

**Appendix B: Research Questions, Outcome Measures, and Data Sources**

## Research Questions, Outcome Measures, and Data Sources

Research Question and Outcome Measures	Data Source
<b>Objective 1: Nutrition and Wellness</b> <b>Includes: CACFP Child Care Providers (Head Start, Other Centers, FDCHs, Afterschool, At-Risk)</b>	
<p><b>What is the distribution of the nutrient content of meals and snacks served in a typical week, overall, by age served, and by type of provider?</b></p> <ul style="list-style-type: none"> <li>• Distribution and average nutrient content for each type of meal and snack served in a typical week</li> <li>• Degree to which meals served meet the Dietary Guidelines for Americans, the CACFP meal patterns, and Healthy Eating Index guidelines</li> <li>• Distribution and variety of types of foods served by meal/snack occasion in a typical week</li> <li>• Foods that are served most frequently</li> <li>• Foods that are the main sources of calories, key nutrients, sodium, and solid fats and added sugars (SoFAS)</li> <li>• Frequency that fresh produce and whole grains are served</li> </ul>	<p>Menu Survey Meal Observation Form</p>
<p><b>What are providers' menu planning practices, overall, and by type of provider?</b></p> <ul style="list-style-type: none"> <li>• Food preparation &amp; storage equipment and capacity</li> <li>• Provider policies and practices related to food allergies and other dietary needs</li> <li>• Entity that creates the menus (e.g., providers, sponsors, other) and nutrition training of planners</li> <li>• Percent of providers using cycle menus and nature of these cycles (e.g., distribution, average length)</li> <li>• Percent of providers doing nutrient analysis of meals and tools used to do so</li> <li>• Percent of providers participating in School Breakfast Program (SBP), National School Lunch Program (NSLP)</li> <li>• Percent of providers with afterschool programs and percent participating in afterschool snack and/or at-risk supper program.</li> </ul>	<p>Provider Web Survey</p>
<p><b>What are providers' meal purchasing practices, overall, and by type of provider?</b></p> <ul style="list-style-type: none"> <li>• Sources of foods for meals and snacks (e.g., retail, farmers markets, co-ops)</li> <li>• How is food transported (e.g. delivery, provider vehicle)</li> <li>• Types of people responsible for food purchases and variation by provider type</li> <li>• Frequency of use of sources by provider type</li> <li>• If multiple sources, frequency of use of different types of sources by provider type</li> <li>• If multiple sources, types of food (entrees, fruits and vegetables, etc.) typically obtained at each source by provider type</li> <li>• Processes of documenting purchases and meal counts by provider type and types of people responsible for these activities</li> </ul>	<p>Provider Web Survey</p>

Research Question and Outcome Measures	Data Source
<p><b>What are providers' food service practices, overall and by type of provider?</b></p> <ul style="list-style-type: none"> <li>• Ways in which meals are served (e.g., family style, plated, offer versus serve, etc.)</li> <li>• Length of time participants have to eat by type of meal or snack</li> <li>• Policies and practices on receiving seconds for meals &amp; snacks, &amp; for declining foods when served</li> <li>• Policies about and frequency of children bringing meals/snacks from home</li> <li>• Policies and practices related to serving water</li> <li>• Policies and practices on food safety, frequency of use, &amp; variation by provider characteristic</li> <li>• Number of providers with systems in place to trace a product being recalled</li> </ul>	<p>Provider Web Survey Menu Survey Meal Observation Form Environmental Observation Form</p>
<p><b>What are providers' wellness policies and practices, overall and by type of provider?</b></p> <ul style="list-style-type: none"> <li>• Policies and practices on frequency and amount of time participants are provided with opportunities for physical activities</li> <li>• Policies and practices about types of physical activities offered</li> <li>• Amount of time spent on sedentary activities and, of this, amount that is "screen time"</li> <li>• Comparison of physical activity levels with Institute of Medicine (IOM) and other recommendations (e.g., Let's Move Child Care, Caring for our Children), as appropriate</li> <li>• Infant active opportunities and sedentary opportunities</li> <li>• Barriers to physical activity (e.g. access to outdoor play space) and how they impact the quantity and type of physical activities by overall and by type of barrier (e.g., transient vs. more permanent barriers)</li> </ul>	<p>Provider Web Survey Environmental Observation Form</p>
<p><b>What are infant feeding patterns and how do they align with the American Academy of Pediatrics (AAP) recommendations (only in CACFP child care environment)?</b></p> <ul style="list-style-type: none"> <li>• Distribution and variety of types of foods served by meal/snack occasion in a typical week</li> <li>• Foods that are served most frequently</li> <li>• Percent of infants under 6 months and under 4 months of age served any solids.</li> <li>• Percent of infants under 12 months old served juice</li> <li>• Percent of infants consuming breastmilk, percent of infants consuming formula, and percent consuming a combination of formula and breastmilk</li> <li>• Whether the center has necessary facilities to enable infants to consume breastmilk brought from home</li> <li>• Whether breastmilk is being stored and prepared according to food safety guidelines</li> </ul>	<p>Provider Web Survey Menu Survey</p>

Research Question and Outcome Measures	Data Source
<b>Objective 2: Dietary Intakes</b> <b>Includes: CACFP Child Care Providers (Head Start, Other Centers, FDCHs, Afterschool, At-Risk)</b>	
<b>What is the food and nutrient intake of children in CACFP child care centers during child care days and non-child care days by provider type?</b> <ul style="list-style-type: none"> <li>• Mean numbers of MyPlate<sup>a</sup> servings consumed from each food group within child care day and total for the day, overall by age of child and by type of provider</li> <li>• Comparison of MyPlate servings consumed during child care day with CACFP standards; overall by age of child and by type of provider</li> <li>• Comparison of intake levels to Dietary Reference Intakes (DRIs) overall by age of child and type of provider, and for those who bring food from home</li> <li>• Proportion of daily mean nutritional intake from CACFP meals overall by age of child and type of provider</li> <li>• Percent of children at risk of inadequate intakes for specific nutrients</li> <li>• Mean scores on the Healthy Eating Index for meal participants</li> <li>• Amount of water served during meals and whether water is available during non-meal times</li> <li>• Frequency of participants bringing food from home, reasons for doing so</li> </ul>	Child Food Diary Menu Survey Meal Observation Form Standing Height & Weight Form Environmental Observation Form Parent Interview
<b>What is the weight status of CACFP participants and activity level and participation in assistance programs as reported by parents?</b> <ul style="list-style-type: none"> <li>• BMI</li> <li>• Percentage overweight</li> <li>• Percentage underweight</li> <li>• Activity level as reported by parents.</li> <li>• Food assistance participation: Supplemental Nutrition Assistance Program (SNAP); Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); NSLP/SBP; emergency food</li> <li>• Medicaid/Children's Health Insurance Program (CHIP) participation</li> <li>• Temporary Assistance for Needy Families (TANF) participation</li> </ul>	Standing Height & Weight Form Parent Telephone Interview
<b>What is the food intake of infants in CACFP child care centers during the child care day?</b> <ul style="list-style-type: none"> <li>• Mean ounces of formula consumed per hour</li> <li>• Mean ounces of breastmilk consumed per hour</li> <li>• Mean ounces of juice consumed</li> <li>• Mean ounces of water consumed</li> <li>• Distribution and variety of types of foods consumed in child care centers</li> <li>• Foods that are eaten most frequently</li> <li>• Percent of infants under 6 months and under 4 months of age consuming any solids.</li> <li>• Percent of infants consuming breastmilk, percent of infants consuming formula, and percent consuming a combination of formula and breastmilk</li> <li>• Frequency of infants bringing food from home, reasons for doing so</li> </ul>	Infant Food Intake Form Menu Survey

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<p><b>What is the feasibility of measuring children’s dietary intake during child care days and non-child care days and measuring children’s BMI in family day care homes (FDCH) receiving CACFP?</b></p> <ul style="list-style-type: none"> <li>• Conducted in a small, purposive sample of FDCHs</li> <li>• Discuss feasibility and issues involved in measuring dietary intake, including feasibility of recruiting parents</li> <li>• Discuss feasibility and issues involved in measuring children’s BMI</li> <li>• Discuss issues that arose in conducting menu survey and meal observations</li> </ul>	<p>Menu Survey Meal Observation Form Standing Height &amp; Weight Form Child Food Diary</p>
<p><b>Objective 3: Costs &amp; Revenues</b> <b>Includes: CACFP Child Care Center Providers (Head Start, Other Centers, Afterschool, At-Risk)</b></p>	
<p><b>What are the costs of producing an average CACFP meal or snack by type of meal/snack?</b></p> <ul style="list-style-type: none"> <li>• Average reported and full cost of each type of meal and snack, overall and by provider type</li> <li>• Composition of the average reported costs and full costs including administrative costs</li> <li>• Relationship between costs and provider characteristics (e.g., meals served, size, enrollment growth, revenue, participant income and other demographics)</li> <li>• Relationship between meal/snack cost and use of fresh produce</li> <li>• Relationship between costs of production and the types of foods served by CACFP providers to meet CACFP Meal patterns</li> </ul>	<p>Center Director Cost Interview Sponsor Cost Interview Center Foodservice Cost Interview Menu survey</p>
<p><b>What is the relationship of costs to CACFP reimbursements and other revenues?</b></p> <ul style="list-style-type: none"> <li>• Percent that receive additional resources for meals/snacks (e.g., donations, state augmentation of rates)</li> <li>• Relationship between meal/snack production costs and CACFP reimbursements</li> </ul>	<p>Center Director Cost Interview Sponsor Cost Interview Center Foodservice Cost Interview Menu survey</p>
<p><b>Objective 4: Plate Waste</b> <b>Includes: CACFP Child Care Center Providers (Head Start, Other Centers, Afterschool, At-Risk)</b></p>	
<p><b>At the individual level, how much and what types of food are wasted?</b></p> <ul style="list-style-type: none"> <li>• Amount of food not eaten from individual meals by type of food, food group and type of meal/snack</li> <li>• Amount of food not eaten from individual meals by participant characteristic (e.g., age, gender)</li> <li>• Nutritional value of food served but not eaten</li> <li>• Relationship between characteristics of the food environment (e.g. time of meal) and the degree to which fruits and vegetables are not consumed</li> <li>• Relationship between plate waste, the timing and length of the meal, and the timing of physical activities</li> </ul>	<p>Meal Observation Form Menu survey</p>
<p><b>At the center level, what happens to food that is not eaten during meals and snacks by CACFP participants?</b></p> <ul style="list-style-type: none"> <li>• Amount of food left over after meals are served</li> <li>• Uses of food left over from meals (served again, taken home by staff, etc.)</li> <li>• Amount of food left over from meals that is discarded</li> </ul>	<p>Classroom Waste Observation Form Center Foodservice Cost Interview</p>

<sup>a</sup> The USDA Food Pattern food groups, or MyPlate groups, are defined in accordance with the 2010 Dietary Guidelines for Americans (USDA and USDHHS, 2010).