



Promoting Food Security for All Children

COUNCIL ON COMMUNITY PEDIATRICS, COMMITTEE ON NUTRITION

Sixteen million US children (21%) live in households without consistent access to adequate food. After multiple risk factors are considered, children who live in households that are food insecure, even at the lowest levels, are likely to be sick more often, recover from illness more slowly, and be hospitalized more frequently. Lack of adequate healthy food can impair a child's ability to concentrate and perform well in school and is linked to higher levels of behavioral and emotional problems from preschool through adolescence. Food insecurity can affect children in any community, not only traditionally underserved ones. Pediatricians can play a central role in screening and identifying children at risk for food insecurity and in connecting families with needed community resources. Pediatricians should also advocate for federal and local policies that support access to adequate healthy food for an active and healthy life for all children and their families.

abstract



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INTRODUCTION

In 2013, 17.5 million US households, or 14.3% of all households and 21% of all children, met the US Department of Agriculture (USDA) definition of a food-insecure household, one in which “access to adequate food is limited by a lack of money or other resources.”^{1,2} Households with children are nearly twice as likely to be food insecure as households without children. In 2013, 7.5 million American families with children lacked consistent access to adequate, nutritious food. The crisis becomes even more pressing for families facing severe economic hardships. In 2013, almost 60% of all food-insecure households had incomes below 185% of the federal poverty thresholds, the income eligibility cutoff for many child nutrition programs. The federal poverty threshold for an average family of 4 people in 2013 was \$23 834; 185% of this threshold amount is \$44 093, but the federal poverty level is not a definition of economic hardship, and the amount to provide basic needs for a family of 4 often far exceeds this amount. Because 30% of food-insecure households have incomes above this level, it is clear the problem is not related solely to poverty.

The demographic of food-insecure Americans extends beyond the areas of concentrated urban poverty and into suburbs and rural America, areas

often mistakenly thought to be immune to this problem.³ Like poverty, food insecurity is a dynamic, intensely complex issue; the current economic recovery has marginally diminished food insecurity, but levels remain near historic highs.⁴ For many families, seemingly small changes in income, expenses, or access to federal or state assistance programs may instantly reduce the ability to purchase healthy food and result in increased vulnerability to food insecurity. Moreover, families and children do not only feel the effects of hunger just as missed or meager meals; food insecurity manifests itself in many other biopsychosocial outcomes, including health, education, and economic prosperity.⁵⁻¹² In fact, more than 30% of families who identified as food insecure indicated that they had to choose between paying for food and paying for medicine or medical care.¹³ Combined, these negative effects can contribute to a less competitive workforce for the nation and higher health care costs borne by the US government and employers.

Food insecurity is associated with many factors in addition to poverty. Unemployment and underemployment are also strongly associated with food insecurity.² Certain populations, such as children in immigrant families¹⁴ and large families, families headed by single women, families with less education, and families experiencing parental separation or divorce are at greater risk.^{2,3} Families who are food insecure usually have at least 1 parent who is working or has worked for at least 6 months of the previous year. Working poor families and single-parent families are at particular risk of food insecurity. In low-income households with children and food insecurity, 84% participated in at least 1 federal food assistance program, such as the Supplemental Nutrition Assistance Program (SNAP) or free or reduced-price school meals in 2010 to 2011.² Thus, 16% of

low-income, food-insecure households with children do not receive federal supports. Federal benefits can attenuate the severity of food insecurity but might not eliminate it, particularly for children and in regions with higher food costs.^{15,16}

EFFECTS OF FOOD INSECURITY ON CHILD HEALTH AND DEVELOPMENTAL OUTCOMES

The inability to consistently provide food creates stress in families, contributing to depression, anxiety, and toxic stress, which make optimal parenting difficult regardless of social class.^{12,17} Most parents strive to protect their children as much as possible from the physiologic sensation of hunger and, ultimately, nutritional deprivation. Studies on the effects of food insecurity in households demonstrate low dietary quality in adults but slightly better quality for the household's children,¹⁸ and qualitative studies reveal how parents strategically limit their own intake in an effort to spare their children.¹³

There are multiple adverse health outcomes strongly correlated with food insecurity. Children 36 months old or younger who live in food-insecure households have poorer overall health and more hospitalizations than do children who live in food-secure households.⁷ Children with food insecurity are more likely to be iron deficient, as are adolescents with food insecurity.^{8,9} Food insecurity also is associated with lower bone density in preadolescent boys.¹⁹

Poverty is associated closely with the development of obesity. Although not a direct cause of obesity,^{20,21} food insecurity disproportionately threatens certain populations at highest risk of obesity, including those from racial and ethnic minority groups and the poor.²² Children in food-insecure households generally have limited access to high-quality food. Environmental realities in

low-income neighborhoods, including decreased presence of full-service grocery stores and increased availability of fast-food restaurants and energy-dense, nutrient-poor food,²² may create barriers for low-income families trying to adopt healthy behaviors. Adequate food may be available only intermittently, leading to unhealthy eating patterns and increased stress that may make weight loss difficult and facilitate the development of obesity.²⁰ Households with smokers are more likely to be food insecure, perhaps because of the diversion of money to tobacco in these households.²³

Among children of all ages, food insecurity is linked with lower cognitive indicators, dysregulated behavior, and emotional distress. Children between 4 and 36 months of age who live in low-income, food-insecure households are at higher risk of developmental problems, which presage impaired school function, compared with children of the same age living in low-income, food-secure households.¹⁰ Longitudinal studies have shown that food insecurity in kindergarten students predicts reduced academic achievement in math and reading over a 4-year period.¹¹

Young children in food-insecure households are more likely to have behavior problems above and beyond those attributable to their mother's depression and anxiety.¹² Adolescents in food-insecure families are more likely to experience dysthymia and suicidal ideation.²⁴ These observations may be attributable, in part, to neurotransmitter perturbations from poor diet and the sensation of hunger and in part from children's emotional reactions to food insecurity itself and its social meaning.

School-aged children are aware of and distressed by food insecurity in their household. They often try to help manage food resources in the family, either by supporting the

efforts of their parents or by initiating their own strategies for reducing food intake (including choosing to eat less than they want). Parents may be unaware of their child's understanding of the family's plight and may believe their child is unaware of the family's lack of food.^{25,26} Adolescents describe food insecurity in terms of quantity (eating less than usual, eating more or faster when food is available), quality (having only a few low-cost foods), affective states (worry, anxiety, or sadness about the family's food, shame or fear of being labeled "poor," feelings of having no choice or of adults trying to shield them from food insecurity), and social dynamics (using social networks to get food or being socially excluded).²⁷

As with many pediatric conditions, the health effects of food insecurity and associated malnutrition may persist beyond early life into adulthood. A substantial body of literature also links early childhood malnutrition to adult disease, including diabetes, hyperlipidemia, and cardiovascular disease.^{5,6} Studies of the outcomes of food insecurity in childhood suggest that it may be an example of ecologic context modifying individual physiologic function. Overall, the effects of food insecurity on the physical, mental, and emotional health of children and families are additive to the effects of low income alone.

PROGRAMS TO MITIGATE FOOD INSECURITY

Given the high prevalence of food insecurity among US families with children and given its potential health effects, pediatricians need to be aware of resources that can mitigate food insecurity and know how to refer eligible families. These programs serve as critical supports for the physical and mental health and academic competence of children (Table 1).

WIC

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), first established in the early 1970s, is a discretionary federal program for which Congress must appropriate funding each year. Its mission is "to safeguard the health of low-income women, infants and children up to age 5 who are at nutritional risk by providing nutritious foods to supplement diets, information on healthy eating, and referrals to healthcare." WIC participants are pregnant women, breastfeeding women (up to the child's first birthday), nonbreastfeeding postpartum women (up to 6 months postpartum), infants (up to their first birthday), and children up to their fifth birthday.

Prenatal WIC participation has been consistently associated with higher birth weight and longer gestation,

particularly among mothers at highest risk.²⁸ Participation in WIC also is associated with more iron-dense diets and increased food and vegetable intake in preschoolers.²⁸ WIC serves 53% of all infants younger than 1 year old in the United States. Most states provide vouchers or electronic benefits transfer cards for use in the purchase of eligible products and for nutrition counseling and connection to health and social services. In most states, WIC also has an associated program, the WIC Farmer's Market Nutrition Program, which gives additional vouchers for the purchase of fresh, locally grown produce at farmers' markets and roadside stands.

WIC is an effective evidence-based intervention for improving the health of low-income women and their children. WIC has a strong commitment to increase breastfeeding among its participants, providing counseling, peer support, enhanced food packages, and access to breast pumps to support the initiation and continuation of breastfeeding. WIC participation has been linked to better infant health and lower rates of overweight and underweight status among infants.²⁹

SNAP

SNAP is an entitlement program that provides nutrition assistance to low-income families and individuals. SNAP, piloted as the Food Stamp

TABLE 1 Web Sites With Nutritional Information on Programs to Mitigate Food Insecurity

Program	Information	Income Eligibility	Web Site
WIC	WIC food packages	≤185% of federal poverty level ^a	http://www.fns.usda.gov/wic/final-rule-revisions-wic-food-packages
	State agency WIC-approved food lists for food packages		http://www.fns.usda.gov/wic/links-state-agency-wic-approved-food-lists
SNAP	Eligible food items	<130% of federal poverty level ^a	http://www.fns.usda.gov/snap/eligible-food-items
	SNAP-Ed resources		http://snap.nal.usda.gov/
National School Lunch and National School Breakfast Programs	Nutritional standards for school lunches and breakfasts	Reduced-cost meals: ≤185% of federal poverty level ^a ; free meals: ≤130% of federal poverty level ^a	http://www.fns.usda.gov/school-meals/nutrition-standards-school-meals
Child and Adult Care Food Program	Meal patterns for infants, children, and adults		http://www.fns.usda.gov/cacfp/meals-and-snacks
Summer Food Service Program	Finding summer meal programs in the community and meal content		http://www.fns.usda.gov/sfsp/summer-food-service-program-sfsp

^a Available at <http://familiesusa.org/product/federal-poverty-guidelines>.

Program in 1961 and confirmed with the Food Stamp Act in 1964 (Pub L No. 88-525), is the largest food and nutrition program of the USDA. It serves 47 million Americans, 72% of whom are in families with children. Like WIC, it is a federal program, administered through state agencies. Although SNAP application and eligibility rules can be complex, the program has been shown to be effective in reducing food insecurity and negative health and developmental outcomes among recipients.³⁰ SNAP provides monthly benefits (usually via electronic benefit transfer cards) to purchase eligible food items at retailers participating in the program. SNAP allotment is calculated as 30% of the net monthly household income, capped by number of members of the household (eg, the maximum monthly allotment for a family of 4 is currently \$649, or a maximum of \$1.80 per person per meal).³¹ A pilot program to increase monthly family SNAP allotments by \$60 was successful in reducing very low food security among children by 30%. A subsequent pilot program found that a \$30 per month allotment reduced very low food security among children as well as the higher benefit but produced smaller reductions in food insecurity among adults and the full household.³²

National School Lunch and National School Breakfast Programs

The National School Lunch Program was established in 1946, although the USDA had provided funds and food to schools for many years before that. More than 32 million children annually are provided with a nutritionally balanced, low-cost or free lunch in over 100 000 public and nonprofit private schools and residential child care institutions. The School Breakfast Program was started as a pilot program in 1966 and was made permanent in 1975. It provides 13 million children each year with a free, nutritionally balanced

breakfast in more than 89 000 schools. In 1998, Congress expanded the National School Lunch Program to include coverage for snacks served to children in after-school educational and enrichment programs. In 2010, the Healthy, Hunger-Free Kids Act (Pub L No. 111-296) established the Community Eligibility Provision, which allows schools in areas of high poverty to offer both breakfast and lunch at no charge to all students while eliminating the stigmatizing school meal application process, which burdens both parents and school personnel. Notable savings in administrative costs also have been attributed to the Community Eligibility Provision.³³

The Healthy, Hunger-Free Kids Act required the USDA to update the meal pattern and nutrition standards for school meals and foods sold in schools during school hours based on the latest Dietary Guidelines for Americans. Some of the recent positive changes to the meal patterns included more whole grains offered, 0 grams of trans fat per portion, appropriate calories by age, more fruit offered, and reduction of sodium content. Although all meals must meet federal meal requirements, local food authorities make the decisions about which specific foods to serve and how they are prepared. Implementation of these changes has increased fruit consumption and decreased wasted food among students participating in the National School Lunch Program.³⁴

Child and Adult Care Food Program

The Child and Adult Care Food Program, administered by the USDA, provides cash assistance to states to assist child and adult care institutions and family or group child care homes in providing nutritious foods that contribute to the wellness, healthy growth, and development of children. In fiscal year 2013, the program served more than 3 million children. In the Child and Adult Care Food Program, the USDA establishes meal

patterns with minimum food component and quantity requirements; these requirements are currently under revision to make them more consistent with the Dietary Guidelines for Americans.

Summer Food Service Program

The Summer Food Service Program (SFSP) began as a pilot program, the Special Food Service Program, in 1968, serving children during the summer and in child care. In 1975, the programs split and the SFSP came to stand on its own. The SFSP ensures that low-income children continue to receive nutritious meals when school is not in session and sustains children's physical and social development, helping them return to school ready to learn. Children 18 years old and younger can receive free meals and snacks at approved community sites, which may include health care institutions.

The SFSP serves approximately 2 million children each summer. Despite its importance, participation in SFSP is far below the number of children eligible for the program and also below the number participating in school meals during the school year. In part, this reflects the challenge of reaching some populations of children during the summer; particularly children in rural areas, areas with dangerous levels of summer heat, or very urban areas where transportation or safety may be a challenge. Within communities, advocacy by pediatricians is especially important during the summer; when school nutrition programs may be insufficient or inaccessible for many children and families.

Food Pantries and Soup Kitchens

Food pantries and soup kitchens are often available in local areas and serve as another vital piece of the safety net for children and families struggling with food insecurity. These resources usually are funded by a combination of local philanthropic

organizations, faith-based communities, and government resources. Knowing what is available in the community can help support improved nutrition and reduce food insecurity among families served by pediatricians. However, many charitable food providers are not consistently able to provide healthful food in general, nutritional items appropriate for infants and toddlers, or amounts adequate to protect families from food insecurity for more than a few days. Realizing the limited capacity of existing community resources is essential to tailoring referrals for families facing food insecurity.

SCREENING TOOLS FOR PEDIATRICIANS

Pediatricians can better assess the stress of food insecurity in individual families by incorporating a screening tool into their practice. The USDA uses an 18-item measure to assess food insecurity with the Household Food Security Scale,¹ which is the standard tool for research. A more practical in-office tool is the 2-item screen designed by Hager et al³⁵ (Table 2), which uses a subset of 2 questions from the Household Food Security Scale. Affirmative answers to either of these 2 questions identified food insecurity with a sensitivity of 97% and a specificity of 83% (as compared with the full 18-item Household Food Security Scale). These screens are designed to identify food insecurity in a family as a whole. In some cases, a single child in a family may be more or less affected by food insecurity than the others; this difference will not be detected by these screens. Some resources to address food insecurity when discovered at a clinic visit are listed in Table 3.

ADVOCACY AND EDUCATION

At the federal level, pediatricians have historically advocated in support of expanded funding for and access to key nutritional assistance

TABLE 2 Screening for Food Insecurity

1. Within the past 12 mo, we worried whether our food would run out before we got money to buy more. (Yes or No)
2. Within the past 12 mo, the food we bought just didn't last and we didn't have money to get more. (Yes or No)

Adapted from Hager et al.³⁵ Although an affirmative response to both questions increases the likelihood of food insecurity existing in the household, an affirmative response to only 1 question is often an indication of food insecurity and should prompt additional questioning.

programs such as WIC, SNAP, and the school nutrition programs. It is critical to maintain strong, evidence-based nutrition guidelines for all public programs that support childhood nutrition, including school lunches. Because Congress is scheduled to reauthorize many of the aforementioned child nutrition programs in the near future, attempts to weaken nutrition standards in school meals and other children's programs are anticipated. Advocacy by the American Academy of Pediatrics is crucial to ensure that nutrition standards remain in place and that access to effective assistance programs is expanded rather than reduced.

Advocacy efforts at the federal, state, and community levels must incorporate both obesity prevention and expanded nutritional access at the federal, state, and local levels to promote children's health. Engagement of community residents in understanding local context³⁶ and

establishment of interdisciplinary collaboration are key elements of advocacy efforts that address food insecurity in communities.

Medical education offers a natural opportunity to teach students and residents to screen for food insecurity regularly as a part of pediatric care. National initiatives such as the Community Pediatrics Training Initiative increasingly emphasize community- and population-based objectives throughout residency training,^{37,38} and evidence suggests that formal training in community health is associated with community child health involvement among pediatricians.³⁹ The following approaches enhance training about food insecurity within community pediatrics: engaging on-site social and legal resources to emphasize screening and management of food insecurity⁴⁰; using quality improvement methods to improve screening and evaluate efforts,⁴¹ including obtaining data on the impact of community-based initiatives such as farmers' markets and food pantries on food insecurity; establishing curriculum-based community site visits that expose medical students and residents to successful federal programs, such as WIC⁴²; and encouraging medical students and residents to participate in local, regional, and federal advocacy efforts. More data are needed to elucidate how curriculum

TABLE 3 Resources for Pediatricians Dealing With Food-Insecure Families

Program	Web Site	Description
2-1-1	211.org, then access by ZIP code or city	Access to information on school lunch programs, summer food programs for children, and other government-sponsored programs (eg, SNAP, WIC) as well as soup kitchens and community gardens
Healthy Food Bank Hub	Healthyfoodbankhub.feedingamerica.org	Includes a food bank locator and other tools and resources for food-insecure households
MyPlate	http://www.choosemyplate.gov/budget/downloads/MeetingYourMyPlateGoalsOnABudget.pdf	Recipes and tip sheets for low-cost healthy eating

elements can most effectively teach trainees to assess food insecurity and advocate for programs that mitigate food insecurity.

RECOMMENDATIONS

The American Academy of Pediatrics recommends that pediatricians engage in efforts to mitigate food insecurity at the practice level and beyond. The following recommendations offer practice-level strategies for pediatricians.

- A 2-question validated screening tool (Table 2) is recommended for pediatricians screening for food insecurity at scheduled health maintenance visits or sooner, if indicated.
- It is beneficial for pediatricians to familiarize themselves with community resources so that when children screen positively for food insecurity, referral mechanisms to WIC, SNAP, school nutrition programs, local food pantries, summer and child care feeding programs, and other relevant resources are accessible and expedient. This information is particularly important for new mothers. New mothers in food-insecure households can be connected to WIC and other community resources during pregnancy and early in the postpartum period to encourage breastfeeding.
- When advocating for programs targeted at families with food insecurity, it is important that pediatricians be aware of the nutritional content of food offered in supplemental programs (Table 3).
- In the office setting, pediatricians who are aware of the factors that may increase vulnerability of food-insecure populations to obesity and factors that disproportionately burden food-insecure households may address these issues at clinic visits. These factors include lack of access to healthy and affordable foods, cost of healthy food (and the low cost of many unhealthy foods),

media messaging that promotes nonnutritious foods and beverages, and the role of stress in decision-making related to food.

At a system level, pediatricians can advocate for the needs of children and families facing food insecurity.

- Food insecurity, including screening tools and community-specific resource guides, can be incorporated into education of medical students and residents to prepare future generations of physicians to universally screen for and address food insecurity.
- Pediatricians can advocate for protecting and increasing access to and funding for SNAP, WIC, school nutrition programs, and summer feeding programs at the local, state, and national levels. Advocacy must also include keeping the food offered in these programs high in nutrient quality and based on sound nutritional science. Pediatricians can promote access to nutritious foods in out-of-school settings, particularly in child care, in preschool, and during the summer. Advocacy for “express lane eligibility” (adjunctive eligibility), which permits a state to use findings from enrollment in 1 program to enroll the family in other programs for which they qualify, also will increase access to food and nutrition assistance programs.
- Pediatricians can strongly support interdisciplinary research that elucidates the relationship between stress, food insecurity, and adverse health consequences; the barriers to breastfeeding for women under stress in food-insecure households; and evidence-based strategies that optimize access to high-quality, nutritious food for families facing food insecurity.

CONCLUSIONS

Food insecurity is a complex issue that presents profound challenges for

children and families. Pediatricians play an essential role in recognition of food insecurity, practice-level intervention, and advocacy to mitigate food insecurity within our communities.

LEAD AUTHORS

Sarah Jane Schwarzenberg, MD, FAAP
Alice A. Kuo, MD, PhD, FAAP
Julie M. Linton, MD, FAAP
Patricia Flanagan, MD, FAAP

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STAFF

Debra L. Burrowes, MHA

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ABBREVIATIONS

SFSP: Summer Food Service Program

SNAP: Supplemental Nutrition Assistance Program

USDA: US Department of Agriculture

WIC: Special Supplemental Nutrition Program for Women, Infants, and Children

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