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Teaching Kids *What to Eat Where They Eat*: Developing and Pilot Testing the Nutrition Education in Foodservice Toolkit

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Abstract: School foodservice offers an ideal yet underutilized setting for experiential learning around food for children and for engaging parents in modeling healthy eating at home. The goal of the Nutrition Education in School Foodservice project was to take advantage of the potential of school foodservice settings to positively influence children's eating—both at school and at home. A toolkit was designed and pilot-tested for use in elementary schools, particularly those serving low-income populations. Providing foodservice staff with training and materials was instrumental in promoting the use of the foodservice setting for nutrition education.

Background

There is no question that children's diets in the U.S. merit improvement. For each of the core food groups—grains, vegetables, fruits, dairy, or meats and beans—just one-third of children consume adequate amounts. Only 1% of children achieve dietary recommendations for all food groups (Muñoz, Krebs-Smith, Ballard-Barbash, & Cleveland, 1997). Conversely, over 40% of daily energy comes from added sugars and discretionary fats (Brady, Lindquist, Herd, & Goran, 2000).

In an environment that favors the over-consumption of energy-dense, nutrient-poor foods in place of healthful options, as evidenced by the unprecedented rise in pediatric obesity, every opportunity to model and promote healthy eating must be utilized. Promoting healthy eating to children optimally involves real-life settings where hands-on experience with food occurs (Westernhoefer, 2002). For school-age children, schools are the largest source of meals eaten outside of the home, providing up to half of daily nutritional intake (Lin, Guthrie, & Frazao, 1999). As such, school foodservice offers an ideal opportunity for experiential learning around food. Yet the school cafeteria remains a largely untapped educational resource (Reynolds et al., 2000).

The goal of the Nutrition Education in Foodservice (NEFS) project was to take advantage of the potential of school foodservice settings to positively influence children's eating by developing and pilot-testing a toolkit to promote healthy eating to low-income children and families.

Project Description and Evaluation

NEFS was conducted in three phases. In the first phase, stakeholder interviews, school cafeteria observations, and parent questionnaires were administered to identify the needs for and barriers to using the school cafeteria for nutrition education purposes. Next, nutrition education materials were identified, selected, and adapted to best meet the educational needs of low-income children and families. The final phase involved pilot-testing materials in school foodservice settings and toolkit refinement and dissemination. A descriptive analysis of findings is presented. The project was approved by the committee for protection of human subjects at UC Berkeley.

Phase I—Needs Assessment

Assessment of Nutrition Education Activities in Foodservice Settings

Stakeholder interviews were individually conducted with 16 school principals and/or school foodservice directors/managers from 11 California public elementary schools located in Kern, Tulare, Mariposa, or Fresno counties. Data were collected on the types and locations of school food service, use of nutrition education and promotion activities on campus, and perceived barriers to implementing nutrition education in the school cafeteria. Assessment by direct observation of a school lunch period was performed in eight of these schools. All schools utilized either a cafeteria or multi-purpose room for school meals; some also utilized quad areas and classrooms (notably for school breakfast in four schools). An average of 89% of students received free or reduced price meals. The greatest proportion of students in participant schools was Hispanic (57%), followed by non-Hispanic White (24%), and African American (14%).

In only a small proportion of schools was promotion of "competitive" (non-school meal program foods or beverages) evident.

- Three of 11 schools reported hanging signage.
- Two of 11 schools reported having brand name foods promoted on foodservice menus.
- Three of 11 schools reported advertising on vending machines.
- One of eight schools was observed to have materials posted that promoted a competitive brand name food in the school cafeteria.

Nutrition education materials were more commonly evident.

- Ten of 11 schools reported using banners or posters; seven of eight observed schools had nutrition education posters or student artwork displayed in the cafeteria.
- Ten of 11 schools reported using the foodservice menu for educating parents on nutrition.
- Six of 11 schools reported using parent group meetings to provide nutrition education.
- Venues perceived to be most useful for targeting parents were the foodservice menu, parent group meetings, principal or classroom newsletters, and parent nights.

Staff from all 11 schools were overwhelmingly interested in expanding nutrition education activities in foodservice settings. Perceived benefits of conducting nutrition education activities where school foods are sold or served included promotion of new foods to children and increasing consumption of fruits, vegetables, and other healthy foods. Direct observations revealed that schools routinely had space available to display additional promotional materials on healthy eating. Further schools offered meals that children appeared to enjoy in settings that were pleasant, orderly, and amenable to nutrition education. Most commonly cited as

additional nutrition education activities desired by staff included handouts/resources/articles for newsletters or menus (six schools), banners/posters (five schools), and taste-testing (three schools). The perceived barriers to expanding nutrition education activities unanimously cited by staff were lack of time for accessing nutrition education materials and cost.

Assessment of Nutrition Education Messages and Formats Preferred by Parents

In order to maximize reach to parents, we also assessed parent perceptions of nutrition topics and formats of interest. A questionnaire was administered to 235 parents (209 in English, 26 in Spanish) from one representative elementary school in Kern (total student population 750, nearly 60% receiving free and reduced price meals). Questions were asked regarding nutrition topics of interest (e.g., eating more fruits and vegetables, nutritious snacks ideas for children) and preferences on manner of receiving information (e.g., class, newsletter, cooking demonstration).

The topics of greatest interest, selected by over 80% of parents surveyed, were:

- Healthy meals that are easy to make, and
- Nutritious snacks that children like.

Topics selected by 60% or more of those surveyed included:

- Eating fewer high sugar and high fat foods, and
- Getting children to eat healthier foods.

The formats most preferred for obtaining nutrition education information, selected by over 75% of parents, were receiving:

- Cooking tips and recipes, and
- Newsletters or fliers with healthy eating tips.

Phase 2—NEFS Toolkit Development

Identification of Existing Nutrition Education Resources

An extensive literature review and on-line scan were completed to collect nutrition education materials for use in school foodservice settings. Materials identified included posters, information boards, videos, displays, and kits, as well as written materials for fliers or newsletters.

Selection of Toolkit Materials

In collaboration with Cooperative Extension advisors from Kern and Tulare counties, the most relevant resources for low-income elementary school age children and their families were selected. Feasibility of

material use was considered by examining production costs, limitations, and potential uses. Whenever possible, materials available in Spanish were selected.

Nutrition education materials were included on the following topics:

- Fruits and vegetables,
- Healthy meals,
- Healthy breakfasts,
- Healthy snacks,
- Healthy drinks, and
- Portion size.

Each topic included an array of nutrition education components:

- Posters,
- Foodservice activities,
- Music CDs,
- Newsletter articles,
- Parent handouts, and
- Recipes.

Phase 3—Pilot Testing

Training and Toolkit Distribution

In November 2007, two training sessions on use of the NEFS Toolkit were conducted in Kern and Tulare counties. In Kern, 37 school foodservice staff from eight middle schools and 29 elementary schools from the Bakersfield City School District (BCSD) attended the training. Although elementary school aged children and their parents were the target audience for the toolkit, including middle school staff provided the opportunity to assess use for older children as well. BCSD requires foodservice staff to administer four

student nutrition education lessons each year. In Tulare, one school principal, three school foodservice staff, and one health educator, all working with elementary schools, attended training. All attendees received a copy of the toolkit.

The following topics were covered in the training session:

- Purpose of tools, topics, and components;
- Suggestions for use of tools with low-income populations; and
- Recipe and foodservice activity demonstrations.

At the culmination of training, all attendees indicated by questionnaire that they intended to use the toolkit. Over 75% of staff responded that they were most likely to use the posters, foodservice activities, and recipes. About half of staff indicated intent to use the music, newsletter items, and parent handouts. Ongoing support by project staff via phone or email was made available to school staff after the training.

Toolkit Use

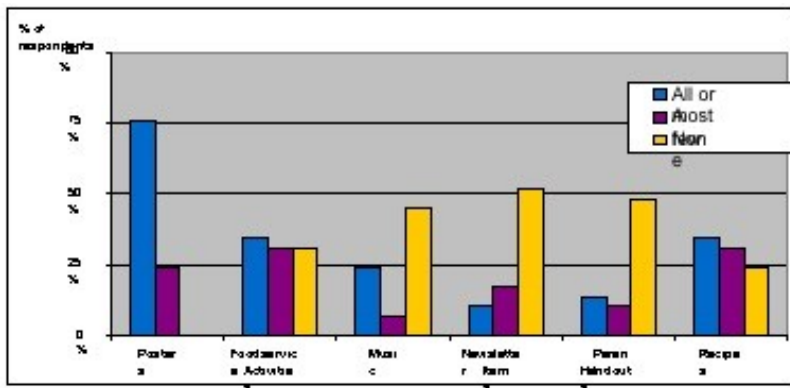
In February 2008, follow-up surveys were administered to school staff to assess use and collect suggestions for improving the tool kit; additional posters and a music CD were offered as an incentive. A total of 29 surveys, all but one from foodservice staff, were completed (70% participation). Twenty-eight were from BCSD staff. Twenty-three were from staff at an elementary school.

Of the toolkit components, the posters were most widely used, reported by 100% of respondents (Figure 1). Comments included: "Students enjoy them . . . very colorful and informative"; "Students were really drawn to them"; "(Students) really like the no breakfast poster. They look at the faces to see what they are for the day."

Foodservice activities and recipes were also frequently used (by two-thirds of respondents). Comments included: "Encouraged students to take a vegetable"; "Fixed and served fruit and vegetables to 5th graders and they loved it"; "Have tried a few . . . students liked and plan on doing more."

Music, newsletter items and parent handouts were the least widely used (by less than one-third of respondents). Two respondents reported difficulties getting the music CD to play, two respondents from middle schools felt that the tunes were for a younger audience, and one suggested that more variety of songs be included. The additional music CD provided as an incentive should ameliorate these concerns because it was formatted to play on all types of players and included a variety of songs appropriate for older children. On a more positive note, one respondent commented that "The tune was catchy and some of the kids started singing along." No comments were received regarding newsletter or parent handout components.

Figure 1.
Use of Toolkit Components by School Foodservice Staff>

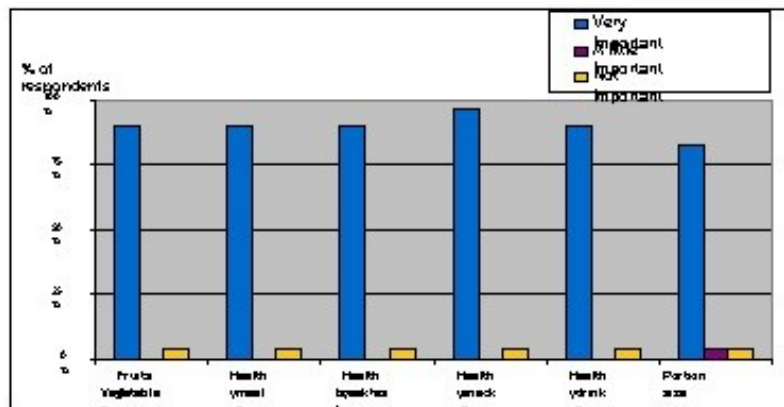


Note: Numbers for each component may not add up to 100% due to missing responses to questionnaire items.

Importance of Toolkit Topics

All six nutrition topics were viewed as being important by school staff (Figure 2). Only one respondent classified all topic areas as being unimportant.

Figure 2.
Importance of NEFS Toolkit Topics as Rated by School Foodservice Staff



Note: Numbers for each topic may not add up to 100% due to missing responses to questionnaire items.

Based on the initial needs assessment, we anticipated that foodservice activities would be difficult for staff. We therefore asked specifically about the types of foodservice activities staff were able to conduct during a 3-month period. Although 21 of 29 said that they had engaged in a nutrition education foodservice activity, only 16 of these were regarded as "foodservice activities" as applied to the toolkit (e.g., using posters was not counted). Of these, 14 indicated that they served one of the recipes and/or conducted a taste-test with students; two encouraged students the foodservice line to take fruits and vegetables.

The reason uniformly given for not doing foodservice activities was a lack of staff time. Comments included: "The toolkit is a great idea and a big help, if we had more time to work on activities" and "We need more time from the state so we can reach more students with nutrition education."

Toolkit Improvements

Three respondents from middle schools recommended including materials such as music and reward ideas appropriate for older youth. Other suggestions included: "More things that children like and are not too hard to prepare and not too expensive"; "Different topics, more props, something to get kids more involved"; and "Put all the recipes together." In response to this suggestion, the toolkit was modified to include a recipe index. Future plans include adding more resources appropriate for older children.

The majority of comments received were complimentary: "The kit is very good"; "Has a lot of information and very user friendly"; "The posters are good for Jr. High"; "The recipes were easy and good"; "Very informative, gives a lot of projects, and ways to mix up food items, and enjoy them."

Implications

We found that:

- Elementary school cafeterias were an underutilized resource for nutrition education;
- Foodservice staff have limited time and funds available to locate, purchase, organize, and utilize nutrition education materials;
- There is keen interest on the part of school foodservice staff to expand the use of the foodservice setting for educating students and their families;
- Parents were interested in receiving information on select nutrition topics from school foodservice;
- Providing school foodservice staff with training and a toolkit was instrumental in promoting the use of the foodservice setting for nutrition education; and
- Elementary school students and their families would benefit from having additional nutrition education resources utilized in school foodservice settings.

The NEFS Toolkit, with most components in both English and Spanish, is now available at the Center for Weight and Health Web site: www.cnr.berkeley.edu/cwh/activities/Tool_Kit_Food_Service.shtml.

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