



## **2003 Child Nutrition Showcase Abstracts Research Related to Child Nutrition Programs**

### **Grab 'n' Go Service and Breakfast Participation**

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Breakfast is the most important meal of the day, but when students stay in bed until the last minute, even the most well-intentioned parents may be sending their children off to school without morning nourishment. This is why a Pennsylvania middle school initiated a grab 'n' go breakfast service and conducted a study to determine its effect on breakfast participation. The study also compared these results to those obtained the same month during the previous year for traditional breakfast service.

The grab 'n' go service was launched in a school atrium, which is part of the main traffic aisle for students disembarking from buses and automobiles. Before the grab 'n' go service was initiated, only students eating breakfast were allowed in the cafeteria. Baseline data on breakfast participation indicated that only 4% of students, on average, ate breakfast. Students receiving free or reduced-priced meals represented 79% of this figure.

The grab 'n' go service was provided for one month toward the end of the school year in 2002. At the end of the month, breakfast participation had significantly increased for all categories of students: paid ( $p \leq .001$ ), free ( $p \leq .001$ ), and reduced-price ( $p \leq .002$ ). More of an increase occurred with paid students, which would be expected in this suburban school.

The interesting finding was that when breakfast service was brought to the students in an unrestricted area, more students receiving free and reduced-priced meals chose to participate as well. These findings reinforce issues of access and anonymity for economically disadvantaged children. School foodservice directors should consider the grab 'n' go format as a way to increase breakfast participation, in general, and to promote access for all children, in particular. Taking an obvious walk to the cafeteria may, for some students, be a sufficient deterrent to partake in the most important meal of the day.

### **Menu-Planning System and Fat Content of Lunches Served at Texas Private Schools and Residential Child Care Institutions**

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Compliance with the nutrient standards of the School Meals Initiative for Healthy Children (SMI) is expected by 2005. Past research suggests that the menu planning system used influences a school's ability to meet the total and saturated fat SMI standards (USDA-FNS, 2001). This

report details the results of a three-year project conducted by the Texas Department of Human Services-Special Nutrition Programs, which explored the relationship between the menu-planning system used and the fat content of meals.

The sample was a subset of child nutrition programs (CNP) at private schools and residential child-care institutions in Texas that participated in the National School Lunch Program between 1999-2001. Trained registered dietitians visited each CNP to collect data on menus, meal production, recipes, and ingredients. NutriKids (LunchByte Systems, Inc.) was used to conduct an unweighted nutrient analysis, detailing the average meal offered over a one-week period. Of 122 CNPs visited, 90 used traditional Food-Based Menu-planning (FBMP), 25 employed the enhanced FBMP, six utilized Nutrient Standard Menu-planning (NSMP) and one applied Assisted Nutrient Standard Menu-planning (ANSMP).

Three-year averages by menu-planning system and grade group were as follows: traditional FBMP kindergarten through third-grade menus averaged 33.9% of calories from total fat and 12.7% from saturated fat, while fourth through twelfth-grade menus averaged 34.5% and 12.6%, respectively. Enhanced FBMP kindergarten through sixth-grade menus averaged 32.4% of calories from total fat and 11.8% from saturated fat, while seventh through twelfth-grade menus averaged 33.4% and 12.7%, respectively. NSMP/ANSMP kindergarten through sixth-grade menus averaged 28.4% of calories from total fat and 8.8% from saturated fat, while seventh-through twelfth-grade menus averaged 31.0% and 10.1%, respectively.

Although NSMP/ANSMP closely approached the SMI objectives of <30% of calories from fat and <10% from saturated fat, the small sample size counsels caution in drawing conclusions. Since not all schools are interested in computerized analysis, a better understanding of FBMP options is of value.

### **National Survey of Healthy School Nutrition Environment: Foodservice Personnel vs. Other School Personnel**

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The purpose of this nationwide survey was to learn more about issues related to Healthy School Nutrition Environment (HSNE). In October 2002, a survey was sent to a random national sample of superintendents, principals, school foodservice directors and managers, teachers, coaches, and school business officials. There were 500 surveys sent to each group, for a total of 3,500 surveys mailed. The response rate was 34.9% (n= 1,222). The respondents were employed in school districts for an average of 15.7 years and were employed in their current district for an average of 12.8 years. Forty-eight percent were from districts with less than 2,500 students, 33% had 2,501 to 10,000 students, and 19% had more than 10,000 students. Eighty-nine percent of respondents were from districts that participate in the National School Lunch Program. Seventy-three percent of respondents reported having a healthy school nutrition environment. Only 55% of respondents reported that school foodservice personnel were involved in nutrition education. Forty-nine percent of respondents were school foodservice directors and managers (SFS) and 51% were superintendents, principals, teachers, coaches, and school business officials (SPTCS).

Family education to increase awareness of a HSNE was ranked number one by both groups. In ranking the components of a HSNE, both groups placed behavior-focused nutrition education and adequate funds provided by local, state, and federal sources as numbers one and two, respectively. SFS ranked adequate time for children to enjoy their meals as number three and SPTCS placed a la carte menu items as number three. As expected, 68.2% of SFS placed a high priority on HSNE. Thirty-nine percent of SPTCS placed a high priority on HSNE.

In ranking barriers to a HSNE, SFS chose competitive foods, cafeteria atmosphere, and children's peer pressure as the most important barriers while SPTCS chose parents' attitudes, competitive foods, and cafeteria atmosphere as the most important barriers.

### **Vending in Schools: National Survey of Healthy School Nutrition Environment**

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The purpose of this study was to learn more about vending issues related to Healthy School Nutrition Environment (HSNE). The results of this study are from a national survey that was sent to a random sample of superintendents, principals, school foodservice directors and managers, teachers, coaches, and school business officials. There were 500 surveys sent to each group for a total of 3,500 surveys mailed. The response rate was 34.9% (n= 1,222).

Fifty-five percent of respondents reported that teachers and administrators used food as rewards. Thirty-one percent of respondents reported school stores that sell candy, chips, soft drinks, and other snack foods. Fifty-five percent of school boards had a policy for vending contracts and 72% of respondents reported having vending machines for students. Over 78% of respondents reported bottled water and soft drinks sold in vending machines. Chips were offered in 54% of schools, candy was offered in 51% of schools, cookies were offered in 44% of schools, and snack cakes were offered in 32% of schools. Thirteen percent of schools offered milk and/or ice cream products. Only 3.8% of respondents reported fresh fruit as an offering, 8.4% offered lowfat cookies, 14.2% offered lowfat chips, and 17.3% offered peanuts.

The respondents ranked "healthy snacks in vending machines, snack bars, and school stores" tenth in a list of thirteen components of a HSNE. The five most important components of a HSNE were 1) behavior-focused nutrition education; 2) adequate funds provided by local, state, and federal sources; 3) a la carte menu items that contribute to healthy eating patterns; 4) involvement of students and parents in developing food and nutrition policy; and 5) meal schedules that meet the hunger needs of children.

### **How Satisfied Are Students, Parents, Teachers, and Administrators With School Meals: An Update**

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School foodservice and nutrition programs are involved in a highly contested tug of war for student participation. School meal programs are competing with brown bag lunches, competitive foods, vending machines, school stores, clubs selling snacks for fundraising, and students not eating. To assist school foodservice directors with the challenge of student participation, the National Food Service Management Institute developed surveys to measure students' perceptions of school meal programs. The high school survey was developed in 1998 and since that time, middle/junior high school, upper-elementary school, lower-elementary school (for parents), and teacher/administrator surveys also were developed.

In conjunction with the surveys, an analysis service provided by the Foodservice Analysis and Benchmarking Service (FABS), analyzed surveys for over 1,000 schools nationwide. The overall satisfaction scores are as follows: high school received 3.48 (n=89,529), middle/junior high school obtained 3.79 (n=35,153), upper-elementary school got 3.34 (n=21,627), lower-elementary school gained 5.20 (n=653), and teacher/administrator accepted 4.88 (pilot data). All survey questions were measured on a seven-point scale with the exception of the upper-elementary survey, which used a five-point scale. The data shows that food quality and cafeteria ambiance are the strongest predictors of satisfaction for the five population groups.

Students are food savvy. They know at an early age what they will and will not eat. School foodservice and nutrition programs face a great challenge of meeting the wants and needs of the students in today's dynamic environment. Monitoring students' perceptions is one piece of the puzzle that can help foodservice professionals better understand students as customers.

### **Parents' Perceptions of Their Elementary School Child's Healthy School Nutrition Environment (HSNE) as Identified Through Focus Group Discussions**

**Laurel G. Lambert, PhD, RD, LD; Martha Raidl, PhD, RD, LD; SeAnne Safaii, MS, RD, LD**  
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The purpose of this study was to identify parents' perceptions regarding their children's Healthy School Nutrition Environment (HSNE). Using qualitative research methods, open-ended questions were presented to a total of 41 elementary school parents during 90-minute focus group discussions at five Idaho school districts. Discussion transcripts were analyzed using a systematic process as described in Krueger (1997) and Ethnograph v5.0™ software.

Parents were aware that school lunches are marketed as "healthy," but perceived the "processed foods" offered as being high in fat and "unhealthy." Parents stated that fresh fruits and vegetables should be served more often. However, based on an "offer vs. serve" policy, parents believed their children were less likely to select fruits and vegetables. Parents' placed importance on a cafeteria environment where children could sit with friends, socialize, and not be rushed.

Parents expressed concerns about the use of non-nutritive foods (i.e. candy and soda) as classroom incentives and suggested using physical activity, such as extra recess time, as a reward. Physical activities that were non-competitive, taught healthy lifestyles, and were all-inclusive were viewed positively by parents.

These findings indicate that 1) nutritional information printed on school-lunch menus should include nutrition standard reference values for parents to understand how each day's meal fits into a healthy diet; 2) fresh fruits and vegetables should be offered more frequently; 3) efforts should focus on providing a cafeteria environment where students can socialize and eat at their leisure; 4) non-food promotional materials such as pencils and extra recess would be beneficial as classroom incentives; and 5) physical education should include non-competitive and team-building activities.

### **Teachers' Perceptions of Their Elementary School's Healthy School Nutrition Environment as Identified Through Focus Group Discussions**

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The purpose of this study was to identify teachers' perceptions regarding their school's Healthy School Nutrition Environment (HSNE). Using qualitative research methods, open-ended questions were presented to a total of 26 elementary school teachers during 90-minute focus group discussions in five Idaho school districts. Discussion transcripts were analyzed using a systematic process as described in Krueger (1997) and Ethnograph v5.0™ software.

Teachers considered school lunches unhealthy due to high carbohydrate and fat content. They favored having salad bars, fresh fruits, and vegetables more often. Teachers voiced concerns that the school lunch did not provide enough food for older children or time for them to eat. Often, time to eat was limited due to dual use of the cafeteria space for other activities, such as physical education. Teachers expressed a desire for more physical activity that did not interfere with valuable classroom time.

Teachers believed nutrition should be taught, but noted that other state mandates took precedence. They welcomed nutrition education programs offered by their school foodservice staff. Teachers stated they encourage healthy snacks but had little control over what students brought from home for snacks. Often, candy was used as a reward because it is convenient and inexpensive.

These findings indicate that 1) teachers and foodservice staff need to collaborate on menu-planning and nutrition policy development; 2) cafeterias used as multi-purpose rooms should have policies to prevent intrusion on the school lunch period; 3) physical activity should be increased through organized sports and intramural activities during recess and after school programs; 4) nutrition education materials should be provided as a user-friendly kit that includes handouts and activities for teachers to use in their classrooms; and 5) ideas for healthy snacks and party foods should be provided for teachers to distribute.

### **Elementary School Parents and Teachers Identify Advantages and Disadvantages of the National School Breakfast Program**

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The purpose of this study was to identify advantages and disadvantages of the School Breakfast Program (SBP) as expressed by elementary school parents and teachers. Using qualitative research methods, open-ended questions were presented to a sample of 41 parents and 26 teachers during 90-minute focus group discussions in five Idaho school districts. Discussion transcripts were analyzed using a systematic process as described by Kruger (1997) and Ethnograph v5.0™ software.

Advantages of the SBP, as perceived by parents and teachers, are that it 1) meets a need for parents who do not have time to fix breakfast; 2) supplies breakfast to students who might not otherwise eat morning nourishment; 3) provides a good eating atmosphere for students to socialize; 4) allows students to arrive on time to class since breakfast is scheduled before class starts; 5) allows students to establish positive interactions with foodservice staff; and 6) improves students' concentration and ability to pay attention.

Disadvantages of the SBP, as perceived by parents and teachers, are that 1) bus schedules often interfered with students arriving in time to participate; 2) fresh fruits and vegetables were seldom offered; 3) menu items were too high in sugar and fat; 4) menu items lack variety; and 5) there was confusion regarding who was eligible for the SBP.

Implications of the SBP study include 1) bus schedules need to accommodate school breakfast schedules or breakfast should be available to eat in the classroom; 2) fresh fruits and vegetables should be offered at breakfast; 3) collaboration among foodservice staff, teachers, and parents should be part of the menu-planning process; and 4) information explaining eligibility for the SBP should be marketed to parents and teachers.

### **Food Safety First – School Food Safety and Irradiation Education Project**

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The 2002 Federal Farm Bill made it possible for schools to use irradiated U.S. Department of Agriculture commodity foods. The Minnesota Department of Education, Food and Nutrition Service received a federal grant to develop educational materials for the school community regarding food safety and irradiation to assist local decision-making on the use of irradiated foods. The grant is for educational purposes only and is aimed at providing school communities with the latest science-based information on food irradiation. The project involved three Minnesota school districts and a partnership of state agencies, allied organizations, and subject matter experts.

The educational project consisted of the following phases: 1) Assessment Phase: Surveys assessed school community knowledge and/or concerns about food safety and irradiation; 2) Educational Phase: Assessment data guided development of educational materials, training,



presentations, and a public relations toolkit; and 3) Evaluation Phase: Surveys evaluated effectiveness of education materials, public relations toolkit, and partnerships to identify ways to improve outcomes.

The evaluation found that over 90% of respondents read some or all of the materials. The education materials were reported as informative and easy-to-read, the sources of information used were credible, and the information presented a balanced view of food irradiation. Teachers preferred receiving materials by e-mail and at meetings, while parents preferred having information sent home with their child. Respondents recommended combining information into one fact sheet that included more visuals, irradiation examples, and foodborne illness information.

The education materials will be refined before statewide distribution in the 2003-04 school year. The education information and results of the project will assist schools nationwide in making local decisions regarding the use of irradiated foods as one option to help ensure a safe food supply.

### **The Effect of a Classroom-Dining Environment on Student Participation**

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This program evaluated the effect of a classroom-dining environment on student participation in the Cecil County Classroom Breakfast Pilot Program. The objective was to determine the effect of a classroom-dining environment on student participation in the School Breakfast Program (SBP) in the full-priced, reduced-priced, and free categories and to determine the effect the SBP has on school lunch participation.

Participation data was collected and compared prior to and after implementation of the Cecil County Classroom Breakfast Pilot Program (CCCBPP). Male and female students in pre-kindergarten through fifth grade from two schools piloting the CCCBPP were selected to participate. Students taking part in the pilot program are served in the cafeteria and carry their breakfast to the classroom, while the control school provides breakfast in the traditional dining room environment.

The data demonstrated that classroom dining during breakfast increased overall participation, including students who pay full price (\$.75). There was no evidence of a corresponding change in lunch participation. Student enrollment is as follows: pilot school A had 662 students, pilot school B had 336 students, and the control school consisted of 539 students. During the first year of implementation, pilot school A participation increased from 20.5 meals (SY 00-01) to 43.2 meals (SY 01-02) per students who pay the full price. Pilot school B increased from 14.5 meals (SY 01-02) to 29.2 meals (SY 02-03). The control school decreased from 14.0 (SY 00-01) to 13.5 (SY 02-03) then increased the next year to 17.5 (SY 02-03).

The pilot program provides the opportunity for early morning interaction between students and teachers in the classroom. In addition, it prevents students from missing valuable education

between 9:00-9:15 am. Further, participation in the SBP has been shown to increase student attentiveness and decrease student disruption. Schools that convert from traditional dining to a classroom breakfast program will realize an immediate and sustained increase in school breakfast participation.

### **Update of Competencies, Knowledge, and Skills of School Nutrition Managers**

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Today's changing environment necessitates continuous review of competencies, knowledge, and skills needed for school nutrition managers. The 1995 version of *Competencies, Knowledge, and Skills of Effective School Nutrition Managers* served as the foundation for the update.

Researchers developed a mail survey instrument, using the 12 functional areas and 478 knowledge/skill statements in the original publication, to measure their importance to job responsibilities performed by managers and identify experience level (entry or beyond entry) needed to acquire the knowledge/skill.

Participants (n=38) from 20 states, representing managers, directors, and state agency staff, generated a 100% response to the mailed survey. Four two-day work group sessions were conducted (in Baltimore, Omaha, Knoxville, and Phoenix) to address those statements to which a majority of the participants rated "not important" to "somewhat important," as well as identifying additional competencies and knowledge/skill statements needed in today's work environment. The groups also discussed whether statements receiving an overall rating of "not important" or "somewhat important" should be revised, deleted, or left as originally written in the 1995 publication.

Consensus of the work groups recommended 206 statements for further review. The participants received a second survey compiled of the 206 statements for final consensus. Thirty-four (89%) responded to the second survey. Ninety-three percent of these respondents selected the option to leave as written or incorporate a modified version of the original statement. No new functional areas were identified. Participants identified six content areas requiring new competencies, knowledge, and skills, including crisis/risk management, food recall/food safety, cultural diversity/labor force, special needs, technology, and strategic planning. The updated document will be useful to the National Food Services Management Institute and other professional groups to prepare managers to face new job challenges, in addition to assisting educators in developing curriculum for entry-level school nutrition manger positions.

### **Change in Milk Consumption Due to Change in Container**

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The purpose of this study was to determine if changing the milk containers from waxed paper cartons to plastic bottles would impact the units of milk taken per day at two elementary school



settings. The study calculated the units of milk taken in waxed paper cartons during March at Meyer and Link Elementary schools and compares it to the units of milk taken in plastic bottles during the subsequent month of April. The study found that at Meyer Elementary the average number of units of milk taken per day increased by 360 units (35%), while at Link Elementary the average number of units of milk taken per day increased by 174 units (18%).

The change in milk container increased the units of milk taken per day. Serving milk in a container that children prefer may increase the amount being consumed. This in turn would increase calcium intake during childhood, which is a critical time to build strong bones.