Chapter 2

NUTRITION

Link Nutritious Food with Health

STUNTING, WASTING, AND GLOBAL HEALTH

"You cannot have equality of opportunity if children are not appropriately nourished."

—Jim Yong Kim, president, The World Bank, 2017[1]

Maternal and child nutrition is a critical factor in healthy human development. Nutrition is a lifelong necessity for the health and well-being of individuals, their communities, and ultimately their countries. The right nutrients at the very beginning are especially important, and national governments and international development agencies now recognize this as a top concern. The necessary investments in nutrition amount to a small fraction of the cost of the lifelong consequences of early childhood malnutrition, which include poor health, difficulty learning, and lower productivity. These and other problems can be prevented with specific, cost-effective nutrition actions and improvements in agriculture that enable all households to have access to nutritious diets.

A Closer Look: The Global Burden of Malnutrition

The costs of malnutrition are staggering. Everyone in society loses when this condition—the prevention and treatment of which are well understood—is allowed to persist. Because the costs include lower labor productivity and additional healthcare expenses, countries with high burdens of malnutrition sacrifice GDP growth. But no one pays more dearly than malnourished mothers and their children—too often with their lives. Malnutrition is associated with nearly half of all preventable child deaths.[2] Women with anemia, a form of malnutrition, are twice as likely to die during pregnancy or childbirth.[3]

It is not possible to treat hunger and malnutrition as separate problems. They are inextricably linked. The estimated 2 billion people with "hidden hunger" suffer from nutritional deficiencies because their limited diets don't have a wide enough variety of nutrient-dense foods. When meals consist largely of a staple crop such as rice or maize, people are simply not getting the vitamins and minerals needed for good health. When researchers sought to identify the causes of the total global burden of disease, they found that six of the top nine risk factors are associated with poor-quality diets.[4]

Undernutrition linked with hunger can come in multiple forms, including short-term acute undernutrition, also called wasting, and longer-term chronic undernutrition, known as stunting if it occurs in early childhood. Stunting and wasting have several common risk factors, but aid workers have traditionally viewed them as occurring under different circumstances. Wasting has been siloed as a humanitarian issue that is primarily a problem during conflict or emergencies. But, in fact, the majority of children suffering from wasting do not live in such environments, and many countries that have been at peace and free of significant natural disasters have nonetheless recorded high rates of childhood wasting, year after year.

Stunting and wasting are both devastating, with significant impacts on children's health and cognitive development, hindering their educational achievement, their economic productivity, and their odds of freeing themselves from poverty. Together, stunting and wasting are implicated in at least 2 million deaths.[5]

Stunting: Marked Progress Toward Our Global Goals

Stunted growth—a child far too short for his or her age—is a visible sign of chronic malnutrition in early childhood. But the true cost of stunting is invisible: weakened immune systems and developmental delays. Globally, 149 million children younger

than 5 are stunted, 94 percent of them in Africa or Asia.[6]

While this is far too large a number, it is a significant improvement over the number at the turn of the 21st century. In 2000, the global stunting rate was 32.6 percent, or 198 million children.[7]

In 2017, the global stunting rate had declined to 21.9 percent[8]—or just less than one in four children.

Research on the effects of stunting on human development has been published only recently. In 2008, the British medical journal *The Lancet* attracted worldwide attention with a series of articles on maternal and child malnutrition. The researchers argued that proper nutrition during the 1,000 days between pregnancy and a child's second birthday is critical to giving children the opportunity to reach their full potential in future health, education, productivity, and ability to earn income.

The Lancet series appeared at the same time as a dramatic spike in staple food prices that caused a surge in global hunger, followed by rioting in dozens of low- and middle-income countries. It was a vivid reminder that hunger is a destabilizing force that can make people desperate, a truth that was not lost on leaders of high-income countries. The food price crisis led to a reassessment of international agricultural development assistance. During the previous two decades, donors had dramatically reduced their support for agriculture. For example, between 1985 and 2005, the share of U.S. official development assistance allocated to agriculture fell from more than 12 percent to just 3 percent.[9]

In July 2009, at the annual gathering of heads of state from the wealthiest nations (known at that time as the Group of 8 or G8), leaders agreed to raise $22 billion to support agriculture and food security programs in developing countries. After the G8 meeting, the Obama administration launched Feed the Future, a new U.S. global hunger and food security initiative. Feed the Future emphasizes increasing agricultural productivity and improving nutrition outcomes in countries with a high burden of malnutrition.

As mentioned earlier, agricultural efforts of the past rarely prioritized nutrition. Feed the Future might not have focused on nutrition had it not been for *The Lancet* series on maternal and child nutrition. Bread for the World and other advocacy groups helped bring this new knowledge to the attention of policymakers. The news that nearly half of all deaths of young children were linked to malnutrition was startling. Even more important to raising the profile of nutrition among heads of state was the quantitative data that made the link between malnutrition and a lower national GDP. The significant national financial costs of malnutrition, combined with the availability of proven, cost-effective solutions, helped make nutrition a higher priority in countries with high rates of stunting and other types of malnutrition.

Feed the Future targets smallholder farmers, primarily women. By the time Feed the Future was created in 2010, the administrators of development programs had a much better understanding and appreciation of the role of women as agricultural producers in developing countries. Women produce most of the food that is consumed by their communities. Targeting assistance to female producers is the optimal strategy to make progress on hunger and nutrition, because women earning higher incomes has been proven to lead to improvements in children's nutrition, health, and education.[10]

Feed the Future has been operating for nearly a decade. According to its latest progress report, stunting has decreased by 32 percent in the rural communities where the program operates.[11] And, as previously mentioned, rural areas are where hunger and stunting are concentrated.

Urban areas in low- and middle-income countries are facing another nutrition-related challenge. Obesity is the fastest growing form of malnutrition in developing countries, and it is primarily an urban phenomenon.[12] Rural to urban migration has skyrocketed since the turn of the century, due in part to the lack of opportunities to earn a living in rural areas. Low-income urban people are more vulnerable than other urban residents because the foods they can access and afford are limited in variety and nutritional content. Diet and, for some, less physical activity than during their previous agricultural work, are risk factors for obesity and related noncommunicable diseases such as type 2 diabetes. Also, children of mothers who were undernourished during pregnancy developed metabolic systems that put them at greater risk of obesity in adulthood.[13]

Physician and epidemiologist David Barker, a pioneering researcher who advanced the link between hunger and obesity, argues that it makes little sense to attempt to improve children's health while neglecting their mothers. A newborn's health reflects his or her mother's own health and nutritional status, and a woman's nutritional well-being is forged over a period of years. Thus, it is important to prioritize good nutrition for adolescent girls as well as for women in their childbearing years.

Wasting: Little Progress on the Most Dangerous Form of Malnutrition

Significant progress has been made in reducing global childhood stunting. However, the same cannot be said of other forms of malnutrition. The number of children suffering from wasting today has barely budged from its level in 2011. Wasting, which means children are far too thin for their height, is the clearest visible sign of acute malnutrition. It affects 49.5 million children

younger than 5 each year.[14] Wasting is the deadliest form of malnutrition. A child suffering from severe acute malnutrition is up to 11 times more likely to die than a well-nourished child.[15]

Although wasting is treatable, less than 25 percent of children who have it receive treatment. This failure to reach wasted children further impedes progress on other forms of malnutrition as well. Almost 16 million children are suffering from both stunting *and* wasting, putting them at very high risk of death, and putting survivors at very high risk of serious illnesses and/or developmental delays.[16]

Both stunting and wasting are dangerous. Additional funding for community-led treatment approaches is the best strategy, since these programs reach children in more cost-effective ways.

Stunting and wasting are not situation specific, as has traditionally been believed, with wasting being mainly a problem during crises such as wars or natural disasters and stunting being a danger of peacetime. Therefore, both humanitarian and development workers must be equipped to respond to both kinds of child malnutrition.

Possibilities and Challenges

Women and Children First

Between 20 and 30 percent of stunting and wasting originates in utero, making the importance of women's nutrition clear. The evidence tells us that optimal maternal nutrition during pregnancy, and optimal feeding of infants and young children, would reduce wasting by 60 percent, stunting by 20 percent, and mortality in children younger than 5 by 15 percent.[17]

When healthy foods are missing from children's diets, one may assume these foods are not available, but sometimes any of several other factors plays a role. One of these is whether mothers have accurate information about what, how much, and how often to feed their children. Breastfeeding is a case in point. Breast milk contains all the nutrients a baby requires for good health.[18] Exclusive breastfeeding until the age of 6 months is important to improving a child's odds of survival. Each year, the largest share of deaths caused by unclean water are those of young children.[19] Exclusive breastfeeding protects babies from contaminated water that causes diarrhea, which can lead to dehydration and reduce babies' ability to absorb nutrients.

Educating mothers about the importance of exclusive breastfeeding is a cost-effective intervention. For every $1 invested in promoting exclusive breastfeeding, the economic return is estimated to be $35, stemming primarily from improvements in health.[20] Few health interventions can show such a high return on investment.

Actions taken by parents to help sick children are the most significant factor in whether children survive.[21] In India, child mortality rates differ widely from state to state. In West Bengal, more than 50 percent of parents said that the correct treatment for children with diarrhea is to reduce their fluid intake (the opposite of what should be done), while in the state of Kerala, fewer than 5 percent of parents think this is the correct treatment.[22] It's not a coincidence that child mortality is three times higher in West Bengal than in Kerala.[23]

Worldwide, half a billion women of reproductive age suffer from anemia.[24] Poor and less educated women are more likely to be anemic. Reducing anemia is another highly cost-effective health action, with an economic return on investment of 12 to 1.[25] A daily oral iron supplement has been shown to reduce anemia in pregnant women by 70 percent.[26]

Women's education levels are a key variable in determining not only their own health, but also their children's.[27] According to a study with data from 25 developing countries, one to three years of maternal schooling would reduce child mortality by about 15 percent.[28] A separate study of countries in sub-Saharan Africa found that children whose mothers had gone to primary school were 25 percent less likely to die than children of uneducated mothers.[29]

Social protection (considered "safety-net programs" in the United States) in low-income countries mainly benefits women and young children. Emergency food is one type of social protection. Dozens of countries receive food assistance annually, and as the number of people displaced by conflict and climate-related disasters continues to rise, so will the need for food assistance.

The United States, the largest provider of international food assistance, has been leading the way in improving the quality of food aid. Historically, U.S. food assistance has been more focused on boosting calorie intake than providing essential nutrients to people in vulnerable groups. But this has begun to change, with food allotments including more foods tailored for young children's nutritional needs.

Social protection is also needed in non-emergency situations. Social protection has successfully reduced inequalities in health care and education. Conditional cash or voucher transfers are one of the most widely used types. Beneficiaries receive a cash

payment or voucher if they agree to meet conditions such as scheduling prenatal visits, attending nutrition workshops, or ensuring that their children attend school. Most often, these payments or vouchers are provided to mothers. As with agricultural development assistance, social protection targets women because of their critical role in ending hunger and malnutrition—a role that requires women's empowerment as well as support for their work and caregiving.

FIGURE 2A

Why Nutrition Matters to the Sustainable Development Goals

SOURCE: https://glopan.org/sites/default/files/SDGPolicyBrief.pdf

Since 2010, there has been a dramatic increase in efforts to reduce the global burden of malnutrition. The World Health Assembly, recognizing the importance of good nutrition to health, adopted a set of six Global Nutrition Targets to be achieved by 2025. The international community also agreed to the target of ending malnutrition in all its forms by 2030 as part of the Sustainable Development Goals. Sixty countries and three Indian states, at last count, have joined the Scaling Up Nutrition (SUN) Movement, a voluntary initiative led by national governments, civil society organizations, and businesses, along with the support of bilateral and multilateral donors. SUN countries are committed to investing in proven maternal/child nutrition solutions so that the programs can be scaled up to reach everyone. These investments are making a difference, but progress has been slow. At the current rate, countries with the highest rates of malnutrition will fall well short of achieving the global targets. The time is now to intensify efforts to accelerate progress and get on track.

Advocacy Impact Story

Building Political Will to Reduce Child Malnutrition in Peru

Peru has shown that it is possible to make extraordinary progress against childhood malnutrition. Since 2006, the stunting rate of children younger than 5 has been cut by more than half. According to the latest national survey, it is now at 12 percent.[30]

Peru's success can be credited broadly to political will, but other countries could learn from more specific information about how Peru was able to make malnutrition a top priority for national policy.

In 2006, an alliance of national NGOs, led by CARE Peru and including USAID and other international partners, challenged presidential candidates to commit to a specific goal: to reduce stunting among children younger than 5 by 5 percent in 5 years, "5x5x5." Candidates embraced the goal, although the catchy slogan wasn't the reason. Rather, they were persuaded by the alliance's presentation of the results of its own efforts to reduce stunting in various parts of the country. It used a carefully coordinated multisectoral approach, meaning one that brings together personnel and knowledge from several different fields. In this

case, the main sectors were agriculture, water, sanitation, and health. The alliance offered to help the government achieve 5x5x5.

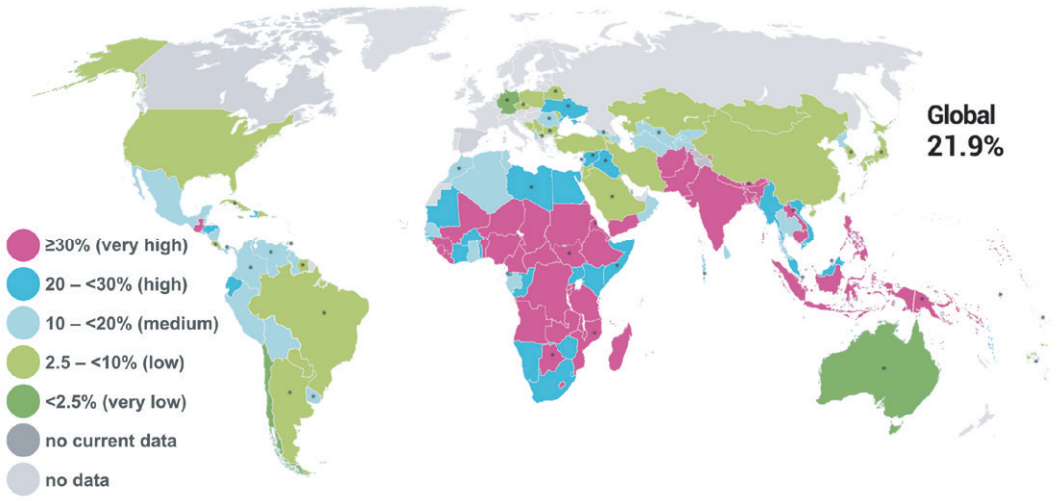
Presidential candidates knew about feeding programs, which had operated in Peru for many years but had made no progress on stunting. In some rural areas, more than 60 percent of young children were stunted. Leaders needed to learn about the multiple causes of malnutrition and its role in depressing economic growth and perpetuating cycles of poverty.

Once the candidates committed to achieving the 5x5x5 goal, the alliance announced this publicly, which got the attention of national media, including the largest newspapers and radio stations. "Getting candidates to commit to a target for anything had never been done before, and that made a huge difference—it gave the campaign a focus," said Milo Stanojevich, director of CARE Peru during this breakthrough decade.

FIGURE 2B

Stunting Rates Around the World

Percentage of children younger than 5 who are stunted (%), by country, 2018



NOTE: Note: Country Data are the most recent available estimate between 2012 and 2018; exceptions where older data (2000–2011) are shown are denoted with an asterisk (*) and where only data prior to 2000 are available the dark grey color denoting no recent data is used.

SOURCE: https://data.unicef.org/topic/nutrition/malnutrition/

Alan Garcia, the candidate who was elected president, ratified his commitment to 5x5x5 and included it in the organization of his new government, directing ministries to work together to achieve the goal. Garcia even upped the ante by pledging to reduce stunting by 9 percent during his 5-year term of office.

The government could be seen following through on its commitments, which engendered other good faith efforts by key partners, such as the World Bank and the country's business community. The World Bank, which was working with the Peru Ministry of Finance to introduce a model of "budgeting by results," used the alliance's causal framework for child malnutrition as a prototype for the new system. A large share of Peru's economy is based on natural resource extraction. Under an agreement with the government, mining companies agreed to dedicate a share of their royalties to achieving the goal.

The previous government had established a national conditional cash transfer program. These programs gave parents, usually mothers, cash grants in exchange for taking actions such as having a child vaccinated or sending all her children to school. The Garcia administration expanded this program with a focus on actions that help reduce stunting.

"It seemed like everyone was talking about malnutrition," Stanojevich said.

Such a strong commitment to addressing a problem demands proper monitoring and evaluation. Everyone wants an answer to "Are we on track?" The capacity to collect periodic data was not strong in many rural areas. With help from USAID, Peru's national statistics institute began to administer health surveys annually rather than every three years. It also used larger sample sizes so that the data could provide more detailed information about conditions at local and regional levels.

President Garcia's term ended in 2011, but the alliance played a key role in ensuring that nutrition remained a national priority and that successful strategies were maintained by subsequent governments. "We are proud of our advocacy, but advocacy does not take programs to scale," Stanojevich said. "We just kept the pressure on and kept the support through three different administrations, and the government made it happen."

IN THE UNITED STATES, NUTRITION MAKES AN ENORMOUS DIFFERENCE

"Cash resources freed up by SNAP not only make it less likely that a household with children will fall behind on rent and utilities, but they also reduce the chances that someone in the house will skip a visit to the doctor because of the cost." —Kathryn J. Edin and H. Luke Schaefer, authors of *$2.00 Per Day: Living on Almost Nothing in America*, 2015[31]

Federal nutrition programs help protect the health of tens of millions of children and adults every year. This is because hunger is a health issue in two ways: hunger and food insecurity lead to poor health, and poor health increases the risk of hunger and food insecurity. Through an array of nutrition programs and a vast network of charitable organizations offering food assistance, healthcare providers have resources to support patients whose conditions are exacerbated by lack of access to healthy foods.

A Closer Look: Hunger in a Land of Plenty

In 1967, Sen. Robert F. Kennedy toured the Mississippi Delta, one of the most neglected regions of the country. He was asked to visit by activist Marianne Wright Edelman, founder of the Children's Defense Fund, who told him during a Senate hearing, "If you really want to understand hunger in America, you need to leave D.C. and come with me to Mississippi."[32]

The hunger Kennedy encountered disturbed him deeply. He wept as he cradled an undernourished child in his arms, and the child's lifeless eyes made him ashamed to witness such hardship in his own country, the wealthiest country in the world.[33]

Since then, the extreme hunger and malnutrition Kennedy witnessed has been eliminated in the United States, including in the Delta and other regions with deep poverty. The credit largely goes to the federal nutrition programs that were established starting in the 1960s and continue to evolve today. The programs serve as our population's safety net against hunger and malnutrition. They help ease the stress of having to choose between health care and food, or between paying the rent and shopping for groceries. These programs have been operating for decades, and longitudinal research has shown that their long-term impacts include a lower risk of poverty, improved health and education, better jobs, and higher lifetime earnings.[34]

Nutrition programs such as the Supplemental Nutrition Assistance Program (SNAP), in combination with other economic security programs, contribute to moving tens of millions of people over the poverty line every year. They also boost the incomes of tens of millions of additional people, bringing them closer to getting out of poverty. "In 2017… about 81 million people had incomes below the poverty line," explains Danilo Trisi of the Center on Budget and Policy Priorities. "Counting [government] benefits and taxes lowers the number by 36 million (or 44 percent)."[35]

In a wealthy country, with a GDP of more than $19 trillion in 2017,[36] the fact that 81 million people had incomes below the poverty line is shocking, particularly because the poverty line is not an indication of what is actually costs to meet one's basic needs. For 2019, it is about $25,000 for a family of four. The stark inequalities of our economy are tempered by federal nutrition programs and other programs such as Medicaid. But these programs do not reach everyone who is eligible—and in 2017, 45 million people participated in federal programs but still lived below the poverty line.

The number of people in the United States who are food insecure—whose access to adequate food is limited by lack of money—has exceeded 40 million *for the entire past decade*.[37] Poverty puts people at higher risk of obesity as well as hunger, which may seem paradoxical unless one understands that the conditions that are common in food insecure households—episodic food shortages, reliance on high energy-dense foods to stretch food dollars, stress, and depression—are all also risk factors for weight gain.

SNAP is the first line of defense against food insecurity, with nearly 20 million households receiving benefits in an average month. Half of the beneficiaries are children.[38] The average allotment is only about $1.40 per person per meal.[39] However, few households can make the monthly benefit actually last the entire month.[40]

"I watered down the apple juice. I watered down my daughter's formula. We scraped the seeds out of a Halloween jack-o'-lantern so that we could dry them to eat," explained Renee Musser in an interview for an earlier edition of the Hunger Report.[41]

People often turn to other sources of food assistance when SNAP benefits run out. There is a vast infrastructure of emergency food providers in communities across the country operating mostly with private resources. Feeding America, the umbrella organization of the nation's largest food banks, estimates that its network provides 4.3 billion meals each year.[42]

The importance of the charitable food system goes well beyond the food it provides. In a typical month, 2 million volunteers around the nation dedicate more than 8.4 million hours of service.[43] These are the faces of the anti-hunger infrastructure in their communities, while government programs are virtually invisible. SNAP benefits are accessed with the swipe of a debit card; the transaction looks the same as any other involving a debit or credit card. Without the visibility of the charitable volunteers, the rest of the U.S. population could more easily underestimate the degree of food insecurity in their communities.

Possibilities and Challenges

Bring Health Care to the Table

Food security and nutrition are essential to good health and can prevent the need for costly medical care. The United States spends more per person on health care than does any other high-income country, yet our rankings on life expectancy, infant

mortality rate, and other key measures of health are considerably below those of most peer countries.

The most cost-effective way to reduce healthcare costs is to ensure every person in the country has enough nutritious food. A single overnight hospitalization for a child with asthma, which is more common among children living in poverty, costs more than it would have cost to enroll her entire family in SNAP for five years.

Being food insecure is "an independent risk factor for poor physical and mental health outcomes across the lifespan."[44] Women who are food insecure while they are pregnant are at greater risk of giving birth prematurely, or to babies with low birth weights, or even to babies who don't survive.[45] Babies born prematurely and/or with low birth weights are far more likely to have long-term developmental delays. The United States has fallen behind other industrialized countries on these indicators, but African American newborns are at particularly high risk. Among African American babies, 13.7 percent have low birth weights (less than 5.5 pounds), compared with 6.9 percent of white babies, 7.3 percent of Latino babies, and 7.7 percent of Indigenous babies.[46] The rate of low birth weight among African Americans is comparable to the average for low-income countries.[47]

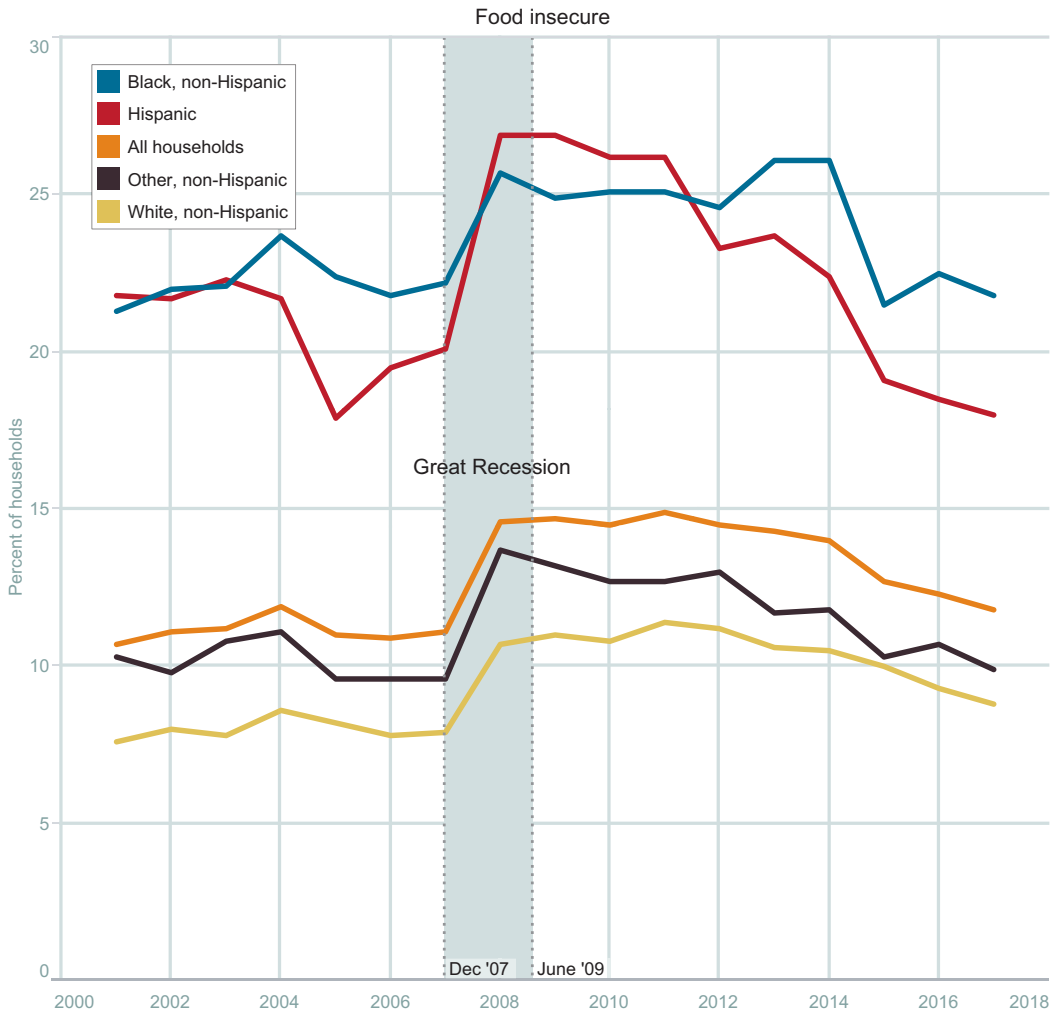
Food insecure children have poorer health than their food secure peers, with higher rates of hospitalization and more developmental delays. They are more likely to suffer from anxiety, face educational setbacks, and show aggressive tendencies.[48] Food insecurity in childhood is also a predictor of chronic illness in adulthood, associated with higher rates of depression, cardiovascular disease, high blood pressure, diabetes, certain types of cancer, and other physical and mental health problems.[49] Parents in poor health are more likely to struggle to earn enough to provide the nutritious food their growing children need. Interconnected food insecurity and poor health then affect the next generation as well.

Food insecurity also poses serious health risks to seniors. It can lower people's resistance to infection, which worsens the impact of any chronic disease they may have and make it harder to manage. Chronic diseases—the main drivers of soaring costs in the healthcare system—are often related to diet. Since seniors have the highest rates of chronic illness, their out-of-pocket medical costs can quickly become a heavy financial burden. Particularly for people with two or more chronic conditions, it can take very little time to use up lifetime savings on health care and medication costs.

In 2017, out-of-pocket medical costs pushed 10.9 million people into poverty.[50] Research also shows that up to one-third of all chronically

FIGURE 2C

Trends in Food Insecurity by Race and Ethnicity, 2001-2017



SOURCE: Calculated by USDA, Economic Research Service, using Current Population Survey Food Security Supplement data. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/

ill patients in the United States cannot afford to buy food, medications, or both.[51]

A national poll of U.S. physicians found that four out of five believe unmet social needs undermine their ability to provide quality medical care. Roughly the same percentage believe that the healthcare system should support services that they determine are essential to improving patient outcomes.[52]

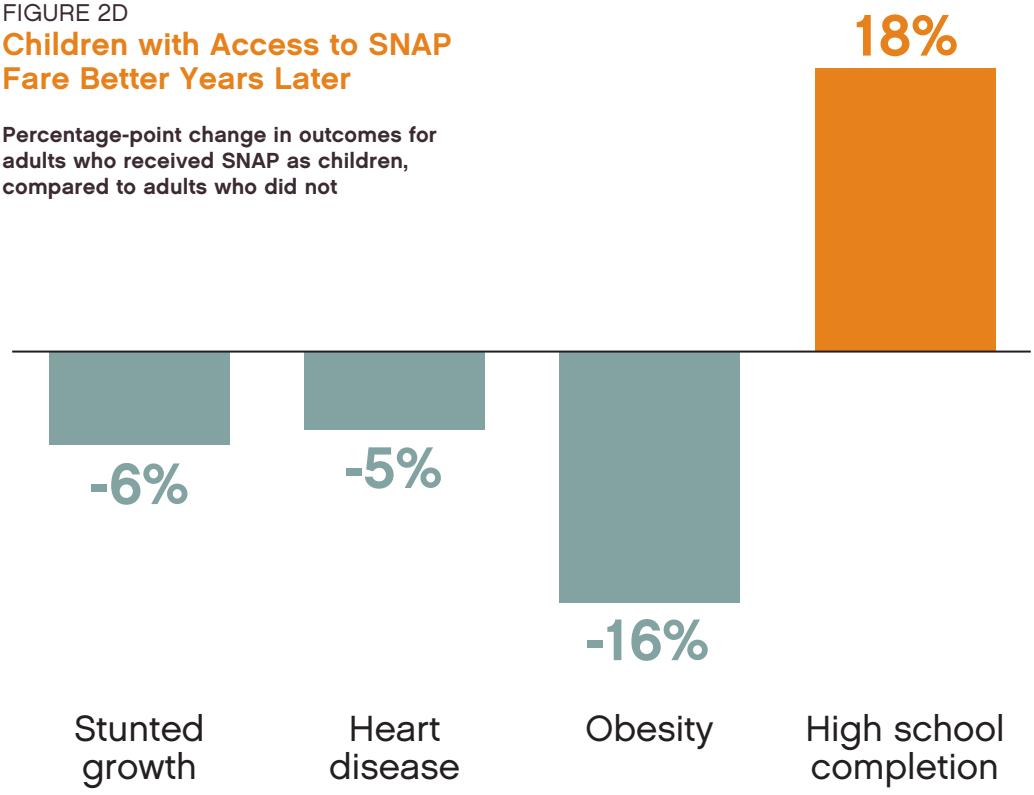
Doctors cannot routinely prescribe food assistance for patients with conditions related to hunger or malnutrition. Doctors and other healthcare professionals could make a major contribution to both improving their patients' health outcomes and ending hunger by becoming more actively involved in advocating for federal nutrition programs.

"Healthcare systems and leaders must recognize that lacking access to nutritious, affordable food is a dire public health concern," said Randy Oostra, president and CEO of ProMedica, one of the largest healthcare systems in the United States.[53] ProMedica is one of a growing number of healthcare systems that embrace the findings of decades of public health research that *medical care is not the most important factor in determining health*. So-called "social determinants" of health, such as food insecurity and poverty, have a much larger effect than medical care.[54]

FIGURE 2D

Children with Access to SNAP Fare Better Years Later

Percentage-point change in outcomes for adults who received SNAP as children, compared to adults who did not



NOTE: The study compared individuals who had access to SNAP (then food stamps) in early childhood after its introduction in the 1960s and early 1970s to similar children who did not (because they were born before its introduction) in each county.
SOURCE: https://www.cbpp.org/children-with-access-to-snap-fare-better-years-later-13

The Colorado Health Foundation—the third largest health foundation in the country—is the lead funder of a statewide effort to end hunger.[55] Ensuring that all who are eligible are enrolled in federal nutrition programs is a central part of the plan, called the Colorado Blueprint to End Hunger.

Every year, federal nutrition programs save the country hundreds of billions of dollars in additional healthcare costs.[56] For example, low-income children who participate in WIC have vaccination rates comparable to those of children from wealthier families,[57] both sparing them childhood diseases, which carry a risk of serious complications, and saving the cost of treating these diseases. WIC has been shown to reduce the risk of low birth weight by 29 percent,[58] and SNAP has been shown to reduce low birth weight as well.[59] In 2013, the Institute of Medicine issued a report critical of the small amount of the typical SNAP benefit. It also noted that despite the inadequate "dose" available, SNAP improves people's health.[60]

Advocacy Impact Story

"All My Experience Informed the Work I Wanted to Do in Government."

Julie Brewer has worked as a nutrition specialist implementing the WIC program in Montana; as head of the Montana Hunger Coalition; as a government relations analyst at Bread for the World, where she advocated for improvements in nutrition program policies; at the U.S. Department of Agriculture (USDA); and, most recently, at the Office of Management and Budget, designing and administering federal nutrition policies.

Brewer knew before she went to college at the University of Montana that nutrition was her calling. A project for a high school home economics class catalyzed her interest. So, did growing up in a single-parent household, where the struggle to make ends

meet meant that school lunch often depended on the generosity of classmates.

She studied nutrition in college and began to work for WIC after graduation. She found that it could be difficult to reconcile her work in providing expectant and new mothers with information about healthy foods and how to prepare them with the realities of their lives. It was common to hear, "This nutrition stuff is great, but we don't have any food at home."

WIC is designed only to supplement the diets of mothers and young children, not to provide all the food they need. When Brewer started her job, the list of foods that were eligible for WIC did not include fruits and vegetables, and their cost was prohibitive for families in deep poverty. WIC participants realized that fruits and vegetables are healthier, but they needed to buy cheap foods—such as ramen noodles or macaroni and cheese—that could be stretched and would at least keep children from feeling the pangs of hunger. They had to make the best of their very limited resources.

Getting to know women who participated in WIC was a transformative experience for Brewer. While she'd known hungry times as a child, it struck her that her clients and their children were enduring far worse. Her time with WIC Montana broadened her understanding of the types of reforms that would improve federal nutrition programs—and led her to advocacy.

While still working in Montana, Brewer attended a conference in Washington, D.C., where she was able to talk to members of the Montana congressional delegation about the importance of WIC. After she and her family moved to the East Coast in 2001, she joined Bread for the World's Washington office, advocating for strong nutrition programs as well as for policies that would help solve the root causes of hunger in the United States.

In 2006, Brewer took a job in the Child Nutrition Division of USDA, administering school meal programs and the Summer Food Service Program (SFSP). The limitations of the SFSP were clear: only one in seven children who receive free or reduced-price school lunches also receives summer meals. Efforts to expand the number of sites around the country and reach more children have met with little success.

Seeing this, Brewer played a pivotal role in advocating for a change that could potentially make dramatic improvements in the well-being of food-insecure children in the summer months. She and her colleagues in the Child Nutrition Division advocated providing additional SNAP benefits to low-income families during the summer months so that they could afford to feed children the meals they usually received at school. In 2010, Congress agreed to fund a pilot program in 10 states and Indian Tribal Organizations, involving more than 100,000 households. The pilot SNAP expansion reduced child hunger in participating households by one-third.[61]

Reflecting on the success of the pilots, Brewer explained, "Unfortunately, we can waste a lot of time trying to make people adapt to how we design programs, without reflecting the realities in their lives. I see my job as making sure policy reflects reality."

Brewer was directly involved in the administration of the pilots. As she explained, what seemed like a simple, common-sense solution turned out to involve several thorny administrative issues. She and her colleagues worked patiently to resolve these problems, contributing to the success of the pilot program and, most importantly, to fewer hungry children.

Endnotes

1 Jim Yong Kim (December 6, 2017), 27th Annual Martin J. Foreman Memorial Lecture, delivered at the International Food Policy Research Institute. https://www.ifpri.org/event/27th-annual-martin-j-forman-memorial-lecture

2 Mark Tran (June 5, 2013), "Malnutrition identified as root cause of 3.1 million deaths among children," *The Guardian*. https://www.theguardian.com/global-development/2013/jun/06/malnutrition-3-million-deaths-children

3 Huizhong Wu (March 20, 2018), "Anemia doubles risk of deaths for pregnant women, study finds," *CNN*. https://www.cnn.com/2018/03/20/health/anemia-pregnancy-deaths-study/index.html

4 Global Panel on Agriculture and Food Systems for Nutrition (2017), *Healthy diets for all: A key to meeting the SDGs*. http://glopan.org/sites/default/files/SDGPolicyBrief.pdf?org=1364&lvl=100&ite=671&lea=142932&ctr=0&par=1&trk

5 Black, RE et al. (2008), Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet*.

6 http://apps.who.int/gho/tableau-public/tpc-frame.jsp?id=402 World Health Organization. Nutrition—Joint Child Malnutrition Estimates 2019 Edition.

7 https://data.unicef.org/topic/nutrition/malnutrition/

8 http://apps.who.int/gho/tableau-public/tpc-frame.jsp?id=402 World Health Organization. Nutrition—Joint Child Malnutrition Estimates 2019 Edition.

9 OECD/DAC, Statistical Annex of the 2007 Development Co-operation Report, December 2007. See Table 18. http://ibdigital.uib.es/greenstone/collect/cd2/index/assoc/aecid002/7.dir/aecid0027.pdf

10 Save the Children UK (2012), *A Life Free From Hunger: Tackling Child Malnutrition.* https://resourcecentre.savethechildren.net/node/5580/pdf/5580.pdf

11 USAID (2018), *A Decade of Progress: Feed the Future Snapshot*. https://www.usaid.gov/sites/default/files/documents/1867/2018-ftf-snaphot.pdf

12 Corinna Hawkes, Jody Harris, and Stuart Gillespie (2017), "Changing Diets: Urbanization and the Nutrition Transition," Chapter 4 of *Global Food Policy Report*, International Food Policy Research Institute. http://www.ifpri.org/publication/changing-diets-urbanization-and-nutrition-transition

13 Ibid.

14 World Health Organization. Nutrition—Joint Child Malnutrition Estimates 2019 Edition. http://apps.who.int/gho/tableau-public/tpc-frame.jsp?id=402

15 Collins et al. (2006), Management of severe acute malnutrition in children. *The Lancet*: 1992-2000.

16 Ibid.

17 Bhutta, Z. et al. (2013), Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? *The Lancet* Nutrition Interventions Review Group and the Maternal and Child Nutrition Study Group.

18 Dr. Gareth Jones et al. (2003), "How Many Child Deaths Can We Prevent This Year?" *The Lancet* 362. Volume 362, Issue 9377. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(03)13811-1/fulltext

19 World Health Organization (February 7, 2018), Fact Sheet: Drinking-water. http://www.who.int/news-room/fact-sheets/detail/drinking-water

20 Meera Shekar et al. (2017), An Investment Framework for Nutrition: Reaching the Global Targets for Stunting, Anemia, Breastfeeding, and Wasting. World Bank Group. http://documents.worldbank.org/curated/en/847811475174059972/pdf/108645-REVISED-PUBLIC-1700369-GlobalTargets-Execsum-Web-10-3-16.pdf

21 Boone and Johnson (2008), "Breaking Out of the Pocket: Do Health Interventions Work? Which and in What Sense?" in Easterly, *What Works in Development? Thinking Big and Thinking Small*, Brookings Institution. https://www.jstor.org/stable/10.7864/j.ctt6wpghn

22 Ibid.

23 Ibid.

24 Gretchen A Stevens et. al. (2013), "Global, regional, and national trends in hemoglobin concentration and prevalence of total and severe anemia in children and pregnant and non-pregnant women for 1995-2011: a systematic analysis of population-representative data," *The Lancet Global Health*, Volume 1, Issue 1 e16-e25. 2013. https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(13)70001-9/fulltext

25 Ibid.

26 JP Pena-Rosa et. al. (2015). Daily oral iron supplementation during pregnancy. *Cochrane Database of Systematic Reviews 12*: CD004736. https://www.ncbi.nlm.nih.gov/pubmed/26198451

27 Food and Agriculture Organization of the United Nations (February 2012), *Rural Women and the Millennium Development Goals.* http://www.fao.org/docrep/015/an479e/an479e.pdf

28 World Bank (2003), *Gender Equality and the Millennium Development Goals.* http://documents.worldbank.org/curated/en/307331468762867954/pdf/Gender0MDGs.pdf

29 Jann Lay and Anne-Sophie Robilliard (2009), *The Complementarity of MDG Achievements: The Case of Child Mortality in Sub Saharan Africa*, Policy Research Working Paper Series 5062, World Bank. https://openknowledge.worldbank.org/handle/10986/4253

30 The World Bank: Prevalence of stunting, height for age (percentage of children under 5). https://data.worldbank.org/indicator/SH.STA.STNT.ZS?locations=PE

31 Kathryn J. Edin and H. Luke Shaefer (2015), $*2.00 Per Day: Living on Almost Nothing in America*, Houghton Mifflin.

32 Michelle Samuels Boston University School of Public Health (January 5, 2017), 'It's Hard to Say Whether It's Better or Worse," A Conversation with David Jones, Assistant Professor, Health Law, Policy and Management. http://www.bu.edu/sph/2017/01/05/its-hard-to-say-whether-its-better-or-worse/

33 Ellen B. Meacham (2018), *Delta Epiphany: Robert F. Kennedy in Mississippi*, University Press of Mississippi.

34 Hilary W. Hoynes, Diane Whitmore Schanzenbach, and Douglas Almond (November 2012), *Long-run Impacts of Childhood Access to the Safety Net*, National Bureau of Economic Research, NBER Working Paper No. 18535. https://gspp.berkeley.edu/assets/uploads/research/pdf/Hoynes-Schanzenbach-Almond-4-14.pdf

35 Danilo Trisi (September 14, 2018), Economic Security Programs Cut Poverty Nearly in Half Over Last 50 years, New Data Show, Center on Budget and Policy Priorities. https://www.cbpp.org/research/poverty-and-inequality/economic-security-programs-cut-poverty-nearly-in-half-over-last-50

36 Federal Reserve Bank of St. Louis: Gross Domestic Product. https://fred.stlouisfed.org/series/GDP

37 Alicia Coleman-Jensen et al. (2018), *Household Food Security in the United States in 2017*, United States Department of Agriculture, Economic Research Service. https://www.ers.usda.gov/publications/pub-details/?pubid=90022

38 Karen Cunnyngham (July 2018), *Trends in Supplemental Nutrition Assistance Program Participation: Fiscal Year 2010 to Fiscal Year 2016*, United States Department of Agriculture, Food and Nutrition Service. https://fns-prod.azureedge.net/sites/default/files/snap/Trends2010-2016.pdf

39 Center on Budget and Policy Priorities: Chart Book: SNAP Helps Struggling Families Put Food on the Table, https://www.cbpp.org/research/food-assistance/chart-book-snap-helps-struggling-families-put-food-on-the-table

40 Center on Budget and Policy Priorities: Policy Basics; The Supplemental Nutrition Assistance Program. https://www.cbpp.org/research/policy-basics-the-supplemental-nutrition-assistance-program-snap

41 Bread for the World Institute. 2008 Hunger Report: *Working Harder for Working Families*.

42 Feeding America website: Why should you support Feeding America? https://www.feedingamerica.org/about-us/why-feeding-america

43 Nancy S. Weinfeld et al. (August 2014), *Hunger in America 2014: A national report prepared for Feeding America*, Westat and Urban Institute.

44 United States Department of Agriculture and United States Department of Health and Humn Services (February 2015), *Scientific Report of the 2015 Dietary Guidelines Advisory Committee*, Part D. Chapter 3: Individual Diet and Physical Activity Behavior Change, p. 2. https://health.gov/dietaryguidelines/2015-scientific-report/PDFs/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf

45 RTI International (July 2014), *Current and Prospective Scope of Hunger and Food Security in America: A Review of Current Research*.

46 Joyce A. Martin et al. (January 31, 2018), "Births: Final Data for 2016," *National Vital Statistics Reports*, Volume 64, Number 1, *National Vital Statistics Reports*, vol. 67, No. 1. https://www.cdc.gov/nchs/data/nvsr/nvsr67/nvsr67_01.pdf

47 The World Bank: Low-birthweight babies (%of births). https://data.worldbank.org/indicator/SH.STA.BRTW.ZS?locations=XM

48 RTI International (July 2014), *Current and Prospective Scope of Hunger and Food Security in America: A Review of Current Research*. https://www.rti.org/sites/default/files/resources/full_hunger_report_final_07-24-14.pdf

49 Ibid.

50 Alexia Fernandez Campbell (October 18, 2018), "Social Security, food stamps, and other programs kept 44 million people out of poverty last year," Vox. https://www.vox.com/2018/9/12/17850426/census-poverty-income-2017-trump

51 Seth A Berkowitz, Hilary K Seligman, and Niteesh K. Choudhry (2014), "Treat or Eat: Food Insecurity, Cost-related Medication Underuse, and Unmet Needs," *The American Journal of Medicine*, Vol. 127, No. 4. https://www.amjmed.com/article/S0002-9343(14)00030-8/pdf

52 Robert Wood Johnson Foundation (December 2011), *Health Care's Blind Side: The Overlooked Connection Between Social Needs and Good Health*. https://www.rwjf.org/en/library/research/2011/12/health-care-s-blind-side.html

53 Randy Oostra (2014), *A Case to End U.S. Hunger Using Collaboration to Improve Population Health*, ProMedica. https://www.promedica.org/Public%20Documents/our-communities/hunger/a-case-to-end-hunger.pdf

54 Centers for Disease Control and Prevention: Social Determinants of Health: Frequently Asked Questions. https://www.cdc.gov/nchhstp/socialdeterminants/faq.html

55 Colorado Blueprint to End Hunger (January 19, 2018), "Seize the Opportunity: Colorado Blueprint to End Hunger." https://www.endhungerco.org/news-blog/2018/1/19/seize-the-opportunity-colorado-blueprint-to-end-hunger

56 Bread for the World Institute, 2016 Hunger Report: The Nourishing Effect: Ending Hunger, Improving Health, Reducing Inequality. http://hungerreport.org/2016/

57 Center on Budget and Policy Priorities: "Low-Income Children Participating in WIC Have Vaccination Rates Comparable to Higher-Income Children." https://www.cbpp.org/low-income-children-participating-in-wic-have-vaccination-rates-comparable-to-higher-income-0

58 Marianne P. Bitler and Janet Currie (2005), "Does WIC Work? The Effect of WIC on Pregnancy and Birth Outcomes," *Journal of Policy Analysis and Management*, Volume 24, Issue 1, pp. 73-91. https://onlinelibrary.wiley.com/doi/abs/10.1002/pam.20070

59 Douglas Almond, Hilary W. Hoynes, and Diane Whitmore Schanzenbach (May 2011), "Inside the War on Poverty: The Impact of Food Stamps on Birth Outcomes," *The Review of Economics and Statistics*, 93(2), pp. 387-403. https://gspp.berkeley.edu/research/selected-publications/inside-the-war-on-poverty-the-impact-of-the-food-stamp-program-on-birth-out

60 Julie A Caswell and Ann L Yaktine, eds. (2013), *Supplemental Nutrition Assistance Program: Examining the Evidence to Define Benefit Adequacy*, Institute of Medicine, National Academies Press. https://www.iom.edu/~/media/Files/Report%20Files/2013/SNAP/SNAP_RB.pdf

61 Ann M. Collins et al. (May 2016), Summer Electronic Benefits Transfer for Children (SEBTC) Demonstration: Summary Report, Abt Associates and Mathematic Policy Research, submitted to U.S. Department of Agriculture, Food and Nutrition Service. https://fns-prod.azureedge.net/sites/default/files/ops/sebtcfinalreport.pdf