



## Implications of Food Insecurity for Children

A critical component to a healthy life is nutrition. From birth, the intake of vital nutrients is essential to the growth and development of a healthy individual. Good nutrition, particularly in the first three years of life, is important in establishing and maintaining a good foundation that has implications on a child's future physical and mental health, academic achievement, and economic productivity. Unfortunately, food insecurity is an obstacle that threatens that critical foundation.

In the United States, nearly one out of four children lives in a food insecure household. According to the United States Department of Agriculture (USDA), 17.2 million children under 18 in the United States live in this condition – unable to consistently access nutritious and adequate amounts of food necessary for a healthy life.<sup>i</sup> The top five states with the highest rates of child food insecurity (children under 18) are Arkansas, Texas, Arizona, Missouri, Mississippi as well as the District of Columbia.

### Inadequate nutrition has adverse effects on:

**Physical Health:** Insufficient nutrition puts children at risk for illness and weakens their immune system. The immature immune systems of young children, ages 0 – 5, make them especially vulnerable to nutritional deprivation and as a result, the ability to learn, grow, and fight infections is adversely affected.<sup>ii</sup> Consequently, without the proper nutritional intake children are at risk for poor health and hospitalization. Research reveals, in comparison to food secure children, children from food insecure families are 90 percent more likely to be in fair or poor health and have 30 percent higher rates of hospitalization.<sup>iii</sup> Not only does the lack of sufficient nutrition take a toll on a child's health but has economic consequences for families as well. The average cost for a single hospitalization for pediatric illness is \$11,300.<sup>iv</sup>

**Behavior and Mental Health:** The lack of adequate nutrition affects the cognitive and behavioral development of children. Child development is the manner in which children attain skills in memory, cognition, language, motor ability, social interaction, behavior and perception.<sup>v</sup> Research by Wehler, Scott, and Anderson 1995 found that food insecure low income households were more likely to experience irritability, fatigue, and difficulty concentrating compared to other children. Research has shown that food insecurity was associated with grade repetition, absenteeism, tardiness, anxiety, aggression, poor mathematics scores, psychosocial dysfunction and difficulty with social interaction among 6 to 12 year old children.<sup>vi</sup> Food insecurity has also shown to be associated with suicide and depressive disorders among 15 to 16 year old children after controlling for income and other factors.<sup>vi</sup> Food insecurity not only has an impact on children's mental health but also on their mothers as well. Research by Casey, Goulsby, Berkowitz, et al 2004 found an association with maternal depression and food insecurity in addition to reported poor child health.<sup>vii</sup>

**Child Development:** Food insecurity puts children in jeopardy of developmental risk. Developmental risk is an uninterrupted existence of vulnerabilities that is characterized with the slow or unusual development of children in areas such as speaking, behavior, and movement, which increases the likelihood of later problems with attention, learning, and social interaction.<sup>v</sup> Rose, Jacobs, et al. 2006 found that young children living in low income and food insecure households are more likely to be developmentally at risk than children from food secure households.<sup>viii</sup> Of particular concern, are children of color who have disproportionately higher rates of poverty and food insecurity than white children. Research from the



Children's Sentinel Nutrition Assessment Program (C-SNAP) found that in comparison to Black children living in low income but food secure households, Black children living in low income and food insecure households experience 57 percent higher odds of their parents identifying significant development concerns.<sup>v</sup> For Latino children, children living in low income and food insecure households experience twice the odds of their parents identifying significant developmental concerns than Latino children living in low income and food secure households.<sup>v</sup>

**School Readiness and Achievement:** Children from food insecure households are likely to be behind in their academic development compared to other children which ultimately makes it difficult for them to reach the same level of development as their fellow food secure peers.<sup>ix</sup> Research conducted by Frongillo, Jyoti, and Jones 2005 found that food insecurity impairs academic development of young school-age children. This study revealed that the reading and mathematical skills of food insecure children entering kindergarten developed significantly more slowly than other children.<sup>x</sup>

Fortunately, there are federal nutrition assistance programs available to help low income families with meeting the nutritional needs of their children and protect them from the consequences of malnutrition and under nutrition.

**In particular, are the following federal programs focused on meeting needs of low income families and children:**

**Supplemental Nutrition Assistance Program (SNAP) (formerly named Food Stamp Program):** Research by Frongillo, Jyoti, and Jones 2005 has shown that, among female children in households, the start of SNAP participation during the years from kindergarten to third grade is associated with improvement in mathematics and reading scores in comparison to children in households that stopped SNAP participation during the same time period.<sup>x</sup>

**Special Supplemental Program for Women, Infants, and Children (WIC):** There is vast amount of research that participation in the WIC program increases the intake of nutrients among children. Research reveals that WIC decreases the prevalence of anemia and iron deficiency among children. Participation in the program increases the intake of vitamin B6, folate and iron.<sup>xi</sup> These minerals are important because vitamin B6 assists the body's use of protein, carbohydrates and fat, folate assists in producing and maintaining new cells and iron assists in transporting oxygen and maintaining a healthy immune system. Physicians have rated the health status of children participating in WIC as better than children not participating in the program. WIC participation may increase the chances that children will get immunized and assist children in retrieving preventive health services.<sup>xii</sup>

**National School Lunch Program (NSLP):** Research has shown that children participating in the SLP consume more protein, vitamin B12, calcium, magnesium, riboflavin, fiber and zinc compared with children not participating in the program. Participation in the NSLP has been shown to be associated with higher average intake of nutrients, lower intake of added sugars, and is more likely to consume milk, vegetables, meat and other protein-rich foods than non-participants.<sup>xii</sup>

**School Breakfast Program (SBP):** Research by Bhattacharya, Currie, and Haider 2004 found that the SBP assists in improving the quality of calories consumed, decreasing the percentage of calories from fat



and reducing the probability of low fiber intake. In addition, the SBP reduces the probability of low intake of vitamins C and E, folate, iron, and potassium. Research by Meyers Sampson, Weitzman, Rogers, and Kayne 1989 found that children who eat breakfast at school have better standardized achievement test scores, reduced tardiness, and improved attendance.<sup>xiii</sup> In addition, Murphy, Pagano, Nachmani, Sperling, Kane, Lkeinman 1988 found that children who eat breakfast have improved academic, behavioral, and emotional functioning.<sup>xiv</sup>

Clearly, nutrition is not only vital for the growth and development of children but has direct and indirect implications for the education, health, and productivity of our nation as a whole. Of particular concern however, are children of color who face disproportionately higher rates of poverty, food insecurity, and lower academic achievement. Thus, nutrition is and will continue to be an important component to the health and prosperity of the country. Therefore, it's crucial to ensure that our nation continues to invest in federal nutrition programs.

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<sup>i</sup> Nord, Mark, M. Andrews, S. Carlson. United States Department of Agriculture, *Household Food Security in the United States, 2009*.

<sup>ii</sup> Children's Sentinel Nutrition Assessment Program. Deanna Wilson. *Protecting Children from Hunger and Food Insecurity in 2005-2006*. C-SNAP Brief. March 2005.

<sup>iii</sup> Cook, JT., Frank, DA., Berkowitz, C., et al. *Food Insecurity is Associated With Adverse Health Outcomes Among Human Infants and Toddlers*. Journal of Nutrition. 2004; 134: 1432-1438.

<sup>iv</sup> Owens, PL,k, Thompson, J, Elixhauser, A., Ryan, K. *Care of Children and Adolescents in U.S. Hospitals*. Rockville, M.D. Agency for Healthcare Research and Quality; 2003. HCUP Fact Book No. 4; AHRQ Publication No. 04-0004.

<sup>v</sup> Children's Sentinel Nutrition Assessment Program. *Frequently Asked Questions* Page. <http://www.c-snap.org/page.php?id=21>.2007.

<sup>vi</sup> Alaimo, K., Olson, C.M. and Frongillo, E.A. *Food Insufficiency and American School-Aged Children's Cognitive, Academic and Psychosocial Development*. Pediatrics 2001: 108; 44-53.

<sup>vii</sup> Casey, P., Goolsby, S., Berkowitz, C., Frank, D., Cook, J., Cutts, D., Black, M., Zaldivar, N., Levenson, S., Heeren, T., Meyers, A. and C-SNAP Study Group. *Maternal Depression, Changing Public Assistance, Food Security, and Child Health Status*. Pediatrics 2004: 113; 298-304,

<sup>viii</sup> Rose-Jacobs, R., Black, M., Casey, P., Chilton, M., Cook, J., et al. *Household Food Insecurity and Risk for Children's Developmental Problems*. Pediatric Academic Society Meetings, San Francisco. May 2006.

<sup>ix</sup> Children's Sentinel Nutrition Assessment Program .Hettinger de Cuba, S, Frank, D., Rose-Jacobs, R. *Nourishing Development A Report on Food Insecurity and the Precursors to School Readiness among Very Young Children*. July 2006.

<sup>x</sup> Frongillo, E., Jyoti, D., Jones, S. *Food Stamp Program Participation Is Associated with Better Academic Learning Among School Children*. Journal of Nutrition: 136; 1077-1080.2006.

<sup>xi</sup> Center on Budget and Policy Priorities. Rosenbaum, D., Neuberger, Z. *Food and Nutrition Programs: Reducing Hunger, Bolstering Nutrition*. August 2005.

<sup>xii</sup> USDA. ERS. Fox, M., Hamilton, W., Lin, B. *Effects of Food Assistance and Nutrition Programs on Nutrition and Health.Literature Review*. Volume 3. 2004.

<sup>xiii</sup> Meyers, AF., Sampson AE, Weitzman, M., Rogers, BL., Kayne, G. *School Breakfast Program and Performance*. American Journal Dis. Children. 1989: 143; 1234-1239.

<sup>xiv</sup> Murphy, JM., Pagano, ME, Nachmani, J., Sperling, P., Kane, S., Lkeinman, RE. *The Relationship of School Breakfast to Psychosocial and Academic Functioning*. Archive of Pediatric and Adolescent Medicine. 1988: 152: 899-906.