

The prize and the price of good nutrition

Patrick W

Friedman School of Nutrition Science and Policy, Tufts University, Boston, USA¹

The global burden of disease is shifting rapidly. While in 1990, the top-ranked contributor to the global burden was child underweight, twenty years later we find that cancers and circulatory diseases contribute the most-- accounting for 19% of global disability-adjusted life years (DALYs), with about a third of the total deriving from other non-communicable diseases (NCDs), including chronic respiratory, digestive, neurological, mental, endocrine, and other disorders¹. By 2010, child underweight had dropped to 8th place in the ranking of contributors to the overall disease burden².

Does this relative shift mean that we have won the war against child undernutrition? Certainly not. On the one hand, the burden plays out through cumulative impacts, not simply through one cause or another. In 2010, the top 10 contributors accounted for 37% of all DALYs and many of those causes interacted with each other. For infants, a cluster of factors leads to premature mortality or to subsequent years lived with disability, including diarrhoea, lower respiratory infections, malaria and neglected tropical diseases -- and each of these interacts in various ways with nutritional deficiencies. For example, diarrhoea and lower respiratory infections were a major burden in developing countries, accounting for 3.6% and 4.6% of global DALYs in 2010, respectively, and deficiencies such as protein-energy malnutrition and iron-deficiency anaemia were substantial contributors to those particular outcomes¹. Indeed, the most recent Lancet series on maternal and child nutrition reported that undernutrition in the aggregate, including fetal growth restriction, stunting, wasting, and deficiencies of vitamin A and zinc, along with suboptimum breast feeding—causes over 3 million child deaths annually, representing 45% of all child deaths in 2011³. Thus, it is critical that the multifaceted roles played by undernutrition in current and future disease burdens not be ignored.

On the other hand, although progress has been made in the past 20 years in reducing numbers of children affected by undernutrition (leading to the position shift in disease burden ranking mentioned above), old nutrition problems remain and new ones are emerging. While there has been recent progress in reducing the prevalence of stunting, 165 million children are still affected globally, and rates are higher in south Asia than elsewhere in the world⁴.

Wasting has fallen, albeit slowly, yet some south Asian countries have seen increasing rates in the past decade. Key micronutrient deficiencies remain chronic, with literally billions of people affected. Roughly 50% of pregnant woman and 40% of preschool children are considered to be anemic⁵, while current estimates of vitamin A deficiency indicate that 122 countries have of public health problem based on biochemical vitamin A deficiency in preschool-age children⁶.

Nepal mirrors these global patterns and trends. While there has been progress on many fronts (most notably in its ground-breaking approaches to improving coverage of vitamin A supplementation), gains have been relatively slow and unevenly distributed. The prevalence of child stunting fell across Nepal from 49% in 2006 to 41% in 2011⁷. Wasting also fell slightly, from 13% to 11%, while anemia in children (5 to 59 months) and pregnant women also dropped only slightly -- from 48% in 2006 to 46% in 2011 for children, and from 36% to 35% for women^{7,8}.

In other words, the undernutrition problems of Nepal remain hugely challenging, not least because they manifest most among vulnerable groups most hard to reach. Consider that that while average rates of child stunting fell in the years between 2006 and 2011, children in urban areas benefitted most and are much less stunted than in rural areas (27% and 42%, respectively). The improvement was greatest for children in the Terai and least for children in the mountain regions, while the relative change in stunting was greater for richer households than for the poor (17% and 9% change, respectively). Where wasting is concerned, despite the small drop in average rates at a national level, gains were only seen in the Terai. That is, wasting in the hills and mountains has actually increased in the period since 2006, a pattern also recorded for changes in anemia prevalence among women of reproductive age⁷.

Complicating matters further, Nepal is not proving resistant to the global epidemic of overweight, obesity and associated chronic diseases. Although the prevalence rate of overweight for children in Asia is still low (5% in 2011), the number of affected children in Asia has already reached 17 million (of the world's 43 million)⁹. In Nepal, data on child obesity are still too weak to make sound

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statements on distribution or trends. However, maternal obesity (which contributes to several adverse maternal and foetal complications during pregnancy, delivery, and postpartum), has grown in Nepal by 5 percentage points since 2006, such that 14% of women in 2011 were overweight or obese⁷.

Nepal cannot wait to address these problems, nor should it seek to deal with one problem at a time. Improving nutrition in all of its forms is a huge social, economic, and political agenda. It is increasingly understood that maternal and child malnutrition, encompassing both undernutrition and overweight, has huge consequences for disease burden, survival and for the social and economic productivity of society as a whole. Yet, good nutrition does not come about by itself. Progress towards optimal nutrition requires a conscious and carefully crafted set of policy and programming actions.

Agricultural growth and poverty reduction have a part to play, but greater food availability is a necessary but insufficient condition to raise nutritional levels of an entire nation. Food systems also need to be made safer, through better management of mycotoxins, reduced post-harvest losses, and value chain product enhancements that explicitly promote improved health and nutrition outcomes. The same is true of poverty reduction. National-level income growth matters, but its impact on nutrition requires reduced income disparities between rich and poor. Well-designed safety nets that enhance informed purchasing power of the less wealthy are critical to the promotion of inclusive economic growth. In addition, investments in health, water and sanitation, and education are all critical parts of the multi-sectoral mosaic of public-sector tools that together can encourage improved breast feeding and child caring practices at the household level, as well as maternal health, household diet diversity, and enhanced demand for quality services of all kinds.

None of this is easy. For all of this to happen, appropriate human, institutional and financial resources have to be committed at all levels of governance. Evidence-supported actions are needed on a national scale to prevent and protect against future nutritional deficiencies, while others have to treat existing problems. Some actions have to be designed with universal coverage in mind, but others must be targeted at the most urgent cases first. The 2013 Lancet series on maternal and child nutrition identified a set of 10 nutrition-specific (targeted) interventions, which if scaled up from present population coverage to cover 90% of the need could reduce the prevalence of stunting by around 20% from current levels¹⁰. At the same time, complementary nutrition-sensitive actions are needed to

go further and sustain established gains¹¹. In other words, actions are required at different scales and across different sectors to be able to achieve measurable outcomes across the wide range of nutrition concerns facing Nepal¹².

The cost of pursuing these paths is not insubstantial. However, just as there are significant losses associated with inaction, there are significant economic gains to be had from timely intervention. For instance, the benefit–cost ratio for investments aimed at reducing stunting in a high-burden country like Nepal has been estimated at roughly 13¹³. This means that for every 1 million Nepalese Rupees invested in reducing stunting through programmes is calculated to generate 13 million Rupees in economic returns. Such a return on investment compares favorably with many alternative (competing) uses of public funds.

There are many challenges to working across sectors and across disciplines to achieve common nutrition targets. The government and its development partners (including civil society organizations) have demonstrated a remarkable commitment to such principles and, more importantly, to putting them into practice. The government's Multi sector Nutrition Plan for the period 2013-2017 underlines a serious intent to accelerating the achievement of nutrition goals, but also to promoting multi-ministry and multi-organizational responsibility for those goals¹⁴. Success in implementing this kind of plan requires short-run sensitization and training of professionals in many sectors, including health, education, agriculture, social welfare, water and sanitation, as well as a dedicated flow of resources to activities that together promote nutrition gains.

In the longer-term, new professional cadres need to be better educated about, and given relevant tools for, the domains that support nutrition. Medical professionals, as much as agronomists or economists or teachers, need to understand how their own actions can best achieve desired nutrition outcomes. This suggests not merely tailored in-service training, but the development of enhanced academic curricula in all relevant disciplines, where education is focused not just on nutrients and clinical signs of malnutrition, but on multi-sectoral planning, policy analysis, the design of community interventions, behavior change communication strategies, cost-effectiveness analyses, and more.

There is still a long way to go, no doubt. But, it can be argued that there has never been a better chance of making accelerated progress than today. There has not been a time in recent decades when so many people in Nepal agreed on what needs to be done or why. There is convergence of opinion both globally and locally on the need for a focus on the first 1,000 days of a child's life, on the importance

of promoting linear growth in children under 2 years, on the value of investing in nutrition throughout the life-cycle (i.e. not giving up on an individual on their second birthday), and on the essentiality of evidence-based cost-effective interventions scaled up to reach all those in need. This important momentum must be maintained. The next decade must be focused on an all-of-society effort to get the job done.

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