



Study of Nutrition and Activity in Child Care Settings



Appendix A. Methods

October 2021

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Appendix A. Methods

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Appendix A. Methods

This appendix presents technical details of the sampling and weighting, data collection instruments and procedures, data cleaning and processing, and analysis of data for the Study of Nutrition and Activity in Child Care Settings (SNACS). It also provides the characteristics of the analysis samples, a description of the analysis tables, a crosswalk of the research questions to the analysis tables, and supplementary tables.

A.1 Sampling and Weighting

A.1.1 Constructing the Sample

To address the research objectives of SNACS, data were collected and analyzed from a nationally representative sample of programs, children, and meals. To construct the sample, the study team implemented a stratified, four-stage cluster sampling design:

1. In the first stage, the study team selected a random sample of 20 States from a sample frame that represented the 48 contiguous States and the District of Columbia. The study team selected States within strata defined primarily by Food and Nutrition Service (FNS) region. The team collapsed two FNS regions (Mid-Atlantic and Northeast) and then further divided them to yield better representation of the metropolitan and non-metropolitan areas within the two regions. The team selected two States within each of the seven strata with probability proportional to a size measure that reflected the number of children living below the Federal Poverty Level (FPL) in the State. The selection included six States with certainty due to their large size (California, Florida, Illinois, New York, Ohio, and Texas). The 20 States represent the **primary sampling units (PSUs)** in SNACS.
2. In the second stage, the study team selected a random sample of metropolitan areas and clusters of non-metropolitan counties from the 20 States. These are referred to as the **secondary sampling units (SSUs)** in SNACS. Metropolitan SSUs were either Metropolitan Statistical Areas (MSAs) or groups of interconnected counties within a larger MSA. Non-metropolitan SSUs were either large individual counties not located in an MSA or groups of adjacent smaller non-MSA counties. The MSAs are as defined by the Census Bureau. The SSUs for SNACS were defined by the study team using Census data identifying non-metropolitan counties. The team selected a sample of four to eight metropolitan SSUs and one to two non-metropolitan SSUs from within each State, depending on the State's size. The final sample consisted of 60 metropolitan and 20 non-metropolitan SSUs. Exhibit A.1-1 summarizes the allocation of the second stage sample by first stage stratum and metropolitan status.

Exhibit A.1-1 Allocation of States and Secondary Sampling Units (SSUs) by Stratum

First Stage Stratum	States in Stratum	Number of States Selected	SSUs		
			Metro	Non-Metro	Total
Non-Certainty States					
Mid-Atlantic and Northeast 1	CT, DE, DC, MD, NJ, MA, RI	2	4	0	4
Mid-Atlantic and Northeast 2	PA, ME, NH, VT, VA, WV	2	4	2	6
Midwest	IN, MI, MN, WI	2	4	2	6
Mountain Plains	CO, IA, KS, MO, MT, NE, ND, SD, UT, WY	2	4	2	6
Southeast	NC, SC, TN, GA, AL, KY, MS	2	8	4	12
Southwest	LA, NM, AR, OK	2	4	2	6
West	AZ, ID, NV, OR, WA	2	4	2	6

First Stage Stratum	States in Stratum	Number of States Selected	SSUs		
			Metro	Non-Metro	Total
Certainty States					
California		1	6	1	7
Florida		1	4	1	5
Illinois		1	4	1	5
New York		1	4	1	5
Ohio		1	4	1	5
Texas		1	6	1	7
Total		20	60	20	80

3. After the study team selected 80 SSUs, it created a comprehensive list of all child care programs within each SSU. This list became the **third stage** program sample frame. The team used various sources to construct this list, including lists of programs participating in the Child and Adult Care Food Program (CACFP) from the State FNS agencies and lists of programs receiving subsidies from the Childcare Subsidies Fund. At this stage in the research design, the study team selected a sample of CACFP programs from within each of the 80 SSUs, selecting a sample separately for each program type (child care centers, Head Start programs¹, family day care homes, outside-of-school hours programs, and at-risk afterschool programs).

Providers (child care facilities) with multiple programs were eligible for selection in each program type sample. The sampling unit was the program, not the provider. Usually, each provider was sampled for one program type. Sometimes, however, a single provider offered multiple program types (such as co-located Head Start programs and child care centers).² Most such providers (but not all) refused to participate in data collection because keeping data separate by program type would be too complex. Of the approximately fifty providers selected for more than one program they offered, twenty completed data collection as a single program, and thirty refused. The provider sample size exhibits presented in all of the exhibits from this analysis are showing the count of programs, not providers. Providers may be double-counted if they offered more than one program.

This appendix uses the term “providers” when referring to organizations or individuals operating child care programs and individuals responding to data collection, and “programs” when referring to the unit of sampling and data collection.

This stage generated a total sample of nearly 2,700 programs across the 80 SSUs, allocated across the program types to meet precision targets specified by FNS.

¹ Many Head Start programs also provide Early Head Start (EHS), which serves infants, toddlers, and pregnant women and their families who have incomes below the Federal Poverty Level. The Head Start sample in this study was a random sample of providers that offer Head Start programs. Some of these Head Start programs may have EHS programs, some do not. The sample excludes providers that only offer EHS programs. Therefore, estimates cannot be generalized to the EHS population.

² Each program was treated separately and was assigned a unique identifier based on the program type. When multiple programs were selected at one umbrella provider site, FIs referred to each program by its program type in order to distinguish between the different program types at the one site when talking to center staff.

4. At the fourth and final stage, the study team sampled classrooms and children at recruited programs, as needed, depending on the type of data being sought (classroom-level data, child-level data, meal-level data, etc.). The sampling procedure was as follows:
 - a. If a program had a single classroom of 30 or fewer children, data were collected from that classroom. A program with no defined classrooms was treated as having a single classroom.
 - b. If a program had a single classroom of more than 30 children, the classroom was divided into sub-classrooms by age group. Of age groups with at least 14 children, one age group was selected to provide a sub-classroom. Specifically:
 - i. For early child care programs with 31-60 children in one classroom, the age groups for sub-classrooms were 1-3 years and 4-12 years;
 - ii. For early child care programs with 61 to 90 children in one classroom, the age groups for sub-classrooms were 1-3 years, 4-7 years, and 8-12 years;
 - iii. For before and after school programs with 31-60 children in one classroom, the age groups for sub-classrooms were 1-7 years and 8-12 years;
 - iv. For before and after school programs with 61 to 90 children in one classroom, the age groups for sub-classrooms were 1-4, 5-7, 8-9, and 10-12 years.
 - v. For programs with over 90 children in one classroom, each year of age was treated as a sub-classroom.
 - c. If a program had more than one eligible classroom with at least 14 children, a classroom was selected via simple random sampling from among the eligible classrooms.
 - d. If a program did not have any eligible classrooms with at least 14 children, the largest eligible classroom was selected.
 - e. Within the sampled classroom or sub-classroom, consent was requested from the parents of all children, and all children with parental consent were included in the sample.

Exhibits in Section A.8 summarize the sample frames and sizes for the various samples used to construct estimates presented in this report.

A.1.2 Collecting the Data

The study protocol included a variety of instruments, some administered only at subsamples of the sample programs. This strategy reduced cost and burden while meeting precision goals. Once the programs had been selected into the study sample, they were randomly assigned to one of five groups, which determined which instruments would be administered. Based on the data collection plans, all program types were eligible for random assignment to Group 1. Family day care homes were not eligible for assignment to Group 2 or Group 3, but were the sole provider type eligible for assignment to Groups 4 and 5.

- **Group 1: Program-level self-administered data collection only.** These programs completed the provider survey, the menu survey, and the infant menu survey. The study team did not collect any other data from programs assigned to this group.
- **Group 2: Selected for cost data collection.** The study team asked this group to complete the provider survey, menu survey, and infant menu survey, as well as cost data collection instruments.

- **Group 3: Selected for all data collection components**, including all components in Group 2 plus environmental observations, meal observations, child food diaries, and parent surveys. The meal observations and child food diaries jointly provided dietary intake data for a full 24-hour day. This group was further subdivided:
 - *Group 3.1 received child care day (CCD) diaries and non-child care day (non-CCD) diaries.*
 - *Group 3.2 received CCD diaries, non-CCD diaries, and a second CCD diary to aid in the construction of usual dietary intakes analysis sample.*
 - *Group 3.3 received CCD diaries, non-CCD diaries, and a second non-CCD diary to aid in the construction of usual dietary intakes analysis sample.*
- **Group 4: Selected for a study of the feasibility of collecting dietary intakes in family day care homes (the FDCH feasibility study)**, for which the study team collected the provider survey, menu survey, meal observations, and child food diaries.
- **Group 5: Additional family day care homes selected to provide additional observations for estimates of portion sizes.** The study team asked this group to complete the provider survey and the menu survey and to allow meal observations.

The analysis tables based on the provider survey or menu survey data included programs in Groups 1, 2, 3, and 5. Analyses of observed physical activity opportunities use data from environmental observations in Group 3. Portion sizes for foods recorded in the menu survey were derived from meal observation data gathered from Group 3 and 4 programs, using an imputation process described in Section A.4.1. Cost and revenue analysis tables use data from Groups 2 and 3. Tables based on meal observation booklet data, child food diary data, and height and weight form data use data from programs in Group 3. Tables based on infant menu survey data use data from programs in Groups 1, 2, and 3. Tables based on infant food intake form data and parent survey data from programs in Groups 2 and 3. Family day care home (Group 4) data were collected solely as part of a feasibility test and were not part of the analyses presented in this summary.³

A.1.3 Weighting the Data

For producing population-based estimates and for all statistical analyses, the study team assigned each responding program a sampling weight. Each of these weights reflects a program's probabilities of selection to allow for unbiased national estimates, adjustment for nonresponse, and light trimming of extreme weights. Extreme weights have been trimmed in order to improve the precision of the estimates from SNACS. Classroom sampling weights and child-level sampling weights were constructed similarly. These weights included the nonresponse adjusted program weights, incorporated the probabilities of selecting a classroom and child within a classroom and included some additional adjustments for nonresponse at the child level. There was no nonresponse at the classroom level among those programs that agreed to participate.

In general, the study team created nonresponse adjustments by modeling the propensity to respond. Variables used in the propensity models included first stage strata, SSU metropolitan status, and several ZIP code-level variables obtained from the U.S. Census Bureau's American Community Survey (ACS). ACS information included median household income, percentage of children living in households below 185 percent of the FPL, and percentage of minority children. The models for parent and child weights

³ Group 4 family day care homes were excluded from all analyses because they were a convenience sample used only to study the feasibility of conducting onsite SNACS data collection in family day care homes. (This feasibility question was the subject of an internal project memorandum to FNS).

also included child age group. Special weighting methods for the analysis of usual dietary intakes are described in section A.4.2.1.

A.1.4 Overview of Sample Exhibits

Exhibits A.8-1 to A.8-5 in Section A.8 summarize the population totals, the selected sample, and the responding sample for each program-level analysis, including the provider survey, environmental observations, menu survey, meal observations, and cost and revenue interviews. In these exhibits, columns A through G represent the following:

- **Estimated Frame Population** is the number of programs in the sample frame. The final sample weights will not sum to this total because the weights are designed to represent the “eligible” population. The size of the frame population is estimated from the program counts in the initial sample. Therefore, the estimated size of the frame population (particularly for subgroups) can vary between the four samples (menu survey, meal observation, provider survey, and environmental observation samples) because of sampling variance associated with the four samples.
- **Estimated Eligible Population** is the estimated number of programs that are eligible for the analysis. This estimate was derived using the survey data from the four samples. Programs counted in the estimated frame population are considered ineligible if they are no longer in business or no longer receive subsidies from FNS. The estimated size of the eligible population (particularly for subgroups) can vary between the four samples (menu survey, meal observation, provider survey, and environmental observation samples) because of sampling variance associated with estimating the eligibility rate from the four samples.
- **Frame That Is Eligible** is the percentage of a group that is considered eligible.
- **Selected** is the initial sample size selected from the third stage frame.
- **Eligibility Could Be Determined** is the number of programs the eligibility of which could be determined from the selected sample. Eligible programs were providers currently in business and participating in CACFP.
- **Eligible** is the subset of the group E that were determined to be eligible.
- **Completes** is the subset of group F that participated in each of the studies. Only surveys that were fully completed were counted as completes.

Exhibits A.8-17 and A.8-18 provide a summary of the program and child-level sample sizes for early child care programs and before and after school programs, respectively. The exhibits present sample sizes for the following frames: plate and classroom waste, parent survey, body mass index and weight for age, infant menu survey, infant food intake form, 24-hour intakes, and meal-level observation by various program-level characteristics. For the applicable samples, one classroom was randomly selected from each program, so the classroom-level sample size is equivalent to the program sample size. Exhibits A.8-19 and A.8-20 provide a summary of the child-level sample sizes by various child and program-level characteristics, including age of the child, gender, and race/ethnicity.

Additionally, Exhibits A.8-23 and A.8-24 show the percentage of children in early child care programs and before and after school programs that received each type of meal and snack, as well as the mean typical hours that early child care program children spend in care from the parent survey, where available.

A.2 Data Collection

Data collection activities began in January 2017 and continued through September 2017. Data were collected using surveys and telephone interviews, as well as through on-site data collection conducted during a target week. The study staff managed the consent process and scheduled on-site meetings with

relevant child care site staff and sponsors during the target week at each site. Exhibit A.2-1 lists the topics, instruments, respondents, modes, sample groups, and provider types for each data collection. The following sections describe the recruiting process, instruments, and related data collection procedures.

A.2.1 Recruiting

Recruitment activities began with outreach to CACFP sponsors between September and December of 2016. Programs level recruitment began in October 2016 and concluded in August of 2017. Prior to scheduling, 866 programs initially agreed to participate. A substantial number of programs either refused, were ineligible, or were cancelled at the point of scheduling. As a result, 652 were fully recruited and ultimately cooperated with the onsite data collection.

Recruitment for the child sample took place ahead of and during the data collection week for each provider site. A total of 3,720 children were recruited by the time child recruitment was finished, during the week of August 21, 2017.

A.2.2 Instruments

This section describes the instruments and their contents.

A.2.2.1 Nutrition and Wellness Surveys and Telephone Interviews

Provider Survey. The study team designed the online provider survey to measure wellness policies, menu planning, food purchasing, and additional program characteristics. It consisted of 11 modules covering the following categories: menu planning; food purchasing; food preparation and food safety; food/beverage serving practices; child food allergies and food intolerances; water policies and practices; reported child physical activity policies and amenities; infant feeding practices and infant physical activity opportunities (if applicable); nutrition and physical activity promotion/education practices; barriers to CACFP participation and recent program changes; and years of experience and education of the center directors/family child care owner, or after school program directors.

Exhibit A.2-1 Topics, Instruments, Respondents, Modes and Sample Groups for Data Collection

Topic/Instrument	Respondent	Mode	Data Collection Group (1-5) and Provider Type
Nutrition and Wellness Surveys and Telephone Interviews			
Provider Survey: <ul style="list-style-type: none"> • Program characteristics module • Meal and snacks policies and practices modules • Food preparation modules • Wellness policy module • Infant feeding and wellness module 	Sponsors, directors, food preparers, other center and FDCH staff	Web	1 through 5 (CCC, HS, FDCH, OSH, AR)
Menu Survey Booklet: <ul style="list-style-type: none"> • Child menu survey (5 days of meals-breakfast, lunch, supper, and snacks) • Infant menu survey module (5 days) • Foods you prepared form • Separate booklets with: <ul style="list-style-type: none"> • Instructions • Food description guide 	Center food preparers or directors, or FDCH staff	Hard copy	1 through 5 (CCC, HS, FDCH, OSH, AR)
Parent Survey	Parents	Telephone	2, 3, and 4 (CCC, HS, FDCH, OSH, AR)
Nutrition and Wellness On-Site Data Collection			
Environmental Observation Form (includes physical activity observation)	Child care staff (collected by field data collectors)	Hard copy	3 and 5 (CCC, HS, FDCH, OSH, AR)
Meal Observation Form (4 sub-forms):		Hard copy	3, 4, and 5 (CCC, HS, FDCH, OSH, AR)
<ul style="list-style-type: none"> • Reference portion measurement form 	Child care staff and food preparers (collected by field data collectors for samples of reference portions)		
<ul style="list-style-type: none"> • Meal observation form (includes individual plate waste observations) 	Child care staff and children as well as food preparers for listing foods served (collected by field data collectors)		
<ul style="list-style-type: none"> • Meal observation form – foods from home 	Child care staff and children as well as food preparers for listing foods served (collected by field data collectors)		
<ul style="list-style-type: none"> • Classroom waste form 	Food preparers or child care staff (to indicate what is done with the food)		
Child Food Diaries <ul style="list-style-type: none"> • Child care day food diary • Second child care day food diary • Non-child care day food diary • Second non-child care day food diary 	Parents reporting on children	Hard copy	Child care and non-child care day: 3 and 4 (CCC, HS, FDCH, OSH, AR) Second child care day and non-child care day: 3 (CCC, HS, OSH, AR)

Topic/Instrument	Respondent	Mode	Data Collection Group (1-5) and Provider Type
Standing Height and Weight Form	Children (collected by field data collectors)	Hard copy	3 and 4 (CCC, HS, FDCH, OSH, AR)
Infant Food Intake Form	Infant care staff or center director or food preparer (if follow-up needed)	Hard copy	2 and 3 (CCC)
Cost and Revenue Interviews and Self-Administered Forms			
Center director cost interview (Staffing cost interview for center staff)	Center directors or child care staff (completed by field data collectors)	Hard copy	2 and 3 (CCC, HS, OSH, AR)
Center foodservice cost interview (Staffing cost interview for center foodservice staff)	Center directors or child care staff (completed by field data collectors)	Hard copy	2 and 3 (CCC, HS, OSH, AR)
Financial cost interview <ul style="list-style-type: none"> • CACFP expense statement • CACFP revenue statement • Total revenues and expenses 	Sponsors or center directors (completed by field data collectors)	Hard copy	2 and 3 (CCC, HS, OSH, AR)
Sponsor cost interview <ul style="list-style-type: none"> • Sponsor CACFP staff cost interview • Support staff cost interview^a • Food price and USDA Foods checklist^a 	Sponsors (completed by field data collectors)	Hard copy	2 and 3 (CCC, HS, OSH, AR)
Meal and snack counts booklet	Center directors or child care staff (self-administered)	Hard copy	2 and 3 (CCC, HS, OSH, AR)
Self-administered cost questionnaire	Center directors or child care staff (completed by field data collectors)	Hard copy	2 and 3 (CCC, HS, OSH, AR)

Notes

Group 4 data was collected for the purposes of feasibility only, not for analysis *tables*, however, meal observations from Group 4 contribute to portion size estimates. Group 5 environmental observation data were not intended for analysis.

^a Completed with the center director for independent centers

AR = at-risk afterschool program; CCC = child care center; FDCH = family day care home; HS = Head Start program; OSH = outside-of-school hours program

Menu Survey. The menu survey collected information about all of the foods served to children in CACFP reimbursable meals in child care during a one-week period (referred to as the target week) and included instructions for completing the forms. A separate food description guide was included to help providers understand the desired level of detail about foods prepared. The menu survey respondents, who were the individuals most familiar with the food preparation at the sampled program, were asked to list all foods served to children as part of CACFP meals, including foods that may not contribute to satisfying the CACFP meal pattern (e.g., cakes, sweetened beverages, or snack chips) and any unplanned foods, which may not show up on the posted menu, particularly snack foods such as cookies, crackers, and pretzels. They were asked to record the following information for each food item: food name, a detailed description, brand name, and preparation.

While the menu survey was meant to capture all foods and drinks served at meals and snacks to children in child care settings, portion sizes or amounts of foods served to children were not recorded in the menu survey. When a food was prepared by combining two or more ingredients, respondents were asked to complete a “foods you prepared” form, which included detail on the ingredients and cooking methods, along with space to provide recipes (when readily available). Respondents were also asked to indicate the

age groups (1, 2, 3-5, and 6-12 year olds) of children to whom each food was served and the date, day of the week, and type of meal service specific to each meal served.

Only foods and beverages provided by the child care program were captured in the menu survey. Meals or snacks provided by parents were not recorded in the menu survey. For example, some programs may require that meals and/or snacks be provided by parents or offer parents the option to provide foods from home to supplement program meals or in place of program meals.

Infant Menu Survey. The infant menu survey collected information about all of the foods served to infants (under 12 months of age) in CACFP reimbursable meals/snacks while in child care. The infant menu survey respondents, who were the individuals most familiar with the infant food preparation at the sampled program, were asked to list all foods and beverages served to infants by the child care program as part of CACFP reimbursable meals/snacks, including foods that may not contribute to satisfying the CACFP meal pattern (e.g., cakes, baby cookies, or snack chips) and any unplanned foods. Only foods and beverages provided by the child care program were captured in the menu survey. Foods provided by parents (including breastmilk) were not recorded in the infant menu survey. Respondents were asked to record the following information for each food item: food name, a detailed description, brand name, and preparation. Respondents were also asked to indicate the age groups (0-3, 4-5, 6-7, and 8-11 months old) of infants to whom each food was served and the date, day of the week, and time frame in which the food was served.

The infant menu survey booklet included a separate section for each day and subsections for each infant feeding timeframe (before 10am; 10am-1pm; 1pm-4pm; after 4pm). Infant feeding timeframes were provided instead of meals because infants are often fed on demand and may not follow the same meal schedule as older children do throughout the day. These pre-listed timeframes reminded the respondent to complete the form for all food and drinks served throughout the entire day to infants.

When a food was prepared by combining two or more ingredients, respondents were asked to complete a “foods you prepared” form, which included detail on the ingredients and cooking or preparation methods, along with space to provide recipes (when readily available).

Parent Survey. The parent survey was a phone interview that collected child demographic information, child care schedule, parent practices regarding food and beverages sent from home to child care, opinions about food and activity at child care, food security at home, child demographics, household program participation, and children’s physical activity outside of child care. Parent reported physical activity questions were developed based on the Burdette scale, which has shown good correlation with objectively measured physical activity.⁴

A.2.2.2 Nutrition and Wellness On-Site Data Collection Instruments

On-site data collection occurred in a subsample of the menu survey sample. Several instruments were fielded, including the meal observation booklet, child food diaries, standing height and weight form, standing and holding weight form, and infant food intake form.

Environmental Observation Form. The onsite environmental observation form assessed minutes spent in physical activity, sedentary activity, and screen time. The form itself was a paper booklet in which trained observers recorded data by hand. The form asked questions on the amount of time spent by children in physical activity and sedentary activity, the availability and type of equipment for physical activity, space for physical activity, staff participation in physical activity, and the availability of water throughout the

⁴ Survey questions modified from Burdette, H.L., Whitaker, R.C., & Daniels, S.R. (2004). Parental Report of Outdoor Playtime as a Measure of Physical Activity in Preschool-aged Children. *Archives of Pediatrics & Adolescent Medicine*, 158(4), 353-357.

day. The study team based the form on the validated *Nutrition and Physical Activity Self-Assessment for Child Care* (NAP SACC) / *Environment and Policy Assessment and Observation* (EPAO) tool as well as additional tools used by study leaders for prior research conducted in child care settings.

Meal Observation Form. The meal observation form was collected in a subsample of the menu survey sample and included four sub-forms:

1. *The Reference Portion Measurement Form* for the translation of visual portion sizes to actual gram weights and fluid ounces of food and drinks, while at the same time providing a visual basis for one reference portion of each food and drink served, or the smallest portion that could be served to or taken by a child⁵;
2. *The Meal Observation Form* for the collection of the types and numbers of reference portions of food and drink served, removed (spilled/dropped/traded), and remaining for all meals and snacks observed;
3. *The Meal Observation Form – Foods from Home* for the collection of the types and amounts of food and drink served, removed (spilled/dropped/traded), and remaining that are brought from home in the form of full meals or snacks⁶; and
4. *The Classroom Waste Form*⁷ for the collection of the types of food left over in the observed classroom (not on individual children's plates) after the completion of the meal or snack. The forms captured all foods remaining in serving dishes after a meal, even those not thrown away, and indicated how they were repurposed; and if it was thrown away then the amount discarded was also measured and recorded.

The meal observation forms captured the amounts of food and beverages served to sampled children and the amounts left over/wasted in meals and snacks while in child care using a direct observation approach. The amounts served and wasted were used to calculate the amount consumed. The amount served was also used to impute portion sizes for the full menu survey sample as discussed in Section A.4.1.1. For analysis of meals served, the study team utilized data from two of the meal observation sub-forms: the reference portion measurement form and meal observation form. For the analysis of dietary intakes and plate waste, the study team used data from all four of these meal observation sub-forms. In analyses based on the meal observation amount served, the CACFP age groups were assigned based on the ages of the children observed during the meal.

Child Food Diaries. Parents of sampled children were asked to complete child food diaries to provide information about a child's food intake while they were away from the child care setting on a specified day. There were two different child food diaries, one for a day in which the child was in child care and one for a day the child was not in child care (generally a weekend day). Instructions and time frames for data collection varied between the two versions of child food diaries.

Child Care Day Diary. The CCD diary started as soon as the child left the child care program on the day of the meal observation. The diary stopped when the child arrived at the child care program the following day.

⁵ A reference portion was defined as the smallest possible portion that could be served to or selected by a child (e.g., a spoonful of mashed potatoes, a cracker, a chicken nugget).

⁶ Data from the Food from Home Form were not used in the menu quality analysis.

⁷ Data from the Classroom Waste Form were not used in the menu quality analysis.

Non-Child Care Day Diary. The diary included a 24-hour period starting when the child woke up on the designated non-CCD, usually a Saturday or Sunday, and stopped at the same time the next day.

The CCD and non-CCD diaries included the following sub-forms:

1. *Packed Meals and Snacks.* This form (included only in the CCD diary) was completed only if the sampled child brought an entire meal or snack to child care from home during the meal observation. It collected details about the meal packed, such as the name, brand, flavor, preparation method, and amount of each food item included. It also requested detailed ingredient information for mixed dishes.
2. *Meals and Snacks.* The meal and snack forms were used to capture detailed information for each food and drink consumed by the child outside of the child care program on a given day. They collected information on the type of meal, as well as the name, brand, flavor, preparation method, and amount of each food item included. It also requested detailed ingredient information for mixed dishes.
3. *Follow-up Questions.* At the end of the child food diary there were several questions completed by the parent including questions about their child's usual intake and several questions about usual food preparation methods that were used during data entry and cleaning.
4. *Portion Size Visual Aid.* This page depicted common items with which the parent should be familiar to help them visually estimate portion sizes. For example, a serving of pasta that is about the size of a baseball or an adult fist is approximately one cup of pasta.

Standing Height and Weight Form. This form was used by trained staff to record the standing height and weight of sampled children ages two and over.

Standing and Holding Weight Form. The Standing and Holding Weight Form collected weight data for one year old children (12-23 months) and any children who could not stand on their own.

Infant Food Intake Form. The infant food intake form was used by the infant's child care provider to record all food and beverages consumed by sampled infants during child care hours, including foods and beverages brought in from home. Each infant food intake booklet contained forms that were used by infant care staff to record the amount and types of food consumed by infants (under 12 months of age) at each feeding while in child care on a single day during the target week. The infant food intake form also included a measurement guide. The guide presented various images of standard spoons, bowls, and cups of different sizes for respondents to use when estimating the amounts consumed by infants, if standard measuring tools were not available.

A.2.2.3 Cost and Revenue Data Collection Instruments

The cost data collection included four on-site interviews and two self-administered surveys, as described below. In addition to these cost specific instruments, the analysis used data from four nutrition instruments: the menu survey, meal observation booklet, infant food intake form and infant menu survey.

On-site data collection was attempted on all members of Groups 2 and 3. Several instruments were fielded as part of this on-site data collection, including the center foodservice cost interview, center director cost interview, financial interview, and sponsor cost interview.

Center Foodservice Cost Interview. Center directors, center foodservice managers, or production kitchen managers completed a weekly time schedule in 15-minute time increments for each foodservice staff member. Foodservice staff included people whose job is primarily foodservice related. If a respondent was unable to determine a staff member's primary job role, they were asked to include anyone who worked on foodservice tasks at least 50 percent of their time. Daily time estimates for a week included food production and food service by meal, CACFP administration time and any other CACFP activities. Respondents also provided salary information for the staff captured in this interview.

Center Director Cost Interview. Center directors were asked to estimate the amount of time child care center staff spent on CACFP related foodservice activities. This interview captured time for staff whose job responsibilities are not primarily foodservice, including teachers. If a respondent was unable to determine a staff member's primary job role, they were asked to include only those staff who spent less than 50 percent of their time on foodservice activities. The interview captured the time per day or week or year staff spent on food production and food service by meal, CACFP administration time and any other CACFP activities. Directors were also asked to provide salary information for the staff captured in this interview.

Financial Interview. The financial interview was completed onsite by trained study staff and included three sections:

1. *CACFP Expense Statement* was used to abstract CACFP financial data from the organization's expense statement into standard categories. Respondents provided CACFP food expenses and were asked for any labor and other expenses on the expense statement that could be tied to CACFP;
2. *CACFP Revenue Statement* collected data on USDA subsidy for CACFP meals, value of USDA Foods, and any other sources of revenue for CACFP;
3. *Total Revenues and Expenses* collected the total revenue and expense amounts for either the entire independent program, or the entire sponsor organization, including all programs and activities, inclusive of but not limited to CACFP or foodservice.

Sponsor Cost Interview. The sponsor cost interview was completed onsite by trained study staff and included three sections:

1. *Sponsor CACFP Staff Cost Interview* was completed only for sponsored programs with the sponsor director. It collected the time spent by sponsor staff on activities related to CACFP as well as salary information for these staff;
2. *Support Staff Cost Interview* was completed for all programs. It collected total time for activities such as personnel management (e.g., human resources), accounting, budgeting, and custodial work that benefit multiple programs, including CACFP, and where the time spent in direct support of CACFP could not be estimated directly. Salary information was also collected for staff included in this interview;
3. *Food Price and USDA Foods Checklist* was completed for all programs. It was used by study staff to guide the respondent in building a list of all food vendors and the types of food they provide. This checklist was then used by the respondent to ensure that price documentation for each vendor and type of food was provided.

Two surveys required specifically for the cost analysis were conducted by mail and timed to collect data for the target week (details on procedures in Section A.2.3).

Meal and Snack Counts Booklet. This booklet captured counts of reimbursable CACFP meals by meal type for each sampled program for the target week when onsite data collection occurred, and the total number of days per year that the center or program was open both during the school year and when school is not in session. It also captured the number of infants served for the same target week for those programs claiming CACFP meals for infants.

Self-Administered Cost Questionnaire. This questionnaire was completed by the independent provider or sponsor and captured the type of organization, the counts of CACFP centers or programs under the sponsor, and the annual meal counts by meal type and by reimbursement status (i.e., free, reduced price or paid meals). It also captured information on the organization's indirect cost rate and the types of costs

covered by that rate. Indirect costs are costs incurred for the benefit of multiple programs or other cost objectives. They typically support administrative overhead functions such as fringe benefits, accounting, payroll, purchasing, and facilities management. An indirect cost rate is the ratio of total indirect costs to total direct costs and is used to attribute a portion of indirect costs to each program or other cost objective.

The following section describes the data collection procedures using the aforementioned instruments.

A.2.3 Procedures

A.2.3.1 Nutrition and Wellness Surveys and Telephone Interviews

Provider Survey. Data collection for the provider survey occurred from January 2017 through September 2017. Targeted respondents included center directors, family day care home providers, and afterschool program directors. The contact protocol began with an introductory email, followed by a reminder email, a reminder letter sent via U.S. Mail, and a final reminder email. Respondents accessed the survey via a web link embedded in an email the study team sent to the primary contact at each program. Programs that did not have a working email address instead received a paper letter containing the link to the web survey.

Each program received a unique login URL and PIN to access the online survey. In the survey's first section, the respondent answered questions to confirm the program's eligibility and to determine whether later survey sections pertaining to infants would be applicable. In order to collect accurate responses, the survey's programming allowed the primary respondent to identify additional staff at the organization who could best respond to each section/topic. These additional respondents could then log into the survey and complete the relevant sections.

Respondents who started the survey but had not yet finished it received an additional email reminder; they also received telephone calls prompting them to complete the survey, with the offer of doing so over the phone. A small number of respondents completed the survey via telephone or on paper via return mail instead of via the web link.

Menu Survey. Data collection occurred from February through August 2017.⁸ All sampled child care programs were asked to complete a menu survey. Surveys were mailed to respondents two weeks prior to the specified five-day period (referred to as the target week) during which they completed the menu survey, along with an instruction booklet that included simple but detailed instructions about how to complete each form (breakfast, lunch, supper, snacks, and "foods you prepared form") with examples respondents could refer to. The booklet included a separate section for each day and subsections for each potential meal and snack. Respondents were also offered an in-depth training video (10-20 minutes) available in both English and Spanish. Respondents were asked to fill out the menu survey and then return the completed booklet via pre-paid postal mail at the end of the target week in exchange for a \$50 incentive.

Follow-up calls were made to respondents before the start of the specified target week to ensure receipt of menu survey materials and to answer any initial questions. A toll-free "help" number was available to address questions or problems. For those programs that were part of the on-site data collection sample, field staff provided on-site technical assistance with completion of the menu survey. Child care providers that were not part of the on-site data collection sample received an additional follow-up phone call during the target week to provide assistance as needed. Respondents were also asked to send the weekly posted menus and copies of any production records for foods prepared during the target week, if available.

⁸ Four menu surveys were returned in September/October 2017.

Infant Menu Survey. Data collection occurred from February through August 2017.⁹ All sampled child care programs were asked to complete an infant menu survey if they cared for children under 12 months old. The respondents were the individuals most familiar with the infant food preparation at the sampled program. Surveys were mailed to respondents two weeks prior to the target week during which they completed the menu survey, along with an instruction booklet that included simple and detailed instructions about how to complete each form. A separate food description guide was included to help respondents understand the desired level of detail about foods prepared, and an instructional video was available. Respondents were asked to fill out the infant menu survey and then return the completed booklet via pre-paid mail.

Follow-up calls were made to respondents before the start of the target week to ensure receipt of infant menu survey materials and to answer questions. A toll-free “help” number was available to address questions or problems. For those programs that were part of the on-site data collection sample, field staff provided on-site technical assistance with completion of the infant menu survey. Child care programs that were not part of the on-site data collection sample received an additional follow-up phone call during the target week to provide assistance as needed. Respondents were also asked to send the weekly posted menus and copies of any production records for foods prepared during the target week, if available.

Parent Survey. Parents who consented to have their children observed were also contacted for phone interviews to complete the parent survey. Phone numbers from the child consent forms were used to recruit parents to participate in the parent survey between March and September of 2017.

The parent survey was conducted by trained interviewers using a computer assisted telephone interview system. Repeat attempts were made after the end of the on-site data collection period to maximize parent survey participation.¹⁰ Interviewers timed their calls strategically to maximize the chance of reaching the parent. For example, calls were made during the day, evenings, and weekends. They worked to find the best time to reach each individual parent based on the call history and tailored the contact strategy for each individual case to maximize the response and completion rate.

A.2.3.2 On-site Nutrition and Wellness Data Collection

All on-site nutrition and wellness data collection described below occurred between March and July 2017.¹¹

Environmental Observations. The environmental observation form was completed by trained field interviewers during visits to provider sites during periods of onsite data collection. The assessment consisted of an all-day observation of all children and staff in the sample classroom, completed by one interviewer.

Observation began when the first child arrived in the classroom and ended when the last child left at the end of the day. In order to capture the full day of activity, the field interviewer observed the activities of the majority of children in each class during indoor and outdoor activities, and any movement from the classroom to other locations. The observer used a stopwatch and calculator to record the number of minutes spent in various activities and to perform calculations of time as the form required.

Meal Observation Booklet. This booklet includes four forms: the *Reference Portion Measurement Form*, the *Meal Observation Form*, the *Meal Observation Form – Foods From Home Form*, and the *Classroom Waste Form*. Trained field interviewers completed the meal observation forms during visits to program

⁹ Four infant menu surveys were returned with menu dates in September 2017.

¹⁰ Interviewers made an average of seven attempts per parent.

¹¹ One infant intake was completed in August 2017.

sites during the target week for on-site data collection. For each meal or snack at a program site, two field interviewers each observed up to three children seated together in one classroom. The Reference Portion Measurement Form collected five measurements of each food and drink served in gram weights and fluid ounces, called a reference portion. These five measurements were later averaged to obtain the mean reference portion weight, which was used to convert meal observation data (reference portions served and wasted) into gram weight and fluid ounce amounts.

Prior to each meal and snack, one field interviewer measured and recorded on the reference portion measurement form the five reference portions in gram weights or fluid ounces of each food offered. Both field interviewers made sure they were visually familiar with the measured reference portion of each food served prior to meal service. Observations began as soon as the first child sat at the table for the meal or snack. Field interviewers were positioned to have a clear view of each observed child's plate and cup without being overly intrusive. During the meal, they observed foods served and wasted by the sampled children and recorded the relevant information on the meal observation forms. Meals provided by the program were recorded on the meal observation form, and meals brought from home were recorded on the meal observation—foods brought from home form. The same procedures were followed for up to an additional three children on a second day. Most programs had meal observations on two days of the target week. Programs sampled for a second CCD meal observation had up to four days of meal observation data.

Field interviewers also recorded the meal start and end times, defined as the times at which approximately 75 percent of the children in the classroom were seated at or left the table, respectively. They checked the “meal ongoing” box if there was no defined time for the end of the meal. For example, in some afterschool programs, there was no defined time for the end of the snack: children were instructed to grab a snack if they are hungry and the food was not removed for a long period of time.

A field interviewer completed the *Classroom Waste Form* immediately after the completion of the meal and prior to food being thrown away. For each food served, the field interviewer asked the classroom staff what would be done with the leftovers, and recorded it on the form. For all foods that were to be thrown out, the field interviewer measured the food or drink in grams or fluid ounces, recorded the number of reference portions, or used visual estimation.

Child Food Diaries. Parents were responsible for the completion of the child food diaries. Field interviewers distributed the diaries to the parents of sampled children whose meals had been observed at child care that day, and explained how to record the data for the remainder of the 24-hour period. Written instructions were provided with the child food diaries to help the parents navigate the booklets, as well as to describe in detail the information to be recorded in the diaries. These instructions provided the parent something to refer back to as they completed the diary and/or had questions.

When the diaries were returned, the field interviewers reviewed the diaries with the participating parent in-person or over the phone whenever possible in an effort to collect complete information. Field interviewers reviewed each meal and snack recorded by the parent, checking that all information was recorded for each meal (including type of meal and where the meal was eaten), checking for excessive time gaps between meals, reviewing for missed foods and condiments, probing for additional details where necessary, and looking for inaccurate or implausible portion sizes. Procedures established for administration of the child food diaries were designed to gather enough details to provide high quality dietary data and to promote standardization in the way information is elicited from respondents.

Parents in a subsample of programs were asked to complete a third child food diary, either for an additional CCD or a non-CCD. The additional CCD diary occurred on a non-consecutive day relative to the first CCD diary, within the same target week. The additional non-CCD diary occurred the week

following the first non-CCD diary. Procedures for completing the diaries were the same, but a different date was assigned to capture another 24-hour intake period.

Standing Height and Weight Form. The participants' weight and height were measured at the child care program in duplicate by trained field staff using a portable scale (Health O Meter 349KLX) and stadiometer (Seca 213). A third measurement was taken if the difference between two measurements was greater than 0.1 kg, or 0.5 cm, for weight and height, respectively.

Infant Food Intake Form. The person responsible for completing the infant food intake form was the person who typically fed the infants, usually the infant care provider. On the first day of the on-site visit, a field interviewer provided training for how the infant care respondent should fill out the forms on the following day. Field interviewers were also available to answer questions and provide on-site support while the respondent filled out the forms on the target day. The respondents recorded all food and beverages consumed by the sampled infants during the hours while the infant was in child care for that day. Respondents recorded the date of intake, time that s/he started each feeding, the description of the food and beverages served, the source of each food and beverage (from home; from the provider; or mom nursed), and the amounts that the infant ate or drank. The infant care respondent was asked to determine how much the infant consumed using one of two methods: using standard measuring tools, or using the measurement guide provided in the infant food intake form. For liquids, respondents were encouraged to record liquids in fluid ounces. For foods, respondents were encouraged to use standard measures such as "1 Tablespoon" and to avoid non-standard measures such as "two bites." For certain foods, such as a banana or apple, respondents were provided the option to write how much the child ate from the whole fruit, such as "½ apple." Respondents were instructed to use standard measuring tools whenever possible, and to only use the measurement guide as a backup method when needed. If the measurement guide was used, respondents were instructed to use the images included to indicate the serving dish used and estimate how much was consumed. At the end of the second day, field interviewers reviewed and collected the completed infant food intake forms from the infant care respondents. They reviewed the booklets from each infant caregiver and asked any questions necessary to clarify the information provided or fill in missing information.

A.2.3.3 Cost and Revenue Data Collection

Cost and revenue data collection activities began in January 2017 and continued through December 2017. Data were collected through on-site data collection conducted during a target week, as well as using self-administered surveys. All on-site data collection described below occurred between March and August 2017.¹² Hard copies of the self-administered questionnaires were sent to providers and sponsors starting in May 2017. Telephone follow-up to improve response and capture critical data items lasted through December 2017.

Center Foodservice Cost Interview. Field interviewers conducted in-person interviews with center directors, center foodservice managers, or production kitchen managers during the onsite data collection week.

Center Director Cost Interview. Field interviewers conducted in-person interviews with center directors during the onsite data collection week.

Financial Interview. The financial interview was completed onsite by field interviewers with the center director for independent programs, or sponsor director for sponsored programs. Alternatively, the interview was conducted with a staff member the director designated as most knowledgeable with respect

¹² One infant intake was completed in August 2017. Interviews with two national sponsors were completed in December 2017.

to CACFP and program finances. While the respondent was encouraged to provide paper copies of financial statements to corroborate the data abstracted, interviewers were also encouraged to collect expense or revenue data viewed on a computer screen or verbally when there was a refusal of paper copies.

Sponsor Cost Interview. The sponsor cost interview was an in-person interview conducted with either the center director for independent programs, or with the sponsor director for sponsored programs. The sponsor CACFP staff cost interview was only completed for sponsored programs, whereas the support staff cost interview and food price and USDA foods checklist were completed for all programs. In addition to completing the checklist, respondents were also asked to provide hard copies of food invoices, receipts or contracts with food price information for each vendor used, or store shopped. Respondents were asked to provide food price documentation for all foods delivered during the target week and the four previous weeks. For USDA Foods only, respondents were asked to provide the previous three months of documentation. When providing receipts or vendor invoices, respondents were asked not to provide multiple documentation for the same food item, for example: providing one receipt showing the purchase of 1% milk and not multiple receipts every time 1% milk was purchased.

Meal and Snack Counts Booklet. Printed hard copy booklets were mailed out to the person responsible for collecting CACFP meal counts and submitting them to the state. For sponsored programs, a booklet was printed for each of the CACFP programs sampled for SNACS data collection.

Self-Administered Cost Questionnaire. A hard copy of this questionnaire was also included in the mailing with the meal and snack counts booklets (see above). One questionnaire was completed per independent provider or per sponsor.

A.2.4 Response Rates

The *response rate* is the percentage of sampled programs eligible for data collection that are complete. Programs had to be actively participating in CACFP to be eligible. Column H in Exhibits A.8-1 to A.8-5 provides response rates for the provider survey analysis, environmental observation analysis, menu survey analysis, meal observation analysis, and cost analysis, respectively. The total number of completes is group G. The estimated number of eligible programs in the sample is the number in group F plus a portion of those whose eligibility could not be determined that are estimated to be eligible. The portion of those whose eligibility could not be determined is column D minus E, and it is assumed that F/E of this eligibility-could-not-be-determined group is eligible. This response rate is standard response rate #3 as defined in the AAPOR guidelines (see https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf).

The study team created nonresponse sample weight adjustment factors for all the programs in group/column G to account for the non-respondents in group F, as well as for the programs in group/column D whose eligibility could not be determined. Note that family day care homes are not in the target population for the environmental observation and meal observation analyses, so these rows do not appear in Exhibits A.8-2, A.8-4, and A.8-5.

Response rates from these program-level data collection efforts ranged from 48.6 percent in the cost interview sample to 65.6 percent in the environmental observation sample. For the provider survey and menu survey samples, response rates were larger for outside-of-school hours programs and smaller for family day care homes. For the environmental observation, meal observation, and cost interview samples, response rates were much larger for Head Start programs and less for the at-risk afterschool programs. Programs in non-metro areas tended to have higher response rates in all five samples compared to programs in metro areas.

Exhibits A.8-21 and A.8-22 provide a summary of the response rates for the child-level data collections, including plate/classroom waste, parent survey, body mass index and weight for age, 24-hour intake, and

meal-level observation sample frames by various provider-level characteristics. These response rates were also computed using the standard definition of response rate #3 as defined in the AAPOR guidelines (see https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf).

Response rates from the child-level data collection efforts in early child care programs (Exhibit A.8-21) ranged from 53.7 percent in the provider survey sample to 72.4 percent in the 24-hour intake sample. Response rates were larger for Head Start programs than child care centers.

Response rates from the child-level data collection efforts in before and after school programs (Exhibit A.8-22) ranged from 49.7 percent in the plate/classroom waste sample to 60.5 percent in the provider survey sample. Outside-of-school hours program response rates were larger than At-risk afterschool programs across all samples. In both early child care and before and after school programs, children attending programs in non-metropolitan areas tended to have higher response rates compared to children attending programs in metropolitan areas across all samples.

Response rates could not be computed for the infant menu, infant intake, and infant feeding cost samples because of the underlying sample design. For these infant samples, data were sought from any respondent with infants willing to respond. No data were collected from respondents with infants who were not willing to respond.

A.3 Data Cleaning and Processing

This section details procedures for cleaning and processing each data source used in SNACS.

A.3.1 Provider Survey

The study team checked the electronic files generated from the provider survey for data integrity using frequency distributions and cross-tabulations. These checks determined whether the data were complete and whether the individual responses were internally consistent and fell into acceptable ranges. Data from the provider survey were considered complete when all questions in the survey were answered by the respondent. Data from a number of partially completed surveys were available, which the study team reviewed. Because too few of the survey questions were answered to be able to adequately answer the SNACS research questions, the study team excluded these partial responses from the analysis. We reviewed the partial responses to the survey and determined that these responses were too incomplete to be useful for analysis. The survey results are weighted for nonresponse, treating partial responses as survey nonresponse.

A.3.2 Nutrition Data

This subsection describes procedures for cleaning and processing the nutrition data from the menu surveys, meal observations, classroom waste forms, child diaries, infant menu surveys, and infant food intake data. It includes general information on staffing and training, quality control, and file construction as well as procedures for each nutrition data source.

A.3.2.1 Staffing and Training

To ensure consistency in data processing and cleaning across the various nutrition data sources, the study team took a unified approach to processing the menu surveys, meal observation booklet forms (reference portion measurement form, meal observation form, meal observation-foods from home form, and classroom waste form), child food diaries, infant menu surveys, and infant food intake form data. Senior nutrition analysts directed a team of nutrition coders and supervisors who were responsible for processing these data. Nutrition coders had at least college-level coursework in nutrition, dietetics, or a related field, or previous experience in food service, as well as a range of computer skills. Coders and supervisors were trained on procedures related to review, data retrieval (follow-up calls to respondents for additional information), editing, coding and entry of each of the forms as described below.

Senior nutrition analysts directed a team of nutrition coders and supervisors who were responsible for processing the menu survey and meal observation form data. Nutrition coders had at least college-level coursework in nutrition, dietetics, or a related field, or previous experience in food service, as well as a range of computer skills. Coders and supervisors were trained on procedures related to review, data retrieval (follow-up calls to respondents for additional information), editing of menu surveys and meal observation forms, and the entry of menu survey and meal observation form data into a computerized nutrient analysis software system described below.

All training sessions were led by senior nutrition staff, and detailed training manuals were provided to attendees. Training included group instruction and demonstration, supervised hands-on practice, practice exercises, and certification exercises.

A.3.2.2 Processing of Menu Survey Data

Review, Data Retrieval, and Editing. Menu surveys were reviewed for completeness upon receipt. As a first check, nutrition coders reviewed the survey against the posted menu that was requested along with the menu survey materials, and coders used the CACFP meal pattern as a guide to determine the completeness of meals and snacks served. Coders used the posted menus to cross-check against the information provided in the menu survey to identify missing meals and missing food detail. If extra detail was found in the posted menu, it was added to the menu survey. For menu surveys that had an onsite component, coders cross checked the menu survey with the data in the meal observation form to ensure that the information was consistent. Additionally, follow-up calls to the respondents were made, as needed, to retrieve missing information and to clarify ambiguous information about foods recorded during the target week. The surveys were tracked through an ACCESS database upon receipt, review, coding, and each subsequent step in the data processing.

All coder edits were subject to a quality control review.

Entering Data into SurveyNet. Once a menu survey was edited, coders followed standardized procedures to manually code foods and beverages reported as served into a SurveyNet, a computerized nutrient analysis software program developed by the Food Surveys Research Group at USDA's Agricultural Research Service. SurveyNet (version 4.2) is linked to the Food and Nutrient Database for Dietary Studies (FNDDS, version 2013-2014) and provides food codes, descriptions, gram weights, and nutrient values for each food. In SurveyNet, a separate file was created for each program's menu data, with separate records for daily breakfast, lunch, supper, morning snack, afternoon snack, and evening snack menus.

Coders matched food items to the closest food code in the database, taking into account reported characteristics of the food, such as the form (for example, fresh, canned, frozen), the preparation method (for example, oven-baked or deep fried), and characteristics that affect nutrient content (for example, low-fat or nonfat, low sodium, rich in whole grains). Coders were trained on effective searching methods to efficiently find the correct food in the database. If a food could not be found in the database or there were questions about whether the code selected was the best match, the coder flagged the food for supervisor review.

To expedite the process of searching for and selecting the appropriate food in the database, coders were provided with a list of food codes for commonly reported foods to help maintain consistency and efficiency of entry. For example, if the menu indicated that "mac 'n cheese" was served, but didn't provide enough detail (i.e., type of fat used, homemade vs from a box, etc.) to select a specific food code, the coder selected the default macaroni and cheese recipe from this list. Also, SurveyNet often has many codes for the same type of food. In order to ensure that coders used consistent codes for standard food items this list included the standard food codes for common, unprocessed foods such as bananas, eggs, and whole milk.

Coders followed a set of SNACS-specific coding guidelines for the activities described below.

a. Missing Food Descriptions

Coders were trained to choose the SurveyNet food code with the closest nutritional profile to the food reported in the menu survey. When the menu survey did not provide the information needed to code a food in SurveyNet, the study team established SNACS-specific coding rules and defaults. Defaults were needed when (1) SurveyNet identified food characteristics that were not collected in the menu survey (for example, whether corn was white or yellow) and (2) food details were still missing after data retrieval and final editing. When possible, defaults were based on guidelines developed based on the most frequently reported foods for 0-12 year olds in What We Eat in America 2013-2014 (National Health and Nutrition Examination Survey 2013-2014).

b. Entering Placeholder Amounts

The menu survey booklets collected information on all food and drink served at each sampled child care programs. They did not collect portion sizes for each food. During menu survey entry, coders entered standard amounts for menu survey food items to serve as placeholders. As a later step in menu survey processing, imputed portion sizes calculated based on the meal observation data were applied to the menu surveys, replacing the placeholders.

c. Modifying Recipes

Coders were instructed to use the specific information in the menu survey and the “foods you prepared form” about the ingredients used to select a food or recipe in the SurveyNet database that best matched the ingredients. However, if the ingredients on the menu survey or the “foods you prepared form” varied enough to have a substantial effect on total fat, saturated fat, sodium, or whole grains, coders flagged the food or recipe so that a supervisor could create modifications to the type or amount of an ingredient.

d. Linking Foods Served Together

Food items were classified as a combination, a single food, or an ingredient depending on the way the food was consumed. For example, if pasta and meatballs were served, they could be entered into SurveyNet as a single food code for spaghetti and meatballs if they were served to children mixed together and measured together. However, if the meal observation reference portions indicated that the components of the pasta and meatballs were served individually (pasta, sauce, meatballs) then each component was entered separately and then linked.

Coders used combination codes in SurveyNet to link together component parts of a given combination food. Combination codes were assigned based on the type of food, how the food was served, and how the components would be measured for a reference portion in the meal observation data. For example, the component parts of sandwiches were coded as combination foods when the individual ingredients and their amounts were present in the menu data. Coders entered separate food codes for bread, meat, and cheese and linked them with a combination code to indicate those items were consumed as part of a sandwich.

After entry, menu survey files were checked, first by the coders themselves, followed by a supervisor, for basic data integrity, including valid values, internal consistency, and completeness. The data elements checked included meal/snack type, number of menu days, meal times, age group identification, total number of meal types served, duplicate menu items entered, gram amounts entered, combination codes, and checks to ensure the foods entered matched the foods on the written forms.

The study team also classified all foods to a major and minor food group. Examples of the types of food assigned to each major and minor category can be found in Exhibit A.3-1.

Exhibit A.3-1 Food Classification System

Major Food Group	Minor Food Group	Examples
Milk	1% milk, flavored	1% chocolate milk, 1% strawberry milk
	1% milk, unflavored	1% milk with no added flavoring
	2% milk, flavored	2% chocolate milk, 1% strawberry milk
	2% milk, unflavored	2% milk with no added flavoring
	Fat-free milk, flavored	Fat-free chocolate milk, fat-free strawberry milk
	Fat-free milk, unflavored	Fat-free (skim) milk with no added flavoring
	Whole milk, flavored	Whole chocolate milk, whole strawberry milk
	Whole milk, unflavored	Whole milk with no added flavoring
	Infant formula	Any infant formula including Enfamil, Pediasure, Similac
	Other milk beverage	Soy milk, almond milk, coconut milk
Fruit	Canned, sweetened	Any canned fruit in light syrup, heavy syrup, or juice packed, including fruit cocktail, pears, mandarin oranges, applesauce
	Canned, unsweetened	Any canned fruit drained or water packed, including fruit cocktail, pears, mandarin oranges, applesauce
	Dried	Any dried fruit, including raisins, cranberries, cherries
	Fresh	Any fresh fruit, including apples, oranges, bananas, blueberries, watermelon
	Frozen	Any frozen fruit including strawberries, peaches, mixture
	Juice	Any 100% fruit juice, including apple juice, orange juice, grape juice, fruit juice blends
Vegetables	Cooked, Beans and peas	Cooked black beans, baked beans, pinto beans, chickpeas, hummus, bean soups
	Cooked, Dark green	Cooked broccoli, kale, spinach, collard greens
	Cooked, Mixture	Cooked mixed vegetables, peas and carrots, vegetable soup
	Cooked, Red/Orange	Cooked carrots, red peppers, sweet potatoes, tomatoes, pumpkin
	Cooked, Starchy	Cooked corn, green peas, French fries, white potatoes
	Cooked, Other	Cooked cabbage, cauliflower, mushrooms, string beans, summer squash
	Raw, Dark green	Raw broccoli, side salad with spinach, mixed salad greens
	Raw, Mixture	Raw side salad with mixed vegetables, lettuce and tomato or carrots, tomato and cucumbers
	Raw, Red/Orange	Raw carrots, tomatoes, red peppers
	Raw, Starchy	Raw jicama, plantain, green peas
	Raw, Other	Raw string beans, avocado, cucumber, celery, side salad with iceberg
	Juice	100% carrot, tomato and vegetable juice
Combination Entrees	Breakfast burritos	Burrito, taco, or quesadilla with egg, cheese, potato, breakfast meat (bacon, beef, ham, or sausage)
	Breakfast sandwich	Sandwich with egg, cheese, breakfast meat (bacon, beef, ham, or sausage), including sausage biscuits and pancake & sausage sticks/wraps
	Cheeseburger, similar beef/pork sandwiches with cheese	Cheeseburger, steak and cheese sandwich
	Entree salads	Chicken Caesar garden salad, julienne salad, taco salad
	Frankfurter, corn dog, similar sausage sandwiches	Frankfurter (hot dog) sandwich, poultry frankfurter (hot dog) sandwich, corn dog, pig in a blanket
	Hamburger, similar beef/pork sandwiches	Hamburger on bun, meatball sandwich, sloppy joe sandwich, barbecue pork sandwich
	Mexican-style entrees	Burrito, quesadilla, fajitas, enchilada, taco, taquito, nacho dish

Major Food Group	Minor Food Group	Examples
	Mixtures with grain, meat/meat alternates and/or vegetables	Spaghetti with tomato sauce, spaghetti with meat sauce, macaroni and cheese, lasagna, casseroles with pasta/rice, chicken noodle soup, poultry/beef/pork mixtures with rice or noodles
	Other mixtures with meat/meat alternates and/or vegetables	Chili with meat and/or beans, baked potato with meat and/or cheese, egg rolls with meat, meat stew with potatoes and vegetables, meat and vegetable mixtures without grain
	Parfaits	Yogurt parfait with fruit and granola
	Peanut butter sandwich	Peanut butter sandwich, peanut butter and jelly sandwich, Uncrustables
	Pizza	Pizza with meat (pepperoni, turkey pepperoni, sausage, chicken, and breakfast pizzas), pizza without meat (cheese pizza, vegetable pizza without meat)
	Pizza pockets, pizza sticks and calzones	Calzone, pizza stuffed breadstick, pizza rolls
	Sandwich with breaded/fried meat, poultry, or fish	Chicken patty sandwich, breaded chicken fillet sandwich, fried fish sandwich
	Sandwich with mayonnaise-based poultry, tuna or egg salads	Tuna salad sandwich, chicken or turkey salad sandwich, egg salad sandwich
	Sandwich with meat substitute and/or vegetables	Vegetarian burger sandwich, meatless frankfurter sandwich, vegetarian wrap sandwich
	Sandwich with only cheese	Grilled cheese sandwich, cheese sandwich
	Sandwich with plain meat, poultry, or fish	Ham sandwich, cold cut turkey sandwich, roast beef sandwich, grilled chicken sandwich
	Prepackaged meals	Meal kit or snack pack with cheese, cold cuts, and crackers
Meat/ Meat Alternates	Chicken and turkey, breaded/fried	Chicken or turkey nuggets, chicken or turkey patties, breaded chicken breast, fried chicken
	Chicken and turkey, plain (not breaded or fried)	Grilled chicken breast, roasted chicken or turkey, stewed chicken, ground turkey
	Chicken and turkey with sauce, gravy, or mayonnaise	Chicken or turkey salad with mayonnaise, chicken or turkey with gravy, chicken with barbecue sauce
	Fish and shellfish, breaded/fried	Breaded fish patty or stick, breaded fish fillet, fried fish
	Fish and shellfish, plain (not breaded or fried)	Baked or broiled fish, steamed or poached fish
	Fish and shellfish with sauce, gravy, or mayonnaise	Tuna salad with mayonnaise, fish with tomato sauce, shrimp with butter sauce
	Meat (beef and pork), breaded/fried	Breaded pork, breaded beef steak, breaded beef or pork patty, fried ham
	Meat (beef and pork), plain (not breaded or fried)	Beef steak, pork roast, ham, ground meat
	Meat (beef and pork) with sauce, gravy, or mayonnaise	Spaghetti sauce with beef, beef with gravy, sausage gravy, pork with barbecue sauce
	Other protein, cheese	Cheddar cheese, mozzarella cheese, Swiss cheese, American cheese, cheese sauce
	Other protein, eggs	Boiled egg, scrambled egg, fried egg, omelets with meat, cheese, and/or vegetables
	Other protein, meat substitutes, hummus and legumes	Vegetarian burger, meatless frankfurter, vegetarian ham, meatless chicken nuggets, soybeans, falafel

Major Food Group	Minor Food Group	Examples
	Other protein, nuts, nut butters, seeds, nut mixtures	Peanut butter, soy butter, almonds, sunflower seeds
	Sausage, frankfurters, and cold cuts	Ham, turkey ham, chicken or turkey cold cut, pastrami, frankfurter, sausage
	Yogurt	Fruited, vanilla, or plain yogurt, nonfat, low fat, or regular
Grains/Bread	Biscuits and cornbread	Biscuits, cornbread, bread stuffing
	Pre-buttered bread and rolls	Garlic bread
	Breads, rolls, and other breads (without added fat)	Bread, rolls, bread stick, English muffin, pita bread, tortillas, soft pretzels
	Bagel with added fat	Bagel filled with cream cheese
	Bagel without added fat	Plain bagel, bagel with raisins
	Cold cereal, sweetened ^a	Apple Jacks, Cinnamon Toast Crunch, Cocoa Puffs, Honey Nut Cheerios, Frosted Flakes
	Cold cereal, unsweetened	Cheerios, Corn flakes, Kix, Rice Krispies, Special K
	Corn/tortilla chips	Taco shell, tortilla chips
	Crackers, croutons, and pretzels	Croutons, animal crackers, graham crackers, cheese crackers, hard pretzels
	Granola bars and breakfast bars	Granola bars, Nutri-Grain breakfast bars, Milk 'n Cereal bar
	Hot cereal	Oatmeal, grits, cream of wheat
	Muffins, sweet/quick breads	Plain muffin, blueberry muffin, chocolate chip muffin, zucchini bread, banana bread
	Pancakes, waffles, French toast	Pancakes, blueberry pancakes, waffles, French toast, French toast sticks
	Pasta	Macaroni, noodles, spaghetti, pasta salad without meat, pasta with cream sauce
	Pastries	Cinnamon buns, donuts, strudels, turnovers and Danishes, toaster pastries, scone, coffee cake
Dessert/Other	Rice	White rice, brown rice, Spanish rice, rice with beans, rice with peas, rice pilaf
	Other	Egg rolls without meat, plain dumpling
	Bacon	Pork bacon, beef bacon, turkey bacon, pepperoni
	Water	Tap water, bottled water, carbonated water
	Dairy-based desserts	Ice cream, ice cream bar, ice cream cone, frozen yogurt, pudding, cheesecake
	Desserts containing fruit or fruit juice	Frozen fruit juice bars, Italian ice, fruited gelatin, fruit smoothies
	Fruit drinks/ades	Fruit punch juice drink (less than 100% juice), lemonade drink, sports drinks
	Grain-based desserts	Brownies, cakes, and cookies with or without frosting, fruit cobblers, fruit crisps
	Non-vegetable/non-entree soups	Cream of chicken soup, cream of mushroom soup, egg drop soup
	Snacks	Potato chips, popcorn, corn puffs
	Vegetable drink	Tomato juice cocktail (less than 100% juice)
	Candy (hard candy, chocolate, gum)	Fruit leather, chocolate-flavored sprinkles, caramel, chocolate, hard candy, gum
	Non-fruited gelatin	Gelatin without fruit
	Other non-dessert foods	Liver pate, imitation seafood, imitation cheese

Major Food Group	Minor Food Group	Examples
Accompaniments	Condiments and toppings	Ketchup, mustard, mayonnaise, jelly, barbeque sauce, cream cheese, parmesan cheese, salsa, pickles
	Salad dressings	Ranch dressing, Caesar dressing, Italian dressing, honey mustard dressing, French dressing

^a A cereal is classified as sweetened if it contains more than 21.3 grams of sugar per 100 gram serving.

A.3.2.3 Processing of Meal Observation Form Data

Review, Data Retrieval, and Editing. Nutrition coders conducted an initial review to ensure dates and foods recorded on the meal observation forms corresponded to those in the menu survey. Coders corrected any obvious typos and referred any major inconsistencies to a supervisor. Coders also reviewed the reference portion measurement form for completeness and calculated the mean reference portion for each food listed in gram weight or fluid ounces. Using the meal observation calculation form, coders computed the amount served and the amount wasted for each meal component for each observed child by multiplying the mean reference portion by the number of reference portions served and wasted that were observed for that child. Coders verified that child IDs were correctly recorded on the forms. The receipt, review, coding, and each subsequent step in the data processing of the instruments were tracked through a Microsoft Access database.

Entering Data into SurveyNet. Coders followed standardized procedures to manually code foods and beverages reported as served into SurveyNet, a computerized nutrient analysis software program developed by the Food Surveys Research Group at USDA's Agricultural Research Service. SurveyNet (version 4.2) is linked to the Food and Nutrient Database for Dietary Studies (FNDDS, version 2013-2014) and provides food codes, descriptions, gram weights, and nutrient values for each food. In SurveyNet, a separate file was created for each program's child intake data (including meal observations and child food diaries), with separate records for amount served, amount remaining, and home diary records for each child.

Coders matched food items to the closest food code in the database, taking into account reported characteristics of the food, such as the form (for example, fresh, canned, frozen), the preparation method (for example, oven-baked or deep fried), and characteristics that affect nutrient content (for example, low-fat or nonfat, low sodium, rich in whole grains). Coders reviewed a program's menu survey and meal observation form simultaneously and selected identical food codes to ensure the data were consistent across instruments.

A.3.2.4 Processing of Classroom Waste Form Data

Review, Data Retrieval, and Editing. Nutrition coders conducted an initial review to ensure dates and foods recorded on the classroom waste forms corresponded to those in the menu survey and meal observation form. Coders corrected any obvious typos and referred any questionable items to a supervisor. Coders also reviewed the classroom waste form for completeness. If classroom waste was provided in reference portions, coders calculated the gram weight by multiplying the reference portions remaining by the mean gram weight/volume calculated on the Reference Portion Measurement Form. If the waste was recorded in grams or fluid ounces, no additional calculations were required.

Entering Data into SurveyNet and Access Database. Similar to the meal observation form, once a classroom waste observation form was edited, coders followed standardized procedures to enter data into Microsoft Access and SurveyNet. In SurveyNet, a separate file was created for each program's classroom waste data, with separate records for each day and meal. For all foods left over in serving dishes after a meal, coders used data from the classroom waste form to record in a Microsoft Access database how a leftover food or drink was used or repurposed (thrown in garbage; donated; saved to be served again; taken home by parents; give to/eaten by staff; or other). If a food or drink was thrown away, the amount

thrown away was recorded in SurveyNet. Food items were matched to the closest food code in the database, taking into account reported characteristics of the food, as described for meal observations. Coders reviewed a program's classroom waste, menu survey, and meal observation form simultaneously and selected identical food codes to ensure the data were consistent across instruments.

A.3.2.5 Processing of Child Diary Data

Review, Data Retrieval, and Editing. Nutrition coders manually reviewed child food diaries and meal observation forms. They conducted an initial review to ensure child IDs on the child food diaries and dates recorded on the CCD diary matched the meal observation forms. Coders also reviewed the child food diaries for completeness, checking each meal or snack for missing information, including the type of meal, time of meal, and missing amounts of food. They reviewed portion sizes for plausibility. Coders also reviewed all meals and snacks recorded in diaries alongside the meal observation data for the child to check for missing meals (e.g., large time gaps between meals or less than a 24-hour period) or extra meals (e.g., multiple suppers or more than a 24-hour period). Coders used an Access database to flag and track concerns related to missing meals, too many meals, and implausible portion sizes, and referred any major inconsistencies to a supervisor. All diaries were entered except those (26 diaries) that were either missing both food descriptions and amounts consumed and/or included significantly more than one day's worth of food with no way to discern what might have been in just one day. All meals were entered unless there were meals that were clearly outside of the 24-hour period. For example, if a parent recorded two breakfasts on the same day, one at 6 a.m. and one at 8 a.m., both were entered. If a parent recorded breakfast at 6 a.m. on Saturday and 8 a.m. on Sunday, only the Saturday breakfast would be entered in SurveyNet.

Entering Data into SurveyNet. Similar to the meal observation form, once a child food diary was edited, coders followed standardized procedures to enter data into SurveyNet. In SurveyNet, a separate file was created for each program's child intake data (including meal observations and child food diaries), with separate records for each child's meal observation amount served, meal observation amount remaining, CCD diary amount consumed, and non-CCD diary amount consumed. Food items were matched to the closest food code in the database, taking into account reported characteristics of the food, as described for meal observations. Coders followed procedures, described above in Section A.3.2.2, for default food codes, missing food descriptions, modifying recipes, and linking foods together. If foods listed on the diary lacked necessary detail (for example, the type of oil used to sauté fish), the information about food preparation collected in the follow-up questions was used by coders to select the closest food code in the database.

A.3.2.6 Processing of Infant Menu Survey Data

Review, Data Retrieval, and Editing. Infant menu surveys were reviewed for completeness upon receipt. As a first check, nutrition coders reviewed the survey against the posted menu that was requested along with the infant menu survey materials. Coders used the posted menus to cross-check against the information provided in the infant menu survey to identify missing meals and missing food detail. For infant menu surveys that included table food, coders cross checked the infant menu survey with the data in the menu survey form to identify missing food detail. For infant menu surveys that had an on-site component, coders cross checked the infant menu survey with the data in the infant food intake form to ensure that the information was consistent. If extra detail was found in the posted menu, menu survey, or infant food intake form, it was added to the data recorded for the infant menu survey. Coders entered all infant menus received with the level of detail provided, and entered "missing" if details were missing, for example age range or food description. The receipt, review, coding, and each subsequent step in the data processing of the instruments were tracked through a Microsoft Access database.

Entering Data into Access Database. Once an infant menu survey was edited, coders followed standardized procedures to enter the data into Microsoft Access databases. Trained nutrition coders

categorized each food into customized food groups (see Exhibit A.3-2). After entry, the infant menu survey entry was checked, first by the coders themselves, and then by a supervisor, for data integrity, including valid values, internal consistency, and completeness. The data elements checked included infant feeding timeframes, ages served, and ensuring that the foods entered matched the foods on the written forms.

A.3.2.7 Processing of Infant Food Intake Form Data

Review, Data Retrieval, and Editing. Nutrition coders conducted an initial review to ensure dates, IDs, and descriptions of foods provided by the program on the infant food intake form corresponded to those in the infant menu survey. Coders corrected any obvious typos and referred any major inconsistencies to a supervisor. Coders also reviewed the form for completeness and checked the feeding times, the descriptions of foods, and the amounts of food consumed.

Entering Data into Access Database. Similar to the infant menu survey, once an infant food intake form was edited, coders followed standardized procedures to enter the data into Microsoft Access databases. Trained nutrition coders categorized each food into customized food groups (see Exhibit A.3-2).

Exhibit A.3-2 Infant Food Classification System

Major Food Group	Minor Food Group/Food	Examples
Milk	Breastmilk	Breastmilk
	Formula	Any infant formula, made from powder or ready to feed, including Enfamil, Gerber Good Start, Member's Mark, Parent's Choice, Similac, and more.
	Cow's milk	1 % milk, skim-milk, whole milk
Grains	Infant cereal	Flavored and unflavored infant cereals made from rice, oat, barley, or multigrain.
	Non-infant cold cereal	Cheerios, Chex, Corn flakes, Lucky Charms, Rice Krispies
	Non-infant hot cereal	Non-infant oatmeal
	Bread or rolls	Bagels, biscuits, bread, rolls, tortillas
	Cereal bars/nutrition bars	Cereal bar, fruit and grain bar, NutriGrain bar, granola bar
	Crackers, pretzels, rice cakes	Cheese crackers, Ritz crackers, saltines, teddy graham, graham crackers, pretzels
	Pancakes, waffles, French toast	French toast, pancakes, waffles
	Plain rice and pasta	Pasta, quinoa, rice
Fruits	Pureed or jarred infant food fruit	Pureed or jarred infant food fruit, including apples, bananas, mixed fruit, peaches, pears, and strawberries.
	Non-infant/ table food fruit	Fresh, canned, or frozen fruits, including apples, bananas, fruit cocktail, grapes, peaches, pears, and strawberries.
Juice	100% fruit juice	Any juice made from 100% fruit juice, including apple juice, berry juice, grape juice, and orange juice
	Not specified as to 100% or not 100% juice	Any juice not specified as to 100% or not 100% juice, including apple juice, cranberry juice, and grape juice.
Vegetables	Pureed or jarred infant food vegetables	Pureed or jarred infant food vegetable, including butternut squash, carrot, green beans, mixed vegetables, peas, and sweet potatoes.
	Non-infant/ table food vegetables	Fresh cooked, fresh raw, canned, or frozen vegetables, including beans, broccoli, carrots, corn, green beans, mashed potatoes, mixed vegetables, peas, and tomatoes.

Major Food Group	Minor Food Group/Food	Examples
Meats and proteins	Pureed or jarred infant food meat	Any pureed or jarred infant food beef, chicken, turkey, or pork, including plain pureed meat or purees with gravy
	Non-infant food meat	Any non-infant food beef, chicken, turkey, fish, or poultry, including chicken breast, chicken nuggets, barbecue pulled pork, ham, fish sticks, ground beef, hot dog, beef meatball, and ground turkey.
	Dried beans and peas, vegetarian meat substitutes	Baked beans, hummus, lentils, pinto beans, refried beans
	Eggs	Hard-boiled egg, fried egg, scrambled eggs, scrambled eggs with cheese
	Peanut butter, peanuts	Peanut butter
	Other (non-peanut) nut butter, nuts, seeds	Soy butter
	Cheese	American cheese, cheddar cheese, cottage cheese, mozzarella cheese
	Yogurt	Fruited or plain yogurt, fat-free, low fat, or regular fat.
Mixed dishes ¹³	Pasta/rice dish	Spaghetti with meat sauce, tuna noodle casserole, chicken stir fry, lasagna, macaroni and cheese, pasta salad, chicken and rice soup
	Sandwich	Deli sandwiches, hot dog sandwich, hamburger with bun, biscuits and gravy, grilled cheese sandwich
	Mexican Entrée	Burritos, nachos, quesadillas, tacos
	Pizza	Cheese pizza, pizza with meat (pepperoni, sausage), with or without vegetables
	Other mixed dish	Beef stew without grain, meat and vegetable casserole without grain, chili with beef and beans
	Pureed or jarred infant food blends (with protein)	Any pureed or jarred infant food blend of two or more components with protein, including apple and chicken puree, chicken and pasta puree, Gerber mac and cheese, turkey and rice puree, vegetable and turkey puree.
	Pureed or jarred infant food blends (without protein)	Any pureed or jarred infant food blend of two or more components without protein, including apple and berries with mixed infant cereal, peach puree with squash, jarred mixed fruit with veggies, pea and banana puree, pear puree and oatmeal.
Dessert, sweets, sweetened beverages, and salty snacks	Baby cookies, teething biscuits, and animal crackers	Animal crackers, baby puffs, Lil' Crunchies, rice rusks, teething biscuits
	Other cookies	Oatmeal cookies, sugar cookies, vanilla wafers, fig bar
	Pies and pastry	Scones
	Sweet rolls, donuts, and muffins	Banana bread, corn bread, donut, muffin, Pop-Tart
	Ice cream, frozen yogurt, pudding	Custard, popsicle
	Other desserts	Brownies
	Other sweets (milk flavorings, sugar, syrup, preserves)	Apple butter, jelly, maple syrup
	Salty snacks (chips, popcorn, cheese puffs, etc.)	Cheese balls, Chex mix, tortilla chips
Water	Water	Bottled or tap water

¹³ Non-infant food mixed dish minor food groups (mixed dishes with protein and grain; mixed dishes with protein and vegetables; mixed dishes with protein, grain, and vegetables; mixed dishes with grain and vegetables) were reviewed during analysis and broken into more descriptive food group categories shown here.

Coders entered into Access all foods and amounts consumed as recorded by respondents on the infant food intake form. After entry, infant food intake form entry was checked, first by the coders themselves and then by a supervisor. The data elements checked included the number of feeding times, and checks to ensure the foods entered matched the foods written on the forms. The amounts reported and entered were also reviewed and checked for implausible amounts. (For example, the supervisor would check for entry typos such as 100 fluid ounces instead of 10.0 fluid ounces.) Coders applied nutrition knowledge of the CACFP meal patterns to identify questionable amounts reported and brought them to the supervisors for discussion.

A.3.2.8 Quality Control Procedures for Nutrition Files

Initially, supervisors conducted a 100 percent quality control review of each coder's work and provided feedback. Once coders were familiar with the process, and the most accurate coders were identified, these coders began to perform the QC reviews as well. The review ensured that for each food, the proper food code was selected, the portion size was correctly entered, and relevant coding guidelines were applied. Supervisors reviewed and approved each recipe modification that was created. A supervisor was available at every shift to answer coder questions and resolve issues as they arose. Coding guidelines were updated and disseminated on an ongoing basis to reflect new issues that arose during the coding process and their resolution. Weekly meetings between the supervisors and staff nutritionists were held to develop new coding guidelines and resolve challenging coding issues.

Initially, supervisors conducted a 100 percent quality control review of each coder's work and provided feedback. Entries were checked for basic data integrity, including valid values, internal consistency, and completeness. The data elements checked included meal/snack type, meal times, total number of meal types served, amounts entered, combination codes, and checks to ensure the foods entered matched the foods on the written forms. Once coders were familiar with the process, and the most accurate coders were identified, these coders began to contribute to the 100 percent QC reviews of other coders' work. The review ensured that for each food, the proper food code was selected, the portion size was correctly entered, and relevant coding guidelines were applied. Supervisors reviewed and approved each recipe modification that was created. A supervisor was available at every shift to answer coder questions and resolve issues as they arose. Coding guidelines were updated and disseminated on an ongoing basis to reflect new issues that arose during the coding process and their resolution. Weekly meetings between the supervisors and staff nutritionists were held to develop new coding guidelines and resolve challenging coding issues. Additionally, after entering the menu survey and meal observation form data in SurveyNet, a detailed set of data checks identified any potential coding errors. Coders and supervisors checked to ensure that there were two records entered for each child (served and wasted), for the correct number of children per site, that combination codes were correctly assigned, and that program provided foods were entered with the same code used in the menu survey entry. SurveyNet's analysis system performed systematic checks of data integrity including valid values, and completeness. The resulting error reports identified unusually small or large gram weights, un-coded foods, missing portion sizes, and recipe modifications that had not been approved by a supervisor. Identified issues were reviewed and corrected by the supervisor. The analysis program was rerun until all batches had been checked and all errors were resolved. Cleaning runs were also developed to check for extreme nutrient values that may have resulted from entry errors, and outliers were reviewed for potential coding errors. The study team only recoded data when there was an obvious coding error.

After entry and QC reviews of the meal observation forms, classroom waste form, child food diary, infant menu survey, and infant food intake data in SurveyNet or Microsoft Access, additional detailed data checks across instruments were conducted to ensure data common across instruments was entered consistently. For meal observation and child food diary data, coders and supervisors checked to ensure that there were two meal observation records entered for each child (served and wasted), that there were records for the correct number of children per site, that combination codes were correctly assigned, and

that program-provided foods were entered with the same code used in the menu survey entry. SurveyNet's analysis system performed systematic checks of data integrity including valid values and completeness. The resulting error reports identified unusually small or large gram weights of foods consumed¹⁴, un-coded foods, missing portion sizes, and recipe modifications that had not been approved by a supervisor. Identified issues were reviewed and corrected by the supervisor. The analysis program was rerun until all batches had been checked and all errors were resolved. For infant menu survey, infant food intake, and classroom waste form data in Microsoft Access, coders and supervisors checked that dates and times were entered correctly, that missing data was flagged consistently, and that the food classification system was consistently applied. Team nutritionists reviewed infant food amounts consumed, in context of the infant's feeding interval, the infant's intake across the CCD, and compared to consumption across the sample.

A.3.2.9 Creating the Child Level Intake Analysis Files

The meal observation records that were entered into SurveyNet were used to compute the total amount of each food that was actually consumed by a child (grams served minus grams left over). The data on the amount consumed from the meal observation form were combined with the data on the amount consumed from the child's diary corresponding to the CCD diary record, in order to create a 24-hour record analysis file. The data on amount consumed from the meal observations were also used to create an analysis file that included the intakes collapsed by CACFP meal (as opposed to over 24 hours) that were served in the child care program. This second file was used for the comparison of MyPlate servings consumed during CCD with CACFP meal standards.

The study team calculated the USDA Food Pattern Food Group amounts (food pattern equivalents) for all food records using the USDA Food Pattern Equivalents Database 2013-14 (FPED).¹⁵ Food Pattern Food Group amounts (or food pattern equivalents) break down a multicomponent food (for example, pizza) into its parts. A cheese pizza (no additional toppings), for example, would be disaggregated into Vegetables, Grains, Dairy, Oils, Added Sugars, and Solid Fats. The amount consumed in each of these groups over a 24 hour period can be compared to the *Dietary Guidelines for Americans* (DGA) Food Pattern meal plans to assess how closely diets come to the DGA recommendations.

The study team also applied the major and minor food group classifications described in Exhibit A.3-1 to the child intake records. These classifications have some overlap with the Food Pattern Food Groups, but the main difference is that the Food Pattern Food Group assignments break down the foods into categories of component ingredients, while the major/minor classifications are assigned to each individual food as a whole. In addition, major classifications align primarily with the CACFP meal patterns. For example, cheese is not classified as dairy but as a protein under Meat/Meat Alternates.

¹⁴ SurveyNet's gram weight flag defined large portions as larger than the quantity not specified (QNS) portion multiplied by 4.5 (adult and child high gram weight factor); small portions were defined as less than the QNS portion multiplied by 0.5 (adult low gram weight factor). The QNS portion is a gram weight specified for a SurveyNet food when the sample person does not remember or cannot report the amount of food consumed. The child low gram weight factor was not used because child date of birth was not entered into SurveyNet, so children were not identified as children in SurveyNet (Food Surveys Research Group, USDA, instruction manual prepared for Abt Associates: *SurveyNet Guide for Use by Abt Associates for the Study of Nutrition and Activity in Child Care Settings (SNACS)*, December 2016).

¹⁵ Bowman, S.A., Clemens, J.C., Friday, J.E., Lynch, K.L., & Moshfegh, A.J. (2017). *Food Patterns Equivalents Database 2013-14: Methodology and User Guide*. Beltsville, MD: U.S. Department of Agriculture, Food Surveys Research Group, Beltsville Human Nutrition Research Center, Agricultural Research Service. Retrieved from https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/fped/FPED_1314.pdf

Exclusions. The study team reviewed the data for potential outliers, focusing on the following key nutrients: Energy, Total Fat, Calcium, Vitamin A (RAE), Vitamin C, and Protein. Standardized residuals were calculated using the general linear model regression of the mean amounts consumed, controlling for body mass index (BMI) and age. If a child was missing a BMI value, the weighted mean BMI for the child's age and gender was used to calculate standardized residuals. For children less than two years old (51 records), we used a constant in place of BMI to calculate standardized residuals, as BMI was not calculated for children this age, the correlation between weight and intake for very young children is likely to be low, and these records represented a small fraction of the total intake sample. Intakes with standard residuals of three or more for any of the six key nutrients were excluded. Intakes were also excluded if:

- No diary was received for a corresponding observation day
- The diary was completed incorrectly by the respondent (for example, when there seemed to be too many meals in the diary, spanning more than 24 hours, such as a non-CCD diary that listed three dinners).
- The intake record had 20 percent or more missing amounts (before imputation)

Imputing Missing Diary Amounts. Using the same methods as for the menu survey data used in Objective 1 (Nutrition and Wellness) of SNACS and previously employed in the *Early Childhood and Child Care*¹⁶ and *Family Childcare Homes Legislative Studies*¹⁷, the study team imputed portion sizes for the food records with missing amounts (which represented less than 0.2 percent of food records). The study team determined the mean portion size consumed for foods reported in diaries for each portion size food group (using the same portion size food groups as for the menu survey analysis in Appendix D) for each age group and meal (Exhibit A.3-3). The study team then applied these mean portion sizes to the food records from the diary with missing amounts that were in the corresponding meal, age, and portion group combination. For example, the study team determined the mean portion size of fluid milk consumed in child diary data by children at breakfast, lunch/supper, and snacks for each age group (ages 1-2, 3-5, 6-12). If a four year old child's diary was missing the portion of fluid milk consumed at lunch, then the mean portion size of milk consumed by all 3-5 year olds at lunch in the sample was substituted for the missing portion. Volume measures (cups) were used for fruits and vegetables. For all other foods, portions were estimated in grams.

¹⁶ Fox, M. K., Glantz, F. B., Geitz, L., & Burstein, N. (1997). *Early Childhood and Child Care Study: Nutritional assessment of the CACFP. Final report*. Alexandria, VA: U.S. Department of Agriculture, Food and Consumer Service.

¹⁷ Crepinsek, M. K., Burstein, N., Lee, E. B., Kennedy, S. D., & Hamilton, W. L. (2002). *Meals offered by Tier 2 CACFP family child care providers – Effects of lower meal reimbursements: A Report to Congress on the Family Child Care Homes Legislative Changes Study* (ERS Report E-FAN-02-006). Washington, DC: Economic Research Service, U.S. Department of Agriculture.

Exhibit A.3-3 Imputed Portions Consumed in Child Diaries by Age Group and Meal

Portion Size Category	Meal	Age		
		1-2 Year Olds	3-5 Year Olds	6-12 Year Olds
Milk				
Milk (g)	Breakfast	--	193.92	--
	Lunch/Supper	--	--	241.74
Fruits and Vegetables				
Fruit (cup)	Breakfast	--	0.71	--
	Lunch/Supper	--	0.74	0.89
	Snack	--	0.93	0.98
Vegetables (cup)	Lunch/Supper	--	0.64	0.70
	Snack	--	0.62	0.63
Juice				
Juice (g)	Snack	177.04	--	--
Grains and Bread				
Cereals: 26 – 35 g/per cup (g)	Breakfast	--	31.23	--
Breads, rolls, and other plain breads (g)	Lunch/Supper	--	--	55.14
Bagels and muffins (g)	Breakfast	--	68.88	--
	Snack	72.69	--	--
Pasta and rice (g)	Lunch/Supper	--	130.29	153.86
Crackers, croutons, and pretzels (g)	Snack	--	--	39.13
Corn/tortilla chips (g)	Lunch/Supper	--	--	37.75
Meat and Meat Alternates				
Plain meats (g)	Lunch/Supper	--	83.24	111.57
Meats with sauce (g)	Breakfast	--	115.74	--
	Lunch/Supper	--	124.19	--
	Snack	--	115.78	--
Sausage, frankfurters, and cold cuts (g)	Lunch/Supper	--	--	71.15
Cheese (g)	Breakfast	--	38.66	--
	Lunch/Supper	--	--	56.50
Eggs (g)	Lunch/Supper	--	--	95.43
Combination Entrees				
Pizza (g)	Lunch/Supper	--	185.65	--
Mixtures with grain, meat, and/or veg (g)	Lunch/Supper	184.30	212.29	253.41
	Snack	--	220.58	--
Non-entree soups+ mixtures without grain (g)	Lunch/Supper	157.40	185.24	248.98
Sweets and Sweetened Beverages				
Cakes, brownies, cookies (g)	Snack	--	49.99	53.18
Other desserts (g)	Snack	--	--	117.99
Candy (hard candy, chocolate, gum) (g)	Lunch/Supper	--	25.08	--
	Snack	--	29.63	--
Accompaniments				
Condiments and toppings (g)	Lunch/Supper	--	24.04	24.34
Salad dressings (g)	Snack	--	37.91	43.84

Note: Only portion groups used to impute a missing amount for a food record (n=138 food records) are included in the table.

A.3.2.10 Creating the Infant Menu Survey and Infant Intake Analysis Files

The infant menu survey and infant food intake data entered into Access were exported to Excel files and converted to SAS data sets. Records were excluded as follows:

- Infant menu survey file: One menu with the majority (95 percent) of foods missing the age range of infants served was excluded. Four additional infant menu surveys had between 3-12 percent of foods missing the age range of infants served. These menu surveys were not excluded from the data file, but the foods that were missing the age ranges served were subsequently dropped from analysis, which reports results by age group served.
- Infant food intake file: 11 infant intakes were excluded because the respondent provided an amount consumed without any detail on the name or type of food or beverage consumed. Foods that were listed without amounts were reviewed and left on the data file. Individual foods with missing amounts were dropped from the mean amount analyses but included in the analysis of most commonly served foods. Missing amounts were not imputed for infant food intakes.

Team nutritionists reviewed infant food amounts consumed, and timing of feedings, the infant's intake across the CCD, and compared to consumption across the sample. All amounts were determined to be plausible and therefore included in the analysis.

For the infant food intake data file, a feeding interval ID was created to group together food records consumed as part of the same feeding interval. A feeding interval was defined as all food/drink consumed within a 45-minute window. Team nutritionists established this standard after reviewing the data and determining that this standard appropriately grouped foods that were consumed consecutively as part of the same feeding in the majority of cases. Amounts consumed were also converted to standard reference units for each major/minor food group. When the measurement reported by the respondent differed from the standard reference unit, a conversion factor was applied. For conversions between standard volume measurements (e.g., cups to tablespoons), a ratio was applied to adjust the amount (e.g., 1/16). When the reported measurement was converted from a volume measurement to a weight, or from a weight to a volume measurement, the food reported in the infant food intake form was mapped to a matching SurveyNet food code, and the gram weight conversion values from SurveyNet were used to adjust the amount consumed.

A.3.3 Parent Survey

Parent survey data from the computer-assisted-telephone-interview system were compiled into a SAS data file. The study team checked the electronic files generated from the parent survey for data integrity using frequency distributions and cross-tabulations. These checks determined whether the data were complete and whether the individual responses were internally consistent and fell into acceptable ranges. Those data were then merged with child data from the on-site meal observations to allow a one-to-one relationship between the parent surveys and the data for observed children.

A.3.4 Environmental Observation Forms

For the data processing and coding of the forms, the study team developed an initial quality assurance/quality control checklist that contained detailed instructions for reviewing each question for consistency of entry and required elements from each section of the form. The study team used this checklist to conduct an overview check on the forms for general consistency of entry and required elements from each section of the form. The checklist contained detailed instructions for reviewing each question for consistency and required elements. Reviewers noted any issues that needed to be addressed in data processing and cleaning, such as inconsistent answers from one section of the form to the next, or overall observation times longer or shorter than actual minutes of observation when calculated from the minutes recorded.

For the processing and cleaning of data from the forms, the study team discussed which data were most relevant for research questions to be answered by the environmental observations. The study team reviewed, checked, and coded each relevant response and discussed questions and unclear responses, including missing data and skipped logic (for example, if structured physical activity was reported but no physical activity was checked on the form or if the activity level was described as physical activity, when the activity was napping).

Family day care homes were excluded from the data analysis for this report, as they were included in onsite observations only to study the feasibility of conducting onsite SNACS data collection in family day care homes. (This feasibility question is the subject of a separate internal report to FNS).

A.3.5 Height and Weight Data

The height and weight data were collected on paper forms (i.e. the standing height and weight form, and the standing and holding weight form) and entered into an Excel database and converted to a SAS data file. Having the data on a single data file facilitated the following cleaning protocols.

First, the study team applied the Centers for Disease Control and Prevention (CDC) SAS program to identify biologically implausible values (BIV) for weight (1-12 years) and for height and body mass index (24 months and older). The study team identified the CDC BIV flags as well as z-scores for weight (WAZ), height (HAZ) and body mass index (BMI z-score) that were greater than an absolute value of 4, according to the original SNACS protocol.

Next, records with BIV flags and implausible z-scores were reviewed to clean the data for entry errors and discrepancies between age, height and weight. The study team assessed whether a different age was reported for the child in another data source¹⁸, and if, so, whether that alternate age would yield biologically plausible z-scores for weight or height. After review, five cases were identified where the alternative data source for age would yield biologically plausible results. Such cases were updated in all data files, and then z-scores and BIV for these child records were recalculated.

Finally, the study team identified records with evidence of a systematic data entry error for weight or height potentially related to inappropriate use of metric or US customary units. Records were considered for conversion of weights (from kilograms to pounds) or height (from inches to centimeters) if two or more child IDs at a program had BIV. A total of 12 unique records were identified for which HAZ was biologically plausible but WAZ and BMI z-score were extremely high. Conversion of weights to kilograms resulted in WAZ and BMI z-scores within normal range, and these 12 records were retained in the data set.

The final height and weight database excluded records with BIV according to CDC criteria and that were greater than an absolute value of 4.

A.3.6 Cost and Revenue Data

A.3.6.1 Review and Retrievals

The financial interview, meal and snack counts booklet, and self-administered cost questionnaire were each one hundred percent reviewed by project staff for completeness and inconsistencies. Retrievals were performed on the financial interview to clarify inconsistent data, as well as to capture missing food cost or CACFP reimbursement amounts. The two self-administered surveys (meal and snack counts booklet and self-administered cost questionnaire) required follow-up by telephone to increase the response rate. During this effort, retrievals were also performed for these questionnaires when critical data was missing.

¹⁸ Child age was collected in both the child consent forms and the parent survey.

Critical data items collected during this follow-up period included the meal counts contained in both surveys.

A.3.6.2 Data Entry

Data collection for the cost analysis was completed entirely on paper instruments. Each completed interview or survey was edited by trained staff for questionnaire logic and expected values according to editing conventions and the needs of the instrument. Data was entered using a one hundred percent key verification for close ended data to ensure a high level of data accuracy.

A.3.6.3 Food Price Coding and Imputation

A key cost analysis variable is a provider's mean food cost per meal. (In this document, "cost per meal" is used for simplicity in general discussions that include costs of snacks as well as costs of breakfast, lunch, and supper cost.) For each food served, the food cost per meal was calculated as the gram weight of the mean amount served (derived from the menu survey) times the price per gram of foods served, (derived from food price data such as vendor receipts). Food costs per meal for individual foods were summed to compute the total food cost per meal. A similar computation for the costs of food wasted used the cost per gram of the foods and the quantity wasted from the classroom waste form (which was part of the meal observation booklet). The food cost computations are described in detail in Section 2.4.2.

In this section we provide an overview of the first step in the process of building of food costs, that is, how receipt information was coded into a database to calculate the price per gram. This is referred to as food price coding. We also describe how price data were imputed when receipt information was missing for foods served during the target week.

Food Price Coding. Price coding included the entry of hard copy food price information from providers into a database that connected the price data with the menu survey and meal observation data already collected and coded. The study team prepared a Microsoft Access database for food price coding by entering foods from the menu survey which had already been coded using SurveyNet. Foods were divided into two categories, single items and recipes. Single item foods were foods that did not require mixing of ingredients and were served and eaten in the form they were purchased. On the other hand, recipes were defined as foods that were not served as purchased. Instead, they were mixed, cooked, and/or served together to create a distinct new food. Any food used to create the distinct new food was called a "recipe ingredient."

Separate data tables were created for single items, recipes, and recipe ingredients respectively. The single items data table contained one record for each provider and single item served from the menu survey. Each single item was linked to its SurveyNet food code and description. Similarly, the recipe table contained one record for each provider and recipe, with the same SurveyNet information as the single item data table. In addition, it also contained a recipe identifier that linked each unique recipe to its ingredients in the ingredients table.

Coders located the food items listed in single items and ingredients data tables within the hard-copy receipts, and then entered the receipt price information into the database. The receipt information entered into the database included the food description, vendor name, weight of the item, unit of the weight, and cost per item. If items were purchased in bulk, then information was entered for the number of food items in a case, and the cost per case. The weight, unit and cost information was used to calculate the price per gram of single items and recipe ingredients. Standard conversion factors were used to convert units listed on receipts (e.g., pounds or fluid ounces) to grams.

To calculate the price per gram of a recipe, the study team pulled in ingredient amounts and recipe yields from the SurveyNet database. The cost of a recipe was calculated as the sum of ingredient prices divided by recipe yield. Before summing up the price per gram, the study team made adjustments to the weights

of the ingredients to calculate the correct price per gram for each ingredient. Adjustments were made if the study team determined that the form of the ingredient as purchased differed from the form of the ingredient in the SurveyNet recipe. For example, an ingredient in the SurveyNet recipe may be in cooked form but purchased raw by providers. In that case, dividing the cost of an item by its raw item weight would not have resulted in the correct price per gram of that ingredient in its cooked form if there was weight loss during cooking. To get the correct price per gram for the cooked ingredient the study team adjusted the price per gram of the raw ingredient using a conversion factor that adjusted for weight loss/gain during cooking or preparation.

When meats or grains were baked or cooked by the program, they appeared as recipes and the conversion factors for recipe ingredients were applied. Conversion factors were also applied to the prices of raw, cooked or canned fruit and vegetable single items to adjust for weight loss after removing peel and pits, draining water from cans, or cooking. In a few instances, bacon appeared as a single item. The price of bacon was adjusted to account for weight loss during heating. These conversion factors were derived from the USDA Food Buying Guide.¹⁹

The final variable derived from the data in the food price database was the price per gram for single items and recipes. Where receipt data were missing, the study team imputed the price per gram using an imputation protocol, which is described in the next section.

Price Imputation. Prices were imputed by using the median of available price per gram data for similar food items across providers. The study team used a hierarchical approach to locating prices for similar single items, ingredients, and recipes that made use of the food group classifications that were coded into the menu survey using SurveyNet food codes. The price per gram data from the food price database were merged to the menu survey by provider ID and SurveyNet food code to get broader food group classifications for each food.

In general, the study team first searched for providers that had prices for the same SurveyNet food code as the single item or recipe with missing price data. The SurveyNet food code is the most granular food classification level for which price data was coded. For single items, if there were no providers that had price data at the food code level, the study team searched for providers with prices for the same food group classifications as the food with missing data. Single item prices were also imputed using available ingredient prices. For recipes, the study team searched for providers with prices starting at the same major and minor food group level. If there still were no providers with price data at this level, we then searched for providers with prices for foods in successively broader food classifications.

The general approach described above was modified for recipes where some, but not all, ingredient prices were present. Recipes with missing price data were divided into two groups for imputation purposes: 1) recipes where all ingredient price data were missing, and 2) recipes where only some ingredient price data were missing. If all provider ingredient price data were missing for a given recipe (group 1), the study team used the above approach for imputing recipe prices. For group 2 recipes, where only some ingredient price data were missing, the study team first tried to locate other providers with available price data for the same ingredient. The goal of this approach was to use as much provider-supplied data as possible, and not throw out available price data for a recipe with partial ingredient data. Once all missing ingredient prices were imputed, the total price per gram for the recipe was computed.

Ingredient prices were imputed by searching for providers with available ingredient and single item price data by the same food code scheme as the ingredient with missing price data, and then taking the median

¹⁹ The study team retrieved conversion factors from the USDA Food Buying Guide for Child Nutrition Programs Interactive Web-Based Tool between March and May 2019. The link to the tool is <https://foodbuyingguide.fns.usda.gov/MasGuestUsers/GuestUserLogin?ReturnUrl=%2FHome%2FHome>

price across providers. If ingredient prices could not be imputed because no other providers had available price data, then prices were imputed at the recipe-level, using the same procedure for recipes with all ingredient prices missing (group 1). Ingredients may be classified according to a four- or five-digit food code scheme, or the same eight-digit food code scheme as single items and recipes. Water and condiment prices were set to \$0.

If there were still items without prices after exhausting all avenues of imputation described above, the study team manually searched through food descriptions and looked up prices on external supermarket websites.

Among the providers in the final analysis sample, 54 percent of prices were imputed. Fewer prices that affected the food costs in the final tabulations were imputed, because 25 percent of all providers had at least one fee-per-meal, and imputed prices were not used in computing food costs when the provider paid a known fee-per-meal. The approach used to impute prices aimed to minimize error in individual item and recipe costs. Under this approach, there is less variation in prices by provider, size and location due to the use of median prices for imputation.

A.3.6.4 Data Cleaning

Before constructing the analysis variables described in Section A.4, the study team checked the raw data to ensure that values of intermediate variables were reasonable and complete. The data cleaning steps described below were applied for the various data sources,

Center Foodservice, Center Director and Sponsor Staff Cost Interviews. Data from these labor cost interviews were checked for outliers. Pay per hour data from the center foodservice, center director, sponsor CACFP staff, and sponsor support staff cost interviews were set to missing if hourly rates were less than the Federal minimum wage rate. Extremely high hourly rates were topcoded at 1.5 times the 95th percentile. Missing time information was imputed using the median of hours per week across providers for staff with the same or similar titles. Once missing hours per week were imputed, total time was top-coded at 1.5 times the 95th percentile. As discussed in Section 4, if a program was missing a required labor component, it was dropped from the analysis sample.

Financial Interview. In many cases, respondents reported expenses for certain cost categories in the financial interview as included in other cost categories. Total expenses for broader categories of labor, other direct costs²⁰ (ODCs), equipment purchases and depreciation, and indirect costs were set to missing if components of expenses from other such broad categories were combined. For example, if equipment purchases were combined with ODCs then the separate expense variables for total equipment purchases and total ODCs were respectively set to missing.

Fee-per-meal data from Food Price and USDA Foods Checklist. Some programs received meals prepared by vendors that charged a set fee-per-meal. Respondents were asked to provide the fee-per-meal amount for each meal, if applicable, and the dollar and percent value of fee-per-meal components. One quarter (25 percent) of programs reported that they paid a fee-per-meal for one or more meals served. The fee-per meal-components collected were food, personnel, and management/administration. If fee-per-meal totals were missing, the study team used available data on component values to calculate the total fee-per-meal. Available data on total fee-per-meal and component percentages were used to derive missing dollar values for components.

²⁰ Other Direct Costs (ODCs) are direct expenses for foodservice of an operational (recurring) nature, other than labor and food. These do not include capital outlays, depreciation, or indirect costs.

A.4 Analysis

The following section describes analyses conducted for each of the four objectives of SNACS. The analyses presented are descriptive tabulations and cross-tabulations, including means for continuous measures and frequencies for categorical measures, and incorporated weights and appropriate variance calculations to obtain estimates. Standard errors took into account the complex sampling design. Exhibit A.7-1 provides a crosswalk of the research questions and sub-questions to the analysis tables, with table numbers and titles.

A.4.1 Objective 1: Nutrition and Wellness

A.4.1.1 Menu Surveys: Food and Nutrient Content of Meals Served

This section discusses the methods used to determine the mean nutrient content of meals and snacks offered by CACFP programs (RQ 1.1).²¹ The analysis of nutrient content used data from the menu survey on the foods offered by programs.²² In order to assess the nutrient content in the mean serving, the analysis used information from the meal observation form about the size of the portion of each food offered. These data provided estimates of the mean portion size of each type of food providers served to CACFP age groups: 1-2 year olds, 3-5 year olds, and 6-12 year olds. This section first describes the methods for estimating portion sizes from the meal observations and assigning them to menus, and then discusses the methods and content areas for the analyses for Objective 1.

Estimating Portion Sizes for Menu Survey Analysis

Using the methods previously employed in the *Early Childhood and Child Care*²³ and the *Family Childcare Homes Legislative Studies*²⁴, the study team imputed portion sizes for the full menu survey sample based on the observed portion sizes in our observation subsample, which include children observed as part of dietary intake data collection and also meals served in a subsample of family day care homes.²⁵ The study team created a special set of food groups for the portion size imputation (listed in Exhibit A.4-1. The team determined the mean portion size served for each portion size food group for each age group and meal using the observations of amounts served, and then applied these mean portion sizes to all foods reported in the menu survey, merging by meal, age group, and food group. For example, the study team determined the mean portion size of fluid milk served to children at breakfast,

²¹ In this document, the abbreviation “RQ” is used in place of “Research Question” when referring to specific research question numbers.

²² The data for this study was collected prior to October 2017, the implementation date of the new CACFP meal pattern, and therefore the analysis is based on the previous CACFP meal pattern. The changes to the CACFP meal pattern more closely aligned the meal pattern with the Dietary Guidelines for Americans, as well as scientific recommendations from the National Academy of Medicine (formerly known as the Institute of Medicine of the National Academies).

²³ Fox, M. K., Glantz, F. B., Geitz, L., & Burstein, N. (1997). *Early Childhood and Child Care Study: Nutritional assessment of the CACFP. Final report*. Alexandria, VA: U.S. Department of Agriculture, Food and Consumer Service.

²⁴ Crepinsek, M. K., Burstein, N., Lee, E. B., Kennedy, S. D., & Hamilton, W. L. (2002). *Meals offered by Tier 2 CACFP family child care providers – Effects of lower meal reimbursements: A Report to Congress on the Family Child Care Homes Legislative Changes Study* (ERS Report E-FAN-02-006). Washington, DC: Economic Research Service, U.S. Department of Agriculture.

²⁵ The Group 4 family day care home sample included programs selected for the family day care home dietary intakes feasibility study, for which the study team collected the provider survey, menu survey, meal observations, and food diaries. Group 5 included additional family day care homes selected to provide additional observations for estimates of portion sizes. The study team asked this group to complete the provider survey and the menu survey and to allow meal observations.

lunch/supper, and snacks for each age group (ages 1-2, 3-5, 6-12) and applied this portion size to all types of milk. Volume measures (cups) were used for fruits and vegetables. For all other foods, portions were estimated in grams.

Exhibit A.4-1 Portion Size Food Groups Used in Determining Mean Portions Served

MILK^a FRUIT^b VEGETABLES^b JUICES^a GRAINS/BREAD^a Bagels and muffins Breads, rolls, and other plain breads Crackers, croutons, and pretzels Granola bars and breakfast bars Pancakes, waffles, French toast Pasta and Rice Corn/tortilla chips Cold Cereal ^c Hot cereal MEAT/MEAT ALTERNATES^a Breaded meats Plain meats Meats with sauce Cheese Eggs Nuts, nut butter Parfaits and yogurt Sausage, frankfurters, and cold cuts	COMBINATION ENTREES^a Sandwiches Frankfurter, corn dog, similar sausage sandwiches Hamburger, similar beef/pork sandwiches Cheeseburger, similar beef/pork sandwiches with cheese Peanut butter sandwich Sandwich with only cheese Sandwich with plain meat, poultry, or fish Sandwich with breaded/fried meat, poultry, or fish Other sandwiches Mexican Entrees Burritos Nacho dishes Quesadillas, fajitas, enchiladas Tacos Other Mixtures Mixtures with grain, meat and/or veg Non-entree soups and mixtures without grain Pizza NONCREDITABLE FOODS^{a,d} Sweets and Sweetened Beverages Cake, brownies, cookies ^e Candy (hard candy, chocolate, gum) Fruit or vegetable drinks/ades and other sweetened beverages Other desserts Other Snacks Bacon Water Infant Formula Accompaniments Condiments and toppings Salad dressings
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^a Portion size is mean weight in grams.

^b Portion size is mean volume in cups.

^c Because of the wide variation in weight among different types of cereal (e.g., puffed cereals vs. granola) mean portions were determined for three categories of cold cereals based on the mean weight per cup.

^d Foods that may not be counted toward meeting the meal pattern requirements for a reimbursable meal.

^e Creditable as a grain/bread for up to two snacks per week.

The following text describes in more detail the methods used to impute portion sizes for the menu survey based on mean portion sizes observed in the meal observation data.

First, each observed food was assigned to one portion size food group within the CACFP meal component categories. Portion size categories used in the *Early Childhood and Child Care Study* served as the starting point, with adjustments made by project nutrition staff based on relevant meal component standards and review of more recent national food survey data, adding new and deleting old categories when appropriate. The categories from the prior studies do not align exactly with the FNDDS major food group codes, but the study team mapped the foods to the appropriate classification.

Next, the available (observed) portion amounts served were used to calculate the mean portions of the foods in each of the established portion size categories for all relevant age groups: (ages 1-2, ages 3-5, ages 6-12). For each age category, separate calculations were made for portions served for breakfast, lunch/suppers, and snacks. The study team computed a weighted mean across all foods observed within a category to get a mean portion size for the food group.

When fewer than 25 observations were available for a particular calculation “cell” (food group x age group x meal or snack), the study team used alternate approaches to impute portion size, in the following order:

1. If 25 or more total observations were available for a particular portion size group across all age groups for a given meal or snack, the study team computed an overall mean portion and applied an adjustment ratio for each age group/meal or snack occasion to reflect age group specific differences in portion sizes. Appropriate adjustment ratios were computed based on differences in observed portions for other observed food groups where sufficient sample existed within each food group by age group by meal/snack cell.
2. If 25 or more total observations were available for a particular portion size group for a given age group across all meals, the study team computed a mean portion size for the portion size group, by age group across meals, and applied an adjustment ratio for each age group/meal or snack occasion to reflect age group specific differences in portion sizes. As with the first alternate approach, appropriate adjustment ratios were computed based on differences in observed portions for other observed food groups where sufficient sample existed within each food group by age group by meal/snack cell.
3. If fewer than 25 total observations were available for a particular portion size group across all ages and meals, the study team calculated the mean portion size for the portion size group (including all meals and ages) and applied an adjustment ratio to reflect the age group and meal type differences.

Imputation for foods linked with combinations codes followed a parallel process that allowed estimates to be calculated for each component that made up a combination food.

In addition, the study team used data from the *Early Childhood and Child Care Study* and the *Feeding Infants and Toddlers Study* (FITS)²⁶ to cross-validate both imputed and observed portion sizes. Where the assigned imputation method for a given portion size group resulted in a calculated portion size by age and eating occasion that deviated substantially from those in other sources, project nutrition staff determined whether another of the imputation methods was more appropriate.

Assigning Portion Sizes to Menus

As mentioned above, separate menus were entered into SurveyNet for each age group for each CACFP meal and snack served at each program. Generally, a simple one-to-one link was made between each

²⁶ Siega-Riz, Anna Maria et al. Food Consumption Patterns of Infants and Toddlers: Where Are We Now? *Journal of the Academy of Nutrition and Dietetics*, Volume 110, Issue 12, S38 – S51

menu item and the imputed portion sizes (Exhibit A.4-2). However, for fruits and vegetables, the mean portion was divided evenly among the fruits and vegetables that were offered, as discussed below. For foods linked by combinations codes, imputed portions were calculated for the component parts, applied to the menu, and then summed to calculate the portion size for the combination food.

Exhibit A.4-2 Imputed Portions Served by Age Group and Meal

Portion Size Category	Meal	Age		
		1-2 Year Olds	3-5 Year Olds	6-12 Year Olds
Milk				
Milk (g)	Breakfast	167.06	195.88	198.92
	Lunch/Supper	161.18	196.96	241.35
	Snack	166.02	165.01	211.10
Fruits and Vegetables				
Fruit (cup)	Breakfast	0.32	0.47	0.44
	Lunch/Supper	0.33	0.42	0.74
	Snack	0.52	0.55	0.81
Vegetables (cup)	Breakfast	0.37	0.45	0.47
	Lunch/Supper	0.36	0.43	0.57
	Snack	0.42	0.42	0.57
Juice				
Juice (g)	Breakfast	107.35	129.20	138.99
	Lunch/Supper	111.86	147.70	136.35
	Snack	145.96	151.31	210.67
Grains and Bread				
Cereals: ≤ 25 g/per cup (g)	Breakfast	15.82	17.86	20.48
	Lunch/Supper	14.61	17.81	22.78
	Snack	18.11	18.77	22.04
Cereals: 26 – 35 g/per cup (g)	Breakfast	20.48	24.33	26.52
	Lunch/Supper	20.93	24.43	29.69
	Snack	24.91	25.83	30.32
Cereals: ≥ 36 g/per cup (g)	Breakfast	26.68	32.65	34.07
	Lunch/Supper	23.90	31.98	36.14
	Snack	27.80	28.66	33.83
Hot cereals (g)	Breakfast	106.35	127.11	137.70
	Lunch/Supper	97.72	126.62	152.38
	Snack	115.87	117.89	141.03
Breads, rolls, and other plain breads (g)	Breakfast	23.74	33.10	33.92
	Lunch/Supper	20.19	28.06	36.93
	Snack	31.10	31.49	37.86
Bagels and muffins (g)	Breakfast	42.39	51.04	54.08
	Lunch/Supper	37.28	49.71	58.13
	Snack	43.86	48.51	53.39
Pancakes, waffles, French toast (g)	Breakfast	37.63	55.04	58.14
	Lunch/Supper	34.70	55.61	64.68
	Snack	41.15	51.78	59.87
Pasta and rice (g)	Breakfast	67.95	77.82	87.99
	Lunch/Supper	57.63	72.16	89.87
	Snack	72.51	69.60	88.26

Portion Size Category	Meal	Age		
		1-2 Year Olds	3-5 Year Olds	6-12 Year Olds
Granola bars and breakfast bars (g)	Breakfast	34.08	41.32	44.12
	Lunch/Supper	26.34	33.87	38.04
	Snack	30.69	29.52	36.82
Crackers, croutons, and pretzels (g)	Breakfast	18.67	23.48	31.00
	Lunch/Supper	14.70	20.54	21.27
	Snack	18.74	22.83	33.91
Corn/tortilla chips (g)	Breakfast	23.36	21.76	39.66
	Lunch/Supper	21.02	20.90	42.98
	Snack	19.71	21.79	30.37
Meat and Meat Alternates				
Plain meats (g)	Breakfast	41.57	50.82	53.53
	Lunch/Supper	49.54	67.96	77.25
	Snack	41.57	50.82	53.53
Breaded meats (g)	Breakfast	31.88	38.98	41.06
	Lunch/Supper	67.37	82.68	108.44
	Snack	31.88	38.98	41.06
Meats with sauce (g)	Breakfast	71.98	74.84	87.74
	Lunch/Supper	70.98	94.05	110.69
	Snack	71.98	74.84	87.74
Sausage, frankfurters, and cold cuts (g)	Breakfast	32.89	40.54	42.59
	Lunch/Supper	37.88	50.02	59.07
	Snack	23.27	24.13	28.32
Cheese (g)	Breakfast	28.76	34.88	37.24
	Lunch/Supper	27.05	33.63	39.10
	Snack	37.84	33.52	42.31
Nuts, nut butters (g)	Breakfast	22.95	25.76	29.72
	Lunch/Supper	20.65	24.74	32.21
	Snack	21.93	22.61	26.69
Eggs (g)	Breakfast	47.53	57.66	61.54
	Lunch/Supper	42.12	54.78	65.68
	Snack	42.44	44.04	51.66
Parfaits + yogurt (g)	Breakfast	98.25	119.16	127.21
	Lunch/Supper	82.73	109.24	129.01
	Snack	93.26	102.70	96.50
Combination Entrees				
Sandwiches				
Hamburger, similar beef/pork sandwiches (g)	Breakfast	101.30	124.09	131.17
	Lunch/Supper	90.70	118.96	141.44
	Snack	91.52	118.96	143.77
Cheeseburger, similar beef/pork sandwiches with cheese (g)	Breakfast	115.33	144.96	149.33
	Lunch/Supper	103.26	138.97	161.03
	Snack	104.20	138.97	163.68

Portion Size Category	Meal	Age		
		1-2 Year Olds	3-5 Year Olds	6-12 Year Olds
Frankfurter, corn dog, similar sausage sandwiches (g)	Breakfast	91.28	111.74	118.19
	Lunch/Supper	83.04	107.50	129.49
	Snack	97.41	99.94	118.57
Sandwich with plain meat, poultry, or fish (g)	Breakfast	94.57	116.52	120.05
	Lunch/Supper	85.26	112.66	126.87
	Snack	100.92	104.22	120.43
Sandwich with breaded/fried meat, poultry, or fish (g)	Breakfast	120.53	141.57	156.06
	Lunch/Supper	107.91	135.71	168.28
	Snack	128.61	126.62	156.55
Peanut butter sandwich (g)	Breakfast	59.84	72.56	77.48
	Lunch/Supper	64.73	85.47	100.93
	Snack	56.93	59.03	102.60
Sandwich with only cheese (g)	Breakfast	56.22	74.75	72.80
	Lunch/Supper	52.00	68.67	81.10
	Snack	59.99	66.86	73.03
Other sandwiches (g)	Breakfast	78.46	99.50	101.59
	Lunch/Supper	65.03	88.06	101.40
	Snack	83.73	88.99	101.91
Other Mixtures				
Burritos (g)	Breakfast	68.49	83.73	88.20
	Lunch/Supper	117.37	165.42	183.02
	Snack	68.49	83.73	88.20
Quesadillas, fajitas, enchiladas (g)	Breakfast	77.59	95.99	100.46
	Lunch/Supper	75.01	99.05	116.98
	Snack	82.79	85.85	100.78
Tacos (g)	Breakfast	92.84	130.11	133.21
	Lunch/Supper	92.03	124.78	143.51
	Snack	92.84	116.37	133.63
Nacho dishes (g)	Breakfast	152.70	188.66	197.72
	Lunch/Supper	137.43	181.23	214.30
	Snack	162.95	168.74	198.35
Pizza (g)	Breakfast	94.35	115.76	122.16
	Lunch/Supper	85.49	112.79	133.31
	Snack	100.68	103.53	122.54
Mixtures with grain, meat, and/or veg (g)	Breakfast	107.97	166.81	178.82
	Lunch/Supper	104.90	161.06	187.58
	Snack	115.21	149.19	179.38
Non-entree soups+ mixtures without grain (g)	Breakfast	138.99	173.68	179.97
	Lunch/Supper	124.45	166.50	194.06
	Snack	148.32	155.34	180.53

Portion Size Category	Meal	Age		
		1-2 Year Olds	3-5 Year Olds	6-12 Year Olds
Sweets and Sweetened Beverages				
Cakes, brownies, cookies (g)	Breakfast	54.52	70.51	70.59
	Lunch/Supper	31.53	41.29	34.78
	Snack	31.56	33.95	33.00
Other desserts (g)	Breakfast	110.20	136.33	142.68
	Lunch/Supper	99.17	130.95	154.65
	Snack	117.59	121.93	143.13
Fruit or vegetable drinks/ades/other sweetened beverages (g)	Breakfast	133.79	165.51	173.23
	Lunch/Supper	120.40	158.98	187.75
	Snack	142.76	148.03	173.77
Candy (hard candy, chocolate, gum) (g)	Breakfast	9.74	12.05	12.61
	Lunch/Supper	8.77	11.57	13.67
	Snack	10.39	10.78	12.65
Other				
Bacon (g)	Breakfast	12.30	15.22	15.93
	Lunch/Supper	11.07	14.62	17.27
	Snack	13.13	13.61	15.98
Snacks (g)	Breakfast	23.48	29.05	30.40
	Lunch/Supper	21.13	27.90	32.95
	Snack	25.06	25.98	30.50
Water (g)	Breakfast	103.60	126.82	134.15
	Lunch/Supper	87.66	111.83	136.70
	Snack	137.11	142.04	176.24
Infant Formula (g)	Breakfast	133.86	165.60	173.32
	Lunch/Supper	120.47	159.07	187.85
	Snack	142.84	148.11	173.87
Accompaniments				
Condiments and toppings (g)	Breakfast	10.14	17.34	18.77
	Lunch/Supper	14.54	16.00	14.67
	Snack	19.29	18.05	23.48
Salad dressings (g)	Breakfast	15.41	18.47	22.36
	Lunch/Supper	13.34	16.71	20.80
	Snack	17.19	18.25	20.92

Portion Size Imputation and Application Method for Fruits and Vegetables

Using the meal observation data (amount served to sampled children), the study team calculated the total portions of all fruit (sum of all fruit at a given meal or snack) and all vegetables (sum of all vegetables at a given meal or snack) offered at a meal to each child. The study team then computed the mean observed portion sizes of all fruit and all vegetables for each meal and age group. These means were used as the imputed portion sizes for total fruit and total vegetables for each meal and age group, regardless of the number of fruits and vegetables served at the meal (i.e. imputed amounts reflect the total fruit or total vegetable portion at a meal rather than a portion for each type of fruit or vegetable at a meal). Using the total fruit and total vegetable amount served at each meal accounted for the larger total volume served in meals with multiple fruits or multiple vegetables. For example, if an observed meal served $\frac{1}{4}$ cup of

apples and $\frac{1}{2}$ cup of oranges, the method used the sum, $\frac{3}{4}$ cup fruit, in the calculation of the mean total fruit portion.

Imputed portion sizes based on the meal observation data were applied to the menu surveys taking into consideration the number of fruits or number of vegetables served at a meal. When applying to the menus, the imputed portion size for total fruit or vegetables was divided across all fruits or vegetables served at the meal to obtain the portion size for each individual item. For example, if the imputed portion size was $\frac{1}{2}$ cup fruit, and apples and oranges were served at the meal, each fruit was assigned a $\frac{1}{4}$ cup portion.

Food and Nutrient Content of Meals and Snacks Served Analysis

The primary methods of analysis for the food and nutrient content of meals and snacks served were descriptive tabulations and cross-tabulations. The study team estimated these values and their standard errors for the relevant universe of child care programs and for subgroups using the weights and variance calculations that took into account the complex sampling design. Subgroup tables include only combined findings from child care centers and Head Start programs. The study team tested for statistical differences between types of programs and between subgroups for the descriptive tables using two-tailed t-tests for continuous measures and chi-squared tests for categorical measures, incorporating appropriate survey weighting and corrections to account for the complex sample design. Table notes indicate all significance tests conducted with applicable symbols; an absence of symbols indicates that the differences between programs or subgroups are not significant.

The tables answering the research questions included in Objective 1, present descriptive tabulations weighted to be nationally representative of programs participating in the CACFP program and covering six content areas as described below.

Mean nutrient content for each type of meal/snack served in a typical week. Analyses of the nutrient content of meals and snacks served by child care programs are based on mean portion size estimates, determined from the observations of children receiving meals and snacks in CACFP homes and centers that were applied to the full menu survey sample. The study team tabulated means and distributions of nutrients and calories in meals and snacks.

Nutrient content of meals and snacks served relative to the CACFP Meal Pattern, USDA Food Pattern, and the Healthy Eating Index (HEI). In support of this research question, the study team created descriptive tabulations of types of foods served in comparison with the CACFP meal patterns as well as measures of the proportion of CACFP programs meeting the CACFP meal patterns. The CACFP meal pattern requirement analysis is comprised of two parts: the meal component requirements, based on the menu survey, and the minimum portion size requirements, based on the meal observation data. The analyses include comparisons to the CACFP meal patterns detailed in the exhibit below.

Exhibit A.4-3 Child and Adult Care Food Program Meal Patterns for Children

	Ages 1-2	Ages 3-5	Ages 6-12 ^a
Breakfast (Select All Three Components for a Reimbursable Meal)			
1 milk ^b			
Fluid milk	$\frac{1}{2}$ cup	$\frac{3}{4}$ cup	1 cup
1 vegetable			
Juice ^c , fruit and or/vegetable	$\frac{1}{4}$ cup	$\frac{1}{2}$ cup	$\frac{1}{2}$ cup
1 grain/bread ^d			
Bread or	$\frac{1}{2}$ slice	$\frac{1}{2}$ slice	1 slice
Cornbread or biscuit or roll or muffin or	$\frac{1}{2}$ serving	$\frac{1}{2}$ serving	1 serving
Cold dry cereal or	$\frac{1}{4}$ cup	$\frac{1}{3}$ cup	$\frac{3}{4}$ cup
Hot cooked cereal or	$\frac{1}{4}$ cup	$\frac{1}{4}$ cup	$\frac{1}{2}$ cup
Pasta or noodle or grains	$\frac{1}{4}$ cup	$\frac{1}{4}$ cup	$\frac{1}{2}$ cup

	Ages 1-2	Ages 3-5	Ages 6-12 ^a
Lunch or Supper (Select All Four Components for a Reimbursable Meal)			
1 milk ^b	½ cup	¾ cup	1 cup
2 fruits/vegetables			
Juice ^c , fruit and or/vegetable	¼ cup	½ cup	¾ cup
1 grains/bread ^d			
Bread or	½ slice	½ slice	1 slice
Cornbread or biscuit or roll or muffin or	½ serving	½ serving	1 serving
Cold dry cereal or	¼ cup	1/3 cup	¾ cup
Hot cooked cereal or	¼ cup	¼ cup	½ cup
Pasta or noodle or grains	¼ cup	¼ cup	½ cup
1 meat/meat alternate			
meat or poultry or fish ^e or	1 oz.	1½ oz.	2 oz.
cheese or	1 oz.	1½ oz.	2 oz.
egg or	½	¾	1
cooked dry beans or peas or	¼ cup	3/8 cup	½ cup
peanut or other nut or seed butters or	2 Tbsp.	3 Tbsp.	4 Tbsp.
nuts and/or seeds ^f or	½ oz.	¾ oz.	1 oz.
yogurt ^g	4 oz.	6 oz.	8 oz.
Snack (Select Two of the Four components for a Reimbursable Snack)			
1 milk ^b	½ cup	½ cup	1 cup
2 fruits/vegetables			
Juice ^c , fruit and or/vegetable	½ cup	½ cup	¾ cup
1 grains/bread ^d			
Bread or	½ slice	½ slice	1 slice
Cornbread or biscuit or roll or muffin or	½ serving	½ serving	1 serving
Cold dry cereal or	¼ cup	1/3 cup	¾ cup
Hot cooked cereal or	¼ cup	¼ cup	½ cup
Pasta or noodle or grains	¼ cup	¼ cup	½ cup
1 meat/meat alternate			
meat or poultry or fish ^e or	½ oz.	½ oz.	1 oz.
cheese or	½ oz.	½ oz.	1 oz.
egg or	½	½	½
cooked dry beans or peas or	1/8 cup	1/8 cup	¼ cup
peanut or other nut or seed butters or	1 Tbsp.	1 Tbsp.	2 Tbsp.
nuts and/or seeds ^f or	½ oz.	½ oz.	1 oz.
yogurt ^g	2 oz.	2 oz.	4 oz.

Source: Crediting Handbook for the Child and Adult Care Food Program, January 2014

^aChildren age 12 and older may be served larger portions based on their greater food needs. They may not be served less than the minimum quantities listed in this column.

^bMilk served must be low-fat (1%) or non-fat (skim) for participants age 2 and older.

^cFruit or vegetable juice must be full-strength.

^dBreads and grains must be made from whole-grain or enriched meal or flour. Cereal must be whole-grain or enriched or fortified.

^eA serving consists of the edible portion of cooked lean meat or poultry or fish.

^fNuts and seeds may meet only one-half of the total meat/meat alternate serving and must be combined with another meat/ meat alternate to fulfill the lunch or supper requirement.

^gYogurt may be plain or flavored, unsweetened or sweetened.

The study team also reports descriptive tabulations of mean amounts of USDA food pattern groups in meals and snacks served relative to the DGA standards, as well as the mean percentage contribution of meals and snacks to the daily and weekly DGA recommended amounts. Percent contributions were calculated by dividing the amount of food pattern food group by the recommended amount of a food pattern food group. Finally, to assess the overall quality of meals and snacks served, the study team calculated the 2015 HEI scores. Scores for each of the HEI components were calculated on a density basis (per 1,000 kcal served) and combined to produce the final HEI score. USDA Food Pattern Food Groups and HEI analyses use the menu survey data with imputed portion sizes.

Major food sources of calories and key nutrients. The study team examined the major food sources of calories, key nutrients, sodium, and solid fats and added sugars in meals and snacks. The outcome for this analysis is the percentage contribution of a particular food/food group to the nutrient content of the average meal or snack prepared. The study team classified all foods to a major and minor food group. For each nutrient, the study team ranked the contributions of each major food group and each minor food source group. Examples of the types of food assigned to each major and minor category can be found in Exhibit A.3-1. Descriptive tabulations present findings for the percentage contribution of each major food group and the top 10 contributors among the minor food source groups.

Characteristics of foods served in meals and snacks. Information about the types of foods served in meals and snacks provide useful context for interpreting findings related to nutrient and food group content. The study team provided descriptive tabulations of the following outcome measures to describe the characteristics of foods served in meals and snacks:

- Variety of types of foods served by meal/snack occasion in a typical week; measured as the mean percentage of daily menus that offer a given number of unique foods within each CACFP meal pattern group, as well as the median number of unique foods offered within each group per day and per week.
- Foods served most frequently, defined as food categories served in five percent or more of meals and two percent or more snacks for any age group in early child care and before and after school programs.
- Mean percentage and distribution of meals at child care programs serving fresh produce (fruits and vegetables) at each meal or snack.

A.4.1.2 Infant Menu Survey Feeding Patterns

Infant menu survey data were used to examine the foods served to infants by child care programs. The analysis excluded any foods that were provided by parents for consumption while infants were in care. Tables under RQ 1.6 for foods offered to infants are reported by the four age ranges that appear in the infant menu survey: 0-3 months, 4-5 months, 6-7 months, and 8-11 months.

Infant menu survey tables are not broken out by program type because sample sizes were not sufficient for comparisons between program types.

This analysis presents:

- foods most commonly served to infants, based on the mean percentage of daily menus including the food item. This table presents food items served in two percent or more of daily infant menus for any age group. Indented rows under each major category list the most frequently served minor category food to least frequently served minor category food, ordered by the 8-11 month column;
- the percentage of early child care programs that reported on the menu survey serving solids (any foods that are not exclusively liquid) to infants under six months old at least once during the target week; and,

- the percentage of early child care programs that reported on the menu survey serving juice to infants at least once during the target week.

For reference, see Exhibit A.8-34 for the CACFP infant meal pattern.

A.4.1.3 Programs' Food Service Practices

The analysis of programs' food service practices draws from the menu survey data, meal observation form data, and provider survey data.

The study team provided descriptive tabulations of the following outcome measures to describe CACFP program food service practices:

Food Service Practice Analyses Using Menu Survey and Meal Observation Form Data

- **Percentage of meals and programs that use each type of meal service.** Because meal service data were collected in both the menu survey instrument and the meal observation form, results for this research question from both data sources are presented (as two separate sets of tables).
- **Mean and distribution of meal length in minutes.** This analysis presents the mean duration, as well as minimum and maximum duration, of each meal type for each program type and age group combination. It also includes the percentage of programs in each program type and age group that had a meal duration falling within a given duration category.

Food Service Practice Analyses Using Provider Survey Data

- ***Policies and Practices on Receiving Seconds and Declining Foods Served Reported in Early Child Care Programs*** This analysis presents the percentage of programs that:
 - Have a policy that describes what staff should do when children decline served food;
 - Have a policy regarding additional or second servings of foods or beverages; and,
 - Allow second servings for specific foods or beverages.
- ***Policies About Children Bringing Meals or Snacks from Home Reported in Child Care Programs*** This analysis presents the percentage of programs that provide food, allow parents to send food from home, require parents to send food from home, or does not allow parents to send food from home, for each meal type.
- ***Policies and Practices Related to Availability and Serving of Water Reported in Child Care Programs*** This analysis presents the percentage of programs that:
 - Have a policy on the availability and serving of water throughout the day;
 - Have teachers, staff or supervisors encouraging children to drink water throughout the day; and,
 - Use specific modes for providing water during meals and snacks (i.e., Provides water at table with meals; Child allowed only one serving, etc.).
- ***Policies and Practices on Food Safety Reported in Child Care Programs*** This analysis presents the percentage of programs that:
 - Have a policy around food safety;
 - Require any staff to complete a food safety training course, and if so, whether staff are required to be certified for food safety; and,
 - Have a plan in place to allow for a food product to be identified and removed during a recall.

The provider survey included an Infant Feeding and Infant Physical Activity Section that providers were asked to complete if they indicated at the beginning of the survey that their enrollment included infants under 12 months of age as of September 30, 2016. This analysis presents information on provider reported practices regarding:

- serving solids to infants;
- serving 100% juice or sugar-sweetened beverages to infants; and,
- breastmilk storage and preparation.

Note that the questions on breastmilk storage and preparation were informed by the Caring for Our Children (CFOC) guidelines²⁷ on storing and preparing breastmilk.

A.4.1.4 Physical Activity Opportunities

Analysis variables related to opportunities for physical activity for the observation data included frequency and time provided for physical activity; types and frequency of activities; frequency and time spent in sedentary activities, such as screen time; barriers to providing physical activity; and impact of barriers on type and quantity of physical activity and variation between transient and more permanent barriers.

Observation times varied between and within program types, with some observation periods lasting for almost 10 hours, others approximately two hours, based on operating hours of the program. In order to standardize measures of physical activity, screen time, and sedentary activity and compare time measures across programs, the study team's analysis adjusted physical activity durations, screen time, and sedentary time durations to an eight-hour day. Unadjusted means of these measures are also reported. The study team also adjusted the number of occurrences in outdoor and indoor settings²⁸ from the form's activity tables to an eight-hour day. In addition, the study team adjusted sedentary time and screen time for an eight-hour day to be comparable to the groups used by the CFOC recommendations: <60 minutes, 60-120 minutes, and >120 minutes.

The primary methods of data analysis for the environmental observation data were descriptive tabulations and cross-tabulations, including means and distributions of continuous measures, such as physical activity, sedentary time, and screen time. The study team estimated these values and their standard errors for the relevant universe of child care programs and for subgroups using the weights and variance calculations that take into account the complex sampling design.

For the analyses to address RQ 1.5.6 ("Barriers to physical activity (e.g., access to outdoor play space) and how they affect the quantity and type of physical activities, overall and by type of barrier (e.g., transient vs. more permanent barriers"), the study team used multivariate regression analysis with appropriate survey weighting. The multivariate analyses were implemented using ordinary least squares regressions for continuous outcomes (physical activity minutes) and logistic regressions for binary

²⁷ American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. *Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs*, 4th ed. Itasca, IL: American Academy of Pediatrics; 2019. [http://nrckids.org/files/CFOC4 pdf- FINAL.pdf](http://nrckids.org/files/CFOC4%20pdf-FINAL.pdf). Accessed 12/12/19

²⁸ The study team also conducted a data check to be sure that the hours observed were consistent with the program hours of operation shared with team members while scheduling site visits. In fact, the hours observed were highly consistent with the hours of operation and when the majority of children were in care. Observing the full time that the children were in care mitigated the concern that the adjustment over- or underestimated amount of time for physical activity.

outcomes (presence or absence of specific physical activity types). Predictors included binary indicators for potential barriers to physical activity (four outdoor and three indoor barriers) and a set of demographic covariates at the program level.

Results for RQ 1.5.6 are presented in two separate sets of tables. In the first set of tables, findings are presented as regression-adjusted means for continuous outcomes and regression-adjusted mean percentages for logistic regression models, with each regression-adjusted estimate reflecting means/mean percentages associated with the presence or absence of a particular barrier. These tables include significance tests indicating when adjusted outcomes significantly differed in the presence or absence of each barrier. The second set of tables provide estimates of the adjusted difference in mean or mean percentage outcomes in the presence of each barrier and standard errors for those differences. These tables include significance tests indicating when the relationship between each barrier and the outcome of interest significantly differed by program type (e.g., child care centers versus Head Start programs).

The probability of finding significant associations by chance increases with the number of associations tested, and these analyses examined a large number of barriers and outcomes.

A.4.2 Objective 2: Dietary Intakes

This section presents analysis methods used to answer the Objective 2 research questions.

A.4.2.1 Food and Nutrient Intake of Children

This section describes the methods used to assess the dietary intakes of CACFP participants, both on CCD and non-CCD, and presents the methods used to estimate usual daily nutrient and food group intakes, mean nutrient and food group intakes, and HEI scores. Please note that six tables with the prefix “UI” include usual daily intake estimates, while the remaining tables were calculated using the child’s first CCD intake and first non-CCD intake, respectively. The usual intake estimates were generated using the National Cancer Institute (NCI) Method²⁹, implemented using SAS macros provided on the NCI website³⁰. The NCI Method models intake as a function of the probability of intake on a given day and the amount consumed conditional on any intake. The NCI Method additionally permits incorporation of participant and provider level characteristics as covariates into usual intake models, allowing the multivariate model to adjust for differences in these characteristics across program types. Usual intake models generally included the following covariates: gender (male, female, missing), child race/ethnicity (white only, black only, Hispanic, or other/unknown), child poverty level (greater than 185 percent poverty level, at or below 185 percent poverty level, or missing), provider metropolitan status (metropolitan or non-metropolitan), provider size (large, small, or missing). For some infrequently consumed USDA food pattern food groups, covariates that were highly correlated with the probability of intake were excluded from the usual intake models on a case by case basis when their inclusion otherwise

²⁹ Tooze JA, Midthune D, Dodd KW, Freedman LS, Krebs-Smith SM, Subar AF, Guenther PM, Carroll RJ, Kipnis V. [A new statistical method for estimating the usual intake of episodically consumed foods with application to their distribution](#). *J Am Diet Assoc* 2006 Oct;106(10):1575-87.

Tooze JA, Kipnis V, Buckman DW, Carroll RJ, Freedman LS, Guenther PM, Krebs-Smith SM, Subar AF, Dodd KW. [A mixed-effects model approach for estimating the distribution of usual intake of nutrients: the NCI method](#). *Stat Med* 2010 Nov 30;29(27):2857-68.

Freedman LS, Guenther PM, Dodd KW, Krebs-Smith SM, Midthune D. [The population distribution of ratios of usual intakes of dietary components that are consumed every day can be estimated from repeated 24-hour recalls](#). *J Nutr* 2010 Jan;140(1):111-6.

³⁰ <https://epi.grants.cancer.gov/diet/usualintakes/method.html>

prevented model convergence. The food groups affected were dark green vegetables, red/orange vegetables, other vegetables, and whole grains.

Variances were estimated by the Fay's method.³¹ This procedure is known to work well for complex estimators such as those required for UDI estimation. The procedure involved several steps. In the first step, PSUs were organized into 24 pairs. In the second step, one PSU from each pair had its weight cut in half and the weights of the childcare places in the remaining PSU was increased by 50 percent and re-adjusted. In the third step, the UDI tables were rerun with the new set of weights. The second and third step were repeated 23 times using a balanced pattern to create a set of 24 replicated UDI estimates. In the fourth (and final) step, the variation in this set of 24 estimates was then translated into an estimated variance on the full-sample UDI estimate using the equation:

$$\text{var}(\hat{y}) = \frac{4}{24} \sum_{j=1}^{24} (\hat{y}_{(j)} - \hat{y})^2$$

where

\hat{y} is the estimated UDI based on the full sample, and

$\hat{y}_{(j)}$ is the estimated UDI based on the j -th set of Fay weights.

Mean Numbers of MyPlate Servings Consumed³²

This analysis includes the following:

- mean usual amounts of USDA Food Pattern Food Groups consumed over 24 hours on CCD and non-CCD by children enrolled in early child care programs, ages 4-8 years, unadjusted and adjusted for energy intake;
- mean amounts of USDA Food Pattern Food Groups consumed over 24 hours on a CCD and non-CCD based on day 1 data (i.e., the child's first day of data), unadjusted and adjusted for energy intake;
- mean amounts of USDA Food Pattern Food Groups consumed at child care based on day 1 data;
- percentage of children in early child care programs with usual intakes meeting recommended amounts of USDA Food Pattern Food Groups on CCD and non-CCD;
- mean percentage contribution of child intakes to recommended daily amounts of USDA Food Pattern Food Groups Based on day 1 data; and
- percentage of children consuming each USDA Food Pattern Food Group at least once on CCD and non-CCD based on day 1 data.

These analyses report mean amount consumed for each MyPlate food group and subgroup, and compare mean amounts to USDA Food Pattern recommendations. The remainder of this section describes the standards, or benchmarks, used for the comparison to recommendations.

³¹ Judkins, D. (1990). Fay's method for variance estimation. *Journal of Official Statistics*, 6, 223-239.

³² The research question in the RFP refers to MyPlate servings consumed. While MyPlate refers to the collection of resources designed to translate the *Dietary Guidelines* into consumer-friendly messages, we use the more appropriate term USDA Food Pattern Food Groups in this discussion and related table shells based on the Healthy US- Style Eating Pattern outlined in Appendix 3 of the 2015-2020 *Dietary Guidelines for Americans*.

The USDA Food Pattern recommendations assign children age two years and older³³ to a calorie (kCal) level based on their sex, age, and activity level.³⁴ At each calorie level, the USDA Food Patterns³⁵ specify daily recommended amounts of foods for each of the USDA Food Pattern Food Groups and subgroups in cup equivalents (for Fruits, Vegetables, and Dairy) and ounce equivalents (for Grains and Protein Foods). Each pattern also includes a limited percentage of discretionary calories (8-19 percent) that can be used in other ways, such as small amounts of added sugars and saturated fats.

To compare the proportion of each USDA Food Pattern Food Group and subgroup consumed by sampled children with relevant USDA Food Pattern recommendations, we assigned calorie levels and associated daily food group recommended amounts to each CACFP age group in SNACS (two years, 3-5 years, and 6-12 years). In order to assign a calorie level for the children in each CACFP age group, the study team reviewed the recommended benchmarks from the Institute of Medicine (IOM) report, *CACFP Aligning Dietary Guidance for All*.³⁶ The study team used the “Energy Levels Used for Assignment of Individuals to USDA Food Patterns” table developed by the Center for Nutrition Policy and Promotion (CNPP)³⁷ to identify calorie targets consistent with the existing CACFP age groups. These are 1,000 kCal for two year olds and 1,400 kCal for 3-5 year olds. For 6-12 year olds, we used the 1,800 daily kCal level, which is consistent with the mid-point of the age range in the table, and is consistent with the calorie level used in similar tables for elementary children in the School Nutrition and Meal Cost Study (SNMCS)³⁸, a strategy that will allow for comparison across the two studies.

Comparison of MyPlate Servings Consumed During the Child Care Day with CACFP Standards

This analysis focused on the mean amounts of CACFP food components consumed at each meal in child care and mean percentage of the CACFP minimum requirement consumed at each meal.

CACFP standards are defined at the meal level for each age group. Depending upon the meal type or snack, the CACFP meal patterns specify minimum amounts of each of the four food components (e.g., fluid milk, fruit/vegetable, grains/breads, and meat/meat alternates) to be served to children in each of the three age groups: 1-2 years, 3-5 years, or 6-12 years. Unlike other analyses of child intakes in Appendix G, analyses to assess compliance with CACFP standards were conducted at the meal level and were based only on the CACFP meals and snacks served at the programs.

Mean CACFP meal pattern component portions were based on the USDA Food Pattern Food Groups: total protein foods, total vegetables, total fruits, total grain, and total milk. Yogurt and cheese are categorized differently in the CACFP meal pattern and USDA Food Patterns; they are credited as a meat/meat alternate in the CACFP meal pattern but contribute to Dairy in the USDA Food Pattern. The study team converted the USDA Food Pattern cheese and yogurt amounts from cup equivalents into

³³ Dietary intakes for 1 year olds will not be included in this analysis as there are no USDA Food Pattern recommendations for 1 year olds.

³⁴ Appendix 2 of the 2015-2020 *Dietary Guidelines for Americans* provides information on the estimated calorie needs per day by age, sex, and physical activity level for individuals aged 2 years and older.

³⁵ Appendix 3. USDA Food Patterns: Healthy U.S.-Style Eating Pattern - 2015-2020 *Dietary Guidelines for Americans*. <https://health.gov/our-work/food-nutrition/2015-2020-dietary-guidelines/guidelines/appendix-3/>

³⁶ IOM (Institute of Medicine). 2011. *Child and Adult Care Food Program: Aligning Dietary Guidance for All*. Washington, DC: The National Academies Press.

³⁷ https://www.cnpp.usda.gov/sites/default/files/usda_food_patterns/EstimatedCalorieNeedsPerDay.pdf

³⁸ Gearan, E., Fox, M.K., Niland, K., Dotter, D., Washburn, L., Connor, P., Olsho, L., and Wommack, T. (2019). *School Nutrition and Meal Cost Study, Final Report Volume 2: Nutritional Characteristics of School Meals*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support.

ounce equivalents, using the weights of a 1 cup equivalent. These amounts were then summed with other protein foods to obtain the total meat/meat alternates portion for the meal.

To obtain the mean percentage of the CACFP minimum portion consumed, the study team divided the mean amount of the CACFP component consumed by the CACFP minimum portion for that component for that meal and age. For example, if children aged 3-5 consumed a mean of $\frac{1}{2}$ cup-equivalent of unflavored low-fat milk at lunch, this would represent two-thirds (~67 percent) of the CACFP standard amount (i.e. $\frac{3}{4}$ cup of creditable fluid milk) for this age group.

Comparison of Intake Levels to Dietary Reference Intakes (DRIs) Overall by Age of Child and Type of Provider

This analysis includes the following:

- mean usual 24-hour intakes and percentage of children in early child care programs meeting Dietary Reference Intake (DRI) amounts on CCD and non-CCD;
- mean 24-hour nutrient intakes and percentage contribution to Dietary Reference Amounts on a CCD and non-CCD based on day 1 data (DRI age groups);
- mean usual 24-hour energy and Estimated Energy Requirement (EER) ranges being met on CCD and non-CCD by children in early child care programs;
- mean 24-hour energy and EER on a CCD and non-CCD based on day 1 data; and
- mean and distribution of usual 24-hour intakes on CCD by children in early child care programs.

These analyses include comparisons of usual 24-hour intakes on CCD and non-CCD to DRI benchmarks, including estimated average requirements (EARs) or adequate intake levels (AIs), as appropriate to each nutrient; tolerable upper intake levels (ULs), for nutrients for which a UL is defined; and Acceptable Macronutrient Distribution Ranges (AMDRs), for fats, protein, and carbohydrates. Intakes of calories from saturated fat and cholesterol are compared to the 2015 DGA recommendations.³⁹ Analyses based on the first-day of intake include the full sample of children in the analytic file, grouped into the appropriate DRI age ranges of 1-3 years, 4-8 years and 9-13 years. Sex specific benchmarks were used for 9-13 year olds. We used child gender (boy/girl) as reported on the parent survey as a proxy for child sex. Results were pooled across gender and age group. These tables report the means and their percentage contribution to dietary reference amounts. The usual daily intake analyses were conducted on a subset of the analytic file, using data from 4-8 year olds in early child care programs only. The usual daily intake tables report percentages of populations above, below, and meeting DRI recommendations.

Analyses of energy intakes include comparisons of usual 24-hour total energy on CCD and non-CCD to relevant EER-based targets. The EER targets were computed at the individual level for each child as a function of their sex, observed age in years, weight, and height at each of the four assumed (not observed) physical activity intensity levels for comparison: sedentary, low active, active, and very active.⁴⁰ When computing EER, we used child gender (boy/girl) as reported on the parent survey as a proxy for child sex. Children for whom the necessary weight, height, or gender data were unavailable were excluded from this analysis. Individual EERs were then aggregated to calculate the mean EER for each activity level within each age group. The usual intakes version of these tables presents the percentage of children with energy

³⁹ There is no DGA for 1 year olds. Therefore, the small number of 1 year olds in this analysis have been included with the 2-3 year olds rather than exclude them from this analysis.

⁴⁰ Institute of Medicine. 2006. Dietary Reference Intakes: The Essential Guide to Nutrient Requirements. Washington, DC: The National Academies Press.

intakes below the sedentary EER, between the sedentary and low active EER, between the low active and active EERs, between the active and very active EERs, and above the very active EER.

Daily Mean Nutritional Intake from CACFP Meals and Over 24 Hours by Age of Child and Type of Provider

This analysis includes the following tables:

- mean nutrient intake consumed at child care (CACFP age groups) based on day 1 data; and
- mean nutrient intake consumed over 24 hours on a CCD and non-CCD based on day 1 data (CACFP age groups).

Analyses of the nutrient intake from CACFP meals are based on the means of first CCD of intake and are presented by CACFP age group and program type. The first set of tables reflects the child intakes during child care and the second set of tables reflect the intakes over 24 hours on both CCD and non-CCD.

Mean Scores on the HEI for Meal Participants

This analysis presents the mean HEI-2015 scores and percentage of maximum scores on a CCD and non-CCD.

The HEI-2015 was used to describe the nutritional quality of the diets consumed by children in CACFP programs. The HEI-2015⁴¹ includes 13 components that can be summed to a maximum total score of 100 points. The components include adequacy components, where higher scores reflect higher intakes that meet or exceed the standards, as well as moderation components where higher scores reflect lower intakes because lower intakes are recommended.

The study team estimated mean HEI-2015 total and component scores for the foods over 24 hours for participants using the population ratio method.⁴² This method sums the energy, and intake amounts of HEI components (based on Food Pattern Food Groups) for all children in the sample population, ratios are calculated for each HEI component, and then scored.⁴³ Scores for each of the HEI components were calculated on a density basis (per 1,000 kcal served) and combined to produce the final HEI score.

A.4.2.2 Infant Food Intake

These analyses report infant intakes in child care for all ages and two age groups, 0-5 months and 6-11 months, consistent with the CACFP Infant Meal Pattern that took effect in October 2017. All analyses used data from the infant food intake forms. Foods that were reported without amounts were left on the data file to inform the analysis of most commonly served foods, but the individual foods with missing amounts were dropped from the mean amount analyses.⁴⁴ The infant intake tables present:

- the mean amount of liquid (breastmilk, formula, juice, and water) consumed per feeding interval by infants during the CCD;

⁴¹ Average Healthy Eating Index-2015 Scores for Americans by Age Group, WWEIA/NHANES 2015-2016. https://fns-prod.azureedge.net/sites/default/files/media/file/HEI-2015_1516_web.pdf

⁴² Freedman LS, Guenther PM, Krebs-Smith SM, Kott PS. 2008. [A population's mean Healthy Eating Index-2005 scores are best estimated by the score of the population ratio when one 24-hour recall is available](#). *J Nutr* Sept;138 (9):1725-9.

⁴³ Overview of the Methods and Calculations. Retrieved from <https://epi.grants.cancer.gov/hei/hei-methods-and-calculations.html>

⁴⁴ No infant had an intake with more than 15% of foods with missing amounts (excluding amounts that were not available due to breastfeeding).

- the most frequently consumed foods by infants while in child care, defined as the percentage of infants consuming a food at least once during the target CCD. This table presents food items consumed by two percent or more of infants for any age group. Indented rows under each major category list the most frequently served minor category food to least frequently served minor category food, ordered by the all ages column;
- mean amounts per feeding interval for the most frequently consumed food groups;
- the percentage of infants under six months of age consuming any solids (any foods that are not exclusively liquid) while in child care; and,
- the percentage of infants who consume breastmilk only, formula only, or a combination of breastmilk and formula while in child care.

For reference, see Exhibit A.8-34 for the CACFP infant meal pattern.

A.4.2.3 Parent Survey

Parent survey data were used for two purposes. First, they were used to construct the child demographic subgroup variables, including household poverty level, child race and ethnicity, and child full-day or part-day child care enrollment status. They were also used to characterize the prevalence of food brought from home, household participation in government assistance programs, and children's physical activity outside of child care (as reported by parents). The parent survey analysis sample was restricted to the sample of observed children. Furthermore, the tables also included only interviews that had non-missing responses to the questions included in the relevant analysis. This analysis presents:

- The percentage of children and infants whose parents reported sending food from home and the percentages reporting various reasons for doing so;
- The duration (minutes) of children's outdoor physical activity *outside of child care on a CCD*, as reported by parents;
- the minutes of children's outdoor physical activity *on a non-CCD*, as reported by parents; and,
- The demographic characteristics of CACFP participants including household income, public assistance program participation, and food security.

Please note that the tables examining parent reports of food from home present results Tables stratified by age group pooling responses from two age groups (1-2 years and 3-5 years) to maximize the effective sample size in each cell. Additionally, a small number of children older than 12 are included with results from 6-12 year olds.

A.4.2.4 Body Mass Index and Weight-for-Age

Body Mass Index

The study team conducted descriptive analyses of body mass index (BMI). The tables present means and distributions showing the percentage of the observed population's healthy weight, underweight, overweight, and obese status, as well as the mean BMI-for-age percentile. BMI analysis included only children aged two years and older.

Weight-for-age

For weight-for-age analysis (applicable to children ages 12-23 months), the table reports means and distributions in the table because only 24 children are in the analytic sample. In parallel to the BMI analysis, the table reports mean weight-for-age, weight-for-age percentile, as well as the distribution. It should be noted that children whose weight-for-age is below the 2nd percentile or above the 98th percentile are not considered to have low or high weight status, since this distinction also depends on

length or stature. Very young children were more likely to refuse weight measurements than older children, which is reflected in smaller sample size in this table.

A.4.3 Objective 3: Costs and Revenues

The analyses for Objective 3 are descriptive tabulations and cross-tabulations, including means and medians for continuous measures and proportions for binary measures, and incorporate weights and appropriate variance calculations to obtain estimates. The computation of standard errors took into account the complex sampling design.

The analysis reports estimates of the mean and median of the cost per meal for breakfast, lunch, supper and snacks at the program level. Each program's cost per snack is the mean cost per snack across the snacks they serve during the morning, afternoon, or evening.

This section first summarizes the limitations of the cost estimates in this report. It then discusses the details of how the cost estimates were constructed, as well as the analysis of USDA subsidies and the sources of CACFP revenue.

A.4.3.1 Limitations of the Cost Estimates

The cost estimates in this report have some important limitations:

1. Cost estimates include food and labor, but do not include ODCs and indirect costs.
2. Within the framework established for SNMCS⁴⁵ and previous studies of school meal costs, this report presents “full” costs but not “reported” costs.
3. Unlike estimates for SNMCS, the food cost per meal in this report are not adjusted using data on annual food costs from the organizations' financial statements.
4. The infant feeding cost analysis includes only food costs.

Cost Components Included

The four components of CACFP costs are food, labor, ODCs, and indirect costs. The data collection instruments were designed to collect all four components. Food costs per meal or snack were built up from the food price and portion size data as described in Section 2.3. Labor costs were built up from the time estimates and pay data collected in the labor cost interviews. The study plan included a process for allocating ODCs and indirect costs from organizations' aggregate financial data to each meal or snack and then computing the cost per meal for these components. However, too few programs had sufficient data on indirect costs and ODCs, and so the cost per meal estimates presented in this report only include food and labor components, as discussed later in this section.

Full versus Reported Costs

In SNMCS and prior USDA-FNS studies of school meal costs, two types of estimates were presented: reported costs per meal and full costs per meal. Reported costs are defined as costs charged to the foodservice account. To calculate reported costs per meal in SNMCS, the analysis adjusted the “raw” food and costs for each meal that were built up from the cost interviews, menu survey, and price data to align with the total food and labor costs reported on the school food authority (SFA)'s financial statement for its foodservice account. In this computation, the reported labor costs were computed using only the data for school foodservice staff, as these were the staff whose costs were charged to the foodservice account. Reported costs included ODCs and indirect costs from the SFA financial statement. Full costs

⁴⁵ Logan, C. W., V. Tran, M. Boyle, A. Enver, M. Zeidenberg, and M. Mendelson, (2019). School Nutrition and Meal Cost Study, Final Report Volume 3: School Meal Costs and Revenues. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support Project Officer: John Endahl.

included reported costs plus labor for non-food service staff (such as teachers, aides, and administrators) and indirect costs not reported on the SFA's financial statement.

For the CACFP study, the raw labor and food costs built up from cost interviews, menu survey and food price data were not adjusted to align with reported costs. In addition, it was not feasible to differentiate labor costs between staff charged to the foodservice account (i.e., reported costs) and other staff supporting CACFP. Therefore, the labor costs are considered raw full costs in the framework used in SNMCS.

It was not feasible to estimate reported labor costs because the CACFP sponsors and independent centers did not track reported costs the same way SFAs do. The primary difference was that there were rarely dedicated foodservice staff for CACFP. Therefore, for many cases there was no salary and benefit information in the organization's financial records specifically for CACFP staff. The limitations of reported CACFP financial data prevented the alignment of the labor costs built up from the instruments with reported labor costs for CACFP.

Raw versus Adjusted Food Costs

Although most sponsors provided their reported food costs for CACFP, the analysis was unable to adjust the food cost estimates to align with total reported food costs, as was done for SNMCS. This adjustment would require an estimate of the food cost per meal for all types of meals and snacks that the programs operated by the sponsor served, so that the total raw food cost for all meals and snacks could be computed using the sponsor's meal counts. However, in some cases the sponsor's other programs served meals or snacks that the sampled program did not serve. This limitation was a consequence of the decision to sample programs directly, which was necessary to obtain the most efficient study design for the intensive on-site data collection to answer all of the research questions for SNACS. The analysis faced the same issue with independent child care centers that operate multiple programs, since only a single program was sampled these centers.

Infant Feeding Cost

The infant feeding cost analysis includes food but not labor or other cost components. It was not feasible to differentiate between time spent feeding infants and other infant care activities, so SNACS did not attempt to estimate labor costs for infant feedings. As noted above, data on ODCs and indirect costs were insufficient to include these components in the analysis.

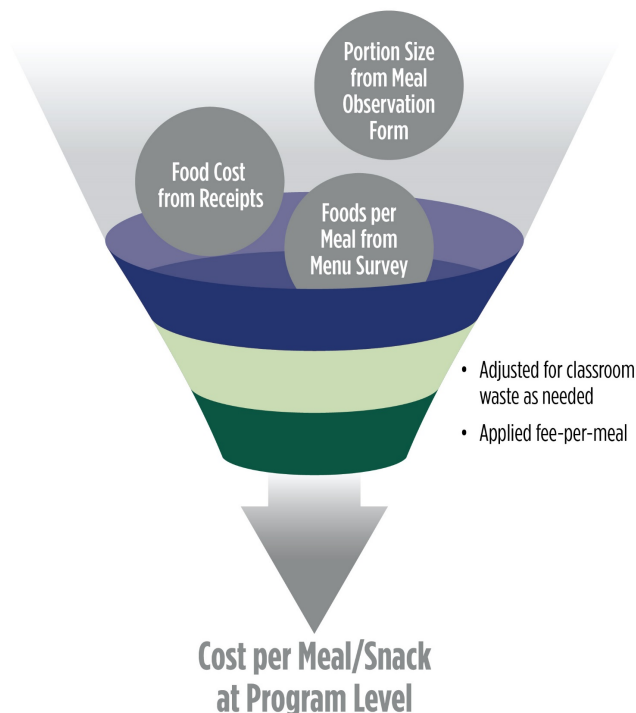
A.4.3.2 Construction of Cost Analysis Variables

Cost analysis variables were constructed for breakfast, lunch, supper, and snacks. (For snacks, the variable represented means across morning, afternoon and evening snacks). Section 2.4.2 describes how the analysis variables were constructed. Subsections are ordered by components of CACFP costs: 1) food costs, 2) labor costs, 3) indirect costs and ODCs. These subsections are followed by a subsection describing the infant feeding cost analysis variables and revenue variables. Each subsection describes how the cost component was constructed from the various cost sources and instruments. Sections 2.4.3 and 2.4.4 describe the final sample and approach to design effects, respectively.

Food Cost per Meal

The food cost per meal is the food cost incurred by the program in preparing the meal or snack. As described in Section A.3.6.3, the food cost per meal was based on two data elements for each food served: the price per gram derived from vendor receipts collected from sponsors and providers and the gram weight per portion derived from the menu survey and meal observation data.⁴⁶ The following steps were applied to build up to the food cost per meal measures. Exhibit A.4-4 illustrates the steps in the process.

Exhibit A.4-4 Calculation of Food Cost



1. **Calculation of portion costs.** The price per gram data were merged to the menu survey with portion sizes for each food served. The merged dataset contained one record for each provider, day of the target week, meal, age group served, and food code. The price per gram was multiplied by the portion size in grams to get the portion cost of each food on the menu. Because there were different portion sizes for each age group and meal, this calculation resulted in different portion costs for each age group served that food.
2. **Calculation of mean food cost per meal across age groups served.** For each meal, the portion costs were summed over all foods in that meal to get the food cost per meal for each age group. This measure is the per-meal cost of foods consumed by a child for a given meal or snack. Because the cost analysis reports estimates at the provider level, and not the provider-age level, the study team calculated a weighted mean of the food cost per meal across age groups served for each program. The weights were derived from the attendance-by-age data from the meal and snack counts booklet, and enrollment-by-age data from the provider survey if attendance data were missing.
3. **Calculation of mean food cost per snack across morning, afternoon and evening snacks.** The objective of the analysis was to estimate the mean and median cost per snack using data for all snack types served by programs in the sample. For each program, the study team calculated a weighted mean cost per snack using weights derived from weekly snack counts reported in the meal and snack counts booklet. For instance, if the program served snacks during the morning, afternoon, and evening, the weight for morning snacks was equal to the weekly morning snack count divided by the sum of weekly morning, afternoon and evening snacks. The cost per snack for each snack time was multiplied by the weight to get a weighted proportion of the overall mean cost per snack for the program. The weighted proportions were then summed over the snacks served by the program to get the program's mean cost per snack.

⁴⁶ Meal observation data from the Group 3 sample were used to impute portion sizes for all foods reported in the menu survey.

4. ***Addition of cost of classroom waste per child to food cost per meal.*** The food cost per meal is the food cost of preparing the meal or snack. This includes the cost of foods prepared but not consumed, that is, the cost of waste. Classroom waste was the food that was produced and discarded, without ever being served to children. (This waste did not include plate waste, which was the food served to children that they did not consume. Plate waste was part of the cost of food served to children.) Classroom waste did not include food that was saved to be served again, donated, or taken home by parents or staff.
To account for the cost of food wasted in the cost per meal measure, the study team constructed a Classroom Waste Ratio (CWR) for each meal using data from the classroom waste form. The CWR was an estimate of the ratio of the cost of food wasted to the cost of food consumed for a given meal at a program. The study team first calculated the cost of classroom waste per child, and then divided that by the cost per meal derived in Steps 1-3 above, to get the CWR.⁴⁷ If classroom waste data were missing for a program, the CWR was imputed by taking the median CWR across all providers. To factor in classroom waste, the food cost per meal before accounting for waste (as estimated in steps 1-3) was multiplied by $(1+CWR)$ to get the final measure of the food cost per meal.
5. ***Addition of fee-per-meal costs to cost per meal.*** The food price and USDA foods checklist collected data on fee-per-meal amounts. A fee-per-meal is a fixed price per meal or snack that includes the cost of food. Providers or sponsors pay a fee-per-meal to a foodservice management company or a vendor who may prepare meals in individual portions or in bulk. Some programs purchased supplementary foods in addition to those provided on a fee-per-meal basis. One quarter (25 percent) of programs reported that they paid a fee-per-meal for one or more meals served. For these programs, the study team added the fee-per-meal to the food cost per meal of the supplementary foods calculated in Step 4. If the program only paid a fee-per-meal and did not purchase any other food items, the final food cost per meal was set to the fee-per-meal.

Labor Cost per Meal

Data from the center foodservice, center director, and sponsor CACFP staff cost interviews were used to create measures of labor cost components. As described in Section 2.2.1, these instruments collected data on time and salary information by activity and staff title. In the interviews, respondents reported the staff time spent on producing breakfast, lunch, snacks, and supper, respectively, and serving and cleaning during meal time for each meal, respectively. Respondents also reported staff time for CACFP administration, other CACFP activities, activities not related to CACFP, and break time.⁴⁸ The study team combined these data and salary/wage data across instruments to compute measures of labor cost. Then the team merged these measures with meal count data from the self-administered cost questionnaire (SAQ) and meal and snack counts booklet to quantify a program's per-meal labor cost by meal. A program's labor cost per meal comprised three main components: 1) producing CACFP meals/snacks, 2) serving CACFP meals/snacks and cleaning, and 3) administration of the CACFP program (including other CACFP activities not related to producing and serving meals and snacks). The construction of labor costs per meal for each of these activities is illustrated in Exhibit A.4-5 and described as follows.

⁴⁷ The cost of classroom waste was calculated by multiplying the price per gram of the food item (described in Section A.3.6.3) by the gram weight of waste for each food, and then summing waste costs across all foods for that meal. The cost of classroom waste was divided by the number of children observed in the classroom to get the cost of classroom waste per child.

⁴⁸ A portion of the cost of break time was prorated to CACFP activities in proportion to the percentage of total costs for an activity. The total cost included CACFP and non-CACFP activities.

Production Labor. Production time was reported on the center foodservice, center director, and sponsor CACFP staff cost interviews. The study team calculated separate measures of production labor costs per meal for each interview, and then summed them up to calculate the total production cost per meal for the program. The protocol for calculating production costs per meal is described below.

Center foodservice production costs were calculated on a weekly basis as the sum of production costs of meals produced on-site, and any meals produced off-site for that program. Production kitchens that prepared meals off-site for sampled programs were administered a center foodservice cost interview and asked to provide meal counts,

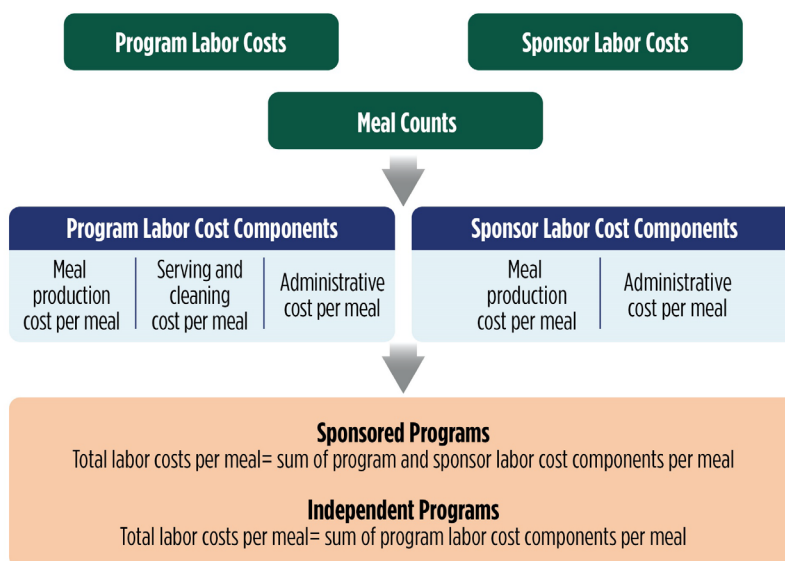
by meal, for all providers they produced meals for. A production kitchen's foodservice production costs were allocated to a sampled program's foodservice production costs for each meal in proportion to the sampled program's share of the total meals produced by the production kitchen for that meal. The proportions were calculated by dividing the sampled program's weekly meal count from the meal and snack counts booklet by the production kitchen's weekly meal count. If a production kitchen's foodservice costs or meal counts were missing, the sampled program that received meals was dropped from the final sample.

The center foodservice production cost per meal for each meal was calculated by dividing the weekly cost of labor to produce meals by meal counts reported for the target week from the meal and snack counts booklet. If a provider operated multiple CACFP programs, the meal count measure included meals or snacks served at the other programs, in addition to the counts of meals at the sampled program. Data on all meals and snacks served by the provider were needed because the time information reported on the center foodservice cost interview's time grid was not restricted to just the sampled program. The labor cost data represented production activities across all CACFP programs operated by the provider.

If meal count data were missing or the cost per meal calculation resulted in extreme values (greater than the 95th percentile), the study team used meal count data from the SAQ, but only for CACFP programs operated by an independent provider.⁴⁹ The annual SAQ count was converted to a mean weekly count by dividing the SAQ meal count by the number of weeks in operation.

Center director cost interview costs were calculated on an annual basis. For independent providers, the Center director cost interview production cost per meal was calculated by dividing annual production

Exhibit A.4-5 Calculation of Labor Costs



⁴⁹ Meal counts for the SAQ could not be used to calculate labor costs per meal and snack for sponsored providers because the SAQ count included CACFP meals from all centers under the sponsor, and not just the sampled program. We used SAQ counts to calculate costs per meal for independent providers because labor cost data were collected for all CACFP programs operated by the program.

costs by the SAQ meal or snack count. If SAQ meal counts were missing or the cost per meal resulted in extreme values, annualized measures of meal counts using meal and snack counts booklet data were used.

The protocol for calculating center foodservice and center director cost interview production costs was slightly different for sponsored programs. In addition to production labor time from the center director and center foodservice cost interviews, many programs also reported production labor time on their sponsor CACFP staff cost interviews. Therefore, for sponsored programs, production labor costs included labor costs from the center and sponsor interviews, whereas independent program production labor only included labor costs from the center interviews. If a sponsor used a production kitchen to produce meals for its sponsored programs, the sponsor's production kitchen completed a center foodservice cost interview. As described above, a production kitchen's foodservice costs for each meal were allocated to the sampled sponsored programs in proportion to the program's share of meals produced by the production kitchen. Production and administrative costs per meal at the sponsor were added to the labor cost per meal for the sponsored program.

Another difference in the derivation of labor cost per meal for sponsored versus independent programs was that the center costs per meal for sponsored programs were only calculated using meal counts from the meal and snack counts booklet. SAQ meal counts were not used as an alternative measure of meal counts because they were not collected at the provider level for sponsored providers. Labor costs for sponsored programs with missing meal and snack counts booklet data were set to missing.

Serving and Cleaning Labor. Serving and cleaning costs per meal were derived for independent providers and sponsored providers using the same protocols as for calculating production labor costs, with one modification. The only difference in the calculation for serving and cleaning costs per meal for sponsored providers was that there were no sponsor-level serving and cleaning costs and no off-site serving and cleaning costs. Therefore, every program's serving and cleaning labor cost per meal was calculated at the sum of center foodservice cost interview serving and cleaning cost per meal and center director cost interview serving and cleaning cost per meal.

Administrative Labor. Administrative costs include the costs of all aspects of the CACFP program other than producing and serving meals. These costs were collected for the provider as a whole and not for specific meals. If a sampled program used a production kitchen, the production kitchen's administrative costs reported on their center foodservice cost interview were allocated to the sampled program in proportion to the program's share of all meals produced by the production kitchen.

For the purposes of reporting labor costs by meal, the study team allocated administrative costs to the cost per meal for each meal. The portion of administrative costs allocated to each meal was calculated by dividing administrative costs by the total counts of CACFP meals and snacks for all meals and snacks served by the provider. The meal counts sources used to divide administrative labor costs corresponded to those used in the calculation of production and serving costs per meal for each of the labor cost interviews respectively. The administrative cost per meal was summed across all instruments to get a program's total administrative cost per meal.

Total Labor Costs per Meal

Total labor costs per meal were calculated by summing the three components of labor. Extreme values were trimmed at the 5th and 95th percentiles. For such cases, the percentages of the untrimmed labor cost components were multiplied by the trimmed total to calculate component costs per meal that summed to the trimmed total cost per meal.

Indirect Costs and Other Direct Costs

Indirect costs are costs of support staff that are not exclusive to CACFP but instead shared across many programs operated by the same center or sponsor. Most often, indirect costs for Federal programs are computed by multiplying the direct costs of the program (labor and potentially non-labor costs) by an

indirect cost rate (a ratio of the organization's total indirect costs to its total direct costs of all programs, expressed as a percentage).⁵⁰ A small number of sponsors and independent providers reported an indirect cost rate. For as many of the remaining cases as possible, the study team calculated an indirect cost rate to represent the cost of support functions using data from the indirect cost questions in the self-administered cost questionnaire, the financial interview and the support staff cost interview. The protocol for calculating the indirect cost rate is described below.

Sponsors and independent providers were divided into three groups for the purposes of calculating an indirect cost rate. The three groups were mutually exclusive:

1. ***All activities asked about on the support staff cost interview were directly reported as a CACFP expense on another interview.*** In this scenario, the indirect cost rate was set to zero because none of the activities generally treated as indirect costs were, in fact, indirect costs.
2. ***No support activities were covered by an indirect cost rate.*** If, according to the support staff interview screener, the respondent noted that none of the support activities were covered by an indirect cost rate, the study team calculated an indirect rate using data from the support staff interview and financial interview. The indirect rate was calculated by dividing the cost of support activities by total direct costs⁵¹ incurred by the sponsor/independent provider as provided on the financial interview. If total costs were missing, support activity costs were instead divided by total direct labor expenses. If support activity costs were missing, then the indirect charge on the financial interview was divided by the sum of reported food and labor expenses. The indirect cost rate was set to missing if none of the aforementioned data were available.
3. ***Some or all support activities were covered by an indirect cost rate.*** In this scenario, the indirect cost rate provided by respondents was added to the support cost share of total direct expenses.⁵² The share of support costs was calculated by dividing support costs by total direct expenses. If the indirect cost rate was missing, then the rate was calculated by using data on indirect charges and reported CACFP food and labor expenses from the financial interview. If total expenses were missing, support costs were divided by total labor expenses. The final indirect cost rate was set to missing if the reported or calculated indirect cost rate was missing or the share of support costs was missing.

Using all available information on indirect costs from the various data sources, the study team was able to derive an indirect cost rate for 69 percent of the sample. When indirect costs are not calculated or charged, organizations often have little knowledge of their value or of indirect cost rates. CACFP data collection was modeled after similar studies of school meal program costs, while recognizing the intrinsic differences between CACFP and the school meal programs. School meal program cost analysis relied heavily on State reporting of indirect cost rates for its analysis. SNMCS and its predecessors showed poor indirect cost data collected at the food service and district level and relied heavily on indirect cost rates reported by states. Therefore, the percentage of CACFP providers who were able to report indirect costs

⁵⁰ An organization's indirect cost rate may include non-personnel costs, but prior research into the composition of indirect costs for child nutrition programs indicates that the vast majority of indirect costs are for personnel. See Glantz, F. B., C. Climaco, A. St. George, C. W. Logan, E. Giardino, M. Komarovsky, and V. Tran, (2014). School Foodservice Indirect Cost Study. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Project Officer: John R. Endahl.

⁵¹ Total direct costs for an organization were calculated as total expenses minus support activity costs. Total direct labor costs were calculated as total labor expenses minus support activity costs.

⁵² The support staff cost interview only recorded support costs for activities not covered by a rate.

as either a charge, rate or staff time estimate was greater than expected for this type of study conducted at the provider/sponsor level.

The mean other direct costs (ODCs) per meal was calculated for each program by dividing reported ODC expenses from the financial interview by SAQ meal counts. Only 50 percent of sponsors and independent providers provided an ODC expense.⁵³

Only 39 percent of the sample had estimates of both indirect costs and ODC. The study team determined that there were not enough responses with all four cost components for adequately precise estimates, and further it was likely that program with all four components were systematically different from those with missing ODCs or indirect costs.

Infant Feeding Costs

For each program serving infants, study data were used to compute the mean food cost per infant feeding. This analysis used the feeding as the unit of measurement because infant feeding times are not confined to specific meal times and may occur at any time of the day. The analysis presents the mean and median of the mean food cost per infant feeding and the mean number of feedings per infant per day.

The quantities of food per infant feeding were estimated from the infant food intake form with an infant-level sample at 51 child care center providers. For a description of the infant food intake form and the infant menu survey, please refer to Section A.2.2. These data points included gender of infant, age range of infant in months, day of feeding, time of feeding, food item, amount of food item, unit associated with the amount of the food item, category of the food item, and whether it was provided by the center or brought into the center from home.

All units for reported food quantities were converted to ounces (food items) and fluid ounces (drink items) to price out each food item. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) prices from FY 2014 were used to price each infant food type.⁵⁴ In instances where WIC prices were not applicable to the food types, such as the non-infant foods or certain branded infant snacks, food prices were researched online. For non-infant food items that did not have specific units attached to them, the weight for each food item was researched on the National Nutrient Database.⁵⁵ The four food types that were priced out were: formula, fruit and vegetable, infant cereal, and non-infant foods.

For each provider, infant feeding occasions were estimated in 45-minute intervals by infant per day. Feeding occasions that only contained non-reimbursable foods were dropped from the analysis. Feedings with only water, formula brought from home or other foods brought from home or when the mother nursed the infant were excluded from the analysis. Feedings with only bottled breastmilk brought from home were reimbursable and therefore not dropped. The cost of such feedings was \$0.

The costs per feeding (i.e., price times quantity) for the individual reimbursable foods served to infants were summed together to construct the cost of food per feeding for each infant at each program. For each program, the prices of reimbursable foods were summed across all feedings. Total infant food costs were

⁵³ While equipment purchases and depreciation were identified as a separate category of expenses on the CACFP expense statement, they could be combined with ODCs as was done for the School Nutrition and Meal Cost Study.

⁵⁴ Kline, N., Warner-Griffin, C., Wilcox-Cook, E., & Thorn, B. (2018). Fiscal year 2014 WIC food package costs: Final report. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, Office of Policy Support. Project Officer: Anna Potter Clifford.

⁵⁵ USDA Agricultural Research Service Food Data Central database. <https://fdc.nal.usda.gov/>. Data were retrieved in July, 2019.

divided by the total number of feedings across all infants at the program to get the mean food cost per infant feeding.

USDA Subsidy and Sources of Revenues

To compare costs per meal to CACFP reimbursement per meal, the study team constructed a ‘blended’ USDA subsidy rate for each program that was equal to the weighted mean of the free, reduced-price and paid FY 2017 reimbursement rates for the meal or snack. Exhibit 5.4 in the Summary of Findings provides these reimbursement rates. An additional reimbursement for cash-in-lieu of USDA foods (23 cents) was then added to this blended rate for lunch and supper. The weights were the sponsor’s or independent provider’s percentages of total meals of free, reduced-price and paid meal counts, respectively, using meal count data from the SAQ. The blended rate for Head Start and at-risk afterschool programs was set to the free rate, plus the additional cash-in-lieu of USDA foods (23 cents) for lunch and supper.

The study team also constructed a weighted mean USDA subsidy rate across all meals, using proportions of meal counts as the weights for each meal type. The proportions of meal counts were multiplied by the USDA subsidy per meal for each meal. The products were summed over all meals served by the program to get the mean subsidy per meal across all meals and snacks.

The study team also analyzed the sources of revenues for CACFP and other foodservice received by sponsors and independent providers. The sources asked about in the financial interview were CACFP meal and snack reimbursement, credit in lieu of USDA donated foods, USDA donated foods, child payments for food only, adult payments for food only, and other revenues. Within the CACFP revenue statement module, the respondent’s answer as to whether they receive and can report a particular revenue source was cleaned against the reported dollar amount for that source such that a response of “can identify revenue” corresponded to the presence of a reported dollar amount. Data from questions on receipt of USDA donated food in the CACFP expense statement module were used to reconcile reported receipt of USDA donated food vs. credit in lieu of USDA donated food as sources of revenue. As all programs in the cost analysis participate in CACFP, those with missing data on receipt of CACFP meal and snack reimbursements were reported as “cannot identify revenue.”

A.4.3.3 Final Samples

The cost study used two samples of programs with satisfactory cost data:

1. Primary analysis sample of 397 programs
2. Infant feeding cost sample of 47 programs

The primary analysis sample is used for all tables of meal costs for children and CACFP revenues. The criterion for being included in this sample was presence of complete food and labor cost component data. For a program to be included, the provider had to have completed the menu survey and all cost interviews. Programs that were missing one or more labor cost components were dropped from the sample. A program was considered to have missing labor components if it met any one of the following criteria:

- Missing center and sponsor (if sponsored center) production costs and the provider did not pay a fee-per-meal
- Missing serving and cleaning labor costs
- Missing center and sponsor (if sponsored center) administrative labor costs
- Missing total sponsor costs if a sponsored center
- Missing production kitchen labor costs if applicable.

The final primary sample included 397 programs, as shown in Exhibit A.4-6. Final analysis weights included adjustments for nonresponse as discussed in Section A.1.3.

The final infant feeding food cost sample included 47 programs. The analysis of infant feeding costs included meals served during the target week that consisted solely of breastmilk from home at zero cost as these meals are reimbursable. It excluded meals that consisted solely of breastmilk from mothers feeding on site and/or food brought from home during the target week, as these meals were not reimbursable. These meals were excluded from the calculation of a mean infant feeding within a provider, which resulted in the exclusion of three programs who only served meals of this type during the target week.

Exhibit A.4-6 Disposition of Programs Eligible for Cost Data Collection

	Eligible for Cost Data Collection	Recruited and Completed Cost Data Collection	Completed Cost Data Collection and Menu Survey	Final Primary Analysis Sample with Complete Labor Cost Component Data
At-Risk Afterschool	318	132	115	67
Child Care Centers	324	150	133	108
Head Start	306	166	163	135
Outside-of-School Hours	397	135	126	87
Total	1,345	583	537	397

A.4.4 Objective 4: Plate Waste and Classroom Waste

A.4.4.1 Plate Waste

Plate waste is the food that was served on children's plates but not eaten. Tables present descriptive tabulations, including means and percentages describing wasted food, nutrients, and calories at each meal and snack (RQs 4.1.1-4.1.3) by program type and age. The plate waste estimates for the food groups based on USDA Food Patterns⁵⁶ are also presented by age group. Estimates include all children who were served a specific food, USDA Food Pattern Food Group, calories, or nutrients on their plates on the first day of each child's meal observation.

For the analysis of USDA Food Pattern Food Groups, calories, and nutrients, tables report the mean amount wasted and the percentage wasted at the child level for each meal and snack. Percentage wasted was computed by dividing the amount wasted by the amount served to estimate the percentage wasted per child for the USDA Food Pattern Food Groups, calories, and nutrients. For the analysis of foods wasted, tables show the percentage of children's plates that included the food and the percentage of the food wasted at each meal or snack.

A.4.4.2 Classroom Waste

Classroom waste (RQ 4.2) is discarded food that was *not* placed on children's plates. The tabulations reported in the classroom waste tables differ from the plate waste tables, in that estimates in classroom waste tables include only plate and classroom waste records observed on each *program's* first day of observation, unlike the plate waste tables which presents estimates for each *child's* first day of plate waste observation.

The analysis for classroom waste is presented as a descriptive analysis, reporting percentages to show what happened to the food that was not served by the end of meal service. To minimize respondent

⁵⁶ Appendix 3. USDA Food Patterns: Healthy U.S.-Style Eating Pattern - 2015-2020 *Dietary Guidelines for Americans*. <https://health.gov/our-work/food-nutrition/2015-2020-dietary-guidelines/guidelines/appendix-3/>

burden and maximize the quality of data collected, the meal observation form did not collect data for the *total amount* of food not served unless the food was discarded. Therefore, results show the percentage of classrooms where each food group was saved for later, taken home or eaten by staff, and/or discarded relative to the total number of programs that had some food in that food group remaining at the end of meal service. The meal observation form allowed field interviewers to check all applicable categories for food not served, therefore, the categories are not mutually exclusive, and the row totals do not sum to 100 percent. After review of the results tabulated from meal observation forms, the analysis team determined that the categories for foods that were donated, taken home by parents, or treated otherwise were too few to report.

This analysis presents results in the aggregate across all meals. The tables that aggregate across meals have larger sample sizes, allowing more precise detection of statistically significant difference by program type.

A.4.5 Subgroup Characteristics

The tables included in this summary of findings present results by program type and age group as applicable. The methods tables include the following program-level and child-level subgroup characteristics.

A.4.5.1 Program-Level Subgroup Characteristics

- ***Metropolitan/Non-Metropolitan Classification.*** Programs were classified as metropolitan or non-metropolitan based on whether the area in which they were sampled (the secondary sampling unit) was metropolitan or not. (See discussion of sampling units in Section A.1.1)⁵⁷
- ***Sponsorship.*** Programs that are “corporate sponsored” are sponsored programs that were identified as a part of a corporation in the provider survey. “Other sponsored” programs are sponsored programs that were not corporate sponsored. The status of corporate sponsored, other sponsored, or “independent” is based on self-report where available and on administrative data from the State record systems where self-report was not available.
- ***Share of Minority Children Residing in the Area*** is a neighborhood-level measure based on data from the American Community Survey (ACS) for the ZIP Code Tabulation Area containing the provider. The study team categorized this measure as programs in an area with zero percent to less than 31 percent minority children, 31 percent to less than 65 percent minority children, and six percent to 100 percent minority children, where “minority” is defined as Hispanic or non-White. These breakpoints result in relatively equal samples in the three categories across the nested samples.
- ***Program size*** was based on self-report from the provider survey where available and on administrative data from State record systems where self-report was not available.
 - For most analyses, the study team used three categories for program size and defined “small” programs as those having 1-39 children enrolled, “medium” as having 40-79 enrolled, and “large” as having 80 or more enrolled, which allowed for similar percentages of programs in each size category.
 - For all child level analyses, there was a smaller number of programs and therefore the study team used two size categories rather than three. The study team defined “small” programs as those

⁵⁷ USDA originally sought analyses of differences between urban and rural providers. This study uses metropolitan/non-metropolitan as a proxy. As defined by the U.S. Census Bureau, urban/rural is a block-level classifier, but it was only practical for the study team to use a county-level classifier. Almost no child care centers are located in rural blocks; there are not enough families to support them.

having 1-55 children enrolled, and “large” as having more than 55 enrolled, which allowed for similar percentages of programs in each size category.

A.4.5.2 Child-Level Subgroup Characteristics

- ***Household Poverty Level*** was based on household size and income reported by the parents in the parent survey. The counts of programs serving children living at or below 185 percent of the FPL and programs serving children living above 185 percent FPL do not sum to the count of all early child care programs because an individual program may serve children from both groups.
- ***Child Race/Ethnicity*** is based on the parent survey. Child race/ethnicity subgroup tables do not include children with “other” race/ethnicity (multi-racial, Asian, American Indian or Alaskan Native, and Native Hawaiian or Other Pacific Islander) because the sample of these children is too small to provide sufficiently precise estimates. Therefore, the race/ethnicity subgroup tables also do not include an “all” column. Children with missing parent survey data could not be not classified by race/ethnicity.
- ***Child’s Gender*** was based on the parent survey when available and observation data when the parent survey was not available. The counts of programs serving boys and girls do not sum to the count of all early child care programs because an individual program may serve both boys and girls.
- ***Child’s Full-Day versus Part-Day Status***. Children were considered full-day if parents reported children in care more than five hours. Children were considered part-day care if parents reported children in care five hours or less. These responses were cleaned and checked against the hours of observation. The counts of programs serving full-day children and programs serving part-day children do not sum to the count of all early child care programs because an individual program may serve children from both groups.
 - The full-day and part-day variable reported in the characteristics tables for program level analyses (Exhibits A.8-6 to A.8-16) and some provider survey analysis tables in Appendix B is based on the provider survey response to whether the program offered full-day programming, part-day programming, or both. The survey allowed the respondent to use their own operational definitions of full-day and part-day. Data regarding actual program lengths were not collected for this comparison.
 - For the child level measures, the full-day versus part-day variable was constructed using quantitative measures described above, based on how long parents reported that their children were typically in care based on usual drop-off and pick-up times. Note that this variable is only useful for children in early child care programs, because reported drop-off and pick-up times for before and after school programs will typically bracket regular school hours of operation along with before and after school care hours.
 - A line-by-line comparison of children whose programs reported having either part-day or full-day offerings showed little in common between the program level measure and the child level measure, underscoring the importance of interpreting the program level measure as operational only rather than a quantitative measure.

The children with missing subgroup variables or characteristics on the parent survey are included in subgroup tables in an “unclassified” column. The unclassified column is included for the parent survey tables reported by household poverty level because income was frequently missing. The “unclassified” column is not necessary for the other subgroup tables because most of the item response corresponded with the overall survey level response.

The study team tested for statistical differences between subgroups in the descriptive tables using two-tailed *t*-tests for continuous measures and chi-squared tests for categorical measures, incorporating

appropriate survey weighting and correction to account for the complex sample design. The probability of finding significant differences by chance increases with the number of differences tested.

A.4.6 Flagging Imprecise Estimates

Estimates in this report that are flagged with a carat (^) are considered to be imprecise according to the rules used in SNMCS.⁵⁸ Estimates are considered imprecise if one of more of the following is true:

1. The effective sample size is < 30 . This is equivalent to the nominal sample size being $< 30 * Deff$ (Deff is the design effect). Sample size refers to the total number of item respondents contributing to an estimate. In general, the design effect is a measure of the complex design of a study and represents the increase in variance one will see in estimates due to design and sample selection features such as stratification, clustering and unequal weighting. Design effects vary by analysis and program type and are summarized in Exhibit A-4.7. The design effects used in this rule are the mean design effects observed for key tables in each analysis.
2. The coefficient of variation (CV) of the estimate is $> .30$. The CV is defined as the design-based standard error of an estimate divided by the estimate.
3. For percentage estimates that are < 25 percent or > 75 percent, an estimate is imprecise if either of the following is true:
 - a) For percentage estimates that are < 25 percent, estimates are imprecise if $(\text{percent}/100) * \text{nominal sample size}$ is $< 8 * Deff$.
 - b) For percentage estimates that are > 75 percent, estimates are imprecise if $(1 - (\text{percent}/100)) * \text{nominal sample size}$ is $< 8 * Deff$.

For example, for the provider survey, which has a design effect of 1.3, an estimate would be flagged under rule 1 if its nominal sample size is $< 30 * 1.3 = 39$.

Because rule 2 uses the coefficient of variation (CV) in determining which estimates to flag as imprecise, estimates of small proportions are more likely to be flagged than estimates of large proportions, even when the two estimates are drawn from the same sample and have the same absolute standard error. For example, consider two estimates constructed from the same binary measure, one at 95 percent and one at 10 percent. If the standard error of both estimates is 3.2 then the CV of the 10 percent estimate is $3.2/10 = 32.0$ percent. If this estimate decreases by 5 percent, the CV doubles to $3.2/5 = 64.0$ percent. On the other hand, the CV of the 95 percent estimate is $3.2/95 = 3.4$ percent and this increases by only 0.2 percentage points when the estimate decreases to 90 percent (CV is $3.2/90 = 3.6$ percent.)

Finally, under rule 3, the more extreme the percentage (closer to 0 percent or 100 percent), the more likely it is to be flagged, particularly for smaller overall samples. Again using the provider survey as an example with $Deff = 1.3$, a percentage would be flagged if it represented fewer than $1.3 * 8 = 10$ responses.

In general, the child level sample sizes are small when disaggregated by age group. Furthermore, the effective response rates for each data collection effort were moderate (see Exhibits A.8-21 and A.8-22 in Section A.8). As a result, the most precise estimates are found in the age groups with the largest sample sizes (3-5 year olds in early child care programs, and 6-12 year olds in before and after school programs).

⁵⁸ Zeidman, E., Beyler, N., Gearan, E., Morrison, N., Niland, K., Washburn, L., Carlson, B., Judkins, D., LeClair, L., Mendelson, M., Wommack, T., Carnagey, J., Murphy, M., & Williamson, A. (2019). *School Nutrition and Meal Cost Study: Study design, sampling, and data collection. Final report*. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service.

Most of the infant food intake and infant menu survey estimates are flagged as imprecise. The precision of the estimates for before and after school programs reflects three factors. First, there were numerous recruiting challenges. Second, some programs were screened out during scheduling due to program logistics and size considerations. Third, the effective sample size was smaller than the nominal sample size of completed observations due to the design effects reported in Exhibit A.4-7.

Exhibit A.4-7 Summary of Mean Design Effects

Analysis Sample	Analysis Level	Child Care Centers	Head Start Programs	Family Day Care Homes	All Early Child Care Programs	Outside-of-School Hours Programs	At-Risk Afterschool Programs	All Before and After School Programs
Provider Survey	Program	1.3	1.5	1.1	2.0	1.8	1.3	2.2
Environmental Observation	Program	1.1	1.3	n/a	1.6	1.3	1.6	2.7
Menu Survey	Program	1.2	1.4	1.3	1.7	1.7	1.3	2.1
Meal Observation	Program	5.3	2.9	n/a	4.1	2.6	1.2	2.8
Infant Menu Survey	Program	n/a	n/a	n/a	1.8	n/a	n/a	n/a
Parent Survey	Child	2.4	3.4	n/a	3.2	2.5	2.9	3.7
Cost Interview	Program	1.1	1.3	n/a	1.6	1.9	1.2	2.0
Infant Feeding Cost	Program	n/a	n/a	n/a	1.4	n/a	n/a	n/a
Body Mass Index and Weight for Age	Child	1.6	2.1	n/a	1.9	4.4	2.3	3.3
Plate Waste	Child	2.9	4.2	n/a	3.3	3.4	3.2	3.5
Infant Food Intake	Child	2.4	n/a	n/a	n/a	n/a	n/a	n/a
24-Hour Intake	Child	2.9	3.7	n/a	3.7	3.1	2.7	3.7
Meal-Level Observation	Child	3.3	3.8	n/a	4.2	2.7	2.6	4.1

Source: Study of Nutrition and Activity in Child Care Settings (SNACS). Provider Survey, Environmental Observation Form, Menu Survey, Meal Observation Form, Infant Menu Survey, Parent Survey, Cost Interviews, Infant Food Intake Forms, Height and Weight Form. Winter through Summer, 2017.

Note: Mean design effects were computed among a subset of estimates determined to be the most important outcome measures for each analysis. The design effect is a measure of the effect of the complex sample design of the study on the precision of estimates.

n/a = design effect not available. There are no analysis tables that display estimates from this sample at the indicated analysis level.

A.5 Characteristics of the Analysis Sample

The following section presents the sample and population estimates of the number of programs that serve each meal type in the menu survey and meal observation samples. The section also includes program level sample data and population characteristics from the menu survey, meal observations, provider survey, environmental observations, and cost interviews.

The sample sizes vary considerably between the samples—this is primarily due to differences in data collection scope and nonresponse. The population estimates derived from the various samples also vary—this can be attributed to either differences in program type eligibility between the different samples (e.g., family day care homes are not eligible for the meal observations⁵⁹ and environmental observation

⁵⁹ Meal observations from family day care homes in group 4 were included in the portion size imputations but were not used in analyses requiring program level weights.

samples) or variance associated with the estimates.⁶⁰ Program-level population estimates by meal type from the menu survey sample and program population estimates from the provider survey sample should be viewed as the most precise estimates of the population, primarily because of the larger sample size associated with these samples. All exhibits presenting information on the characteristics of the analysis sample are included in Section A.8.

A.5.1 Program Sample Data

A summary of program-level sample sizes can be found in the following exhibits:

- **Provider Survey Sample.** Exhibits A.8-6 and A.8-7 present a summary of the provider survey program sample by various program characteristics. For this sample, sample sizes varied by program type from 151 for at-risk afterschool programs to 301 for Head Start programs. The overall respondent sample size was 1,085.
- **Environmental Observation Sample.** Exhibits A.8-8 and A.8-9 present a summary of the environmental observation program sample by various program characteristics. For this sample, sample sizes varied by program type from 42 for at-risk afterschool programs to 131 for Head Start programs. The overall respondent sample size was 315.
- **Menu Survey Sample.** Exhibits A.8-10 and A.8-11 present a summary of the sample sizes by various program characteristics such as program size, ownership, and metropolitan status. Different versions of the exhibits are presented for early child care programs and for before and after school programs. Samples sizes at the program-level varied by program type from 142 for at-risk afterschool programs to 257 for Head Start programs. The overall respondent Menu sample size was 991. Exhibits A.8-26, A.8-27, A.8-30, and A.8-31 present a summary of the program sample sizes by meal type.
- **Meal Observation Sample.** Exhibits A.8-12 and A.8-13 present a summary of the sample by various program characteristics. The program sample size varied by type from 37 for at-risk afterschool programs to 129 for Head Start programs. The overall respondent sample size was 303. This is the smallest of the four samples used in this analysis. Exhibits A.8-28, A.8-29, A.8-32 and A.8-33 present a summary of the meal observation program sample by meal type.
- **Cost and Revenue Sample.** Exhibits A.8-14 to A.8-16 present a summary of the cost and revenue program sample by various program characteristics. For this sample, sample sizes varied by program type from 68 for at-risk afterschool programs to 138 for Head Start programs. The overall respondent sample size was 398. For the infant feeding cost analysis, the sample was 47 child care centers.

A.5.2 Meal Sample Data

As noted above, data at the meal-level (i.e., for specific meals) was collected only from the menu survey and meal observation samples. All programs were eligible to provide data for all meals and age groups, but programs only provided data for the meals and age groups they actually served. Within each program, the analyses used data from all days' meals that were reported - usually four or five meals per program. A summary of the meal-level sample sizes can be found in the following exhibits:

⁶⁰ During recruitment and scheduling of providers, data collectors determined whether meal observations and other child-level data collections were feasible. For example, for some providers classrooms were not eligible for selection for these data collections if they had too few children to yield a large enough sample. The screening process also considered program-level logistical factors while seeking to minimize restrictions on the sample. While the weights control for some program characteristics related to non-response, they may not control for all of the differences in samples introduced by the logistical factors that were necessarily considered during data collection.

- **Menu Survey Sample.** Exhibits A.8-26 and A.8-27 present a summary of the menu survey meal sample by meal type, program type, and age group. In most cases, meal data for four or five days were collected from each program respondent so the meal-level sample sizes can be comparatively large. For example, Exhibit A.8-26 indicates breakfast data was collected from 227 Head Start programs for the age group 3-5, and data were collected for a total of 1,034 meals.
- **Meal Observation Sample.** Exhibits A.8-28 and A.8-29 present a summary of the meal observation meal sample by meal type, program type, and age group. For most programs, meal observations occurred on two days of the target week. The subsample (~10 percent) of programs where a 2nd CCD diary was collected had meal observations on up to four days of the target week. For example, Exhibit A.8-28 indicates data were collected from 107 Head Start programs for the age group 3-5, and data were collected for a total of 778 meals.

A.5.3 Program-Level Population Estimates

Program-level population estimates by program type and various characteristics such as size of the program, ownership and metropolitan status can be found in Exhibits A.8-6 to A.8-13. In particular population estimates can be found for the:

- **Provider Survey Sample.** See Exhibits A.8-6 and A.8-7.
- **Environmental Observation Sample.** See Exhibits A.8-8 and A.8-9.
- **Menu Survey Sample.** See Exhibits A.8-10 and A.8-11.
- **Meal Observation Sample.** See Exhibits A.8-12 and A.8-13.
- **Cost and Revenue Sample.** See Exhibits A.8-14 to A.8-16.

As noted earlier, population estimates can vary considerably between the samples, primarily because of differences in program type eligibility and sampling variance. Population estimates derived from the provider survey sample (Exhibits A.8-6 and A.8-7), the largest sample by far, were the most precise estimates of the population.

To illustrate some of the differences that can be seen in estimates between the samples, consider the pooled population of child care centers and Head Start programs.

- The provider survey sample (Exhibit A.8-6) provides an estimate of 36.4 percent of programs in the population offer full-day day care.
- The environmental observation sample (Exhibit A.8-8) provides an estimate of 31.8 percent.
- The menu survey sample (Exhibit A.8-10) provides an estimate of 30.5 percent.
- The meal observation sample (Exhibit A.8-12) provides an estimate of 13.7 percent.
- The cost interview sample (Exhibit A.8-14) provides an estimate of 33.7 percent.

So for this variable it appears the meal observation sample is yielding an estimate that has a considerable amount of variance associated with it, while the other samples yield similar estimates. We note that the amount of missing data on this variable may have affected the results. The weights are designed to minimize any bias resulting from differential nonresponse across programs with different characteristics.

Other estimates follow a similar pattern. For example, the estimates of the percentage of programs that are small (1-39 enrolled) are as follows:

- 27.1 percent in Exhibit A.8-6 based on the provider survey sample;
- 28.0 percent in Exhibit A.8-8 based on the environmental observation sample;
- 27.3 percent in Exhibit A.8-10, based on the menu survey sample;
- 39.7 percent in Exhibit A.8-12, based on the meal observation sample; and
- 28.2 percent in Exhibit A.8-14, based on the cost interview sample.

So again, the meal observation sample is yielding the outlier estimate.

A.5.4 Child and Infant Sample Characteristics

Exhibits A.8-17 and A.8-18 present the unweighted sample sizes of children and programs for the child-level analyses by program characteristics. These counts are provided for the following analysis samples: plate and classroom waste, parent survey, body mass index and weight for age, 24-hour dietary intakes, and meal observations. Exhibits A.8-19 and A.8-20 provide unweighted counts of child samples by additional characteristics for the child-level analyses. Exhibit A.8-16 presents the unweighted sample sizes of infants and programs for the infant-level analyses by program characteristics. Exhibit A.8-19 also provides unweighted counts of infant samples by additional characteristics for the infant-level analyses. Population estimates by these characteristics are omitted due to the large number of exhibits that would be required.

A.6 Understanding the Analysis Tables

A.6.1 Organization of Analysis Tables

- The analysis tables in Appendices B-H present results categorized by program type—child care centers, Head Start programs, family day care homes, at-risk afterschool programs, and outside-of-school hours programs.
 - The provider survey and menus survey analysis tables for early child care programs include child care centers, Head Start programs, and family day care homes. Other analyses for early child care programs and participating children exclude family day care homes because these programs were not included in the collection of nationally representative data for analyses other than the provider survey and the menu survey.
- To facilitate comparisons within the tables, the study team has defined two groups of program types with similar ages and meal patterns: early child care programs (consisting of child care centers, Head Start programs, and family day care homes) and before and after school programs (including at-risk afterschool and outside-of-school hours). This table arrangement facilitates statistical tests among early child care program types in one set of tables and before and after school program types in another set of tables. Early child care programs are fundamentally different from before and after school programs in hours of operation, age groups served, and other factors.
- Early child care programs participating in CACFP span more than one CACFP age group. The most prevalent age group consists of 3-5 year olds, but some children age into the 6-12 year old category. Still other child care programs provide services outside of the age group expected. Before and after school programs largely consist of 6-12 year olds, but some children in attendance may be in kindergarten and have not yet aged into the 6-12 CACFP age group. The analysis tables report results for all age groups, but that the sample sizes for the 3-5 year olds in early child care programs and for 6-12 year olds in outside-of-school hours programs are most robust; small sample sizes contribute to

low precision for age group estimates outside those ranges. See Exhibit A.8-25 for the percentage of the 24-hour intake analysis sample by age in early child care and before and after school programs.

- Tables for specific meals and snacks are ordered as follows: breakfast, morning snack, lunch, afternoon snack, supper, and evening snack for early child care programs; and breakfast, afternoon snack, supper, and evening snack for before and after school programs.

A.6.2 Rounding

Values displayed as 0.0 may be positive values that round down to 0.0. All such values are less than 0.05 but may or may not be greater than 0. Percentage values displayed as 100.0 are greater than 99.95 but may or may not be less than 100.00, due to rounding.

A.6.3 Percentages

If there is an N in a row panel, then the percentages represent a subset. If there is not, then the percentages represent the sample N in the bottom row.

A.7 Crosswalk of Research Questions to Analysis Tables

Exhibit A.7-1 Crosswalk of Research Questions to Analysis Tables

Table ID	Research Question and Outcome Measures
	Objective 1: Nutrition and Wellness
	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?
	Distribution and mean nutrient content for each type of meal and snack served in a typical week
D.1.1	Mean Nutrient Content of CACFP Breakfasts Served in Early Child Care Programs
D.1.2	Mean Nutrient Content of CACFP Lunches Served in Early Child Care Programs
D.1.3	Mean Nutrient Content of CACFP Suppers Served in Early Child Care Programs
D.1.4	Mean Nutrient Content of CACFP Suppers Served in Before and After School Programs
D.1.5	Mean Nutrient Content of CACFP Morning Snacks Served in Early Child Care Programs
D.1.6	Mean Nutrient Content of CACFP Afternoon Snacks Served in Early Child Care Programs
D.1.7	Mean Nutrient Content of CACFP Afternoon Snacks Served in Before and After School Programs
D.1.8	Mean and Distribution of Calories and Nutrients in CACFP Breakfasts Served in Child Care Centers
D.1.9	Mean and Distribution of Calories and Nutrients in CACFP Lunches Served in Child Care Centers
D.1.10	Mean and Distribution of Calories and Nutrients in CACFP Suppers Served in Child Care Centers
D.1.11	Mean and Distribution of Calories and Nutrients in CACFP Morning Snacks Served in Child Care Centers
D.1.12	Mean and Distribution of Calories and Nutrients in CACFP Afternoon Snacks Served in Child Care Centers
D.1.13	Mean and Distribution of Calories and Nutrients in CACFP Breakfasts Served in Head Start Programs
D.1.14	Mean and Distribution of Calories and Nutrients in CACFP Lunches Served in Head Start Programs
D.1.15	Mean and Distribution of Calories and Nutrients in CACFP Morning Snacks Served in Head Start Programs
D.1.16	Mean and Distribution of Calories and Nutrients in CACFP Afternoon Snacks Served in Head Start Programs
D.1.17	Mean and Distribution of Calories and Nutrients in CACFP Breakfasts Served in Family Day Care Homes
D.1.18	Mean and Distribution of Calories and Nutrients in CACFP Lunches Served in Family Day Care Homes
D.1.19	Mean and Distribution of Calories and Nutrients in CACFP Suppers Served in Family Day Care Homes
D.1.20	Mean and Distribution of Calories and Nutrients in CACFP Morning Snacks Served in Family Day Care Homes
D.1.21	Mean and Distribution of Calories and Nutrients in CACFP Afternoon Snacks Served in Family Day Care Homes
D.1.22	Mean and Distribution of Calories and Nutrients in CACFP Suppers Served in Outside-of-School Hours Programs
D.1.23	Mean and Distribution of Calories and Nutrients in CACFP Afternoon Snacks Served in Outside-of-School Hours Programs
D.1.24	Mean and Distribution of Calories and Nutrients in CACFP Suppers Served in At-Risk Afterschool Programs
D.1.25	Mean and Distribution of Calories and Nutrients in CACFP Afternoon Snacks Served in At-Risk Afterschool Programs
	Degree to which meals served meet the Dietary Guidelines for Americans, the CACFP meal patterns, and Healthy Eating Index guidelines

Table ID	Research Question and Outcome Measures
D.2.1	Mean Percentage of Early Child Care Meals and Programs that Met All of the CACFP Meal Component Requirements, by Meal and Overall
D.2.2	Mean Percentage of Before and After School Program Meals and Programs that Met All of the CACFP Meal Component Requirements, by Meal and Overall
D.2.3	Mean Percentage of CACFP Meals and Snacks in Early Child Care Programs Including Each Meal Component
D.2.4	Mean Percentage of CACFP Meals and Snacks in Before and After School Programs Including Each Meal Component
D.2.5	CACFP Meal Pattern Food Groups in Early Child Care Program Breakfasts Observed: Mean Amounts Served and Percent of Programs Meeting CACFP Portion Requirements
D.2.6	CACFP Meal Pattern Food Groups in Early Child Care Program Lunches and Suppers Observed: Mean Amounts Served and Percent of Programs Meeting CACFP Portion Requirements
D.2.7	CACFP Meal Pattern Food Groups in Before and After School Program Suppers Observed: Mean Amounts Served and Percent of Programs Meeting CACFP Portion Requirements
D.2.8	CACFP Meal Pattern Food Groups in Early Child Care Program Snacks Observed: Mean Amounts Served and Percent of Programs Meeting CACFP Portion Requirements
D.2.9	CACFP Meal Pattern Food Groups in Before and After School Program Snacks Observed: Mean Amounts Served and Percent of Programs Meeting CACFP Portion Requirements
D.2.10	USDA Food Pattern Food Groups Served for CACFP Breakfasts in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.11	USDA Food Pattern Food Groups Served for CACFP Lunches in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.12	USDA Food Pattern Food Groups Served for CACFP Suppers in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.13	USDA Food Pattern Food Groups Served for CACFP Suppers in Before and After School Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.14	USDA Food Pattern Food Groups Served for CACFP Morning Snacks in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.15	USDA Food Pattern Food Groups Served for CACFP Afternoon Snacks in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.16	USDA Food Pattern Food Groups Served for CACFP Afternoon Snacks in Before and After School Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.17	USDA Food Pattern Vegetable Subgroups Served for CACFP Lunches in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.18	USDA Food Pattern Vegetable Subgroups Served for CACFP Suppers in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.19	USDA Food Pattern Vegetable Subgroups Served for CACFP Suppers in Before and After School Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.20	USDA Food Pattern Vegetable Subgroups Served for CACFP Morning Snacks in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.21	USDA Food Pattern Vegetable Subgroups Served for CACFP Afternoon Snacks in Early Child Care Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.22	USDA Food Pattern Vegetable Subgroups Served for CACFP Afternoon Snacks in Before and After School Programs: Mean Amounts and Mean Percentage Contribution to 2015 Dietary Guidelines Recommended Amounts
D.2.23	Mean Healthy Eating Index-2015 Scores for CACFP Breakfasts Served in Early Child Care Programs
D.2.24	Mean Healthy Eating Index-2015 Scores for CACFP Lunches Served in Early Child Care Programs
D.2.25	Mean Healthy Eating Index-2015 Scores for CACFP Suppers Served in Early Child Care Programs
D.2.26	Mean Healthy Eating Index-2015 Scores for CACFP Suppers Served in Before and After School Programs
D.2.27	Mean Healthy Eating Index-2015 Scores for CACFP Morning Snacks Served in Early Child Care Programs
D.2.28	Mean Healthy Eating Index-2015 Scores for CACFP Afternoon Snacks Served in Early Child Care Programs
D.2.29	Mean Healthy Eating Index-2015 Scores for CACFP Afternoon Snacks Served in Before and After School Programs
D.2.30	Mean Healthy Eating Index-2015 Scores for All CACFP Meals Served in Early Child Care Programs
D.2.31	Mean Healthy Eating Index-2015 Scores for All CACFP Meals Served in Before and After School Programs

Table ID	Research Question and Outcome Measures
	Distribution and variety of types of foods served by meal/snack occasion in a typical week
D.3.1	Variety in CACFP Breakfasts Served in Early Child Care Programs
D.3.2	Variety in CACFP Lunches Served in Early Child Care Programs
D.3.3	Variety in CACFP Suppers Served in Early Child Care Programs
D.3.4	Variety in CACFP Suppers Served in Before and After School Programs
D.3.5	Variety in CACFP Morning Snacks Served in Early Child Care Programs
D.3.6	Variety in CACFP Afternoon Snacks Served in Early Child Care Programs
D.3.7	Variety in CACFP Afternoon Snacks Served in Before and After School Programs
	Foods that are served most frequently
D.3.8	Foods Served Most Frequently in CACFP Breakfasts in Early Child Care Programs
D.3.9	Foods Served Most Frequently in CACFP Lunches in Early Child Care Programs
D.3.10	Foods Served Most Frequently in CACFP Suppers in Early Child Care Programs
D.3.11	Foods Served Most Frequently in CACFP Suppers in Before and After School Programs
D.3.12	Foods Served Most Frequently in CACFP Morning Snacks in Early Child Care Programs
D.3.13	Foods Served Most Frequently in CACFP Afternoon Snacks in Early Child Care Programs
D.3.14	Foods Served Most Frequently in CACFP Afternoon Snacks in Before and After School Programs
	Foods that are the main sources of calories, key nutrients, sodium, and solid fats and added sugars
D.3.15	Major Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Breakfasts Served in Early Child Care Programs
D.3.16	Major Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Lunches Served in Early Child Care Programs
D.3.17	Major Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Suppers Served in Early Child Care Programs
D.3.18	Major Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Suppers Served in Before and After School Programs
D.3.19	Major Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Morning Snacks Served in Early Child Care Programs
D.3.20	Major Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Afternoon Snacks Served in Early Child Care Programs
D.3.21	Major Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Afternoon Snacks Served in Before and After School Programs
D.3.22	Minor Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Breakfasts Served in Early Child Care Programs
D.3.23	Minor Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Lunches Served in Early Child Care Programs
D.3.24	Minor Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Suppers Served in Early Child Care Programs
D.3.25	Minor Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Suppers Served in Before and After School Programs
D.3.26	Minor Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Morning Snacks Served in Early Child Care Programs
D.3.27	Minor Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Afternoon Snacks Served in Early Child Care Programs
D.3.28	Minor Food Group Sources of Calories, Key Nutrients, and Other Dietary Components in CACFP Afternoon Snacks Served in Before and After School Programs
	Frequency that fresh produce and whole grains are served
D.4.1	Availability of Fresh Fruits and Vegetables in CACFP Breakfasts Served in Early Child Care Programs
D.4.2	Availability of Fresh Fruits and Vegetables in CACFP Lunches Served in Early Child Care Programs
D.4.3	Availability of Fresh Fruits and Vegetables in CACFP Suppers Served in Early Child Care Programs
D.4.4	Availability of Fresh Fruits and Vegetables in CACFP Suppers Served in Before and After School Programs
D.4.5	Availability of Fresh Fruits and Vegetables in CACFP Morning Snacks Served in Early Child Care Programs
D.4.6	Availability of Fresh Fruits and Vegetables in CACFP Afternoon Snacks Served in Early Child Care Programs

Table ID	Research Question and Outcome Measures
D.4.7	Availability of Fresh Fruits and Vegetables in CACFP Afternoon Snacks Served in Before and After School Programs
	What are providers' menu planning practices: overall, and by type of provider?
	Food preparation and storage equipment and capacity
B.1	Food Preparation Location and Equipment Availability Reported in Early Child Care Programs
B.2	Food Preparation Location and Equipment Availability Reported in Before and After School Programs
	Provider policies and practices related to food allergies and other dietary needs
B.3	Policies and Practices Related to Food Allergies and Other Dietary Needs Reported in Early Child Care Programs
B.4	Policies and Practices Related to Food Allergies and Other Dietary Needs Reported in Before and After School Programs
	Entity that creates the menus (e.g., providers, sponsors, other) and nutrition training of planners
B.5	Menu Planners, Affiliation, Background, and Training Reported in Early Child Care Programs
B.6	Menu Planners, Affiliation, Background, and Training Reported in Before and After School Programs
	Percentage of providers using cycle menus and nature of these cycles (e.g., distribution, mean length)
B.7	Menu Cycles and Frequency of Menu Cycles Reported in Early Child Care Programs
B.8	Menu Cycles and Frequency of Menu Cycles Reported in Before and After School Programs
	Percentage of providers doing nutrient analysis of meals and tools used to do so
B.9	Nutrient Analysis Tools and Software Reported in Early Childhood Programs
B.10	Nutrient Analysis Tools and Software Reported in Before and After School Programs
	Percentage of providers participating in School Breakfast Program (SBP), National School Lunch Program (NSLP)
B.11	Percentage of Programs Participating in School Breakfast Program (SBP), National School Lunch Program (NSLP) Reported in Before and After School Programs
	Percentage of providers with afterschool programs and percentage participating in afterschool snack and/or at-risk supper program
B.12	Reported Participation of Early Child Care Programs in CACFP Afterschool Meal Programs
B.13	Reported Participation of Before and After School Programs in CACFP Afterschool Meal Programs
	What are providers' meal purchasing practices: overall, and by type of provider?
	Sources of foods for meals and snacks (e.g., retail, farmers markets, co-ops)
B.14	Sources of Foods for Meals and Snacks Reported in Early Child Care Programs
B.15	Sources of Foods for Meals and Snacks Reported in Before and After School Programs
	How is food transported (e.g., delivery, provider vehicle)
B.16	Food Transportation by Source Reported in Early Child Care Programs
B.17	Food Transportation by Source Reported in Before and After School Programs
	Types of people responsible for food purchases and variation by provider type
B.18	People Responsible for Food Purchases Reported in Early Child Care Programs
B.19	People Responsible for Food Purchases Reported in Before and After School Programs
	Frequency of use of sources by provider type
	If multiple sources, frequency of use of different types of sources by provider type
B.20	Frequency of Use of Food Sources Reported in Early Child Care Programs
B.21	Frequency of Use of Food Sources Reported in Before and After School Programs
	<i>Note: Research Questions 1.3.4 and 1.3.5 are addressed by Tables B.20 and B.21.</i>
	What are providers' food service practices, overall, and by type of provider?
	Ways in which meals are served (e.g., family style, plated, offer versus serve, etc.)
D.4.8	Type of Meal Service Used to Serve CACFP Breakfasts in Early Child Care Programs
D.4.9	Type of Meal Service Used to Serve CACFP Lunches in Early Child Care Programs
D.4.10	Type of Meal Service Used to Serve CACFP Suppers in Early Child Care Programs
D.4.11	Type of Meal Service Used to Serve CACFP Suppers in Before and After School Programs
D.4.12	Type of Meal Service Used to Serve CACFP Morning Snacks in Early Child Care Programs
D.4.13	Type of Meal Service Used to Serve CACFP Afternoon Snacks in Early Child Care Programs
D.4.14	Type of Meal Service Used to Serve CACFP Afternoon Snacks in Before and After School Programs
D.4.15	Observed Type of Meal Service Used to Serve CACFP Breakfasts in Early Child Care Programs

Table ID	Research Question and Outcome Measures
D.4.16	Observed Type of Meal Service Used to Serve CACFP Lunches and Suppers in Early Child Care Programs
D.4.17	Observed Type of Meal Service Used to Serve CACFP Suppers in Before and After School Programs
D.4.18	Observed Type of Meal Service Used to Serve CACFP Snacks in Early Child Care Programs
D.4.19	Observed Type of Meal Service Used to Serve CACFP Snacks in Before and After School Programs
	Length of time participants have to eat by type of meal or snack
D.4.20	Mean Meal Duration for CACFP Meals and Snacks Served in Early Child Care Programs
D.4.21	Mean Meal Duration for CACFP Meals and Snacks Served in Before and After School Programs
	Policies and practices on receiving seconds for meals/snacks, and for declining foods when served
D.5.1	Policies and Practices on Receiving Seconds and Declining Served Foods Reported in Early Child Care Programs
D.5.2	Policies and Practices on Receiving Seconds and Declining Served Foods Reported in Before and After School Programs
	Policies about and frequency of children bringing meals/snacks from home
D.5.3	Policies About Children Bringing Meals or Snacks from Home Reported in Early Child Care Programs
D.5.4	Policies About Children Bringing Meals or Snacks from Home Reported in Before and After School Programs
	Policies and practices related to serving water
D.5.5	Policies and Practices Related to Availability and Serving of Water Reported in Early Child Care Programs
D.5.6	Policies and Practices Related to Availability and Serving of Water Reported in Before and After School Programs
	Policies and practices on food safety, frequency of use, and variation by provider characteristic
	Number of providers with systems in place to trace a product being recalled
D.5.7	Policies and Practices on Food Safety Reported in Early Child Care Programs
D.5.8	Policies and Practices on Food Safety Reported in Before and After School Programs
	<i>Note: Research Questions 1.4.6 and 1.4.7 are addressed by Tables D.5.7 and D.5.8.</i>
	What are providers' wellness policies and practices: overall, and by type of provider?
	Policies and practices on frequency and amount of time participants are provided with opportunities for physical activities
C.1	Frequency and Amount of Time Participants are Provided with Opportunities for Physical Activities Reported in Early Child Care Programs
C.2	Frequency and Amount of Time Participants are Provided with Opportunities for Physical Activities Reported in Before and After School Programs
C.3	Observed Policies and Practices on Frequency and Amount of Time Participants are Provided with Opportunities for Physical Activities in Early Child Care Programs
C.4	Observed Policies and Practices on Frequency and Amount of Time Participants are Provided with Opportunities for Physical Activities in Before and After School Programs
	Policies and practices about types of physical activities offered
C.5	Types of Physical Activities and Equipment Available Reported in Early Child Care Programs
C.6	Types of Physical Activities and Equipment Available Reported in Before and After School Programs
C.7	Observed Policies and Practices about Types of Teacher-Led (Structured) Physical Activities Offered in Early Child Care Programs during Outdoor and Indoor Active Playtime
C.8	Observed Policies and Practices about Types of Teacher-Led (Structured) Physical Activities Offered in Before and After School Programs during Outdoor and Indoor Active Playtime
C.9	Observed Indoor and Outdoor Playspaces in Early Child Care Programs
C.10	Observed Indoor and Outdoor Playspaces in Before and After School Programs
	Amount of time spent on sedentary activities and of this amount that is "screen time"
C.11	Amount of Sedentary Activities and Screen Time Reported in Early Child Care Programs
C.12	Amount of Sedentary Activities and Screen Time Reported in Before and After School Programs
C.13	Observed Time Spent on Sedentary Activities in Early Child Care Programs
C.14	Observed Screen Time in Early Child Care Programs
C.15	Observed Time Spent on Sedentary Activities in Before and After School Programs
C.16	Observed Screen Time in Before and After School Programs

Table ID	Research Question and Outcome Measures
	Comparison of physical activity levels with IOM and other recommendations (e.g., Caring for Our Children), as appropriate
C.17	Observed Comparison of Physical Activity Levels with CFOC Recommendations in Early Child Care Programs
	Infant active opportunities and sedentary opportunities
H.2.4	Frequency of Infant Tummy Time Opportunities Reported in Early Child Care Programs
H.2.5	Infant Active and Sedentary Opportunities Reported in Early Child Care Programs
	Barriers to physical activity (e.g., access to outdoor playspace) and how they impact the quantity and type of physical activities, overall and by type of barrier (e.g., transient vs. more permanent barriers)
C.18	Barriers to Physical Activity Reported in Early Child Care Programs
C.19	Barriers to Physical Activity Reported in Before and After School Programs
C.20	Relationship of Potential Barriers to Physical Activity Minutes in Observed Early Child Care Programs (Regression Adjusted Means)
C.21	Relationship of Potential Barriers to Physical Activity Minutes in Observed Early Child Care Programs (Differences in Adjusted Means and Standard Errors)
C.22	Relationship of Potential Barriers to Physical Activity Minutes in Observed Before and After School Programs (Regression Adjusted Means)
C.23	Relationship of Potential Barriers to Physical Activity Minutes in Observed Before in After School Programs (Difference in Adjusted Means and Standard Errors)
C.24	Relationship of Potential Barriers to Absence or Presence of Moderate to Vigorous Types of Structured (Teacher-Led) Physical Activities in Observed Early Child Care Programs (Regression Adjusted Mean Percentages)
C.25	Relationship of Potential Barriers to Absence or Presence of Moderate to Vigorous Types of Structured (Teacher-Led) Physical Activities in Observed Early Child Care Programs (Differences in Adjusted Means and Standard Errors)
C.26	Relationship of Potential Barriers to Absence or Presence of Moderate to Vigorous Types of Structured (Teacher-Led) Physical Activities in Observed Before and After School Programs (Regression Adjusted Mean Percentages)
C.27	Relationship of Potential Barriers to Absence or Presence of Moderate to Vigorous Types of Structured (Teacher-Led) Physical Activities in Observed Before and After School Programs (Differences in Adjusted Mean and Standard Errors)
C.28	Relationship of Potential Barriers to Physical Activity Type: Instructional Games in Observed Early Child Care Programs (Regression Adjusted Mean Percentages)
C.29	Relationship of Potential Barriers to Physical Activity Type: Instructional Games in Observed Early Child Care Programs (Differences in Adjusted Means and Standard Errors)
	What are infant feeding patterns and how do they align with the American Academy of Pediatrics (AAP) recommendations (only in CACFP child care environment)?
	Foods that are served most frequently
H.1.1	Foods Served in Daily Infant Menus in Early Child Care Programs
	Percent of infants under 6 months and under 4 months of age served any solids
H.1.2	Percentage of Early Child Care Programs Serving any Solid Foods to Infants Under 6 Months of Age
H.2.1	Average Age at which Infants are Served Solids as Reported in Early Child Care Programs
	Percent of infants under 12 months old served juice
H.1.3	Percentage of Early Child Care Programs Serving Juice to Infants
H.2.2	Percentage of Programs Serving Juice and Other Sugary Beverages to Infants Under Twelve Months of Age as Reported in Early Child Care Programs
	Whether the center has necessary facilities to enable infants to consume breastmilk brought from home
	Whether breastmilk is being stored and prepared according to food safety guidelines
H.2.3	Storage of Breastmilk and Preparation of Breastmilk and Formula as Reported in Early Child Care Programs
	<i>Note: Research Questions 1.6.6 and 1.6.7 are addressed by Table H.2.3.</i>
	What are providers' barriers to CACFP participation and providing food that complies with the DGAs?
B.22	Barriers to Purchasing and Serving Healthier Foods Reported in Early Child Care Programs
B.23	Barriers to Purchasing and Serving Healthier Foods Reported in Before and After School Programs
B.24	Challenges to CACFP Participation Reported in Early Child Care Programs

Table ID	Research Question and Outcome Measures
B.25	Challenges to CACFP Participation Reported in Before and After School Programs
B.26	Changes that may Increase CACFP Participation Reported in Early Child Care Programs
B.27	Changes that may Increase CACFP Participation Reported in Before and After School Programs
	Objective 2: Dietary Intakes
	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?
	Mean numbers of MyPlate 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
G.1a.1	Mean Amounts of USDA Food Pattern Food Groups Consumed Over 24 Hours on a Child Care Day and Non-Child Care Day by Children Enrolled in Early Child Care Programs, by Age, Adjusted for Energy
G.1a.2	Mean Amounts of USDA Food Pattern Food Groups Consumed Over 24 Hours on a Child Care Day and Non-Child Care Day by Children Enrolled in Before and After School Programs, by Age, Adjusted for Energy
G.1a.3	Mean Usual Amounts of USDA Food Pattern Food Groups Consumed Over 24 Hours on a Child Care Day and Non-Child Care Day by Children Enrolled in Early Child Care Programs, Unadjusted
G.1a.4	Mean Amounts of USDA Food Pattern Food Groups Consumed Over 24 Hours on a Child Care Day and Non-Child Care Day by Children Enrolled in Early Child Care Programs, by Age, Unadjusted
G.1a.5	Mean Amounts of USDA Food Pattern Food Groups Consumed Over 24 Hours on a Child Care Day and Non-Child Care Day by Children Enrolled in Before and After School Programs, by Age, Unadjusted
G.1a.6	Mean Amounts of USDA Food Pattern Food Groups Consumed at Child Care by Children Enrolled in Early Child Care Programs, by Age
G.1a.7	Mean Amounts of USDA Food Pattern Food Groups Consumed at Child Care by Children Enrolled in Before and After School Programs, by Age
G.1a.8	Percentage of Children in Early Child Care Programs with Usual 24-Hour Intakes Meeting Recommended Amounts of USDA Food Pattern Food Groups on a Child Care Day and Non-Child Care Day
G.1a.9	Mean Percentage Contribution of 24-Hour Child Intakes to Recommended Amounts of USDA Food Pattern Food Groups on a Child Care Day and Non-Child Care Day for Early Child Care Programs
G.1a.10	Mean Percentage Contribution of 24-Hour Child Intakes to Recommended Amounts of USDA Food Pattern Food Groups on a Child Care Day and Non-Child Care Day for Before and After School Programs
G.1a.11	Percentage of Children Enrolled in Early Child Care Programs Consuming Each USDA Food Pattern Food Group within 24 Hours on a Child Care Day and Non-Child Care Day, by Age
G.1a.12	Percentage of Children Enrolled in Before and After School Programs Consuming Each USDA Food Pattern Food Group within 24 Hours on a Child Care Day and Non-Child Care Day, by Age
	Comparison of MyPlate servings consumed during child care day with CACFP standards; overall, by age of child, and by type of provider
G.1b.1	Mean Amount of Each CACFP Food Component Consumed by Children in Early Child Care Programs and the Percentage of the Minimum Requirement Consumed, at Breakfast
G.1b.2	Mean Amount of Each CACFP Food Component Consumed by Children in Early Child Care Programs and the Percentage of the Minimum Requirement Consumed, at Lunch
G.1b.3	Mean Amount of Each CACFP Food Component Consumed by Children in Early Child Care Programs and the Percentage of the Minimum Requirement Consumed, at Dinner
G.1b.4	Mean Amount of Each CACFP Food Component Consumed by Children in Before and After School Programs and the Percentage of the Minimum Requirement Consumed, at Dinner
G.1b.5	Mean Amount of Each CACFP Food Component Consumed by Children in Early Child Care Programs and the Percentage of the Minimum Requirement Consumed, at Morning Snack
G.1b.6	Mean Amount of Each CACFP Food Component Consumed by Children in Early Child Care Programs and the Percentage of the Minimum Requirement Consumed, at Afternoon Snack
G.1b.7	Mean Amount of Each CACFP Food Component Consumed by Children in Before and After School Programs and the Percentage of the Minimum Requirement Consumed, at Afternoon Snack
	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
G.1c.1	Mean Usual 24-Hour Intakes and Percentage of Children in Early Child Care Programs Meeting Dietary Reference Intake Amounts on a Child Care Day and a Non-Child Care Day
G.1c.2	Mean 24-Hour Intakes of Children in Early Child Care Programs and Related Nutritional Benchmarks on a Child Care Day and a Non-Child Care Day

Table ID	Research Question and Outcome Measures
G.1c.3	Mean 24-Hour Intakes of Children in Before and After School Programs and Related Nutritional Benchmarks on a Child Care Day and a Non-Child Care Day
G.1c.4	Mean Usual 24-Hour Energy and Estimated Energy Requirement (EER) Ranges Being Met in a Child Care Day and a Non-Child Care Day by Children in Early Child Care Programs
G.1c.5	Mean 24-Hour Energy and Estimated Energy Requirement (EER) on a Child Care Day and a Non-Child Care Day for Children in Early Child Care Programs
G.1c.6	Mean 24-Hour Energy and Estimated Energy Requirement (EER) on a Child Care Day and a Non-Child Care Day for Children in Before and After School Programs
G.1c.7	Mean and Distribution of Usual 24-Hour Intakes in a Child Care Day by Children in Early Child Care Programs
	Proportion of daily mean nutritional intake from CACFP meals overall, by age of child, and type of provider
G.1d.1	Mean Nutrient Intake Consumed at Child Care for Children in Early Child Care Programs
G.1d.2	Mean Nutrient Intake Consumed at Child Care for Children in Before and After School Programs
G.1d.3	Mean Nutrient Intake Consumed Over 24 Hours for Children in Early Child Care Programs; Child Care Day and Non-Child Care Day
G.1d.4	Mean Nutrient Intake Consumed Over 24 Hours for Children in Before and After School Programs; Child Care Day and Non-Child Care Day
	Percent of children at risk of inadequate intakes for specific nutrients
	<i>Note: This Research Question is addressed by Tables G.1c.1 through G.1c.7.</i>
	Mean scores on the Healthy Eating Index for meal participants
G.1e.1	Mean Healthy Eating Index-2015 Scores and Percentage of Maximum Scores for 24-Hour Intakes of Children in Early Child Care Programs
G.1e.2	Mean Healthy Eating Index-2015 Scores and Percentage of Maximum Scores for 24-Hour Intakes of Children in Before and After School Programs
	Amount of water served during meals and whether water is available during non-meal times
D.4.22	Water Availability and Amount Served in Early Child Care Programs
D.4.23	Water Availability and Amount Served in Before and After School Programs
D.4.24	Water Availability at Non-meal Times as Observed in Early Childhood Programs
D.4.25	Water Availability at Non-meal Times as Observed in Before and After School Programs
	Frequency of participants bringing food from home, reasons for doing so
F.1	Percentage of Children in Early Child Care Programs Whose Parents Reported Sending Food From Home and Reasons for Doing So, by Age Group
F.2	Percentage of Children in Before and After School Programs Whose Parents Reported Sending Food From Home and Reasons for Doing So, by Age Group
	What is the weight status of CACFP participants and activity level and participation in assistance programs as reported by parents?
	BMI
	Percentage overweight
	Percentage underweight
F.3	Weight Status by Year of Age for Children Measured in Early Child Care Programs
F.4	Weight Status by Year of Age for Children Measured in Before and After School Programs
F.5	Weight-for-Age Status for Children Younger than 2 Years Old Measured in Early Child Care Programs
	<i>Note: Research Questions 2.2.1, 2.2.2, and 2.2.3 are addressed by Tables F.3, F.4, and F.5.</i>
	Activity level as reported by parents
C.30	Minutes of Child Physical Activity Outside of Care on a <i>Child Care Day</i> , as Reported by Parents of Children in Early Child Care Programs
C.31	Minutes of Child Physical Activity Outside of Care on a <i>Child Care Day</i> , as Reported by Parents of Children in Early Child Care Programs, by Child's Full-Day versus Part-Day Status
C.32	Minutes of Child Physical Activity Outside of Care on a <i>Child Care Day</i> , as Reported by Parents of Children in Before and After School Programs
C.33	Minutes of Child Physical Activity on a <i>Non-Child Care Day</i> , as Reported by Parents of Children in Early Child Care Programs
C.34	Minutes of Child Physical Activity on a <i>Non-Child Care Day</i> , as Reported by Parents of Children in Early Child Care Programs, by Child's Full-Day versus Part-Day Status

Table ID	Research Question and Outcome Measures
C.35	Minutes of Child Physical Activity on a <i>Non-Child Care Day</i> , as Reported by Parents of Children in Before and After School Programs
	Food assistance participation: Supplemental Nutrition Assistance Program (SNAP); Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); NSLP/SBP; emergency food
	Medicaid/Children's Health Insurance Program (CHIP) participation
	Temporary Assistance for Needy Families (TANF) participation
F.6	Demographic Characteristics and Public Assistance Program Participation of CACFP Participants in Early Child Care Programs
F.7	Demographic Characteristics and Public Assistance Program Participation of CACFP Participants in Before and After School Programs
	<i>Note: Research Questions 2.2.5, 2.2.6, and 2.2.7 are addressed by Tables F.6 and F.7.</i>
	What is the food intake of infants in CACFP child care centers during the child care day?
	Mean ounces of formula consumed
	Mean ounces of breastmilk consumed
	Mean ounces of juice consumed
	Mean ounces of water consumed
H.3.1	Liquid Consumption by Infants during the Child Care Day at Child Care Centers
	<i>Note: Research Questions 2.3.1, 2.3.2, 2.3.3, and 2.3.4 are all addressed by this table.</i>
	Distribution and variety of types of foods consumed in child care centers
H.3.2	Types and Amounts of Food per Feeding Consumed by Infants during the Child Care Day at Child Care Centers
	Foods that are eaten most frequently
H.3.3	Most Frequently Consumed Foods by Infants during the Child Care Day at Child Care Centers
	Percent of infants under 6 months and under 4 months of age consuming any solids
H.3.4	Percentage of Infants Under 6 Months Consuming Any Solid Food during the Child Care Day at Child Care Centers
	Percent of infants consuming breastmilk, percent of infants consuming formula, and percent consuming a combination of formula and breastmilk
H.3.5	Percentage of Infants Consuming Breastmilk, Formula, or Both during the Child Care Day at Child Care Centers
	Frequency of infants bringing food from home, reasons for doing so
H.4.1	Percentage of Infants in Child Care Centers whose Parents Reported Sending Food from Home and Reasons for Doing So
	Objective 3: Cost & Revenues
	What are the costs of producing an average CACFP meal or snack by type of meal/snack?
	Mean reported and full cost of each type of meal and snack, overall and by provider type
E.1	Total Cost (Food and Labor) per Meal for Early Child Care Programs
E.2	Total Cost (Food and Labor) per Meal for Before and After School Programs
E.3	Food Cost per Infant Feeding in Early Child Care Programs
	Composition of the mean reported costs and full costs including administrative costs
E.4	Cost per Meal by Cost Component for Early Child Care Programs
E.5	Cost per Meal by Cost Component for Before and After School Programs
E.6	Composition of Labor Costs by Activity for Early Child Care Programs
E.7	Composition of Labor Costs by Activity for Before and After School Programs
	What is the relationship of costs to CACFP reimbursements and other revenues?
	Percent that receive additional resources for meals/snacks
E.8	Types of Revenues Identified in Early Child Care Programs
E.9	Types of Revenues Identified in Before and After School Programs
	Relationship between meal/snack production costs and CACFP reimbursements
E.10	Distribution of Programs by Total Cost (Food and Labor) per CACFP Breakfast in Early Child Care Programs
E.11	Distribution of Programs by Total Cost (Food and Labor) per CACFP Lunch in Early Child Care Programs
E.12	Distribution of Programs by Total Cost (Food and Labor) per CACFP Supper in Early Child Care Programs
E.13	Distribution of Programs by Total Cost (Food and Labor) per CACFP Snack in Early Child Care Programs
E.14	Distribution of Programs by Total Cost (Food and Labor) per CACFP Supper in Before and After School Programs

Table ID	Research Question and Outcome Measures
E.15	Distribution of Programs by Total Cost (Food and Labor) per CACFP Snack in Before and After School Programs
E.16	USDA Subsidy as a Percentage of Food Cost and a Percentage of Total Cost (Food and Labor) Per Meal in Early Child Care Programs
E.17	USDA Subsidy as a Percentage of Food Cost and a Percentage of Total Cost (Food and Labor) Per Meal in Before and After School Programs
	Objective 4: Plate Waste
	At the individual level, how much and what types of food are wasted?
	Amount of food not eaten from individual meals by type of food, food group, and type of meal/snack
G.2a.1	Percentage of Observed USDA Food Pattern Food Groups Wasted on Children's Plates at Early Child Care Program Breakfast
G.2a.2	Percentage of Observed USDA Food Pattern Food Groups Wasted on Children's Plates at Early Child Care Program Morning Snack
G.2a.3	Percentage of Observed USDA Food Pattern Food Groups Wasted on Children's Plates at Early Child Care Program Lunch
G.2a.4	Percentage of Observed USDA Food Pattern Food Groups Wasted on Children's Plates at Early Child Care Program Afternoon Snack
G.2a.5	Percentage of Observed USDA Food Pattern Food Groups Wasted on Children's Plates at Before and After School Program Afternoon Snack
G.2a.6	Percentage of Observed USDA Food Pattern Food Groups Wasted on Children's Plates at Before and After School Program Supper
G.2a.7	Mean Observed Amount of USDA Food Pattern Food Groups Served and Wasted on Children's Plates at Early Child Care Program Breakfast
G.2a.8	Mean Observed Amount of USDA Food Pattern Food Groups Served and Wasted on Children's Plates at Early Child Care Program Morning Snack
G.2a.9	Mean Observed Amount of USDA Food Pattern Food Groups Served and Wasted on Children's Plates at Early Child Care Program Lunch
G.2a.10	Mean Observed Amount of USDA Food Pattern Food Groups Served and Wasted on Children's Plates at Early Child Care Program Afternoon Snack
G.2a.11	Mean Observed Amount of USDA Food Pattern Food Groups Served and Wasted on Children's Plates at Before and After School Program Afternoon Snack
G.2a.12	Mean Observed Amount of USDA Food Pattern Food Groups Served and Wasted on Children's Plates at Before and After School Program Supper
G.2a.13	Percentage of Observed Foods Wasted on Children's Plates at Early Child Care Program Breakfast
G.2a.14	Percentage of Observed Foods Wasted on Children's Plates at Early Child Care Program Morning Snack
G.2a.15	Percentage of Observed Foods Wasted on Children's Plates at Early Child Care Program Lunch
G.2a.16	Percentage of Observed Foods Wasted on Children's Plates at Early Child Care Program Afternoon Snack
G.2a.17	Percentage of Observed Foods Wasted on Children's Plates at Before and After School Program Afternoon Snack
G.2a.18	Percentage of Observed Foods Wasted on Children's Plates at Before and After School Program Supper
	Nutritional value of food served but not eaten
G.2a.19	Percentage of Observed Calories and Nutrients Wasted on Children's Plates at Early Child Care Program Breakfast
G.2a.20	Percentage of Observed Calories and Nutrients Wasted on Children's Plates at Early Child Care Program Morning Snack
G.2a.21	Percentage of Observed Calories and Nutrients Wasted on Children's Plates at Early Child Care Program Lunch
G.2a.22	Percentage of Observed Calories and Nutrients Wasted on Children's Plates at Early Child Care Program Afternoon Snack
G.2a.23	Percentage of Observed Calories and Nutrients Wasted on Children's Plates at Before and After School Program Afternoon Snack
G.2a.24	Percentage of Observed Calories and Nutrients Wasted on Children's Plates at Before and After School Program Supper

Table ID	Research Question and Outcome Measures
G.2a.25	Mean Observed Amount of Calories and Nutrients Served and Wasted on Children's Plates at Early Child Care Program Breakfast
G.2a.26	Mean Observed Amount of Calories and Nutrients Served and Wasted on Children's Plates at Early Child Care Program Morning Snack
G.2a.27	Mean Observed Amount of Calories and Nutrients Served and Wasted on Children's Plates at Early Child Care Program Lunch
G.2a.28	Mean Observed Amount of Calories and Nutrients Served and Wasted on Children's Plates at Early Child Care Program Afternoon Snack
G.2a.29	Mean Observed Amount of Calories and Nutrients Served and Wasted on Children's Plates at Before and After School Program Afternoon Snack
G.2a.30	Mean Observed Amount of Calories and Nutrients Served and Wasted on Children's Plates at Before and After School Program Supper
	At the center level, what happens to food that is not eaten during meals and snacks by CACFP participants?
G.2b.1	Observed Uses of Food Not Served in Classrooms in Early Child Care Programs
G.2b.2	Observed Uses of Food Not Served in Classrooms in Before and After School Programs

^a Research Questions not included in this report are not listed in this table.

A.8 Supplementary Tables

Exhibit A.8-1 Summary of Provider Survey Frame and Sample

Group	A. Estimated Frame Population	B. Estimated Eligible Population	C. Frame That Is Estimated to be Eligible	Sample Size				
				D. Selected	E. Eligibility Could Be Determined	F. Eligible	G. Completes	H. Response Rate
All Programs								
Total	174,833	135,925	77.7%	2,698	2,371	1,708	1,085	55.8%
Program Type								
At-Risk Afterschool	24,571	15,348	62.5%	434	387	245	151	55.0%
Child Care Centers	39,172	29,681	75.8%	579	530	408	257	57.7%
Family Day Care Homes	96,217	78,745	81.8%	621	535	437	214	42.2%
Head Start	11,420	10,195	89.3%	561	447	389	301	61.7%
Outside-of-School Hours	3,454	1,954	56.6%	503	472	229	162	66.4%
First Stage Stratum								
Mid-Atlantic and Northeast 1 (High Urban States)	18,512	15,194	82.1%	244	216	173	108	55.3%
Mid-Atlantic and Northeast 2 (High Rural States)	18,944	12,875	68.0%	326	300	202	128	58.3%
Midwest	16,656	13,745	82.5%	222	193	148	108	63.4%
Mountain Plains	15,919	13,794	86.7%	210	202	175	115	63.2%
Southeast	13,801	10,072	73.0%	210	172	124	69	45.6%
Southwest	8,982	6,913	77.0%	128	119	94	69	68.2%
West	7,976	5,746	72.0%	101	94	73	54	68.8%
Certainty	74,044	57,585	77.8%	1,257	1,075	719	434	51.6%
Metropolitan Status								
Non-Metro	30,484	24,987	82.0%	439	386	320	210	57.7%
Metro	144,349	110,938	76.9%	2,259	1,985	1,388	875	55.4%

Note: Initial Frame Population are estimates derived using the primary (PSU) and secondary sampling unit (SSU) weights and the program frames obtained from State FNS agencies for the 20 SSUs selected in the sample. These counts may not match census counts from FNS administrative data.

Exhibit A.8-2 Summary of Environmental Observation Frame and Sample

Group	A. Estimated Frame Population	B. Estimated Eligible Population	C. Frame That Is Eligible	Sample Size				
				D. Selected	E. Eligibility Could Be Determined	F. Eligible	G. Completes	H. Response Rate
All Programs								
Total	78,617	57,179	72.7%	821	821	480	315	65.6%
Program Type ^a								
At-Risk Afterschool	24,571	15,314	62.3%	134	134	80	42	52.5%
Child Care Centers	39,172	28,614	73.0%	228	228	159	96	60.4%
Head Start	11,420	10,115	88.6%	267	267	156	131	84.0%
Outside-of-School Hours	3,454	3,136	90.8%	192	192	85	46	54.1%
First Stage Stratum								
Mid-Atlantic and Northeast 1 (High Urban States)	5,532	4,039	73.0%	59	59	40	30	75.0%
Mid-Atlantic and Northeast 2 (High Rural States)	11,987	7,460	62.2%	108	108	59	32	54.2%
Midwest	6,551	5,125	78.2%	66	66	42	29	69.0%
Mountain Plains	5,135	4,343	84.6%	58	58	44	31	70.5%
Southeast	8,056	5,233	65.0%	69	69	35	19	54.3%
Southwest	4,543	3,337	73.4%	42	42	31	26	83.9%
West	2,900	2,549	87.9%	31	31	25	21	84.0%
Certainty	33,912	25,093	74.0%	388	388	204	127	62.3%
Metropolitan Status								
Non-Metro	13,061	10,245	78.4%	128	128	84	64	76.2%
Metro	65,556	46,933	71.6%	693	693	396	251	63.4%

Note: Initial Frame Population are estimates derived using the primary (PSU) and secondary sampling unit (SSU) weights and the program frames obtained from State FNS agencies for the 20 SSUs selected in the sample. These counts may not match census counts from FNS administrative data.

^a Family day care homes are not in the target population for the environmental observation analysis, so this row is omitted.

Exhibit A.8-3 Summary of Menu Survey Frame and Sample

Group	A. Estimated Frame Population	B. Estimated Eligible Population	C. Frame That Is Estimated to be Eligible	Sample Size				
				D. Selected	E. Eligibility Could Be Determined	F. Eligible	G. Completes	H. Response Rate
All Programs								
Total	174,833	135,925	77.7%	2,698	2,437	1,777	991	50.4%
Program Type								
At-Risk Afterschool	24,181	15,348	63.5%	434	403	263	142	50.1%
Child Care Centers	38,562	29,681	77.0%	579	542	420	230	51.3%
Family Day Care Homes	96,217	78,745	81.8%	621	554	458	214	41.7%
Head Start	11,659	10,195	87.4%	561	458	399	257	52.6%
Outside-of-School Hours	4,214	1,954	46.4%	503	480	237	148	59.6%
First Stage Stratum								
Mid-Atlantic and Northeast 1 (High Urban States)	18,030	15,045	83.4%	244	224	182	101	50.9%
Mid-Atlantic and Northeast 2 (High Rural States)	19,068	12,996	68.2%	326	304	206	109	49.3%
Midwest	16,630	14,207	85.4%	222	198	155	95	54.7%
Mountain Plains	15,909	13,535	85.1%	210	205	178	104	57.0%
Southeast	13,733	10,965	79.8%	210	178	130	64	41.7%
Southwest	9,107	6,886	75.6%	128	122	97	58	57.0%
West	7,848	5,788	73.8%	101	94	73	48	61.2%
Certainty	74,508	56,502	75.8%	1,257	1,112	756	412	48.2%
Metropolitan Status								
Non-Metro	30,468	25,534	83.8%	439	396	330	193	52.8%
Metro	144,365	110,391	76.5%	2,259	2,041	1,447	798	49.8%

Note: Initial Frame Population are estimates derived using the primary (PSU) and secondary sampling unit (SSU) weights and the program frames obtained from State FNS agencies for the 20 SSUs selected in the sample. These counts may not match census counts from FNS administrative data.

Exhibit A.8-4 Summary of Meal Observation Form Frame and Sample

Group	A. Estimated Frame Population	B. Estimated Eligible Population	C. Frame That Is Estimated to be Eligible	Sample Size				
				D. Selected	E. Eligibility Could Be Determined	F. Eligible	G. Completes	H. Response Rate
All Programs								
Total	78,635	57,179	72.7%	821	821	480	303	63.1%
Program Type ^a								
At-Risk Afterschool	23,859	15,348	64.3%	134	134	80	37	46.3%
Child Care Centers	37,526	29,681	79.1%	228	228	159	92	57.9%
Head Start	11,799	10,195	86.4%	267	267	156	129	82.7%
Outside-of-School Hours	5,451	1,954	35.9%	192	192	85	45	52.9%
First Stage Stratum								
Mid-Atlantic and Northeast 1 (High Urban States)	4,730	2,155	45.6%	59	59	40	29	72.5%
Mid-Atlantic and Northeast 2 (High Rural States)	12,039	3,390	28.2%	108	108	59	31	52.5%
Midwest	6,555	8,204	125.1%	66	66	42	27	64.3%
Mountain Plains	5,347	6,601	123.5%	58	58	44	30	68.2%
Southeast	8,032	4,339	54.0%	69	69	35	18	51.4%
Southwest	4,517	1,939	42.9%	42	42	31	26	83.9%
West	2,910	1,051	36.1%	31	31	25	20	80.0%
Certainty	34,504	29,501	85.5%	388	388	204	122	59.8%
Metropolitan Status								
Non-Metro	12,103	10,282	85.0%	128	128	84	62	73.8%
Metro	66,532	46,897	70.5%	693	693	396	241	60.9%

Note: Initial Frame Population are estimates derived using the primary (PSU) and secondary sampling unit (SSU) weights and the program frames obtained from State FNS agencies for the 20 SSUs selected in the sample. These counts may not match census counts from FNS administrative data.

^a Family day care homes are not in the target population for the environmental observation analysis, so this row is omitted.

Exhibit A.8-5 Summary of Cost Interview Frame and Sample

Group	A. Estimated Frame Population	B. Estimated Eligible Population	C. Frame That Is Eligible	Sample Size and Response Rate				
				D. Selected	E. Eligibility Could Be Determined	F. Eligible	G. Completes	H. Response Rate
All Programs								
Total	78,621	57,179	72.7	1,378	1,345	797	397	48.6
Program Type ^a								
At-Risk Afterschool	24,062	15,348	63.8	331	318	188	67	34.2
Child Care Centers	38,093	29,681	77.9	331	324	228	108	46.4
Head Start	11,759	10,195	86.7	316	306	193	135	67.7
Outside-of-School Hours	4,708	1,954	41.5	400	397	188	87	45.9
First Stage Stratum								
Mid-Atlantic and Northeast 1 (High Urban States)	5,191	3,466	66.8	111	111	82	42	51.2
Mid-Atlantic and Northeast 2 (High Rural States)	12,167	7,745	63.7	192	192	107	46	43.0
Midwest	6,371	5,247	82.4	98	94	57	34	57.2
Mountain Plains	5,177	3,899	75.3	89	88	68	41	59.6
Southeast	7,970	6,026	75.6	111	109	63	26	40.5
Southwest	4,614	3,876	84.0	58	57	41	25	59.9
West	3,015	2,232	74.0	43	42	36	25	67.8
Certainty	34,118	24,689	72.4	676	652	343	158	44.4
Metropolitan Status								
Metropolitan	65,825	46,897	71.2	1,183	1,156	668	315	46.1
Non-Metropolitan	12,796	10,282	80.4	195	189	129	82	61.6

Note: Initial Frame Population are estimates derived using the primary (PSU) and secondary sampling unit (SSU) weights and the program frames obtained from State FNS agencies for the 20 SSUs selected in the sample. These counts may not match census counts from FNS administrative data.

^a Family day care homes were not in the target population for the cost interview analysis, so this row is omitted.

Exhibit A.8-6 Characteristics of Early Child Care Programs in the Provider Survey Analysis

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
Child Care Center	257	29,681	25.0
Head Start Program	301	10,195	8.6
Family Day Care Home	214	78,745	66.4
Program Size			
Small (1-39 enrolled)	405	88,319	74.5
Medium (40-79 enrolled)	181	14,818	12.5
Large (80 or more enrolled)	181	14,644	12.4
Unknown/Missing	5	841	0.7
Sponsored or Independent Status			
Corporate sponsored	84	21,277	17.9
Other sponsored	540	82,541	69.6
Sponsored with ownership unknown	7	1,579	1.3
Independent	141	13,224	11.2
Ownership			
Public or private non-profit organization	385	36,201	30.5
Public school or other part of a public school district	52	3,287	2.8
Government	28	3,400	2.9
For-profit corporation	133	26,432	22.3
Small business	133	46,150	38.9
Other	34	1,572	1.3
Don't know/Refused	7	1,579	1.3
Metropolitan Status			
Metropolitan	596	95,145	80.2
Non-Metropolitan	176	23,477	19.8
Program Area Percentage of Minority Children			
0% to less than 31%	294	39,244	33.1
31% to less than 65%	236	34,057	28.7
65% to 100%	242	45,321	38.2
Program Area Poverty Rate			
Less than 40%	265	41,263	34.8
40% to less than 60%	289	43,749	36.9
60% to 100%	218	33,610	28.3
Programs Offering Full-Day and Half-Day Care			
Full-day	252	31,530	26.6
Half-day	101	6,374	5.4
Both full- and half-day	373	75,695	63.8
Unknown	46	5,022	4.2

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Ages of Children Served^a			
0-5 months	229	35,708	30.1
6-11 months	289	48,284	40.7
12-17 months	341	61,291	51.7
18-23 months	332	56,175	47.4
24-35 months	434	78,164	65.9
3-5 years	695	101,289	85.4
Older than 5 years	328	67,663	57.0
FNS Region			
Midwest	164	25,150	21.2
Northeast	98	22,276	18.8
West	144	21,481	18.1
Southwest	111	13,647	11.5
Southeast	84	13,382	11.3
Mountain Plains	90	12,844	10.8
Mid-Atlantic	81	9,842	8.3
Number of Early Child Care Programs	772	118,622	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Provider Survey, Winter through Summer 2016-2017.

Notes: Tabulations are weighted to be nationally representative of all early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Early child care programs include Child Care Centers, Head Start programs, and Family Day Care Homes.

Early child care programs may also provide care to older children.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-7 Characteristics of Before and After School Programs in the Provider Survey Analysis

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
At-risk Afterschool Program	151	15,348	88.7
Outside-of-School Hours Program	162	1,954	11.3
Program Size			
Small (1-39 enrolled)	90	4,524	26.2
Medium (40-79 enrolled)	113	5,437	31.4
Large (80 or more enrolled)	102	6,677	38.6
Unknown/Missing	8	664	3.8
Sponsored or Independent Status			
Corporate sponsored	14	864	5.0
Other sponsored	233	12,912	74.6
Sponsored with ownership unknown	0	0	0.0
Independent	66	3,526	20.4
Ownership			
Public or private non-profit organization	162	5,679	32.8
Public school or other part of a public school district	91	7,939	45.9
Government	19	1,045	6.0
For-profit corporation	35	2,260	13.1
Other	6	380	2.2
Metropolitan Status			
Metropolitan	279	15,246	88.1
Non-Metropolitan	34	2,056	11.9
Program Area Percentage of Minority Children			
0% to less than 31%	97	3,364	19.4
31% to less than 65%	88	4,807	27.8
65% to 100%	128	9,131	52.8
Program Area Poverty Rate			
Less than 40%	114	4,312	24.9
40% to less than 60%	110	6,536	37.8
60% to 100%	89	6,455	37.3
Ages of Children Served^a			
5 to 12 years	291	15,379	88.9
Older than 12 years	99	6,121	35.4

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
FNS Region			
West	40	3,878	22.4
Mid-Atlantic	47	3,153	18.2
Northeast	121	3,045	17.6
Southeast	31	2,958	17.1
Southwest	19	1,923	11.1
Midwest	30	1,655	9.6
Mountain Plains	25	692	4.0
Number of Before and After School Programs	313	17,303	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Provider Survey, Winter through Summer 2016-2017.

Notes: Tabulations are weighted to be nationally representative of all before and after school programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Before and after school programs include Outside-of-School Hours Programs and At-Risk Afterschool Programs.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-8 Characteristics of Early Child Care Programs in the Environmental Observation Analysis

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
Child Care Center	96	28,614	73.9
Head Start Program	131	10,115	26.1
Program Size			
Small (1-39 enrolled)	86	10,860	28.0
Medium (40-79 enrolled)	69	13,879	35.8
Large (80 or more enrolled)	67	12,747	32.9
Unknown/Missing	5	1,243	3.2
Sponsored or Independent Status			
Corporate sponsored	10	2,628	6.8
Other sponsored	146	18,346	47.4
Sponsored with ownership unknown	25	4,382	11.3
Independent	46	13,373	34.5
Ownership			
Public or private non-profit organization	125	18,760	48.4
Public school or other part of a public school district	16	2,071	5.4
Government	13	1,326	3.4
For-profit corporation	25	7,156	18.5
Small business	3	1,031	2.7
Other	13	1,796	4.6
Don't know/Refused	2	483	1.3
Missing	30	6,106	15.8
Metropolitan Status			
Metropolitan	174	31,501	81.3
Non-Metropolitan	53	7,227	18.7
Program Area Percentage of Minority Children			
0% to less than 31%	83	12,274	31.7
31% to less than 65%	65	10,299	26.6
65% to 100%	79	16,156	41.7
Program Area Poverty Rate			
Less than 40%	65	12,356	31.9
40% to less than 60%	88	12,811	33.1
60% to 100%	74	13,561	35.0
Programs Offering Full-Day and Half-Day Care			
Full-day	69	12,328	31.8
Half-day	46	3,545	9.2
Both full- and half-day	73	15,476	40.0
Missing	39	7,379	19.1

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
FNS Regions			
Midwest	46	7,720	19.9
Southwest	44	7,103	18.3
West	38	5,849	15.1
Southeast	26	5,664	14.6
Mid-Atlantic	25	4,613	11.9
Northeast	23	4,185	10.8
Mountain Plains	25	3,594	9.3
Number of Early Child Care Programs	227	38,728	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Environmental Observations and Provider Survey, Winter through Summer 2016-2017.

Notes: Tabulations are weighted to be nationally representative of all early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Early child care programs include Child Care Centers and Head Start programs.

Early child care programs may also provide care to older children.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-9 Characteristics of Before and After School Programs in the Environmental Observation Analysis

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
At-Risk Afterschool Program	42	15,565	84.4
Outside-of-School Hours Program	46	2,886	15.6
Program Size			
Small (1-39 enrolled)	20	3,061	16.6
Medium (40-79 enrolled)	32	6,219	33.7
Large (80 or more enrolled)	31	7,930	43.0
Unknown/Missing	5	1,240	6.7
Sponsored or Independent Status			
Corporate sponsored	2	179	1.0
Other sponsored	58	12,347	66.9
Sponsored with ownership unknown	18	5,127	27.8
Independent	10	798	4.3
Ownership			
Public or private non-profit organization	40	5,458	29.6
Public school or other part of a public school district	21	6,986	37.9
Government	3	327	1.8
For-profit corporation	5	416	2.3
Other	0	0	0.0
Missing	19	5,263	28.5
Metropolitan Status			
Metropolitan	77	16,766	90.9
Non-Metropolitan	11	1,685	9.1
Program Area Percentage of Minority Children			
0% to less than 31%	23	5,009	27.2
31% to less than 65%	29	4,624	25.1
65% to 100%	36	8,818	47.8
Program Area Poverty Rate			
Less than 40%	34	5,524	29.9
40% to less than 60%	28	6,807	36.9
60% to 100%	26	6,119	33.2
FNS Region			
West	16	6,464	35.0
Southwest	9	2,990	16.2
Mid-Atlantic	7	2,600	14.1
Northeast	34	2,517	13.6
Southeast	9	2,374	12.9
Midwest	7	864	4.7
Mountain Plains	6	641	3.5
Number of Before and After School Programs	88	18,450	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Environmental Observations and Provider Survey, Winter through Summer 2016-2017.

Notes: Tabulations are weighted to be nationally representative of all before and after programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Before and after school programs include Outside-of-School Hours Programs and At-Risk Afterschool Programs.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-10 Characteristics of Early Child Care Programs in the Menu Survey Analysis

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
Child Care Center	230	29,681	25.0
Head Start program	257	10,195	8.6
Family Day Care Home	214	78,745	66.4
Program Size			
Small (1-39 enrolled)	350	75,546	63.7
Medium (40-79 enrolled)	160	14,300	12.1
Large (80 or more enrolled)	148	13,809	11.6
Unknown/Missing	43	14,967	12.6
Sponsored or Independent Status			
Corporate sponsored	54	12,674	10.7
Other sponsored	407	60,154	50.7
Sponsored with ownership unknown	122	32,363	27.3
Independent	118	13,431	11.3
Ownership			
Public or private non-profit organization	289	27,908	23.5
Public school or other part of a public school district	34	2,315	2.0
Government	22	2,119	1.8
For-profit corporation	90	16,887	14.2
Small business	101	33,656	28.4
Other	29	1,754	1.5
Don't know/Refused	7	1,218	1.0
Unknown/Missing	129	32,765	27.6
Metropolitan Status			
Metropolitan	540	94,936	80.0
Non-Metropolitan	161	23,686	20.0
Program Area Percentage of Minority Children			
0% to less than 31%	259	39,115	33.0
31% to less than 65%	225	34,097	28.7
65% to 100%	217	45,410	38.3
Program Area Poverty Rate			
Less than 40%	244	40,421	34.1
40% to less than 60%	265	45,173	38.1
60% to 100%	192	33,027	27.8
Programs Offering Full-Day and Half-Day Care			
Full-day	185	24,330	20.5
Half-day	85	4,418	3.7
Both full-and half-day	269	53,277	44.9
Unknown	162	36,596	30.9

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Ages of Children Served^a			
1	346	79,137	66.7
2	425	79,524	67.0
3-5	664	103,086	86.9
6-12	266	67,782	57.1
FNS Region			
Midwest	141	22,672	19.1
Northeast	95	21,927	18.5
West	130	21,460	18.1
Southwest	105	16,198	13.7
Southeast	78	13,748	11.6
Mountain Plains	80	12,858	10.8
Mid-Atlantic	72	9,759	8.2
Number of Early Child Care Programs	701	118,622	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey and Provider Survey, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Early child care programs include Child Care Centers, Head Start programs, and Family Day Care Homes.

Early child care programs may also provide care to older children.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-11 Characteristics of Before and After School Programs in the Menu Survey Analysis

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
At-Risk Afterschool Program	142	15,348	88.7
Outside-of-School Hours Program	148	1,954	11.3
Program Size			
Small (1-39 enrolled)	87	4,708	27.2
Medium (40-79 enrolled)	99	5,338	30.9
Large (80 or more enrolled)	89	5,843	33.8
Unknown/Missing	15	1,414	8.2
Sponsored or Independent Status			
Corporate sponsored	8	566	3.3
Other sponsored	184	10,411	60.2
Sponsored with ownership unknown	46	3,582	20.7
Independent	52	2,743	15.9
Ownership			
Public or private non-profit organization	131	4,778	27.6
Public school or other part of a public school district	66	5,875	34.0
Government	16	699	4.0
For-profit corporation	22	1,816	10.5
Small business	0	0	0.0
Other	4	367	2.1
Don't know/Refused	1	99	0.6
Unknown/Missing	50	3,667	21.2
Metropolitan Status			
Metropolitan	258	15,455	89.3
Non-Metropolitan	32	1,848	10.7
Program Area Percentage of Minority Children			
0% to less than 31%	91	3,801	22.0
31% to less than 65%	84	4,318	25.0
65% to 100%	115	9,184	53.1
Program Area Poverty Rate			
Less than 40%	104	4,446	25.7
40% to less than 60%	100	6,097	35.2
60% to 100%	86	6,760	39.1
Ages of Children Served^a			
3-5	148	9,082	52.5
6-12	283	16,778	97.0

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
FNS Region			
Midwest	26	1,490	8.6
Northeast	110	3,004	17.4
West	38	3,842	22.2
Southwest	23	2,271	13.1
Southeast	32	2,781	16.1
Mountain Plains	24	678	3.9
Mid-Atlantic	37	3,237	18.7
Number of Before and After School Programs	290	17,303	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey and Provider Survey, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all before and after school programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Before and after school programs include Outside-of-School Hours Programs and At-Risk Afterschool Programs.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-12 Characteristics of Early Child Care Programs in the Meal Observation Analysis

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
Child Care Center	92	29,681	74.4
Head Start Program	129	10,195	25.6
Program Size			
Small (1-39 enrolled)	82	15,830	39.7
Medium (40-79 enrolled)	68	8,783	22.0
Large (80 or more enrolled)	66	15,112	37.9
Unknown/Missing	5	152	0.4
Sponsored or Independent Status			
Corporate sponsored	10	258	0.7
Other sponsored	143	13,662	34.3
Sponsored with ownership unknown	25	14,539	36.5
Independent	43	11,418	28.6
Ownership			
Public or private non-profit organization	123	17,475	43.8
Public school or other part of a public school district	15	1,448	3.6
Government	13	547	1.4
For-profit corporation	24	3,083	7.7
Small business	3	1,672	4.2
Other	13	989	2.5
Don't know/Refused	2	10	0.0
Unknown/Missing	28	14,652	36.7
Metropolitan Status			
Metropolitan	169	31,442	78.9
Non-Metropolitan	52	8,434	21.2
Program Area Percentage of Minority Children			
0% to less than 31%	80	13,621	34.2
31% to less than 65%	65	8,877	22.3
65% to 100%	76	17,379	43.6
Program Area Poverty Rate			
Less than 40%	65	17,146	43.0
40% to less than 60%	85	18,538	46.5
60% to 100%	71	4,193	10.5
Programs Offering Full-Day and Half-Day Care			
Full-day	66	5,444	13.7
Half-day	46	2,584	6.5
Both full-and half-day	72	16,515	41.4
Unknown	37	15,335	38.5

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Ages of Children Served^a			
1	13	24,233	60.8
2	35	27,043	67.8
3-5	210	37,938	95.1
6-12	15	765	1.9
FNS Region			
Midwest	44	8,048	20.2
Northeast	22	837	2.1
West	37	2,426	6.1
Southwest	43	15,116	37.9
Southeast	26	5,738	14.4
Mountain Plains	24	5,814	14.6
Mid-Atlantic	25	1,897	4.8
Number of Early Child Care Programs	221	39,877	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Meal Observation Form and Provider Survey, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Early child care programs include Child Care Centers and Head Start programs.

Early child care programs may also provide care to older children.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-13 Characteristics of Before and After School Programs in the Meal Observation Analysis

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
At-Risk Afterschool Program	37	15,348	88.7
Outside-of-School Hours Program	45	1,954	11.3
Program Size			
Small (1-39 enrolled)	19	2,445	14.1
Medium (40-79 enrolled)	30	6,365	36.8
Large (80 or more enrolled)	29	8,078	46.7
Unknown/Missing	4	415	2.4
Sponsored or Independent Status			
Corporate sponsored	2	51	0.3
Other sponsored	55	11,227	64.9
Sponsored with ownership unknown	17	5,571	32.2
Independent	8	453	2.6
Ownership			
Public or private non-profit organization	37	5,459	31.6
Public school or other part of a public school district	19	5,748	33.2
Government	3	63	0.4
For-profit corporation	5	409	2.4
Small business	0	0	0.0
Other	0	0	0.0
Don't know/Refused	0	0	0.0
Unknown	18	5,625	32.5
Metropolitan Status			
Metropolitan	72	15,455	89.3
Non-Metropolitan	10	1,848	10.7
Program Area Percentage of Minority Children			
0% to less than 31%	22	3,614	20.9
31% to less than 65%	27	5,226	30.2
65% to 100%	33	8,463	48.9
Program Area Poverty Rate			
Less than 40%	31	5,349	30.9
40% to less than 60%	26	6,230	36.0
60% to 100%	25	5,724	33.1
Ages of Children Served^a			
3-5	19	9,082	52.5
6-12	79	16,778	97.0

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
FNS Region			
Midwest	7	1,188	6.9
Northeast	33	2,384	13.8
West	13	3,016	17.4
Southwest	9	5,866	33.9
Southeast	8	2,567	14.8
Mountain Plains	6	788	4.6
Mid-Atlantic	6	1,493	8.6
Number of Before and After School Programs	82	17,303	--

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Meal Observation Form and Provider Survey, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all before and after school programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's percentage of minority children is defined as the percentage of children ages 0-11 in the ZIP code who are non-White or Hispanic, using data from the American Community Survey 2012-2016.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Before and after school programs include Outside-of-School Hours Programs and At-Risk Afterschool Programs.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-14 Characteristics of Early Child Care Programs in the Cost Analysis

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
Child Care Center	108	29,681	74.4
Head Start Program	138	10,195	25.6
Program Size			
Small (1-39 enrolled)	94	11,235	28.2
Medium (40-79 enrolled)	74	12,975	32.5
Large (80 or more enrolled)	74	14,691	36.8
Unknown/Missing	4	976	2.4
Sponsored or Independent Status			
Corporate sponsored	9	2,187	5.5
Other sponsored	154	18,338	46.0
Sponsored with ownership unknown	25	3,467	8.7
Independent	58	15,884	39.8
Ownership			
Public or private non-profit organization	134	20,023	50.2
Public school or other part of a public school district	18	1,975	5.0
Government	13	1,091	2.7
For-profit corporation	31	8,573	21.5
Small business	3	963	2.4
Other	15	1,919	4.8
Don't know/Refused	2	389	1.0
Unknown/Missing	30	4,942	12.4
Metropolitan Status			
Metropolitan	183	31,442	78.8
Non-Metropolitan	63	8,434	21.2
Program Area Percentage of Minority Children			
0% to less than 31%	93	12,542	31.5
31% to less than 65%	81	11,809	29.6
65% to 100%	72	15,526	38.9
Program Area Poverty Rate			
Less than 40%	77	12,212	30.6
40% to less than 60%	100	14,270	35.8
60% to 100%	69	13,394	33.6
Programs Offering Full-Day and Half-Day Care			
Full-day	75	13,419	33.7
Half-day	49	3,810	9.6
Both full-and half-day	80	16,397	41.1
Unknown	42	6,250	15.7

	Early Child Care Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Ages of Children Served^a			
1	100	24,233	60.8
2	118	27,043	67.8
3-5	240	37,938	95.1
6-12	69	19,594	49.1
FNS Region			
Midwest	47	7,481	18.8
Northeast	25	3,430	8.6
West	39	4,470	11.2
Southwest	48	9,270	23.2
Southeast	25	6,463	16.2
Mountain Plains	30	3,526	8.8
Mid-Atlantic	32	5,238	13.1
Number of Early Child Care Programs	246	39,877	100.0

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Center Director Cost Interview, Center Foodservice Cost Interview, Financial Interview, Sponsor Cost Interview, Meal and Snack Counts Booklet, Self-Administered Cost Questionnaire, Provider Survey, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Early child care programs include Child Care Centers and Head Start programs.

Early child care programs may also provide care to older children.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-15 Characteristics of Before and After School Programs in the Cost Analysis

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Type			
At-Risk Afterschool Program	68	15,348	88.7
Outside-of-School Hours Program	86	1,954	11.3
Program Size			
Small (1-39 enrolled)	46	4,604	26.6
Medium (40-79 enrolled)	54	5,173	29.9
Large (80 or more enrolled)	51	7,109	41.1
Unknown/Missing	3	417	2.4
Sponsored or Independent Status			
Corporate sponsored	3	595	3.4
Other sponsored	99	10,057	58.1
Sponsored with ownership unknown	24	3,720	21.5
Independent	28	2,931	16.9
Ownership			
Public or private non-profit organization	74	4,330	25.0
Public school or other part of a public school district	31	6,081	35.1
Government	10	840	4.9
For-profit corporation	10	2,000	11.6
Small business	0	0	0.0
Other	2	42	0.2
Don't know/Refused	1	419	2.4
Unknown	26	3,591	20.8
Metropolitan Status			
Metropolitan	136	15,455	89.3
Non-Metropolitan	18	1,848	10.7
Program Area Percentage of Minority Children			
0% to less than 31%	46	3,826	22.1
31% to less than 65%	43	4,271	24.7
65% to 100%	65	9,206	53.2
Program Area Poverty Rate			
Less than 40%	56	4,039	23.3
40% to less than 60%	49	6,100	35.3
60% to 100%	49	7,164	41.4
Ages of Children Served^a			
3-5	74	9,082	52.5
6-12	152	16,812	97.2

	Before and After School Programs		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
FNS Region			
Midwest	13	1,447	8.4
Northeast	63	3,071	17.8
West	15	3,143	18.2
Southwest	16	3,492	20.2
Southeast	18	3,287	19.0
Mountain Plains	12	363	2.1
Mid-Atlantic	17	2,499	14.4
Number of Before and After School Programs	154	17,303	100.0

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Center Director Cost Interview, Center Foodservice Cost Interview, Financial Interview, Sponsor Cost Interview, Meal and Snack Counts Booklet, Self-Administered Cost Questionnaire, Provider Survey, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all before and after school programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Before and after school programs include Outside-of-School Hours programs and At-Risk Afterschool programs.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-16 Characteristics of Child Care Centers in the Infant Food Cost Analysis

	Child Care Centers		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
Program Size			
Small (1-39 enrolled)	5	1,831	9.1
Medium (40-79 enrolled)	15	5,641	28.1
Large (80 or more enrolled)	27	12,588	62.8
Unknown/Missing	0	0	0.0
Sponsored or Independent Status			
Corporate sponsored	6	1,880	9.4
Other sponsored	13	5,381	26.8
Sponsored with ownership unknown	3	1,127	5.6
Independent	25	11,671	58.2
Ownership			
Public or private non-profit organization	17	7,293	36.4
Public school or other part of a public school district	2	872	4.3
Government	0	0	0.0
For-profit corporation	15	5,863	29.2
Small business	2	703	3.5
Other	3	1,768	8.8
Don't know/Refused	0	0	0.0
Unknown/Missing	8	3,561	17.8
Metropolitan Status			
Metropolitan	37	15,694	78.2
Non-Metropolitan	10	4,366	21.8
Program Area Percentage of Minority Children			
0% to less than 31%	16	6,449	32.1
31% to less than 65%	17	6,843	34.1
65% to 100%	14	6,769	33.7
Program Area Poverty Rate			
Less than 40%	20	6,312	31.5
40% to less than 60%	16	7,518	37.5
60% to 100%	11	6,230	31.1
Programs Offering Full-Day and Half-Day Care			
Full-day	11	5,846	29.1
Half-day	0	0	0.0
Both full-and half-day	28	10,654	53.1
Unknown	8	3,561	17.8
Ages of Children Served^a			
1	43	18,513	92.3
2	44	19,035	94.9
3-5	44	18,870	94.1
6-12	31	13,672	68.2
Missing	2	670	3.3

	Child Care Centers		
	Number of Sample Programs (Unweighted)	Number of Programs (Weighted)	Percentage of Programs (Weighted)
FNS Region			
Midwest	10	4,049	20.2
Northeast	2	670	3.3
West	5	2,532	12.6
Southwest	11	4,935	24.6
Southeast	7	3,666	18.3
Mountain Plains	8	2,086	10.4
Mid-Atlantic	4	2,124	10.6
Number of Child Care Centers	47	20,060	100.0

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Center Director Cost Interview, Center Foodservice Cost Interview, Financial Interview, Sponsor Cost Interview, Meal and Snack Counts Booklet, Self-Administered Cost Questionnaire, Infant Food Intake Form, Infant Menu Survey, Provider Survey, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report where available and on administrative data from the States where self-report was not available.

Programs that are corporate sponsored are sponsored programs that were identified as part of a corporation in the provider survey. Other sponsored programs are sponsored programs that are not corporate sponsored. Corporate, sponsored, and independent subgroup statuses are based on self-report where available and on administrative data from the States where self-report was not available.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

Child care centers may also provide care to older children.

Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

^a Responses may total more than 100% because the variables are not mutually exclusive.

Exhibit A.8-17 Characteristics of Early Child Care Programs, by Child-Level Analysis Sample: Unweighted Number of Children and Number of Programs

	Unweighted Number of Children (Unweighted Number of Programs)						
	Plate/Classroom Waste ^a	Parent Survey	Body Mass Index and Weight for Age	Infant Menu Survey	Infant Food Intake Form	24-Hour Intake	Meal-Level Observation
Total							
Total	1,692 (220)	1,279 (244)	1,576 (225)	-- (200)	115 (50)	1,669 (228)	1,722 (227)
Program Type							
Child Care Center	669 (91)	613 (114)	639 (95)	-- (112)	115 (50)	680 (97)	702 (96)
Head Start Program	1,023 (129)	666 (130)	937 (130)	-- (27)	--	989 (131)	1,020 (131)
Family Day Care Home	--	--	--	-- (61)	--	--	--
Program Size							
Small	859 (111)	630 (122)	801 (114)	-- (103)	25 (11)	861 (117)	885 (116)
Large	801 (104)	623 (117)	746 (106)	-- (88)	90 (39)	780 (106)	805 (106)
Missing	32 (5)	26 (5)	29 (5)	-- (9)	--	28 (5)	32 (5)
Program Area Poverty Rate							
Less than 40%	482 (64)	392 (71)	445 (64)	-- (85)	49 (22)	472 (65)	487 (65)
40% to less than 60%	647 (85)	469 (95)	595 (87)	-- (73)	43 (17)	637 (88)	662 (88)
60% to 100%	563 (71)	418 (78)	536 (74)	-- (42)	23 (11)	560 (75)	573 (74)
Program's Metropolitan Status							
Metropolitan	1,291 (168)	1,005 (186)	1,201 (173)	-- (155)	90 (40)	1,273 (175)	1,318 (174)
Non-Metropolitan	401 (52)	274 (58)	375 (52)	-- (45)	25 (10)	396 (53)	404 (53)
Age Group Present at Provider^b							
Infants	--	--	--	-- (200)	-- (50)	--	--
1 Year Olds	-- (80)	-- (100)	-- (81)	--	--	-- (83)	-- (82)
2 Year Olds	-- (97)	-- (117)	-- (99)	--	--	-- (99)	-- (100)
3-5 Year Olds	-- (215)	-- (236)	-- (218)	--	--	-- (222)	-- (221)
6-12 Year Olds	-- (52)	-- (68)	-- (54)	--	--	-- (55)	-- (55)

	Unweighted Number of Children (Unweighted Number of Programs)						
	Plate/Classroom Waste ^a	Parent Survey	Body Mass Index and Weight for Age	Infant Menu Survey	Infant Food Intake Form	24-Hour Intake	Meal-Level Observation
FNS Region							
Northeast	172 (22)	127 (24)	154 (21)	-- (15)	5 (2)	169 (23)	178 (23)
Mid-Atlantic	177 (25)	118 (28)	154 (25)	-- (21)	10 (4)	169 (25)	177 (25)
Midwest	330 (44)	257 (50)	330 (46)	-- (46)	26 (12)	338 (47)	341 (46)
Mountain Plains	185 (24)	144 (29)	179 (25)	-- (29)	22 (9)	181 (25)	186 (25)
Southeast	207 (26)	165 (26)	192 (26)	-- (31)	18 (6)	192 (26)	204 (26)
Southwest	321 (43)	229 (49)	281 (44)	-- (35)	25 (12)	314 (44)	326 (44)
West	300 (36)	239 (38)	286 (38)	-- (23)	9 (5)	306 (38)	310 (38)

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Height and Weight Form, Provider Survey, Parent Survey, Infant Menu Survey, Infant Food Intake Form, Meal Observation Form, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report by the provider where available and administrative data from the States where self-report was not available.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

The metropolitan status of a child's residence may differ from that of the program that the child attends.

Early child care programs include Child Care Centers, Head Start programs, and Family Day Care Homes.

Early child care programs may also provide care to older children.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

^a The child-level, plate waste sample and the classroom-level, classroom waste sample began with the same set of program-level respondents. The observation data had one classroom per program. Therefore, this number reflects both the number of programs and number of classrooms included in this analysis.

^b Child sample counts are omitted to avoid double-counting child sample members in programs that serve multiple age groups. See Table A.8-19 for child sample counts by age group.

Exhibit A.8-18 Characteristics of Before and After School Programs, by Child-Level Analysis Sample: Unweighted Number of Children and Number of Programs

	Unweighted Number of Children (Unweighted Number of Programs)				
	Plate/Classroom Waste ^a	Parent Survey	Body Mass Index and Weight for Age	24-Hour Intake	Meal-Level Observation
Total					
Total	567 (82)	434 (88)	588 (87)	577 (87)	571 (88)
Program Type					
At-Risk Afterschool Program	279 (37)	233 (42)	310 (42)	293 (41)	288 (42)
Outside-of-School Hours Program	288 (45)	201 (46)	278 (45)	284 (46)	283 (46)
Program Size					
Small	228 (34)	176 (37)	251 (37)	239 (37)	245 (37)
Large	312 (44)	235 (46)	305 (45)	306 (45)	297 (46)
Missing	27 (4)	23 (5)	32 (5)	32 (5)	29 (5)
Program Area Poverty Rate					
Less than 40%	218 (31)	175 (34)	241 (34)	231 (33)	223 (34)
40% to less than 60%	170 (26)	145 (28)	182 (27)	186 (28)	177 (28)
60% to 100%	179 (25)	114 (26)	165 (26)	160 (26)	171 (26)
Program's Metropolitan Status					
Metropolitan	502 (72)	390 (77)	519 (76)	510 (76)	506 (77)
Non-Metropolitan	65 (10)	44 (11)	69 (11)	67 (11)	65 (11)
Age Group Present at Provider^b					
3-5 Year Olds	-- (38)	-- (41)	-- (41)	-- (40)	-- (41)
6-12 Year Olds	-- (79)	-- (85)	-- (84)	-- (84)	-- (85)

	Unweighted Number of Children (Unweighted Number of Programs)				
	Plate/Classroom Waste ^a	Parent Survey	Body Mass Index and Weight for Age	24-Hour Intake	Meal-Level Observation
FNS Region					
Northeast	200 (33)	148 (34)	201 (33)	202 (34)	200 (34)
Mid-Atlantic	48 (6)	39 (7)	49 (7)	57 (7)	53 (7)
Midwest	48 (7)	33 (7)	50 (7)	47 (7)	43 (7)
Mountain Plains	45 (6)	34 (6)	48 (6)	45 (6)	41 (6)
Southeast	56 (8)	36 (9)	53 (9)	59 (9)	63 (9)
Southwest	73 (9)	53 (9)	69 (9)	66 (9)	69 (9)
West	97 (13)	91 (16)	118 (16)	101 (15)	102 (16)

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Height and Weight Form, Provider Survey, Parent Survey, Meal Observation Form, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all before and after school programs participating in the Child and Adult Care Food Program (CACFP). Table includes only programs for which the analysis variables were available.

Program size is based on self-report by the provider where available and administrative data from the States where self-report was not available.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

The metropolitan status of a child's residence may differ from that of the program that the child attends.

Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

^a The child-level, plate waste sample and the classroom-level, classroom waste sample began with the same set of program-level respondents.

^b Child sample counts are omitted to avoid double-counting child sample members in programs that serve multiple age groups. See Table A.8-20 for child sample counts by age group.

Exhibit A.8-19 Additional Characteristics of Children in Early Child Care Programs, by Analysis Sample: Unweighted Number of Children

	Unweighted Number of Children					
	Plate Waste	Parent Survey	Body Mass Index and Weight for Age	Infant Food Intake Form	24-Hour Intake	Meal-Level Observation
Total						
Total	1,692	1,279	1,576	115	1,669	1,722
Program Type						
Child Care Center	669	613	639	115	680	702
Head Start Program	1,023	666	937	--	989	1,020
Age of Child						
0-3 Months	--	11	--	14	--	--
4-5 Months	--	18	--	24	--	--
6-8 Months	--	39	--	44	--	--
9-11 Months	--	27	--	33	--	--
1 Year Olds	24	19	24	--	24	25
2 Year Olds	133	99	111	--	126	132
3-5 Year Olds	1,490	1,021	1,388	--	1,468	1,510
6+ Year Olds	45	45	53	--	51	55
Child's Gender^a						
Boy	801	661	781	64	791	811
Girl	800	617	795	50	791	818
Don't know or refused	91	1	--	1	87	93
Race/Ethnicity						
White non-Hispanic	428	507	427	43	436	439
Black non-Hispanic	203	233	199	17	199	208
Hispanic	342	375	335	15	342	350
Other (includes multi-racial) ^b	126	142	126	9	123	127
Don't know or refused	34	20	32	--	32	34
Missing	559	2	457	31	537	564
Household Size						
Less than or equal to 2	76	83	75	2	78	78
3	210	259	210	28	212	216
4	326	375	321	26	326	335
5	278	307	275	12	279	283
6 or more	210	236	206	15	202	212
Don't know or refused	9	11	9	1	10	9
Missing	583	8	480	31	562	589

	Unweighted Number of Children					
	Plate Waste	Parent Survey	Body Mass Index and Weight for Age	Infant Food Intake Form	24-Hour Intake	Meal-Level Observation
Number of Children Younger than 18 in Home						
1	219	268	219	26	223	226
2	361	416	359	28	361	369
3	281	310	272	14	276	283
4 or more	238	266	236	16	236	244
Don't know or refused	9	9	9	--	9	9
Missing	584	10	481	31	564	591
Number of Adults (ages 18 or older) in Home						
Less than or equal to 1	346	382	346	17	347	355
2	607	715	593	59	605	620
3	98	109	97	6	97	99
4 or more	39	43	41	1	37	39
Don't know or refused	11	13	11	1	12	11
Missing	591	17	488	31	571	598
Annual Household Income (dollars)						
Less than \$20,000	341	370	337	9	337	347
\$20,000 to \$49,999	405	443	390	22	399	408
\$50,000 to \$79,999	108	129	105	15	109	110
\$80,000 to \$99,999	50	72	59	10	54	54
\$100,000 or more	66	97	67	22	69	69
Don't know or refused	138	159	137	6	138	144
Missing	584	9	481	31	563	590
Household Income as a Percentage of Poverty^c						
At or below 185 percent of the Federal Poverty Level	723	791	707	34	714	731
Above 185 percent of the Federal Poverty Level	249	323	255	45	256	261
Don't know or refused	161	163	157	5	162	166
Missing	559	2	457	31	537	564
Food Assistance Program Participation^d						
Household receives SNAP benefits	495	549	493	24	493	505
Household receives WIC benefits	376	427	367	29	374	383
Household receives infant formula from WIC	60	90	59	26	56	61
Household received food from food pantries, food banks, local soup kitchens, or emergency kitchens within the last 30 days	104	111	99	1	101	106

	Unweighted Number of Children					
	Plate Waste	Parent Survey	Body Mass Index and Weight for Age	Infant Food Intake Form	24-Hour Intake	Meal-Level Observation
None of the above	451	548	452	52	455	466
Don't know or refused	6	7	7	--	6	7
Missing	583	8	480	31	562	589
Other Government Assistance Program Participation^e						
Child receives CHIP ^f	584	640	576	25	582	589
Household receives TANF or other cash assistance	60	69	60	2	63	65
Household receives Medicaid	599	653	585	28	590	604
Household Food Security						
Food secure	784	918	777	72	787	801
Food insecure	314	340	308	11	311	320
Low food security	141	151	139	6	136	141
Very low food security	173	189	169	5	175	179
Don't know or refused	13	16	14	1	12	14
Missing	581	5	477	31	559	587
Child's Full-Day versus Part-Day Status^g						
Full-day care	757	895	742	81	756	776
Part-day care	511	377	477	2	505	517
Missing	424	7	357	32	408	429
Program's Metropolitan Status^h						
Metropolitan	1,291	1,005	1,201	90	1,273	1,318
Non-Metropolitan	401	274	375	25	396	404
Program Sizeⁱ						
Small	859	630	801	25	861	885
Large	801	623	746	90	780	805
Missing	32	26	29	--	28	32
FNS Region						
Northeast	172	127	154	5	169	178
Mid-Atlantic	177	118	154	10	169	177
Midwest	330	257	330	26	338	341
Mountain Plains	185	144	179	22	181	186
Southeast	207	165	192	18	192	204
Southwest	321	229	281	25	314	326
West	300	239	286	9	306	310

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Height and Weight Form, Parent Survey, Infant Food Intake Form, Meal Observation Form, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all children in early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only children for whom the analysis variables were available.

^a Child's gender is based on the parent survey when available and observation data when the parent survey was not available. Therefore, the number of children where gender is available is substantially higher than the number of non-missing observations in the remainder of the table.

^b Other race/ethnicities reported include Asian, American Indian or Alaskan Native and Native Hawaiian or Other Pacific Islander.

^c Household poverty level is based on household size and income reported by the parents.

^d Responses may total more than 100 percent because the variables are not mutually exclusive.

^e Responses may total more than 100 percent because the variables are derived from separate survey items.

^f The income cutoffs for CHIP are higher than for Medicaid and exceed 185 percent of poverty in some States.

^g Children are considered full-day if parents reported children in care more than 5 hours. Children are considered part-day if parents reported children in care 5 hours or less.

^h The metropolitan status of a child's residence may differ from that of the program that the child attends.

ⁱ Program size is based on self-report by the provider where available and administrative data from the States where self-report was not available.

CACFP = Child and Adult Care Food Program; CHIP = Children's Health Insurance Program; SNAP = Supplemental Nutrition Assistance Program; TANF = Temporary Assistance for Needy Families; WIC = Women, Infants, and Children.

Exhibit A.8-20 Additional Characteristics of Children in Before and After School Programs, by Analysis Sample: Unweighted Number of Children

	Unweighted Number of Children				
	Plate Waste	Parent Survey	Body Mass Index and Weight for Age	24-Hour Intake	Meal-Level Observation
Total					
Total	567	434	588	577	571
Program Type					
At-Risk Afterschool Program	279	233	310	293	288
Outside-of-School Hours Program	288	201	278	284	283
Age of Child					
3-5 Year Olds	58	42	62	64	62
6+ Year Olds	509	392	526	513	509
Child's Gender^a					
Boy	242	206	284	247	246
Girl	277	228	304	283	277
Don't know or refused	48	--	--	47	48
Race/Ethnicity					
White non-Hispanic	133	153	152	146	133
Black non-Hispanic	73	89	88	79	80
Hispanic	125	145	141	122	124
Other (includes multi-racial) ^b	28	32	30	29	27
Don't know or refused	15	15	18	15	15
Missing	193	--	159	186	192
Household Size					
Less than or equal to 2	28	35	34	30	29
3	83	102	97	92	88
4	137	158	155	145	135
5	54	66	62	53	58
6 or more	55	67	64	55	54
Don't know or refused	3	3	3	3	3
Missing	207	3	173	199	204
Number of Children Younger than 18 in Home					
1	81	105	100	91	85
2	153	177	174	165	155
3	74	86	83	73	76
4 or more	47	58	54	45	46
Don't know or refused	5	5	4	4	5
Missing	207	3	173	199	204

	Unweighted Number of Children				
	Plate Waste	Parent Survey	Body Mass Index and Weight for Age	24-Hour Intake	Meal-Level Observation
Number of Adults (ages 18 or older) in Home					
Less than or equal to 1	109	128	124	114	112
2	204	245	237	212	209
3	27	34	33	31	25
4 or more	15	19	17	17	16
Don't know or refused	5	5	4	4	5
Missing	207	3	173	199	204
Annual Household Income (dollars)					
Less than \$20,000	60	62	58	57	58
\$20,000 to \$49,999	112	141	135	115	119
\$50,000 to \$79,999	61	72	72	66	58
\$80,000 to \$99,999	34	37	34	35	34
\$100,000 or more	54	67	66	60	57
Don't know or refused	39	52	50	45	41
Missing	207	3	173	199	204
Household Income as a Percentage of Poverty^c					
At or below 185 percent of the Federal Poverty Level	153	173	171	153	155
Above 185 percent of the Federal Poverty Level	178	207	203	189	180
Don't know or refused	43	54	55	49	44
Missing	193	--	159	186	192
Food Assistance Program Participation^d					
Child receives free meals at school	170	198	189	171	175
Child receives reduced-price meals at school	19	23	23	21	17
Household receives SNAP benefits	103	115	109	104	101
Household receives WIC benefits	40	48	46	37	42
Household receives infant formula from WIC	12	14	14	11	11
Household received food from food pantries, food banks, local soup kitchens, or emergency kitchens within the last 30 days	24	24	20	21	19
None of the above	153	186	183	167	157
Don't know or refused	4	4	3	3	4
Missing	207	3	173	199	204

	Unweighted Number of Children				
	Plate Waste	Parent Survey	Body Mass Index and Weight for Age	24-Hour Intake	Meal-Level Observation
Other Government Assistance Program Participation^e					
Child receives CHIP ^f	127	150	141	130	123
Household receives TANF or other cash assistance	12	14	13	11	11
Household receives Medicaid	116	138	129	118	121
Household Food Security					
Food secure	275	330	322	287	280
Food insecure	79	95	87	85	81
Low food security	29	38	34	34	33
Very low food security	50	57	53	51	48
Don't know or refused	6	6	6	6	6
Missing	207	3	173	199	204
Program's Metropolitan Status^g					
Metropolitan	502	390	519	510	506
Non-Metropolitan	65	44	69	67	65
Program Size^h					
Small	228	176	251	239	245
Large	312	235	305	306	297
Missing	27	23	32	32	29
FNS Region					
Northeast	200	148	201	202	200
Mid-Atlantic	48	39	49	57	53
Midwest	48	33	50	47	43
Mountain Plains	45	34	48	45	41
Southeast	56	36	53	59	63
Southwest	73	53	69	66	69
West	97	91	118	101	102

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Height and Weight Form, Parent Survey, Meal Observation Form, Winter through Summer, 2017.

Notes: Tabulations are weighted to be nationally representative of all children in before and after school programs participating in the Child and Adult Care Food Program (CACFP). Table includes only children for whom the analysis variables were available. Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs.

^a Child's gender is based on the parent survey when available and observation data when the parent survey was not available. Therefore, the number of children where gender is available is substantially higher than the number of non-missing observations in the remainder of the table.

^b Other race/ethnicities reported include Asian, American Indian or Alaskan Native and Native Hawaiian or Other Pacific Islander.

^c Household poverty level is based on household size and income reported by the parents.

^d Responses may total more than 100 percent because the variables are not mutually exclusive.

^e Responses may total more than 100 percent because the variables are derived from separate survey items.

^f The income cutoffs for CHIP are higher than for Medicaid and exceed 185 percent of poverty in some States.

^g The metropolitan status of a child's residence may differ from that of the program that the child attends.

^h Program size is based on self-report by the provider where available and administrative data from the States where self-report was not available.

CACFP = Child and Adult Care Food Program; CHIP = Children's Health Insurance Program; SNAP = Supplemental Nutrition Assistance Program; TANF = Temporary Assistance for Needy Families; WIC = Women, Infants, and Children.

Exhibit A.8-21 Child-Level Response Rates for Early Child Care Programs

	Response Rates				
	Plate/Classroom Waste ^a	Parent Survey	Body Mass Index and Weight for Age	24-Hour Intake	Meal-Level Observation
Total					
Total	69.8	73.5	71.4	72.4	72.1
Program Type					
Child Care Center	57.2	64.8	59.7	61.0	60.4
Head Start Program	82.7	83.3	83.3	84.0	84.0
Family Day Care Home	--	--	--	--	--
Program Size					
Small	74.5	79.2	76.5	78.5	77.9
Large	68.4	71.3	69.7	69.7	69.7
Missing	35.7	35.7	35.7	35.7	35.7
Program Area Poverty Rate					
Less than 40%	70.3	72.4	70.3	71.4	71.4
40% to less than 60%	72.6	76.6	74.4	75.2	75.2
60% to 100%	66.4	70.9	69.2	70.1	69.2
Program's Metropolitan Status					
Metropolitan	67.7	71.8	69.8	70.6	70.2
Non-Metropolitan	77.6	79.5	77.6	79.1	79.1
FNS Region					
Northeast	73.3	77.4	70.0	76.7	76.7
Mid-Atlantic	71.4	73.7	71.4	71.4	71.4
Midwest	63.8	69.4	66.7	68.1	66.7
Mountain Plains	72.7	78.4	75.8	75.8	75.8
Southeast	57.8	57.8	57.8	57.8	57.8
Southwest	75.4	79.0	77.2	77.2	77.2
West	78.3	80.9	82.6	82.6	82.6

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Height and Weight Form, Provider Survey, Parent Survey, Meal Observation Form, Winter through Summer, 2017.

Notes: Response rates were computed using the standard definition of response rate #3 as defined in the AAPOR guidelines (see https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf).

Program size is based on self-report by the provider where available and administrative data from the States where self-report was not available.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

The metropolitan status of a child's residence may differ from that of the program that the child attends.

Early child care programs include Child Care Centers, Head Start programs, and Family Day Care Homes.

Early child care programs may also provide care to older children.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

^a The child-level, plate waste sample and the classroom-level, classroom waste sample began with the same set of program-level respondents.

Exhibit A.8-22 Child-Level Response Rates for Before and After School Programs

	Response Rates				
	Plate/Classroom Waste ^a	Parent Survey	Body Mass Index and Weight for Age	24 Hour Intake	Meal-Level Observation
Total					
Total	49.7	53.3	52.7	52.7	53.3
Program Type					
At-Risk Afterschool Program	46.3	52.5	52.5	51.3	52.5
Outside-of-School Hours Program	52.9	54.1	52.9	54.1	54.1
Program Size					
Small	47.2	51.4	51.4	51.4	51.4
Large	57.1	59.7	58.4	58.4	59.7
Missing	25.0	31.3	31.3	31.3	31.3
Program Area Poverty Rate					
Less than 40%	49.2	54.0	54.0	52.4	54.0
40% to less than 60%	51.0	54.9	52.9	54.9	54.9
60% to 100%	49.0	51.0	51.0	51.0	51.0
Program's Metropolitan Status					
Metropolitan	48.6	52.0	51.4	51.4	52.0
Non-Metropolitan	58.8	64.7	64.7	64.7	64.7
FNS Region					
Northeast	55.9	57.6	55.9	57.6	57.6
Mid-Atlantic	25.0	29.2	29.2	29.2	29.2
Midwest	41.2	41.2	41.2	41.2	41.2
Mountain Plains	54.5	54.5	54.5	54.5	54.5
Southeast	42.1	47.4	47.4	47.4	47.4
Southwest	64.3	64.3	64.3	64.3	64.3
West	61.9	76.2	76.2	71.4	76.2

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Height and Weight Form, Provider Survey, Parent Survey, Meal Observation Form, Winter through Summer, 2017.

Notes: Response rates were computed using the standard definition of response rate #3 as defined in the AAPOR guidelines (see https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf).

Program size is based on self-report by the provider where available and administrative data from the States where self-report was not available.

Program area's poverty rate is defined as the percentage of children ages 0-11 in the ZIP code at or below 185% of the Federal Poverty Level using data from the American Community Survey 2012-2016.

The metropolitan status of a child's residence may differ from that of the program that the child attends.

Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs.

Estimates are based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

^a The child-level, plate waste sample and the classroom-level, classroom waste sample began with the same set of program-level respondents.

Exhibit A.8-23 Weighted Percentage of Children that Received Meals and Snacks During Early Child Care Program Hours

	Child Care Centers				Head Start Programs			All			
	Age Group (in Years)										
	1-2	3-5	6-12	1-12	1-2	3-5	1-5	1-2	3-5	6-12	1-12
Weighted percentage of children (unweighted n ^a)											
Breakfast	22.4 (81)	28.3 (357)	19.3 (18)	25.1 (456)	37.8 (37)	34.4 (772)	34.8 (809)	23.8 (118)	29.9 (1129)	19.3 (18)	26.9 (1265)
Lunch	33.0 (112)	32.7 (416)	27.8 (29)	31.9 (557)	33.2 (34)	37.5 (828)	36.9 (862)	33.0 (146)	33.9 (1244)	27.8 (29)	32.9 (1419)
Supper	2.0 (5)	0.5 (9)	3.9 (8)	1.5 (22)	0.0 (0)	0.1 (2)	0.1 (2)	1.8 (5)	0.4 (11)	3.9 (8)	1.2 (24)
Morning Snack	9.9 (27)	6.4 (74)	11.6 (5)	8.3 (106)	5.4 (8)	2.0 (67)	2.4 (75)	9.5 (35)	5.3 (141)	11.6 (5)	7.2 (181)
Afternoon Snack	32.0 (106)	32.1 (426)	37.4 (41)	33.0 (573)	23.6 (22)	26.1 (498)	25.8 (520)	31.3 (128)	30.5 (924)	37.4 (41)	31.7 (1093)
Evening Snack	0.7 (2)	0.0 (0)	0.0 (0)	0.2 (2)	0.0 (0)	0.0 (0)	0.0 (0)	0.6 (2)	0.0 (0)	0.0 (0)	0.2 (2)
Unweighted Number of Children	120	527	55	702	37	983	1,020	157	1,510	55	1,722
Unweighted Number of Programs	115	249	43	407	42	332	374	157	581	43	781
Weighted mean (unweighted n)											
Mean Typical Number of Hours per Day in Care ^b	8.9 (89)	8.2 (381)	7.6 (45)	8.3 (515)	6.5 (28)	6.1 (632)	6.2 (660)	8.7 (117)	7.6 (1013)	7.6 (45)	7.9 (1175)

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Meal Observation and Parent Survey, Winter through Summer, 2017. Tabulations are weighted to be nationally representative of all children in early child care programs participating in the Child and Adult Care Food Program (CACFP). Table includes only children for whom the analysis variables were available.

A "A" identifies estimates that are considered imprecise. The criteria used to determine whether an estimate is imprecise are based on the size of the sample used to create the estimate and the estimate's statistical precision. Specific details of these criteria are presented in the description of study methods.

A "--" means either not applicable or no data.

Notes: The 6-12 year olds in this analysis are exclusively in Child Care Centers because there are no 6-12 year olds in Head Start programs. Early child care programs include Child Care Centers and Head Start programs. Early child care programs may also provide care to older children. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

^a Number of children and/or programs in this table differ slightly from the numbers reported in tables G.1b.1 to G.1b.7 because children who ate only non-creditable foods at a child care meal were dropped from tables G.1b.1 to G.1b.7, but were included in this table.

^b The mean typical number of hours per day in care is based on data from the Parent Survey, which was not collected for the entire sample.

Exhibit A.8-24 Weighted Percentage of Children that Received Meals and Snacks During Before and After School Program Hours

	Outside-of-School Hours Programs			At-Risk Afterschool Programs			All		
	Age Group (in Years)								
	3-5	6-12	3-12	3-5	6-12	3-12	3-5	6-12	3-12
Weighted percentage (unweighted n ^a)									
Breakfast	3.4 (4)	4.5 (17)	4.3 (21)	--	--	--	0.2 (4)	0.2 (17)	0.2 (21)
Supper	28.2 (4)	18.9 (57)	20.5 (61)	85.8 (18)	75.3 (202)	76.6 (220)	81.8 (22)	72.5 (259)	73.7 (281)
Afternoon Snack	68.3 (26)	73.6 (195)	72.7 (221)	13.8 (15)	14.4 (66)	14.3 (81)	17.6 (41)	17.3 (261)	17.3 (302)
Evening Snack	0.0 (0)	3.0 (11)	2.5 (11)	0.3 (1)	10.3 (32)	9.1 (33)	0.3 (1)	10.0 (43)	8.7 (44)
Unweighted Number of Children	29	254	283	33	255	288	62	509	571
Unweighted Number of Programs	17	56	73	14	50	64	31	106	137

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Meal Observation and Parent Survey, Winter through Summer, 2017. Tabulations are weighted to be nationally representative of all children in before and after school programs participating in the Child and Adult Care Food Program (CACFP). Table includes only children for whom the analysis variables were available.

A “^” identifies estimates that are considered imprecise. The criteria used to determine whether an estimate is imprecise are based on the size of the sample used to create the estimate and the estimate’s statistical precision. Specific details of these criteria are presented in the description of study methods.

A “--” means either not applicable or no data.

Notes: Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs. The “All” column is based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted. This study limited data collection for At-Risk Afterschool programs to afternoon snack, supper, and evening snack. The 6 to 12 year old group includes 3 children 13 years of age and 1 child 14 year of age.

^aNumber of children and/or programs in this table differ slightly from the numbers reported in tables G.1b.1 to G.1b.7 because children who ate only non-creditable foods at a child care meal were dropped from tables G.1b.1 to G.1b.7, but were included in this table.

Exhibit A.8-25 Unweighted Frequency and Percentage of Ages of Children in Early Child Care Programs and Before and After School Programs

Age of Children in Years	Number of Children in Early Child Care Programs	Percentage of Children in Early Child Care Programs	Number of Children in Before and After School Programs	Percentage of Children in Before and After School Programs
1	24	1.4	0	0.0
2	126	7.5	0	0.0
3	347	20.8	10	1.7
4	698	41.8	13	2.3
5	423	25.3	41	7.1
6	23	1.4	73	12.7
7	8	0.5	81	14.0
8	5	0.3	95	16.5
9	7	0.4	92	15.9
10	5	0.3	68	11.8
11	2	0.1	59	10.2
12	1	0.1	34	5.9
13	0	0.0	8	1.4
14	0	0.0	3	0.5
Total	1669	100	577	100

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Meal Observation and CCD and non-CCD Diaries, Winter through Summer, 2017.

Notes: Early child care programs include Child Care Centers and Head Start programs. Early child care programs may also provide care to older children. Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs. The CCD 6 to 12 year old group includes 3 children 13 years of age and 1 child 14 years of age. The non-CCD 6 to 12 year old group includes 8 children 13 years of age and 3 children 14 years of age.

CCD = child care day; non-CCD = non-child care day

Exhibit A.8-26 Menu Survey Sample – Meals Served at Early Child Care Programs, by Program Type and Age Group

	Child Care Centers				Head Start Programs			Family Day Care Homes				All			
	Age Group (Years)														
	1	2	3-5	6-12	1	2	3-5	1	2	3-5	6-12	1	2	3-5	6-12
Breakfast															
Percent of Programs in Population that Serve Breakfast	93.8	93.6	89.5	75.0	98.7	97.0	92.1	85.9	82.9	88.3	73.6	88.5	86.7	89.0	74.0
Number of Breakfasts Served in Sample	734	875	983	504	239	307	1,034	513	640	787	442	1,486	1,822	2,804	946
Number of Programs that Served Breakfast in Sample	148	177	199	107	50	64	227	118	141	169	97	316	382	595	204
Lunch															
Percent of Programs in Population that Serve Lunch	99.6	99.0	94.2	68.9	100.0	100.0	94.3	98.7	98.2	98.4	71.9	99.0	98.5	96.9	71.0
Number of Lunches Served in Sample	767	914	1,029	459	243	316	1,057	621	774	900	378	1,631	2,004	2,986	837
Number of Programs that Served Lunch in Sample	156	185	208	98	51	66	233	136	168	192	90	343	419	633	188
Supper															
Percent of Programs in Population that Serve Supper	10.9	9.9	9.2	14.2	0.0	3.6	2.6	31.8	30.1	31.6	49.0	25.0	23.0	22.7	39.0
Number of Suppers Served in Sample	64	66	76	79	0	10	20	176	193	265	244	240	269	361	323
Number of Programs that Served Supper in Sample	14	14	16	16	0	2	5	43	46	58	56	57	62	79	72
Morning Snack															
Percent of Programs in Population that Serve Morning Snack	13.4	14.1	13.4	9.8	5.4	6.3	5.9	55.9	57.4	52.7	36.4	42.6	42.4	37.5	28.8
Number of Morning Snacks Served in Sample	95	121	131	55	14	19	66	345	432	477	200	454	572	674	255
Number of Programs that Served Morning Snack in Sample	20	26	29	14	3	4	16	79	98	106	48	102	128	151	62

	Child Care Centers				Head Start Programs			Family Day Care Homes				All				
	Age Group (Years)															
	1	2	3-5	6-12	1	2	3-5	1	2	3-5	6-12	1	2	3-5	6-12	
Afternoon Snack																
Percent of Programs in Population that Serve Afternoon Snack	95.8	96.1	93.0	91.7	91.1	84.4	75.2	81.5	84.0	86.9	86.4	85.7	87.7	87.5	87.9	
Number of Afternoon Snacks Served in Sample	740	893	1,026	619	202	257	809	483	628	770	486	1,425	1,778	2,605	1,105	
Number of Programs that Served Afternoon Snack in Sample	152	183	209	128	45	54	181	114	140	166	109	311	377	556	237	
Evening Snack																
Percent of Programs in Population that Serve Evening Snack	3.5	3.1	2.7	3.1	2.1	1.7	0.5	5.8	3.7	10.4	15.2	5.1	3.4	7.3	11.7	
Number of Evening Snacks Served in Sample	24	24	24	19	5	5	5	17	21	59	71	46	50	88	90	
Number of Programs that Served Evening Snack in Sample	5	5	5	4	1	1	1	7	5	17	17	13	11	23	21	
Number of Early Child Care Programs	230				257			214				701				

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Winter through Summer 2016-2017. Table includes only programs for which the analysis variables were available.

Notes: Early child care programs include Child Care Centers, Head Start programs, and Family Day Care Homes. Early child care programs may also provide care to older children. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted. Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

Exhibit A.8-27 Menu Survey Sample –Meals Served at Before and After School Programs, by Program Type and Age Group

	Outside-of-School Hours Programs		At-Risk Afterschool Programs		All	
	Age Group (Years)					
	3-5	6-12	3-5	6-12	3-5	6-12
Breakfast						
Percent of Programs in Population that Serve Breakfast	30.8	18.3	--	--	30.8	18.3
Number of Breakfasts Served in Sample	112	147	--	--	112	147
Number of Programs that Served Breakfast in Sample	23	30	--	--	23	30
Supper						
Percent of Programs in Population that Serve Supper	15.1	20.8	67.3	72.8	61.6	66.9
Number of Suppers Served in Sample	57	134	217	448	274	582
Number of Programs that Served Supper in Sample	12	28	47	100	59	128
Afternoon Snack						
Percent of Programs in Population that Serve Afternoon Snack	87.0	82.3	47.4	42.5	51.7	47.1
Number of Afternoon Snacks Served in Sample	317	573	162	258	479	831
Number of Programs that Served Afternoon Snack in Sample	65	120	35	58	100	178
Evening Snack						
Percent of Programs in Population that Serve Evening Snack	1.5	4.4	8.2	6.2	7.5	6.0
Number of Evening Snacks Served in Sample	15	35	30	40	45	75
Number of Programs that Served Evening Snack in Sample	3	7	6	8	9	15
Number of Before and After School Programs	148		142		290	

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Winter through Summer 2016-2017. Table includes only programs for which the analysis variables were available.

A "--" means either not applicable or no data.

Notes: Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs. This study limited data collection for At-Risk Afterschool programs to afternoon snack, supper, and evening snack. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted. Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

Exhibit A.8-28 Meal Observation Sample –Meals Observed at Early Child Care Programs, by Program Type and Age Group

	Child Care Centers				Head Start Programs			All				
	Age Group (Years)											
	1	2	3-5	6-12	1	2	3-5	1	2	3-5	6-12	
Breakfast												
Percent of Programs in Population that Serve Breakfast	76.3	86.3	61.7	87.7	100.0	100.0	89.6	78.6	87.8	68.8	87.7	
Number of Breakfasts Observed in Sample	8	72	359	16	10	26	778	18	98	1,137	16	
Number of Programs where Breakfast was Observed in Sample	6	21	68	9	5	9	107	11	30	175	9	
Lunch												
Percent of Programs in Population that Serve Lunch	100.0	100.0	99.7	97.5	100.0	100.0	95.0	100.0	100.0	98.5	97.5	
Number of Lunches Observed in Sample	11	100	450	30	10	26	880	21	126	1,330	30	
Number of Programs where Lunch was Observed in Sample	8	26	74	11	5	9	116	13	35	190	11	
Supper												
Percent of Programs in Population that Serve Supper	0.0	0.3	0.5	0.8	0.0	0.0	0.0	0.0	0.3	0.4	0.8	
Number of Suppers Observed in Sample	0	5	9	2	0	0	0	0	5	9	2	
Number of Programs where Supper was Observed in Sample	0	1	3	2	0	0	0	0	1	3	2	
Morning Snack												
Percent of Programs in Population that Serve Morning Snack	14.3	14.6	12.2	0.3	34.3	27.2	12.4	16.3	15.9	12.3	0.3	
Number of Morning Snacks Observed in Sample	2	20	47	6	1	2	64	3	22	111	6	
Number of Programs where Morning Snack was Observed	1	5	9	1	1	1	9	2	6	18	1	
Afternoon Snack												
Percent of Programs in Population that Serve Afternoon Snack	100.0	99.7	99.5	100.0	58.9	60.7	65.3	96.0	95.4	90.8	100.0	
Number of Afternoon Snacks Observed in Sample	11	89	415	38	5	17	512	16	106	927	38	
Number of Programs where Afternoon Snack was Observed in Sample	8	25	79	15	3	6	79	11	31	158	15	

	Child Care Centers				Head Start Programs			All				
	Age Group (Years)											
	1	2	3-5	6-12	1	2	3-5	1	2	3-5	6-12	
Evening Snack												
Percent of Programs in Population that Serve Evening	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	
Number of Evening Snacks Observed in Sample	0	2	0	0	0	0	0	0	2	0	0	
Number of Programs where Evening Snack was Observed in Sample	0	1	0	0	0	0	0	0	1	0	0	
Number of Early Child Care Programs	92				129			221				

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Meal Observation Form, Winter through Summer 2016-2017.

Table includes only programs for which the analysis variables were available.

Notes: Early child care programs include Child Care Centers and Head Start programs. Early child care programs may also provide care to older children. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted. Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

Exhibit A.8-29 Meal Observation Sample- Meals Observed at Before and After School Programs, by Program Type and Age Group

	Outside-of-School Hours Programs		At-Risk Afterschool Programs		All	
	Age Group (Years)					
	3-5	6-12	3-5	6-12	3-5	6-12
Breakfast						
Percent of Programs in Population that Serve Breakfast	8.3	9.5	--	--	8.3	9.5
Number of Breakfasts Observed in Sample	4	20	--	--	4	20
Number of Programs where Breakfast was Observed in Sample	2	5	--	--	2	5
Supper						
Percent of Programs in Population that Serve Supper	2.4	18.7	77.4	83.4	69.2	76.0
Number of Suppers Observed in Sample	2	51	12	206	14	257
Number of Programs where Supper was Observed in Sample	1	10	6	30	7	40
Afternoon Snack						
Percent of Programs in Population that Serve Afternoon Snack	92.7	80.1	22.6	20.6	30.3	27.4
Number of Afternoon Snacks Serve in Sample	23	201	10	63	33	264
Number of Programs where Afternoon Snack was Observed in Sample	10	34	2	10	12	44
Evening Snack						
Percent of Programs in Population that Serve Evening Snack	0.0	1.5	16.6	9.1	14.7	8.2
Number of Evening Snacks Observed in Sample	0	8	1	13	1	21
Number of Programs where Evening Snack was Observed in Sample	0	1	1	2	1	3
Number of Before and After School Programs	45		37		82	

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Meal Observation Form, Winter through Summer 2016-2017. Table includes only programs for which the analysis variables were available.

A "--" means either not applicable or no data.

Notes: Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs. This study limited data collection for At-Risk Afterschool programs to afternoon snack, supper, and evening snack. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted. Estimates displayed in this table may differ from similar estimates in other tables that were generated with a different sample. Differences in estimates are due to differences in the eligible, target population between the samples or because of sampling variability.

Exhibit A.8-30 Menu Survey Sample – Distribution of Early Child Care Programs by Number of Meals Served, by Program Type and Age Group

	Child Care Centers				Head Start Programs			Family Day Care Homes				All			
	Age Group (Years)														
	1	2	3-5	6-12	1	2	3-5	1	2	3-5	6-12	1	2	3-5	6-12
	Percentage of Programs														
Number of Meals Types Served (Breakfast, Lunch or Supper)															
0	0.4	0.7	4.3	14.6	0.0	0.0	3.7	0.0	0.0	0.0	3.5	0.1	0.2	1.5	6.7
1	3.4	2.5	4.5	19.3	1.3	1.0	4.4	5.4	8.0	4.6	22.0	4.7	6.1	4.6	21.2
2	87.8	90.4	85.1	59.6	98.7	97.4	91.0	72.8	72.8	72.4	51.0	77.7	79.0	77.6	53.5
3	8.5	6.4	6.1	6.6	0.0	1.6	0.9	21.7	19.2	23.0	23.5	17.4	14.7	16.3	18.6
Number of Snack Types Served (Morning, Afternoon or Evening)															
0	0.8	0.2	2.6	6.5	5.4	10.9	21.4	1.3	1.1	1.3	6.1	1.3	1.2	3.6	6.2
1	86.4	86.7	86.1	82.9	90.5	85.9	75.5	58.7	55.7	55.1	60.2	67.3	66.2	65.5	66.8
2	12.3	12.6	10.9	10.0	4.1	3.3	3.0	35.5	40.3	35.9	23.3	28.1	30.5	25.9	19.4
3	0.5	0.5	0.4	0.6	0.0	0.0	0.0	4.5	2.9	7.7	10.4	3.3	2.1	5.0	7.6
Number of Total Meal Types Served (Meals or Snacks)															
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.8	0.4	3.9	20.2	0.0	0.0	4.8	0.7	0.4	0.4	8.5	0.7	0.4	1.8	11.9
2	0.4	0.5	4.7	12.9	6.7	10.3	23.0	2.9	6.0	2.5	14.3	2.3	4.5	5.0	13.9
3	84.8	85.7	80.1	54.7	89.2	86.4	69.4	52.9	50.0	52.2	41.3	62.8	62.2	61.5	45.2
4	9.2	9.5	8.0	8.3	4.1	3.3	2.4	27.5	26.8	25.8	17.4	21.8	20.7	18.8	14.8
5	4.8	3.8	3.3	4.0	0.0	0.0	0.4	11.4	13.9	11.3	9.0	9.2	10.3	8.1	7.6
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	2.9	7.7	9.4	3.1	1.9	4.9	6.7
Number of Early Child Care Programs	230				257			214				701			

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Winter through Summer 2016-2017. Table includes only programs for which the analysis variables were available.

Notes: Early child care programs include Child Care Centers, Head Start programs, and Family Day Care Homes. Early child care programs may also provide care to older children. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

Exhibit A.8-31 Menu Survey Sample – Distribution of Before and After School Programs, by Program Type and Age Group

	Outside-of-School Hours Programs		At-Risk Afterschool Programs		All	
	Age Group (Years)					
	3-5	6-12	3-5	6-12	3-5	6-12
	Percentage of Programs					
Number of Meals Types Served (Breakfast or Supper)						
0	54.1	60.9	32.7	27.2	35.0	31.0
1	45.9	39.1	67.3	72.8	65.0	69.0
2	0.0	0.0	0.0	0.0	0.0	0.0
Number of Snack Types Served (Afternoon or Evening)						
0	11.6	13.4	46.8	52.5	42.9	48.1
1	88.2	86.5	50.9	46.2	55.0	50.8
2	0.1	0.1	2.4	1.3	2.1	1.1
Number of Total Meal Types Served (Meals or Snacks)						
0	0.0	0.0	0.0	0.0	0.0	0.0
1	65.7	74.4	79.4	79.7	77.9	79.1
2	34.1	25.6	18.2	19.0	20.0	19.8
3	0.1	0.1	2.4	1.3	2.1	1.1
4	0.0	0.0	0.0	0.0	0.0	0.0
Number of Before and After School Programs	148		142		290	

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Winter through Summer 2016-2017. Table includes only programs for which the analysis variables were available.

Notes: Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs. This study limited data collection for At-Risk Afterschool programs to afternoon snack, supper, and evening snack. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

Exhibit A.8-32 Meal Observation Sample – Distribution of Early Child Care Programs by Number of Meals Served, by Program Type and Age Group

	Child Care Centers				Head Start Programs			All			
	Age Group (Years)										
	1	2	3-5	6-12	1	2	3-5	1	2	3-5	6-12
	Percentage of Programs										
Number of Meals Types Served (Breakfast, Lunch or Supper)											
0	0.0	0.0	0.1	2.5	0.0	0.0	3.6	0.0	0.0	1.0	2.5
1	23.7	13.3	37.8	9.2	0.0	0.0	8.2	21.4	11.9	30.3	9.2
2	76.3	86.7	62.0	88.0	100.0	100.0	88.2	78.6	88.1	68.7	88.0
3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Number of Snack Types Served (Morning, Afternoon or Evening)											
0	0.0	0.0	0.5	0.0	6.8	12.1	24.3	0.7	1.3	6.5	0.0
1	85.7	80.8	87.3	99.7	93.2	87.9	73.7	86.4	81.6	83.9	99.7
2	14.3	19.2	12.2	0.3	0.0	0.0	2.0	13.0	17.1	9.6	0.3
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of Total Meal Types Served (Meals or Snacks)											
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.2	2.5	0.0	0.0	4.1	0.0	0.0	1.2	2.5
2	9.4	0.3	27.1	9.2	6.8	12.1	30.4	9.1	1.6	27.9	9.2
3	90.6	93.6	71.7	88.0	93.2	87.9	64.5	90.9	93.0	69.9	88.0
4	0.0	6.1	1.0	0.0	0.0	0.0	0.9	0.0	5.5	1.0	0.0
5	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of Early Child Care Programs	92				129			221			

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Winter through Summer 2016-2017. Table includes only programs for which the analysis variables were available.

Notes: Early child care programs include Child Care Centers, Head Start programs, and Family Day Care Homes. Early child care programs may also provide care to older children. The "All" column is based on counts of weighted programs, not providers. For this reason, providers with more than one early child care program may be double-counted.

Exhibit A.8-33 Meal Observation Sample – Distribution of Before and After School Programs, by Program Type and Age Group

	Outside-of-School Hours Programs		At-Risk Afterschool Programs		All	
	Age Group (Years)					
	3-5	6-12	3-5	6-12	3-5	6-12
	Percentage of Programs					
Number of Meals Types Served (Breakfast or Supper)						
0	89.3	71.7	22.6	16.6	29.9	22.9
1	10.7	28.3	77.4	83.4	70.1	77.1
2	0.0	0.0	0.0	0.0	0.0	0.0
Number of Snack Types Served (Afternoon or Evening)						
0	7.3	18.4	60.8	70.4	55.0	64.4
1	92.7	81.6	39.2	29.6	45.0	35.6
2	0.0	0.0	0.0	0.0	0.0	0.0
Number of Total Meal Types Served (Meals or Snacks)						
0	0.0	0.0	0.0	0.0	0.0	0.0
1	96.6	90.1	83.4	86.9	84.9	87.3
2	3.4	9.9	16.6	13.1	15.1	12.7
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
Number of Before and After School Programs	45		37		82	

Source: Study of Nutrition and Activity in Child Care Settings (SNACS), Menu Survey, Winter through Summer 2016-2017. Table includes only programs for which the analysis variables were available.

Notes: Before and after school programs include Outside-of-School Hours and At-Risk Afterschool programs. This study limited data collection for At-Risk Afterschool programs to afternoon snack, supper, and evening snack. The “All” column is based on counts of weighted programs, not providers. For this reason, providers with more than one before and after school program may be double-counted.

Exhibit A.8-34 CACFP Infant Meal Pattern

Infant Meal Pattern ^a at The Time of Data Collection		
0-3 mo	4-7 mo	8-11 mo
Breakfast		
4-6 oz. breastmilk/formula ^b	4-8 oz. breastmilk/formula ^b 0-3 tbsp infant cereal	6-8 oz. breastmilk/formula ^b 2-4 tbsp infant cereal and 1-4 tbsp fruit, vegetable or both
Lunch/Supper		
4-6 oz. breastmilk/formula ^b	4-8 oz. breastmilk/formula ^b 0-3 tbsp infant cereal, and 0-3 tbsp fruit, vegetable or both ^c	6-8 oz. breastmilk/formula ^b 2-4 tbsp infant cereal, and/or 1-4 tbsp meat, fish, poultry, egg yolk, cooked dry beans or peas, or ½-2 oz. cheese, or 1-4 oz. (volume) cottage cheese, or 1-4 oz. (weighted) cheese spread or cheese spread, and 1-4 tbsp fruit, vegetable or both
Snack		
4-6 oz. breastmilk/formula ^b	4-8 oz. breastmilk/formula ^b	6-8 oz. breastmilk/formula ^b or fruit juice ^d 0-½ slice of bread ^c , or 0-2 crackers ^c

Source: *Amendments to the Child Nutrition Infant Meal Pattern: Final Rule*. 67 *Federal Register* 102. Food and Nutrition Service; 2002. Accessed August 11, 2020 from <https://fns-prod.azureedge.net/sites/default/files/2002-05-28.pdf>.

^a All serving sizes are minimum quantities of the food components that are required to be served.

^b Breastmilk or formula, or portions of both, may be served; however, it is recommended that breastmilk be served in place of formula from birth through 11 months. For some breastfed infants who regularly consume less than the minimum amount of breastmilk per feeding, a serving of less than the minimum amount of breastmilk may be offered, with additional breastmilk offered if the infant is still hungry.

^c A serving of this component is required only when the infant is developmentally ready to accept it.

^d Fruit juice must be full-strength.