

Disaster Risk Management for Health

NUTRITION

Key Points

- Risks of undernutrition can be managed by optimising infant and child feeding, improving food security and ensuring access to health care.
- **Emergency preparedness is vital** for communities in both developed and developing countries to:
 - **Minimize nutritional vulnerabilities for infants**, e.g. by increasing breast feeding rates.
 - **Improve the impact** of nutritional responses: e.g. networks of trained personnel ready to act in an emergency.¹
- **Nutritional interventions** can be either:
 - Blanket e.g. general food distributions, micronutrient fortification of staple foods.
 - Targeted at specific high risk subgroups.
- **Scale-up and scale-down** of nutritional responses should be **informed by assessment of specific situations**.²
- **Choosing and prioritizing** nutritional interventions and nutritional products should be **informed by evidence and follow latest best-practice**.⁴
- In developing countries, tackling high risk **severe acute malnutrition (SAM)** is a priority.⁴
- Defining SAM using new **WHO growth standards** rather than old NCHS references results in greater numbers of infants and children eligible for therapeutic feeding. This has caseload and resource implications.^{1,3}
- Appropriate **infant and young child feeding saves lives**. Operational guidance should be followed¹. This includes active support for breastfeeding.
- Multisectoral emergency response is coordinated at local and national levels.

Why is this important?

Worldwide, almost **one billion people are undernourished**:⁵

- 98% live in developing countries.
- 60% are women.

Of 556 million children aged <5 years in developing countries, 19 million are severely wasted; 112 million are underweight; 178 million are stunted.⁶

Maternal and child undernutrition underlies:⁶

- 3.5 million deaths per year.
- 35% of disease burden in children aged under 5 years.

Many countries have a “double burden” of over and under-nutrition.⁷ Overweight has more than doubled since 1980 and affects 1.5 billion adults.

Early malnutrition has adverse life-course implications including later predisposition to overweight, obesity and chronic disease.³

Disasters exacerbate malnutrition:⁴

- Over 35% of food crises are attributable to human causes, notably conflict.
- Drought is the commonest cause of food shortage in the world. Climate change exacerbates existing adversities.

Infants reliant on breastmilk substitutes are at risk if supplies are interrupted or clean water unavailable: this is as much a developed country as a developing country problem.



Measuring infants for height and weight, Malawi (Marko Kerac)

- **Severe acute malnutrition (SAM)** comprises kwashiorkor (oedematous malnutrition) as well as severe wasting. SAM causes 1 to 2 million under-5 child deaths per year.
- **Mid-upper arm circumference** is also used to define SAM. The cut-off value is now <115mm.
- **STUNTING (low height-for-age)** indicates chronic undernutrition and can be exacerbated in a disaster. It is a risk factor for poor health, impaired learning capacity, and reduced adult productivity.
- **UNDERWEIGHT (low weight-for-age)** is due to a combination of wasting and stunting.
- **MICRONUTRIENT malnutrition** can cause:
 - Specific problems e.g. iron deficiency anaemia can lead to reduced work capacity and adverse pregnancy outcomes; Vitamin A: night blindness; iodine: reduced cognitive function
 - Non-specific problems e.g. increased mortality with Vitamin A deficiency and increased morbidity with Zinc deficiency

Vulnerable populations

In a disaster, everybody can be at risk of malnutrition, but some groups are particularly vulnerable ²:

- **Infants:** Suboptimal breastfeeding is estimated to be responsible for 1.4 million child deaths and 44 million DALYs⁴.
- **Young children:** rapid growth and development requires an adequate diet to achieve full physical and mental potential.
- **Pregnant and lactating women:** nutrition impacts on both maternal and child health e.g. maternal folate supplements decrease the risk of infant neural tube defects...
- **Older people** or those with **HIV, TB** or other underlying chronic conditions.

Risk management considerations

In both developing and developed countries, **optimizing infant and young child feeding** is a priority action. ^{1,3}

- Infants should be exclusively breastfed for the first six months of life. They should continue on breastmilk until at least age two.
- Breastfeeding myths often need to be addressed: e.g. unless severe, maternal malnutrition or maternal stress has little effect on breastmilk volume or composition.

Food security interventions and ensuring **access to appropriate healthcare** play an important role minimizing risk of undernutrition.

Ensuring good **food quality and food safety** is as important as ensuring adequate food quantity.

Community-based Management of Acute Malnutrition is effective in tackling SAM. Emphasis is on high programme coverage using appropriate clinical practices including therapeutic milks for inpatient care and ready-to-use therapeutic foods for outpatient care.³

To avoid **exacerbation of stunting, early interventions** are best: during gestation and the 1st two years of life.

Management of micronutrient deficiencies can involve fortification of general rations or supplementation.

Example: Indonesian Earthquake (2006) (ref: <http://fex.enonline.net/34/special.aspx>)

Initial responses included large quantities of poorly regulated breast-milk substitutes (BMS).

32% of infants aged <6 months had ever consumed BMS before the earthquake vs. 43% afterwards. Diarrhoea prevalence was 25% among those who received BMS donations vs. 12% among those who did not.

Responding to these problems, MoH, with the support of the international community, devised a "cascade" system of support for young mothers: frontline counselors each supported 6 local lactation counselors who in turn supported 5 mothers. This led to improvements in breastfeeding practices.

References and further reading

1. Emergency Nutrition Network <http://www.enonline.net/>
2. Integrated Food Security Phase Classification <http://www.ipcinfo.org/>
3. World Health Organization. Nutrition for Health and Development pages. <http://www.who.int/nutrition/en/>
4. The Sphere Project – Humanitarian Charter and Minimum Standards for Disaster Response <http://www.sphereproject.org/>
5. World Food Programme. Hunger <http://www.wfp.org/hunger>
6. Robert E Black, Lindsay H Allen, et al, for the Maternal and Child Undernutrition Study Group. Maternal and child Undernutrition: global and regional exposures and health consequences. Lancet 2008; 371: 243-60
7. UN Standing Committee on Nutrition. <http://www.unscn.org/>