

Chapter Six

Best Practice in Nutrition



Victoria Quinn

Senior Vice President of Programs, Helen Keller International, New York, USA

Adjunct Associate Professor, Friedman School of Nutrition Science and Policy, Boston, USA



“The war against hunger is truly mankind’s war of liberation.”

John F. Kennedy

Key messages

- Undernutrition is a complex and multifaceted phenomenon, and is not limited to the developing world.
- Undernutrition does not have a single cause, nor does it have a single solution.
- The Conceptual Framework of Young Child Nutrition provides a clear and coherent way of understanding the causes of undernutrition and where we might intervene, though to do so requires that we carefully assess and analyze the local situation to inform any actions that might be taken.
- At the national level, increased government investment in proven nutrition-specific and nutrition-sensitive interventions is essential for improving nutrition.
- At the family level, women have a critical role to play in improving nutrition.

The focus of this chapter is on child undernutrition, which is manifested as growth deficits in children (stunted height or underweight) or in clinical deficiencies in micronutrients (e.g., vitamin A deficiency, iron deficiencies). Although not discussed in detail in this chapter, with changing dietary practices due to a variety of reasons, childhood overweight in developing regions is becoming an increasingly important contributor to adult obesity, diabetes, and non-communicable diseases.¹

When children do not grow adequately due to undernutrition they suffer from deficits in linear growth and become too short for their age, or in other words “stunted”. Stunting is defined as a height-for-age ratio that is more than two standard deviations below the international standards produced by the World Health Organization. Once a child becomes stunted due to sub-optimal nutrition during pregnancy and the first two years of life, there is little opportunity for catch-up growth later on. Literature now exists on the immense negative consequences of stunting, which range from increased under-five mortality through reduced IQ, poor school performance, and reduced worker productivity later in life, to increased risk of adult non-communicable diseases.²

Evidence also exists today that shows the most critical time to intervene to prevent undernutrition and stunting is during the *first thousand days* from conception until a child’s second birthday. During pregnancy, poor maternal nutrition leads to low birth weight babies who are at higher risk of stunting. Providing women with support for optimal nutrition even before they become pregnant when they are adolescents girls, and continuing this support through gestation and after the baby is born – including optimal infant and young child feeding until his/her second birthday – is critical to promote good nutrition and healthy growth.

Confusion before enlightenment: a short history of dealing with undernutrition

For decades, there have been many different schools of thought as to the nature, causes and consequences of undernutrition in developing regions of the world, which in turn led to changing views as to what should be done about it. As one nutrition expert put it: *“New paradigms in public health nutrition have repeatedly replaced one other [sic] in the second half of the 20th century. This convulsive process continues”*.³

The discovery of vitamins and minerals in the early part of the 1900s focused interest on the micronutrient aspects of what was believed to constitute a healthy diet, with the absence of these thought to lead to poor health. During pre-war British colonial times, the causes of undernutrition in the people of the colonies fluctuated from being viewed as either poverty (putting the colonial powers at blame) or ignorance (putting mothers themselves at blame).⁴ In Gold Coast (pre-independent Ghana), the British medical doctor Dr Cecily Williams discovered kwashiorkor, which she believed was the result of a protein deficiency in a child’s die. Kwashiorkor was later proclaimed to be the most serious and widespread nutritional disorder in children known to medical or nutritional science. Therefore for many years, particularly from 1950 to the mid-70s, much of global nutrition attention in developing regions was based on the belief that protein deficiency was the cause of poor nutrition. Much effort and many resources were placed on increasing the production and consumption of protein. This obsession with protein deficiency was later de-bunked by Professor Donald McLaren in his famous 1972 Lancet article where he referred to this as the ‘great protein fiasco’: *“The concept of the much-publicized world protein ‘gap’, ‘crisis’, or ‘problem’ arose from the description of kwashiorkor in Africa in the 1930s and the assumption, which has turned out to be wrong, that malnutrition in children takes this form throughout the world. As a result, measures to detect protein deficiency and treat and prevent it by dietary means have been pursued until the present time. The price that has had to be paid for these mistakes is only beginning to be realized.”*⁵

In later years, following the establishment of the United Nations, more emphasis was placed on the structural causes of poor nutrition, culminating in the noble but naïve declaration of the 1974 World Food Conference that hunger and malnutrition would be eliminated within one decade (World Food Conference 1974, resolution V). An era of multi-sectoral nutrition planning followed from this time up through the early 1980s, with lively and often contentious debate ensuing among international nutrition experts on how successful, or not, these attempts were.⁶ As it transpired, the multi-sectoral nutrition plans produced were extremely complicated and impossible to implement. Nor did they factor in political determinants, including whether political will from government leadership or planners in non-health sectors existed or whether resources were available and would be committed to fund the lofty recommendations made.⁴

By the mid-1980s, interest in community-based nutrition planning was gaining momentum. This continued for about a decade, with some useful lessons learned from UNICEF’s work with the Government of Tanzania in the Iringa region of that country.⁷ From the mid-1990s, the focus on nutrition in developing regions dramatically shifted to hidden hunger and micronutrient deficiencies.³ Soon thereafter, global efforts, including resources, aligned to reach vulnerable populations with micronutrient supplementation.

In summary, the nutrition community has shifted its position over the decades for a variety of reasons including evolving scientific knowledge, accumulating field experience on what has worked, and differing ethical positions.³ One undercurrent that has existed through the decades has been the existence of two schools of thought – one that viewed poor nutrition as a structural issue related to poverty, and the other that viewed it as a technical issue, for example, resulting from a specific deficiency that could be addressed with a health-oriented action (e.g. a pill).⁴ Another observation is that over time, professionals from the health sector (e.g. nutritionists and medical doctors) and food scientists have dominated the dialogue. In other words, there has been a relative absence of voices from other disciplines important for nutrition, particularly agriculturalists and economists, whose actions could have a massive impact on not just food availability but also the economic access of families to adequate food (in terms of both quality and quantity) through their own production, purchases or trade.

Coming to consensus

By the late 1980s and early 1990s, a consensus began to form on the nature of child undernutrition. This consensus was informed by the field experiences of UNICEF and the Government of Tanzania in Iringa, who implemented a large-scale community nutrition program, and is embodied in the UNICEF *Conceptual Framework of Young Child Nutrition* published in 1990.⁸ As shown in Figure 1 opposite, the Conceptual Framework brought together in an easily understood manner a practical model that identifies the many key factors causing undernutrition at each level (from the child upwards) across different sectors relevant for nutrition. It also inherently encompasses different viewpoints, including structural and technical dimensions.

Taking the complex problem of undernutrition, the Conceptual Framework clearly communicates how all actors in the nutrition space need to work together to address key causes of undernutrition at each level. The Conceptual Framework's validity today is as great as when it was first published in 1990. It can also be argued that the Conceptual Framework was a quantum leap forward in the way the problem of nutrition has been understood and addressed by the nutrition community. Over time, it has been adapted to include new insights from the growing evidence base of *what we need to do* and *how and when we need to do it*.^{9,10}

As shown in Figure 1, the *immediate causes* of child undernutrition stem from inadequate dietary intake (e.g. quality and quantity) combined with disease. These are affected in turn by three spheres of *underlying causes*: household food insecurity, inadequate care and feeding practices, and unhealthy environment and inadequate health services, which operate at the family and community level. These three underlying causes are in turn again directly influenced by the basic causes of undernutrition, which include the inadequate financial, human, physical and social capital found in each country. These basic factors are rooted in the overarching sociocultural, economic and political circumstances, and are also often affected by external global factors. Across all dimensions of the Conceptual Framework, it is important to note that the status and access of women to such resources is critical, as women are the nutrition gatekeepers for their children and their families. This is discussed further below.

In summary, undernutrition does not exist in isolation, and it cannot be solved by one sole intervention, as a mix of interventions in different sectors and at different levels is required.



Figure 1: Causes of malnutrition and death.
The original UNICEF *Conceptual Framework of Young Child Nutrition*
Source: UNICEF Policy Paper (E/ICEF/1990/L.6). *Strategy for Improved Nutrition of Children and Women in Developing Countries*. ISSN: 1013-3194. Page 22. 9 March 1990.

The need for assessment and analysis before action

Another important consideration is that nutrition problems – and therefore interventions – are highly context-specific. What works in one setting may well not have the desired effects if used without adaptation to a different context. The tendency until the 1990s was to introduce nutrition interventions “lock, stock and barrel,” which led to ineffective programs or sometimes to results opposite to those intended.⁴ For example, when it was believed that the main cause of malnutrition was protein, some donors spent their resources digging and stocking fish ponds even in areas where fish was in abundant supply. Often no research was carried out to understand the local nutrition circumstances before interventions were designed and rolled out. In fact, it has only been relatively recently that we have had a robust evidence base concerning ‘what’ nutrition interventions work though we still have much to learn on what can be done to improve nutrition in sectors outside of health. Even in light of these advances, much more attention and investment is still needed to identify cost-effective ways to deliver these proven interventions at scale (e.g. delivery science and the ‘how’) especially under differing circumstances.

Therefore before any actions are put into place, an *assessment* and *analysis* of the local situation needs to be carried out to inform the design of the actions and ensure their relevance in terms of addressing the actual nutrition problems found in that

particular community. This cycle of *Assessment-Analysis-Action*, coined by UNICEF as the Triple A Cycle, is important if we are to understand the immediate factors that affect dietary intake and health status *vis-à-vis* the underlying determinants of household food security, care and feeding practices, and health services including environmental sanitation, as well as higher-level basic factors. While quantitative approaches have their part to play in any process of assessment and analysis, qualitative data are also essential when assessing the nutritional status of a given individual or group, analyzing the findings, and determining the best course of action for improving it. This is in part because many aspects of undernutrition are behavioral, and are better elucidated by means of qualitative rather than quantitative research.

Number of undernourished children today

According to UNICEF (2013), globally more than one quarter (26 percent) of children under 5 years of age were

stunted in 2011. This corresponds to roughly 165 million children worldwide. The burden is not evenly distributed around the world, with sub-Saharan Africa and South Asia being home to three fourths of the world’s stunted children. Levels of stunting among children under 5 years of age in sub-Saharan Africa are at 40 percent and in South Asia are at 39 percent. Stunting prevalence is slowly decreasing globally, but in some regions, such as Africa, the absolute number of stunted children is increasing due to high population growth figures. Clearly there is much more work to do.

Latest thinking and the Conceptual Framework

Figure 2 below shows a modified version of the Conceptual Framework which includes the most recent state-of-the-art knowledge from the 2013 Lancet Nutrition Series on what works to improve fetal and child nutrition. Two categories of nutrition actions are shown, nutrition-specific interventions and nutrition-sensitive interventions.¹

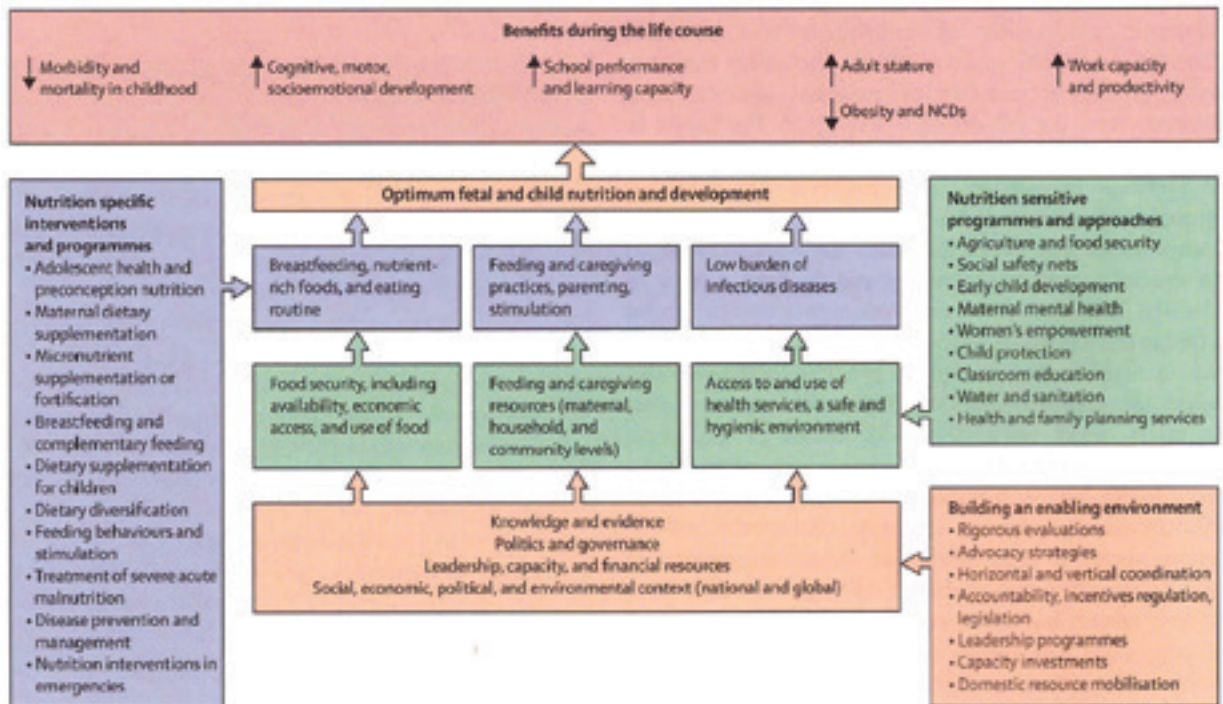


Figure 2: Framework for actions to achieve optimum fetal and child nutrition and development
 Source: Black RE, Victora CG, Walker SP, and the Maternal and Child Nutrition Study Group. Maternal and child undernutrition and overweight in low-income and middle-income countries. Figure 1, page 16. The Lancet. 2013.

The definitions of nutrition-specific and nutrition-sensitive are shown in the table, and are discussed further overleaf.



Mozambican mothers and babies

Photo © HKI / Victoria Quinn

Nutrition-specific interventions and programs: Interventions or programs that address the immediate determinants of fetal and child nutrition and development—adequate food and nutrient intake, feeding, caregiving and parenting practices, and low burden of infectious diseases. Examples include:

- adolescent, preconception, and maternal health and nutrition;
- maternal dietary or micronutrient supplementation;
- promotion of optimum breastfeeding;
- promotion of complementary feeding and responsive feeding practices and stimulation;
- dietary supplementation;
- dietary diversification and micronutrient supplementation or fortification for children;
- treatment of severe acute malnutrition;
- disease prevention and management; and
- nutrition in emergencies.

Nutrition-sensitive interventions and programs: Interventions or programs that address the underlying determinants of fetal and child nutrition and development—food security; adequate caregiving resources at the maternal, household and community levels; and access to health services and a safe and hygienic environment—and incorporate specific nutrition goals and actions. Nutrition-sensitive programs can serve as delivery platforms for nutrition-specific interventions, potentially increasing their scale, coverage and effectiveness: Examples include:

- agriculture and food security;
- social safety nets;
- early child development;
- maternal mental health;
- women's empowerment;
- child protection;
- schooling;
- water, sanitation, and hygiene; and
- health and family planning services.

Nutrition-specific interventions – proven actions

Nutrition-specific interventions are fairly well-defined due to the solid evidence base that now exists on what actions are proven to make an impact on reducing undernutrition. These nutrition-specific interventions are similar to the set of nutrition actions identified in the original Lancet Maternal and Child Nutrition series published in 2008, and very similar to other approaches including the Essential Nutrition Actions endorsed by other development organizations.^{11,12,13}

Apart from needing to know exactly *'what'* to do to improve nutrition at the level of the child or women, it is important to know *'when'* to do it, as the nutrition needs vary throughout their life cycles. Figure 3 below (UNICEF 2013) provides useful programmatic guidance on *what* actions should be promoted *when* during the life cycle of infants, young children and women.



Health worker counseling pregnant woman on early initiation of breastfeeding in Ethiopia

Photo ©: Victoria Quinn

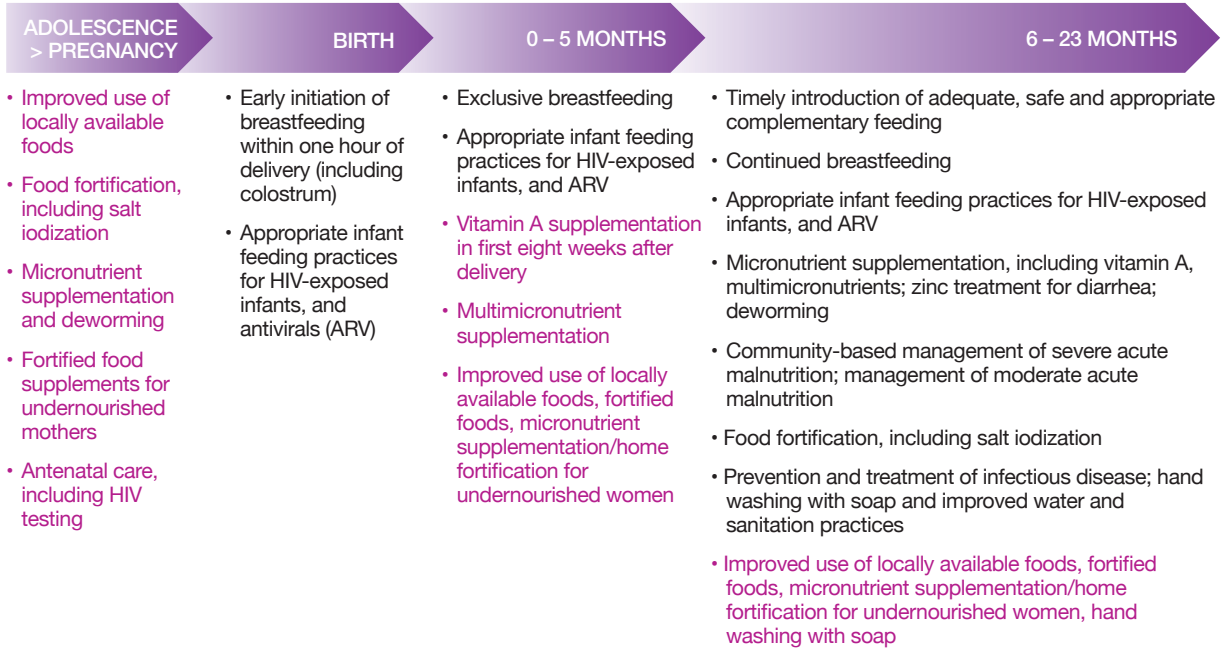


Figure 3: Key proven practices, services and policy interventions for the prevention and treatment of stunting and other forms of undernutrition throughout the life cycle

Pink refers to interventions for women of reproductive age and mothers. Black refers to interventions for young children.

Source: UNICEF Report "Improving Child Nutrition: The Achievable Imperative for Global Progress. ISBN: 978-92-806-4686-3. Adapted from Figure 2, page 18. 2013. Original sources include: Policy and guideline recommendations based on UNICEF, WHO and other United Nations agencies, Bhutta, Zulfiqar A., et al., 'Maternal and Child Undernutrition 3: What works? Interventions for maternal and child undernutrition and survival', *Lancet*, vol.371, no.9610, February 2008, pp.417–440.

This nutrition support will sometimes be delivered in the form of counseling (e.g. health worker to mother) to encourage the adoption of optimal nutrition practices (e.g. to give only breast milk during the first six months of her baby's life) or in the form of nutrition supplies (e.g. a health worker providing vitamin A capsules to children starting at six months of age up to 59 months). Behavior change communication, including interpersonal communication, is an important element that needs to be built into the delivery of such nutrition support so that it reaches the right person at the right point in time in the right way. As mentioned earlier, much more attention is needed on 'how' to deliver this nutrition support to vulnerable infants, young children and women at high coverage to have a public health impact.



Nepali mother breastfeeding her baby

Photo © HKI / Victoria Quinn

Nutrition-sensitive interventions – still building the evidence base

While undernutrition has a profoundly negative effect on health and well-being, it is not merely a health issue, nor can it be solved only by nutrition-specific interventions confined to the health sector. This is because a range of non-health programs and higher-level policies in other key sectors can also influence nutrition outcomes at broad scale through pathways affecting the underlying and basic causes of undernutrition, especially food, care and health dimensions.

The tendency through the years has been to view undernutrition first and foremost as a health issue, which is likely due to the fact the early work was undertaken by colonial medical doctors as well as nutrition and food scientists studying the effects of deficiencies in protein, vitamins and minerals. However, the fact is that a range of non-health nutrition-sensitive determinants can have a profound effect on nutritional status if they influence the well-being of women, the ability of families to produce or purchase food, maternal and child care and feeding practices or the access of families to adequate health, hygiene and sanitation support. For example, government programs can exert a major impact on nutrition outcomes through such channels as agricultural extension services, consumer and producer food price policies, income and wage policies, and government investments in primary health care and basic education, to name just a few. The status and situation of women throughout is also a critical determinant, especially in terms of how programs may or may not affect their access to essential resources. Even the impact that these programs have on women's use of time can affect nutrition outcomes if they take time away from essential child care, for instance.

Unlike nutrition-specific interventions, nutrition-sensitive development is still being actively debated by global experts, thus a commonly accepted definition has yet to be reached. There is also insufficient evidence on what nutrition-sensitive interventions actually work under what circumstances. Collecting this evidence is a recognized research priority, and would help align our efforts across sectors and at different levels.¹⁴

More research and documentation regarding what works in terms of agriculture, education, social safety nets, education and programs to reach adolescent girls is needed to build this evidence base.¹⁵ A recent systematic review of agricultural interventions concluded that these did not improve the nutritional status of the children they were targeting. However, the problem is not that agriculture does not have an important effect on nutrition and child growth, but that many of these programs, including the ones studied

in the review above, are poorly designed with weak monitoring and evaluation systems.¹⁵ Better designed programs, including their monitoring and evaluation dimensions, are needed. This will allow us to assess the 'process' aspect of programs, for example, in terms of whether programs are being delivered as originally planned or if other unexpected factors have emerged that have adverse effects on implementation.

Work to this end, especially research, is imperative. As stated in the recent 2013 Lancet series, the *"acceleration of progress in nutrition will require effective, large-scale nutrition-sensitive programmers that address key underlying determinants of nutrition and enhance the coverage and effectiveness of nutrition-specific interventions"*.¹⁵ Lastly, the reach of nutrition-sensitive programs could be immense as they *"...can have a pivotal role in prevention of the excess stunting, wasting, and impaired child development that the scale-up of nutrition-specific interventions cannot resolve on its own"*.¹⁵

Women are central to the solution

As touched upon above, the role of women in improving child undernutrition and stunting is critical. Not only are mothers key providers for the family, producing much of the food and generating income, but they are also the gatekeepers of their children's nutritional status in their role as caretakers overseeing the feeding, health and hygiene care of their infants and young children. Often the health and nutritional status of women is compromised for a variety of reasons due to past constraints (e.g. long-term results of childhood stunting) and current constraints (e.g. too little food also low in micronutrients, malaria, too many closely spaced pregnancies).

Undernutrition in pregnant women puts newborns at high risk of being born with low birth weight. This in turn leads to an intergenerational cycle where malnourished girls grow to be malnourished women who are at greater risk of giving birth to malnourished babies.¹⁶

Recent evidence also shows that undernutrition during pregnancy, affecting fetal growth and the first two years of life, is a major determinant not only of stunting, but also of subsequent obesity and non-communicable diseases in adulthood.^{1,17,18} Thus undernutrition, overnutrition and non-communicable diseases later in adult life all appear to be interwoven with the sub-optimal development of the fetus in the womb if the pregnant woman herself is suffering from undernutrition.

The long road to food, care and health

In recent years, progress in nutrition has been made on a number of fronts, for example the high coverage of young children with twice yearly supplementation with vitamin A (UNICEF 2013). Unfortunately on many other fronts, including the adoption of optimal breastfeeding and complementary feeding practices, the reduction in acute malnutrition, and the continuing high levels of maternal and child anemia, much more progress is necessary, so there is still much more work to do.

The notion of food, care and health is now widely used today, as is evidenced by global nutrition documents using the Conceptual Framework as the basis on which to develop their nutrition strategies and recommendations.¹⁹ It has also been embraced by the global Scaling Up Nutrition (SUN) Movement, launched in 2010, which comprises many international, regional and national groups committed to taking evidence-based nutrition actions to scale and is discussed extensively elsewhere in this volume. The SUN Movement has made significant progress in recent times, and by mid-2013, the leadership of forty countries from Africa, Asia and Latin America had made commitments to address undernutrition. Half of these countries have also released costed nutrition plans which they intend to roll out to reduce levels of undernutrition. More countries are expected to engage in a similar manner in the coming months. Also, very importantly, in 2012 the World Health Organization (WHO) set global targets to reduce stunting by 40 percent (along with other indicators and targets).²⁰ With these WHO global targets, our end goal to reduce undernutrition has been clearly spelt out. Achieving this will necessitate continued investment, focus and resolve in the years ahead.

It should be underscored that under the national governments within the SUN Movement are in the driver's seat and are fundamentally responsible for bringing about change via their relevant ministries and departments (the ministries of agriculture, health, and education). Today we know that successfully addressing undernutrition and its various determinants will require strong political will, especially on the part of national governments and leadership. Strong commitment and follow-up by national leaders creates the 'enabling environment' which is necessary for success. Under the SUN Movement this means a 'whole-of-society' approach must be employed to improve nutrition, based on policies which encourage equity, social justice and the empowerment of women.

In addition, close liaison and the sharing of proven best practices between national governments is vital, supported by the agencies of the United Nations. These – UNICEF, WHO, WFP, FAO, IFAD and so on – can play a decisive role in delivering insights, expertise, and tried and tested approaches along with other development partners including civil society, but all must work more closely together, as well as with the national governments they advise. It is to be hoped that the SUN Movement will encourage improved sharing of best practice between governmental and civil society in the service of better nutrition. The private sector and academia – both of which are key players within the SUN Movement – also have an important contribution to make in delivering the nutrition-sensitive actions that will bring about positive change.

None of this, however, is achievable without the necessary human resources and national capacity development in nutrition. In both the health and the relevant non-health sectors, a significant investment must be made in developing a cadre of skilled professionals in key sectors who have improvements in nutrition as explicitly parts of their job descriptions.²¹

Above and beyond this, the world of nutrition has had to respond to a range of developments which lie far beyond its original remit. These include, for instance, the humanitarian crises triggered by natural and man-made disasters (famines, earthquakes, tsunamis, wars), the phenomenon of HIV/AIDS, the spread of non-communicable diseases such as type 2 diabetes and cardiovascular disease, unprecedented population growth, and climate change. Fortunately, the world of nutrition is now united in the first decade of the 21st century through the SUN Movement to promote national action through a global agenda addressing these issues.

The reality, however, is that it will still take time for major inroads to be made to ensure that high enough coverage of vulnerable women and children under two years is achieved with quality nutrition support at critical points in the life cycle so as to make a public health impact. The feeling, and hope, is that we are now on the right path and that the political will needed at all levels but most especially from national leadership and the donor community remains strong and unwavering.

Enhanced homestead food production: The view of Helen Keller International (HKI)

The Problem

- Despite significant progress achieved since 1990, according to the Food and Agriculture Organization, today in 2013 one in eight people around the globe still goes hungry every day. The diets of more than one in four are comprised predominantly of staple crops, which, even when they fill the stomach, lack essential vitamins and minerals for health, vitality and survival.
- This global food crisis is worsening the problem of undernutrition across developing regions of the world leading to stunted physical growth and mental development in young children as well as contributing to nearly half of all child deaths worldwide.
- Conditions in various developing nations are particularly severe, and food price volatility is making matters worse for many families, striking rural and urban areas alike.

What HKI Is Doing

- With its partners in government and civil society, since 1988 Helen Keller International (HKI) has been honing a nutrition-sensitive agricultural approach to address these problems. The goal of HKI's Enhanced Homestead Food Production (EHFP) program is to put crops in the ground, nutrients in the diet, and food in the mouths of the most vulnerable family members in communities affected by prolonged undernutrition and food insecurity.
- To date, nearly one million families in Asia (Bangladesh, Cambodia, Indonesia, Nepal and the Philippines) have been reached. The EHFP approach is now being tested and adapted in sub-Saharan Africa in the countries of Burkina Faso, Cote d'Ivoire, Senegal and Tanzania.
- EHFP targets women from poor households with young children as the primary beneficiaries, placing farming inputs, knowledge and skills directly in their hands.
- HKI works in collaboration with local government agriculture and health teams and the staff of non-governmental organizations (NGOs) to develop their capacity to provide long-term support to sustain the activities after three years of external assistance.
- The program helps communities establish technically improved local food production yielding micronutrient-rich fruits and vegetables complemented with poultry and small livestock. This diversified production ensures the year-round availability of vitamins and minerals essential for proper immune system function and full physical, intellectual and cognitive development and which are often lacking in traditional diets.
- EHFP also contains a strong nutrition behavior change component targeting the mothers and other family and

community members to ensure not only is more diverse and nutritious food produced but that that food benefits those who need it the most, namely infants and children under two years and pregnant and lactating women. Evidenced-based Essential Nutrition Actions are promoted at each point of the life cycle—from conception to the second year of life—and span the promotion of optimal breastfeeding and complementary feeding, micronutrient consumption, and women's nutrition.

- In Asia where the model was conceived, EHFP has used Village Model Farms (VMF) as a site for community demonstration and training and for the production of inputs to allow households to establish vegetable, pulse and fruit gardens and small animal husbandry (mainly poultry) adjacent to their homesteads. More recently in both Asia and in adaptations for sub-Saharan Africa, HKI has been exploring new approaches to ensure better equity by using a farmer field school model, wherein the demonstration plot is a shared enterprise and female Village Farm Leaders (VFL) are selected for leadership and mentoring skills rather than for having greater resources needed to establish and maintain a private VMF.
- Data collected from EHFP programs across four countries in Asia, where HKI has promoted EHFP the longest, show that households with improved gardens produced on average 45 varieties of vegetables compared to 10 in households with traditional gardens.
- EHFP contributed to significant increases in household income, which was largely invested in improved family well-being, such as education, higher quality foods and productive enterprises. In addition, consumption of dark-green leafy vegetables, orange vegetables and fruits, children's consumption of eggs, and overall household dietary diversity scores increased significantly more in intervention households from baseline to endline compared to controls.
- The prevalence of night blindness (due to vitamin A deficiency) and of anemia has also been shown to be lower in households practicing EHFP.
- In 2009, HKI's Homestead Food Production program in Bangladesh was selected as a case study of a proven nutrition-agriculture model for the International Food Policy Research Institute's "Millions Fed: Proven Successes in Agricultural Development", funded by the Gates Foundation.

Sources: Iannotti, L. et. al. *Diversifying into Healthy Diets - Homestead food production in Bangladesh*. IFPRI Paper 928. 2009. Campbell, A. et al. *Relationship of homestead food production with night blindness among children below 5 years of age in Bangladesh*. *Public Health Nutr.* 2011 Sep;14(9):1627-31. doi: 10.1017/S1368980011000693. Epub May 4 2011. Talukder A, et. al. *Homestead food production model contributes to improved household food security and nutrition status of young children and women in poor populations - lessons learned from scaling-up programs in Asia (Bangladesh, Cambodia, Nepal and Philippines)*. *The Journal of Field Actions: Field Actions Science Reports (FACTS Report); Special Issue* 2010.

Case study

Scaling up Essential Nutrient Actions in Madagascar

From 1997 to 2006 the Essential Nutrition Actions (ENA) were adapted in Madagascar, through the USAID funded LINKAGES project. ENA provides a framework through which evidenced based nutrition support on infant and young child feeding, micronutrients and women's nutrition can be targeted to children under two years and their mothers at critical life cycle points using existing programs in the health sector.

In 1997 an inter-sectoral nutrition coalition called the *Groupe d'Actions Inter-Sectoriel en Nutrition* was formed with support from USAID, UNICEF and the World Bank. Chaired by the Nutrition Division of the Ministry of Health, the *Groupe d'Actions Inter-Sectoriel en Nutrition* comprised more than 75 representatives from 50 organizations, including government ministries (health, finance, education, agriculture, trade, population) and representatives from the donor community and nongovernmental organizations. Key aspects of this group's work to implement the ENA framework at scale included:

- **Vision:** A shared vision to achieve scale with ENA was established from the very beginning.
- **Wide coverage:** Many partners, especially those with big field programs with wide reach were encouraged to participate, and multiple programs served as opportunities for entry points to implement support for ENA.
- **Specificity:** Initial focus was placed on promoting optimal breastfeeding practices within the overall context of the integrated package of ENAs which also included support to complementary feeding, micronutrients as well as women's nutrition.
- **Harmonization:** Partners reached consensus on ENA messages and field approaches so that everyone was "singing the same nutrition song to the same tune".
- **Support to all levels:** Groups at the national level, regional/district levels, and community level received support.
- **Short-term, skills-based training:** Training modules for health workers and community members included counseling and negotiation skills to encourage mothers and other child caretakers to adopt optimal nutrition behaviors promoted by the ENA framework; these training modules were integrated into existing child survival, reproductive health, and nutrition programs.
- **Behavior change:** A behavior change strategy, based on formative research on local nutrition practices including barriers and obstacles mothers faced, was used to design and promote key ENA messages on small, do-able actions known to make a difference.
- **Community volunteers:** Members of women's groups were trained in ENA promotion and subsequently were able to support health workers stationed at primary facilities in the promotion of optimal nutrition practices.
- **Monitoring and evaluation:** Key ENA indicators and results were collected annually and shared with all partners to celebrate results and encourage success breeding more success.

Through the LINKAGES project, ENA support reached a total of 6.3 million people (out of a total national population of 19 million) in selected program sites. Over a five-year period in these areas, timely initiation of breastfeeding increased from 34 percent to 68 percent, and exclusive breastfeeding increased from 46 percent to 70 percent. The ENA field approach may have spilled over to improve infant and young child feeding practices in non-program sites since at the national level between 1997 and 2003, early initiation of breastfeeding rose from 34 percent to 62 percent, and exclusive breastfeeding increased from 47 percent to 67 percent (2003 Madagascar Demographic Health Survey).

Sources: Quinn VJ, Guyon AB, Schubert JW, Stone-Jimenez MA, Hainsworth M, and Martin L. *Improving breastfeeding practices at broad scale at the community level: Success stories from Africa and Latin America.* *J Hum Lact* 21: 345-354. 2005. <http://www.linkagesproject.org/publications/index.php?detail=29> (26 July 2013). Guyon, AB, Quinn, VJ, Hainsworth, M, Ravonimanantsoa, P, Ravelojoana V., Rambelison, Z, and Martin, L. *Implementing an integrated nutrition package at large scale in Madagascar: The Essential Nutrition Actions Framework Food and Nutrition Bulletin*, vol. 30, no. 3, The United Nations University. 2009.



Community mobilization being used in Madagascar to promote optimal breastfeeding practices

Photo © Victoria Quinn

Case study

Why malnutrition persists in many food-secure households

- Mothers have too little time to take care of their young children or themselves during pregnancy.
- Mothers of newborns discard colostrum, the first milk, which strengthens the child's immune system.
- Mothers often feed children under age six months foods other than breast milk even though exclusive breastfeeding is the best source of nutrients and the best protection against many infectious and chronic diseases.
- Caregivers start introducing complementary solid foods too late.
- Caregivers feed children under age two years too little food, or foods that are not energy dense.
- Though food is available, because of inappropriate household food allocation, women and young children's needs are not met and their diets often do not contain enough of the right micronutrients or protein.
- Caregivers do not know how to feed children during and following diarrhea or fever.
- Caregivers' poor hygiene contaminates food with bacteria or parasites.

Source: Directions in Development: Repositioning Nutrition as Central to Development – A Strategy for Large-Scale Action, The International Bank for Reconstruction and Development/The World Bank, 2006.

Three myths about nutrition

Poor nutrition is implicated in more than half of all child deaths worldwide – a proportion unmatched by any infectious disease since the Black Death. It is intimately linked with poor health and environmental factors. But planners, politicians, and economists often fail to recognize these connections.

Serious misapprehensions include the following myths:

Myth 1

Malnutrition is primarily a matter of inadequate food intake. Not so. Food is of course important. But most serious malnutrition is caused by bad sanitation and disease, leading to diarrhea, especially among young children. Women's status and women's education play big parts in improving nutrition. Improving care of young children is vital.

Myth 2

Improved nutrition is a by-product of other measures of poverty reduction and economic advance. It is not possible to jump-start the process. Again, untrue. Improving nutrition requires focused action by parents and communities, backed by local and national action in

health and public services, especially water and sanitation. Thailand has shown that moderate and severe malnutrition can be reduced by 75 percent or more in a decade by such means.

Myth 3

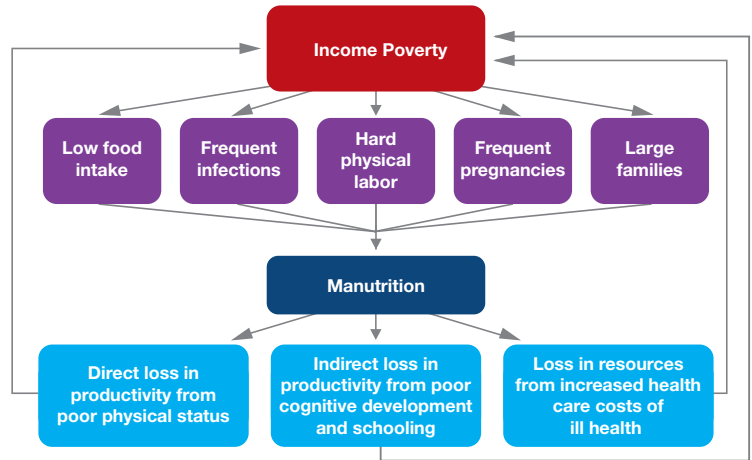
Given scarce resources, broad-based action on nutrition is hardly feasible on a mass scale, especially in poor countries. Wrong again. In spite of severe economic setbacks, many developing countries have made impressive progress. More than two thirds of the people in developing countries now eat iodized salt, combating the iodine deficiency and anemia that affect about 3.5 billion people, especially women and children in some 100 nations. About 450 million children a year now receive vitamin A capsules, tackling the deficiency that causes blindness and increases child mortality. New ways have been found to promote and support breastfeeding, and breastfeeding rates are being maintained in many countries and increased in some. Mass immunization and promotion of oral rehydration to reduce deaths from diarrhea have also done much to improve nutrition.

Source: Directions in Development: Repositioning Nutrition as Central to Development – A Strategy for Large-Scale Action, The International Bank for Reconstruction and Development/The World Bank, 2006 (extracted from Jolly [1996]).

The window of opportunity for addressing undernutrition

The window of opportunity for improving nutrition is small – from before pregnancy through the first two years of life. There is consensus that the damage to physical growth, brain development, and human capital formation that occurs during this one thousand day period is extensive and largely irreversible. Therefore interventions must focus on this window of opportunity. Any investments after this critical period are much less likely to improve nutrition.

The vicious cycle of poverty and malnutrition



Source: Modified from World Bank (2002a); Bhagwati and others (2004)

My personal view

Victoria Quinn

Senior Vice President of Programs, Helen Keller International, New York, USA
Adjunct Associate Professor, Friedman School of Nutrition Science and Policy, Boston, USA



How do we know when we've been successful?

Care must be taken in applying the correct metrics for measuring progress made in reducing undernutrition and hunger. National food balance reports, which have frequently been used in the past to assess these problems, provide a theoretical picture of the food available per capita in a given population and do not necessarily reflect the reality of what goes into people's mouths. The presence of food

(especially increasing production levels) is centrally important but does not necessarily ensure the presence of optimal nutrition, as factors such as the quality of food and access of vulnerable groups to purchase or grow it must be considered, along with other factors related to care and health.

Only when children are well nourished and developing in the direction of achieving their full growth potential can we say that our efforts have been successful. Too often, policy-makers focus on economic indicators or national agricultural production yields to determine how well a nation is faring. In fact, investments in national and economic development should use the growth of children, particularly stunting, as the best and most accurate yardstick – a human yardstick – to measure success. Indicators of child undernutrition, such as height, reflect much more accurately than gross domestic product whether development and human welfare has truly progressed in a country.

Further reading

UNICEF Policy Paper (E/ICEF/1990/L.6). *Strategy for Improved Nutrition of Children and Women in Developing Countries*8

World Bank. *Repositioning nutrition as central to development: A strategy for large-scale action*19

UNICEF. *Tracking Progress on Child and Maternal Nutrition: A survival and development priority*. New York, NY, USA: UNICEF, 2009

Jonsson, U. *Commentary: The Rise and Fall of Paradigms in World Food and Nutrition Policy*.3

Horton S, Shekar M, McDonald C et al. *Scaling Up Nutrition: What will it Cost?* Washington DC, USA: World Bank 2010.

2008 Lancet Series on Maternal and Child Undernutrition

UNICEF Report “Improving Child Nutrition: The Achievable Imperative for Global Progress.”9

2013 Lancet Series on Maternal and Child Nutrition

References

- 1 Black RE, Victora CG, Walker SP, and the Maternal and Child Nutrition Study Group. *Maternal and child undernutrition and overweight in low-income and middle-income countries*. *Lancet* 2013;382:427–451.
- 2 Prado E, Dewey K. *Nutrition and brain development in early life*. *Alive and Thrive Technical Brief* 2012; Issue 4.
- 3 Jonsson U. *The rise and fall of paradigms in world food and nutrition policy*. (Commentary). *World Nutrition* 2010;1(3):128–158.
- 4 Quim V. *Nutrition and National Development: An evaluation of nutrition planning in Malawi from 1936 to 1990*. The Hague, The Netherlands: Wageningen Agricultural University Press 1994.
- 5 McLaren D. *The Great Protein Fiasco*. *Lancet* 1974;7872:93–96.
- 6 Berg A. (1987). *Nutrition Planning is Alive and Well, Thank You*. *Food Policy* 1987; 12(4):365–375. Rejoinder to: Field JO. (1987). *Multisectoral Nutrition Planning: A Post-Mortem*. *Food Policy* 1987;12(1):15–28.
- 7 UNICEF 1993, “We Shall Never Go Back”
- 8 UNICEF Policy Paper (E/ICEF/1990/L.6). *Strategy for Improved Nutrition of Children and Women in Developing Countries*. New York, NY, USA: UNICEF, 1990 p.22.
- 9 UNICEF. *Improving Child Nutrition: The Achievable Imperative for Global Progress*. New York, NY, USA: UNICEF, 2013, p.18.
- 10 Bhutta, ZA, Ahmed T, Black RE et al. *What works? Interventions for maternal and child undernutrition and survival*. *Lancet* 2008;371(9610):417–440.
- 11 USAID. *Child Survival Programs – Technical Reference Materials: Nutrition 2006*
- 12 WHO. *Essential nutrition actions: improving maternal, newborn, infant and young child health and nutrition*. Geneva, Switzerland: World Health Organization, 2013.
- 13 Core Group. *Essential Nutrition Actions Training Materials*. 2011 <http://www.coregroup.org>
- 14 Mucha N. *Implementing Nutrition-Sensitive Development: Reaching Consensus*. Briefing Paper. Washington DC, USA: Bread for the World, 2012
- 15 Ruel MT, Alderman H, and the Maternal and Child Nutrition Study Group. *Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition?* *Lancet* 2013;382(9891):536–551
- 16 Özaltın E, Hill K, Subramanian SV. *Association of maternal stature with offspring mortality, underweight, and stunting in low- to middle-income countries*. *JAMA* 2010;303(15):1507–1516;
- 17 Barker DJP. *Maternal Nutrition, Fetal Nutrition, and Disease in Later Life*. *Nutrition* 1997;13(9):807–813
- 18 Uauy R, Kain J, Corvalan C. *How Can the Developmental Origin of Health and Disease [DOHaD] Hypothesis Contribute to Improving Health in Developing Countries?* *Am J Clin Nutr* 2011;94(6):1759S.
- 19 World Bank. *Repositioning Nutrition as Central to Development: A Strategy for Large-Scale Action*. Washington, DC, USA: World Bank, 2006.
- 20 WHO *Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition, endorsed by the 65th World Health Assembly, May 2012*
- 21 Mucha N, Tharaney M. *Strengthening Human Capacity to Scale Up Nutrition*. Report by Bread for the World and Helen Keller International, June 2013