Maternal and newborn nutrition and health

Maternal and child undernutrition is a largely preventable cause of more than 3.5 million deaths annually, accounting for 35% of the disease burden among children younger than five years of age and 11% of the total global disease burden. Stunting, severe wasting and intrauterine growth restriction are among the most important associated causes. The prevention of maternal and child undernutrition is a long-term investment that will benefit both present and future generations.

What do we know?

Cycles of infection and undernutrition result in increased morbidity and mortality

There are two vicious circles of undernutrition and ill health. One cycle acts at the individual level and the other passes undernutrition and ill health from one generation to the next. Both cycles operate simultaneously, and both negatively affect health.

The individual cycle corresponds to the vicious circle of poverty, undernutrition and disease. This cycle often results in disease and sometimes death. People with low income are disadvantaged and live most of their lives with inadequate access to safe and healthy food. Poor people frequently eat and absorb too little nutritious food and are therefore more prone to diseases. Chronic inadequate access to healthy food leads to deficiency in growth (stunting), and this can lead to, complicate or increase susceptibility to various diseases. Notably, infection and illness further exacerbate malnutrition, thereby perpetuating this cycle. Malnourished and sick people are less able to work efficiently, which affects their income and that of their families, resulting in less ability to purchase good food, thus aggravating the vicious circle. Ample evidence indicates that women comprise most of the poor

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Fig. 1   Lifecourse approach: the proposed causal links

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people in the world today. Poverty shows a feminine face.

The intergenerational cycle is the path through which a low-birth-weight baby becomes a stunted child, a stunted adolescent and a malnourished woman who, in turn, has another low-birth-weight baby. Fig. 1 illustrates how poor nutrition starts in utero among women with poor nutritional status before and during pregnancy and extends throughout the life course, affecting the next generation. This vicious circle restrains the development of some of the world’s poorest countries, whose workforce, affected both mentally and physically, has reduced work capacity. Further, this cycle perpetuates a chronic lack of enjoyment of the right to health.

What are the problems?

A good diet before, during and after pregnancy is critical for women’s health and that of their babies. Good nutrition is essential for infants’ optimal growth and development and has an important role in determining their health later in life. Various studies have found that shorter women more often need assisted delivery than do taller women. Short stature and iron-deficiency anaemia among mothers increase their risk of dying during delivery, accounting for at least one of five maternal deaths. Maternal malnutrition is prevalent in many regions, either as undernutrition or overweight and/or obesity. Among pregnant adolescent girls, the baby’s growth and the mother’s growth are competing, and anaemia resulting from micronutrient deficiencies, parasitic diseases or other causes adversely affects pregnancy outcomes. Nutrition is an essential element of family planning, and maternal and child health programmes have multiple health effects on this generation and future ones.

Anaemia and deficiencies of vitamin A and iodine are highly prevalent among women. Estimates indicate that almost half of pregnant women and one third of non-pregnant women worldwide have anaemia. Globally, an estimated 9.8 million pregnant women have night blindness. An estimated 19.1 million pregnant women have low serum retinol concentrations, with Africa and South-East Asia having the highest proportions. Maternal deficiencies in micronutrients may affect infant birth weight and survival, and poor vitamin A intake increases the risk of maternal night blindness.

Overweight and obesity are rapidly growing concerns in all regions, affecting children and adults alike. Fig. 1 also illustrates the intergenerational cycle related to this form of malnutrition. These problems are now common in some low- and middle-income countries and are becoming significant public health priorities just like undernutrition and infectious diseases. Obesity is a risk factor for many noncommunicable diseases, including hypertension and diabetes, which are known causes of complications of pregnancy, including those that lead to maternal deaths.

Inadequate breastfeeding practices are also a concern. WHO recommends early breastfeeding initiation (within one hour of birth), exclusive breastfeeding for six months and continuing breastfeeding for up to two years or beyond. Inadequate breastfeeding, mainly non-exclusive breastfeeding in the first six months of life, results in 1.4 million annual deaths and accounts for 10% of the disease burden among children younger than five years. Observational studies and a meta-analysis have documented the increased risk of morbidity and mortality from suboptimum breastfeeding.

Special situations increase the vulnerability of women and children, including emergency situations that affect food intake for the mother and her infant.

Hunger and malnutrition are rampant among refugees and displaced populations, currently comprising more than 40 million people worldwide. Many of those affected -- infants, children, adolescents, adults and older people -- have one or more of the multiple forms of malnutrition. In addition to wasting, many people affected by emergencies have deficiencies

"I cannot overstress the need for emergency action, together with an urgent quest to ensure better food security in the future. The health sector has very good knowledge about nutritional needs at different ages and in different high-risk groups. We have very good tools for monitoring deficiencies and sounding the alarm for action. Above all, we need to gear up capacity, and very quickly, to manage malnutrition in vulnerable populations.”

Dr Margaret Chan, WHO Director General, June 2008
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of iodine, vitamin A and iron. Scurvy, pellagra and beriberi occur frequently among population groups entirely dependent on food aid.

In 2007, 2.7 million people became infected with HIV and 2 million people died from HIV-related causes worldwide. Women account for half of all people living with HIV worldwide and nearly 60% in sub-Saharan Africa. During the past 10 years, the proportion of women among people living with HIV has remained stable globally but has increased in many regions. People 15–24 years old account for an estimated 45% of new HIV infections worldwide. Pregnant women living with HIV require higher caloric intake and need nutrition counselling to cover their nutrient requirements. Further, they need dietary advice, especially if they are receiving antiretroviral therapy, and counselling to choose an infant feeding option appropriate in their situation.

Currently the world has a crisis of high food prices, which affects access to nutritious food. Low-income households spend considerably more than half their disposable income on food. Food choices are highly sensitive to price, and dietary diversity, including micronutrient and protein-rich healthy foods, is the first to be dropped from the diet, as these options are usually more expensive. The food crisis is thus a dual threat to the quality and quantity of the diet, resulting in malnutrition. This is particularly true among young children and among people with chronic diseases, such as heart disease, diabetes and some types of cancer. In addition, the food crisis is expected to further increase the burden of malnutrition, particularly among poor people. Women are especially vulnerable, with an increased risk of malnutrition during pregnancy.

What can be done and how?

Effective interventions are available to reduce stunting, micronutrient deficiencies and maternal and child deaths. If implemented at a large scale, these interventions would reduce the number of disability-adjusted life-years (DALYs) lost by about one quarter in the short term.

The golden interval for intervention extends from pregnancy to two years of age. If under-nutrition is not addressed during these crucial two years, it may cause irreversible damage for future development towards adulthood, thus increasing the risk of girls becoming malnourished mothers, who then have a low-birth-weight baby. Efforts should focus on this segment of the continuum of care. Interventions with proven effectiveness should be rapidly implemented at a large scale. In addition to health and nutrition interventions, economic and social policies addressing poverty, trade and agriculture have been associated with rapid improvement in nutritional status and should be implemented. Health systems should be strengthened and community-level nutrition interventions should be promoted, ensuring comprehensive nutritional care and support, especially for vulnerable groups.

Interventions for maternal nutrition, such as supplements of iron, folic acid and calcium and balanced energy and protein intake, can potentially improve maternal health and birth outcomes.

Counselling about breastfeeding, fortifying food with vitamins and minerals, giving mothers and infants vitamin A supplements to prevent vitamin A deficiency disorders and using zinc as an adjunctive treatment for diarrhoea have great potential to reduce the burden of morbidity and mortality among children. Improving complementary feeding among food-insecure populations could substantially reduce stunting and the related burden of disease.

In emergency situations, it is recommended to continue promoting optimal feeding of infants and young children, emphasizing immediate and exclusive breastfeeding from birth to six months of age and strictly controlling the quantity, distribution and use of breast-milk substitutes. In addition, caregivers need to be taken care of and children’s nutritional status monitored to identify malnourished children at an early stage. Pregnant and lactating women living in emergency situations should receive fortified foods and micronutrient supplements and should have access to sufficient safe drinking-water.

Women living with HIV need additional food to cover increased caloric needs. If they are pregnant or lactating, they will need enough food to additionally cover the needs of the pregnancy or lactation, preferably using locally available foods. The feeding of babies of mothers living with HIV depends on what the mother chooses based on her own situation. All pregnant women should receive counselling to guide an informed choice. The two recommended feeding options for women living with HIV are exclusive breastfeeding or exclusive replacement feeding with an infant formula.
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Fact sheet

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