

PROGRESS TOWARDS

# NUTRITION

WINNING THE FIGHT AGAINST MALNUTRITION

THE  
LIVING  
PROOF  
PROJECT

U.S. investments in global health are working.

Rising attention and funding for nutrition have helped to decrease malnutrition worldwide. Promotion of breastfeeding, vitamin and mineral supplementation, and advances in food fortification continue to show increasing impact on people's lives and improve their health.

New public-private partnerships and new ways of fortifying food have dramatically improved the health and lives of millions of poor people in all parts of the world. Nutrition interventions are cost-effective, with every dollar spent on simple things such as vitamin A and zinc supplements generating at least a \$17 return on investment.<sup>1</sup> Improving nutrition contributes to productivity, economic development, and poverty reduction.

## Global Progress

Renewed attention to the importance of nutrition in meeting global health and development targets has spurred an influx of funding, collaboration, and action, particularly in the last decade.

United Nations agencies, multilateral agencies, and bilateral agencies that traditionally focused on global development and poverty have begun to incorporate new or to revamp existing programs with the specific goal of improving the nutritional health of those they serve. These agencies have provided significant funding, allowing programs to reach millions.

- **The U.S. Agency for International Development (USAID)** is the world's largest bilateral donor for nutrition. Over the past 20 years, USAID has committed nearly \$7 billion to child survival and maternal health, targeting countries with high levels of malnutrition.<sup>2</sup>
- **The World Food Programme (WFP)** is the largest humanitarian organization working to alleviate hunger worldwide. WFP is a leader in delivering food assistance in emergency situations, including armed conflict, natural disasters, and economic failure. They give nutritional input and distribute food that meets the needs of specific groups such as pregnant women and children. Contributions to WFP programs increased from \$1.5 billion in 1999 to more than \$5 billion in 2008. WFP operations have reached more than 102 million people in 78 countries with food assistance.<sup>3</sup>

- **UNICEF** supports the provision of health care, clean water, nutrition, education, emergency relief, and other services to children. UNICEF uses a holistic approach to improve the nutritional status of both mother and child, with an emphasis on pregnancy, breastfeeding and the first vulnerable years of life. UNICEF has led global salt-iodization programs, ensuring that 91 million children a year are now protected against learning impairment related to iodine deficiency. Nutrition support is carried out through UNICEF's young child survival and development programs, which had a budget of more than \$1 billion in 2008.

Global partnerships involving the private and public sector have come together in the past 10 years in an effort to share knowledge and resources and focus on specific intervention efforts.

- **The Global Alliance for Improved Nutrition (GAIN)** was founded in 2002 to build alliances between the public and private sectors at the country level. GAIN works to fight micronutrient deficiencies in developing countries; mobilize partnerships between governments, businesses, and civil society; measure the impact of fortification programs; and provide technical advice. GAIN has initiated nutrition partnerships in more than 25 countries and reached nearly 200 million people with fortified foods.
- **The Micronutrient Initiative (MI)** is a nonprofit organization specializing in addressing vitamin and mineral deficiency. MI works by helping governments, food producers, and partner organizations develop, implement, and monitor innovative, culturally appropriate, and cost-effective programs in countries where deficiency is most prevalent. In 2007, MI estimated that its programs reached 500 million people worldwide.<sup>1</sup>

A number of NGOs such as **CARE, Helen Keller International, Médecins sans Frontières, Oxfam, and Save the Children**, among others, work across the world to deliver interventions that improve the nutritional status of millions of people.

## Innovation and Scientific Advances

Advances in food fortification—adding one or more essential nutrients to a food—have been key in helping to prevent and correct vitamin and mineral deficiencies in all regions of the world.

- Rice is the staple food for more than half of the world’s population, including 90 percent of the population in Asia. However, most milled rice is low in vitamins and minerals. The nonprofit PATH has developed **Ultra Rice**,<sup>®</sup> a manufactured

grain that provides a new way to supply these essential nutrients. These special grains are fortified with vitamin A, zinc, folic acid, thiamin, and iron, and are then blended in small amounts with local rice. Efficacy and acceptance trials have been successful and efforts to expand production are now under way.

- **Micronutrient powders (MNPs)**, such as **Sprinkles**,<sup>®</sup> have shown great promise in reducing common nutritional deficiencies, particularly in pregnant women and young children. MNPs are available in small sachets, costing 2–3 cents per package, are formulated to meet 100 percent of the body’s daily micronutrient requirements and can be mixed into virtually any food (immediately enriching it). MNPs have been successfully tested around the world, and production and distribution are being expanded globally.<sup>4</sup>

**Ready-to-Use Foods (RUFs)** have shown successes in treating severe, acute, and moderate malnutrition. These are high-energy soy- or peanut-based spreads that also contain essential fats, protein, and vitamins and minerals. Unlike fortified grains used to treat malnutrition, RUFs need no cooking or addition of water, reducing the risk of contamination. RUFs have been successfully used in home- and community-based treatment of severe acute malnutrition, as well as in a supplemental form for treatment of moderate malnutrition.<sup>5</sup> New formulations are now being tested for the prevention of malnutrition.

**Biofortification** carries promise in improving the nutrition of millions of poor people by increasing the nutritional value of the crops they produce. Biofortification allows key nutrients to be enhanced in crops through traditional breeding and biotechnology. Studies in Mozambique and South Africa have shown that consumption of orange flesh sweet potato, biofortified with high levels of beta carotene, improved the vitamin A status of children.<sup>6, 7</sup> Continued research and development to use this approach for other key staple crops holds promise

## THE IMPACT OF MALNUTRITION

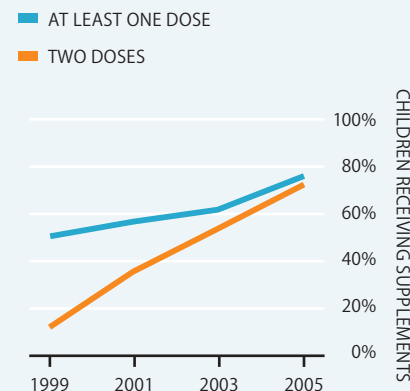
Malnutrition occurs when the body does not get the right amount of nutrients, whether macronutrients such as calories and protein, or micronutrients such as vitamins and minerals; often it is both. Both macronutrients and micronutrients play essential roles in all bodily functions, from growth and cognitive function to immunity and cell repair.

Undernutrition, a specific type of malnutrition, occurs when the body does not get enough nutrients. Common conditions related to undernutrition include intrauterine growth restriction (IUGR), stunting (low height-for-age), wasting (low weight-for-height), and micronutrient deficiency, with folic acid, vitamin A, iodine, iron, and zinc being the most commonly reported deficiencies.<sup>8</sup> All of these conditions can have negative consequences on health, physical growth, mental function, reproduction, and even future work productivity and capacity.

The global burden of malnutrition is high. More than 3.5 million children under 5 and more than 100,000 mothers die unnecessarily each year due to causes associated with undernutrition, and millions more are permanently disabled by the physical and mental effects of poor dietary intake in the first two years of life.<sup>9</sup> Countries lose an estimated 2–3 percent of their Gross Domestic Product (GDP) each year due to lost economic productivity because of undernutrition.<sup>10</sup>

## MORE CHILDREN RECEIVING VITAMIN A

Global trends in vitamin A supplementation coverage 1999–2005



Source: UNICEF ChildInfo, [http://www.childinfo.org/vitamina\\_progress.html](http://www.childinfo.org/vitamina_progress.html)

for improving the nutritional status of populations throughout the world.

- **HarvestPlus**, a global biofortification research initiative organized by the Consultative Group for International Agricultural Research, launched in 2004 with the goal of alleviating three of the most common micronutrient deficiencies: iron, zinc, and vitamin A. By breeding higher levels of these micronutrients into seven key staple crops (beans, cassava, maize, pearl millet, rice, sweet potato, and wheat), HarvestPlus aims to reach millions of the rural poor in Africa and Asia.

## Results

Progress has been made in the fight to alleviate suffering from malnutrition in recent years. Worldwide, the proportion of children under 5 who are underweight dropped from 32 percent in 1990 to 27 percent in 2006. Moreover, 19 countries have reduced underweight prevalence by one-third or more and 58 developing countries are on target to meet Millennium Development Goal 1: eradicate extreme poverty and hunger.<sup>10</sup>

Several different strategies have contributed to the success in reducing undernutrition, including: increases in the coverage of micronutrients

being delivered through fortification and supplementation programs, promotion of healthy behaviors such as breastfeeding, and long-term investments and prioritization of nutrition by countries.

**The greatest story of progress in food fortification has been salt iodization.**

The success of this program has demonstrated that government commitment, market opportunity, and social responsibility can be combined to improve health. Additionally, with the help of USAID and Canadian investments in the 1990s, **vitamin A supplementation has also become one of the most effective large-scale, child-survival interventions.**

- Between 1993 and 2007, the number of countries in which iodine deficiency was a public health concern was reduced by more than half—from 110 countries to 47.<sup>11</sup> Through government commitment and the cooperation of large- and small-scale distributors, 34 countries have attained universal salt iodization, and an additional 60 countries have increased household consumption of iodized salt by at least 20 percent during the past decade.<sup>11</sup> As a result, 68 percent of the 5 billion people living in countries with iodine deficiency disorder now have access

to iodized salt. In partnership with GAIN, UNICEF is currently working to reach 85 percent worldwide coverage of iodized salt.

- Global vitamin A coverage of two doses per year in children aged 6–59 months increased from 16 percent in 1999 to more than 62 percent in 2007.<sup>12, 13</sup> More than 80 countries now have vitamin A supplementation programs, which have been followed by mortality declines.<sup>14</sup> After supplementation, Bangladesh saw a decline in child mortality of 23 percent, while in Vietnam, vitamin A supplementation decreased night blindness, corneal scars, and Bitot’s spots (foamy patches on the eye) by 90 percent.<sup>15</sup> In 2007, an estimated 490,000 child deaths were averted due to the 530 million doses of vitamin A provided to country programs supported by the Micronutrient Initiative.<sup>16</sup>

Proven interventions implemented at the hospital and community levels are helping infants start their lives with the best nutrition possible. Exclusive breastfeeding has the potential to prevent the deaths of 1.4 million children under 5 in the developing world due to its remarkable ability to support a baby’s immune system, decrease acute

respiratory infections, diarrhea, and other diseases, and protect children from chronic diseases later in life.

- Global exclusive breastfeeding rates have increased by 15 percent since the early 1990s due in large part to the **Baby-Friendly Hospital Initiative (BFHI)** launched in 1991. The BFHI is an effort by UNICEF and the World Health Organization to ensure that all maternity facilities become centers of breastfeeding support. Since the BFHI began, more than 15,000 facilities in 134 countries have been awarded baby-friendly status. In Ghana, promotion of immediate initiation of exclusive breastfeeding at birth reduced neonatal mortality by 42 percent.<sup>17</sup>

**Moving Forward**

For progress to continue, coordination must improve across the global nutrition community, and partners must mobilize to increase funding and fulfill pledges to help those affected by the food and financial crises, focusing efforts particularly on pregnant and lactating women and children under age 2. A recent study estimated that \$10.3 billion is required annually to effectively implement the full package of nutrition prevention and treatment

**COUNTRY SPOTLIGHT: MEXICO’S CONDITIONAL CASH TRANSFERS IMPROVE CHILD NUTRITION<sup>23</sup>**

In Mexico, an estimated 40 percent to 50 percent of the country’s 103 million citizens live below the poverty line and about 15 percent to 20 percent are classified as indigent. In 1997, the use of modern health services in rural Mexico was low, malnutrition was widespread, and low height for age affected an estimated 44 percent of 12- to 36-month-old children. To break the intergenerational transfer of poverty in the country, the Mexican government launched the PROGRESA program (now called Oportunidades) to encourage poor families to access education, health, and nutrition services. It was the first

nationwide antipoverty program in a developing country to offer conditional cash transfers (CCTs) to promote health-seeking behaviors. CCTs provide money to poor families, dependent upon certain verifiable actions like regular school attendance or basic preventative health care.<sup>24</sup>

Between 1997 and 2000, the first installment of PROGRESA provided cash transfers to nearly 2.6 million rural families (40 percent of the rural total) in return for families participating in services such as sending their children to school, and to health clinics for immunization and other services. The program provides

nutrition education, growth monitoring, and micronutrient-fortified foods to children aged 4 to 23 months, malnourished children aged 2 to 4 years, and pregnant and lactating women. In 2001, the program was extended to urban families, and it grew to 5 million families in 2004, covering virtually the entire population at risk of hunger at an estimated annual cost of 38 billion pesos—approximately \$3.5 billion. (U.S.)

An initial evaluation found that, when compared to children who had not participated in the program, children who participated in PROGRESA had a higher intake of energy



(7.1 percent); a better quality diet because they ate more vegetables, fruits, and meat; were about one centimeter taller each year; and had a more than 10 percent lower incidence of anemia. The successes of the program have persisted, and where Oportunidades currently operates, poor children in rural areas are more likely to enroll in school, eat a more diversified diet, and get more frequent healthcare than in the 1990s.

interventions in the world's 36 most affected countries; however, donors from the Organisation for Economic Co-operation and Development (OECD) spent only an estimated \$300 million on basic nutrition (not including food aid) in 2007.<sup>18, 19</sup>

### Improve coordination and cohesion

A renewed vision and greater coordination are needed to develop a common, prioritized agenda, define roles, and scale up successful programs. Country leadership and capacity are essential to reposition nutrition as a higher priority and to implement proven and promising new approaches. In 2009, the global nutrition community initiated work on a Global Action Plan for Nutrition to develop this vision and implement a unified approach with the potential to save the lives of more than 1 million children per year, and ensure that millions more achieve their full intellectual and physical potential.<sup>20, 21</sup>

### Scale up successful approaches

Despite solid global gains, there are significant regional variations in progress. Alarming, nutrition status is actually deteriorating in some countries, many of them in Africa, where the lethal combination of HIV and undernutrition is strong and mutually reinforcing. Continuing to implement and increase proven approaches to reducing malnutrition will be essential in reversing this trend.

### Ensure that nutrition is an essential element of food security efforts

Progress in reducing hunger and malnutrition is easily eroded by increasing food prices and economic downturns. The Food and Agriculture Organization estimates that the number of undernourished people increased from 848 million to 963 million between 2003–05 and 2008, largely due to rising food prices in these two time periods.<sup>22</sup>

## Endnotes

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The Living Proof Project is a multimedia initiative intended to highlight successes of U.S.-funded global health initiatives. Millions of lives have already been transformed and saved with effective, affordable solutions. We have the knowledge, innovative technologies and proven tools to do much more. The content for this progress sheet was developed by the Global Health Group at the University of California, San Francisco and SEEK Development in Berlin. It is also available online at [www.livingproofproject.org](http://www.livingproofproject.org).