

## Summary of Research

The FNS Research Corner provides summaries of recently completed and ongoing research conducted by the U.S. Department of Agriculture's Food and Nutrition Service (FNS) in the area of child nutrition. For further information, contact the Office of Analysis, Nutrition, and Evaluation (OANE) at (703) 305-2117. Links to published studies and reports, as well as to descriptions of ongoing studies conducted by OANE, are available from the FNS Web site at <http://www.fns.usda.gov/oane/>.

### RECENTLY COMPLETED RESEARCH

#### Evaluation of the School Breakfast Program Pilot Project: Final Report

##### **Background**

On a typical school day, the School Breakfast Program (SBP) operates in over 78,000 schools and residential child care institutions and serves over eight million children. Fewer low-income children participate in the SBP (about seven million) than in the National School Lunch Program (NSLP), which serves nearly 17 million children. There are concerns that not only are low-income children coming to school without eating breakfast at home, but are also not participating in the SBP.

Children choose not to take part in the SBP for a variety of reasons, including the perceived stigma associating school breakfast participation with poverty. One approach to increasing participation in the SBP is to offer free breakfast to all students, regardless of their household income. This approach to increasing breakfast participation would, however, substantially increase the cost to the federal government. Thus, it is critical to know if such expenditures are warranted. Specifically, would an increase in SBP participation by students in elementary schools offering universal-free breakfast result in improved dietary intakes and academic performance? In this context, Congress enacted Section 109 of the William F. Goodling Child Nutrition Act of 1998 (Public Law 105-336), authorizing the implementation and evaluation of a three-year pilot program in elementary schools that represented six school districts with a range of economic and demographic characteristics.

The U.S. Department of Agriculture, Food and Nutrition Service conducted the three-year pilot from school year 2000-01 through school year 2002-03 in elementary schools in the following school districts:

Shelby County Board of Education, Columbiana, Alabama Independent School District of Boise City, Boise, Idaho

Washington Elementary School District, Phoenix, Arizona Wichita Public Schools, Wichita, Kansas

Santa Rosa City Schools, Santa Rosa, California Harrison County School District, Gulfport, Mississippi

The aim of the pilot program was to study the impact that a universal-free school breakfast program had on breakfast participation and determine what effect the initiative had on elementary school students' nutritional status and academic performance. This program was not intended to evaluate the current SBP or the value of consuming breakfast.

### **Objectives**

The two main objectives of the evaluation were to 1) study what impact the universal-free school breakfast had on student participation and measure the resulting changes in dietary intake, cognitive and social/emotional functioning, academic achievement, school attendance, tardiness, classroom behavior and discipline, food insecurity, and health; and 2) document methods used by schools to implement the universal-free school breakfast program in an effort to determine what effects student participation had on administrative requirements and costs.

### **Study Design and Methodology**

An experimental design was used. Elementary schools within each of the six districts were matched and randomly assigned to either be a "treatment school" and implement a universal-free school breakfast or continue as a "control school" using the regular SBP. Seventy-nine treatment and 74 control schools participated in the three-year pilot. In Spring 2001, about 4,300 students in both the treatment and control schools were measured for their dietary intakes, cognitive function, height, and weight. Other data also were collected from parents and teachers. An analysis of these measurements, along with data extracted from school records for school year 1999-00 (baseline) and school year 2000-01 (Year 1) and information collected during interviews with school staff in Spring 2001 were presented in an interim report. During school year 2001-02 (Year 2) and school year 2002-03 (Year 3) administrative record data, which included breakfast participation, attendance, tardiness, visits to the school nurse for health reasons, disciplinary incidents, and academic achievement test scores, were collected from schools. A second set of site visits and telephone interviews with school staff was completed in Spring 2003.

The interim report entitled, "Evaluation of the School Breakfast Program Pilot Project: Findings from the First Year of Implementation," and the final report are available on the FNS website at <http://www.fns.usda.gov/oane/MENU/Published/CNP/CNP.HTM>.

The final report, which summarizes the first year findings and presents information from the second and third year of the evaluation, also examines changes over all three years of the pilot program. Findings are summarized below.

### **Findings Across the Three Years: Implementation of Universal-free Breakfast**

Universal-free breakfast can be implemented and administered in elementary schools with varying economic and demographic characteristics. Most stakeholders (e.g., school staff, parents, students) generally were supportive of the concept of a universal-free school breakfast for their children.

### **School Breakfast Participation**

The availability of universal-free school breakfast caused a substantial increase in school breakfast participation. School breakfast participation almost doubled in the treatment schools in

the first year of universal-free breakfast (from 19% during the baseline school year to 36%). This higher level of participation in treatment school students was maintained in the second (38%) and third years (36%) of the pilot period. During this time, breakfast participation in control schools increased slightly from the baseline school year (from 19% to 21%). The impact of the pilot program on breakfast participation rates varied across treatment schools. Greater increases were noted in treatment schools with a classroom breakfast.

School breakfast participation by full paid students in treatment schools increased fourfold in the first year, from 9% to 36%. Participation by free and reduced-priced eligible students in treatment schools doubled from 25% to 50%. These higher rates were maintained during the second and third years.

### **Dietary Intakes (Collected in Year 1 Only)**

Students who attended the universal-free breakfast schools were more likely to consume a nutritionally substantive breakfast than students attending the control schools (80% versus 76%). However, there was almost no difference between the average food and nutrient intakes of the students in the treatment and control schools at breakfast or over the course of the day.

Although few students ate two or more substantive breakfasts, treatment school students (7%) were more likely to do this than control school students (4%). The rate of breakfast skipping was low (less than 4%) for both the treatment and control school students. The in the treatment school, the availability of universal-free breakfast seems to have shifted the source of breakfast from home (or elsewhere) to school.

### **Student Behavior – Disciplinary Incidents**

Although Year 1 findings indicate a significantly higher rate of disciplinary incidents in treatment schools as compared to control schools, there was no difference in the total number of daily incidents in Year 2 or Year 3.

### **Academic Achievement Test Scores, Attendance and Tardiness**

There was no clear indication that the pilot program had any positive impact on academic achievement test scores (reading and math) or on the rates of attendance or tardiness.

### **Student Health – Visits to the School Nurse**

In Year 2, control school students had a significantly higher rate of daily visits to the school nurse than treatment school students (4.0 versus 3.3). However, in Year 3, as in Year 1, there was no significant difference in the number of daily visits to the school nurse. Additional analyses were conducted on data that were collected from students in Year 1 to further explore the relationship between breakfast consumption and student outcomes. Findings are presented in the final report.

### **Conclusion**

The availability of a universal-free breakfast significantly increased school breakfast participation but had little impact on other characteristics, including academic achievement test scores, attendance, tardiness, health, and discipline. Although treatment school students were more likely to consume a nutritionally substantive breakfast than control school students, there

was almost no difference in average food and nutrient intakes at breakfast or over the course of the day. It should be noted that these findings do not negate the importance of students eating breakfast, instead, they suggest that offering free school breakfast to all elementary school students would not, on average, improve academic performance or behavior beyond what already occurs in schools offering the SBP.

## **RESEARCH IN PROGRESS**

The following section provides a brief description of some on-going FNS research and the current status of these studies:

### **The School Nutrition Dietary Assessment Study III**

Due to the School Meals Initiative, the National School Lunch Program (NSLP) and School Breakfast Program (SBP) have evolved rapidly in recent years by changing food intake patterns and introducing fiscal constraints. The Food and Nutrition Service (FNS) is undertaking a major study to assess meals offered in these programs and determine what food is actually consumed by students.

- The School Nutrition Dietary Assessment Study III has multiple objectives. They are to:
- Determine which foods are included in the NSLP and SBP and assess the average nutrient content of meals currently offered in public schools;
- Determine the nutrient content of foods currently selected and consumed by children throughout the day in public schools participating in the NSLP/SBP;
- Examine what foods offered in the schools are consumed by students, taking into account school and household characteristics;
- Determine primary food sources for various nutrients;
- Examine the variety of food choices offered to students on a daily basis; and
- Determine changes in the nutrient composition of USDA reimbursable meals since school year 1991-92 when the first School Nutrition Dietary Assessment was conducted.

The study will gather data from a nationally representative sample of public elementary, middle, and high schools during the spring of the 2004-05 school year. A total of 405 schools in approximately 135 school districts are expected to participate in the study.

Data will be collected from school officials, students, and parents of students. School foodservice directors and managers will be asked to provide data on foodservice characteristics and meals offered. Descriptive information about district-level operations and meal service characteristics will be collected through telephone interviews with school foodservice directors. School foodservice managers in sampled schools will compile and report data on USDA reimbursable meals. They will describe foods offered at all breakfasts and lunches during a specified five-day target week. In addition, they will identify the types of food offered a la carte for one day of the target week.

At 300 participating schools, a random sample of students will be selected and interviewed about their food consumptions over a 24-hour period. Younger children will be assisted by their

parents in these interviews. Parents will supply important background information on household characteristics. A total of approximately 2,400 students will be interviewed. A full report presenting results of this study is expected in summer 2006.

Links to summary of findings of previous School Nutrition Dietary Assessment Studies are available online at <http://www.fns.usda.gov/oane/MENU/Published/CNP/FILES/SNDA-Sum.pdf> and <http://www.fns.usda.gov/oane/MENU/Published/CNP/FILES/SNDAlIfind.pdf>.

### **The National School Lunch and Breakfast Programs: Access, Participation, Eligibility, and Certification Study**

The National School Lunch Program (NSLP) and School Breakfast Program (SBP) play a critical role in America's strategy to ensure that children have access to nutritionally adequate food. These programs, which provide free and reduced-price meals for students from low-income families, must balance the competing objectives of 1) ensuring that children and families who receive benefits are eligible; 2) maintaining ease of access for those who are eligible, and 3) keeping the costs and burden of determining eligibility reasonable for both the School Food Authorities and the families.

Meeting the first objective can sometimes increase administrative costs and make it more difficult for eligible children to participate. Simplifying access or streamlining procedures, however, can sometimes result in benefits going to people who do not qualify, which increases the costs of the program.

The Food and Nutrition Service (FNS) is undertaking a nationally representative study to provide information about children's access, participation, eligibility, and certification in school nutrition programs to help Congress and the U.S. Department of Agriculture improve programs and ensure that the intended recipients have access to them. FNS will look at the application and certification process to identify reasons that some families do not participate, ascertain what difficulties they experience in applying, and determine if sources of erroneous reimbursements (both under- and over-payments) are due to administrative error or household misreporting. These findings will help the FNS provide guidance to schools on how to enhance program administration and target benefits effectively.

The study will gather data from a nationally representative sample of elementary, middle, and high schools during the 2005-06 school year. A total of about 360 schools in approximately 100 school districts are expected to participate in the study. Information will be gathered from samples of school districts, schools, and households. A final report on the research findings is expected in Fall 2007.

### **Feasibility of Computer Data Matching in the National School Lunch Program**

Computer matching currently is used by some state child nutrition agencies and School Food Authorities (SFAs) to directly certify children as eligible for free school meals based on information about their participation in other public assistance programs. The Child Nutrition

and WIC Reauthorization Act of 2004 requires the USDA to conduct a study on the feasibility of using computer technology to reduce errors, waste, fraud, and abuse in the NSLP. This study will investigate the feasibility of expanding the use of computer matching to improve the process by which SFAs determine and verify children's eligibility for free and reduced-price school meals. Data from the study will be used to report the prevalence of computer matching and related activities, and the benefits and barriers to computer matching.

The study consists of a mailed survey and in-depth telephone interviews. Mailed surveys will be administered in Spring 2005 to all state child nutrition directors, state education agency liaisons to the National Center for Education Statistics, and state Medicaid directors. In Fall 2005, in-depth telephone interviews will be conducted with these and other officials in six states, who will be selected on the basis of responses to the state mailed surveys. A preliminary report on the feasibility of data matching is expected to be published in February 2005 and a final report should be available in Spring 2006