

Maternal and child undernutrition: an urgent opportunity



Nutrition is a desperately neglected aspect of maternal, newborn, and child health. The reasons for this neglect are understandable but not justifiable. When one considers specific actions to improve maternal and child survival, one is drawn to particular interventions—vaccination, oral rehydration therapy, and the treatment of infection and haemorrhage. In recent years, this portfolio of responses has broadened to embrace the health system—human resources, financing, and stewardship. Somehow, nutrition has slipped through the gap.

And yet we know that nutrition is a major risk factor for disease.¹ What public-health experts and policymakers have not done is to gather the evidence about the importance of maternal and child nutrition, catalogue the long-term effects of undernutrition on development and health, identify proven interventions to reduce undernutrition, and call for national and international action to improve nutrition for mothers and children. The five-part Series on maternal and child undernutrition, launched this week by *The Lancet*, aims to fill this gap in global public health and policy action.

The key messages of the Series, which has been written by an independent team of public-health scientists led by Robert Black, Zulfiqar Bhutta, Jennifer Bryce, Saul Morris, and Cesar Victora, are critically important for all those concerned with the health and wellbeing of women and children. Undernutrition is the largely preventable cause of over a third—3.5 million—of all child deaths. Stunting, severe wasting, and intrauterine growth restriction are among the most important problems. There is a golden interval for intervention: from pregnancy to 2 years of age. After age 2 years, undernutrition will have caused irreversible damage for future development towards adulthood.

Incredibly, four-fifths of undernourished children live in just 20 countries across four regions—Africa, Asia, western Pacific, and the middle East. These are the priority nations for action. In terms of under-5 mortality rates, the most immediate needs are for Afghanistan, Democratic Republic of Congo, Nigeria, Ethiopia, Uganda, Tanzania, Madagascar, Kenya, Yemen, and Burma. In order of population size, and excluding the

countries with highest mortality rates, the ranking is different: India, Indonesia, Pakistan, Bangladesh, Vietnam, Philippines, Egypt, South Africa, Sudan, and Nepal.

As this Series shows so clearly, there are proven effective interventions to reduce stunting and micronutrient deficiencies. According to strict criteria around admissible evidence, breastfeeding counselling, vitamin A supplementation, and zinc fortification have the greatest benefits. Attention to maternal nutrition through adequate dietary intake in pregnancy and supplementation with iron, folic acid, and possibly other micronutrients and calcium are likely to provide value. But these interventions need additional programmatic experience about how to achieve full coverage.

There is no magic technological bullet to solve the problem of undernutrition. Long-term investments in the role of women as full and equal citizens—through education, economic, social, and political empowerment—will be the only way to deliver sustainable improvements in maternal and child nutrition, and in the health of women and children more generally.

The compelling logic of this scientific evidence is that governments need national plans to scale-up nutrition interventions, systems to monitor and evaluate those plans, and laws and policies to enhance the rights and status of women and children. Although complex and fraught with political disagreement, none of these solutions are separable from global treaties and negotiations over trade, agriculture, and poverty reduction. This latest *Lancet* Series concludes, not surprisingly perhaps, that the international nutrition system is broken. Leadership is absent, resources are too few, capacity is fragile, and emergency response systems are fragmentary. New governance arrangements are urgently needed. An agency, donor, or political leader needs to step up to this challenge. There is a fabulous opportunity right now for someone to do so. But who?

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The challenge of hunger



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With climate change and health crises rightfully receiving international attention, the time has come to focus on hunger as a top priority. WHO regards hunger and malnutrition as the gravest threat to public health, and climate change threatens to further destabilise already fragile food-production systems. Thus the UN World Food Programme (WFP) welcomes this *Lancet* Series on undernutrition.

At the UN Summit in 2000, world leaders committed to halve the proportion of people suffering from hunger by 2015.¹ This first Millennium Development Goal (MDG 1) can be reached, but only if we mobilise political will, public support, and resources to seek sustainable and innovative ways to break the cycle of hunger. The tragic fact is that, although our planet produces enough food for everyone, one person in seven still goes to bed hungry each night. 25 000 people die every day—including one child every 5 seconds—from hunger-related causes.²

Hunger is a challenge to human dignity and human rights. But hunger is also a threat to security and stability, and to the ability of nations to prosper socially and economically. Most deaths from hunger do not occur in high-profile emergencies but in unnoticed crises, in areas and populations that are the most destitute and vulnerable. The poorest and most marginalised people—the so-called bottom billion—cling to survival on less than US\$1 a day, often below the level at which development work can meaningfully begin.³

Undernutrition stunts physical and mental development and can have substantial negative effects on societies.⁴ A recent study by WFP and the Economic Commission for Latin America and the Caribbean estimated that economic losses due to undernutrition among children in just seven nations are a staggering \$6.6 billion a year—6% of the gross domestic product.⁵

The good news is that the proportion of hungry people in developing nations has more than halved in the past four decades,² especially in the Asia-Pacific region and Latin America. Many regions, particularly Africa, are not on track to meet MDG 1. And in the fight against hunger we could now be facing a perfect storm of challenges, including climate change and increasingly severe droughts and floods, soaring food prices and the tightest supplies in recent history, declining levels of food aid, and HIV/AIDS, which also aggravates food insecurity.

To rise to these challenges we must meet emergency needs, such as in Darfur where WFP feeds more than 3 million people, while tackling the root causes of hunger. Working with governments and non-governmental organisations, WFP provides 17 million vulnerable school children in developing countries with a basic nutritious meal and, where needed, take-home rations for girls, to improve school attendance, to aid concentration, and thus to make the most of investments in education.

Natural disasters, climatic shocks, conflict, and insecurity are major causes of hunger. But hunger's root causes are tied to a lack of access by individuals to the resources they need to produce, sell, and buy food. Small-scale African farmers—70% of whom are women—bear almost all of the risk, and receive only a small part of the financial benefit, of their labour. They have not had access to the technologies and markets that have revolutionised the lives of farmers elsewhere over the past century.

In addition, much of the world lacks the ability to move food from an area of abundance to one of deficit. Whole regions do not know where and when food is available—people in one village may be starving while a nearby village has harvested food with no identified market. In many nations, much food is lost due to deficits in market information, storage, packaging, and transport.

Other factors impede trade, such as weak governance, land-tenure uncertainty, laws and regulations that oppress small farmers, regional and global distortions in trade, and high tariffs. But many nations have successfully tackled these challenges—we must take their knowledge, technologies, and expanded markets and infuse them elsewhere when needed.

WFP will remain a leading force in helping governments fight hunger. As part of a major shift in food aid over the past few decades, WFP now purchases three-quarters of its food in 70 developing countries, at a total of almost \$500 million in 2006. WFP is working with governments and partners, such as the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution, headed by former UN secretary-general Kofi Annan, to explore innovative ways to promote agricultural production for small-scale African farmers and, thereby, improve food security.

Yes, we face many challenges, but sometimes many positive factors—good ideas, dedicated people,

scientific breakthroughs, new-found resources, political resolve, and moral indignation—can work in cohort. Together, we can make major advances in short periods of time if we give the challenge of hunger the priority it deserves.

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Nutrition interventions need improved operational capacity



The *Lancet's* Child Survival Series was a galvanising manifesto: it focused action plans to improve the well-being of children worldwide. However, the authors did not address in detail¹ the importance of nutrition in child survival,² and thus the current Undernutrition Series was born. This welcome new Series focuses on micronutrient interventions and stunting as manifestations of a poor diet, and comprehensively catalogues the topic from a multiplicity of datasets and viewpoints.

Undernutrition results from a complex web of interactions, from the molecular and microbiological level of the individual to the cultural and socioeconomic characteristics of societies. The intricacy of undernutrition as a global problem seems to defy simple, directed, and uniform programmes. However, we will not effectively improve child survival unless we untangle this web, because over 50% of child deaths result from undernutrition.

Working in southern Africa, we are convinced the key will be to translate the understanding of undernutrition into practical interventions. We are faced with an overwhelming burden of HIV, and the treatment of seriously ill children with chronic infections leading to undernourishment is challenging. Old guidelines³ do not suffice because the clinical presentation, pathophysiology, and prognosis have changed because of HIV. Additionally, further investigation of the clinical and pathophysiological complexities⁴ and treatment of malnourished children with HIV in the context of health systems is needed if interventions are to be effective.⁵

Two large-scale interventions in South African services have influenced international policies.^{2,6} First, a strong

child-health system that supports exclusive breastfeeding in HIV-infected women can increase the survival of infants exposed to and infected with HIV.⁷ Second, community-based management of uncomplicated severe malnutrition without HIV infection, which was for years treated in facilities according to the WHO standard protocol,³ has dramatically improved recovery rates that were formerly almost equivalent to case-fatality rates. Many of the factors that the authors of the Undernutrition Series identify conspired to create this failure in treatment: the lack of doctors and nurses to administer care; use of foods that were easily contaminated; overcrowded and understaffed hospitals; the absence of accessible early interventions in vulnerable communities; and the lack of coherent and adequately funded national strategies. Community-based care with ready-to-use therapeutic food for children with uncomplicated severe malnutrition⁸ has transformed understaffed child-health services. Home-based therapy with locally developed and produced therapeutic diets⁹

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has resulted in recovery rates of over 90%.¹⁰ Within 5 years, carefully designed clinical trials¹¹ were followed by operational projects that were scaled up to create an effective national programme in Malawi.

Populations in which undernutrition and HIV are rampant, such as in much of sub-Saharan Africa, must integrate nutritional support and HIV care because of the synergy between the two. In sub-Saharan Africa the potential impact of nutritional interventions is large, as long as adequate human resources are available¹² and local health professionals are empowered. We agree with Jennifer Bryce and colleagues¹³ that there will be no “magic bullets” to solve undernutrition and that the building of strategic and operational capacities¹⁴ is imperative. These authors argue that “weakest of all” is the capacity for training and that there is “a lack of respect for locally generated solutions”. With increasing funds available to improve child survival in our region, for example, ownership becomes an essential element for success. Strengthening local health systems in their capacity to implement and audit interventions is more important than donor-dominated and constantly changing monitoring systems and donor-driven workshops that distract local staff from their already eroded health services to children.¹⁵ A change in approach to nutrition interventions, both in focus and in locus, is needed so that we are no longer requested to implement interventions but to locally develop interventions and audit their contribution to child survival. The funding and capacity of higher education institutions in Africa to initiate and maintain leadership in child health is inadequate—the priority should be to strengthen these institutions, rather than to add more externally driven child-health initiatives. Presenting, funding, and implementing the findings and recommendations of the Child Survival and the Undernutrition series in African institutions would be a good start.

We must move beyond “more studies and more data”,¹⁵ and enter the realm of effectiveness and operational research. Let us start with our goal of child survival and work backwards and learn by doing.¹⁶ Such an initiative requires a shift in current thinking about nutrition and health, a shift that is urgently needed to address the ill-health aspects of undernutrition in southern Africa. *The Lancet’s* Undernutrition Series provides valuable knowledge, mostly based on trials. However, to scale-up

nutritional interventions, we need a knowledge base on the necessary support and institutional capacity that enables these interventions to work and improve child survival. Child-health professionals in southern Africa are prepared and waiting to move ahead.

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