

# Food and Nutrition Assistance in TB programming – rationale & practice

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# Objectives

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## 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 viceversa

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**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**

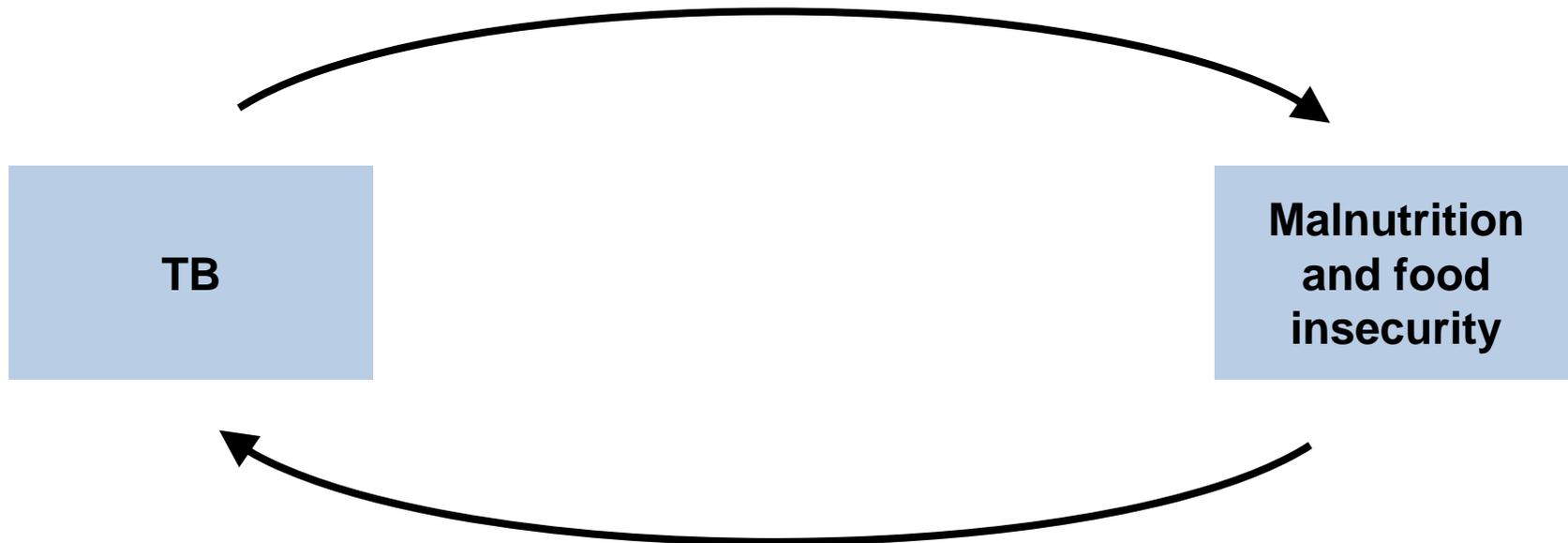
- TB highly prevalent among the poor and in low income countries
- TB disease causes wasting, rebuilding tissues while on treatment requires a variety of nutrients, to be provided by the diet

**Malnourished people who start treatment for TB have higher mortality risk (Mehta 1996, Rao 1998, Zachariah 2002)**

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

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- *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*

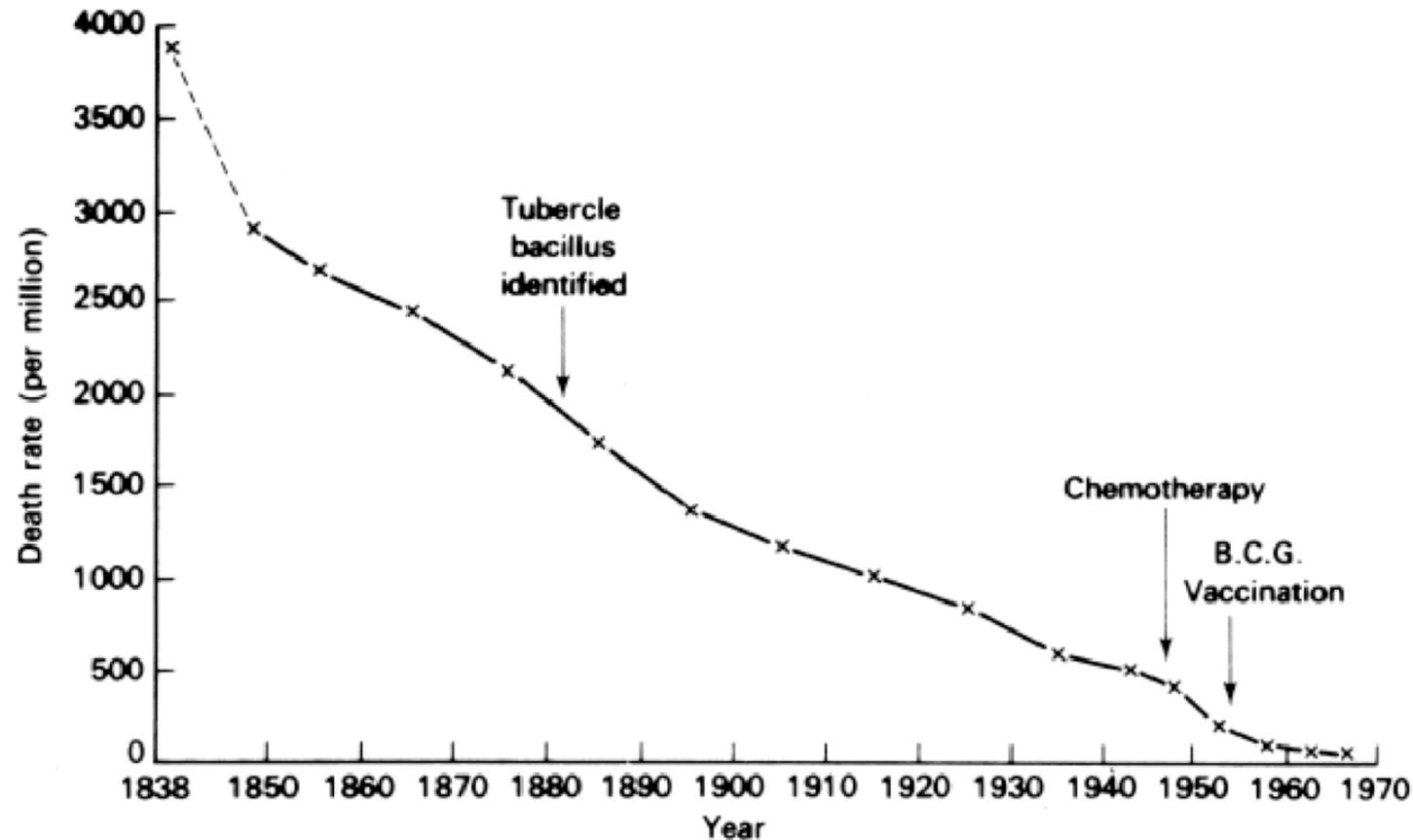


- *Higher likelihood of progression from latent infection to active disease when malnourished or weakened immune system*
- *Increased risk of mortality for those with low BMI (on treatment)*

# TB fatality has declined in UK due to development, improved health, hygiene and nutrition – before TB drugs and vaccines

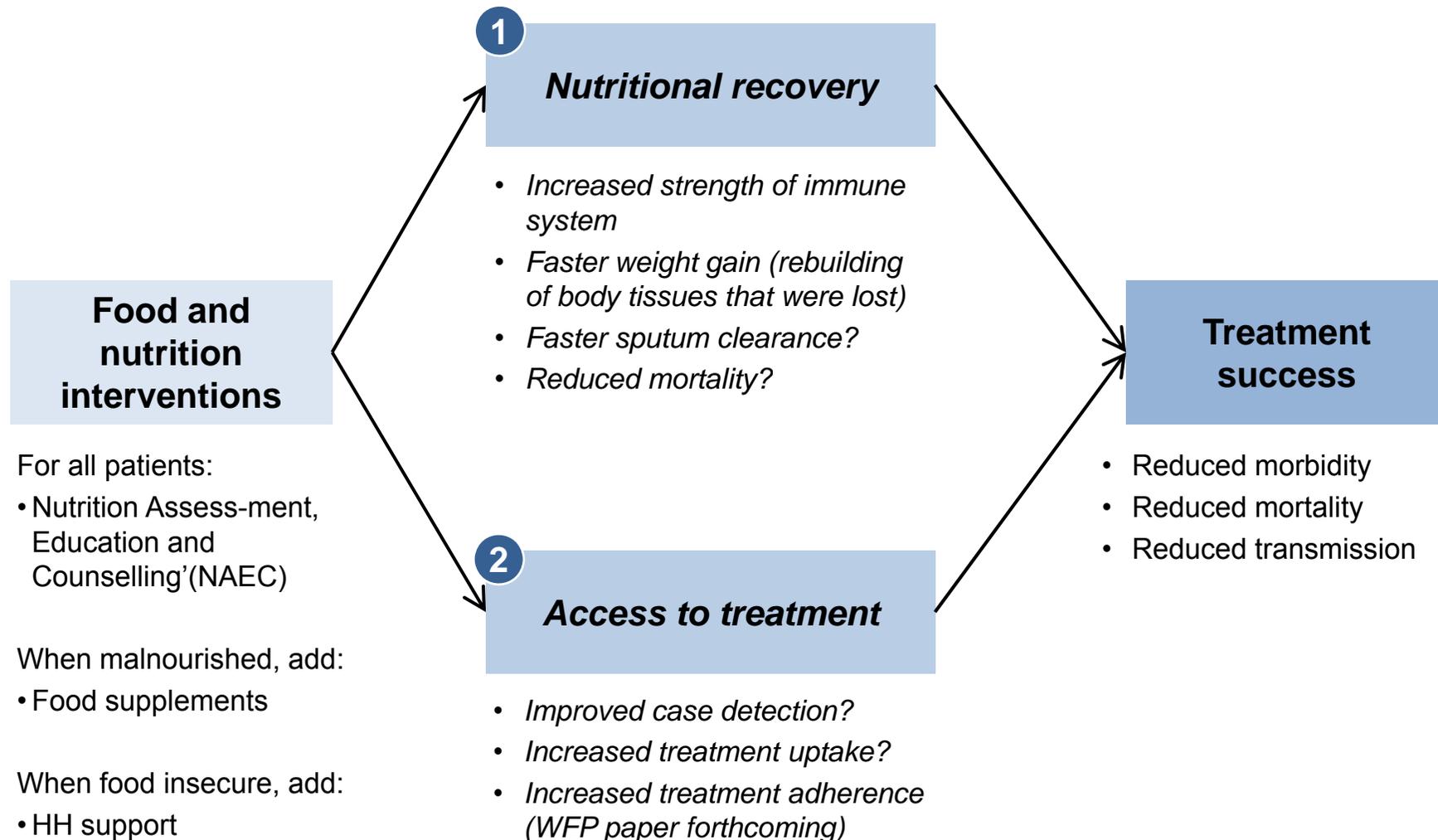
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Tuberculosis deaths, England & Wales, 1838-1970



# Food assistance can contribute to treatment success through multiple pathways

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# Broad body of evidence on positive effects of food support on nutritional recovery and treatment access

	Findings	Study
<b>1</b> <b>Nutritional stabilization and recovery</b>	<ul style="list-style-type: none"> <li>Patients receiving midday meal and take home ration had 10.1% weight gain over 7.5% in controls (Timor-Leste)</li> </ul>	<ul style="list-style-type: none"> <li>Martins N, Morris P, Kelly PM. <i>BMJ</i>. 2009 Oct 26;339:b4248. doi: 10.1136/bmj.b4248.</li> </ul>
	<ul style="list-style-type: none"> <li>Patients who received food supplements showed a significant increase in body weight (8.6% versus 2.6%) (India)</li> </ul>	<ul style="list-style-type: none"> <li>Jahnavi G, Sudha CH. <i>Singapore Med J</i>. 2010 Dec;51(12):957-62.</li> </ul>
	<ul style="list-style-type: none"> <li>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)</li> </ul>	<ul style="list-style-type: none"> <li>Paton NI, Chua YK, Earnest A, Chee CB. <i>Am J Clin Nutr</i>. 2004 Aug;80(2):460-5.</li> </ul>
<b>2</b> <b>Access to treatment</b>	<ul style="list-style-type: none"> <li>Patients who received supplements had a significant higher treatment completion rate (India)</li> </ul>	<ul style="list-style-type: none"> <li>Jahnavi G, Sudha CH. <i>Singapore Med J</i>. 2010 Dec;51(12):957-62.</li> </ul>
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	<ul style="list-style-type: none"> <li>Simple, low cost incentives (incl. food) can be used to improve adherence to TB preventive therapy in indigent adults (USA)</li> </ul>	<ul style="list-style-type: none"> <li>Tulsky JP, Hahn JA, Long HL, Chambers DB, Robertson MJ, Chesney MA, Moss AR. <i>Int J Tuberc Lung Dis</i>. 2004 Jan;8(1):83-91.</li> </ul>

Selection of studies

# Objectives

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## **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**

# WFP's policy aims to enhance treatment success and mitigate effects of HIV/TB

## Comprehensive food and nutrition approach

1	<b>Care and treatment</b> <i>(Curative)</i>	<b>NAEC: Nutrition assessment, education and counselling</b> for all TB-dots clients <sup>1</sup> <b>Specialized food products</b> for nutritional rehabilitation of malnourished patients
2	<b>Mitigation and safety nets</b> <i>(Enabling/preventive)</i>	<b>Income transfer (food/cash/voucher assistance)</b> for affected HH <ul style="list-style-type: none"><li>– May be tied to curative support or based on vulnerability of HH</li></ul> <b>Support design and implementation of TB-sensitive safety nets</b> Community-based support to <b>strengthen linkages</b> between <b>health sector</b> and <b>community</b>

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

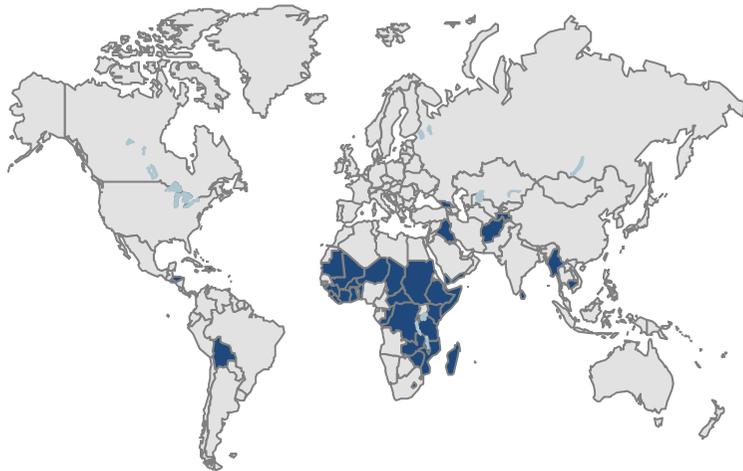
<sup>1</sup> Including feeding practices for Pregnant and Lactating Women <sup>2</sup> Including PLW and their children attending maternal child health and nutrition services

# WFP with HIV and TB programmes in 44 countries providing support to over 2.5 million beneficiaries

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## Geographical presence (HIV and TB)

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- Asia: 7
- Middle East: 2
- Africa: 31
- Americas: 4
- **Total countries: 44**

## Key facts on WFP TB programs (2010)

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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)**

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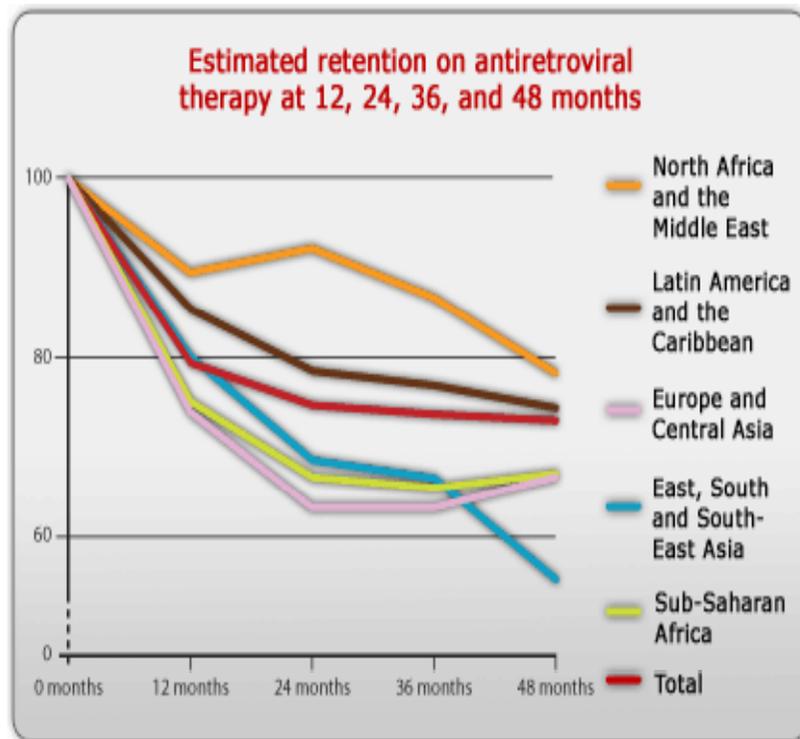
**The demand side of health care: case detection, access and adherence**

**Findings of WFP/WHO review of Food assistance in TB programs**

# 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

F&N supports adherence



*Consequences of inadequate treatment adherence include suboptimal health outcomes (morbidity and mortality) and decreased cost effectiveness*

## 1 Socio-economic barriers

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

## 2 Physiological barriers

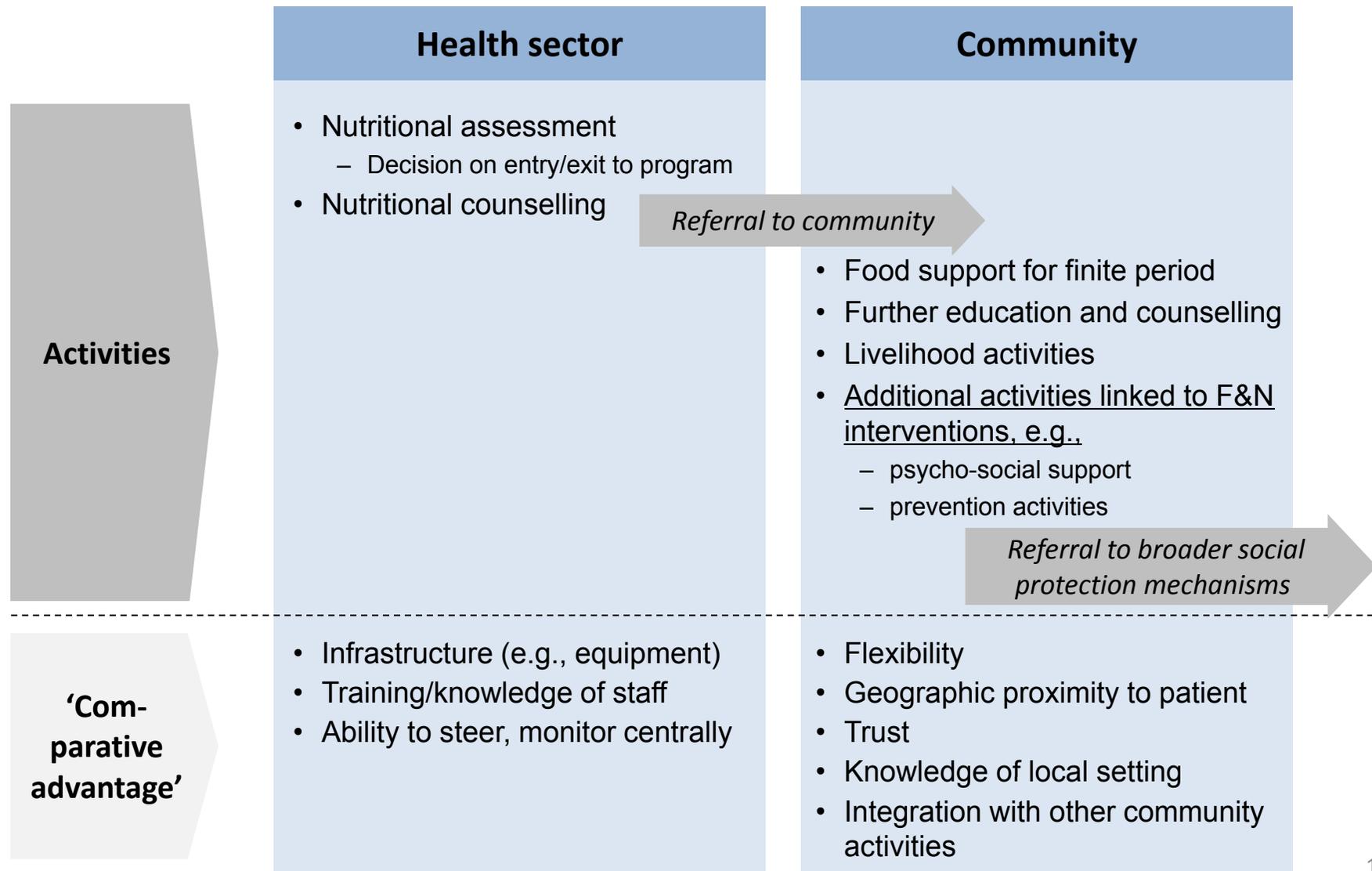
- Ability to satisfy appetite increased through DOTs, which may otherwise lead to treatment disruption

## 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?

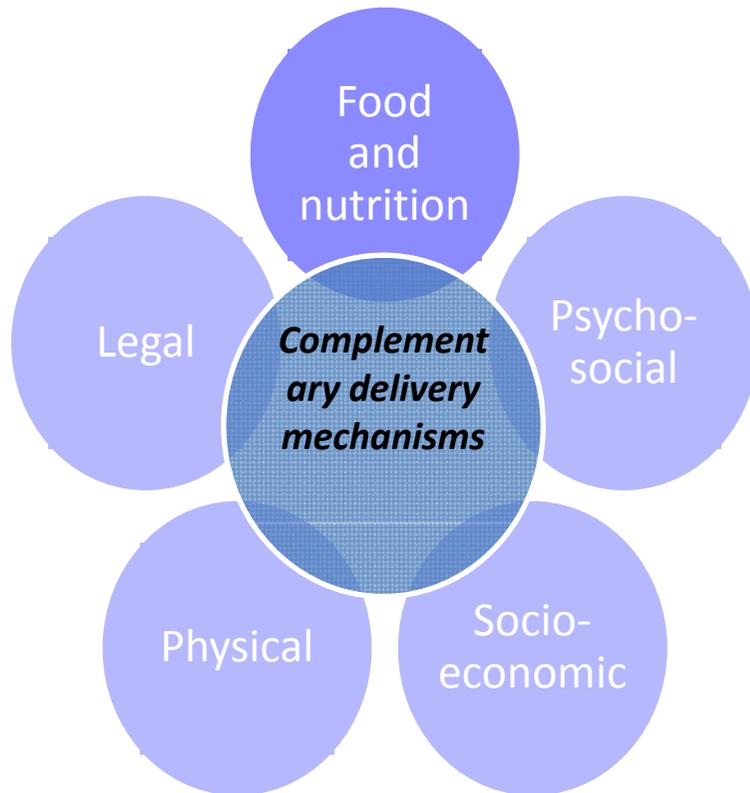
# Leverage strengths of health sector and communities

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



# 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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## **WHO/WFP survey '08/'09 got response from half of all high TB burden countries**

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**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

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## **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

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## **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

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**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

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**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

Findings	Study
<ul style="list-style-type: none"> <li>Nutritional status as reflected by serum albumin and hemoglobin were the best predictors of survival in a retrospective study of all TB patients admitted to intensive care with respiratory failure</li> </ul>	<ul style="list-style-type: none"> <li>Mehta JB et al. (1996): Nutritional status and mortality in respiratory failure caused by tuberculosis</li> </ul>
<ul style="list-style-type: none"> <li>Retrospective cohort study in an area with low MDR TB and HIV incidence, shows malnutrition as independently associated with mortality (AOR=3.2)</li> </ul>	<ul style="list-style-type: none"> <li>Rao VK et al. (1998): The impact of co-morbidity on mortality following in-hospital diagnosis of tuberculosis</li> </ul>
<ul style="list-style-type: none"> <li>In patients with TB (80% HIV-coinfection), 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)</li> </ul>	<ul style="list-style-type: none"> <li>Zachariah R et al. (2002): Moderate to severe malnutrition in patients with tuberculosis is a risk factor associated with early death</li> </ul>
<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>Mitnick C et al. (2003): Community-based therapy for multidrug-resistant tuberculosis</li> </ul>
<ul style="list-style-type: none"> <li>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)</li> </ul>	<ul style="list-style-type: none"> <li>Mugusi FM et al. (2009): Factors associated with mortality in HIV-infected and uninfected patients with pulmonary tuberculosis</li> </ul>
<ul style="list-style-type: none"> <li>Retrospective case control study shows that anaemia in HIV-negative (4% HIV+) TB patients to be a good predictor of mortality (AOR:5.24)</li> </ul>	<ul style="list-style-type: none"> <li>Risk factors for mortality among adult patients with newly diagnosed tuberculosis in Samara, Russia</li> </ul>

# Broad body of evidence on positive effects of food support on nutritional recovery and treatment access

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	<ul style="list-style-type: none"> <li>Patients who received food supplements had a significant increase in body weight (8.6 percent versus 2.6 percent, p-value &lt;0.001) (India)</li> </ul>	<ul style="list-style-type: none"> <li><i>Jahnavi G, Sudha CH (2011): Randomised controlled trial of food supplements in patients with newly diagnosed tuberculosis and wasting</i></li> </ul>
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<b>2</b> <b>Treatment access</b>	<ul style="list-style-type: none"> <li>Patients who received supplements had a significant higher treatment completion rate (p-value is 0.031) (India)</li> </ul>	<ul style="list-style-type: none"> <li><i>Jahnavi G, Sudha CH (2011): Randomised controlled trial of food supplements in patients with newly diagnosed tuberculosis and wasting</i></li> </ul>
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Selection of studies

# WFP's policy aims to enhance treatment success and mitigate effects of HIV/TB

	1 Care and treatment	2 Mitigation and safety nets
Objective	<p><b>Curative</b> Nutritional recovery and treatment access → Treatment success and survival</p>	<p><b>Preventive</b> Compensation for lost income and increased expenses due to HIV/TB → Prevention of negative coping mechanisms and food insecurity</p> <p><b>Enabling</b> Enabler of treatment access → Treatment success and survival</p>
Intervention	<ul style="list-style-type: none"> <li>• Nutrition Assessment, Education and Counselling (NAEC)</li> <li>• Food rations: FBF or RUFs</li> </ul>	<ul style="list-style-type: none"> <li>• Income transfer (cash, vouchers or food)</li> <li>• Livelihood activities</li> <li>• Design and implementation of HIV-sensitive policies (together with gov.)</li> </ul>
Beneficiaries	<p><b>Infected individual</b></p> <ul style="list-style-type: none"> <li>• PLHIV and people with TB (incl. PMTCT)</li> </ul>	<p><b>Affected household</b></p> <ul style="list-style-type: none"> <li>• Households of PLHIV and people with TB</li> <li>• Vulnerable households, e.g., hosting OVCs</li> </ul>
Entry/exit criteria	<ul style="list-style-type: none"> <li>• <b>Entry:</b> based on anthropometric criteria for malnutrition</li> <li>• <b>Exit:</b> typically after 6 months, from start of ART treatment</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Entry:</b> based on participation of infected person in care and treatment and household food (in-)security status</li> <li>• <b>Exit:</b> based on exit of infected person from care and treatment; vulnerable HH may receive longer support</li> </ul>

# Unused slides

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# People infected with TB face multiple barriers to get tested, initiate DOTS and adhere to it

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## **Socio-economic barriers**

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- Diseases reduces income and increases expenditures even when treatment is free
- Extensive evidence that access to treatment correlates to poverty

## **Physiological barriers**

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- Disease-induced lack of appetite

## **Psycho-social barriers**

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- Fear
- Stigma (real and perceived)
- Forgetting to attend appointments & take drugs

# How to ensure adequate nutrition?

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**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



Judy Pudlowski, International Medical Corps

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

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# Leverage strengths of health sector and communities

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

