

## The Role of the Federal Child Nutrition Programs in Improving Health and Well-Being

**P**overty, food insecurity, and poor nutrition have detrimental impacts on the health and well-being of children in the short and long terms. One critical strategy to address these issues is connecting vulnerable children and their families to the federal Child Nutrition Programs, i.e., the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); National School Lunch Program (NSLP); School Breakfast Program (SBP); Child and Adult Care Food Program (CACFP); Summer Food Service Program (SFSP); and Afterschool Nutrition Programs.

There is considerable evidence about the effective role that participation in the federal Child Nutrition Programs plays in reducing food insecurity and providing the nutrients children need for growth, development, and overall health. There also is a growing body of research on how the programs can favorably impact obesity. For this reason, public health and nutrition experts often recommend increasing participation in the federal nutrition programs to promote healthy eating and prevent obesity.<sup>1,2,3</sup>

This paper will briefly summarize the harmful impacts of poverty, food insecurity, and poor nutrition on the health and well-being of children; and summarize research demonstrating the effective role of the Child Nutrition Programs in improving food and economic security, dietary intake, weight outcomes, health, and learning.\*



### How Poverty, Food Insecurity, and Poor Nutrition Impact Child Health and Well-Being

Poverty, food insecurity, and poor nutrition have serious consequences for the health and well-being of children, as summarized in this section.<sup>†</sup>

#### Health Consequences of Poverty

In 2016, about 40.6 million Americans (12.7 percent of the population) lived in poverty.<sup>4</sup> This included nearly 13.2 million children, or 18 percent of all children.<sup>5</sup> **A considerable amount of research demonstrates that people living in or near poverty have disproportionately worse health outcomes and less access to health care than those who do not.**<sup>6,7,8,9</sup> In addition, neighborhoods with many poor or low-income residents often have fewer resources that promote health (e.g., full-service grocery stores offering affordable and nutritious foods, parks and recreational facilities that encourage physical activity) and have more environmental threats that harm health (e.g., poor air and

\* For research on the Supplemental Nutrition Assistance Program (SNAP), see FRAC's *The Role of the Supplemental Nutrition Assistance Program in Improving Health and Well-Being* at [www.frac.org](http://www.frac.org).

† For a comprehensive review of this topic, see FRAC's *The Impact of Poverty, Food Insecurity, and Poor Nutrition on Health and Well-Being* at [www.frac.org](http://www.frac.org). A companion paper, *The Role of the Supplemental Nutrition Assistance Program in Improving Health and Well-Being*, has a comparable section on consequences, but includes consequences for both children and adults.

water quality, poor housing conditions) compared to higher-income neighborhoods.<sup>10,11,12,13</sup>

During childhood, low-income children are more likely to experience food insecurity,<sup>14,15</sup> obesity,<sup>16,17</sup> tobacco exposure,<sup>18,19</sup> lead exposure,<sup>20</sup> poor oral health,<sup>21</sup> poor growth (e.g., low birth weight, short stature),<sup>22</sup> asthma,<sup>23</sup> developmental risk,<sup>24</sup> learning disabilities,<sup>25</sup> poor academic outcomes,<sup>26,27</sup> behavioral and emotional problems,<sup>28</sup> unintentional injury,<sup>29</sup> and physical inactivity.<sup>30</sup> Low-income adolescents also are more likely to engage in health-compromising behaviors, such as smoking.<sup>31</sup> **Childhood poverty and socioeconomic inequalities have health implications that carry through into adulthood** as well — for example, lower childhood socioeconomic status is associated with chronic disease, poor mental health, and unfavorable health behaviors in adulthood.<sup>32,33,34</sup> Poverty in childhood also has been linked to serious, long-term economic consequences, including higher health care expenditures, lower educational achievement (e.g., not completing high school and college), lost productivity and lower earnings in adulthood, and increased risk of poverty later in life.<sup>35,36,37</sup>

### Health Consequences of Food Insecurity

In 2016, approximately 28.3 million adults (11.5 percent of all adults) and 12.9 million children (17.5 percent of all children) lived in food-insecure households.<sup>38</sup> **While food insecurity has direct and indirect impacts on physical and mental health for people of all ages, food insecurity — and even marginal food security (a less severe level of food insecurity)<sup>39,40</sup> — is especially detrimental to the health, development, and well-being of children.**<sup>41,42,43,44</sup> Research shows a link for children between food insecurity and lower health status,<sup>45,46</sup> lower health-related quality of life,<sup>47</sup> lower physical functioning,<sup>48</sup> poor dietary quality,<sup>49</sup> less physical activity,<sup>50</sup> low birth weight,<sup>51,52</sup> birth defects,<sup>53</sup> iron deficiency anemia,<sup>54,55</sup> more frequent colds and stomachaches,<sup>56</sup> asthma,<sup>57</sup> lower bone density (among boys),<sup>58</sup> untreated dental caries (i.e., tooth decay),<sup>59</sup> developmental risk,<sup>60</sup> behavioral and social-emotional problems (e.g., hyperactivity),<sup>61,62,63</sup> mental health problems (e.g., depression, anxiety, suicidal ideation),<sup>64,65,66</sup> and poor educational performance and academic outcomes<sup>67,68,69,70</sup> — all of which have health and economic consequences in the short and long terms.

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**Because of limited financial resources, households that are food insecure also may use coping strategies to stretch budgets that are harmful for health,** such as engaging in cost-related medication underuse or non-adherence,<sup>71,72,73</sup> postponing or forgoing preventive or needed medical care,<sup>74,75</sup> forgoing the foods needed for special medical diets (e.g., diabetic diets),<sup>76</sup> or diluting or rationing infant formula.<sup>77</sup> Food insecurity and coping strategies such as these can exacerbate existing disease and compromise health.

**Not surprisingly, research shows that household food insecurity is a strong predictor of higher health care utilization and increased health care costs.**<sup>78,79</sup> The direct and indirect health-related costs of hunger and food insecurity in the U.S. have been estimated to be \$160 billion for 2014 alone.<sup>80</sup>

### Health Consequences of Poor Nutrition

**Americans from all income groups fall short of meeting federal dietary guidance — consuming diets too low in fruits, vegetables, whole grains, and low-fat dairy, and consuming diets too high in added sugars, sodium, and solid fats.**<sup>81,82,83</sup> In general, poor dietary intake (e.g., excess saturated or *trans* fat intake, a diet low in fruits and vegetables) has been linked to a number of diseases and chronic conditions, including cardiovascular disease, Type 2 diabetes, some types of cancer, and osteoporosis.<sup>84,85</sup> In addition, inadequate dietary intake during pregnancy and early childhood — which may be a consequence of food insecurity — can increase the risk for birth defects, anemia, low birth weight, preterm birth, and developmental risk.<sup>86,87,88,89</sup> Poor dietary intake also contributes to obesity, which is associated with many serious physiological, psychological, and social consequences for children, including high blood pressure,<sup>90</sup> diabetes,<sup>91</sup> asthma,<sup>92</sup> depression,<sup>93</sup> and stigmatization.<sup>94</sup>

**Food-insecure and low-income people can be especially vulnerable to poor nutrition and obesity, due to additional risk factors associated with inadequate household resources as well as under-resourced communities.**

This might include lack of access to healthy and affordable foods; cycles of food deprivation and overeating; high levels of stress, anxiety, and depression; fewer opportunities for physical activity; greater exposure to marketing of obesity-promoting products; and limited access to health care.<sup>95</sup> In addition to these unique challenges, those who are food insecure or low-income are subject to the same and often challenging cultural changes (e.g., more sedentary lifestyles, increased portion sizes) as other Americans in trying to adopt and maintain healthful behaviors.<sup>96</sup>

### The Federal Child Nutrition Programs Improve Child Health and Well-Being

Research clearly shows that the Child Nutrition Programs are profoundly important programs with well-documented benefits to the health and well-being of children and families. The following selection of studies demonstrates these points.\*

#### Child Nutrition Programs Reduce Food Insecurity

- Access to **school breakfast** decreases the risk of marginal food security and breakfast skipping, especially for low-income children.<sup>97,98,99</sup> School breakfast availability also reduces low food security and very low food security among elementary school children.<sup>100</sup>
- According to one estimate using national data, free or reduced-price **school lunches** reduce food insecurity prevalence by at least 3.8 percent.<sup>101</sup>
- Among a sample of low-income children entering kindergarten, receiving a free or reduced-price **school lunch** reduces the probability of household food insecurity at school entry, whereas paying full price for

school lunch is associated with a higher probability of household food insecurity.<sup>102</sup>

- **NSLP** participation is associated with a 14 percent reduction in the risk of food insufficiency among households with at least one child receiving a free or reduced-price school lunch.<sup>103</sup>
- Rates of food insecurity and food insufficiency among children are higher in the summer — a time when students do not have access to the school meal programs available during the academic year.<sup>104,105,106</sup> Several studies demonstrate that greater **summer meal** availability or accessibility has beneficial effects on food insecurity, especially very low food security (the most severe level of food insecurity).<sup>107,108</sup>
- Attending a **CACFP**-participating child care program is associated with a modest reduction in the risk of household food insecurity, according to a study using national data on 4-year-olds.<sup>109</sup>
- **WIC** reduces the prevalence of household food insecurity by at least 20 percent, based on a national sample of children under the age of 5 who lived in households that were income-eligible for WIC.<sup>110</sup>
- Pregnant women experiencing household food insecurity with hunger who enroll in **WIC** in the first or second trimester (versus the third trimester) have a reduced risk of any food insecurity post-partum.<sup>111</sup>



\* For more information on the benefits of school breakfast, see FRAC's *Breakfast for Learning* and *Breakfast for Health* research briefs at [www.frac.org](http://www.frac.org).

### Child Nutrition Programs Alleviate Poverty and Support Economic Stability

- Nationally, **NSLP** lifted 1.3 million people above the poverty line in 2016, based on Census Bureau data on poverty and income in the U.S.<sup>112</sup> **WIC** lifted 284,000 people above the poverty line.
- Families receiving housing subsidies, SNAP, and **WIC** benefits were 72 percent more likely to be housing-secure (i.e., defined as living without overcrowding or frequent moves within the last year), compared to those families receiving housing subsidies alone, based on a study of low-income caregivers of children younger than 3 years old.<sup>113</sup>

### Child Nutrition Programs Improve Dietary Intake and the Nutrition Environment

- **School meal** participants are less likely to have nutrient inadequacies and are more likely to consume fruits, vegetables, and milk at breakfast and lunch.<sup>114,115</sup>
- Low-income students who eat both **school breakfast and lunch** have significantly better overall diet quality than low-income students who do not eat school meals.<sup>116</sup> An improvement in dietary quality also may extend to the family members of children with access to the breakfast program.<sup>117</sup>
- The new **school meal** nutrition standards are having a positive impact on the school nutrition environment as well as student food selection and consumption, especially for fruits and vegetables.<sup>118</sup>
- Based on the dietary intake of school-aged children at lunch, researchers conclude “**school lunches** provide superior nutrient quality than lunches obtained from other sources, particularly for low-income children.”<sup>119</sup>
- Packed lunches brought from home by pre-kindergarten and kindergarten students have more calories, fat, saturated fat, and sugar than **school lunches**, and less protein, fiber, vitamin A, and calcium, according to a study conducted after implementation of the new school meal nutrition standards.<sup>120</sup>
- Few packed lunches and snacks brought from home meet **NSLP** standards and **CACFP** afterschool snack standards, respectively.<sup>121,122</sup>

- Children in afterschool programs consume more calories, salty foods, and sugary foods on days they bring their own snack than on days they only eat the **afterschool snack** provided by NSLP or CACFP.<sup>123</sup>
- Child care sites participating in **CACFP**, especially Head Start centers, serve more fruits, vegetables, and milk, and fewer sweetened beverages, sweets, and snack foods than non-participating child care sites.<sup>124</sup> In addition, participating in CACFP is associated with greater fruit, vegetable, and milk consumption among low-income preschoolers.<sup>125,126</sup>
- **CACFP**-participating centers report significantly more supportive nutrition practices than non-participating centers.<sup>127</sup> For example, 53 percent of CACFP sites report that staff always eat the same foods that the children are offered, compared to 35 percent of non-CACFP sites.
- **WIC** participation is associated with better dietary intake and overall dietary quality, including increased iron density of the diet, increased consumption of fruits and vegetables, greater variety of foods consumed, and reduced added sugar intake.<sup>128,129</sup>
- Multiple studies link the revised **WIC** food packages with improvements in overall dietary quality and the consumption of fruits, vegetables, whole-grains, and lower-fat milk.<sup>130,131,132</sup> Research also finds improvements in infant feeding practices in terms of the appropriate introduction of solid foods as well as increases in breastfeeding initiation.

### Child Nutrition Programs Protect Against Obesity

- Participation in federally funded **child care nutrition** or **school meals provided in child care, preschool, school, or summer settings** is associated with a significantly lower body mass index (BMI, an indicator of excess body fat), among young, low-income children.<sup>133</sup>
- Based on national data, economists estimate that free or reduced-price **school lunches** reduce obesity rates by at least 17 percent.<sup>134</sup>
- **School breakfast** participation is associated with a lower BMI, lower probability of being overweight, and lower probability of obesity.<sup>135,136,137,138</sup>

- Children are more vulnerable to accelerated weight gain and obesity during the **summer** — a time when many do not have access to the good nutrition provided by the school meal programs during the academic year.<sup>139,140</sup>
- Low-income preschoolers attending **CACFP**-participating child care centers are slightly less likely to be obese than similar children attending non-participating centers.<sup>141</sup> Also, preschool children with an unhealthy weight status (i.e., obese, overweight, or underweight) who participate in Head Start have healthier BMIs by kindergarten than non-participants — children are less obese, less overweight, and less underweight.<sup>142</sup> This may be due, in part, to the program's adherence to CACFP nutrition coverage and guidelines for meals and snacks.
- Overweight and obesity rates declined modestly among young children enrolled in New York state's **WIC** program within three years of introducing the revised WIC food packages.<sup>143</sup> Other research suggests WIC may protect against obesity among young children in families facing multiple stressors (i.e., household food insecurity and caregiver depressive symptoms).<sup>144</sup>
- A study set in eight New York City-area primary care practices found that food insecurity was significantly associated with increased BMI only among those women who were *not* receiving food assistance (SNAP or **WIC**), suggesting that food assistance program participation plays a protective role against obesity among food-insecure women.<sup>145</sup>

### Child Nutrition Programs Improve Health Outcomes

- **School breakfast**, including breakfast offered at no cost to all students in a school, has been linked with fewer visits to the school nurse, particularly in the morning,<sup>146</sup> and positive impacts on mental health, including reductions in behavioral problems, anxiety, and depression.<sup>147,148</sup>
- Free or reduced-price **school lunches** reduce rates of poor health by at least 29 percent, based on estimates using national data.<sup>149</sup>
- Young children in subsidized child care whose meals are supplied by their child care provider — and, therefore, highly likely to be participating in **CACFP** — are less likely to be in fair or poor health, less likely to be hospitalized, and more likely to be at a healthy weight than similar children whose meals are supplied from home.<sup>150</sup>
- **WIC** enrollment and greater WIC food package utilization during pregnancy are associated with improved birth outcomes, including lower risk of preterm birth, low birth weight, and perinatal death.<sup>151</sup> Similarly, prenatal WIC participation is associated with lower infant mortality rates, especially for African-Americans.<sup>152</sup>
- Compared to low-income non-participants, young children participating in SNAP, **WIC**, or both programs have lower rates of anemia, nutritional deficiency, and failure to thrive, and lower risk of abuse and neglect, based on administrative data from more than 350,000 children in Illinois.<sup>153</sup>





- Even in the face of family stressors such as household food insecurity and maternal depressive symptoms, children who receive **WIC**, compared to those who do not, are less likely to be in fair or poor health and more likely to meet well-child criteria.<sup>154</sup> (For this particular study, children met “well-child” criteria if they were in good or excellent health per parent report, were developing normally, were not overweight or underweight, and had not been hospitalized.)

### Child Nutrition Programs Boost Learning and Development

- Students who participate in **school breakfast** programs have improved attendance, behavior, academic performance, and academic achievement as well as decreased tardiness.<sup>155,156,157,158</sup> These types of effects also are observed when implementing innovative models to increase breakfast participation. For example, providing students with breakfast in the classroom is associated with lower tardy rates, fewer disciplinary office referrals, improved attendance rates, and improved math and reading achievement test scores.<sup>159,160,161</sup>
- In a study examining the effects of **NSLP** participation between 1941 and 1956 on adult outcomes, participation was associated with long-term educational attainment for both men and women.<sup>162</sup>
- In California, students at schools contracting with a healthy **school lunch** vendor scored higher on California

state achievement tests, relative to students in schools with “in-house” meal provision.<sup>163</sup> The test score increases were larger among students eligible for free or reduced-price school lunches.

- In a study of **summer** learning programs for low-income youth that included free meals, students with high attendance in the first summer benefitted in mathematics and those with high attendance in the following summer benefitted in both mathematics and language arts.<sup>164</sup> The positive effects each summer persisted through the following spring, based on state assessments. (The food provided through these summer learning programs was reimbursed primarily through the federal meals programs.)
- To qualify for federally reimbursed **afterschool snacks and meals**, afterschool programs must offer educational and enrichment activities, which allow children to learn and stay safe when school is out of session. An expansive body of research demonstrates the important role of quality afterschool programs in supporting academic success.<sup>165</sup>
- Multiple studies conclude that **CACFP** plays an important role in improving the quality of child care programs and making them more affordable for low-income families.<sup>166,167</sup>
- Prenatal and early childhood participation in **WIC** is associated with stronger cognitive development at age two, and better performance on reading assessments in elementary school, leading researchers to conclude that “these findings suggest that WIC meaningfully contributes to children’s educational prospects.”<sup>168</sup>

#### The federal Child Nutrition Programs:

- reduce food insecurity;
- alleviate poverty;
- support economic stability;
- improve dietary intake and the nutrition environment;
- protect against obesity;
- improve health outcomes; and
- boost learning and development.

### Conclusion

Protecting and improving the public's health is critically important. Children, communities, and the nation are facing levels of poverty, food insecurity, inadequate dietary intake, and obesity that are far too high. Research shows that the federal nutrition programs can alleviate these problems for children and improve overall health and well-being. Increasing access to, and strengthening, the Child Nutrition Programs would further their role in improving the health of the nation's children.

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## Endnotes

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