

# Increasing Culturally Diverse Foods in Head Start Using a Collaborative Approach

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## Introduction

- ❑ Head Start is an important venue for childhood obesity prevention.
  - ❑ Serves >900,000 children across the country who are at high risk
  - ❑ Meals and snacks must meet Child and Adult Care Food Program standards
  - ❑ Head Start's performance standards require that parent education activities focus on healthy food preparation and nutritional skills (CFR 45; § 1304.23)
- ❑ ~40% of Head Start children in Boston is overweight or obese
- ❑ Head Start's performance standards require that programs "serve a variety of foods which consider cultural and ethnic preferences and which broaden the child's food experience" (CFR 45; § 1304.23)
- ❑ Healthy Kids, Healthy Futures (HKHF) is a multi-level, inter-institutional initiative that aims to prevent childhood obesity by supporting health promoting environments where preschool age children live (home), learn (childcare) and play (community)
- ❑ Study *purpose* is to (1) describe a collaborative process by which food service modifications were made in 4 Head Start programs to increase culturally diverse foods served; and (2) present data demonstrating the extent to which children and teachers ate the culturally diverse foods compared with standardized recipes.

## Cultural/Favorite Recipe Day (CFRD) & Study Impetus

- ❑ ABCD Inc. Head Start's approach to serve diverse foods.
  - ❑ Stimulates awareness, respect, & acceptance of different cultural groups, provides students with opportunities to eat diverse foods & to eat culturally familiar foods at school.
  - ❑ Food service staff have latitude regarding which foods to prepare
  - ❑ CACFP standards must be followed.
- ❑ Programs completed the Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC, Ammerman et al., 2007).
  - ❑ Programs already doing a lot to promote healthy eating and physical activity (Agrawal et al., in press)
  - ❑ After reviewing NAP SACC results, 4 HKHF-partner programs decided as a group to focus on improving CFRD implementation.
- ❑ 9-member CFRD working group formed (members included education, nutrition/food services, and social services)
  - ❑ Met 5 times in 2 months in Spring 2010
  - ❑ Reviewed the CFRD section of the ABCD, Inc. Head Start food service manual and identified implementation challenges
  - ❑ Developed and recommended a process to improve implementation
- ❑ CFRD working group outcomes
  - ❑ Developed a protocol to introduce new culturally diverse foods
  - ❑ Travelling suggestion box and recipe cards went to parent and staff meetings to gather recipe suggestions (>110 collected across programs from Summer-Fall 2010)
  - ❑ Advertised/promoted CFRD at programs to parents, staff and children
  - ❑ Prepared 6 new recipes consistent with Head Start nutrition standards (Summer 2010)

## Methods

### Setting & Participants

- ❑ HKHF partners with 4 Head Start programs in Boston, MA
  - ❑ 350 children in 21 classrooms, mostly African American & Latino
- ❑ 4 other Head Start programs in Boston, MA served as the comparison group (150 children in 9 classrooms)

### Data Collection Procedures

- ❑ 2 group, pre-test/post-test quasi-experimental design
- ❑ 2 study conditions: Standardized meals vs. CFRD meals
- ❑ Measured lunch consumption on 6 separate days using weighed plate waste
- ❑ Consumption measured at the classroom level (family-style meal service)
- ❑ Foods weighed on food scales before and after lunch
- ❑ Consumption = *amount served* (in ounces) – *amount left over* (in ounces)
- ❑ Dependent variables: (1) fruit; (2) vegetables; (3) protein/carbohydrate (because several menus contained mixed dishes)
- ❑ Parallel menus created between the CFRD and standardized menu conditions by Head Start nutritionist in collaboration with food service staff
  - ❑ 6 days of data collected at HKHF-partner program sites (Days 1-3 = standardized menus; Days 4-6 = CFRD menus); data collected at comparison sites on Days 1-3 only
  - ❑ To minimize the number of variables being manipulated protein/carb. varied across the 6 days; fruits and vegetables remained the same (days 1&4=fish; 2&5=chicken; 3&6=beef)
- ❑ Average weight for 1 serving of each food determined by weighing 3 servings of each food separately on a food scale/3. Serving sizes obtained from Head Start menus using recommended servings for preschool children from the CACFP
- ❑ 1 research assistant/classroom to assist with data collection

### Data Analysis

- ❑ Analysis focused on amount consumed by type of food, classroom & day
- ❑ Metric of food intake: mean amount consumed per person per day within each classroom.
- ❑ Within HKHF classrooms, food intake on standardized meal days (days 1-3) was compared with food intake on CFRD meal days (days 4-6)
- ❑ Statistical tests also compared food intake between HKHF and comparison classrooms on days 1-3
- ❑ Multiple imputation used to handle missing data (Allison, 2002)
- ❑ Confidence intervals and statistical tests took into account the nested data structure (adjusted standard errors for clustering; Kish, 1965; PROC SURVEYMEANS in SAS 9.2, SAS Institute, Cary, NC; used HLM for statistical tests; Singer, 1998; PROC MIXED in SAS)
- ❑  $\alpha = 0.05$  used as the criterion of statistical significance (2-tailed tests)

## Results

Food Intake in the 4 HKHF-partner program classrooms		
Type of Food	Standardized Meals Mean (95% CI)	CFRD Meals Mean (95% CI)
Fruit	1.6 (1.5, 1.7)	1.8 (1.7, 1.9)*
Vegetable	1.4 (1.2, 1.6)	1.3 (1.1, 1.4)
Protein/Carb	3.2 (2.8, 3.5)	3.9 (3.4, 4.5)*

**TABLE 1.** HKHF children and staff consumed more fruit and protein/carb on the CFRD meal days compared with standardized meal days.

Food Intake in the HKHF classrooms v. the Comparison Classrooms on Standardized Meal Days		
Type of Food	HKHF Mean (95% CI)	Comparison Mean (95% CI)
Fruit	1.6 (1.5, 1.7)	1.8 (1.5, 2.0)
Vegetable	1.4 (1.2, 1.6)	0.7 (0.6, 0.8)*
Protein/Carb	3.2 (2.9, 3.6)	3.2 (2.8, 3.6)

**TABLE 2.** As anticipated, on standardized meal days, consumption of fruit and protein/carb was similar across both study conditions. Surprisingly, more vegetables were consumed in the HKHF group relative to the Comparison group ( $p < 0.001$ ).

## Summary and Conclusions

- ❑ Head Start staff collaborated to determine methods to promote better implementation of a policy designed to increase culturally diverse meals served.
- ❑ Efforts resulted in the collection of over 100 recipe ideas from Head Start parents and staff members across 4 program sites.
- ❑ Children and staff in the HKHF-partner programs ate more food at lunch (protein/carb and fruit) on culturally diverse meal days relative to standardized meal days.
- ❑ Surprisingly, on standardized meal days, children and staff at the HKHF-partner programs ate twice the amount of vegetables relative to children and staff at the Comparison programs. There were no differences in the amount of fruit and protein/carbohydrates consumed between the two groups on these days.
- ❑ It is unclear why there were group differences in vegetable consumption on standardized meal days. Data were collected at the classroom level and children and staff members' consumption were unable to be separated in the analyses, so it is unclear if the group differences resulted from adult consumption, child consumption, or both.

## Acknowledgments

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