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Household Food Insecurity
Serious Concerns for Child Development

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Abstract

In 2009, 14.7% of households were food insecure at some time during the year. In other words, members of those households did not have access at all times to enough food for an active, healthy life. This is arguably the most serious nutrition-related public health problem facing the U.S. today. The serious developmental consequences of food insecurity include compromised mental and physical health and poor academic performance for children. The government's response to inadequate sources of food includes food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP), the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the National School Lunch Program (NSLP), the School Breakfast Program (SBP), and others. Alongside these public programs are numerous private food assistance programs such as those administered through the national network of Feeding America which serve as an additional safety net for families. These services are provided through food pantries, soup kitchens, and weekend feeding programs such as the BackPack Program. This *Social Policy Report* provides an overview of the measurement of food security during childhood, consequences to child development, public and private food assistance programs and their effectiveness, and recommendations to researchers and policy makers. Policy recommendations focus on addressing gaps in private and public food assistance programs, addressing persistent poverty, and the role of developmental scientists in advancing research-to-policy on the consequences of food insecurity for child development.

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From the Editors

Last week, my local news station reported on the midnight lines at grocery stores on the last day of the month as food stamp users prepare to buy groceries as soon as the next month's funds are loaded onto their card. This week, they reported on the decreasing numbers of children participating in the summer food service program because schools are offering fewer summer activity programs due to budget cuts. Stories on people without enough food, especially stories involving children, seem ubiquitous. In a country where we seemingly have plenty of food, how can it be that so many families and children are not getting enough food, especially when the research so clearly has found negative physical, cognitive, and social-emotional consequences for children's development?

In this *Social Policy Report*, authors Fiese, Gundersen, Koester and Washington review this important topic of food insecurity in America—how it is measured, the incidence and prevalence of food insecurity, and the harmful consequences for children's development when they don't get enough to eat. The authors note (and the commentators all agree) that poverty is the root cause of food insecurity. Alleviating poverty through job creation, training and education, and increased wages would clearly reduce food insecurity, but until we reduce poverty, alleviating hunger requires giving direct food assistance.

The paper describes several public and private food assistance programs developed to help families address their food needs. The challenges of evaluating the effectiveness of these programs are described, but the weight of the evidence supports the continuance and expansion of such programs. Our approach, however, is deemed "haphazard" in the commentary by Chilton—so many different programs within different agencies and with different client requirements. It is no wonder that many eligible families do not participate. The commentary by Haynes describes how an individual early childhood program, in collaboration with community agencies, can make a difference in the food security levels of the children and families they serve. Refreshingly, her program also gathers data to monitor their progress. The commentary by Weill, while appreciative of private and volunteer food programs, notes the huge reach and potential impact of the federally funded programs, particularly SNAP (food stamps), which has lifted families out of poverty and provided food security. With so many important food programs up for reauthorization in the next year (including SNAP), a thought in Cook's commentary seems especially pertinent: he notes how child development researchers are well-positioned to study and report on the linkages between food insecurity and child development to inform and shape policy decisions. We hope this issue has done that.

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Household Food Insecurity
Serious Concerns for Child Development

Food security is defined as the access by all people at all times to enough food for an active, healthy life. Food insecurity is a growing public health problem in the United States. According to the United States Department of Agriculture (USDA), as of 2009, food insecurity affects about 17.4 million United States households (14.7% of all households) (Nord, Coleman-Jensen, Andrews, & Carlson, 2010), the highest level since the USDA began tracking food security levels in 1995. Among households with children, 8.4 million, or 21.3%, were food insecure at some time during 2009. Children raised in food-insecure households are at increased risk for a wide array of negative health outcomes including compromised immune functioning, increased risk for infections, and somatic complaints. Children raised in food-insecure households are also at increased risk for academic and socio-emotional difficulties (Cook & Frank, 2008). These links between food insecurity and important child development outcomes are also compounded by the consequences of poverty (Ashiabi & O'Neal, 2008). We have three goals for this *Social Policy Report*. First, we aim to raise awareness among the community of developmental scientists about the causes and consequences of food insecurity. Second, we describe public and private food assistance programs designed to alleviate food insecurity for children and their families. Third, we propose several directions to actively link policy to reduce childhood hunger and improve associated health and behavior for children in the United States.

Food Insecurity in the United States in Households with Children

Food Insecurity Definition and Measurement

Food security and different levels of food insecurity are ascertained by responses to the U.S. Food Security Scale implemented by the Census Bureau in its annual Current Population Survey. Table 1 provides a description of key food security terms and this section covers measurement issues.

For households with children, an 18-item measure is used.The sidebar on page 5 includes the questions verbatim. In the 1990s, four categories of food insecurity were identified: food secure, food insecure without hunger, food insecure with moderate hunger, and food insecure with severe hunger. Now, three categories are used for households with children: food secure (0–2 affirmative responses to the 18 questions), low food secure (3–7 affirmative responses), and very low food secure (8 or more affirmative responses). "Food insecurity" encompasses both low food secure and very low food secure households. In addition to these categorical distinctions, researchers sometimes include a marginal food security category. Households that endorse one or two items may be categorized as "marginally food insecure." Such households are more similar to food-insecure households over observed dimensions than those responding affirmatively to zero questions, so this "marginally insecure" measure has been widely used in studies of the effect of food insecurity on health outcomes (e.g., Laraia, Siega-Riz, Gundersen, & Dole, 2006).

Within the literature, children are often described as "food insecure" if they reside in food-insecure households. In addition, there have also been measures defined explicitly for children. One key measure is the category of very low food security among children. Under this measure, children are said to suffer from very low food security if the household responds affirmatively to at least 5 of the 8 Core Food Security Module (CFSM) questions that pertain specifically to children.

Food Insecurity Incidence and Prevalence

In 2009, 8.4 million households with children (21.3% of all households with children) experienced food insecurity (Nord et al., 2010). Of those, over 4 million contained children who directly experienced food insecurity and al-

most 500,000 who experienced very low food security. Over the past decade, the rates of food insecurity for households with children have remained relatively high. In 1998 the rate was 17.6%. From 2007 to 2009, the rate jumped from 15.8% to 21.3% and has remained at about that level since. Households with children with low or very low food security increased from 8.3% in 2007 to 10.6% in 2009.

There is a well-established close connection between economic downturns and poverty (Gundersen & Ziliak, 2004) and, as discussed below, there is a close connection between low incomes and food insecurity. In addition, recent work by Feeding America (2011) established a close connection between unemployment and food insecurity. Thus, it is not surprising that the recent economic downturn has led to a substantial increase in food insecurity.

Table 1
Food Insecurity Terms[a]

Term	Definition
Food Security	Access by all people at all times to enough food for an active, healthy life.
Food Insecurity	At times during the year, uncertain of having, or unable to acquire, enough food for all household members because they had insufficient money and other resources for food.
Household Food Security	Food security of the household is determined by responses to 10 items on the Food Security supplement to the CPS. Since 1999, NHANES[b] has included the U.S. Household Food Security Survey Module. Eight additional items are included for households with children between birth and 17 years. (See Table 2 for exact wording of questions.) Households are classified as food secure if they report 0, 1 or 2 food-insecure conditions.
Household Food Insecurity	Using the same scale as above, households are classified as food insecure if they report 3 or more food-insecure conditions.
Very Low Food Security	At times during the year, the food intake of household members was reduced and their normal eating patterns were disrupted because the household lacked money and other resources for food. (Prior to 2006, this condition was referred to as "food insecurity with hunger").
Marginal Food Security	Households report at least some concerns or difficulties in obtaining food by responding positively to 1 or 2 of the 18 indicators of food insecurity.
Childhood Food Insecurity	Children 12 years of age and older can be administered the Child Food Security Survey module to assess food security status. In 2005, NHANES included 5 of the questions for children 12-15 years to index individual food insecurity information.

[a]Table adapted from Nord, Coleman-Jensen, Andrews, & Carlson (2010) and Nord & Hopwood (2007).
[b]National Health and Nutrition Examination Survey

Socio-Demographic Variations

Twenty-two percent of households with children under the age of 6 experienced food insecurity in 2009. Low-income households with children were more likely to be food insecure than low-income households without children (46.9% vs. 34.0%). Low-income female-headed households with children and households with children with complex living arrangements had notably high food insecurity rates (49.9% and 52.8%, respectively) (Nord et al., 2010).

The socio-demographic context of food insecurity shares many features of the environment of childhood poverty including low income, low education levels, and female-headed households (Evans, 2004). The disruptive nature of food insecurity including lack of access to food, worrying about how to procure food (Chilton & Booth, 2007), and making choices between food, shelter and other necessities (Frank et al., 2006) may compound the effects of poverty and place children at further risk for poor health and developmental outcomes. From a developmental science perspective, it is well established that instability and family disruptions can have deleterious effects on child development (e.g., Ackerman, Kogos, Youngstrom, Schoff, & Izard, 1999). A cumulative risk approach that takes into account the multiple influences on children's health outcomes may be a promising strategy in evaluating the consequences of poverty and food insecurity on child development (Burchinal, Roberts, Hooper, & Zeisel, 2000; Evans & Kim, 2007).

Consequences of Food Insecurity to Child Development

The consequences of food insecurity to children range from compromised physical health to poor attention in

Questions in the Core Food Security Module

1. "We worried whether our food would run out before we got money to buy more."
   Was that often, sometimes, or never true for you in the last 12 months?

2. "The food that we bought just didn't last and we didn't have money to get more."
   Was that often, sometimes, or never true for you in the last 12 months?

3. "We couldn't afford to eat balanced meals."
   Was that often, sometimes, or never true for you in the last 12 months?

4. In the last 12 months, did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough money for food? (Yes/No)

5. (If yes to question 4) How often did that happen – almost every month, some months but not every month, or in only 1 or 2 months?

6. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food? (Yes/No)

7. In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food? (Yes/No)

8. In the last 12 months, did you lose weight because there wasn't enough money for food? (Yes/No)

9. In the last 12 months, did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food? (Yes/No)

10. (If yes to question 9) How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?

(Questions 11-18 are asked only if the household includes children age 0-17)

11. "We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food."
    Was that often, sometimes, or never true for you in the last 12 months?

12. "We couldn't feed our children a balanced meal, because we couldn't afford enough food."
    Was that often, sometimes, or never true for you in the last 12 months?

13. "The children were not eating enough because we just couldn't afford enough food."
    Was that often, sometimes, or never true for you in the last 12 months?

14. In the last 12 months, did you ever cut the size of any of the children's meals because there wasn't enough money for food? (Yes/No)

15. In the last 12 months, were the children ever hungry but you just couldn't afford more food? (Yes/No)

16. In the last 12 months, did any of the children ever skip a meal because there wasn't enough money for food? (Yes/No)

17. (If yes to question 16) How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?

18. In the last 12 months, did any of the children ever not eat for a whole day because there wasn't enough money for food? (Yes/No)

school. Food insecurity affects development through, among other factors, compromised nutrition and family stress. These effects can be considered in relation to life-cycle influences on poor health outcomes. For example, inadequate sources of food during pregnancy increases risk for low birth weight deliveries (Borders, Grobman, Amsden, & Holl, 2007), children are more likely to experience poor health if they experience food insecurity as toddlers (Cook et al., 2004), mothers are at increased risk to experience depression which affects parenting practices (Bronte-Tinkew, Zaslow, Capps, Horowitz, & McNamara, 2007), school age children are at increased risk for behavioral problems (Slopen, Fitzmaurice, Williams, & Gilman, 2010), and adolescents report more suicidal thoughts (Alaimo, Olson, & Frongillo, 2002). Thus, across the life-span inadequate sources of food have consequences for poor health and well-being. However, as will be demonstrated, there may be particular points in

development that are most vulnerable to the effects of food insecurity. In this section we provide a brief overview of the consequences of food insecurity to physical health, mental health, and academic achievement.

Physical Health

Children in the U.S. who experience food insecurity are not as likely to experience stunting and wasting as is common in under-nourished children from other countries. However, higher levels of food insecurity are associated with several birth defects including cleft palate, d-transposition of the great arteries, tetralogy of Fallot, and spina bifada (Carmichael, Yang, Herring, Abrams, & Shaw, 2007). Pregnant women who are food insecure are more likely to become obese during pregnancy and experience birth complications than women who are food secure (Laraia, Siega-Riz, & Gundersen, 2010). Given the many risks associated with poor prenatal health, including compromised immune function and susceptibility to infection and chronic diseases, children who are raised in food-insecure households are vulnerable to poor health from the very outset (Heinig & Dewey, 1996).

Children under the age of 3 who experience very low food security are twice as likely to be iron deficient with anemia than young children who do not experience food insecurity (Skalicky et al., 2006). Early exposure to severe forms of inadequate sources of food raises serious concerns about adverse consequences for neurocognitive development and long-term effects on learning and socio-emotional functioning (Cook & Frank, 2008).

Consistent with adverse health consequences observed during infancy, some evidence suggests that when children experience food insecurity during the preschool years they are more likely to have poorer health as reported by their parents and to experience health problems that require hospitalization (Cook et al., 2004). Children's health is further compromised if their parents are recent immigrants and sources of food in the home are inadequate (Chilton et al., 2009). If children experience food insecurity in the first 3 years of life they are more likely to be at risk for developmental delays, even when controlling for confounding variables such as low birth weight (Rose-Jacobs et al., 2008). For children between 3 and 8 years of age, food insecurity is associated with poorer physical quality of life (Casey et al., 2005). Quality of life measures are important indicators of perception of health functioning and refer to how well the individual is able to fully engage in daily activities such as school and interacting with peers. In this regard, young children raised in food-insecure households are expressing physical symptoms such as stomachaches and signs of worry that reduce their connections with the social environment, which are essential for healthy growth and development.

Early studies on the relationship between childhood food insecurity and weight status found mixed results. As an example, Casey and colleagues (Casey et al., 2006) reported that girls between 12 and 17 years of age and those living below the poverty level were significantly more likely to be overweight if they lived in food insecure versus food secure households. Work in the past 5 years, though, has definitely shown that there is no relationship between food insecurity and obesity among children (Larson & Story, 2010). Several types of studies have shown no relationship, including longitudinal studies (Bhargava, Jolliffe, & Howard, 2008), studies based on when child-specific food insecurity measures are used (Gundersen, Lohman, Eisenmann, Garasky, & Stewart, 2008), studies using multiple measures of obesity (Gundersen, Garasky & Lohman, 2009), and studies comparing self-reports of weight status versus measured weight status (Lyons et al., 2008). Given the bias against statistically nonsignificant results in many journals, the fact that so many studies finding no relationship between food insecurity and obesity have been published is further testament to the lack of relationship between childhood obesity and food insecurity. Poverty remains the central determinant of food insecurity and of obesity in the U.S. As a consequence, continuing efforts to alleviate poverty are likely to lead to reductions in both food insecurity and obesity. Insofar as stress is often correlated with food insecurity, it may be one possible indirect mechanism through which food insecurity affects obesity. (For a review of the literature on stress and obesity, see Gundersen, Mahatamaya, Garasky, & Lohman, 2011).

Psychosocial Health

Children's psychosocial health also suffers under conditions of food insecurity. Among other issues, food insecurity has been found to be associated with internalizing (e.g., anxiety) and externalizing (e.g., behavior problems) disorders (Slopen et al., 2010), dysthymia, and suicide (Alaimo et al., 2002).

A potential mediating pathway between children's mental and physical health is the increased prevalence of maternal depression in food-insecure households. Several studies have identified a link between maternal stress and depressive symptoms (Bronte-Tinkew et al., 2007), major depressive disorders (Beydoun & Wang, 2010), general-

ized anxiety disorders (Whitaker, Phillips, & Orzol, 2006), and food insecurity. When parents experience mental health problems, their ability to effectively respond to the needs of their children is compromised. For example, mothers in food-insecure households who were depressed exhibited less sensitive parenting styles which in turn influenced feeding practices with their young children, thus increasing the risk that their children would become overweight (Bronte-Tinkew et al., 2007). Other researchers also report that the combination of inadequate sources of food and maternal stress creates a parenting context that leaves children vulnerable to inattentiveness and disrupted family dynamics (Ashiabi & O'Neal, 2008). Thus, a developmental psychopathology framework recognizing the multiple influences of parental mental health and socioeconomic context on child outcomes (Sameroff & Fiese, 2000) is also relevant to understanding the developmental context of food insecurity and its effects on children.

Academic Outcomes

There are also consequences to children's academic performance. Alaimo, Olson, Frongillo, and Briefel (2001) reported that children who were food insecure scored lower on both intelligence and achievement tests, were more likely to have seen a psychologist, and to have repeated a grade in school; and teenagers were three times as likely to have been suspended, twice as likely to have seen a psychologist, twice as likely to have difficulty getting along with others, and four times as likely to have no friends. Jyoti, Frongillo, and Jones (2005) found that children who were from food insecure households showed significantly lower increases in math and reading scores from kindergarten to third grade than those who were food secure, with these effects of food security on achievement being more severe for girls than for boys. In addition, children who had transitioned from being food insecure to food secure improved significantly in social skills, with greater gains for girls than boys. The same study found that among girls only, there were smaller increases in reading scores for those who were persistently food insecure than for those who were persistently food secure. Further, children who transitioned from food security to food insecurity showed smaller increases in reading scores in contrast with those who remained food secure over time.

Mechanisms of the Effects of Food Insecurity on Child Development

The connection between food insecurity and negative health outcomes has been well established in the literature. At least three different mechanisms could account for these effects. First, inadequate sources of the nutrients necessary for healthy growth, particularly early in life, can influence brain development and immune functioning. Very young children who are food insecure receive less of the essential nutrients necessary for healthy growth and development such as folate, Vitamin C, and fiber (Casey, Szeto, Lensing, Bogle, & Weber, 2001). Iron deficiencies can remain well into adolescence, suggesting chronic anemia in children raised in food-insecure households (Eicher-Miller, Mason, Weaver, McCabe, & Boushey, 2009). Young children in Mexican-American households who are food insecure may be particularly vulnerable to poor nutrition, consuming higher fat diets than Mexican-American children in food-secure households (Rosas et al., 2009). Recent reviews suggest that multi-micronutrients are associated with children's cognitive development (Best et al., 2011; Leung, Wiens, & Kaplan, 2011). Beginning prenatally, inadequate nutrient intake is an important pathway in considering the consequences of food insecurity on child development. As we gain a greater appreciation of the links between micro-nutrients and health, it will be important to further track the potential consequences of food insecurity for brain and physical health early in childhood.

A second potential mechanism of effect is through maternal stress and depression. Several researchers have proposed that the increased incidence of depression in food-insecure households results in a pattern of unavailability, insensitivity, and inconsistent parenting that accounts for poor mental health in children in food-insecure households. This pattern is very consistent with a developmental psychopathology approach and deserves further attention.

A third potential mechanism is the relative persistence and disruptive nature of food insecurity and effects of chaos on children's lives. Children who are raised in chaotic or turbulent households are known to be at risk for poor psychological and physical health (Brooks-Gunn, Johnson, & Leventhal, 2010; Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005). A characteristic of chaotic environments is unpredictability and instability. The context of food insecurity and child outcomes raises the issue of whether the shifting nature of food insecurity or adequate sources of food may compound the effects

of hunger on children. Research that has examined both persistence and moving from food-insecure to food-secure status suggests that instability in access to food may be particularly risky for young children. Further, food insecurity often occurs in the context of other material hardships such as household instability and energy insecurity. Indeed, when children experience food insecurity, housing insecurity, and energy insecurity simultaneously they are at increased risk for poor health (Frank et al., 2010).

The first 3 years of life are essential for laying down healthy brain architecture. Adverse early environments that include threat, uncertainty, and neglect have been documented to lead to heightened activation of stress responses that lead to greater vulnerability of chronic diseases (Shonkoff, 2010). To date, there is scant evidence locating the presence or levels of toxic stress in the early care environments of children who are food insecure. However, we do know that there is significant overlap between the major risk factors associated with food insecurity and toxic stress, including extreme poverty, severe maternal depression, and family violence. Thus, the cumulative effects of poor prenatal care and nutrition, inconsistent sources of food, food of poor nutrient quality, and family instability create a perfect storm for compromised neurodevelopmental functioning. A cumulative-risk approach that takes into account multiple influences including poor nutrition, housing instability, family-level chaos, and perceived lack of control over resources may allow researchers and policymakers to more clearly identify the mechanisms by which food insecurity affects child development in low-income households.

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Food Assistance Programs and Food Insecurity

Several programs have been developed to assist families who do not have adequate sources of food. Some are publicly funded through the federal government such as the Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp Program. Other programs are offered through private organizations such as food pantries and soup kitchens. Each program has its own characteristics in terms of requirements for eligibility, source of funding, use of a voucher system versus direct distribution of food, and incorporation of educational programming. In this section, we provide an overview of the major programs that have been developed to assist children and their families.

Public Food Assistance Programs

Several public food assistance programs have been developed by the USDA in cooperation with state agencies to provide supplemental nutritious food to improve the health of children. Notable examples are SNAP (noted above), the Supplemental Nutrition Program for Women, Infants, and Children (WIC), the National School Lunch Program (NSLP), and the School Breakfast Program (SBP). As we will demonstrate, the relation between food insecurity and participation in formal food assistance programs is complicated.

Supplemental Nutrition Assistance Program (SNAP). The central goal of SNAP is to be the "most critical component of the safety net against hunger" (USDA, 1999, p. 7). To achieve this goal, eligible recipients are given electronic benefit transfer (EBT) cards which allow them to purchase food at approved retail outlets. SNAP, with a few exceptions, is available to all families and individuals who meet income and, in some states, asset tests. Approximately half of all American children will have resided in a household that received food stamps by the time they reach 20 years of age (Rank & Hirschl, 2009).

To receive SNAP, households must meet three financial criteria: a gross-income test, a net-income test, and in about 20% of states, an asset test. First, a household's gross income before taxes in the previous month cannot exceed 130% of the poverty line (although many states have raised this percentage, up to 200% in some). Second, net monthly income must be below the poverty line. Net income is calculated by subtracting a standard

deduction from a household's gross income. In addition to this standard deduction, households with labor earnings deduct 20% of those earnings from their gross income. Deductions are also taken for child care and/or care for disabled dependents, medical expenses, and excessive shelter expenses. Third, although the federal guidelines stipulate that assets must be less than $2,000, the majority of states waive the asset criteria.

The amount of SNAP benefits received depends on net income. Households with a net income of zero receive the maximum benefit. For a family of four in 2011, this amounted to $668. As income increases, this amount declines; for every additional dollar, the amount of SNAP benefits is reduced by 30 cents (except in the case of income in the form of earnings, then the reduction is 24 cents).

Despite the potentially large benefit levels, a large fraction of households eligible for SNAP do not participate. This outcome is often ascribed to three main factors. First, the benefit level can be quite small—for some families as low as $17 a month. Second, stigma may be associated with receiving SNAP. The sources of stigma may vary from a person's own distaste for receiving food stamps to the fear of disapproval from others when redeeming food stamps, to the possible negative reaction of caseworkers (Ranney & Kushman, 1987; Moffitt, 1983). Recent initiatives like fingerprinting applicants (used in three states and one city) can also increase the stigma associated with SNAP participation. Third, transaction costs can diminish the attractiveness of SNAP participation. Examples of such costs include travel time to a SNAP office and time spent in the office, the burden of transporting children to the office or paying for childcare services, and the direct costs of transportation. A household faces these costs on a repeated basis when it must recertify its eligibility. Information costs include overcoming language barriers and overcoming misconceptions that SNAP receipt has adverse immigration consequences.

As noted above, the central goal of SNAP is the reduction in food insecurity. Of concern, then, is that rates of food insecurity among recipients are about double the rates among eligible non-recipients (Nord et al., 2010). These higher rates remain, even after controlling for observed factors. In response to this seeming paradoxical relationship, researchers have uncovered that this is primarily due to adverse selection (i.e., those most in need enter the program) (DePolt, Moffitt, & Ribar, 2009; Gundersen & Oliveria, 2001; Gundersen et al., 2009; Nord & Golla, 2009). In addition to adverse selection, underreporting of SNAP participation in surveys can lead to biased estimates if one does not correct for this misreporting. For example, from both survey and administrative data at the national level, under-reporting of up to 25% of participation in food assistance programs has been found (Cunnyngham, 2005). (Of course, there is misreporting across numerous dimensions in surveys in addition to SNAP participation, including misreports of income, education, etc. and even variables like race/ethnicity.) Research by Gundersen and Kreider (2008) has demonstrated that once this misreporting is addressed one cannot say that food insecurity rates are higher among recipients than non-recipients unless one is willing to assume very low levels of misreporting, levels much lower than found in work in this area.

An extensive literature has demonstrated that SNAP participants, in comparison to non-participants, have better health outcomes over numerous dimensions after properly addressing issues of selection into SNAP. This is in addition to lower rates of food insecurity. Among other outcomes, SNAP participants have higher nutrient intakes, higher healthy eating indices, and lower rates of obesity. (For a review, see Gundersen, in press.) Participation in the Food Stamp program reduced the odds of poor health by 24% for children experiencing household food insecurity and by 42% for children experiencing household and child food insecurity (Cook et al., 2006).

Women, Infants, and Children Program (WIC). In contrast to SNAP, eligibility for the WIC program (officially titled the Special Supplemental Nutrition Program for Women, Infants, and Children Program) is at the individual level. Roughly half of infants born in the U.S. receive WIC benefits (Jacknowitz & Tiehen, 2010). Pregnant or postpartum women, infants, and children up to age 5 years are eligible. Along with these categorical criteria, they must meet income guidelines and be individually determined to be at "nutrition risk" by a health professional. To be eligible, an applicant's household income must fall at or below 185% of the poverty threshold. A person who participates or has family members who participate in other selected benefit programs (e.g., SNAP) automatically meets the income eligibility requirement. In some states Medicaid recipients in programs with income eligibility cut-offs above 185% of poverty also are eligible.

Unlike SNAP, WIC is not an entitlement program. As a consequence, WIC may not be able to serve all eligible people. In response, a system of priorities is used for filling openings. When a local WIC agency has reached its maximum caseload, vacancies are filled based on this system of priority levels. The highest priority is given to

pregnant women, breast-feeding women, and infants who are determined to be at nutrition risk because of a nutrition-related medical condition. The second highest priority is given to infants up to 6 months of age with a serious medical problem whose mothers participate or could have participated in WIC. Children at nutrition risk because of a nutrition-related medical problem are third on the priority list. Next in priority are pregnant or breast-feeding women and infants at nutrition risk because of an inadequate dietary pattern, followed by children at nutrition risk because of an inadequate dietary pattern. The sixth priority level is reserved for non-breast-feeding, postpartum women with any nutrition risk. The final level in this priority level system consists of individuals at nutrition risk because they are homeless or migrants, and current participants who, without WIC foods, could continue to have medical and/or dietary problems. Like with SNAP, the WIC program also suffers from less than full participation with more than 6 in 10 eligible children over age 1 not receiving WIC (Bitler, Currie, & Sholz, 2003).

The connection between WIC and food insecurity has not been examined as extensively as the connection between SNAP and food insecurity. However, two studies have done so. First, Bitler, Gundersen and Marquis (2005) found that WIC recipients were more likely to be food insecure than eligible non-participants. They argue that these findings should be interpreted to suggest that WIC is reaching those in greatest need, rather than WIC is causing food insecurity. Another study (Black et al., 2004) found that WIC recipients were not more likely to be food insecure than eligible non-recipients.

A recent Institute of Medicine workshop report summarized current evidence on WIC participation and health outcomes for pregnant women and children (IOM, 2011a). There are inconsistencies across studies as to whether WIC participation has a direct influence on health outcomes such as birth weight. The evidence is clear that WIC participation is not associated with childhood obesity. There is some evidence that WIC participation does improve the nutrient intake of children's diets. The report points out, however, several limitations to the current research, including considerable variation by subgroups, a need for more longitudinal studies to follow children 5 and 10 years past program participation, and greater specificity about the link between degree of food insecurity and effects on health outcomes.

National School Lunch Program (NSLP). Eligibility for the NSLP begins at the individual level. Any child at a participating school may purchase a meal through the NSLP. (Children who are home-schooled or no longer attend school are not eligible.) Among children in these schools, families with incomes at or below 130% of the poverty level are eligible for free meals. Children with household incomes between 130% and 185% of the poverty level are eligible for reduced-price meals, for which the student cannot be charged more than 40 cents. Although children from families with incomes over 185% of poverty pay the full price the school charges, their meals are still subsidized to some extent. Although local school food authorities set their own prices for full-price meals, they must operate their meal services as nonprofit programs. Afterschool meal programs served by schools and non-school entities such as parks and recreation departments and nonprofits are covered through the Child and Adult Care Food Program described below.

Although considerable national attention has focused on the nutritional quality of school lunches, the NSLP has the opportunity to address food insecurity by providing a reliable food resource for school-age children during the school year. Dunifon and Kowaleski-Jones (2003) found that food insecurity rates are higher among children receiving NSLP (24% vs. 5%), reflecting higher use of the program by those most in need. In contrast, Kabbani and Kmeid (2005) found that participants in the NSLP were less likely to be food insecure in comparison to eligible non-participants. The most recent work on this topic is by Gundersen, Kreider, and Pepper (in press) who addressed the dual issues of selection into NSLP (as with SNAP, children are generally thought to be negatively selected into NSLP) and misreporting of NSLP status (as with SNAP, misreporting is endemic on surveys). They found that after addressing these issues, under plausible assumptions, NSLP leads to reductions in the probability of food insecurity.

School Breakfast Program (SBP). The SBP operates in the same manner as the NSLP with the same 130% and 185% of poverty thresholds for free or reduced-price breakfasts and some small amount of subsidizing the breakfasts of those over 185%. In fiscal year 2009, over 11.1 million participated in the program every school day. Of those, 9.1 million received their meals free or reduced price.

Participation in the SBP has the potential to reduce food insecurity, particularly for children who are marginally food insecure (Bartfeld & Ahn, 2011). Participation in the SBP has been demonstrated to have positive benefits on the overall quality of children's diets including consuming fewer calories from fat, and reducing low serum levels of vitamins C, E and folate (Bhattacharya, Currie,

& Haider, 2006). Although the association between participation in the SBP and improved nutrition was not limited to children who were food insecure, given the previously mentioned link between low levels of micro-nutrients in food-insecure children's diet, this is an important program for food-insecure children (Casey et al., 2001).

Summer Food Service Program (SFSP). Summertime can present particular challenges for food-insecure families with school-age children when breakfast and lunch are not available at school. The SFSP is a federal resource available to sponsors who want to combine a summer feeding program with a summer activity program in low-income areas. Sponsors receive payments for snacks and meals to children and adolescents under 18 years of age. Schools, public agencies, and non-profit organizations that operate sites in areas where at least half of the children come from families with incomes at or below 185% of the federal poverty level are eligible to apply. Alternatively, if more than half the children in a program individually meet the free and reduced-price meal eligibility criteria, all of the children in the program can receive summer meals. Enrolled sites provide meals to the children as part of an activity program.

The SFSP differs in important ways from the NSLP. First, it is offered primarily in geographic areas where there are high concentrations of low-income children, so it is not available to all children who are food insecure. Second, the SFSP is connected to voluntary activities and camps rather than mandatory school, so reaching eligible families requires additional effort. Third, because the program is not linked directly with a school program, it may require additional transportation and may operate during regular work hours which can place added burden on working parents.

Nord and Romig (2006) examined variations in food insecurity in spring and summer across 7 years and by size of summer feeding programs across states. They report that among low-income families with school-age children below 185% of the poverty line, the prevalence of food insecurity with hunger (very low food security) increases in the summer. However, this effect is attenuated in states that offer large numbers of free meal programs during the summer months. Thus, concentrated efforts to improve knowledge of and access to SFSP may help to alleviate food insecurity for children during the summer months.

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Child and Adult Care Food Program (CACFP). The USDA administers CACFP through grants to states. The program is administered by state educational agencies or an alternate agency, such as health or social services departments. Independent centers and sponsoring organizations enter into agreements with their administering state agencies to assume administrative and financial responsibility for CACFP operations. These local centers and organizations then supply nutritious meals and snacks to eligible children who are enrolled at participating child care centers and child care homes and to eligible adults who are enrolled in adult day care centers. (The adult program is not an entitlement program and is small.) This program also provides meals to children residing in emergency shelters and snacks and meals to children and youth participating in at-risk afterschool care programs.

Eligible individuals include children aged 12 years or under (age 15 or under for children of migrant workers) attending a participating child care facility, individuals of any age with one or more disabilities who are enrolled in a participating institution, children aged 18 or under in emergency shelters and children who are 18 and under at the start of the school year in at-risk afterschool care programs. An adult is eligible if functionally impaired or 60 years of age or older and enrolled in a participating adult day care center. Adults who reside in institutions are not eligible for CACFP benefits.

For-profit child care centers are eligible to participate in CACFP only if at least 25% of the children in their care qualify for Title XX funds. Participating nonprofit and public centers are required to determine if participants have household incomes at or below 130% the poverty line and are eligible for free meals or if participants have household incomes between 130–185% of the poverty line and are eligible for reduced-price meals. Family day care

home providers that participate in the program through an areement with a nonprofit CACFP sponsoring organization are reimbursed for meals based on tier I or tier II rates. Tier I rates offer a higher level of reimbursement and target family day care homes that are low-income, as determined by any area public school's low-income enrollment, or by the low income of the children in the home or the low income of the provider. At-risk afterschool care programs are eligible to participate in the program if they are located in an area served by any public school in which at least 50% of enrolled children qualify for free and reduced-price school meals. Children enrolled in Head Start, foster children who are wards of the state or placed by the court, children who are enrolled in eligible at-risk afterschool care programs, and children who are homeless are automatically eligible for free CACFP meals in Head Start, child care, and shelters.

Each day, 3.2 million children receive meals and snacks through support from CACFP. Depending on the hours of care they receive, these meals and snacks can represent a large majority of their daily food and nutrient intake for children (IOM, 2011b). As part of the Healthy Hunger-Free Kids Act (HHFKA) of 2010, the USDA is required to revise CACFP meal patterns to be consistent with U.S. Dietary Guidelines with final regulations expected by 2013. Very little research attention has been paid to the direct relation between participation in CACFP and food insecurity. However, participation in CACFP has the potential to improve the nutritional quality of food served to young children (Monsivais, Kirkpatrick, & Johnson, 2011).

Summary—Public Food Assistance Programs and Food Insecurity

Public food assistance programs created by the federal government and administered by state agencies aim to reduce food insecurity and improve the health of children by providing economic and direct food supplements to low-income families. There is evidence to suggest that public food assistance programs such as SNAP, NSLP, and SFSP can alleviate food insecurity for households with children. However, there are challenges to adequately assessing program impacts. First, a selection bias exists—those most in need are more likely to participate in such programs. Second, the considerable measurement issues in under-reporting food insecurity and participation in food assistance programs limit understanding the potential links between programs and program characteristics and their success in reducing the consequences of hunger. However, the examination of large scale national longitudinal datasets such as variation of summer feeding programs across states suggests that intense saturation of public food assistance programs can provide relief to families experiencing food insecurity.

Private Food Assistance Programs

For many families without adequate sources of food, private assistance is sometimes required. This may range from periodic or regular use of food pantries, emergency kitchens, or food served at shelters. Feeding America is a network comprised of 202 food banks (approximately 80% of all the food banks in the United States) and the tens of thousands of agencies they serve. The food banks receive food directly from major food companies, grocery stores, restaurants, commodity exchanges and individual donors. However, the bulk of their food comes from purchases made from donations. Food banks also provide technical assistance to affiliated agencies in terms of raising awareness of the consequences of food insecurity and developing public and private initiatives to respond to food insecurity and hunger on a local level. Typically, food banks distribute food to charitable agencies and food programs which then provide the food directly to clients.

Three types of emergency food programs are supported by Feeding America. *Emergency food pantries* distribute non-prepared foods and other grocery products to clients and agencies such that the food can be prepared at home. *Emergency soup kitchens* provide prepared meals and are served on site. Occasionally, food can be taken away from soup kitchens such as sack lunches or snacks. "Kids Cafés"—programs that provide snacks or meals to children in community locations such as Boys & Girls Clubs, churches or public schools—are included in this category. *Emergency shelters* provide residential shelter on a short-term basis and serve one or more meals per day.

The Feeding America system served an estimated 37 million different people in 2009, an increase of 46% since 2005 (Mabli, Cohen, Potter, & Zhao, 2010). Almost four in ten of the households served by emergency food programs in the Feeding America network include children under 18 years of age. As expected, given the high levels of need among this population, food insecurity rates are substantially higher than among the general population. For example, among the households with children served by the emergency food programs in 2009, 78% were food insecure and, of those, almost half suffered from very low food security. The estimated number of households with

children under 18 years of age being served by emergency food programs who are food insecure is approximately 4.4 million, with 1.9 million having very low food security.

Many families that make use of emergency food programs also participate in public food assistance programs—61% of families with children under age 18 participated in NSLP, 53.4% in SNAP, 8.3% in afterschool snack programs, and 13.9% in summer food programs. When asked about why they did not participate in the summer food program, if they did not, 47% of the clients responded they did not know about it (Mabli et al., 2010).

BackPack Program. Another private food assistance program designed for school-age children at risk for food insecurity is the BackPack Program. This program is a weekend feeding program supported by Feeding America and administered by local food banks. The program evolved from a concept developed by a school nurse in Arkansas who noted that students would come to her with stomachaches due to hunger. In 1995, the Arkansas Rice Depot's Food For Kids backpack program was developed and several other similar programs have since developed (Rodgers & Milewska, 2007). In 2006, the BackPack Program became an official national program of the Feeding America Network. To date, more than 140 food banks operate more than 3,600 BackPack Programs and serve more than 190,000 children across the United States.

Although there are variations in the program according to local agency resources and school implementation practices, the basic intent of the program is to provide children who may have inadequate sources of food over the weekend with child-size portions of ready-to-eat foods in backpacks. Backpacks are filled with food by volunteers and then distributed to the children on Fridays. Backpacks were chosen as the means to distribute food in order to reduce stigma and to decrease the likelihood that children would be singled out or identified by their peers as "hungry."

Recent work has analyzed the BackPack Program of the Eastern Illinois Food Bank using a mixed methods approach to better understand participant selection, program implementation, and outcomes (Fiese, Gundersen, Koester, & Washington, 2011). In-depth interviews with program administrators revealed that children are selected for the program based on a variety of non-specific characteristics including observing erratic behavior in the lunchroom, disheveled appearance, and personal knowledge of the family's economic circumstances. Program administrators reported that participation has alleviated their personal responsibility to bring in food from home for children that they felt were going hungry and that they could now allocate those resources to other needed supplies. Further, program administrators believed that participation in the program created an ethos of care at the school level and sense of civic engagement for the entire school. One program administrator commented, "as a society, I think we owe it to our kids to give them food, reinforcing a sense of civic duty to participate in the program."

A positive unintended consequence of private food assistance programs like the BackPack Program may be a strengthening of civic participation and community cohesion. To the extent that comments of interviewees reflect actual increases in "an ethos of care" or "civic duty to participate" associated with implementation of the programs, they could be indicative of social capital accumulation, or "community building." Since level of social capital has been negatively associated with very low food security (food insecurity with hunger) at the household level, such social capital accumulation is likely to contribute to reduction of food insecurity among participants and non-participants (Martin, Rogers, Cook, & Joseph, 2004).

Quantitative analysis of BackPack Program participation focuses on administrative data collected from the schools and family-level data collected through parent report. To date, the study has demonstrated that the program does an excellent job of identifying those most in need over some dimensions. For example, households participating in the program are more likely to have lower incomes in comparison to those who are on the waiting list. Over other dimensions, though, the children in the program and on the waiting list are more similar. This, in and of itself, does not indicate that the benefits are not well-targeted insofar as there may be numerous factors that allow school administrators to better target benefits, factors not observed in our data collection efforts.

Summary—Participation in Private Food Assistance Programs

Private food assistance programs such as food banks, food pantries, soup kitchens, and weekend feeding programs provide an added safety net for children and families who have inadequate sources of food. Food banks may be used when families await assistance from public programs or experience the need for food on a temporary basis. Future efforts are warranted to more effectively connect private food bank clients with public food assistance programs when eligibility requirements are met.

Concluding Comments and Policy Recommendations

Food insecurity is the most important nutrition-related public health challenge facing the U.S. today. Considerable knowledge has been gained about the effects of food insecurity on child development. We provide recommendations to advance research-to-policy and specific policy recommendations.

Research to Policy Recommendations

We encourage developmental scientists to expand the field by making use of existing national datasets such as NHANES (National Health and Nutrition Examination Survey) and ECLS-B (Early Childhood Longitudinal Study-Birth Cohort) that include measures of food insecurity and key developmental outcomes. A nuanced approach to understanding the developmental pathways between inadequate sources of food and compromised physical and mental health deserves further attention. We have identified maternal stress, stability or the shifting nature of food security status, and the confounding effects of poverty as potential mediators or moderators of the effects of food availability on child development. Attention to the potential cumulative effects of poverty, mediating role of toxic stress, and moderating role of micronutrients on the consequences of food insecurity on child development should be investigated.

Second, public and private food assistance programs would benefit from more systematic evaluation of program participation effects on important child development outcomes such as physical health, mental health and academic performance. These program evaluations should be theory-driven. For example, greater attention to environmental characteristics of participants' life circumstances beyond income level such as access to transportation, life stress, and interpersonal violence may inform outreach efforts to improve participation rates. Interdisciplinary research teams may be needed to tackle such complex issues.

Policy Recommendations

Careful research on public food assistance programs has convincingly demonstrated that these programs, and, in particular, SNAP, do lead to reductions in food insecurity. In addition, participation in SNAP, WIC, NSLP, and SBP have been found to have positive effects on child development. Yet, as discussed above, although eligible, a significant number of families do not participate in these programs. Of particular concern are low participation rates in SNAP among families who are closer to the income eligibility line, in families with someone in the paid workforce, and in immigrant families; low participation in WIC among children over the age of 1; and low participation in NSLP among high school children. To better serve all families who are eligible for public food assistance programs, more concentrated efforts are warranted to make programs such as SNAP and WIC more accessible, less administratively burdensome, and adequately funded at the state administration level. The Farm Bill of 2012 will reauthorize expenditures for SNAP. It is imperative that this beneficial program remain an entitlement program and not face budgetary reductions. In addition, states should be rewarded for streamlining enrollment and reaching eligible families.

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Second, significant changes are needed in the structure of benefit determination. As discussed above, low participation rates among those higher in the income spectrum is a problem in SNAP. In addition, many households report running out of benefits before the end of the month and they do not have enough other sources of income to purchase food. One way to address both these issues is to change the benefit structure such that the reductions in SNAP as net income increases are non-linear. One possibility is to have reductions of 30 cents for each additional dollar in net income up to 50% of the poverty line followed by reductions of 15 cents for each additional dollar in net income up to the poverty line (i.e., the cutoff for SNAP). This would increase participation rates and ensure that more families have sufficient SNAP benefits in combination with other sources.

Third, targeted outreach and education programs could increase participation in CACFP. As with other food assistance programs, there remain gaps between eligibility and participation in CACFP. While the Healthy Hunger-Free Kids Act of 2010 calls for streamlining program requirements and expanding eligibility, systematic evalua-

tion of outreach and education needs to be conducted to track the effectiveness of these efforts. Multiple agencies should be held accountable in reporting success in reducing food insecurity such as Departments of Education that administer breakfast and lunch programs and CACFPs.

Fourth, participation in summer food service programs should be increased. The potential for SFSPs to reach food-insecure children and improve nutrition over the summer months is greatly underutilized. Although food bank clients do report participating in publicly supported food assistance programs, the connection between public and private programs could be improved. Somewhat distressing is the relatively low participation rate of emergency food program clients who make use of summer feeding programs. Clearly, more effort is warranted to make families aware of these programs and to make the programs more accessible to children who experience food insecurity. Targeted media campaigns and outreach efforts to connect sponsoring agencies with summer camps, summer school programs, and summer physical activity programs conducted through agencies such as the Ys have the potential to greatly benefit children who are food insecure and living in low-income areas. Partnering with local business to provide transportation could address one of the barriers to participation in summer programs.

Fifth, support for evaluation of the effectiveness of weekend feeding programs is needed—are they effective in reducing household food insecurity and associated consequences to child development? Given the relative success of public assistance programs in alleviating some of the consequences of food insecurity on child development during the week through the NSLP and SBP, similar evaluations of weekend programs would be helpful. Programs such as SNAP and WIC alleviate, but do not completely eliminate, food insecurity. Nonprofit organizations that administer afterschool programs and receive food commodities and/or reimbursements for meals served should make ending childhood hunger a priority in their programming and reach out to under-served families in their community.

Sixth, greater attention to the role that private food assistance programs play in reducing food insecurity needs to be documented across multiple levels. While research in this area has lagged behind research on public food assistance programs, we firmly believe that, at the margin, these programs are responsible for alleviating food insecurity and its consequences for millions of Americans. Feeding America plays an invaluable role in providing food to families and children when they need it the most. The care and attention that these private programs pay to reducing stigma and raising community awareness about the significance of hunger and the civic responsibility to address hunger at the local level is policy-making in action. When a local community sets aside space and contributes time and funds for a food bank, soup kitchen, or shelter, then oftentimes policies must change. For example, the creation of community kitchens involves policy approvals from public health departments, the creation of shelters involves policy approvals from departments of housing, and distribution of backpacks in schools involves approval from local schools. These cooperative arrangements made between municipalities, school systems, and private organizations can serve as models for advancing policies to reduce food insecurity. In addition, setting standards for evaluating the effectiveness of private food assistance programs in reducing food insecurity could inform program planning.

Finally, reducing poverty will lead to reductions in food insecurity. In 1964, the War on Poverty officially began and the Food Stamp Act was passed. Close to 50 years later, too many children and their families experience hunger. While not all food-insecure persons are poor and vice-versa, low incomes remain one of the leading determinants of food insecurity. Along with the many other reasons to reduce poverty in the U.S., one additional reason is the concordant reduction in food insecurity that it would bring. Issues of hunger are ultimately issues of poverty. When a parent loses his or her job, is forced to move from his or her home due to unmet medical costs, or experiences repeated bouts of domestic violence with nowhere to turn but a shelter for women and children—then food becomes an issue. Without addressing the underlying root causes of hunger, it is unlikely that significant progress will be made. ■

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Commentary

A Broken Safety Net Cannot Break the Cycle of Poverty

Mariana Chilton
Drexel University

The failure-to-thrive toddler who has yet to talk due to developmental delay; the teary mom who brings her 2-year-old, yet again, to the emergency room for asthma treatment —these are the experiences of household food insecurity witnessed in our doctor's offices. Fiese, Gundersen, Koester and Washington put into stark relief the devastating consequences of our neglect of poverty in the U.S.—truncated child development and limited human potential.

Food insecurity in households with very young children under age 6 remains extraordinarily high at 22.9% (Nord, Coleman-Jensen, Andrews, & Carlson, 2010). As Fiese et al. demonstrate, food insecurity does not have to be severe in order to have negative physical, cognitive, social, and emotional consequences. Their review describes how our nation has succeeded in attempting to mitigate the effects of poverty on children through the food assistance programs, yet also how we have failed because of the devastating shortfalls in these safety net programs that have led to the rising need for private food assistance.

The U.S. nutrition programs are heralded as effective and broadly accessible. As the authors point out, 50% of children will participate at least once in SNAP before age 20, and half of U.S. newborns participate in the WIC Program. Research shows that these programs promote good child development, and have been found to mitigate the effects of food insecurity. For instance, our newest work in Children's HealthWatch has demonstrated that when families participate in WIC, the cumulative stressors of food insecurity and maternal depressive symptoms are reduced (Black et al., 2011). Yet during this year's budget negotiations in Congress, WIC is at risk of substantial cuts. SNAP is also under threat. Despite the temporary increase in the monetary benefit allotment in food stamps through ARRA stimulus funding—which unequivocally improved food security for SNAP recipients (Nord & Prell, 2011)—the purchasing power of the SNAP dollar has not kept up with inflation and the competing expenses for housing, energy, transportation, and childcare (Thayer et al., 2008). It is no surprise, then, that among the 37 million people who use privately funded food pantries, the majority participate in the federal nutrition assistance programs.

Though the authors emphasize the good intentions of the primarily privately funded emergency food programs, most recipients have no choice of the food they receive and, oftentimes, the food is nutritionally inadequate to meet the needs of developing children. When the original food insecurity measure was being defined, receiving food at a food pantry was considered "socially unacceptable" (Anderson, 1990). With SNAP benefits running short at the end of the month, lines at food pantries around the country have become a normalized part of the American landscape.

The 2012 Farm Bill, two-thirds of it devoted to the SNAP program, provides an opportunity to improve child development. We should work to ensure the program remains an entitlement program, reduces the "churning" on and off SNAP due to administrative barriers, and continues to improve benefit levels begun with the ARRA increases. Remembering that 50% of SNAP recipients are children, we must hold the administration accountable for following through on its stated commitment to end child hunger by 2015. Our current haphazard approach will do little to thwart food insecurity. We need a national plan that puts the administration's stated commitment into coordinated action across the sectors of nutrition, housing, education and heath—the cumulative risk factors the authors so clearly describe.

Finally, the vast participation levels in the federal nutrition programs indicate that our country has allowed child poverty to continue. As Fiese et al. assert, we need more investigation into how well our safety-net programs help people receive adequate nutrition, but we also must investigate how effectively these programs help families break the cycle of poverty.

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Commentary

One Program's Response to Food Insecurity

Gladys Haynes
Educare of Omaha

"Miss Gladys, little Max just ate three bowls of cereal for breakfast this morning." And Max, one of four children in a family living in poverty, became identified as another child who was going to bed hungry. As middle-class Americans, we too often assume everyone has the opportunity to partake of three plus nutritional meals a day. However, as this issue of *Social Policy Report* notes, the reality is that nationally, 14.7% of all households and 46.9% of poor households with children lacked necessary food during the past year.

Educare of Omaha provides Early Head Start and Head Start full-day, full-year programming to 374 children from low-income homes. All of the children are eligible for the Child and Family Adult Care Food Program (CACFP); 63% participate in the WIC program; and we estimate that 75% of the families receive Food Stamps. Consequently, one might assume that our families' food needs should be met. Unfortunately, that is not the case. When Educare of Omaha first measured food insecurity (2008), 41% of our families reported that in the past year, they sometimes or often ran out of food before the end of the month and could not buy more.

As an early childhood care facility, Educare staff are well aware of the negative consequences of hunger on children's development—especially as it relates to children's ability to learn and lead healthy lives. In response to this high level of food inse-

curity, Educare brainstormed several possible solutions. From these ideas, Educare planned and implemented a three-prong response using community resources. The strategies included providing families with greater access to food; providing families with information regarding health and nutrition; and building families' skills regarding how to budget for food and nutritional needs.

Educare, using funds provided through the CACFP program, serves all children breakfast upon their arrival to ensure they are nutritionally primed to learn. Lunch, including second helpings of vegetables, fruits and milk and a substantial afternoon snack are also provided using CACFP funds. A WIC center has been established at the Educare site so that families can more easily participate in this program. The "Backpack" program was implemented, sending individual food servings home with children for the weekend. Partnerships were also developed with local food pantries for families with food crisis needs.

To assist families in making healthy food choices, Educare invited in community volunteers to provide educational opportunities for children and parents. Children receive supplemental information about nutrition from local nursing students and a dietician as part of their weekly cooking activities. Monthly, parents and children have the opportunity to prepare a healthy snack together.

Educare also provides parents with opportunities to develop budgetary skills to stretch their food dollar further. Classes are offered in preparing low cost, nutritious meals. A financial sufficiency class had parents saving their fast food restaurant receipts for a week as a way of raising parents' awareness of better ways of spending their food dollars.

Educare is not unlike hundreds of other programs across the nation that provide services to low-income families. Food insecurity is one of the many plights of poverty that affect the families enrolled in our programs. Tight budgets sometimes restrict the actions that agencies can take. However, as Educare of Omaha has demonstrated, much can be done by an early childhood program through collaborative relationships with community agencies. Our latest annual family assessment showed that the percentage of families that sometimes or often ran out of food last year had decreased to 26%, still too high but better than 3 years ago. We will continue our partnerships to overcome the barriers faced daily by families trying to access one of the basic necessities of life—food.

Commentary

Public Nutrition Assistance Programs Have Enormous Potential to Address Food Insecurity

James D. Weill
Food Research and Action Center

This issue of *Social Policy Report* focuses on an important and often overlooked concern—that food insecurity is a serious public health problem. For 41 years my organization, the Food and Research Action Center, has led efforts to build a public policy response that will end hunger in America. During that time, real progress has been made, but not nearly enough. In 2009, 17.2 million children lived in households that had difficulty accessing enough food at some point during the year. Through both actual nutritional deficits and the stress and chaos it produces, food insecurity, especially in early childhood, can have a long-term negative impact on the physical, cognitive, academic and socio-emotional development of a child (Murphy et al., 2008). While childhood food insecurity is a problem for all groups, it is an especially acute problem among certain groups. One in three Black (34.6%) and Hispanic (34.9%) children live in households struggling with food insecurity.

The emphasis by Fiese et al. on poverty as a cause of food insecurity and on reducing poverty as a key solution is appropriate. As important as the federal nutrition programs are, building food security for all also requires strategies to raise cash incomes, including job creation initiatives; a higher minimum wage and wage growth for lower-paid workers; immigration reform; shared prosperity as the economy recovers and grows; and improved cash income supports when wages fall short (such as unemployment insurance and TANF).

At the same time that poverty causes food insecurity, adequate SNAP (food stamp) benefits can reduce both poverty *and* food insecurity. Indeed, using the Census Bureau's alternative definition of poverty, which adjusts the poverty line but counts certain in-kind benefits as income, SNAP is the nation's best public poverty-fighting program. SNAP lifted 3.6 million Americans above the poverty line in 2009, including 2.1 million children and 200,000 seniors. SNAP is as effective as the Earned Income Tax Credit in lifting families above poverty, and far more effective than any other program in lifting families out of deep poverty.

This strength of SNAP is just one example of why much more emphasis needs to be put on public nutrition assistance program eligibility, participation rates, and benefit adequacy. The vast majority of energy needs to go there rather than private programs. Food banks and pantries are extremely important resources, but their role is very modest compared to public programs. The federal school breakfast program alone, described briefly in the Fiese article, provides roughly 2 billion meals over the 9-month school year, roughly the equivalent of the entire food bank network. The school lunch program is nearly three times larger. SNAP is 20–25 times larger.

More important, the federal nutrition programs have substantial potential for growth because they are, with the exception of WIC, entitlement programs with no specific caps on numbers of beneficiaries. SNAP only reaches two out of three eligible people; school breakfast only reaches 47 low-income children for every 100 reached by school lunch. The importance of strategies to increase participation in these programs cannot be overstated. Indeed, growing the federal nutrition programs (along with poverty reduction) was the centerpiece of the plan to end childhood hunger put forward by President Obama and Vice President Biden in October 2008.

Also important is increasing benefit amounts. SNAP benefits, for example, are wonderfully helpful but often are not adequate to establish food security for struggling families. Benefit improvements are as important as participation growth, and there is recent compelling evidence of their success. The 2009 economic recovery act instituted a temporary boost in SNAP monthly benefits that averaged 17%, which reduced food insecurity even as unemployment and underemployment rose dramatically (Nord & Prell, 2011).

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Commentary

Food Insecurity Harms Children's Growth and Development

John Cook
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Child development researchers, educators and practitioners strive to understand factors that influence children's growth and development. It is well established that, for developing children, especially during the perinatal period and first 3-5 years of life, nurturing environments and relationships play central roles in establishing longer-term trajectories for growth and development. Food and food security - access to enough healthful food for an active healthy life - are basic factors in any complete understanding of nurturant developmental contexts. The review article in this issue by Fiese and colleagues on household food security as a serious concern for child development makes it clear why this is true. It also provides a thorough introduction to the nature of food security and food insecurity, how they are measured, their prevalence in the U.S. population, and the scope of research on causes, consequences and correlates of food insecurity conducted over the past two decades.

As these authors describe, food insecurity—lack of access to enough healthful food for an active healthy life—can impact child development and growth through both nutritional and non-nutritional pathways. Expansion of empirical evidence over the past two decades on the critical role of mothers' nutrition prior to and during pregnancy, and children's nutrition during the early years of life, in shaping their developmental trajectories, highlights the importance of the nutritional pathways. More recent research on the influences that family stress, especially "toxic stress" (acute intense stress, or chronic lower-intensity stress), can exert on brain and CNS development, growth and function in young children has also shed much light on the non-nutritional pathways through which food insecurity impacts child development. Several studies finding relationships among food insecurity, maternal depression, parenting behavior, parent-child interactions, and level of enrichment in home environments also are indicative of the non-nutritional pathway. Yet in spite of advances in understanding the causes and consequences of food insecurity, its prevalence in the U.S. population generally, and in households with children especially, has either remained relatively constant or increased since the government began measuring it in 1997.

Poverty, lack of adequate household resources, is a primary proximal cause of food insecurity, and food insecurity varies with poverty and factors influencing poverty, such as unemployment. However, as conceptualized, measured and treated in the U.S., poverty is neither synonymous nor congruent with food insecurity. Heterogeneity across geographic space and time in families' ability to cope with poverty, the effectiveness of the U.S. economy in providing jobs that pay living wages, and institutions and policies created to prevent and moderate the impacts of poverty and food insecurity leads to divergence of food insecurity and poverty in the U.S. population. In 2009, almost 10% of households with children that also had incomes at or above 185% of the official poverty threshold were food insecure while only about 50% of those with incomes below the poverty threshold were food insecure.

Child development experts are well-positioned to both assess and articulate relationships between food security and child development, and to accurately report those relationships in ways that can inform important policy decisions. Because of lingering effects of the most recent recession, crises in the housing and financial markets, and prior policy decisions, U.S. policymakers are currently focused on reducing costs, balancing budgets, and reducing debt.

This review article on food security and child development indicates a need for caution and restraint when considering reduction or elimination of policies and programs that address food insecurity among families with children. It also suggests opportunities and ways for child development specialists to help bring empirical evidence into these policy discussions.

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Gladys Haynes, Ph.D., is the Executive Director of Educare of Omaha where she oversees the delivery of early childhood care and education services to children who are considered at high risk for school failure. As an early childhood advocate she has actively promoted the implementation of high quality early childhood education practices to maximize the learning potential of all young children to visitors from across the State of Nebraska as well as the country. Her previous positions include director of the Early Childhood Special Education program of the Omaha Public Schools, school psychologist, and social worker in the areas of child abuse and neglect and corrections.

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James D. Weill, J.D., has been President of the Food Research and Action Center—FRAC—since 1998. FRAC leads national efforts to improve and expand the reach of programs like the Supplemental Nutrition Assistance Program (SNAP), school lunch and breakfast, afterschool and summer food, child care food and the "WIC" (Women, Infants and Children) Program. FRAC focuses as well on strategies to improve the incomes of low-income families and to boost healthy eating in schools, afterschool and summer programs, child care, and low-income neighborhoods. Congress Daily has described FRAC as "the premier anti-hunger group in Washington." Previously, Jim was the Program Director and General Counsel at Children's Defense Fund, and before that, the Deputy Director and Director of Federal Litigation at the Legal Assistance Foundation of Chicago.

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Social Policy Report (ISSN 1075-7031) is published four times a year by the Society for Research in Child Development. Its purpose is twofold: (1) to provide policymakers with objective reviews of research findings on topics of current national interest, and (2) to inform the SRCD membership about current policy issues relating to children and about the state of relevant research.

Content

The *Report* provides a forum for scholarly reviews and discussions of developmental research and its implications for policies affecting children. The Society recognizes that few policy issues are noncontroversial, that authors may well have a "point of view," but the *Report* is not intended to be a vehicle for authors to advocate particular positions on issues. Presentations should be balanced, accurate, and inclusive. The publication nonetheless includes the disclaimer that the views expressed do not necessarily reflect those of the Society or the editors.

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