Editorial

Despite a fair amount of hype around the subject, undernutrition remains a neglected area globally. There is some recognition that undernutrition is linked to poverty, and in setting the Millennium Development Goals (MDGs), the only nutrition indicator, underweight, was linked to reduction of absolute number of people below the poverty line.

The target set at the 1996 World Food Summit was to halve the number of undernourished people by 2015 from their number in 1990–1992. The estimated number of undernourished people in developing countries was 824 million in 1990–1992. In 2003–2005, the figure stood at 848 million and has reached an approximate 925 million in 2010 (as estimated 13.6% of the estimated world population of 6.8 billion). Undernutrition signifies deficiencies in energy, protein, and/or essential vitamins and minerals and could be the consequence of inadequate intake of food – in terms of either quality or quantity – or poor utilization of nutrients due to infections or other illnesses, or a combination of these two factors.

An additional measure is the Global Hunger Index (GHI), which is calculated for 120 developing countries and countries in transition for which data on the three equally weighted components of hunger (the proportion of people who are undernourished, the proportion of children under 5 years who are underweight, and the under-5 child mortality rate) are available. The GHI ranks countries on a 100-point scale, with 0 being the best score (no hunger) and 100 being the worst, although neither of these extremes is reached in practice. Since 1990, al-

though the world's GHI score has decreased by nearly 25%, global hunger remains at a 'serious' level and the net number of hungry people has increased since 1995–1997. The increase has been due to three factors: (1) neglect of agriculture relevant to very poor people by governments and international agencies; (2) the current worldwide economic crisis, and (3) the significant increase of food prices in the last several years which may be at its worst stage in recent history. Despite the controversy that plagued some of the issues around global climate change, most scientists concur that this is the single largest challenge facing mankind and threatens to impact all aspects of the way we live. Notwithstanding the debate surrounding the subject, the Intergovernmental Panel on Climate Change estimated that climate change alone could potentially increase the number of people directly at risk of hunger by a figure between 40 and 170 million. The recent spate of global disasters with floods and draughts has worsened the situation with regard to food production leading to instability and unprecedented rise in food prices. The effects of these recent shocks will not be trivial. Evidence is still being gathered, but some prior estimates based on modeling documented effects from the Asian financial crisis of the mid-1990s indicate that child undernutrition rates could potentially increase by 10–15% with a consequent increase in mortality among the most vulnerable.

A global review of the situation of maternal and child undernutrition is overdue. Two articles in this issue of *Annals of Nutrition and Metabolism* by Ahmed et al. and

Bhutta and Salam present relatively new findings on the epidemiology and distribution of maternal and child undernutrition. It was estimated in 2008 that there were a total of 112.4 million underweight young children globally, 28% of whom were in eastern Africa and 33% in south central Asia. In addition, 13 million infants were born annually with intrauterine growth restriction resulting in low birth weight. It has recently been estimated that worldwide 175 million children under 5 years are stunted, of whom 57 million live in Africa, 112 million in Asia, and 9 million in Latin America. The global prevalence of stunting in children under 5 years in 2005 was 32%, with rates in Africa, Asia, and Latin America averaging 40, 31, and 16%, respectively. Although rates of edematous malnutrition are not available universally, it is estimated that 10% of all children globally (55 million) are wasted and 19 million children worldwide suffer from severe acute malnutrition.

Undernutrition thus represents the non-income face of poverty. Though many countries are on track for improving income poverty (MDG 1a), less than a quarter of developing countries are on track for achieving the goal of halving undernutrition (MDG 1c), and micronutrient deficiencies remain rife. Prof. L. Allen presents important information on the role of adequate diet among children globally and documents low consumption of animal source foods or fortified foods in general contributing to ubiquitous nutrient deficiencies including vitamin A, iron, zinc, and vitamin B12. She also underscores the fact that it may be difficult to meet children's micronutrient requirements after age 6 months unless their diet contains some animal source foods such as milk, eggs, fish or meat, and/or is fortified commercially or in the home. Adding animal source foods to the diets of children in developing countries or improving milk or dairy product uptake is associated with demonstrable gains in linear growth and development.

The close link between undernutrition and infectious diseases, notably serious disorders such as diarrhea and pneumonia, are underscored by Dr. M.B. Krawinkel in his review. While he recognizes the intuitive link between infectious disease burden and risks for undernutrition, he also points out the growing body of evidence around the risks associated with obesity and attributes these to the contribution of adipose tissue to inflammation and alterations in the neuro-endocrine axis. There is growing evidence that overweight coexists in the same countries where both child and maternal undernutrition are widespread and in many countries with low per capita Gross National Product (GNP). The burden of obesity in each

developing country tends to shift towards the groups with lower socioeconomic status as the country's GNP increases. The trends in overweight among children under 5 years are a cause for concern for many in developing countries, especially for Africa, where rates seem to be increasing at a far greater rate (58% increase) than in the developing world at large (average 17% increase). With the growing body of evidence on the link between suboptimal early nutrition and risks of obesity in later life, these issues are fast becoming a concern for even the most impoverished countries and economies in transition.

The diagnosis of the burden and distribution of undernutrition in the global context is clear, although the solutions may not be intuitively clear. There is the imperative of tackling the two immediate causes of undernutrition, notably inadequate dietary intake and disease, through interventions to address household food security, income poverty, and care for children and women, and health environment/health services. Ultimately, these factors are embedded in the larger political, economic, social, and cultural environment, and these determinants need to be addressed through a social policy agenda firmly imbedded in a human rights framework especially addressing the status of women. Undernutrition reflects and contributes to inequality, disproportionately affecting poor, marginalized, and extremely vulnerable groups. As we approach the post-2015 era of renewed global social contracts, addressing maternal and child undernutrition directly must become a global priority and a moral imperative. We hope that this issue of *Annals of Nutrition and Metabolism* will go some way in making this case.

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