

FANTA • 2

FOOD AND NUTRITION  
TECHNICAL ASSISTANCE



USAID  
FROM THE AMERICAN PEOPLE

# Preventing malnutrition: The potential role of lipid-based nutrient supplements (LNS)

Camila M. Chaparro, Ph.D.

*International Food Aid Conference*

*April 7, 2009*



**Food and Nutrition Technical Assistance II Project (FANTA-2)**

Academy for Educational Development 1825 Connecticut Ave., NW Washington, DC 20009  
Tel: 202-884-8000 Fax: 202-884-8432 E-mail: fanta2@aed.org Website: www.fanta-2.org

# Outline

- What are “lipid-based nutrient supplements” (LNS)?
- Why might LNS be beneficial for preventing malnutrition?
- FANTA-2 planned research

# What are “lipid-based nutrient supplements” (LNS)? (1)

- Key features:
  - Lipid is the primary source of energy
  - Fortified with multiple micronutrients (vitamins and minerals)
- Other characteristics:
  - General composition: vegetable fat, peanut paste, skimmed milk powder, sugar and vitamin-mineral mix
  - Ready-to-use food (RUF): Do not require dilution, preparation, cooking

# What are “lipid-based nutrient supplements” (LNS)? (2)

- Contain no water:
  - Inhibits microbial growth
  - Allows safe storage at home even in tropical climates
- Vitamin and mineral powder embedded in fat:
  - Prevents oxidation of vitamins
  - Increases shelf-life of the product
- Fat-base masks unpleasant taste of certain micronutrients
- Potential for local production and distribution

# “Fortified-blended foods” and “RUFs”: Where do LNS belong?

- “Fortified-blended-foods” (FBF): processed mixtures of cereals and other ingredients (e.g., pulses, oilseeds, dried skimmed milk, sugar and/or vegetable oil) fortified with vitamins and minerals which require preparation
  - Corn-soy blend
  - Wheat-soy blend
- RUF are ready-to-eat foods that require no preparation
  - High-energy biscuits
  - Ready-to-eat meals
  - **LNS**

# Potential applications and daily amounts



Daily amount used	Uses
<b>Small</b> (5-10 g/day)	Home-fortification
<b>Moderate</b> (20-90 g/day)	Targeted supplementary feeding of moderately malnourished children, blanket supplementation or home fortification of complementary foods (e.g., RUCF or RUSF)
<b>Large</b> (100- 200g/d)	Therapeutic feeding of severely malnourished children (e.g. RUTF)

# Why might LNS be beneficial for preventing malnutrition?

- LNS shown to increase linear growth of children and improve motor/cognitive development (efficacy trials in Ghana and Malawi)
- Fat content increases energy density, and may enhance absorption of fat-soluble vitamins (e.g., Vitamin A)
- Provide essential fatty acids, important for improved growth and brain development
- LNS can be tailored to the specific requirements of the target group: micronutrients and daily amount consumed



# Food and Nutrition Technical Assistance II Project (FANTA-2)

- Five year Cooperative Agreement (June 2008 – June 2013) funded by USAID
- **Objective:** To improve nutrition and food security policies, strategies and programming
  - Field support to strengthen country-specific nutrition and food security policies, strategies and programming
  - Increase the evidence base, effective methods and competencies
- **Partners:** International Food Policy and Research Institute, Nutriset, Regional Center for Quality of Health Care, Technical Assistance to NGOs, Tufts University, University of California-Davis, University of KwaZulu Natal, Washington University in St. Louis, Valid International

# FANTA-2/UC Davis proposed effectiveness research with LNS

- Evaluation of the effectiveness of LNS for the prevention of chronic malnutrition (i.e., stunting) in children
- Effectiveness vs. efficacy research:
  - *Efficacy*: intervention is delivered under “controlled” or “ideal” conditions
  - *Effectiveness*: intervention delivered via regular program mechanisms = Less control over delivery or compliance with intervention
    - “Real-world” setting

# FANTA-2/UC Davis proposed effectiveness research with LNS

- At least 2 studies to be conducted by FANTA-2/UC Davis
- Potential study sites being explored:
  - High prevalence of stunting
  - Possible programmatic settings:
    - Maternal, child health and nutrition program
      - *not* providing additional food supplementation
      - providing additional food supplementation (e.g., Title II program)
    - Community management of acute malnutrition screening

# FANTA-2/UC Davis proposed effectiveness research with LNS

- Important study design aspects
  - Acceptability assessment and formative research regarding LNS use
  - LNS: 20 g/day
  - Randomized design
  - “Comparison” (control) group
  - Target group: children 6 mo of age
  - Length of supplementation (per child): 18 mo (6-24 mo of age)

# FANTA-2/UC Davis proposed effectiveness research with LNS

- Outcomes to be assessed:
  - Biological:
    - Growth: length/height, weight
      - Stunting, underweight
    - Micronutrient status: iron, vitamin A
    - Anemia
    - Motor and cognitive development
  - Operational effectiveness:
    - Program delivery
    - Caregiver exposure and practice
  - Cost effectiveness:
    - Costs related to product, transportation, personnel time



**USAID**  
FROM THE AMERICAN PEOPLE



This presentation is made possible by the generous support of the American people through the support of the Office of Food for Peace, Bureau for Democracy, Conflict and Humanitarian Assistance and the Office of Health, Infectious Disease, and Nutrition, Bureau for Global Health, United States Agency for International Development (USAID) and, under terms of Cooperative Agreement No. GHN-A-00-08-00001-00, through the Food and Nutrition Technical Assistance II Project (FANTA-2), managed by the Academy for Educational Development (AED). The contents are the responsibility of AED and do not necessarily reflect the views of USAID or the United States Government.

**Food and Nutrition Technical Assistance II Project (FANTA-2)**

Academy for Educational Development 1825 Connecticut Ave., NW Washington, DC 20009  
Tel: 202-884-8000 Fax: 202-884-8432 E-mail: [fanta@aed.org](mailto:fanta@aed.org) Website: [www.fanta-2.org](http://www.fanta-2.org)