Transitioning to New Child-Care Nutrition Policies: Nutrient Content of Preschool Menus Differs by Presence of Vegetarian Main Entrée

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ABSTRACT
Children who attend child care outside the home may be at increased risk for developing obesity. In 2012, the South Carolina ABC Child Care program issued new standards for food and nutrition. The goal of our study (conducted June to December 2012) was to examine changes that occurred at a large, Columbia, SC, preschool during the implementation of the South Carolina ABC Child Care program standards using an observational design, including a survey of parents and nutrient analysis of menus. The nutrition content of menu items before (n=15 days; six of which were vegetarian) and after (n=15 days; six of which were vegetarian) implementation of the new standards was compared. In addition, parents (N=75) were surveyed to examine opinions and support for the changes. Independent samples *t* tests were used to compare nutrient values before and after menu changes and analysis of variance was used to compare pre- and post-change vegetarian menus and pre- and post-change nonvegetarian menus. There were no significant differences between before and after menus with the exception of a 0.3 cup/day increase in vegetables ($P<0.05$). Vegetarian menus after the revisions were significantly higher in fiber (13±3 g) than postrevision nonvegetarian menus (11±3 g; $P<0.05$) and lower in sodium (1,068±207 mg) than postrevision nonvegetarian menus (1,656±488 mg; $P<0.05$). Standards that received the most parental support were serving at least two vegetables (score of 8.7 on a scale of one to nine) and two fruits per day (score of 8.6) and implementing policies against staff using food as a reward or punishment (score of 8.6). The center-specific policy of only bringing healthy foods for celebrations received the lowest support (score of 5.8). Adding more vegetarian menu items has the potential to improve the nutrient content of menus while keeping energy intake, saturated fat, sodium, and cholesterol levels at a more optimum level.
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OF THE >20 MILLION CHILDREN YOUNGER THAN AGE 5 years in the United States, 61% attend some form of child care.[1] Children who attend child care outside the home may be at higher risk of developing obesity[2] thus improving foods served in child-care settings may be a target for childhood obesity prevention. Child-care venues have demonstrated that they are an important setting for introducing young children to healthy eating habits.[3,4]

With the introduction of the Healthy, Hungry-Free Kids Act,[5] schools across the United States began implementing changes in their breakfast and lunch menus. These changes have also occurred within the preschool setting. Although these new nutrition requirements can be set by regulatory agencies, support is needed by key stakeholders to ensure regulations are followed and implemented effectively. There are numerous stakeholders involved in feeding preschool children, including school administrators, parents, teachers, foodservice workers, and food companies.[6,7] Parent support and involvement may be particularly important in sustaining new nutrition policies.[8,9] Previous studies examining the influence of nutrition policies on changes in food intake have reported no or minimal effects, with certain changes, such as whole grains or water, being especially challenging.[10-13]

Few research studies have examined the transition that occurs within child-care centers as new policy changes unfold. Therefore, the goal of our study was to examine changes that occurred at a large, South Carolina child-care center during the implementation of new nutrition standards. Our analysis examined changes in the nutrition content of menus before and after implementation of the new standards as well as the influence of vegetarian meals on the nutrient content of menus. In addition, parent opinions and support for these changes were examined, as well as parent support for adding more vegetarian entrées. We hypothesized that post-policy menus would have higher fiber and lower fat than pre-policy menus due to recommendations to increase fruit,

Standard	Standard met before changes	Level A	Level B	Level C
Food- and menu-based nutrition standard				
Only nonfat or reduced-fat milk is served to children aged ≥2 y	Yes	Must meet	Must meet	Must meet
Do not serve sugar-sweetened beverages	Yes	Must meet	Must meet	Must meet
Juice is allowed only once per day in a serving size tailored to age group's need	Yes	Must meet	Must meet	
Offer fruit (not juice) at least 2 times per day	Yes	Must meet	Must meet	
Offer vegetables other than white potatoes	No	At least 2 times per day	At least once per day	
Limit fried or pre-fried vegetables (including potatoes) to:	Yes	No more than once in a 2-wk period	No more than once a week	
Limit high-fat meats (eg, sausage, bacon, hot dogs, bologna, and ground beef) to:	No	No more than once a week	No more than 2 times/wk	
Offer whole grains	No	At least 2 times daily	At least once daily	
Limit sweet food items to:	No	No more than once a week	No more than 2 times/wk	
Nutrition policy-related standards				
Staff does not use food as reward or punishment	Undetermined	Must meet	Must meet	
Staff joins children when they eat	Yes	Must meet		

Figure. The 2012 South Carolina ABC Grow Healthy Best Practices food- and menu-based and nutrition policy-related nutrition standards by level of regulated care and whether or not standards were being met by the child-care center before implementing the new regulations.

vegetables, and whole grains and limit high-fat meats, with even greater changes seen in post-policy vegetarian menus.

METHODS

The South Carolina ABC Child Care (SCABC) program was established to assist families with finding and paying for child care and defines quality standards exceeding current state regulations for nutrition, physical activity, discipline, and other areas.[14] Programs participating in the SCABC program are categorized into three levels: A (highest rated programs meeting ratio and staff qualifications and receiving at least a 5.0 on the Early Childhood Environment Rating Scale[15]), B (programs going beyond basic state standards with no violations of staff to children ratios), and C (meeting basic standards).[14] In 2012, the SCABC program issued new or revised standards for several of their rated areas, including food and nutrition.[16] These standards go beyond current US Department of Agriculture (USDA) standards for reimbursable meals.[17] In addition, SCABC standards include nutrition policies that are not included in USDA standards. The Figure outlines the food- and menu-based and nutrition policy-related standards required to receive an A, B, or C rating. Prior SCABC ratings required all snacks and lunches in Level A and B schools to meet USDA standards but did not make recommendations beyond those.

Our study took place at a large, university-based child-care center serving 200 children aged 6 weeks and older in Columbia, SC, between June and December 2012. In addition to infant classrooms, the center has nine classrooms for children aged 2 years through prekindergarten. The center was in the process of implementing the necessary changes to maintain their current rating by SCABC. These changes were mandatory to maintain the highest rating by SCABC and were monitored by SCABC regulatory staff. Menus were updated to meet nutrition guidelines with the August 2012 menu cycle. Our observational study involved a survey to parents and analysis of nutrient changes of menus before and after the nutrition policy change.

Menus over a 7-month time frame (June to December 2012) were collected for nutrient analysis. Items reported on the menus were analyzed for nutrient content. Due to budget and research staffing constraints, actual consumption of foods served was not measured. Menus did not follow a specific cycle or pattern but generally rotated through seven different breakfast meals (eg, French toast sticks, apricots, and milk), 14 different lunch meals (eg, chicken nuggets, green peas, potatoes, whole-wheat rolls, and milk), and seven different snack