Deficiencies of micronutrients are a major global health problem. More than 2 billion people in the world today are estimated to be deficient in key vitamins and minerals, particularly vitamin A, iodine, iron and zinc. Most of these people live in low income countries and are typically deficient in more than one micronutrient. Deficiencies occur when people do not have access to micronutrient-rich foods such as fruit, vegetables, animal products and fortified foods, usually because they are too expensive to buy or are locally unavailable. Micronutrient deficiencies increase the general risk of infectious illness and of dying from diarrhoea, measles, malaria and pneumonia. These conditions are among the 10 leading causes of disease in the world today (1).

The groups most vulnerable to micronutrient deficiencies are pregnant women, lactating women and young children, mainly because they have a relatively greater need for vitamins and minerals and are more susceptible to the harmful consequences of deficiencies. For a pregnant woman these include a greater risk of dying during childbirth, or of giving birth to an underweight or mentally-impaired baby. For a lactating mother, her micronutrient status determines the health and development of her breast-fed infant, especially during the first 6 months of life. For a young child, micronutrient deficiencies increase the risk of dying due to infectious disease and contribute to impaired physical and mental development.

MICRONUTRIENTS IN EMERGENCIES

Micronutrient deficiencies can easily develop during an emergency or be made worse if they are already present. This happens because livelihoods and food crops are lost; food supplies are interrupted; diarrhoeal diseases break out, resulting in malabsorption and nutrient losses; and infectious diseases suppress the appetite whilst increasing the need for micronutrients to help fight illness. For these reasons it is essential to ensure that the micronutrient needs of people affected by a disaster are adequately met. For this to happen it is critical that general food-aid rations are adequate and well balanced to meet nutrient needs, and that they are distributed regularly and in sufficient quantities.

One way to meet the recommended daily intake of micronutrients is to provide foods fortified with micronutrients (2–3). Fortified foods, such as corn-soya blend, biscuits, vegetable oil enriched with vitamin A, and iodized salt, are usually provided as part of food rations during emergencies. The aim is to avert micronutrient deficiencies or prevent them from getting worse among the affected population (4). Such foods must be appropriately fortified, taking into account the fact that other unfortified foods will meet a share of micronutrient needs.

However, foods fortified with micronutrients may not meet fully the needs of certain nutritionally vulnerable subgroups such as pregnant and lactating women, or young children. For this reason UNICEF and the WHO have developed the daily multiple micronutrient formula shown in Table 1 to meet the recommended nutrient intake (RNI) of these vulnerable groups during emergencies (2, 3, 5).
The delivery of supplements should be monitored to assess coverage while existing micronutrient programmes should continue as before emergency (6). The health of target groups should be monitored to ensure that they are protected from deficiencies as well as from excessive consumption. Indicators for this are described in several WHO publications (7–12).

Moreover the continued need for supplements and fortified foods should be assessed periodically during and after the emergency. As the crisis wanes, the general distribution of supplement is likely to be reduced and then increasingly targeted to specific groups.

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