Development of the Child Nutrition Programs in the United States

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There are many reasons why child nutrition programs were created in America. The most obvious reason is that the nutrition and health status of our children is a high national priority. Another obvious reason was that our agricultural abundance, particularly in the early part of the 20th century, could be better utilized by feeding children in schools. War was a less obvious reason. Yet when young recruits were rejected from service in World War II in increasing numbers for nutrition-related problems, Congress created the National School Lunch Program (National School Lunch Program 1946) in part “as a measure of national security,” i.e., healthy children equal healthy soldiers.

In the late 19th and early 20th centuries, many religious organizations provided meals to school children. For some groups, such efforts were regarded as charity. Others felt that the State should provide such meals as a matter of right. Aspects of these distinct philosophical views remain firmly in place today.

The development of child nutrition programs post-World War II was assisted by the dynamic interaction of many very diverse groups. These include local, state and national anti-hunger groups, university-based researchers, health and nutrition officials, Congress and the executive branch of government. Religious groups also played a major role. The mid-1990s debate over welfare reform bears a remarkable semblance to the debates in Parliament establishing the 1906 Provision of Meals Act in England and the Congressional debates over the creation of the 1946 National School Lunch Act. Would a nutrition program for children enhance learning or would such programs enhance dependence of the poor upon federal government?

Another major factor in the development and creation of child nutrition programs was the Civil Rights movement and media coverage of hunger in America in the 1960s. Discovery of widespread hunger in the South by a team of physicians focused attention on the plight of poor, hungry Americans. These events culminated in the 1969 Nixon White House Conference on Food, Nutrition and Health (White House Proceedings 1970). This was a watershed event not only because it brought together the best thinking on issues related to public nutrition but more importantly because it led to a very action-oriented agenda that helped shape the U.S. nutrition safety net.

In May 2000, the successor to the 1969 conference was held in Washington, DC. The National Nutrition Summit attracted nearly 2000 nutrition and health professionals to the nation’s capital to discuss, debate and develop a national nutrition safety net plan for the next quarter century (USDA/ DHHS 2000). Hunger issues were a significant part of the agenda. There was also significant attention paid to identifying interventions for Americans. In addition, the role of physical activity in improving nutritional status and the epidemic of childhood obesity were key topics of discussion. One clear recommendation was that targeted research is required to identify the range of benefits resulting from improved diets and physical activity and how to translate this information into programs and policies.

With this background, this paper discusses the development of key child nutrition programs and the available scientific research highlighting the effects of programs on diet, health and nutritional status.

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

The 1969 White House Conference on Food, Nutrition, and Health (White House Proceedings 1970) had a specific recommendation for food supplementation of high risk pregnant women and their infants. This recommendation was one of the major factors leading to the creation of what is now known as the Special Supplemental Nutrition Program for Women, Infants and Children (WIC).

Today we think of WIC as having strong bipartisan support, but this was not always true. When WIC was authorized as a 2-y pilot project in 1972, it was opposed by the implementing agency, the USDA. USDA felt in part that WIC was a duplication of an existing program, the Commodity Supplemental Food Program, which provided commodities to pregnant women, infants and children. USDA was sued (U. S. Department of Agriculture v. E. Cooney and Eileen Kennedy).
status and/or diets has been associated with WIC participation in children, a combination of improved growth, better hematological status, and/or diets has been associated with WIC participation (Kennedy 1999). For infants and children, a combination of improved growth, better hematological status and/or diets has been associated with WIC participation (Kennedy 1999). The individual WIC studies have used a combination of research designs, each with its own strengths (Table 1); this accumulating body of evidence has given policy makers confidence that the nutrition and health benefits associated with WIC participation are real. A more recent study of a nationally representative survey of the U.S. population reports that WIC is associated with improved diet quality (Basiotis et al. 1998).

Many of the cost-effectiveness analyses on WIC have concentrated on the association of WIC participation in reducing low birth weight. Participation in WIC prenatally results in Medicaid savings of $1.77–$3.90/$1.00 spent on WIC services (Devaney and Schrim 1993); using data from five states, Florida, North Carolina, South Carolina, Minnesota and Texas, results indicate that infant mortality decreased with WIC participation. This finding is significant in all but Minnesota. Most of the decline in infant mortality is due to significant

### Table 1

<table>
<thead>
<tr>
<th>Research institution</th>
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<tr>
<td>University of North Carolina</td>
<td>Prospective study; cohort design; pregnant women entering WIC compared with women already on WIC to assess program effect, 9867 pregnant women included initially; 5417 revisited; 41,330 infants and children</td>
<td>WIC women had significant increase in weight gain Birthweight of newborns significantly increased for mothers participating ≥6 mo of gestation 5–6 mo longer Increased weight and height for WIC infants and children Increased intake of all target nutrients except energy for 1- to 3-y-olds in WIC</td>
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<tr>
<td>Harvard School of Public Health</td>
<td>Retrospective study; nonequivalent group design; 1328 women from 4 geographical areas and 9 WIC and non-WIC sites included</td>
<td>Increased birthweight and decreased rates of low birthweight for infants born to WIC mothers Hematologic status of WIC women significantly better than that of non-WIC women For each $1 spent on WIC prenatally, $3 in medical savings Significant increase in mean birth weight, decrease in low birth weight, and decrease in prematurity in infants born to mothers participating in WIC Significant decrease in neonatal deaths associated with WIC WIC participation associated with increased birth weight in subsequent pregnancies</td>
</tr>
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<td>Massachusetts Department of Public Health 1980</td>
<td>Retrospective study; matched control design; all WIC women who gave birth in 1978 were matched on non-WIC control based on race, age, parity, maternal education, and marital status; 4126 pairs included in study</td>
<td>Increased birth weight and decreased low birth weight associated with WIC WIC cost-effective</td>
</tr>
<tr>
<td>Massachusetts Department of Public Health 1982</td>
<td>Retrospective study; follow-up to 1980 study; all WIC women who gave birth in 1978 and for whom the 1978 birth was parity ≥2 were included; 1978 birth outcomes were compared with earlier non-WIC birth outcomes; 1306 pairs included in study</td>
<td>Historical study data find that WIC participation prenatally was associated with significant increase in birth weight, decrease in low birth weight, and decrease in late fetal death rate No significant effect of WIC found in longitudinal study Infants and children —improved hematological status associated with WIC —improved intake of selected nutrients —increased head circumference</td>
</tr>
<tr>
<td>University of Oklahoma Medical Center</td>
<td>Prospective study; experimental design; 900 women included in study, 450 high risk (300 WIC and 150 non-WIC) and 450 low risk (mainly non-WIC) followed throughout pregnancy</td>
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<tr>
<td>Nationwide Evaluation</td>
<td>Prospective study; 5205 WIC prenatal participants compared with 1358 non-WIC women. Historical study: 1974–80; 1392 counties in 19 states and the District of Columbia; 11 million births</td>
<td>Increased birth weight and decreased low birthweight for infants born to WIC mothers</td>
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1 Source: Kennedy (1999).
2 WIC, Special Supplemental Nutrition Program for Women, Infants and Children.
decreases in neonatal mortality. The effect associated with WIC participation is independent of the receipt of prenatal health care, which is also associated with large and significant reductions in infant mortality.

**Child nutrition programs**

Hubert Humphrey once said, "It just makes good sense to me to save lives and preserve the health of babies through the use of sound nutritional supplementation, rather than pay later. We can make no better investment in America than guaranteeing the health and well-being of our children" (Senate Select Committee on Nutrition and Human Needs 1974).

The oldest child nutrition program is the National School Lunch Program. The program began in 1946. It was established "as a measure of national security, to safeguard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities" (National School Lunch Program 1946). School lunch programs are required by regulation to provide lunches that meet one third of the Recommended Dietary Allowances (RDA) as measured over time (over a 5-d period).

The National Evaluation of School Nutrition Programs, released in April 1983 by USDA and Systems Development Corporation (Wellisch et al. 1983), found that the National School Lunch Program met both of its legislated goals, i.e., promotion of agricultural products and safeguarding the health of the nation's school-age children through the provision of nutritious foods to school children. The evaluation found that "students who participate in School Lunch had higher intakes of energy and more nutrients than students who do not participate in any of the school nutrition programs" (Wellisch et al. 1983). The report went on to say, "It is worth noting that of the many nutrients for which Lunch Program participants show superior intakes, four (vitamins A and B-6, calcium and magnesium) are ones that typically are deficient in the diet of the school-age population" (Wellisch et al. 1983).

In 1981, the Administration did consider changing the one third RDA nutrition standard to one fourth of the RDA (sometimes referred to as the "Ketchup as a Vegetable" regulations) but public and bipartisan Congressional pressure prevented this occurrence. The School Nutrition Dietary Assessment Study (Burghardt and Devaney 1995), conducted in 1992, once again confirmed that school lunches provided one third or more of the RDA for key nutrients. However, the study also found that school lunches exceeded the Dietary Guidelines goal of providing meals with \(\leq 30\%\) of energy from fat. Although there was no legislative or regulatory requirement for school lunch programs to meet the Dietary Guidelines in 1992, it became clear that over time, the nutrition and health status of the 27 million participants (14 million low income children) would be better served if the meals served mirrored the Guidelines. Meals are now required to provide \(\leq 30\%\) of energy from fat. There is encouraging news on this front with the growing emphasis by school lunch directors on fresh fruits and vegetables and new rules allowing schools to receive reimbursement for yogurt and soy-based meals. Consumer Reports last spring released a review of school lunches indicating that the meals in their survey were quite close to the 30% goal (32% of energy is from fat in survey meals).

**School Breakfast Program**

The National Evaluation of School Nutrition Programs (Wellisch et al. 1983) concluded that the principal nutritional benefit of the Breakfast Program was that it increased the likelihood that children would eat breakfast. This finding was reconfirmed in a 1998 Mathematica study (Devaney and Stuart 1998). In 1983, the School Breakfast Program was available to only 39% of public school children. In the 1983 evaluation, it was determined that, except for milk-related nutrients, school breakfast was not superior to breakfasts children eat at home or elsewhere. Congress remedied this situation in the 1980s by providing additional reimbursements to schools so that more protein, fruits, vegetables and grains in greater varieties could be served. Also, the 1992 School Nutrition Dietary Assessment Study (Burghardt and Devaney 1995) found that school breakfasts provide one fourth or more of the daily RDA for most nutrients, with the exception of energy and zinc. The new funding and the new research with positive findings on the value of School Breakfast have led to a renewed commitment of parents, teachers, school food service workers and administrators to the concept that there is a strong relationship between nutrition and learning. As a result, School Breakfast participation has skyrocketed. Today, nearly 75% of schools that offer a lunch also offer school breakfast. In 1999, participation rose to >7 million students compared with 3.2 million in the late 1980s.

Perhaps the most exciting development about the School Breakfast Program is the research funding that Congress provided last year for a rigorous evaluation of the potential benefits of universal school breakfast programs. "Universal" programs provide all children meals without charge. Recent studies and reports from Universities of Minnesota, Harvard, Boston and Tufts have suggested that participation in School Breakfast Programs has a positive effect on students' attendance, behavior and academic achievement. Last year, Congress provided $7 million of the $13 million needed to conduct School Breakfast Research Pilots (6 universal free and 6 control schools in each of 6 school districts) to determine whether the links among breakfast, cognition and attendance stand up after rigorous review. The Food and Nutrition Service of the U.S. Department of Agriculture has selected the research pilot sites and the project is underway. Senators Thad Cochran, Patrick Leahy, Tom Harkin and Tim Johnson were the Congressional leaders most responsible for securing the funding for these research pilots.

The University of Minnesota study on universal school breakfast (Minnesota Department of Children, Families, and Learning 1997) found that for students participating in the study, "there is a general increase in composite math and reading percentile scores." The Harvard University/Kellogg study (Murphy et al. 1998) concluded that "when a free school breakfast is made available to low income students, attendance, grades, behavior, and emotional adjustments improve. This study was the first attempt to assess the relationship of child hunger and standardized measures of psychological functioning. The study found that children who experience hunger at school tend to have greater trouble with teachers, are less attentive in class and more likely to engage in fighting with other children. Researchers at Boston and Tufts Universities found that "elementary school children who participated in the School Breakfast Program had significantly higher standardized achievement test scores than eligible nonparticipants" (Meyers et al. 1989).

These findings are supported by a new interim report of the Maryland Meals for Achievement project. This project, begun in 1998 by the Maryland State Department of Education, provides school breakfast in the classroom to all students who want it. The purpose of the study is to determine whether academic achievement improves as a result of participation in the School Breakfast Program. Researchers reviewed test scores
from the Maryland School Performance Assessment Program to make this determination. A principal finding was that “over a two year period, classroom breakfast schools showed a 22% improvement in the composite index score of this test compared to a 13% improvement for schools in the control group, and a 5% improvement for all Maryland schools” (Murphy et al. 2000). This report was done by the same Harvard University researchers cited above.

**Summer Food Service Program**

The importance of the program, popularly known as the Summer Food Program, becomes clear when you know that low income children receive from one third to one half of their total daily nutrient intake from the National School Lunch Program. What happens to these children during the summer? Only about 2 million of the 14 million low income children that participate in School Lunch actually participate during the summer months. Anecdotally, we know that local food banks report that their greatest need for food donation is not at Thanksgiving or Christmas but during the summer when low income children are out of school and have a greater need for food because school meals are no longer available. The research on the Summer Food Program usually examines how many eligible children participate, what type of sponsors are involved and how effectively the program operates, but not the nutritional quality of the meals. However, a 1988 nutritional evaluation of the Summer Food Program showed that 92% of the sites served meals, which included all required components (USDA 1988). The meals served by most sites supplied at least 33% of the RDA for most nutrients. Vitamin B-6, magnesium, and iron did not meet the RDA goal and the authors reported that this was probably because few vegetables were served. The U.S. Department of Agriculture, Economic Research Service is currently reviewing the Summer Food Program, and this study should give us more data on the quality of meals served.

**Child and Adult Care Food Program (CACFP, formerly the Child Care Food Program)**

This program mainly provides meals and snacks to preschoolers and snacks to youths in after school programs. In 1983, Abt Associates released the findings of a USDA financed “Evaluation of the Child Care Food Program” (Abt 1983). A key finding was as follows: “the nutritional quality of the diet and the quality and variety of food served are significantly better in participating day care facilities than in non-participating facilities.” (Abt 1983). A more recent study found that “nutritious meals provided by the CACFP can improve diets and may promote health among young, unborn children” (Bruening et al. 1999).

The CACFP provides the parents of 2.4 million children the opportunity to go to work knowing that their children are in safe, affordable, quality child care where they will receive nutritious meals and snacks. A U.S. General Accounting Office (GAO 1994) report cited the effectiveness of the program: “Because of its unique combination of resources, training, and oversight, experts believe the food program is one of the most effective vehicles for reaching family child care providers and enhancing the care they provide.”

**Food Stamps**

It is curious that the Food Stamp Program (FSP) is often not viewed in some of the nutrition literature as part of the child nutrition safety net. Yet the FSP is the primary food security program for low income households; more than half of the participants in the FSP are children. Here again, the nationwide expansion of the FSP is linked to a specific recommendation emerging out of the White House Conference on Food, Nutrition and Health.

Research related to the FSP is less likely to assess child health/nutrition outcomes; research on the FSP has concentrated on evaluating the effects of the FSP on household food expenditures and household nutrient intake. Several recent reviews have summarized the key studies assessing the effect of the FSP program (Fraker 1990, Kennedy 1999). This body of literature indicates that FSP participation is associated with significant increases in household food expenditures; the FSP is also associated with improved nutrient consumption among a range of nutrients, although the effect on food expenditures is stronger than the effect on consumption. One recent study assessed the effect of the FSP on dietary quality in a nationally representative sample of households and found that for each food stamp dollar received, there was a significant improvement in diet quality (Basis et al. 1998).

**Elements of program success**

The results presented thus far indicate that the nutrition safety net programs as implemented over the past 30–50 years have been successful in improving the diet, nutritional status and/or health of the target population. One reason for the positive effects is that the programs just discussed have evolved over this time span to respond to the changing nutritional needs of the target population.

The FSP had a major revision in the late 1970s when the purchase requirement for food stamps was eliminated. In the early FSP years, households had to spend a certain amount of money in order to “purchase” a substantially larger amount of food stamps. Monitoring data from the 1970s indicated that for the very poor households, the purchase requirement was a barrier to participation in the program (Senauer 1982). Indeed, when the purchase requirement was removed, participation by lower income households increased (Senauer 1982). The Thrifty Food Plan (the nutritional basis of benefits of the Food stamp program) was revised to include the Dietary Guidelines as part of the food plan (USDA 1999).

Similarly, the WIC program has evolved over time. The biggest change in WIC has been the more precise targeting of program benefits. An income eligibility requirement was added to WIC in the late 1970s, more specific priority categories were established for nutritional risk, and closer links between WIC and health care provision were specified. In addition, nutrition education changed from being a discretionary to a mandated service as part of the WIC program. Finally, specific efforts for breast-feeding promotion were incorporated into WIC. The WIC program has grown from a pilot program in 1972 with very few participants to serving >7.3 million low income and nutritionally at risk women, infants and children. WIC is the gateway into America’s health care system. It improves the nutrition and health status of millions of its participants. Also, in a recent survey of the top 30 highly rated government programs (American Customer Satisfaction Index 1999), WIC was rated 2nd in overall customer satisfaction.

The school nutrition programs were originally designed to assist farmers (outlet for surplus agricultural commodities), promote national defense (many recruits disapproved by draft board were rejected for nutrition-related reasons), and improve children’s nutrition and health status. These programs still meet these legislated goals.
A major reason why the School Lunch and Breakfast Programs have survived for so long and assisted millions of children is because committed members of Congress on a bipartisan basis have supported a strong federal government role in child nutrition programs. As Senator Robert Dole stated in a hearing before a subcommittee of the House Education and Labor Committee: “There is and should be a continuing primary responsibility of the federal government in these child nutrition programs” (House Education and Labor Subcommittee 1982). The federal role has been to require national minimum standards for eligibility and nutrition. In 1967, 2 of 3 eligible children did not participate in the National School Lunch Program. Eligibility was determined by local school principals who frequently had somewhat narrow views as to which children were “poor enough” to participate and receive a free lunch. That changed in 1970 when Congress established nationally uniform minimum standards for eligibility after Senators McGovern and Dole visited local schools and found poor, hungry children being denied access to school nutrition programs. Today 94,000 schools have lunch programs serving 27 million children every school day.

There have been attempts to terminate a federal role in school nutrition programs and return administration to the local level. All such attempts have been met with strong bipartisan opposition. In 1981, the Administration pursued a New Federalism proposal, and in 1994 the House majority proposed to “block grant” child nutrition programs. All of these efforts had a similar goal…return administration of child nutrition programs to the local level. In each instance, the existence of federal nutrition standards played an important role in reversing these proposals. Congressional leaders and the general public understood that providing nutritious meals to children at school was good for all children and good for the country. Without federal nutrition standards, there would be no way to ensure that we as a nation were actually addressing the nutritional needs of our children. Senator Richard Lugar, Chair of the Senate Agriculture Committee, along with Senators Leahy and Harkin, all played leadership roles in supporting the retention of nutrition standards in child nutrition programs.

Today, we have school lunches, breakfasts and after-school snack programs that provide meals consistent with the Dietary Guidelines for Americans. Research is underway to determine whether the School Breakfast Program has a positive effect on achievement test scores. The Summer Food and Child Care Food Programs are also providing meals and snacks for millions of children. Indeed, a study by the Families and Work Institute (1995) cited participation in the Child Care Food Program as one of the major factors influencing quality care. The study reported that “87% of the family child care homes considered to be providing good quality care participated in the Child and Adult Care Food Program” (Families and Work Institute 1995).

A new After School Snack Program is available for children, with a particular focus on at risk teens. This new entitlement program provides funding for snacks served to children in after school care programs in school as well as eligible children participating in CACFP. These programs must provide educational or enrichment activities. Participation in School Lunch Snack Programs has grown from serving 400,000 snacks in the fall of 1998 to 4 million in the fall of 1999. The CACFP At Risk Snack Program has risen from a minimal number in the fall of 1998 to 1 million snacks in the fall of 1999, according to preliminary data from the U.S. Department of Agriculture.

The federal nutrition assistance programs have worked and worked well. As George McGovern once stated “Of all the great society programs, the Nation’s feeding programs have been the most successful” (Senate Agriculture Subcommittee on Nutrition Hearing 1979).

The future of the nutrition safety net

The ability of the nutrition safety net to respond to the changing needs of the intended recipients is seen as a strength. However, the nutrition safety net’s effectiveness is closely linked to the overall social safety net and the influences of the broader economy. It is clear that the nutritional status of children, on average, improves as household poverty rates decrease. Recent data indicate that not only has the decline in the number of poor children decreased since 1995, but those children who remained poor became somewhat poorer (Porter and Primus 1999). Part of this finding relates to the lower levels of participation of children in some nutrition safety net programs. In 1995, 88 children received food stamps for every 100 children who were poor compared with only 72 of 100 poor children in 1998 (Porter and Primus 1999). Not only does the nutrition safety net continue to be important for underserved children, but the benefits from the safety net may come to represent an increasing share of overall household income.

The empirical results strongly suggest that a nutrition safety net will continue to be important even in the best of economic times. Yet there continues to be tension between those policy makers who advocate broad-based economic reforms as a means of achieving nutrition objectives vs. those suggesting more targeted, programmatic approaches. The data presented in this paper would suggest that both types of strategies are needed. Indeed, the working poor (those who despite being fully employed still fall below the poverty level) will continue to rely on programs such as WIC, School Feeding Programs, CACFP, Summer Food and Food Stamps to ensure an adequate diet.

The long-term solution to persistent poverty and its resultant negative nutrition consequences will undoubtedly involve a combination of macro-economic policies with investments that benefit at-risk populations as well as targeted public health nutrition interventions.

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