

Scaling Up Nutrition: What Will It Cost?

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Introduction

Undernutrition imposes a staggering cost worldwide, both in human and economic terms. It is responsible for the deaths of more than 3.5 million children each year (more than one-third of all deaths among children under five) and the loss of billions of dollars in forgone productivity and avoidable health care spending. Individuals lose more than 10 percent of lifetime earnings, and many countries lose at least 2–3 percent of their gross domestic product to undernutrition. The current economic crisis and its potential impact on the poor make investing in child nutrition more urgent than ever to protect and strengthen human capital in the most vulnerable developing countries.

This report [<http://www.g7.utoronto.ca/conferences/2010/ghdp/scaling-up-nutrition.pdf>] provides estimates of the costs of scaling up a minimal package of 13 proven nutrition interventions from current coverage levels to full coverage of the target populations in the 36 countries with the highest burden of undernutrition and 32 smaller countries where 20 percent or more of all children under the age of five are stunted or underweight.

Methods of analysis

Selection of the proposed nutrition interventions

The proposed set of 13 interventions was agreed upon with partners in a meeting organized at the UNICEF Innocenti Research Center in September, 2008. The interventions whose costs were estimated represent a modified package of the interventions listed in the 2008 *Lancet* undernutrition series. Some new interventions were added based on evidence that has emerged since the *Lancet* series was published, and others were deferred, either because there were no clear WHO-sanctioned protocols for the interventions or because data on compliance and delivery mechanisms are unclear. The effectiveness of the 13 direct nutrition interventions selected for the costing exercise has been demonstrated in many countries by their impact on reducing child mortality, improving nutrition outcomes, and protecting human capital. The interventions fall into three broad groups:

1) Behavior change interventions (Breastfeeding promotion and support; complementary feeding promotion; hand-washing with soap and promotion of hygiene behaviors). It is assumed that the majority of these services are delivered face-to-face at the community level through platforms such as community nutrition programs.

2) Micronutrient and deworming interventions (Vitamin A supplementation; therapeutic zinc supplements; multiple micronutrient powders; deworming; iron-folic acid supplements for pregnant women; iron fortification of staples; salt iodization; iodine supplements).

3) Complementary and therapeutic feeding interventions (Prevention or treatment of moderate malnutrition in children 6–23 months of age; treatment of severe acute malnutrition).

Estimation of program delivery costs

This report used the “program experience” method to estimate the cost of expanding the nutrition interventions considered here. In this approach, estimates of per unit costs are taken from actual program operations. This approach tends to provide higher estimates than other approaches as it incorporates inefficiencies of real-life programs. The authors then combined the program experience approach with the methodology that both the World Health Organization and the Disease Control Priorities Project use to adjust the cost estimates for different regions. As indicated above, the estimates focus on the costs of scaling up nutrition programs in the 36 countries identified by the 2008 *Lancet* series, which are home to 90 percent of moderately or severely stunted children worldwide, and in an additional 32 smaller countries where 20 percent or more of all children under the age of five are stunted or underweight (mainly in Sub-Saharan Africa).

The majority of the interventions costed here can be delivered using three main delivery platforms — primary health care, market-based mechanisms, and community nutrition programs. The primary health care system includes antenatal and delivery care, neonatal programs and extension efforts such as child health days. The authors did not attempt to estimate the resource needs for health systems strengthening, which they assumed would be covered through other complementary health sector investments. Other interventions, such as food fortification, which primarily use market-based mechanisms for delivery, will still need some investments through the public sector for regulation and policy changes. A third critical delivery platform for nutrition is community nutrition programs, which will require public sector support. Thus, the authors included costs for the market-based mechanisms and for community nutrition programs, because these costs are not covered by other sectors or programs.

The authors did not cost other potentially critical direct and indirect interventions that affect nutrition outcomes, such as maternal food supplementation (for which programming guidance is still awaited), or gender interventions to empower women to make the right caring decisions for their children. Nor did they include some new technologies (such as biofortification) or other food security interventions through the agriculture sector. There are also potential entry points for nutrition improvements through the education sector, which were not considered. Additionally, there are many other indirect interventions that can be implemented through other sectors, such as agriculture, education, and rural development, which will produce nutrition impacts but were not included in the cost analyses. Furthermore, the authors did not cost special nutrition interventions needed in HIV/AIDS-endemic contexts, although these are critical.

Estimated Resource Needs

The report concluded that the total financing that will be needed to scale up the selected interventions is US\$11.8 billion per annum, of which US\$1.5 billion is expected to be borne by private household resources. This leaves a total financing gap of US\$10.3 billion to be raised from public resources (both national and global) to support the scale-up. The authors proposed that the scale-up process should occur in two steps:

- Step 1, which will distribute slightly less than half of the total annual investment (US\$5.5 billion), comprises US\$1.5 billion for micronutrients and deworming (US\$5 per child), US\$2.9 billion for behavior change interventions (US\$7.50 per child), and an additional US\$1.0 billion to build capacities to start the scale-up of more complex and targeted food-based programs for delivering these services, starting with areas that have especially high rates of undernutrition. US\$0.1 billion is added for rigorous monitoring and evaluation of large-scale programs and operations research for delivery strategies, and for technical support.
- Step 2, in which the remaining US\$6.3 billion will be spent, will scale-up complementary and therapeutic feeding programs after the capacity to deliver these interventions are developed through the investments made during Step 1. The largest single cost item in Step 2 is complementary food used to prevent and treat moderate malnutrition among children under two years of age (US\$40–80 per child; US\$3.6 billion per year). The most resource-intensive intervention per child treated (US\$200 per episode per child; US\$2.6 billion per year) is treatment of severe acute malnutrition. Although prevention is considered preferable to treatment; the human and economic costs involved with severe acute malnutrition make it imperative to address the current levels of this condition to save lives. As with Step 1, an additional US\$0.1 billion will be needed for stepping up rigorous monitoring and evaluation of large-scale programs and operations research for delivery strategies.

Expected Outcomes

The authors estimated that US\$10.3 billion of public investment each year would yield the following results:

- 356 million children under five years of age will be reached by community nutrition programs for behavior change, allowing more mothers to learn the benefits of exclusive breastfeeding and more families to learn about optimal complementary feeding practices and appropriate hygiene practices.

- 103 million additional children 6–59 months of age will receive twice-yearly doses of life-saving vitamin A supplements.
- 40 million additional pregnant women will receive iron-folic acid tablets as part of their antenatal care.
- 319 million children 6–59 months of age will receive zinc supplements as part of diarrhea management.
- 2.8 billion more people will be able to consume staple foods fortified with iron.
- 1.2 billion people who do not currently use iodized salt will be reached by this intervention; pregnant women will receive iodized oil capsules until iodized salt becomes available.
- 226 million more children 12–59 months of age will receive deworming medication.
- 34 million children 6–23 months of age will receive vitamins and minerals through multiple micronutrient powders.
- 72 million children 6–23 months of age will receive micronutrient-fortified and/or enhanced complementary foods; 27 percent of these will receive 40g per day, and 73 percent will receive 80g per day.
- 14 million more children 6–59 months of age will be treated for severe acute malnutrition using community-based management practices.

NNA Editors' comments*

The evidence base of what to do to tackle undernutrition has grown tremendously in the last decades, and our understanding of how to deliver interventions continues to grow. Against the background of millions of children sick, dying, wasted or stunted, the under-investment in nutrition has been a global failure. This report offers a bold step forward by putting a price tag on what it will cost to support a major scale-up of proven nutrition interventions. Very importantly it recognizes the need for investments in capacity building, rigorous monitoring and evaluation of large-scale programs and operations research for delivery strategies in addition to the direct implementation of programs. The authors lay out the assumptions and the limitations of their analyses and recognize that estimates will have to be revised as new research and programmatic evidence emerge. This document is a call to action for all countries and development partners to dramatically increase investment and action in nutrition. As countries develop costed national action plans for nutrition this report can serve as a resource in setting priorities and developing cost estimates.

* These comments have been added by the editorial team and are not part of the cited publication.



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