Communicating the benefits of micronutrient fortification

Marcia Griffiths

Abstract

Food fortification offers an affordable, convenient, and effective mechanism to improve the nutrition status of large segments of a population. However, the success of fortification has been less than public-health professionals and private-sector companies alike have hoped for, though often for different reasons. As new opportunities are available, success will be dictated by the ability of public health professionals to learn from private food companies' marketing efforts and, in turn, for the food companies to learn from the public health sector about how to reach groups who need fortified products the most. Simply having fortified products on the market does not promise that consumers will use the products or that businesses will continue to promote them. Carefully crafted and strategically implemented behavior-change communication can inform and motivate consumers to purchase and use the products appropriately, and, in turn, can motivate food companies, program managers, and policy makers to participate in the marketing of these products. Public health and development professionals can learn from the success of private-sector companies in creating demand for products. Good consumer research and testing can guide effective development and marketing of fortified products, as they do for all products and services. Private-sector companies that know how to market products need assistance to focus on the poorest segments of a population to pursue cost-effective strategies to get the product to those in need, in addition to those with purchasing power for the new product. Audience-specific marketing strategies can ensure that the same fortified product reaches every person who would benefit from it.

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Key words: Communication, food fortification, marketing, micronutrients, poverty reduction, public health

Introduction

The global climate is ready, again, for action to be taken to mitigate the urgent problem of micronutrient malnutrition. The interest and infusion of funding from the Bill & Melinda Gates Foundation and from others for the Global Alliance for Improving Nutrition (GAIN)* has helped. Even beyond this organization, groups have set goals related to reducing micronutrient malnutrition and are taking action or pledging more action. As these new programs develop and as past efforts are evaluated, there is a strong plea for improved communication and advocacy for nearly all micronutrient actions [1]. However, too frequently it is not echoed in relation to food fortification. With fortification, there is still a contingent that asks, "Is communication really needed if the fortified product is on the market?"

The resounding answer is "yes." Carefully crafted and strategically implemented communication strategies are required to ensure success in the marketplace and in public health arenas. Expertise is needed from two distinct groups: marketing professionals who work with private-sector food companies and public health or development professionals.

Scope of needed communication

In general, communication needs range from advocacy to keep fortification on the agenda of policymakers, program designers, and the food industry, to consumer education so that consumers understand the benefits of fortification. Communication can inform individuals

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and motivate health-promoting behaviors, whether the behaviors are funding a fortification program, developing a fortified food, or purchasing a fortified food and preparing that food properly [2]. An important rule for all program developers is to never assume that the rationale for taking action that may be so clear to health experts will also be compelling to others. Each group, from policy makers to consumers, has reasons for what it does based on its own perceptions and needs. As programs try to reach each group, particularly the poor, program planners need to understand these perceptions and needs.

Key communicators of improved-health messages

There are two important but different points to make about communicating the benefits of micronutrient fortification for two very different constituencies involved in fortification programs. Although both groups share the desire to see the market of fortified products expand, each has different perspectives about what is important in the process of developing the fortified product and in bringing it to consumers. True success will come by blending the different points of view and expertise to achieve high coverage of all market segments with a product that endures. The two groups who are key in the communication process are (1) the public health or development professionals who primarily work through public institutions, and (2) the marketing and product development professionals who primarily work through private consumer-goods companies.

Public health and development professionals need help with demand creation

The first constituency, public health and development professionals, have dedicated their careers to public health research and getting programs underway to benefit the world's disadvantaged residents. They know well the nutrition angle of what will help save lives and help people to lead more productive lives. Often, they work in difficult environments, and yet have gone on to deliver the products and programs that make a difference. They have focused on the poor, usually working with developing country governments, with very little money, and sometimes with colleagues who are quite disinterested in the final outcomes.

For this group, food fortification offers an affordable, effective way to help large populations improve their nutrition situations on a daily basis. They are aware that although there have been some successes in developing and distributing fortified products to those in need, progress has been slower than desired and the gap is great between the need for and the actual availability of products for the world's disadvantaged. Some of the reasons for this disparity are the conditions under which much of this work is done, including low political priority and low budgets. While these obstacles may be difficult to overcome, one contributor to slow progress that can be changed is the way in which a fortified product and its benefits are marketed (a packaged product and the daily practice(s) related to the use of the product [3]).

Consumer demand is needed for product acceptance

Private-sector companies, such as The Procter & Gamble Co. (P&G), are full of marketing gurus and offer many lessons. The key lesson is this—*demand for a product breeds success*. P&G knows well that the best product in the world will fail without consumer demand and, unfortunately, public health and development professionals know the reverse—less beneficial products (those with poor nutrition value) can succeed because of high consumer demand. Marketers and public health professionals must work together to create and harness demand for the beneficial product.

Creating demand through innovative communication

Success in communicating the benefits of micronutrient fortification will come from capturing and learning from the lessons of demand creation or of selling. The lesson of demand creation was illustrated by P&G in 1879, when the company entered a crowded soap market with "White Soap" and linked it to the value of purity, which is very important to consumers [4]. However, the search was on for a more creative name. Ivory®, rather than White Soap, was chosen. It was distinctive and let consumers draw their own conclusions about the pure properties of the soap.

Then, as legend has it, a worker in James Gamble's soap factory left the mixing machine on too long and created soap that was so full of air that it floated. After this particular batch of Ivory was shipped out, orders began to come in for "the floating soap." P&G listened to consumers' requests and provided the product to meet them; to this day, P&G whips part of each batch and markets Ivory using the phrase "it floats." P&G's selling strategy for Ivory, to distinguish it from other similar soaps, has always been to promote those two qualities important to consumers who purchase soap—purity and the soap's ability to float. There has been no need for discussion of its ability to improve personal hygiene.

The historical successes of marketing P&G products comes from listening to consumer needs and desires: Ivory flakes, in 1919, was one of the first flaked soaps for washing clothes; Chipso, a chipped soap that dissolved better became one of the most popular in the 1920s; and in 1933 Dreft was the first synthetic detergent [5]. All were developed because P&G determined

what consumers wanted, created it, and then carefully crafted the product's appeal. They even delivered the message strategically, through a popular radio format—the soap opera.

Consumer response to changes in common products

Now consumer demand must be brought to the delivery of micronutrients. How can the benefits of fortified products be captured in terms of what consumers want? The obvious method of marketing benefits is to tell consumers about the micronutrient that has been added, the direct health benefit(s) they will receive, and any potential change the processing has meant for the product. But health benefits are not always welcome and effective in marketing.

For example, in Pakistan, use of iodized salt was promoted as a way of enhancing children's ability to gain a good education rather than a way of avoiding illness [2]; and in Bolivia, vitamin A sugar was promoted as sweet because consumers believed it would change the taste of their food or beverage [6].

Examples of successful communication campaigns

Public health and development professionals have to plan for good consumer research and product testing [7]. They must understand the properties that people want in their food, what consumers think about the addition of micronutrients, and what consumers perceive as the advantages or disadvantages of processing. For example, the process of iodizing salt results in the salt being cleaner and drier than other salt. Many people consider this a benefit and this property can be promoted. Likewise, if consumers want to be able to purchase salt in small quantities (i.e., units that cost 2 cents or measure 145 g) as they can from a vendor in the local market, then the "new" salt must be able to be sold that way. Following are summaries of some of the ways different fortified products are being promoted around the world:

Iodized salt

» Prevents loss of 10 to 15 points of IQ (Bolivia).
» "When it rains, its pours"® (advertising the dryness) (Morton® Salt, USA).

Vitamin A-fortified sugar

» For a healthy body and good eyesight (National Food and Nutrition Commission, Zambia Sugar, Zambia).
» It saves lives, it's inexpensive, and it improves health (El Salvador).
» Your family can conveniently get their vitamin A in a product they eat everyday (National Health Secretariat, Bolivia).

Fortified infant cereals

» Strengthens your baby's health and immune system (Gerber, USA).
» Enhances neurologic development and muscle strength (Gerber, USA).

Logos can create product identification

Finally, a lesson can be learned from the private sector. If the fortified product is to be sold by numerous commercial companies, or if numerous products will be fortified, it is important to identify them with a logo, such as the "Fortified with Vitamin A" symbol in Zambia or the "Vitamina A" symbol in Bolivia (see figures 1 and 2). A logo gives consumers something to look for and allows regulators to know which products carry the claim of fortification.

Private-sector companies need help reaching the poor

The second constituency that is key to making fortified food products a success is private-sector companies. These companies already know how to sell products to consumers. The questions for them are as follows: Who are the consumers to be targeted? Is the product geared to reach the poor or the people who are most in need of fortified products? Is the marketing tailored for each unique market segment?

It is true that usually a product cannot be geared for the need-based market alone—a mistake public health

FIG. 1. Vitamin A logo on Whitespoon Sugar made by Zambia Sugar, Plc.

FIG. 2. Vitamina A logo on sugar signs from Bolivia

professionals often make. But if companies are sincere in their efforts to affect public health, they need to be willing to help a product reach the segment of the market most in need—those who might not be able to afford the additional costs or perhaps can purchase only the least "processed" form, such as a product that is sold by small marketplace vendors with little or no packaging. It is one thing to provide a branded fortified product to compete with other soft drinks for example, but what about the people who do not buy soft drinks? Can a product be delivered to the poor while we market to more affluent consumers? Perhaps a minor modification in product development or packaging would allow for a product that would also be appealing and affordable to the poor.

Working together to communicate to all market segments

As a partnership forms, the public and private constituencies involved must negotiate both health-based and profit-driven matters. This can be done as the marketing strategy is constructed. It must include plans to reach not only the population that has the means to make a product financially successful by purchasing it, but also to reach the segments of the population with limited or no purchasing ability, who desperately need the benefits of the product or an alternative.

Example scenario

Following is a fictionalized case based on a true situation to illustrate the importance of each constituency reaching out to make fortification successful. The country will be called "Healthlandia." Its problem is vitamin A deficiency. Nationally, vitamin A deficiency is a borderline public health problem, but there are pockets of the country (areas with poor, indigenous population groups) where this deficiency is a serious public health problem.

The solution comes when a partnership is forged among a private-sector company that agrees to fortify sugar, the government that agrees to develop a law to make sugar fortification mandatory, and two international donors that agree to provide financial assistance to the government and the company particularly for marketing and monitoring. Conflicts arise when the government and donors want the fortified sugar to improve the vitamin A deficiency situation in poor indigenous areas, while the company wants the fortified sugar and its promotion to boost its penetration of the largest urban sugar market in the country and ensure that consumers there will buy the fortified product.

Separate marketing strategies

Conflict could have been resolved by developing two marketing strategies to address these different goals. For example, packaging needed to be different. In poor areas, 1-kg packages were not going to sell because people typically bought smaller amounts requiring less cash outlay, whereas city consumers were attracted to and *wanted* 1-kg bags to ensure they were purchasing a full measure of sugar. In addition, the benefits needed to be tailored. All consumers saw the added vitamin A as beneficial, but for the city consumers, the attraction was that it was "cleaner" than unfortified sugar because of the processing. The poorer consumers were more concerned with the taste of the sugar and "saving" it for use only on special occasions because it was so pure.

Instead of tailoring marketing materials to each of the two groups, the visuals and materials developed were aimed primarily at the urban consumers. The advertising showed people in tropical clothes leaning out of windows with open shutters along with the slogan "Come to the sweeter side of health." These visuals and this message were not effective or understood by the rural people who did not have windows with shutters in their homes and seldom even opened their windows because of the strength of the wind that blows in their region.

Success and failure of a single strategy

In the end, the marketing strategy was successful in the metropolitan area but failed in the indigenous area, despite public-sector market research. Subsequently, the government and donors believed that fortified sugar could not succeed in addressing the public health problem and lost interest in supporting the initiative. Finally, the company lost interest when the law was not enacted to support the product.

Lesson learned

The lesson here is that the poor cannot be forgotten. The bottom line is not just sales but also the improvement of the public health problem. Food companies and their marketing arms need to call on health professionals to help them understand a country's poor residents (their aspirations, perceptions, and needs) and to mobilize to assist their traditional product-delivery channels to get the product to hard-to-reach areas with the proper message.

Marketing, known and implemented so effectively by those in the private companies, can work to reach the "downscale" consumers, even those who fall below standard socioeconomic segmentation scales; but this requires reaching out, building partnerships, and accepting higher risk in many cases.

Conclusion

Developing effective communication strategies requires gathering wisdom from the two constituencies of private-sector food companies and public health or development professionals. Success will come from working together to create the demand for fortified products by tailoring products and communicating the benefits of the fortified product to each particular audience. This partnership will help achieve improvement in public health, so that micronutrient deficiencies do not continue to debilitate the billions of people affected today.

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Role of public-private partnership in micronutrient food fortification

M. G. Venkatesh Mannar and Marc van Ameringen

Abstract

Iron, iodine, and vitamin A deficiencies prevent 30% of the world's population from reaching full physical and mental potential. Fortification of commonly eaten foods with micronutrients offers a cost-effective solution that can reach large populations. Effective and sustainable fortification will be possible only if the public sector (which has the mandate and responsibility to improve the health of the population), the private sector (which has experience and expertise in food production and marketing), and the social sector (which has grass-roots contact with the consumer) collaborate to develop, produce, and promote micronutrient-fortified foods. Food fortification efforts must be integrated within the context of a country's public health and nutrition situation as part of an overall micronutrient strategy that utilizes other interventions as well. Identifying a set of priority actions and initiating a continuous dialogue between the various sectors to catalyze the implementation of schemes that will permanently eliminate micronutrient malnutrition are urgently needed. The partners of such a national alliance must collaborate closely on specific issues relating to the production, promotion, distribution, and consumption of fortified foods. Such collaboration could benefit all sectors: National governments could reap national health, economic, and political benefits; food companies could gain a competitive advantage in an expanding consumer marketplace; the scientific, development, and donor communities could make an impact by achieving global goals for eliminating micronutrient malnutrition; and by demanding fortified foods, consumers empower themselves to achieve their full social and economic potential.

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Key words: Food fortification, micronutrient malnutrition; public-private collaboration

Introduction

Iron, iodine, and vitamin A deficiencies prevent 30% of the developing world's residents from reaching their full physical and mental potential [1]. Fortification of commonly eaten foods with micronutrients offers a cost-effective solution that can reach large populations. The benefits accrue not only from reducing the burden of morbidity and mortality but also from improved school performance, parenting, and productivity. Food fortification should be part of an overall national micronutrient strategy that includes dietary promotion, supplementation, and public health measures. The expanded coverage through fortification enables those who cannot be reached through centrally processed foods to be better targeted using alternative interventions. Effective and sustainable fortification will be possible only if the public sector, private sector, and social sector collaborate to develop, produce, and promote micronutrient-fortified foods. Our focus here will be on the partnership needed between the public and private sectors.

Target partners

There are several target partners in the public and private sectors that could address micronutrient malnutrition, including the following:

» *The scientific community,* which has identified the problems of micronutrient malnutrition and conducted efficacy or clinical trials to demonstrate the benefits of fortification. Over the past decade, considerable expertise has been gained in the translation of scientific knowledge into effective programs that are supported by advocacy and social communication, legislation and enforcement, monitoring and evaluation, and training.

» *National governments*, which must provide administrative support and prescribe the framework within which solutions can be implemented and regulated.
» *The food industry,* which has technology, the capacity to mobilize resources, and the marketing capability to translate these needs into economically viable products that will be affordable and nutritious.
» *Consumers,* who need to be educated on the benefits and low cost of food fortification, thereby creating a demand to which industry would have to respond.
» *International and bilateral aid agencies,* which will provide the link and coordination between the different sectors and make them self-supporting and sustainable.

The food industry is playing an increasingly critical and complex role throughout the world. In developed countries, changes in living and marketplace patterns have stimulated changes in food industry practices, resulting in a diversity of food-processing technologies and an ever-changing array of foods on market shelves. Food fortification has played a major role in the health of these populations over the last 40 years. Recent concerns about health and the environment have resulted in significant attention to foods and food additives by regulators and legislators, the media, and educators and consumers—all the powerful groups that influence marketplace dynamics. The need for cooperation among the food industry, the scientific community, and regulators and legislators at all levels in these countries has been identified.

In developing countries, too, fortification is increasingly recognized as a sustainable long-term measure to improve the micronutrient status of large populations. Here, too, simple nutrition and technologic solutions to problems of micronutrient deficiencies exist but are often complicated by economic, social, and political factors. Intervention strategies must take into account these factors. This is the challenge as well as the opportunity for the food industry—both multi-national and domestic, small- and large-scale. In this endeavor, the food industry can draw upon active support from the other sectors. What is urgently needed is to identify a set of priority actions and initiate a continuous dialogue between the various sectors to move quickly toward the implementation of schemes that will permanently eliminate micronutrient malnutrition.

Specifically, a multi-sector partnership must be formed among industry, national governments, international agencies, expert groups, and other players to work closely on specific issues relating to technology development, food processing and marketing, free-market approaches with minimum price-support mechanisms, standards, quality assurance, product certification, social communications and demand creation, monitoring, and evaluation. Guidelines on these issues should then gain acceptance and be implemented at the national level. A multi-sector group within each country should define a feasible, affordable fortification strategy designed for the target population, identify opportunities for the involvement of the food industry, and assist in promotional and educational efforts to reach the target population.

There is a growing international dialogue in the field of micronutrient malnutrition to develop this new coalition between governments, private food companies, international agencies, and other stakeholders to discuss collaborative approaches to eliminate micronutrient malnutrition. This effort is a new kind of partnership—a partnership at different levels. At the global level, it links international agencies and groups (each with its own plans to pursue) to ensure that key issues and needs are addressed. At the national level—where the war really needs to be won—we need to link public and private sectors, profit and non-profit sectors. At the regional level there needs to be agreement on issues of inter-country food movement, standards, and regulation.

Such collaboration could benefit all sectors: National governments could reap national health, economic, and political benefits; food companies could gain a competitive advantage in an expanding consumer marketplace; the scientific, development, and donor communities could achieve impact and recognition for achieving global goals for eliminating micronutrient malnutrition; and by demanding fortified foods, consumers empower themselves to achieve their full social and economic potential.

Food fortification efforts need to be integrated within the context of a country's public health and nutrition situation and as part of an overall micronutrient strategy that utilizes other interventions as well. The basic challenge is to bridge the communications gap between the public and private sectors in understanding their needs and respective roles and responsibilities. While constraints and shortcomings do exist, there is no need to delay immediate action.

Key issues for national action

There is a critical need to initiate national dialogues to form links at the national level among government, industry, scientists, non-government organizations (NGOs), and international agencies. Key issues that such dialogues would cover include [2] the following:

Opening channels of communication

All partners need to be informed of the problem of micronutrient malnutrition and its impact. There should be mechanisms by which they communicate

with each other on a regular basis to discuss ways in which public and private resources might be brought to bear to address the problem.

Creating public awareness

Consumers should be made aware that micronutrient malnutrition diminishes the quality of their lives and that micronutrient-rich foods can play a role in a more prosperous future. How this promotion will be handled collaboratively by the public and private sectors will be one of the first issues to address.

Developing consumer demand

Informed consumers choosing to purchase fortified products over nonfortified ones will determine the success of food fortification both as a public health strategy and as a private investment. Developing consumer demand entails not simply targeting populations and promoting fortified products, but also developing the right product, price, and packaging.

Defining coverage and market segments

While the public health community seeks high coverage of large populations, the private sector targets the market to identify niches of opportunity. In several countries, large segments of the population cannot afford or do not have access to centrally processed foods. How large must a market segment be before it can be recognized as contributing to a public health goal—and therefore eligible for public recognition or support? Each national dialogue will determine its own approach to this issue.

Identifying food vehicles

Food vehicles should be selected through a process of market research that demonstrates that they are consumed by a vast majority of the population, are affordable to those most in need, and respect both political sensitivities and consumer preferences. Several food products can play complementary roles in a national fortification strategy.

Marketing campaigns

With broad agreement that public awareness and consumer demand are high priorities, collaborative public-private marketing campaigns are important issues for national dialogue. While public agencies have the credibility to market health benefits of fortification, private companies can effectively promote consumer benefits of specific products.

Keeping products affordable

Consumer prices and producer costs must be balanced, so as not to discourage demand or supply. With strong communication between public and private sectors, purchasing, processing, marketing, and distribution activities can be coordinated across market segments to keep cost increases to a minimum.

Assuring quality

Complementary public-private roles need to be defined in developing legislation and regulations, providing resources for laboratories and technical personnel, and establishing quality assurance and monitoring methodologies at the producer and retail levels.

Participation partners

A concerted effort to eliminate micronutrient malnutrition involves the active participation of several sectors. Most important are ministries of government, the food industry, and international agencies. While recognizing that national circumstances vary, a sequence of steps is necessary to initiate, develop, and sustain a national public-private dialogue:

» Public sector performs initial educational efforts
» Private sector takes the lead in market research
» Public and private sectors collaborate in developing themes and messages
» Public and private sectors partner in dissemination campaign
» Private sector tracks and fine-tunes the campaign
» Public and private sectors collaborate to revise messages
» Public sector evaluates national impact

Roles and responsibilities

Public sector

Governments need to develop political contact at the highest level and set policy and a program framework within which food fortification can be promoted. Government's primary role within this program is in education and awareness campaigns and the necessary integration. In certain cases, fiscal incentives (tax/tariff exemptions) and physical incentives (preferred access to public infrastructure) may be necessary to catalyze the process. Government could also ensure quality by providing a seal of approval to fortified foods that meet specified standards.

Private sector

The food and pharmaceutical industry could work with governments to assess mutual needs. By being part of the process from the start, industry can ensure its needs and concerns are considered. Industry has the primary responsibility of creating products and technology and developing marketing and distribution mechanisms. Industry could create "best practices" codes for production and marketing of fortified products, so that all companies can compete with regard to quality and excellence.

Conclusion

Food fortification offers a unique opportunity for the food industry to simultaneously expand its market and profitability while playing a key role in improving the physical, social, and economic well-being of a population. The food industry is capable of having a profoundly positive effect for a relatively small cost. In all countries, food fortification should be part of national priority and policy and its promotion and monitoring should be included in the government's budget. It also needs to be supported by the food industry and promoted as normal good manufacturing practice by all food processing companies. The potential benefit to the people is enormous, the costs are small, and the risks are negligible. The public and private sectors need to work together to capitalize on this opportunity to ensure that the next generation of children grows and develops to its full mental and physical potential as students, workers, and citizens.

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Public-private sector alliances for food fortification: Time for optimism*

Rolf Carriere

Introduction

The Global Alliance for Improved Nutrition (GAIN) was launched at the United Nations General Assembly Special Session on Children in May 2002 as a global and regional alliance of public, private and civic groups committed to eliminating micronutrient deficiencies. The Bill & Melinda Gates Foundation provided GAIN with its principal funding, which has been complemented by grants from international and bilateral agencies.

GAIN's vision is of a world in which malnutrition is no longer a human and social development constraint. In May 2002, the UN General Assembly Special Session on Children re-emphasized the micronutrient goals of the early 1990s: Achieving the sustainable elimination of vitamin A deficiency by 2010, reducing anaemia prevalence, including iron deficiency by one third by 2010, and virtually eliminating iodine deficiency disorders by 2005; accelerating progress towards reduction of other micronutrient deficiencies through dietary diversification, food fortification and supplementation.

The question to be asked, however, is why in 2003 are the goals for eliminating malnutrition so similar to those written at the International Conference for Nutrition (ICN) and the World Summit for Children back in the 1990s? Why does this level of malnutrition—or malnutrition at all—still persist? I'd like to review some obstacles, which the global nutrition community must surmount, in order to make further progress. But, the take away message is that the trend is going up and success can breed success if optimism can be the dominant paradigm.

Progress and failures during the past 40 years

The past 40 years have shown unprecedented, historic progress in the field of public health, including nutrition (See table 1).

In 2000, 3.5 million fewer children died than in 1990. And, life expectancy is up dramatically. This has never happened in any era before in history. Thus, we can be successful and there is reason for hope and optimism to continue succeeding. It is important to keep in mind that even though progress has been made, there have been failures too (table 2).

Millions of people are suffering from poverty, illiteracy, infections, and early deaths.

Official development assistance funding is down; and over 36 million people are infected with HIV/AIDS. The World Bank has projected a worsening of absolute

TABLE 1. Unprecedented Social Progress from 1960 to 2001

Measure	Change from:
Life expectancy up[a]	46 to 64 years
Death among children < 5 down[a]	197 to 82 per thousand born alive
Infant mortality down[a]	126 to 57 per thousand born alive
Fertility down[a]	5.0 to 2.7 births
Enrollment in primary education up[a]	48% to 80%
Immunization up[b]	5% to 75% completing DPT3 72% completing measles

a. UNICEF, SWC 2003, Tables 1, 3, 9 [3]
b. UNDP, HDR, p. 212 [4]

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* The author's original presentation is based on personal experience and many published references. The work of Gillespie et al. [1] as well as the *Food and Nutrition Bulletin,* vol. 21, no. 3 (supplement), "Ending Malnutrition by 2020: An Agenda for Change in the Millennium," [2] have been influential and are woven throughout. Views expressed in this paper do not necessarily reflect official positions of the World Bank or the Global Alliance for Improved Nutrition.

TABLE 2. Continuing shortfalls

Measure	Status in 2003
Live on less than US $2/day[a]	3 billion
Live on less than US $1/day[a]	1.3 billion (40% of children in the world)
Do not attend school[a]	125 million children
No access to clean water[b]	1.5 billion
No sanitation[b]	2.4 billion
No access to electricity[a]	2 billion
Without adequate shelter[c]	1 billion
Homeless	100 million (40 million children)

a. World Bank 2003 [5]
b. UN, World Water Report 2003: 12 [6]
c. United Nations High Commission for Human Rights [7]

poverty in the next 25 years (fig. 1).

In the next 25 years, the world population is expected to increase from 6 to 8 billion. The number of people living on less than 2 dollars a day will go up from 3 to 4 billion, and the number of absolute poor will likewise increase from 1.3 to 1.8 billion. This trend will happen if we are unable to achieve the Millennium Development Goals. The report of the UN Secretary General suggests that we are *not* on the critical path to achieve the millennium goals. What will this mean for malnutrition?

Global burden of malnutrition: We have talked a lot about the global burden of malnutrition. It has been estimated that at least one third of poor countries' disease burden is due to malnutrition (Mason et al. [8]). Based on this, the global economic loss due to malnutrition could be projected at 80 billion dollars each year. These costs are based on calculations of the economic value of a population's intelligence (educability), productivity, health care costs, and the lives of millions of children and women. Yet, for about 5 billion dollars a year, the world could prevent this huge economic hemorrhage and human suffering. To address these problems, there have been many global resolutions and calls to action over the last three decades. Sometimes, they are too many to remember. Even though progress has been made, it remained painfully slow.

At present, international nutrition investments in low-income countries cover a fraction of what is needed compared to a need for about 5 billion dollars. The World Bank, whose contribution is larger than all others combined in the field of nutrition, has spent 2 billion dollars in the last 25 years. This is far below the scale where we can find sustainable and impacting solutions. Currently, the World Bank and UNICEF spend about 150 million and 50 million dollars a year in the field of nutrition, respectively. So there is

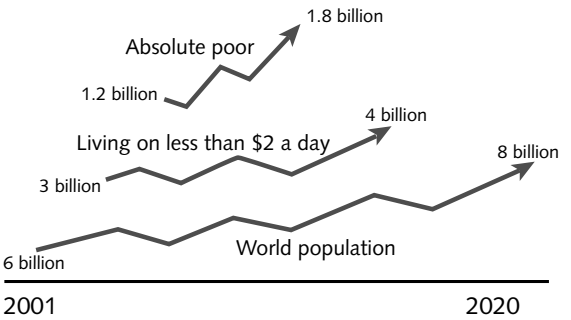

FIG. 1. World Bank Projections. Source: World Bank 2003 [5]

only one conclusion to make out of this. If we want more impact, we simply require more input. It is not a big mystery on how to achieve a dramatic impact in reducing malnutrition. Dr. John Mason recently said, (an) "average improvement rate of 0.5 percentage points per year would still only lead to zero prevalence for many countries in a century or so. There is evidence that it can be increased by interventions to around 1.5 to 2.0 percentage points/year, which brings a much more acceptable timing to solving the problem" (Mason [9]). But, why must we be satisfied with this improved, but still slow rate of decline, and another hundred years more of suffering from malnutrition when we know how to prevent the problem?

We do have the technology and we know the solutions. If we decided to do it, we could end malnutrition in a decade or two. So unless dramatic increases in resource transfers take place soon, the prospects for the human condition look dismal.

Nutrition as an investment: Nutrition is often still seen as consumption not investment, even though certain nutrition interventions are clearly excellent investments. Deficiencies such as iron, iodine, vitamin A, rob many countries of about 5% of their GDP through death and disability. Yet, micronutrient malnutrition could be effectively addressed for as little as 0.3% of the GDP (World Bank [10]). So, why does malnutrition persist? Investment in nutrition is good economics and good ethics. Then, why is it not good politics? I think there are four main reasons. These include inadequate vision, inadequate leadership, inadequate resources and a lack of psychological focus. This last reason is perhaps the most important of all—in that it keeps us unaware, unconscious or without the conscience to move forward—but this is seldom discussed.

Let me say a few words about what I mean by these:

Inadequate vision: The global development community thinks of vision as a multi-part ability that includes both the ability to see something that is there and the ability to see something that is not there—yet. Most of the world turns a blind eye towards malnutri-

tion, thinking it remains an intractable problem that we have to live with. There is no sense of urgency or moral outrage, as there are for many other global issues. Is this due to shame, denial, or powerlessness? There are others who remain convinced that malnutrition cannot be reduced before incomes increase. While malnutrition is always connected to poverty, having more money does not necessarily result in better household food distribution, and hence, nutritional status of women and children, without some education or motivating communication. The fortification of commonly consumed staples also does not require major shifts in wealth or poverty reduction before tangible benefits within a population can accrue. These inputs *can* improve maternal and child nutrition, and everyone's nutritional status, without first increasing household income. And, I would suggest that household, and community, and national income will increase once nutritional status improves. So poverty reduction is essential and should go hand-in-hand with nutrition interventions, but we cannot wait for poverty to be eliminated before starting nutrition interventions.

So, some build such a high wall around the malnutrition problem that they cannot see the opportunities for change that do exist before that wall is taken down.

Finally, there is little buy-in, beyond the small group of agencies that have always been there, for global goals to end malnutrition. There is no "citizens' action movement" for nutrition, like there are for ecology, human rights or animal protection. Most people, including many corporate CEO's, government officers and bureaucrats do not know that feasible, low-cost solutions exist. So, there are few who can see the solutions that are not there yet, but could be—and compared to the many who should be—fewer still advocating for these solutions.

Inadequate leadership: Why is it that issues that are felt to be everybody's responsibility, often wind up with no one person in charge? In some ways, nutrition suffers from over-attention, due to its multi-sectorial nature. But, because everyone involved is so careful of each other's mission, goals, comparative advantage, geographic zone of influence, i.e. "turf," nutrition has no clear champion among the international agencies, or in governments, in civil society, or in business. Those who speak for the poor, malnourished children and their mothers are typically without political clout. Also, the international community has oversold the problem and undersold the solution, which makes elimination of malnutrition appear to be a "fool's mission" for those in political power. We need to reverse this perception so that at least one highly influential leader—from each sector—takes this on as a cause that they will see through to completion.

Inadequate resources: After the Cold War ended and the peace dividend began to grow, ironically, donor and compassion fatigue set in. Development assistance in the 1990s reached an all-time low. As shown in an analysis done by the RAND Corporation (fig. 2), governments in developing countries do not invest in nutrition for those for whom it matters most. Looking at the life-cycle of an individual, the growth of the brain happens during the first two years after birth. However, governments do not truly invest in early child development, including nutrition. As shown in figure 3, the growth velocity of children within the first two or three months is normal or perhaps even better than normal. However, between 3 to 15 months, rapid growth faltering due to malnutrition occurs. This is actually the age where the largest investment on nutrition should be made. In addition, waiting to fortify women when they are pregnant, and not when girls are growing into womanhood, is truly missing an opportunity to invest in the health of two generations at once. Finally, investments that have been made in nutrition appear to be overly "relief oriented" with little focus on economic development. Again, this is filling a

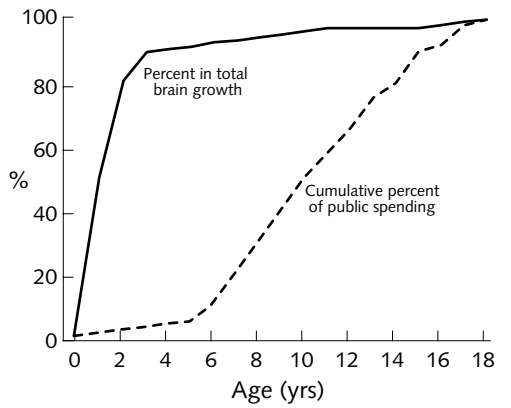

FIG. 2. Brain development financing gap. Source: Karoly et al. [11]

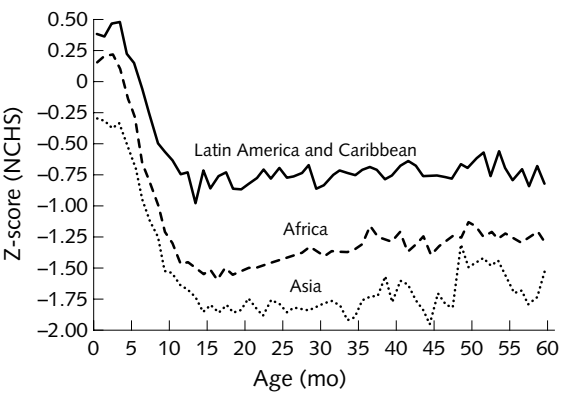

FIG. 3. Weight for age by region. Source: Shrimpton et al. [12]

need, but it does not allow for growth.

Inadequate psychology: There is no doubt power of perception and belief allows malnutrition to persist. Many hold that malnutrition is inevitable. The reasoning goes something like this: "if we could have ended it, we surely would have done it by now. We are all decent people, we certainly don't want anybody to be malnourished, and it is inevitable, like taxes." Others may hold that malnutrition has no solution. No person on earth would tolerate such suffering if there were a solution. And finally there are those who believe that malnutrition is caused by scarcity. We don't have adequate resources to end it. These are actually unexamined assumptions, which guide and direct our thinking and our action. Unless we, as professionals in this field, rid ourselves of this perception, how can we expect others to believe that ending hunger is possible? Is ending malnutrition before the end of the decade possible? Whether you are an optimist or a pessimist, an idealist or a cynic, the mechanism of the self fulfilling prophecy is at work here. If we don't believe it is possible—it wont be. Believing is seeing. That was really what Kennedy made so clear back in 1961. He said "we will land a man on the moon and return him safely back to earth before the end of the decade." He didn't know if that was possible technically. He just had to believe in it. As a result, he was able to mobilize all the forces that were needed to actually make the man on the moon a reality. That kind of believing is also needed in our field of ending hunger and malnutrition. So malnutrition and other world problems like child labor or maternal mortality persist not only out there, but also in our minds.

And I think what we need to do is to deepen our analysis. Then we find not only objective economic, financial, political and institutional realities, but also subjective psychological forces. How do I, through my beliefs and my action, co-create the persistence of malnutrition? It is an interesting question to ponder. And I'm not saying this to send us collectively on a guilt trip. But to give ourselves another reason for deepening our involvement, by integrating the objective and the subjective, the "IQ" and the "Emotional Quotient", the consciousness and the conscience. And please, let us challenge any excuse for a closed mind.

So, why am I optimistic?

Having just started as the Executive Director for the Global Alliance for Improved Nutrition (GAIN), I see the potential for food fortification to play an important role in combating malnutrition. Now the challenge before us is how do we fortify food as fast as we can? According to the World Bank, "No other technology offers as large an opportunity to improve lives…at such low cost and in such a short time" [10]. I think a tri-sector partnership, which consists of government (the public sector), businesses, and civil society, is needed to achieve benefits that individual sectors alone cannot accomplish. While there are many public-private sector partnerships in existence for health, this is the only one dedicated to nutrition that also includes civil society. This tri-sector partnership will make malnutrition disappear faster and at lower cost. It must be admitted that the potential role of the private sector expertise and resources has often been underestimated and even dismissed by international organizations and for too long. Also, for many years governments have tended to monopolize solutions to malnutrition. However, they are now slowly beginning to come to the conclusion that they cannot do it alone.

So I believe that partnerships offer an opportunity to bring vision, leadership and resources together in a new way, and also will or can in principle, address the psychological forces that I talked about earlier through new types of meetings, new types of encounters. Professionally facilitated meetings like "Future Search," that some of you have participated in, create a compelling vision, forge deeper alignment of many stakeholders in the whole system, and provide leadership from wherever you are in that system. But it's not going to be easy, because you need to get the public sector authorizing milieu to intersect with civil society values and business operational capacity. And it is only when you get these three sectors together that you will be able to produce the results that will bring a solution to malnutrition. There's a need to work and meet together in new ways. We must overcome mutual distrust, suspicion and antagonism without being naive. There are several good references available now on what is being learned about private-public sector partnerships for health [13–15].

The Global Alliance for Improved Nutrition (GAIN) has started its work. There is an announcement for proposals on the GAIN website to support National Fortification Alliances, many of which exist, but many need to be created. The first round of 5 grants is in progress, and our tentative target is to have 40 grants funded within 5 years, improving the nutritional status of 600 million people. This is the work of the GAIN Fund—but the Alliance will have much greater impact through the activities of its partners, including WHO, UNICEF, UNDP, CDC, USAID, CIDA and the like.

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Keynote speech: Micronutrient malnutrition

John Pepper

I'm delighted to have the opportunity to be with you tonight and grateful that you have taken the time to attend this very important colloquium. For the record, I should probably recognize at the outset that each one of you here tonight has a deeper knowledge of this subject than I do. But I would want there to be no mistake about the depth of my interest in seeing us make the kind of difference to the health—particularly of our children—that we're capable of through the effort to which we are committed.

Each of us here tonight has our own individual motivations for participating in this colloquium and in the programs that contribute to the eradication of micronutrient malnutrition. But I'm quite sure that at least these three things are shared by us all:

» The awareness of a huge gap between the nutrition that billions of people and hundreds of millions of children receive and what they need.
» The belief that we can do something about it—and soon—if we get our act together.
» The commitment to work—personally and with others—to do just this.

Certainly this is why I'm here. When I was asked if I would participate in this colloquium, it took me about two seconds to say yes. Why?

One reason is the commitment to certain principles: for one, the principle embedded in the purpose of our company, i.e., the first sentence of which commits us "Through our brands and services, to improve the lives of the world's consumers."

For another, the principle embedded in the mandate of the UN Convention on the Rights of the Child—article 24, which calls out:

» "The right of the child to the enjoyment of the highest attainable standard of health"
» The need "to combat malnutrition through the provision of adequate nutritious foods"
» And the need "to ensure that parents and children are informed, have access to education, and are supported in the use of basic knowledge of child health and nutrition"

What energizes us is also more than statements of principle. It's the knowledge conveyed by stunning if sometimes all too sterile statistics that convey a reality that can only be described as alarming:

» The knowledge that more than a hundred million children suffer from vitamin A deficiency, contributing to perhaps as many as one out of every four child deaths in areas where the problem exists.
» The knowledge that iodine deficiency is the greatest cause of preventable mental retardation in the world, with an estimated 43 million worldwide suffering from brain damage and physical impairment.
» The knowledge that anemia due to iron deficiency weakens children's learning ability and physical stamina and, not only that, it increases the risk of hemorrhage and infection during childbirth, contributing to about 20% of all maternal deaths in Africa and Asia.
» And, of course, statistics that dramatize the gap between where we should be and where we in fact are don't only apply to micronutrients. They include water, the most fundamental nutritious element of all, and the knowledge that over a billion people are currently without safe drinking water and that each year 3 to 4 million children—that's right, 3 to 4 million—a population five times the size of Cincinnati, under the age of 5 are dying from water-borne diseases.

If these statistics weren't enough to motivate us, there are our own personal epiphanies—personal experiences that have brought to life, unforgettably, for each of us the differences that we can make in the life of individuals. My epiphany came in meeting with Haile Mehansho, who has worked in the micronutrient area for more than 15 years here in The Procter & Gamble Co. Years ago now, I left his office absolutely committed to finding a way to make NutriStar® and its micronutrient technology available to all who need it.

John Pepper is Chairman of the Executive Committee, The Procter & Gamble Co., Cincinnati, Ohio, USA.

Mention of the names of firms or commercial products does not imply endorsement by the United Nations University.

Enough on the need. It's one motivator, but there's another one and that is the *knowledge that if we get our act together we can do not just a little but a whole lot to close this gap.* Frankly, this isn't like AIDS or cancer where fundamental cures are still to be found. That's not the case with the issues we discuss here. As you well know, we have technology to deliver iodine and iron and vitamin A and zinc and other vital micronutrients and to do so at extraordinary low cost.

We also have emerging technologies (and I'm delighted that P&G is working on them), to provide safe water again at very affordable costs.

We also know many of the things that we need to do to make this technology available to those who need it. We know we need partnerships that bring together business, international agencies, NGOs, local governments, entrepreneurs, and community organizations to provide the micronutrients in products that people use, and that are affordable and that will reach them where they live.

We know we need to provide the education to establish the importance of these micronutrients and, in some cases (particularly in purifying water), instructions on how to use them.

You'll be hearing about the technologies during the course of this colloquium and I don't intend to cover them here. *I believe our three biggest challenges in actualizing the value of these technologies will be these:*

» First, finding models of operating across business, government, and nongovernmental sectors to incorporate the technologies into the right products by country.
» Second, successfully commercializing brands so that businesses like P&G can derive sufficient profit to justify continued investment in micronutrient technology and the work with governments and NGOs to make them available.
» Third, creating those partnerships tailored by country, which will be necessary to provide the education and to distribute the products to people where they live and at an affordable price.

Fortunately, we're not starting from scratch. We know micronutrient technology embedded in the right products can make a major difference in health outcomes. We've seen that with iodized salt. Thanks to UNICEF's leadership position, today 70% of all households consume iodized salt.

UNICEF's distribution of high dose vitamin A capsules at a cost of only 3 cents per dose is already saving the lives of an estimated 300,000 young children from this single supplementation program alone.

And our own clinical work in Tanzania and the Philippines is showing that NutriStar® is significantly improving children's iron blood status and that this is contributing to improvement on their nonverbal mental performance, energy, and fitness.

We also have ample experience that demonstrates that businesses *can* work together with governments and NGOs to drive important improvement in health outcomes among children and consumers generally.

P&G's own involvement in doing this goes way back, to the creation of educational programs around the use of fluoride toothpaste in the United States. Indeed, the introduction of fluoride and associated education programs in the United States has over the course of my lifetime dropped the incidence of cavities from the low teens to virtually none among young people, showing what fortification—in this case of water and dentifrice—combined with education, can do.

We've extended these relationships with government and education institutions to improve oral care to the emerging markets of the world, including Poland, China, and Russia—and research results show reductions in caries of 20–50%. In Venezuela, where we have been test marketing NutriStar,® and where 60% of youngsters have iron-deficiency anemia, we are working with UNICEF, the National Pediatric Association, and the National Institute of Space. To date, over 1.3 million children in Venezuela have consumed NutriStar.® This highlights the tremendous reach that can be achieved when public and private partners work together.

In Nicaragua, we are working with USAID, the Undersecretary of Health, and the top nutritional advisor to the country, to promote education involving NutriStar.® In total, many of the foundations required for major breakthrough are present. Technology certainly. And also conceptual understanding of what it will take in terms of organizations working together to make this technology available to those who need it.

Still, we have a long, long way to go and that is why we're here.

What will it take to achieve the success our children deserve? What any great breakthrough requires is *commitment to a stretching goal*—backing that up with a set of strategies and the right organization structure and operating plan—and impassioned strong personal leadership that gives us the right to success.

I believe the GAIN initiative, with the support it will receive from UNICEF, the Gates Foundation, and many other organizations, holds great promise as the organizing vehicle to facilitate that breakthrough. But we need to move aggressively now.

While we have an overall framework for success, we will need to tailor our programs carefully country by country. We will need to see how we can most effectively bring the micronutrients to the population, not only in NutriStar®, which I hope will be the foundation for Procter & Gamble's continued contribution with technology and know-how, but through other complementary and broadly used foods and beverages.

For example, as I speak, we are doing work in China

designed to bring iron and calcium to rice. Doing this will require the expertise and resources of multiple partners.

We will also need to work together to measure the impact of our efforts—to what extent are we improving the status of iron and other micronutrients among children? What are the specific benefits? We would all agree that it is essential that we have systems in place to monitor our collective progress in improving nutritional status and identify how to do better.

Success is there for us to grasp. It will call for us to work together toward common goals. It will require that there be a commercial payoff for business, but it will also require businesses to look beyond the bottom line, to view it as our responsibility and also in our self-interest to work with others to provide the benefits of our technologies and capabilities to a broader population than we can reach with our branded product alone.

Doing this is going to require imagination and hard work and patience as we form new relationships, identify common interests and goals, develop precise strategies and plans for each country, and share resources to achieve the goals.

Can we achieve breakthrough improvements we all seek? Clearly the opportunity is there.

Will we actually do it? Will we get beyond talk and planning and get to the strategically driven action needed to do it?

The answer to these questions will be up to us and our associates. On the one hand, I'm sure we'll make progress. The real question is whether that progress will be breakthrough or incremental. We know that breakthrough is what we need. We know it will call on our personal leadership, our imagination, our willingness to work with one another and I believe, above all, to never forget why we're doing this—to give children today what they need to grow up to be as healthy as we would want our children to be, to realize that the ability to do that is present and that there is really no excuse for us not taking the action to make it happen.