Nourishing Development

A Report on Food Insecurity and the Precursors to School Readiness among Very Young Children
Executive Summary

Many families in the United States struggle to make ends meet. A family of four with two children needs to earn twice the 2006 federal poverty level of $20,000 simply to meet the basic needs of its household members. Food insecurity is tightly linked to households’ restricted financial resources, resulting in limited or uncertain access to enough food at all times for all household members to lead an active and healthy life. Families with children, especially those with children under 6 years old, are more likely than those without children to be food insecure.

Children from food insecure families are more likely to start school already behind in their development compared to children from more financially secure families. The larger the difference in school readiness skills at the start of school, the harder it is for children to catch up with their classmates. School-aged children from food insecure families are also more likely than their peers to have trouble academically and socially.

Though the impact of food insecurity on preschool and school-aged children is well-understood, few have studied, until now, the effect of food insecurity on infant and toddler development. The first three years of life are a time of rapid brain growth with unique potential for learning and development, which lay the foundations for later school readiness. Young children from poor and near poor families are largely invisible. Why is this? Only their parents, health and childcare providers see them on a regular basis as they are not yet in formal educational settings.

The Children's Sentinel Nutrition Assessment Program (C-SNAP), a national network of pediatric and public health researchers who study young, low-income children's health, growth, and development, used the Parents Evaluation of Developmental Status (PEDS) to assess developmental risk among children 4 months to 3 years old. Developmental risk in early childhood is a continuum of vulnerabilities with slow or unusual development in one or more areas, such as speaking, moving, or behavior, that identifies children with increased likelihood of later problems, for example, with learning, attention, and/or social interactions. Results summarized in this report showed that:

- Underweight babies and toddlers are 166% more likely to be at developmental risk as compared to normal weight babies and toddlers.
- Food insecurity places young children at developmental risk even before they are obviously underweight:
  - Babies and toddlers from food insecure families are 76% more likely to be at developmental risk than babies and toddlers from food secure families.

Previous C-SNAP research has shown that public nutrition and income support programs, such as the Food Stamp Program, housing subsidies, and the Low-Income Home Energy Assistance Program (LIHEAP), among others, can buffer children against food insecurity or its harmful effects on their health and growth. Policy-makers can play a critical role in protecting and promoting the development of very young children. Specifically, they can:

- Use this research to advocate for full and expanded funding of family support programs that would buffer young children against food insecurity. In particular:
  - Expand Food Stamp Program eligibility and increase benefits during the reauthorization of the program to a level sufficient to prevent food insecurity.
  - Assure at the state and local level that state-based pre-K efforts include access to the Child and Adult Care Food Program (CACFP); and expand the availability of CACFP to more family childcare homes and childcare centers.
  - Ensure that WIC continues to be adequately funded from the annual appropriations process to cover all poor and near poor children.
- Widen the focus of the school readiness debate about pre-school and school-aged children to include analysis of and commitment to meeting the nutrition and health needs of all 0-3 year old children in America in their uniquely sensitive period of brain development.
In the United States 5.3 million children under three years old (44% of all infants and toddlers) live in low-income families.4
(National Center for Children in Poverty, 2006)

Family Poverty and Food Insecurity

Poverty is increasing in the United States, especially for families with children under 18.1 In 2004 approximately 14.7% of all families with children under 18 earned less than the poverty level.2 There are also many families with incomes above the threshold who still cannot make ends meet. The average family of two adults and two children needs to earn at least twice the federal poverty level3 to cover its basic needs. Families who earn less than the basic needs level are termed ‘low-income’ or, more recently, ‘near poor’.4

Such financial constraints may restrict the ability of a household to consistently provide a healthy diet for the whole family. This condition is called ‘food insecurity,’ defined as lacking access to enough food at all times for all household members to lead an active and healthy life.

Facts about Food Insecurity in the United States:7

1. In 2004, 38 million people in the United States experienced food insecurity.
2. Families with children are more likely to be food insecure than those with no children.
3. Families with children under the age of 6 years are at even higher risk of experiencing food insecurity than those with older children.

What does this figure show?
Families with incomes at or near the poverty level cannot meet their basic needs, such as food, housing, heating/cooling, and health care.
Child development refers to the ways in which children acquire skills in a range of areas, including memory, cognition, language, gross and fine motor ability, social interaction and behavior, and perception.

Starting School Already Behind
Food Insecurity and Child Development

Studies have shown that food insecurity is linked to a variety of child health problems. For example, children in low-income, food insecure households have been shown to experience more hospital admissions and poorer health and growth, than other low-income children. In addition, school-aged children from food insecure families are more likely than their peers to suffer impaired learning, behavior, and development.

Research has shown that the developmental gap between low-income children and their higher income peers predates participation in formal education, with delays in school readiness measurable when children start kindergarten. The larger the difference in school readiness skills at the start of formal education, the harder it is for children to catch up with their classmates.

While many factors possibly contribute to this early disadvantage, few are so readily changed by public policy measures as food insecurity.

What we know:

Preschool children from food insecure households:
- have more emotional and behavioral problems such as aggression, anxiety, depression, and hyperactivity.

School-aged children from food insecure households:
- are more likely to have seen a psychologist.
- may have poorer cognitive development than children from food secure households.
- have greater difficulty getting along with peers.
- have lower grades than those in food secure households.

However, there is little research on food insecurity among infants and toddlers even though the first three years of life are a time of rapid brain growth with unique potential for learning and development, which establish the foundation for success in school.

Why is there so little research? America’s young children from low-income households are largely invisible to the public eye since most are not yet in structured educational settings; parents and child and health care providers are virtually the only ones who see young children’s growth and developmental progress or lack thereof. Given that food insecurity is already known to be associated with poor health in the first three years of life, it is important to ask whether food insecurity is also associated with developmental risk in these vulnerable infants and toddlers.
New research helps us to answer this question. The Children's Sentinel Nutrition Assessment Program (C-SNAP) is a national network of pediatricians and public health specialists whose focus is:

1. Conducting original, clinical research on children 0-3 years old, and;
2. Facilitating public policies that protect children’s health and development by providing credible evidence to policy-makers and advocates, and;
3. Providing referrals to medical care and other resources for children and food insecure households.

One component of C-SNAP’s work is gathering information about children’s developmental risk for delay or disability by using a parent report screening tool called the PEDS (Parents’ Evaluation of Developmental Status). The PEDS is recommended by the American Academy of Pediatrics for developmental screening.

**Developmental risk** in early childhood is a continuum of vulnerabilities with slow or unusual development in one or more areas, such as speaking, moving, or behavior, that identifies children with increased likelihood of later problems with learning, attention and/or social interactions.

---

**How Can We Find Out if Food Insecurity Also Hurts Young Children’s Development?**

New research helps us to answer this question. The Children's Sentinel Nutrition Assessment Program (C-SNAP) is a national network of pediatricians and public health specialists whose focus is:

1. Conducting original, clinical research on children 0-3 years old, and;
2. Facilitating public policies that protect children’s health and development by providing credible evidence to policy-makers and advocates, and;
3. Providing referrals to medical care and other resources for children and food insecure households.

One component of C-SNAP’s work is gathering information about children’s developmental risk for delay or disability by using a parent report screening tool called the PEDS (Parents’ Evaluation of Developmental Status). The PEDS is recommended by the American Academy of Pediatrics for developmental screening.

---

**Percent of U.S. Households with & without Children under 18 that are Food Insecure**

- **Children under 6**: 22%
- **Children under 18**: 18%
- **No children**: 16%

---

**What does this figure show?**

Compared to households with no children, households with children are more likely to have trouble ensuring that all household members have enough to eat at all times throughout the month. The younger the children the greater the household risk.
Results from the PEDS show that babies and toddlers from low-income families who are already at developmental risk due to poverty are put at additional developmental risk by food insecurity. Children showing physical signs of deprivation are particularly at risk.

- Underweight babies and toddlers are 166% more likely to be at developmental risk as compared to normal weight babies and toddlers.

However, the impact of food insecurity on young children is not always apparent to parents, healthcare or childcare providers. Long before a child begins to show signs of physical problems with his/her weight or height, food insecurity may have serious effects on the child's development.

- Even after taking into account a child's low birth weight, current weight, and other important factors, babies and toddlers living in low-income, food insecure families are 76% more likely to be at developmental risk than babies and toddlers in low-income, food secure families.

**Leveling the Playing Field**

**Food Insecurity and Young Children’s Development**

What does this figure show?

Children in food insecure families are 38% more likely than similar children in food secure families to be at developmental risk.
Healthy development during the first months and years of life is crucial, not because it provides an indelible blueprint for lifelong well-being, but because it creates either a sturdy or fragile foundation for future development.¹⁹

(Rhode Island KIDS COUNT, 2005)

Why should we care?

Recently, a great deal of attention has been paid to school readiness for children in preschool and entering kindergarten.²⁰ While these first years of education are certainly important, the foundation of school readiness is put in place much earlier. The first three years of life are a crucial period for creating scaffolding for children's future academic achievement and workforce participation. Compared to their less disadvantaged peers, young children who experience food insecurity and poverty in their earliest years suffer increased risk of developmental delays, which may subsequently lead to difficulty in school and limited work opportunities in later life, thereby perpetuating the cycle of poverty.

Studies show that achievement gaps expand with the passage of time.²¹ The chances of becoming a healthy, productive citizen are significantly affected by deprivation in the first three years of life.²² Children who start school already behind are likely to stay behind throughout their educational career and are ultimately more likely to drop out before finishing high school.²³ Those who do not graduate from high school earn approximately 70 percent of the lifetime earnings of a high school graduate.²⁴
The course of development can be altered in early childhood by effective interventions that change the balance between risk and protection, thereby shifting the odds in favor of more adaptive outcomes.25

(Shonkoff and Phillips, 2000)

**What should we do?**

Key to protecting our youngest children from developmental disadvantage is recognizing the problem before it progresses.26 C-SNAP shows that young children may be at developmental risk even before their bodies show obvious nutrition-related growth failure.

Food insecurity is one of many known and as yet unknown factors affecting a child’s early development. Although it is a serious threat to a child’s health and development, food insecurity is also one of the most treatable and preventable. Previous C-SNAP research has shown that public nutrition and income support programs, such as the Food Stamp Program, the Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Low-Income Home Energy Assistance Program (LIHEAP), Subsidized Housing, and Temporary Assistance to Needy Families (TANF) can buffer children against experiencing food insecurity or modify its harmful effects on their health and growth.26

Complementary to these initiatives, child care feeding programs focus on this same vulnerable group of infants and toddlers.27 The programs help to ensure that parents can meet their young children’s critical needs, including the most basic need for food of adequate quality and quantity to nourish the development of healthy bodies and brains.

In clinics and classrooms health care providers and educators strive to identify and treat food insecure children before damage to their learning potential becomes irreversible. But however dedicated these clinicians and educators may be, only policy-makers can take measures that will prevent or diminish food insecurity for the millions of young children in America.
Only by nourishing our nation’s youngest, most vulnerable individuals can we prevent the high societal costs of an often lifelong, profound achievement gap.

Action Needed by Policy-Makers

- Use this research to advocate for full and expanded funding of family support programs that would buffer young children against food insecurity. In particular:
  - Expand Food Stamp Program eligibility and increase benefits during the reauthorization of the program to a level sufficient to prevent food insecurity.
  - Assure at the state and local level that state-based pre-K efforts include access to the Child and Adult Care Food Program (CACFP); and expand the availability of CACFP to more family child care homes and child care centers.
  - Ensure that WIC continues to be adequately funded from the annual appropriations process to cover all poor and near poor children.

- Widen the focus of the school readiness debate about pre-school and school-aged children to include analysis of and commitment to meeting the nutrition and health needs of all 0-3 year old children in America in their uniquely sensitive period of brain development.

Investing in the health and development of infants and toddlers represents an investment in the future economic health of our nation. If children enter school ready to learn, they are more likely to leave ready to earn. Only by nourishing our nation’s youngest, most vulnerable individuals can we prevent the high societal costs of an often lifelong, profound achievement gap.
Only policy-makers can take measures that will prevent or diminish food insecurity for the millions of affected children.

About the Authors

This report was prepared by Stephanie Ettinger de Cuba, MPH, C-SNAP Project Manager; Deborah A. Frank, MD, C-SNAP Principal Investigator at Boston Medical Center; and Ruth Rose-Jacobs, ScD, Director of Infant and Child Development Laboratory, Boston Medical Center, in collaboration with C-SNAP Principal Investigators:

John T. Cook, PhD, M.A.Ed., Co-Principal Investigator, Boston Medical Center, Boston, MA

Alan Meyers, MD, MPH, Co-Principal Investigator, Boston Medical Center, Boston, MA

Diana Cutts, MD, Co-Principal Investigator, Hennepin County Medical Center, Minneapolis, MN

Maureen Black, PhD, Co-Principal Investigator, University of Maryland School of Medicine, Baltimore, MD

Patrick Casey, MD, Co-Principal Investigator, University of Arkansas for Medical Sciences, Little Rock, AR

Data management, analysis, and interpretation were completed by the C-SNAP data coordinating team at the Boston University School of Public Health Data Coordinating Center:

Suzette Levenson, M.Ed., MPH
Timothy Heeren, PhD
Zhaoyan Yang, MS

Acknowledgements

We would like to thank Frances P. Glascoe, PhD, author of the Parents’ Evaluation of Developmental Status instrument, for her consultation on the use of PEDS to evaluate developmental concerns in our study sample. We would also like to thank David Breakstone for his editorial assistance.

Support for writing and production of this report was made possible by the Annie E. Casey Foundation.

We are grateful to the following foundations and donors for their support of C-SNAP operations and analysis: the Abell Foundation, the Annie E. Casey Foundation, Anonymous Donor, the Anthony Spinazzola Foundation, the Candle Foundation, the Claneil Foundation, the Congressional Hunger Center, the Daniel Pitino Foundation, the EOS Foundation, the Gold Foundation, the Gryphon Fund, the Jean Schiro Zavela and Vance Zavela Donor Advised Fund of the Hartford Foundation for Public Giving, Jennifer Kaminsky, the Joint Center for Political and Economic Studies; MAZON: A Jewish Response to Hunger, the Minneapolis Foundation, the New Hampshire Charitable Foundation, Project Bread: The Walk for Hunger, the Sandpiper Philanthropic Foundation, the Schaeffer Foundation, Susan P. Davies and Richard W. Talkov, Susan F. Schiro and Peter J. Mans, the Thomas Wilson Sanitarium for Children of Baltimore City, the United States Department of Agriculture, Vitamin Litigation Funding, and major funding from the W.K. Kellogg Foundation.

Design:
Communication via Design, Ltd.
Boston, MA

Photography:
Corbis Images
Gail Rothenberg
Getty Images
Stephen Preston
If children enter school ready to learn, they are more likely to leave ready to earn.

References

17. Rose-Jacobs, R. et al., 2008.