

**Beneficiaries**

*Infected individual*
- PLHIV and people with TB (incl. PMTCT)

**Entry/exit criteria**

- **Entry:** based on anthropometric criteria for malnutrition
- **Exit:** typically after 6 months, from start of ART treatment

### Mitigation and safety nets

**Objective**

*Preventive*
Compensation for lost income and increased expenses due to HIV/TB
→ Prevention of negative coping mechanisms and food insecurity

*Enabling*
Enabler of treatment access
→ Treatment success and survival

**Intervention**

- Income transfer (cash, vouchers or food)
- Livelihood activities
- Design and implementation of HIV-sensitive policies (together with gov.)

**Beneficiaries**

*Affected household*
- Households of PLHIV and people with TB
- Vulnerable households, e.g., hosting OVCs

**Entry/exit criteria**

- **Entry:** based on participation of infected person in care and treatment and household food (in-)security status
- **Exit:** based on exit of infected person from care and treatment; vulnerable HH may receive longer support
People infected with TB face multiple barriers to get tested, initiate DOTS and adhere to it

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<td>• Diseases reduces income and increases expenditures even when treatment is free</td>
<td>• Disease-induced lack of appetite</td>
<td>• Fear</td>
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How to ensure adequate nutrition?

Nutrition assessment, education, counselling (NAEC)

Where necessary augment with special foods

- Ready-to-use foods (for first, fast, recovery from severe malnutrition)
- Fortified blended foods
- Complementary food supplements that add high quality nutrients to existing diet
  - Vitamin and mineral supplement
  - Low dose lipid-based nutrient supplement

Social-safety net – to support and protect households: food, cash, vouchers

Judy Pudlowski, International Medical Corps
Increasing number of scientific studies demonstrate effects of malnutrition on TB induced mortality

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#### (2) Intervention design (in low-income, food-insecure settings)

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#### ‘Comparative advantage’

- Referral to community
- Referral to broader social protection mechanisms