Public Nutrition in Complex Emergencies: Learning Objectives

- To identify the principal forms of malnutrition in emergencies
  - Protein-energy malnutrition (PEM)
  - Micronutrient malnutrition
- To identify the key indicators of nutritional status for assessment and principles of data interpretation for response planning
- To understand core principles and protocols for assessing the need for, establishing, maintaining and phasing out of:
  - General food distribution programs
  - Supplementary feeding programs
  - Therapeutic feeding programs
- To be able to calculate ration composition to meet minimum guidelines
- To understand, for key micronutrients, the epidemiology of deficiency, assessment techniques, and treatment of deficiency
Nutritional Assessment and Interventions in Emergency Settings

Ellen C. Mathys, MPH
John B. Mason, PhD
Tulane University
School of Public Health and Tropical Medicine

Developed in part with support from a grant from CARE International.

Photo from Oxfam food distribution in Ethiopia, c. 2000.
Objectives of nutritional programming in emergencies

- To ensure adequate food supply for entire affected population and thereby prevent malnutrition and other adverse health consequences
- To provide nutritional rehabilitation for moderately and severely malnourished
- To prevent nutritional deterioration for ‘vulnerable groups’
Why focus on the whole population first?

Photo of Eritrean refugee camp, July 2000, by Ellen Mathys.
Photo of Eritrean refugee camp, July 2000, by Ellen Mathys.
Types of emergency feeding programs

- General Food Distribution
- Selective Feeding Programs
  - Supplementary Feeding Programs (SFP)
  - Targeted Supplementary Feeding Programs
- Therapeutic Feeding Programs (TFP)
Malnutrition in emergencies

- Protein-energy malnutrition (PEM)
  - Marasmus
  - Kwashiorkor
  - Marasmic kwashiorkor

- Micronutrient malnutrition
  - Vitamin A deficiency (xerophthalmia)
  - Thiamin (B1) deficiency (beriberi)
  - Niacin (B3) deficiency (pellagra)
  - Vitamin C deficiency (scurvy)
  - Iron deficiency (anemia)
  - Iodine deficiency (goiter, cretinism)
  - Riboflavin (B2) deficiency (ariboflavinosis)
**PEM: Marasmus**

- May result from:
  - Severe food shortage
  - Chronic or recurrent infections with marginally low food intake

- Main and associated signs:
  - Severe loss of fat and muscle
  - Thin “old man” face
  - “Baggy pants”
  - Generally alert
  - No nutritional edema
  - Prominent ribs
  - Importance of appetite
Marasmus

Photo of Somali child by A. Raffaele Ciriello (http://www.ciriello.com).
Marasmus

(Photo from www.nutrition.uu.se)
**PEM: Kwashiorkor**

- Relatively uncommon, but high risk of mortality
- May result from:
  - Combination of inadequate diet and infection
  - More common with non-cereal diet (e.g. roots/tubers)
- Main and associated signs:
  - Nutritional edema
  - May appear fat because of edema
  - Hair changes: loss of pigmentation, straightening, easy pluckability
  - Skin lesions and depigmentation: dark skin may become lighter in skin folds, outer layers of skin may peel off (esp. legs), ulceration, lesions resembling burns
  - Apathetic, miserable, irritable demeanor, lack of appetite
  - Marasmic kwashiorkor
Kwashiorkor
(Photo from www.nutrition.uu.se)
Nutritional assessment in emergencies

Before data is available: 100:10:1

When should you do a nutritional survey?

- As an initial assessment of the severity of the problem
- As a follow-up assessment to monitor trends and impact of interventions
- When resources are available to act on results
- When time and conditions allow for survey implementation
Nutritional assessment: relevant secondary information

- History of emergency
- Household resources (food, non-food)
- Proximity to markets
- Development of local market activities
- Support from local population
- Numbers of malnourished
- Food access
Nutritional assessment: sampling and indicators

**Sampling:**
- Children 6-59 mos
- Adolescents, adults

**Indicators:**
- Acute emergency:
  - wasting, edema
- Stable emergency:
  - wasting, edema
  - underweight
  - stunting

**Reporting WFH, edema:**
- Moderate wasting:
  - <-2 to –3 Z scores WFH
- Severe wasting:
  - <-3 Z scores WFH
- Moderate+severe wasting (global) plus edema:
  - <-2 Z scores WFH
- Edema:
  - Nutritional edema, regardless of WFH
Interpreting anthropometric results for response planning

- If food availability at household level < 2100 kilocalories per person per day (kcals pppd):
  - Improve general rations!

- If global acute malnutrition rate >= 15%, OR 10-14% with aggravating factors:
  - Ensure adequate general rations
  - Consider starting a time-limited SFP for vulnerable groups (esp. children, preg/lact women)
  - Therapeutic feeding programs for severely malnourished individuals
Interpreting anthropometric results for response planning

If global acute malnutrition rate is 10-14%, OR 5-9% with aggravating factors:

- Ensure adequate general rations
- Targeted SFP for moderately malnourished
- TFP for severely malnourished

If global acute malnutrition rate <10%, OR <5% with aggravating factors:

- No immediate need for large-scale interventions
- Surveillance and support to nutritional services in existing health system