Management of under-nutrition in a crisis situation

WHO, Department of Nutrition for Health and Development

UNICEF Nutrition Suppliers Meeting
5-6 October 2009
Outline

- Malnutrition classification, indicators
- Global situation
- Interaction between under-nutrition and common infections or other diseases
- Addressing under-nutrition in emergency situations
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# Malnutrition - classification

<table>
<thead>
<tr>
<th>Z-score</th>
<th>Length/height -for-age</th>
<th>Weight-for-age</th>
<th>Weight-for-length/height</th>
<th>BMI-for-age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 3</td>
<td></td>
<td></td>
<td>Obese</td>
<td>Obese</td>
</tr>
<tr>
<td>Above 2</td>
<td></td>
<td></td>
<td>Overweight</td>
<td>Overweight</td>
</tr>
<tr>
<td>Above 1</td>
<td></td>
<td></td>
<td>Possible risk of overweight</td>
<td>Possible risk of overweight</td>
</tr>
<tr>
<td>0 (median)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below – 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below – 2</td>
<td></td>
<td>Stunted</td>
<td>Underweight</td>
<td>Wasted</td>
</tr>
<tr>
<td>Below – 3</td>
<td></td>
<td>Severely stunted</td>
<td>Severely underweight</td>
<td>Severely wasted</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Severely wasted</td>
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</tbody>
</table>
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90% of All Stunted Children Live in Just 36 Countries
Global situation: wasting
Outbreaks of micronutrient deficiencies: examples

<table>
<thead>
<tr>
<th>Vitamin A deficiency</th>
<th>Year</th>
<th>Location</th>
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<tbody>
<tr>
<td></td>
<td>1993</td>
<td>Ethiopia</td>
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<td>Iraq</td>
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<td></td>
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<td>Sudan</td>
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<table>
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<th>Year</th>
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<tr>
<td></td>
<td>1990</td>
<td>Syria/West Bank</td>
</tr>
<tr>
<td></td>
<td>1996</td>
<td>Zaire</td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td>Tanzania</td>
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<table>
<thead>
<tr>
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<td></td>
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<td>Ethiopia</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>Nepal</td>
</tr>
<tr>
<td></td>
<td>1996</td>
<td>Kenya</td>
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</table>

<table>
<thead>
<tr>
<th>Beriberi</th>
<th>Year</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1994</td>
<td>Nepal</td>
</tr>
<tr>
<td></td>
<td>1995</td>
<td>Bangladesh</td>
</tr>
<tr>
<td></td>
<td>1996</td>
<td>Tanzania</td>
</tr>
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<tr>
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<th>Year</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1990</td>
<td>Malawi</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>Nepal</td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>Angola</td>
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</tbody>
</table>
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Major causes of death in neonates and children under-five in the world - 2004

Deaths among children under-five

- Diarrhoeal diseases (postneonatal) 16%
- Malaria 7%
- Acute respiratory infections (postneonatal) 17%
- Other infectious and parasitic diseases 9%
- HIV/AIDS 2%
- Measles 4%
- Neonatal deaths 37%
- Prematurity and low birth weight 31%
- Birth asphyxia and birth trauma 23%
- Neonatal infections 25%
- Other 9%
- Congenital anomalies 7%
- Diarrhoeal diseases 3%
- Neonatal tetanus 3%
- Noncommunicable diseases (postneonatal) 4%
- Injuries (postneonatal) 4%


35% of under-five deaths are due to the presence of undernutrition*
Effect of Infection ↔ Malnutrition on Growth

Weight Kg

Months of life

HIV and under-nutrition

- HIV-infected children require more energy
  - 10-15 % if asymptomatic
  - 20-30 % during infections and recovery
  - 50-100 % in case of advanced disease
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Interpretation of indicators in emergencies

- Prevalence of acute malnutrition between 5-9% - risky situation
- Prevalence of acute malnutrition > 10% - serious situation

(With aggravating factor: crude mortality rate above 1/10,000/day)
Risk factors for under-nutrition and micronutrient deficiencies in emergencies: examples

- Total dependence on the food ration
- Poor variety of food in the local market (e.g. vegetables, fruits, milk, meat, fish)
- Poor agriculture
- High prevalence of infectious diseases
- Poor child feeding practices.
Addressing malnutrition in emergencies

- Children under five are the most vulnerable
- High risk group – children 12-36 months
  - Most vulnerable to infections

Promoting and supporting breastfeeding and appropriate complementary feeding, support for improved access to a variety of nutrient rich foods, support for health care.
Management of under-nutrition

- **SFP (Supplementary Feeding Programmes)**
  - To treat moderate under-nutrition
  - Prevent severe under-nutrition

- **TFP (Therapeutic Feeding Programmes)**
  - To treat severe under-nutrition
  - Prevent excess mortality related to under-nutrition
Management of severe acute malnutrition
FIGURE 1

Odds ratio for mortality by weight-for-height. Adapted from reference 9

Note: reference category: children with a weight-for-height > -1 SD.

What is WHO doing?

- Support countries for training and monitoring of HCP at hospital level (inpatient care)

- Update of the WHO training course

- Develop joint statements on community based MSAM (WHO/UNICEF/WFP); Use of WHO standards & identification of children with SAM (WHO/UNICEF)

- Guideline on integrated MSAM for policy makers & programme managers
WHO child growth standards and the identification of severe acute malnutrition in infants and children

### BOX 2. SAM MANAGEMENT

| Independent additional criteria | • No appetite  
• Medical complications | • Appetite  
• No medical complications |
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of therapeutic feeding</strong></td>
<td><strong>Facility-based</strong></td>
<td><strong>Community-based</strong></td>
</tr>
</tbody>
</table>
| Intervention | F75→F100/RUTF  
And 24 hour medical care | RUTF, basic medical care |
| Discharge criteria (Transition criteria from facility to community-based care) | Reduced oedema  
Good appetite  
(with acceptable<sup>a</sup> intake of RUTF) | 15 to 20% weight gain |

<sup>a</sup> Child eats at least 75% of their calculated RUTF ration for the day
Management of severe acute malnutrition

- Inpatient care possible only if:
  * Health care providers trained and regularly monitored
  * Medical supplies and Therapeutic foods supplies (F75, F100, RUTF) available continuously in all health facilities where cases of SAM cases are being referred.
Management of moderate malnutrition
Includes management of moderate wasting and of severe or moderate stunting. Excludes those who need therapeutic feeding (WFH < -3 or low MUAC or oedema)
Management of moderate malnutrition: Same recommendations for the last 30 years.

Outline of the MM meeting

- Overall aim: determine what diet should be used for MM children?
- Current practices: Dietary counseling, Food supplements
- What should be done – next steps
- Working group sessions
- Conclusions
Current practices

- Dietary advice given often not specific

- Doubts about the efficacy of supplementary feeding programmes using blended flour (limited quality of the food supplements, poor targeting etc.)
Main recommendations of the consultation (summary)

Optimal diet to manage MM not yet determined but food supplements should:
- have a proven efficacy for recovery/not the cheapest
- have a high level of animal source foods or with highly processed plant foods with low anti-nutrient content
- promote lean tissue synthesis and improved functional outcome; diets leading only to increased weight not satisfactory

Attention should be paid to mineral interaction for food fortification and to the content of fatty acids
Main recommendations of the consultation (summary)

Dietary counselling should:
- move away from the general "fit for all" recommendation
- provide specific recommendation for MM with locally available food
Next steps

Development of specifications for food categories specific for MM children and validation of new products for prevention and treatment of MM.

Organisation of a second meeting to improve programmes addressing the management of MM.