



CHAPTER 2: IMPROVING NUTRITION TO IMPROVE HEALTH

For centuries, the greatest threat to human health was infectious disease. Plagues ravaged nations and frequently the dead outnumbered survivors. In the early 20th century, average life expectancy globally was 31 years, and even in high-income countries, it was less than 50 years.¹ Then came improvements in health care. The eradication of smallpox, declared in 1980,² epitomized the extraordinary advances in medical science in the 20th century, and more importantly, highlighted the success of international cooperation in defeating a common enemy.

Infectious diseases are still a potent threat, particularly among children from families that cannot afford medical attention. But the world has now reached a point when, in every region of the world, more people are dying of noncommunicable diseases. They are often diet-related conditions, such as diabetes, hypertension, and heart disease. The vectors of transmission are not other people, but poor nutrition and food systems—the focus of this report.

Good nutrition should be available to everyone, and it will take a global effort to make this a reality. This chapter does not provide a menu of what foods should be on everyone's plate because, as the U.N. High Level Panel on Food Security and Nutrition explained, “There is no single universal and ideal diet. Finding effective solutions will involve starting with the population of concern and the diet quality gap they face, examining what food systems they are served by, and then working back into the food system to find the most effective, aligned solutions.”³

Aligned solutions are indeed the key to success, and the populations of immediate concern are women and children.

Food, Nutrition, and Health

During the 20th century, the evolution of the global food system played a major role in progress against hunger. Agricultural technologies jump-started farm productivity; better roads and other infrastructure enabled perishable foods to reach locations far from where they were grown; trade opened markets and supported the growth of supply chains; and jobs within food supply chains lifted countless people out of poverty.

In the first two decades of the 21st century, hunger has been a stubborn adversary, with progress slowing or in retreat in some countries. The coming decade will test the resolve of the global community to work together to achieve the Sustainable Development Goal of ending hunger everywhere by 2030.

To cast the global food system only in positive terms is too one-sided. Transnational food companies are inundating low- and middle-income countries with unhealthy products and displacing local producers of traditional foods higher in nutrition.⁴ Highly processed foods full of sugar, sodium, and saturated fat are available in every country and reshaping diets. The spread of diet-related chronic diseases, now the leading risk factor for premature death, is directly linked to food systems.⁵ (See Figure 2.1).

Overweight and obesity are a global pandemic, driving up rates of cardiovascular disease, diabetes, and certain cancers.

RECOMMENDATIONS:

- Target populations that are more vulnerable to the long-term consequences of malnutrition: children, adolescents, and women of child-bearing age.
- Invest resources in preventing malnutrition to avoid the higher costs of treating its consequences.
- Integrate nutrition-related indicators into policies and programs across multiple sectors.
- Issue food-based nutrition guidelines that are coherent across agricultural, school feeding, safety net and health policies, and promote racial and gender equity.
- Improve public health by incorporating nutrition into education and training of all public health workers, screening patients for food insecurity, and incorporating fruit and vegetable prescriptions into treatment for diet-related health conditions.
- Prohibit the marketing of unhealthy foods to children and provide consumers with clear labelling about the healthfulness of food products.

The scientific community had assumed the three-decades-long rise in global obesity levels was driven mainly by rapid urbanization in low and middle-income countries. A recent study published in the journal *Nature* shows that rural areas account for more than 55 percent of the rise in obesity since 1985.⁶ “We’ve penetrated every corner of the world with junk food,” says Barry Popkin, a professor of nutrition at the University of North Carolina at Chapel Hill School of Public Health.⁷ Presently, three quarters of people with type-2 diabetes, associated with excess body weight, live in low- and middle-income countries.⁸

One in 10 U.S. adults has been diagnosed with diabetes, and one in three have pre-diabetes, according to the Centers for Disease Control and Prevention (CDC).⁹ In 1958, in contrast, less than 1 percent of the U.S. population had been diagnosed with the condition.¹⁰ Type 2 diabetes now makes up between 90 and 95 percent of all diabetes cases.¹¹ A nationwide analysis of a decade’s worth of U.S. grocery purchases (2002-2012) found that more than 60 percent of all calories purchased by shoppers came from highly processed foods.¹² This bounty of cheap, calorie-dense food is more than offset by the cost of health care. In 2017, the United States spent \$348 billion on the treatment of diabetes alone.¹³

Transnational food companies are much more proficient at delivering calories than nutrients. More than two billion people worldwide have diets lacking in several key vitamins and minerals.¹⁴ Micronutrient deficiency, the term used to describe this condition, very often is unnoticeable until it is too late to reverse, and that is why it is sometimes referred to as “hidden hunger.” Micronutrients such as iron, zinc and vitamin A are among the most essential for good health. Iron-deficiency anemia increases the risk of women dying during childbirth, and vitamin A and zinc deficits impede children’s physical and cognitive development. Chronic deficits of these three micronutrients alone are among the leading causes of premature death in low- and middle-income countries and result in skyrocketing healthcare costs.¹⁵

Micronutrient deficiency is associated with a lack of dietary diversity. Healthy diets include a variety of nutrient-rich foods, such as fruits and vegetables, whole grains, beans, legumes, nuts and seeds, and modest amounts of animal source foods. The absence of variety in diets is a problem everywhere. High-income countries fortify foods during processing to add nutrients. Not all countries have this capacity, and the processed foods that are imported are much less likely to be the healthier varieties.

BOX 2.1

KEY CONCEPTS IN THIS CHAPTER

1,000-day window

The 1,000-day period between a mother’s pregnancy and her child’s second birthday is a critical window of opportunity to improve maternal and child nutrition and when irreversible damage from malnutrition can be prevented.

Deworming

The use of simple, safe, low-cost drugs to treat intestinal worm infections that impede the ability of people, particularly children, to absorb nutrients.

Exclusive breastfeeding

Feeding infants breast milk only, no other liquids or solids, for the first six months. Research has shown that this is optimal for a baby’s growth, health, and development.

Food literacy

The ability to understand nutrition information and use it to improve one’s nutrition.

Micronutrient deficiency

A deficiency in one or more essential vitamins and minerals, often caused by lack of access to micronutrient-rich foods such as fruit, vegetables, animal products, and fortified foods.

Overweight and obesity

Abnormal or excessive weight gain. Both are major risk factors for a number of noncommunicable diseases, including diabetes, cardiovascular diseases, and cancer.

Stunting

A low height-for-age measurement used as an indicator of chronic malnutrition. A focus on the

first 1,000 days is crucial for preventing stunting.

Undernourished

Describes people whose usual food consumption contains too few calories to meet their energy requirements.

Undernutrition

Poor nutritional status due to insufficient intake and/or inadequate absorption of dietary energy, protein or micronutrients and/or repeated illnesses that in turn leads to nutritional deficiency.

Wasting

Acute, life-threatening form of malnutrition. Insufficient calories and/or illness cause significant weight loss. People with wasting, particularly children, without prompt medical or nutrition treatment have higher risk of dying.

Hunger, or undernourishment in the vernacular of health professionals, is foremost a medical condition. This is not the hunger we feel after missing a meal or while dieting. The standard measure of undernourishment of too few calories means the body cannot meet its energy requirements. One doesn't need to be a doctor to see that listless, emaciated bodies are in poor health. What one doesn't see is cerebral atrophy, or the multiple organ systems that are impaired. The bodies of undernourished people are vulnerable to disease because immune systems require nutrients to function properly. Medications give up their healing properties, and ordinary conditions, such as diarrhea in young children, become life threatening.

Epidemiology, the study of diseases and how they occur, has unraveled one of the paradoxical mysteries of our time—the association of undernourishment with obesity. Good nutrition in the critical 1,000 days between pregnancy and age 2 is a launchpad for good health for the rest of a person's life. Conversely, malnutrition during the 1,000 days has the opposite effect. During pregnancy, nutrition passes directly from the mother to the fetus. A pregnant woman who is undernourished faces an increased risk of giving birth to a child with low birthweight and stunting. As that child grows up consuming processed foods high in calories and low in nutrients, she will be at higher risk of gaining weight because of physiological deficiencies related to malnutrition during early childhood.

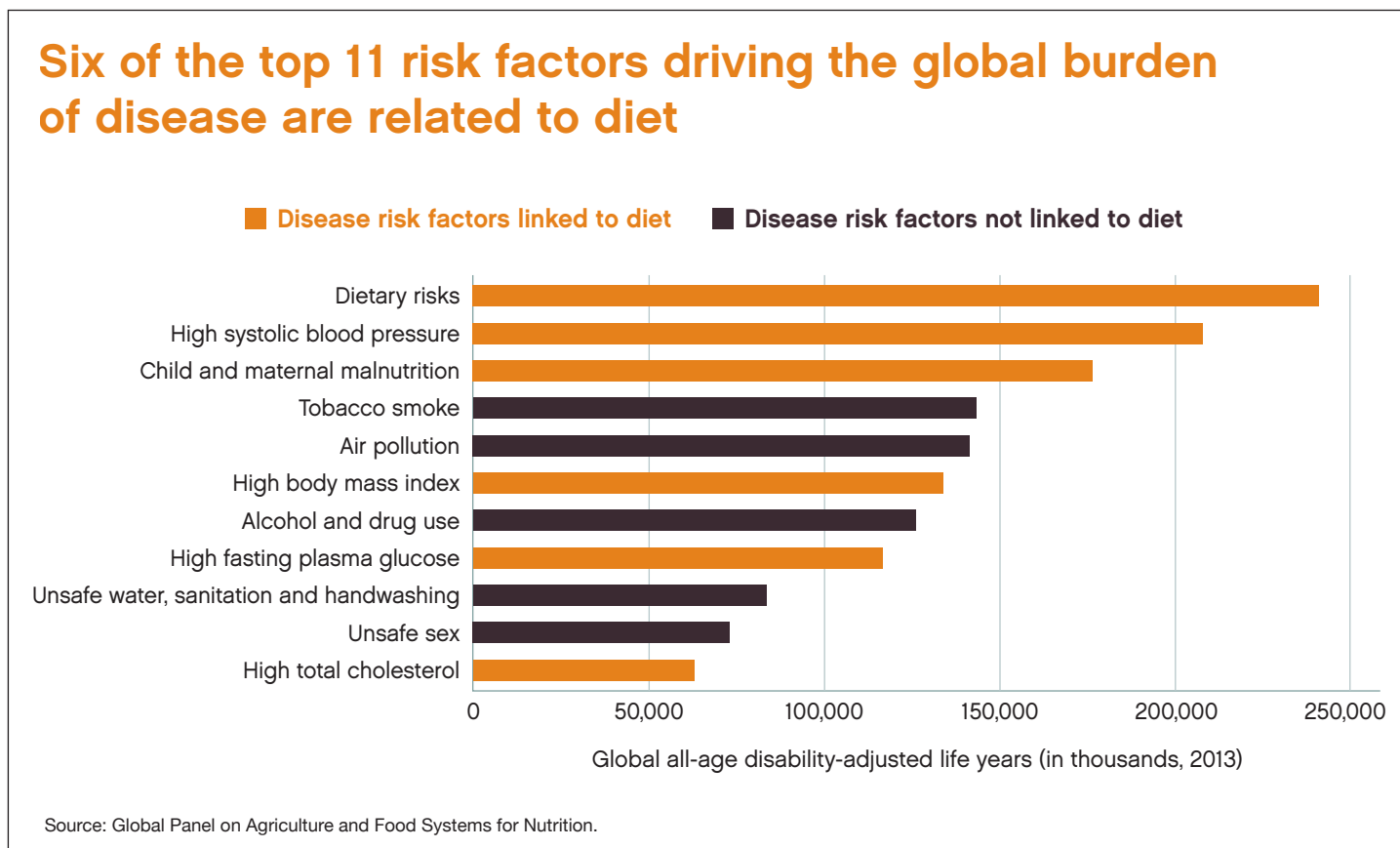
Francesco Branca of the World Health Organization (WHO) couldn't have stated it clearer: "A stunted child is going to be an overweight adolescent and is going to be an adult with diabetes and hypertension."¹⁶

The body of an undernourished pregnant woman is not able to provide the nutrition her baby needs. The chances of being undernourished are higher for women than men on every continent.¹⁷ The combination of gender inequities and poverty perpetuates cycles of undernutrition. (See [Chapter 4: The Female Face of Food Systems](#)). Girls who suffer stunting are more likely to grow up to give birth to low-birthweight babies, who themselves are at higher risk of stunting. Both generations are at higher risk of obesity later in life. It is possible to break this cycle, beginning with investments in maternal and child nutrition.

Nutrition, Growth, and Growing Up

In 2008, one of the world's leading medical journals, *The Lancet*, published a series of articles on maternal/child nutrition that identified the 1,000-day window between pregnancy and age 2 as the most critical to human nutrition. National governments took note because the articles made clear that early childhood malnutrition has profound consequences for both human capital and gross domestic product (GDP). Many development partners have responded with larger political and financial commitments to nutrition. Nutrition was named a central focus

FIGURE 2.1



when the U.S. government launched its flagship global hunger and food security initiative, Feed the Future, in 2009.

One cannot prioritize early childhood nutrition without also prioritizing pregnant women (and, by extension, the girls and young women who will give birth to humanity's next generation). Fetal growth and brain development depend on iron absorbed from the mother. Low iron, leading to anemia, is the most common micronutrient deficiency among pregnant women. This follows logically from the very high anemia rate among women of reproductive age all over the world: one in three.¹⁸ Even in high-income countries, where micronutrient deficiencies are less common, nearly one in five women of reproductive age is anemic.¹⁹

A newborn's nutritional needs are best met by exclusive breastfeeding (no other foods or water) until the age of six months. In fact, *The Lancet* reports that exclusive breastfeeding worldwide could prevent more than 800,000 infant deaths a year.²⁰ Breastmilk protects infants against diarrhea and respiratory diseases, both leading causes of infant mortality. Breastmilk provides babies with probiotic gut bacteria, which lowers the risk of disease and of health problems such as obesity later in life. Infant formula does not provide this protection.²¹ Breastmilk is so vital to newborns that those who begin breastfeeding within the first hour of life are significantly more likely to survive and to have better lifelong health than babies who begin nursing even a couple of hours later.²² Mothers also benefit from breastfeeding, since it reduces their risk of breast cancer, ovarian cancer, and type 2 diabetes.²³

According to the WHO, the rest of the 1,000-day window, ages 6 months to 24 months, should include continued breastfeeding, complemented by a diverse diet that includes fruits, vegetables, fortified cereals, and animal source foods.²⁴ Unfortunately, these nutrient-dense foods may be too expensive or unavailable ([See Chapter 1: Improving Access to Affordable Nutritious Foods](#)). Reliance on low-nutrient porridges and cheap commercial snack foods is all too common.²⁵ It is important to note that other significant barriers stand between babies and young children and the right nutrients at the right times. One of the most common throughout the world, for example, is workplace policies that do not support employees who are breastfeeding

Beyond the 1,000 days, nutrition still plays a critical role in

BOX 2.2

SYSTEMS THINKING AND ACTION FOR NUTRITION

“Practitioners working in nutrition must start thinking about the effect food, health, and education systems have on nutrition practices and outcomes. ‘Systems thinking’ means paying attention to the unpredictable interactions among actors, sectors,

the development of children and adolescents. In addition to prioritizing the 1,000 days, nutritionists and development agencies are calling for more attention to the “8,000 Days,” through age 20. Children ranging in age from toddlers to middle childhood to adolescence need age-specific nutrition investments.²⁶ Nutrition is critical during adolescence because it is a time of rapid physical growth, second only to the first year of life. In addition, critical brain development in the areas of higher level cognitive, emotional, and social skills are taking place in adolescence.²⁷ Adolescents have increased needs for energy, protein, vitamins, and minerals. But many consume diets that are too high in fat, cholesterol, sodium, and sugar. Globally, almost one-fifth of adolescents are overweight.²⁸

Adolescent girls should be among the highest priority for investments in nutrition. Pregnancy during adolescence magnifies the risks of adverse birth outcomes. One in five girls around the world is married before age 18, and the rate is twice as high in low-income countries.²⁹ Child marriage is a human rights abuse, and ending it is urgent for the future of entire societies that practice it routinely. For now, the fact there are 12 million girls married before 18 every year,³⁰ nutrition is a crucial factor in birth outcomes resulting from child marriages. A systematic review of studies from low- and middle-income countries consistently found diets of adolescent girls to be deficient in a range of micronutrients vital to their health and the baby's.³¹

Governments can fulfill their responsibility to nourish all children and adolescents through two platforms: the healthcare system and the school system. In early childhood, the primary focal point is health care services. This changes with the beginning of formal education—pre-K through secondary school.

Aligning Health, Education, and Food Systems with Nutrition

Health systems are not designed to prevent hunger, and yet that is where hungry people turn up when their bodies are broken by hunger. Education systems teach children what they need to know to succeed in the world, and yet children learn little in school about eating well to be healthy.

The remaining subsections discuss aligning nutrition with health, education, and food systems. Alignment is key to

disciplines, and determinants of nutrition. That thinking results in new ways of approaching, analyzing, and solving challenges, which must be applied through policy development, program design, implementation, and research.” (USAID)

ending hunger and malnutrition. Achieving progress cannot be the responsibility of any one system alone. Rather than look at systems in isolation, we should envision them working together. Alignment simply means that systems are working together effectively.

Aligning Health Systems

In the 1990s and early 2000s, the AIDS epidemic in sub-Saharan Africa was likened to famine, and it was easy to see why when people with the virus showed up in hospitals and clinics, bodies ravaged and skeletal from wasting. Food was the medicine for prolonging lives before antiretroviral medicines (ARVs) came online. Soon it was clear that without adequate nutrition, patients could not fully utilize the lifesaving medication. The President's Emergency Program for AIDS Relief (PEPFAR), a U.S.-led program launched in 2003, saw this early on and made food assistance an integral part of the program.

Wasting, the result of acute malnutrition, is the deadliest form of malnutrition. Wasting occurs in most cases at the crossroads of poverty and disease, and children under the age of 2 are at highest risk. A child this age with severe acute malnutrition, the most advanced stage, is nine times as likely to die as a peer who is well nourished.³² Most children with acute malnutrition are living in stable countries—not, as many presume, countries experiencing famine or conflict.³³ This misperception helps explain why wasting is one of the most neglected issues in development assistance. There are long-standing disagreements between development agencies and humanitarians over roles and responsibilities, and these often prevent necessary actions from being taken.

It is common for health systems to approach wasting and stunting with wholly different mindsets: medicalized treatment for wasting and prevention strategies for stunting.³⁴ The bifurcation is counterproductive because the risk factors are often the same for both conditions. Hundreds of millions of children living in rural areas and urban slums do not have access to clean water and proper sanitation. Improving access to these necessities would not only reduce diarrhea-related deaths due to wasting, but also prevent stunting.

Community-based management of acute malnutrition when implemented effectively has achieved extraordinarily high recovery rates.³⁵ To address the upstream factors of poor health, health systems depend on competent partners providing a range of community services, especially those working within food systems to promote dietary diversity and exclusive breastfeeding, as well as water, sanitation, and hygiene (collectively referred to as WASH) interventions. Upstream determinants such as poverty, lack of education, substandard living conditions, racism, and gender discrimination are directly related to health disparities between disadvantaged groups and the rest of the population. This is true regardless of a country's national income.

The region with the highest prevalence of wasting is South Asia, and the country there with the highest prevalence is India. It is notable that India also has one of the highest rates of stunting.³⁶ One-third of infants under the age of 6 months suffer moderate to severe wasting.³⁷ There is a predictable link with maternal malnutrition. More than half of all women of reproductive age in the country have anemia,³⁸ and nearly one-quarter are underweight.³⁹ To reduce wasting and stunting in India, improving the nutritional status of women comes up against a seemingly intractable determinant of poor health. In many parts of India—and in other countries—it is a cultural practice for women to eat less than the rest of their family, or sometimes not at all when food is scarce.⁴⁰

Health care alone cannot address the gender inequities in a society. The issue requires a set of partners approaching it from several entry points, including a government aware of its own role in creating opportunities for partners to come together. Countries that have made rapid progress against stunting and wasting have done so by adopting a national multi-sectoral nutrition plan to advance such partnering opportunities.⁴¹ (See Figure 2.2). A government commitment to coordination across sectors must drive the plan. So far, primary health care with a focus on essential services has been a unifying theme in low- and middle-income countries.⁴² A commitment to improve the nutritional status of women and children couldn't be more essential. Primary care providers need adequate training in nutrition. If government is committed, partners in the private sector and civil society will step up to do their part.

Above, we mentioned that PEPFAR added food assistance to medical care to optimize outcomes. The U.S. population would be in better health and more food secure if government adopted a similar approach here. Substantial evidence shows that SNAP⁴³ (formerly known as food stamps), WIC⁴⁴ (the nutrition program for Women, Infants, and Children), and other programs⁴⁵ improve the health of adults and children. Even considering only financial implications, the cost of providing a family with a year's worth of SNAP or WIC assistance is far more cost-effective than paying for one or more emergency room visits.

WIC is widely promoted by pediatricians, SNAP hardly at all. "Evidence of severe malnutrition-related health problems has almost disappeared [in the United States]," wrote economist Rebecca Blank in 1997. "The primary reason is Food Stamps."⁴⁶ This is certainly a significant accomplishment, but health outcomes show that low-income adults and children are getting less than they need from the program. SNAP participants are three times more likely to die from diabetes than nonparticipants.⁴⁷ Cardiovascular disease mortality is significantly higher as well.⁴⁸

Roughly half of all households that receive SNAP are food insecure.⁴⁹ Few households can stretch the benefit to last the

FIGURE 2.2

Leveraging a multi-sectoral approach to implementing food-based dietary guidelines

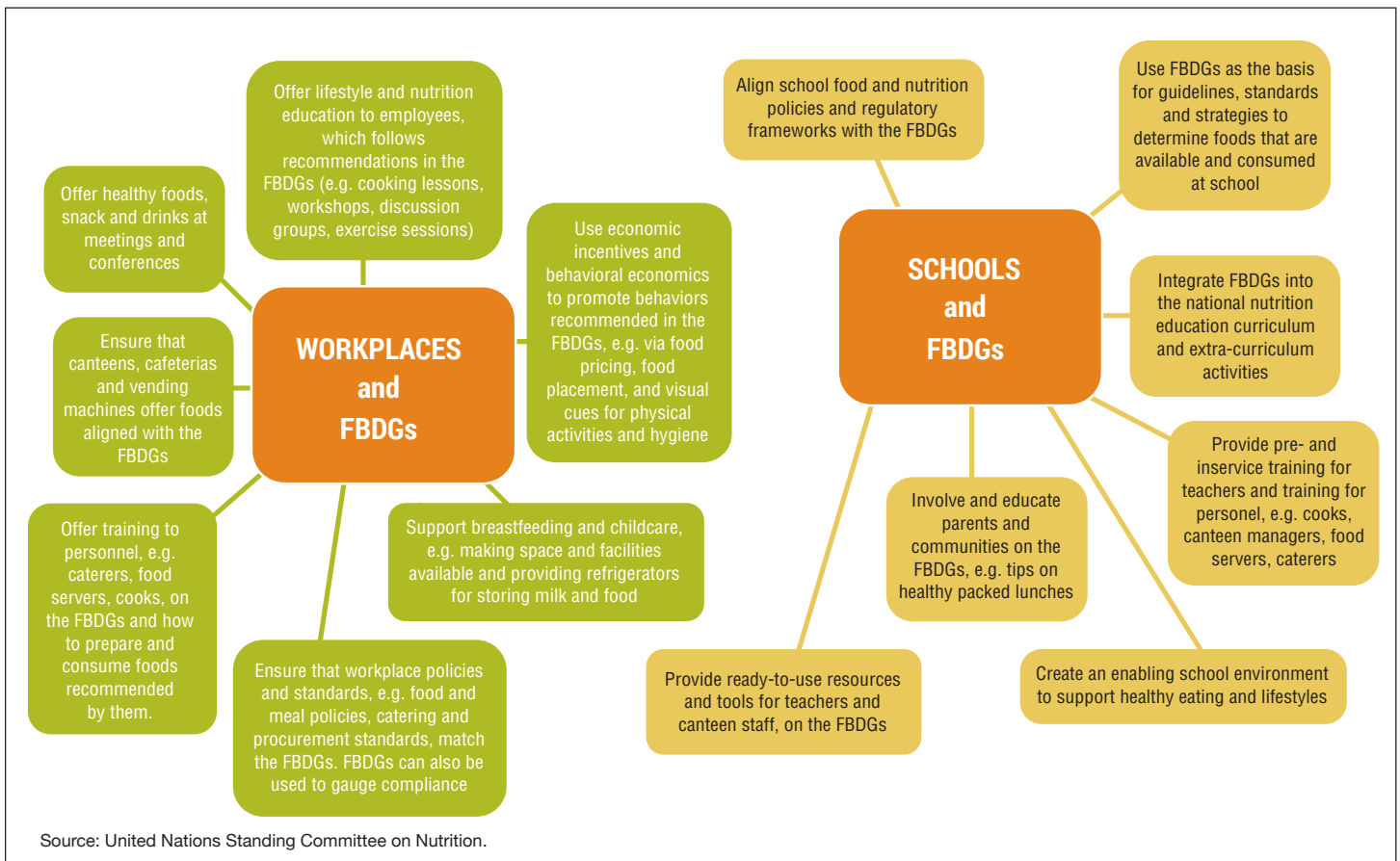
National governments promote food-based dietary guidelines (FBDGs) as a tool to improve public health. FBDGs can guide a wide range of policies and programs. The graphics below illustrate a multi-sectoral implementation strategy that is applicable to any country.



Continued on next page

Source: United Nations Standing Committee on Nutrition.

FIGURE 2.2 (continued)



full month. One indication of this is that hospital admissions of low-income patients with diabetes spike towards the end of the month when SNAP benefits run out.⁵⁰ A 2013 report by the Institute of Medicine (renamed the National Academy of Medicine) argued that SNAP allotments are based on faulty assumptions of what it takes to achieve a healthy diet.⁵¹ For example, adolescents need to consume as much food as adults, yet the formula used to calculate allotments treats them as children.⁵²

SNAP could be a more effective lever for improving the health of low-income patients if healthcare providers were more familiar with it. The 2018 farm bill included funding to test a new Produce Prescription Program.⁵³ There is already evidence in support of expanding this program. For example, providing free fresh food as a treatment for diabetes yields a 40 percent decrease in the risk of death or serious complications, according to the Friedman School of Nutrition Science and Policy at Tufts University.⁵⁴ A more ambitious agenda would be to implement healthy food prescriptions within all three federal healthcare programs—Medicare, Medicaid, and VA Health Care.

Aligning Education Systems

Schools offer another platform for providing health services, especially in rural areas where hospitals or clinics are few and far between. India delivers many nutrition-related services

through rural community centers that double as preschools.⁵⁵ Deworming often takes place in school settings. Intestinal parasites depriving children of nutrition are a massive problem in sub Saharan Africa and South Asia. An estimated 880 million children require treatment for parasites.⁵⁶ In 2016 alone, India treated 340 million children through school-based services.⁵⁷

Schools are the ideal platform for addressing malnutrition—whether in the form of hunger, micronutrient deficiency, obesity, or a combination—in middle childhood and early adolescence. Recognizing the links among nutrition, health, and school achievement, national governments in low- and middle-income countries have been rapidly scaling up investments in school meal programs.⁵⁸ Hungry children struggle to pay attention, learning less and undermining national investments in education. Every school day, hundreds of millions of children worldwide are fed through school meal programs, making them the largest, most institutionalized nutrition intervention in the world. The stakes are high for nations with booming youth populations. School meal programs have boosted enrollment, especially for girls. Despite this, there are still more than twice as many children enrolled in school not receiving a meal or out of school and therefore unable to receive a meal either.⁵⁹

In the United States, schools serve 30 million lunches and almost 15 million breakfasts every day. Two-thirds of them are free to students whose household incomes are below or just above the national poverty line.⁶⁰ Research on U.S. school meal programs found that they had more significant positive effects on the dietary quality of low-income children than on children from higher-income households.⁶¹ One of the main challenges for the U.S. school meal programs is a heavy reliance on highly processed foods. Community groups, parents, and others have organized to press for healthier school meals. Noting that the leading reason for rejection of would-be military recruits is obesity, Mission Readiness, a nonpartisan organization consisting of 750 retired senior military leaders, has led efforts to improve school nutrition standards.⁶²

Some governments are creating new paths to enable small farmers to access institutional markets such as school meals. In 2009, Brazil enacted a law mandating that at least 30 percent of food for its national school feeding program be purchased from smallholder farmers.⁶³ A survey of school meal programs in 36 low- and middle-income countries found that local purchasing promotes production of more diverse foods in schools and local markets.⁶⁴

The National School Lunch Program in the United States was established to bolster support for farmers as well. Senator Richard Russell of Georgia, for whom the founding legislation in 1946 is named, sought not only to ensure that children were guaranteed a diet of wholesome foods, but that local farmers had a guaranteed market.⁶⁵ Local purchasing has largely gone by the wayside as meal programs are now run by a few large national firms. USDA provides some assistance to schools for local purchasing. The National Farm-to-School Network, with affiliates in all 50 states, has made expansion of the grants a top priority. The Network advocates for more fresh, healthy foods provided by local farmers. It also promotes school gardens that allow students to be involved in growing and harvesting the foods they consume. “Our goal is the long game, to change the whole system,” says Anna Mullen, communications manager of the Network.⁶⁶

Schools should be teaching food literacy since the evidence shows that this knowledge plays a role in shaping adolescent dietary preferences.⁶⁷ School-based nutrition education has been shown to improve food literacy and promote lifelong healthy eating habits.⁶⁸ Food preparation is a facet of food literacy. In the United States, household expenditures on foods eaten away from home exceed expenditures on foods eaten at-home, a trend that has been in the making for decades.⁶⁹ Nearly one-third of the U.S. population consumes fast food every day.⁷⁰

It is not only in high-income countries that cooking skills are less likely to be taught to younger generations. The fast food sector continues to expand in markets around the world,⁷¹ and advertising of ultra-processed foods targets the world’s 1.2

billion people ages 10 to 19.⁷² Parents are merely the secondary targets of some of this advertising—their children lobby them to buy the products. When mothers in Hanoi were interviewed for a study on the effects of urbanization on shifting dietary patterns, they reported choosing processed foods both for convenience and in response to what their children wanted to eat.⁷³

Education in general is associated with improved nutrition outcomes, particularly for adolescent girls at risk of child marriage. Access to secondary education delays the age of marriage and pregnancy.⁷⁴ Moreover, education for girls is directly linked to improvements in child nutrition. Universal secondary education, which is included in the Sustainable Development Goals, would no doubt lead to swifter progress in ending hunger and malnutrition. In an analysis of 63 developing countries, women’s education accounted for 44 percent of the reduction in child hunger, compared to 26 percent due simply to increases in food availability.⁷⁵ The centrality of education to the health and well-being of mothers and their children cannot be overstated.

Aligning Food Systems

Globally, fewer than half of all infants are exclusively breastfed for their first six months,⁷⁶ as strongly recommended by the WHO, the American Academy of Pediatrics, and other leading children’s health organizations. In the United States, only one in four infants is exclusively breastfed for six months.⁷⁷

One of the biggest obstacles to improving these numbers is aggressive advertising and promotion of infant formula. It had become such a problem by 1981 that the global community adopted the International Code of Marketing of Breast Milk Substitutes specifically to prevent formula manufacturers from using deceptive marketing techniques. The largest baby food companies routinely violate the code.⁷⁸ Because compliance is voluntary, there is little to deter companies—except perhaps some bad publicity as a result of monitoring by civil society groups.⁷⁹

Formula and baby foods are a \$70 billion industry dominated by a handful of companies adept at lobbying policymakers for favorable regulations.⁸⁰ The results were seen, for example, in 2018 at the World Health Assembly (WHA) in Geneva. Representatives from the U.S. government attempted to eliminate language from a WHA resolution that affirmed the benefits of breastfeeding, going so far as to threaten punitive trade and aid sanctions against countries that supported the resolution.⁸¹ The United States denied that it was acting on behalf of the formula industry, but a cadre of infant-formula manufacturers were unified in vocal opposition to the resolution. A government spokesperson claimed that the United States was “fighting to protect women’s abilities to make the best choices for the nutrition of their babies.”⁸²

All over the world, mothers face numerous obstacles to feeding their children the most nutritious diets. (See Chapter 4: The

[Female Face of Food Systems](#)) Public health advocates have long decried the marketing of unhealthy food and beverages to children. A systematic review of studies shows that such marketing is a global phenomenon.⁸³ To capitalize on the widespread use of social networks among young people, companies are shifting much of their advertising to unregulated digital platforms.⁸⁴

Abigail Baldrige is a statistician in the department of preventive medicine at Northwestern University's Feinberg School of Medicine. She is the lead author of a 2019 study that analyzed 230,156 food and beverage products in stores in the United States. More than two-thirds of the products were ultra-processed. Among the largest companies, these products were the source of 86 percent of the sales revenue.⁸⁵ "To say that our food supply is highly processed won't shock anyone, but it's important that we hold food and beverage manufacturers accountable by continually documenting how they're doing in terms of providing healthy foods for consumers," said Baldrige.

The Global Access to Nutrition Index, first published in 2013, tracks the conduct and nutrition performance of transnational food companies.⁸⁶ Companies that perform well are congratulated, and those that are underperforming, in addition to being called out, are encouraged to do better. The Global Panel on Agriculture and Food Systems for Nutrition, made up of current and former leaders in government, business, and civil society from a range of countries, has called for using the index at the country level.⁸⁷

Governments in several countries are using their regulatory power to set limits on the marketing of unhealthy products and to promote the development and sale of healthier alternatives. One success was in Vietnam, where the advertising of breastmilk substitutes was prohibited as part of a broader campaign to promote breastfeeding. Within five years, the rate of exclusive breastfeeding increased from 20 percent to 62 percent.⁸⁸ Ghana uses nutrition labeling on packaged foods to enable parents and potential parents to quickly see which are fortified. The OBAASIMA seal assures consumers that a product is high-quality, safe, affordable, and nutritious. The labeling has prompted local suppliers to adapt their products to qualify for the seal in response to rising consumer demand for such foods.⁸⁹

Chile requires warning labels—a black stop sign—on packaged foods that are high in fat, sugar, and/or salt. Products with the warning label may not be legally advertised on television to children. Since 2016, when the labeling policy became law, 68 percent of consumers surveyed in the capital city of Santiago say that they are choosing fewer products with the warning label or avoiding them altogether.⁹⁰ A 2020 study

published in the journal *PLOS Medicine* found that the new labeling law had led to a 24 percent reduction in purchases of sugar sweetened beverage with little differences between households ranked by socioeconomic status.⁹¹

In 2014, the Mexican government enacted a 10 percent tax on sugar-sweetened beverages. Lower prices on these and other products with high sugar content are associated with overweight and obesity in adults.⁹² In Mexico, one in three children is either overweight or obese, and unless the country reverses this trend, half of its current generation of children are likely to develop diabetes at some point in their lives.⁹³ Two years after the tax went into effect, sales of sugar-sweetened beverages were reduced by 7.6 percent, with larger decreases among low-income households.⁹⁴ A growing number of countries and jurisdictions are taxing sugar-sweetened beverages.⁹⁵ The U.S. cities of Philadelphia and Berkeley, early adopters of a tax on sugar-sweetened beverages, recorded decreases in consumption by 40 percent and 50 percent, respectively.⁹⁶

When we look at these types of policy changes as a whole, the cumulative effect is reassuring. They are evidence that policies can be effective in changing the food environment for nutrition. These were hard-fought battles in many cases. Food and beverage companies have worked hard to prevent restrictions on their ability to market products.⁹⁷ Companies are keen to shift the blame for chronic diseases onto consumers and their individual choices.⁹⁸ Naturally food literacy is part of the equation, but the sheer volume of unhealthy foods in the marketplace, and their ubiquitous advertising, suggest another causal explanation. Food subsidies to purchase healthy alternatives mitigate the effect of regressive taxes on low-income households. Multiple studies show when subsidies are provided to SNAP households, they will choose the healthy alternative.⁹⁹

Up Next

Climate change is a direct threat to food systems everywhere on Earth. The world is in fact getting hotter, and the effects more unpredictable. "Climate change could slow progress on improvements in global nutrition by simply making key nutrients less available than they would be without it," states Timothy Sulser, senior scientist with the International Food Policy Research Institute and author of a study that predicts reduced levels of protein and micronutrients in widely consumed staple crops.¹⁰⁰

The coming decades will bring major challenges to food systems in adapting to climate change. By producing large amounts of greenhouse gases, food systems themselves have to adapt. This is the focus of [Chapter 3](#).

Endnotes

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