



United States
Department of
Agriculture

Food and
Consumer
Service

Office of
Analysis and
Evaluation

Early Childhood and Child Care Study

Nutritional Assessment of the CACFP: Final Report Volume II

July 1997



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Volume II Final Report

July 1997

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This study was conducted under Contract No. 53-3198-3-018 with the Food and Consumer Service, United States Department of Agriculture. Points of view or opinions stated in this report do not necessarily represent the official position of the Food and Consumer Service.

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Acknowledgments

The Early Childhood and Child Care Study represents the culmination of more than three years of effort by many persons in several organizations. While it is not possible to thank every person who contributed to the study, we want to acknowledge the support and contributions of several individuals.

Special thanks are due to the family day care providers and the staff of the Head Start and child care centers that participated in the study. The results of this study are useful largely because these individuals opened their doors to study staff and found the time in their busy days to complete the lengthy questionnaires. Thanks are also due to State Child Nutrition Directors who helped assemble listings of family day care homes and child care centers that were used in selecting national samples for the study. The cooperation of sponsoring institutions was also invaluable in ensuring the success of the study. In particular, the support of the Child Care Food Program Sponsors' Forum helped us gain the cooperation of family day care homes.

Staff of the Office of Analysis and Evaluation, Food and Consumer Service, U.S. Department of Agriculture had responsibility for overseeing the project. Jeffrey Wilde served as the Project Officer for the first three years of the study. John Endahl served as the Project Officer for the final year of the study. Both provided valuable insights and direction throughout the project and in the preparation of the final report.

Early Childhood Associates, Inc., of Natick, Massachusetts served as Abt Associates' subcontractor and was responsible for a portion of the work involved in compiling lists of participating family day care homes and centers. Their staff conducted many of the telephone calls to sponsoring agencies to obtain provider lists. Linda Warren was responsible for the subcontract.

Several staff members at Abt Associates played important roles in the project. Mary Jo Cutler, Deputy Project Director, provided valuable assistance in managing this large and complex

project. Gary Shapiro developed the sampling design. Kurt Veith directed the survey and field operations. Susan Palter, Jenny Golay, and Mary Jo Cutler developed the Menu Surveys and meal observation protocols, developed training materials, and helped train field staff. David Rodda directed the analyses reported in Volume I. Mary Kay Fox and Nancy Burstein oversaw analyses for Volume II. Analysts who assisted with one or both volumes include Marian Wrobel, Dylan Conger, William Rhodes, and Don Laliberty. Joan McLaughlin, Mike Puma, and Nancy Burstein reviewed and critiqued all reports.

Special thanks are due to Mary Kay Fox who directed the nutrition analyses and is the principal author of Volume II, Ellen Lee who managed the study's large and complex database and provided invaluable assistance in all analyses, and Eileen Fahey who coordinated production of all deliverables and reports. I am indebted to them for their tireless efforts on this project.

Frederic B. Glantz
Project Director
Abt Associates Inc.

Executive Summary

This report presents findings from the Early Childhood and Child Care Study, a study carried out by Abt Associates Inc. of Cambridge, Massachusetts, under contract to the Food and Consumer Service (FCS) of the United States Department of Agriculture (USDA). The study describes the institutions and children that participate in the Child and Adult Care Food Program (CACFP). It also describes the nutrient content of meals and snacks offered under the program and the contribution of CACFP meals and snacks to the daily energy and nutrient needs of participating children. Information for the study was collected from nationally representative samples of sponsoring agencies, participating child care sites, and children. Data for the study were collected between January and June, 1995.

This is the second of two volumes of the final study report. This volume focuses on the nutrient content of meals and snacks offered by participating child care sites, the meals and snacks consumed by children receiving child care in those sites. Volume I (a separate document) provides a descriptive profile of child care sites participating in the CACFP and the children receiving care in those sites.

THE CHILD AND ADULT CARE FOOD PROGRAM

The Child and Adult Care Food Program (CACFP) is a Federal program that provides meals and snacks in child and adult day care facilities. The child care component of the CACFP provides Federal funds for meals and snacks served to children in nonresidential day care facilities. These include family and group day care homes (homes), Head Start centers, and some child care centers. In fiscal year 1995, the program served an average of 2.4 million children daily at a cost of \$1.5 billion. Forty-two percent of these children were served through homes; 58 percent through centers.

This report describes meals and snacks *offered* by child care sites participating in the CACFP (CACFP providers) as well as meals and snacks *consumed* by children receiving care in those sites (CACFP participants). Information on the average nutrient content of CACFP meals are compared to the *Recommended Dietary Allowances* (RDAs), which establish benchmarks for average daily intake of energy and key nutrients by age group and gender, and to recommendations included in the *Dietary Guidelines for Americans* and the National Research Council's (NRC) *Diet and Health* report. The *Dietary Guidelines* and NRC recommendations address intake of fats, carbohydrate, and protein, as well as sodium and cholesterol, and are applied only to older children (five- to ten-year-olds). It must be emphasized that these standards are used only to facilitate interpretation of the data; *CACFP providers are not required to meet these or any other nutrient standards.*

MEALS AND SNACKS OFFERED BY CACFP PROVIDERS

Breakfasts and Lunches

- The average nutrient content of CACFP breakfasts and lunches, as offered, meets or exceeds all of the RDA standards used in this study (one-fourth of the RDA for breakfasts and one-third for lunches), except for energy (breakfasts and lunches) and iron (lunches).
- **Breakfasts** offered to children five years of age and older supply 23 percent of total energy as fat, a level that is consistent with recommendations that no more than 30 percent of total energy come from fat. The average proportion of energy from carbohydrate (64%) is also consistent with recommendations, as are average amounts of cholesterol (51 mg) and sodium (445 mg).
- **Breakfasts** are *not* consistent with the recommendation for the percentage of energy from saturated fat (11% percent compared to the recommendation of less than 10%). The actual amount of saturated fat in CACFP breakfasts is not excessive, however, compared to the amount of saturated fat allowable in a meal that provides one-fourth of the RDA for energy and less than 10 percent of the energy as saturated fat. The reason CACFP breakfasts do not meet the saturated fat recommendation has more to do with the limited amount of energy provided than with an excessive amount of saturated fat. In fact, if the average energy content of CACFP breakfasts were increased by about 70 calories for five-year-olds and 55 calories for six- to ten-year-olds, by offering more carbohydrate-rich foods such as juices, fruit, and low-fat breads and bread alternates, there would be no need to reduce actual saturated fat content.
- **Lunches** offered to children five years of age and older do *not* meet recommendations for the percentage of energy from fat, saturated fat, or carbohydrate. The average percentage of energy from fat is 35 percent; the recommended level is no more than 30 percent. The average percentage of energy from saturated fat is 14 percent, a level which exceeds the recommendation of less than 10 percent, and the average percentage of energy from carbohydrate is 47 percent, compared to the recommendation of 55 percent or more.
- The average cholesterol content of CACFP **lunches** is consistent with the recommended level (65 mg compared to the recommended range of 100 mg or less). The average sodium content, however, does *not* meet the recommendation (919 mg compared to the recommended range of 800 mg or less).

Snacks

- Both morning and afternoon snacks offered in the CACFP supply more than 10 percent of the RDA for energy and comparable or greater percentages of the RDA for key

nutrients. Snacks are especially rich in vitamin C, providing one-third (afternoon snacks) to 40 percent (morning snacks) of the RDA.

All Meals and Snacks Offered

- The full complement of meals and snacks offered by most CACFP providers supplies more than one-half of the RDA for energy and substantially more than two-thirds of the RDA for all key nutrients.
- The combinations of meals and snacks most commonly offered in the CACFP provide an average of 30 to 31 percent of energy from fat, levels which approximate the recommendation of 30 percent or less. Likewise, the percentage of energy from carbohydrate, 55 to 56 percent, is consistent with recommendations.
- The percentage of energy from saturated fat in the most common meal and snack combinations (13%) is *not* consistent with the recommended level of less than 10 percent.
- To be consistent with recommendations for cholesterol and sodium intake, meals and snacks should make equivalent contributions to recommended intakes of energy, cholesterol, and sodium. The most common meal and snack combinations offered in the CACFP meet this standard for cholesterol but not for sodium.

MEALS AND SNACKS CONSUMED BY PARTICIPATING CHILDREN

The nutrient profile of meals and snacks actually consumed by participating children may differ from the meals and snacks offered by providers. For example, children may decline one or more of the foods offered; children may select portions that differ from the average portion; or children may waste (not consume) some of the food they take. Thus to gain a full understanding of the contributions CACFP meals and snacks actually make to children's daily energy and nutrient needs, it is important to examine CACFP meals and snacks *as actually consumed* by children.

Breakfasts and Lunches

- Children generally select portions of food that are equivalent to, or greater than, the minimum portion sizes specified in CACFP meal pattern requirements. Children generally consume between 70 and 75 percent of the portions of food taken at breakfast and lunch. Different types of food are consumed in approximately equal proportions at breakfast. At lunch, the average proportion of milk consumed is substantially higher (83%) and the average proportion of vegetables consumed is substantially lower (59%) than other foods.

- Children's average nutrient intake from CACFP breakfasts and lunches meets or exceeds all of the RDA standards used in this study (one-fourth of the RDA for breakfast and one-third of the RDA for lunch), except for energy and iron.
- On average, 24 percent of the energy in **breakfasts** consumed by CACFP participants five years of age and older comes from fat, a level that is consistent with recommendation of no more than 30 percent. Carbohydrate intake is also consistent with recommendations, as are intakes of cholesterol and sodium.
- The average percentage of energy from saturated fat in CACFP **breakfasts** consumed by children (11%) does *not* meet the recommendation of less than 10 percent. This finding is not surprising because, as discussed above, breakfasts *offered* by CACFP providers do not meet the recommendation for energy from saturated fat. As noted above, however, the reason that CACFP breakfasts, both as offered to and consumed by children five and older, do not meet recommendations for the percentage of energy from saturated fat has more to do with the limited energy contribution of CACFP breakfasts than with excessive amounts of saturated fat, per se.
- The average percentage of energy from fat (35%) and carbohydrate (46%) in **lunches** consumed by CACFP participants five years of age and older is not consistent with recommendations (no more than 30% and 55% or more, respectively). It is important to note that the reason CACFP lunches, as consumed, do not meet the recommendation for the percentage of energy from fat has more to do with the fact that lunches provide a limited amount of energy, specifically energy from carbohydrate, than with excessive amounts of fat.
- The average percentage of energy from saturated fat in CACFP **lunches** consumed by children five years and older does not meet the recommendation (15%, compared to the recommendation of less than 10%). The limited energy contribution of CACFP lunches does not explain this finding. Lunches consumed by children, like the lunches offered by providers, supply more saturated fat (total amount as well as a percentage of total energy) than recommended.
- Achieving the desired balance in sources of food energy in CACFP lunches, that is, increasing consumption of energy from carbohydrate while, at the same time, decreasing consumption of saturated fat may be difficult in light of the fact that children do not consume all of the foods presently taken at lunch. Because young children's appetites are self-limiting, it may be more reasonable to offset calories from fat consumed at lunch with carbohydrate calories in a snack that precedes or follows lunch.
- Lunches consumed by CACFP participants five years of age and older meet recommendations for cholesterol and sodium intake.

Snacks

- On average, children consume approximately 80 percent or more of the portions of food taken at snack. The mean rate of consumption is consistently higher for morning snacks. Snacks consumed by CACFP participants provide, on average, about 10 percent or more of the RDA for energy and comparable or greater percentages of the RDA for key nutrients.

All Meals and Snacks Consumed

Because the number of CACFP meals and snacks available to children is influenced by the amount of time spent in care, findings are summarized separately for children in care *at least* four but *less than* eight hours per day (children in part-day care) and for children in care eight or more hours per day (children in full-day care).¹

Children in Care Four to Eight Hours per Day

- Most children in part-day care consume at least two CACFP meals and/or snacks while in care. The most common meal and snack combinations are: lunch and one snack (24% of all children), breakfast, lunch, and one snack (25% of children), and breakfast and lunch (23% of children). About 18 percent of part-day children receive only one meal or snack. This is particularly true among part-day children attending child care centers, where 36 percent of part-day children receive only one meal or snack.
- On a typical day, children in care at least four but less than eight hours per day consume, from CACFP meals and snacks, an average of about one-third of the RDA for energy and iron and about one-half of the RDA for calcium. Intakes of other nutrients are substantially higher, averaging 108 percent of the RDA for protein, 80 percent of the RDA for vitamin A, and 86 percent of the RDA for vitamin C.
- Mean intakes among children receiving part-day care in child care centers are lower than children receiving part-day care in homes and Head Start centers. This is consistent with the fact that 23 percent of part-day children in centers receive only one snack and another 13 percent receive only breakfast or lunch.
- The average nutrient intake of five-year-olds in part-day care meets recommendations for the percentage of energy from fat (29% compared to the recommendation of no more than 30%) and carbohydrate (56% compared to the recommendation of at least 55%), but does not meet the recommendation for the percentage of energy from saturated fat (12% compared to the recommendation of less than 10%).

¹School-age-children (six-to-ten year olds) are excluded from these tabulations because most of these children are in care before and/or after school and their patterns of consumption differ substantially from other children in care.

- Cumulative intake of sodium and cholesterol from all CACFP meals and snacks is evaluated with respect to the cumulative contribution to the RDA for energy. Ideally, relative contributions to recommended daily intakes of energy, cholesterol, and sodium should be comparable. Five-year-olds in part-day care consume, on average, 31 percent of the RDA for energy from CACFP meals and snacks. These meals and snacks also contribute 22 percent of the suggested daily limit of cholesterol, an acceptable level in light of the mean contribution to recommended energy intake. Mean contribution to the suggested daily limit for sodium intake is 35 percent, a level which is somewhat high because it exceeds the contribution to recommended daily energy intake.

Children in Care Eight or More Hours per Day

- Three-quarters of children in care eight or more hours per day (full-day care) consume breakfast, lunch, and one or two snacks while in care. Another 19 percent of children consume lunch and one or two snacks, while another four percent consume breakfast and lunch. None of the children in full-day care receive only one meal or snack.
- The total complement of meals and snacks consumed by children in care eight or more hours per day provides an average of about one-half of the RDA for energy and iron. Intake of calcium from CACFP meals and snacks approximates, on average, three-quarters of the RDA. Average intakes of protein, vitamin A, and vitamin C exceed 100 percent of the RDA.
- On average, the total complement of meals and snacks consumed by five-year-old children in full-day care provides 32 percent of energy from fat (recommendation is no more than 30%), 14 percent of energy from saturated fat (recommendation is less than 10%), and 53 percent of energy for carbohydrate (recommendation is at least 55%).
- Five-year-old children in full-day care consume an average of 49 percent of the RDA for energy and 33 percent of the suggested daily limit for cholesterol. By contrast, sodium intake from CACFP meals and snacks contributes 52 percent of the suggested daily limit for sodium, a level which is somewhat high in comparison to the contribution to recommended daily energy intake.

Exhibit 1

Nutrient Standards Used in the Early Childhood and Child Care Study

National School Lunch Program and School Breakfast Program

- One-fourth of the RDA for breakfast
- One-third of the RDA for lunch

Dietary Guidelines for Americans¹

- Limit intake of total fat to no more than 30 percent of total calories
- Limit intake of saturated fat to less than 10 percent of total calories

National Research Council's *Diet and Health Report*¹

- Increase intake of carbohydrate to at least 55 percent of total calories
 - Limit cholesterol intake to 2,400 mg or less per day
 - Limit sodium intake to 300 mg or less per day
-

¹Applied only to meals offered to and consumed by children five years of age and older.

Chapter One

Introduction

STUDY BACKGROUND

The Early Childhood and Child Care Study was carried out by Abt Associates Inc. of Cambridge, Massachusetts, under contract to the Food and Consumer Service (FCS) of the United States Department of Agriculture (USDA). The study describes the institutions and children that participate in the Child and Adult Care Food Program (CACFP). It also describes the nutrient content of meals and snacks offered under the program and the contribution of CACFP meals and snacks to the daily energy and nutrient needs of participating children. Information for the study was collected from nationally representative samples of sponsoring agencies, participating child care sites, and children. Data for the study were collected between January and June, 1995.

This is the second of two volumes of the final study report. This volume focuses on the nutrient content of meals and snacks offered by participating child care sites and the meals and snacks consumed by children receiving child care in those sites. Volume I (a separate document) provides a descriptive profile of child care sites participating in the CACFP and the children receiving care in those sites.

OVERVIEW OF THE CACFP

The CACFP is a Federal program that provides meals and snacks in child and adult day care facilities. The Early Childhood and Child Care Study focused on the child care component of the CACFP which provides Federal funds for meals and snacks served to children in non-residential day care facilities. Eligibility is limited to children age 12 and under; however, an exception is made for children of migrant workers and children with disabilities, who may participate through ages 15 and 18, respectively. Participating sites, which include family and group day care homes (homes), some child care centers, and all Head Start centers, may receive reimbursement for breakfasts, lunches, suppers, and snacks served to children in care. Reimbursement is limited to a maximum of two meals and one snack or one meal and two

snacks. During the period of time this study was conducted, centers could receive reimbursement for an additional meal or snack for children in care eight or more hours per day.¹ On an average day in 1995, 2.3 million children received CACFP meals and/or snacks.

CACFP Meal Pattern Requirements

The goal of the CACFP is to provide nutritious meals and snacks to children in child care programs. To this end, USDA has established minimum requirements for the meals and snacks offered by participating child care providers (CACFP providers). These meal pattern requirements are designed to ensure that meals and snacks are nutritionally well-balanced, supplying the kinds and amounts of food required to meet childrens' daily energy and nutrient needs. The meal pattern specifies foods (meal components) to be offered at each meal and snack as well as minimum portion sizes for children of different ages [infants (less than 12 months); one and two years; three to five years; and six to twelve years]. Meal component requirements are summarized in Exhibit 1.1.

In addition to the meal pattern, USDA provides CACFP providers with a variety of guidance materials to assist menu planners in using meal pattern requirements to plan meals that are appealing and age appropriate as well as nutritious.

ORGANIZATION AND STRUCTURE OF CHILD CARE SITES

The CACFP is administered in two fundamentally different child care settings: homes and child care centers (including Head Start centers). Homes are small. They usually consist of one provider caring for six to eight children in his or her own home.² The typical center, on the other hand, enrolls between 50 and 100 children. Homes are shorter lived than centers. In addition, homes tend to offer more hours of care and are more likely than centers to be open on weekends. Because of the differences between homes and centers, the CACFP applies

¹The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-193) mandated several changes to CACFP regulations. These changes include a reduction in the number of meals that CACFP centers may claim for reimbursement to a maximum of two meals and one snack or one meal and two snacks, regardless of the length of time a child is in attendance.

²Some homes are larger and are called group day care homes.

Exhibit 1.1

CACFP Meal Pattern Requirements for Children

	Children 1 and 2 Years	Children 3-5 Years	Children 6-12 Years
Breakfast			
Milk, fluid	1/2 cup	3/4 cup	1 cup
Juice or fruit or vegetable	1/4 cup	1/2 cup	1/2 cup
Bread and/or cereal,			
Enriched or whole grain bread	1/2 slice	1/2 slice	1 slice
Cereal: Cold dry	1/4 cup ¹	1/3 cup ²	3/4 cup ³
or			
Hot cooked	1/4 cup	1/4 cup	1/2 cup
Midmorning or midafternoon snack (supplement)			
(Select 2 of these 4 components)			
Milk, fluid	1/2 cup	1/2 cup	1 cup
Meat or meat alternate ⁴	1/2 oz.	1/2 oz.	1 oz.
Juice or fruit or vegetable	1/2 cup	1/2 cup	3/4 cup
Bread and/or cereal,			
Enriched or whole grain bread	1/2 slice	1/2 slice	1 slice
Cereal: Cold dry	1/4 cup ¹	1/3 cup ²	3/4 cup ³
or			
Hot cooked	1/4 cup	1/4 cup	1/2 cup
Lunch or Supper			
Milk, fluid	1/2 cup	3/4 cup	1 cup
Meat or meat alternate			
Meat, poultry, or fish, cooked (lean meat without bone)	1 oz	1 1/2 oz.	2 oz.
Cheese	1 oz.	1 1/2 oz.	2 oz.
Egg	1	1	1
Cooked dry beans and peas	1/4 cup	3/8 cup	1/2 cup
Peanut butter or other nut or seed butters	2 Tbsp.	3 Tbsp.	4 Tbsp.
Nuts and/or seeds	1/2 oz. ⁵	3/4 oz. ⁵	1 oz. ⁵
Vegetable and/or fruit (two or more)	1/4 cup	1/2 cup	3/4 cup
Bread or bread alternate,			
Enriched or whole grain	1/2 slice	1/2 slice	1 slice

¹1/4 cup (volume) or 1/3 ounce (weight), whichever is less.

²1/3 cup (volume) or 1/2 ounce (weight), whichever is less.

³3/4 cup (volume) or 1 ounce (weight), whichever is less.

⁴Yogurt may be used as a meat/meat alternate for snacks only. May serve 4 ounces (weight) or 1/2 cup (volume) of plain or sweetened and flavored yogurt to fulfill the equivalent of 1 ounce of the meat/meat alternate component. For younger children, 2 ounces (weight) or 1/2 cup (volume) may fulfill the equivalent of 1 ounce of the meat/meat alternate requirement.

⁵This portion may meet only one-half of the total serving of the meat/meat alternate requirement for lunch or supper. Nuts or seeds must be combined with another meat/meat alternate to fulfill the requirement. For determining combinations, 1 ounce of nuts or seeds is equal to 1 ounce of cooked lean meat, poultry, or fish.

CAUTION: Children under 5 are at the highest risk of choking. USDA recommends that any nuts and/or seeds be served to them in a prepared food and be ground or finely chopped.

different rules for reimbursement and administration, as well as different criteria for participation, to the two types of providers. These differences are described in the following sections.

Centers

Licensed centers, both public and private, are eligible to participate in the CACFP if they are nonprofit institutions. For-profit institutions are also eligible to participate if they receive compensation for child care under Title XX of the Social Security Act for at least 25 percent of the children enrolled or 25 percent of their licensed capacity, whichever is less. Centers may participate in the CACFP independently or under the aegis of a nonprofit agency that assumes administrative responsibility for the centers it sponsors (sponsored centers).

Centers receive three different categories of reimbursement for the meals and snacks they serve, depending on children's family income. Meals and snacks served to children from families with income at or below 130 percent of poverty are reimbursed at the "free" (highest) rate; meals and snacks served to children from families with income between 130 percent and 185 percent of poverty are reimbursed at the "reduced-price" (somewhat lower) rate; and meals served to children from families with income above 185 percent of poverty are reimbursed at the "paid" (lowest) rate.³

Differences Between Child Care Centers and Head Start Centers

Although child care centers and Head Start centers are equivalent with regard to CACFP eligibility and administration, the two types of centers differ in several other important characteristics. Child care centers typically operate year round, provide full-day care to working parents, and serve several different age groups. Head Start centers, on the other hand, typically follow school calendars and offer part-day programs for low-income preschool children. Moreover, Head Start programs do not provide child care per se. Rather, these programs are best viewed as preschool programs intended to promote social competence and improve the

³This nomenclature is adapted from the National School Lunch Program which uses a comparable three-level reimbursement structure.

emotional and cognitive development of low-income children. While most Head Start centers provide only part-day programs of this nature, some centers may combine traditional part-day Head Start programs with full-day and/or before- and after-school child care programs. Head Start centers are required by their grantor agency, the U.S. Department of Health and Human Services, to participate in the CACFP.

Homes

To participate in the CACFP, homes must meet State licensing requirements, where these are imposed, or be approved by a Federal, State, or local agency. In addition, homes must be sponsored by an organization that assumes responsibility for ensuring compliance with Federal and State regulations and that acts as a conduit for meal reimbursements.

Organizations that sponsor homes for the CACFP are reimbursed separately for their administrative costs, based on the number of homes sponsored each month. During the time period that this study was conducted, family day care providers were reimbursed at a flat rate for each meal or snack served. No income eligibility criteria were applied to children receiving meals, however, such a criterion was applied to the provider's own children. Meals served to the provider's own children were reimbursable only if the provider's income did not exceed 185 percent of the poverty threshold.⁴

STUDY OBJECTIVES

Program participation and costs have increased markedly since the last national study of the CACFP was conducted in 1986. The number of Federally subsidized meals and snacks served

⁴The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-193) changed the reimbursement structure for homes, effective July 1, 1997. A two-tiered structure was established with a higher level of reimbursement (tier I) for meals and snacks served to children enrolled in day care homes located in low-income areas, i.e., areas identified, through the use of census or elementary school data, as areas in which at least 50 percent of children come from households with income at or below 185 percent of the poverty threshold. Tier I rates are also paid for meals and snacks served by low-income providers, i.e., providers whose personal household income is at or below 185 percent of poverty. Homes that do not meet tier I area- or provider-eligibility criteria are classified as tier II homes and receive a lower (tier II) level of reimbursement. Tier II homes may elect to have their sponsor perform means tests to identify individual children whose household income is at or below 185 percent of poverty; meals and snacks served to these children would be reimbursable at tier I rates. Meals and snacks served to a provider's own children continue to be reimbursable (at tier I rates) only if the provider's income is at or below 185 percent of poverty.

in the program has increased from 678 million in Fiscal Year (FY) 1986 to 1.5 billion in FY 1995. Most of this growth has occurred in the family day care component of the program. During this same time period, the cost of the program has increased from \$689 million (FY 1986; in constant 1995 dollars)⁵ to \$1.5 billion (FY 1995), an increase of 117 percent. The dramatic increase in the size and cost of the program over the past decade dictates a need for updated information on program operations, providers, and participants.

The 1986 study of the CACFP did not include an in-depth assessment of the nutrient content of meals and snacks offered by CACFP providers or consumed by CACFP participants (children). Nor did it include an assessment of food service practices used in implementing the CACFP. Indeed, these aspects of the CACFP have not been studied in depth since the early 1980s. Given the increased public health focus on the relationship between dietary intake and health status, there is an obvious need for updated information on the nutritional characteristics of CACFP meals and snacks. There is also a need for information on the level of nutrition knowledge possessed by the individuals responsible for preparing meals and snacks in the CACFP, as well as the practices used in planning, preparing, and serving CACFP meals and snacks. Such information can be useful in identifying and addressing technical assistance and training needs.

The Early Childhood and Child Care Study was designed to fill these information gaps. The study has the following specific objectives:

- to describe the food and nutrient content of meals and snacks *offered* by CACFP providers (child care sites);
- to describe the nutrient content of meals and snacks *consumed* by CACFP participants (children) while in care;
- to assess the nutrition knowledge of individuals with primary responsibility for preparing CACFP meals and snacks (food preparers);
- to assess the extent to which desirable food service practices are used in implementing the CACFP;

⁵The Consumer Price Index (CPI) was used to inflate 1986 costs to 1995 dollars. Program costs were \$496 million in 1986 dollars.

- to describe the characteristics of participating children and their families; and
- to describe CACFP program characteristics.

The first four objectives are addressed in this volume of the report; the two remaining objectives are addressed in Volume I.

ORGANIZATION OF THIS REPORT

The remainder of this volume is organized as follows:

- Chapter Two presents an overview of the study design and the methodology used to address research objectives related to the characteristics of CACFP meals and snacks;
- Chapter Three describes meals and snacks *offered* by CACFP providers;
- Chapter Four describes meals and snacks *consumed* by participating children; and
- Chapter Five describes the nutrition knowledge of CACFP food preparers as well as the extent to which desirable food service practices are used in procuring and preparing foods for CACFP meals and snacks.

Detailed appendices provide additional information on the methodology used in collecting and analyzing information on meals and snacks offered and consumed as well as supplementary exhibits. Also included are appendices that summarize study design, development of sample weights, and study implementation.

Chapter Two

Study Methodology

This chapter provides an overview of the methodology used to assess the food and nutrient content of meals and snacks offered by CACFP providers and the nutrient content of meals and snacks consumed by CACFP participants (children). The first section provides a brief description of study design and data collection methods. The second section identifies the nutrients examined in the study and the standards used to assess nutritional quality. The final section provides an overview of the two major analyses discussed in this report: analyses of meals and snacks *offered* and meals and snacks *consumed*.

STUDY DESIGN AND DATA COLLECTION

Data were collected from CACFP *providers* (child care sites participating in the CACFP) as well as from CACFP *participants* (children receiving care and consuming meals and snacks in participating child care sites). Data collected from providers were used to describe the food and nutrient content of meals and snacks *offered* in the CACFP; data collected from children were used to describe the nutrient contributions of CACFP meals and snacks actually *consumed* by children in care.¹ The following sections describe the types of data collected, the data collection methodologies used, and the analytic samples. This information is summarized in Exhibit 2.1.

Data from CACFP Providers

All sampled CACFP providers were asked to complete a Menu Survey which requested detailed information on the foods included in meals and snacks offered during a specified five-day period (referred to as the target week).² Respondents were asked to list *all* foods offered, including foods that may not have contributed to satisfying the CACFP meal pattern (e.g., cakes,

¹Data were also collected from parents to assess children's nutrient intake outside of child care. However, because response rates for this portion of the study were unacceptably low (see Appendix F), these data are not presented in this report.

²To obtain a reasonable assessment of nutrient content, it is necessary to examine meals offered over a period of time rather than a single meal or a single day's offerings. The National Research Council (NRC) recommends that group feeding programs plan menus so that nutrient standards are met over a five- to ten-day period. A sample five-day period, equivalent to one school week, is routinely used in assessing USDA's Child Nutrition programs.

Exhibit 2.1

Research Objective, Data Collection Strategy, and Sample

Research Objective	Data Collection Strategy	Sample
Describe the food and nutrient content of meals and snacks <i>offered</i> by CACFP providers	Mail survey of CACFP providers to collect information on foods included in all meals and snacks offered during a specified five-day period	1,962 CACFP providers ¹
Describe the nutrient content of meals and snacks <i>consumed</i> by participating children	Observation of all meals and snacks consumed by sampled children while in child care on two nonconsecutive days	1,347 children receiving child care in CACFP sites ²

¹Sample size varies for different meals and snacks because all providers do not offer all meals and snacks.

²The number of children observed varies for each meal and snack because children do not necessarily consume all meals and snacks and because sampled children may have been observed on one day or two days.

sweetened beverages, or snack chips), and to record the following information for each food item: food name; a detailed description (a brochure that outlined the types of descriptive information required for different types of food was included in the survey packet); brand name; preparation; and recipes (when applicable and readily available). Respondents were also asked to indicate the age groups of children to whom each food was offered, recognizing that some foods may not be offered to some groups of children, for example, peanuts or whole grapes may not be offered to toddlers because these foods present an increased risk of choking. The standard CACFP age groups (one- and two-year-olds; three- to five-year-olds; and six- to twelve-year-olds) were used in reporting this information.

The Menu Survey did not request information on the size of portions offered because a pretest revealed that most respondents had difficulty describing portions in sufficient detail. Most respondents in the pretest either left the portion-size column blank or recorded very general

descriptions such as “one glass” (rather than six fluid ounces) or “one bowl” (rather than one cup).

The Menu Survey was prepared in an easy-to-use booklet format with a separate section for each day and subsections for each potential meal and snack. Detailed instructions were included for each form. Survey materials were mailed to respondents several weeks prior to the specified target week. A toll-free “help” number was provided and respondents were encouraged to call with any questions or problems. Several followup calls were made to each respondent to ensure receipt and completion of survey materials and to provide assistance as needed. A total of 1,962 providers submitted complete Menu Surveys (response rate of 87 percent).³ All surveys were completed between January and June, 1995.

Data from Children

On-site observations of CACFP meal service were conducted in a subsample of homes and centers. Trained field staff conducted two separate observations two days apart (Monday and Thursday or Tuesday and Friday). Observations were conducted during the target week (i.e., the same week covered in the Menu Survey). Each day, staff observed all meals and snacks offered to and consumed by sampled children (maximum of six children per site). To facilitate observations, all children observed in a center or home were seated together.

Before each meal and snack, observers weighed and measured five reference portions of each food to be offered. Then, using visual estimation techniques, observers recorded the total amount of each food received by each sampled child, including second helpings, as well as the total amount of each food that was left over (i.e., not consumed by the child). Observations were completed for a total of 1,347 children between the ages of one and ten years.⁴

³Includes five days of data for most sites. However, because some centers and homes do not operate five days per week or were closed for one or more days during the target week, 26 percent of sites provided data for only four days and 3 percent of sites provided data for three days. Most of these sites are Head Start centers that operate four days per week.

⁴Observations were actually completed for a total of 1,388 infants and children. Twenty-nine infants (less than one year of age) are excluded from the analyses presented in this report, however, because they do not consume discrete meals and snacks. (Data were summarized in an internal memo). Likewise, four children over the age of ten are excluded because of the limited size of this group sample. Finally, eight children between the ages of one and ten are excluded because of incomplete information on food intake and/or missing age information.

(Additional information on the visual estimation technique used and the reliability of visual estimates is provided in appendices A and H).

Response rates for this portion of the study were relatively low. The primary problem was not being able to reach parents prior to the target week in order to obtain permission to observe their children. Although permission was received and observations were scheduled for 80 percent of the eligible sample of children in homes, the same was true for only 58 percent of the eligible sample of children in Head Start centers and 60 percent of the eligible sample in child care centers. The difficulty encountered in successfully connecting with parents during the recruiting phase of the study effectively capped the overall response rate for the child observations.

Completion of the planned two days of observation for sampled children was further compromised by absenteeism. Some children scheduled to be observed were not in care on one or both observation days. In homes, 91 percent of the children scheduled for observations were observed on one of the scheduled days; only 67 percent, however, were observed on both scheduled days. In Head Start centers the figures were 95 percent and 72 percent, respectively, and in child care centers, 90 percent and 73 percent, respectively.

It is important to point out, however, that the rate of absenteeism does not influence the effective response rates for the child observations. Since the analysis of data on meals and snacks consumed while in care is intended to describe *children in care on a typical day*, not all children *enrolled* in care, children who were selected into the sample but absent on one or both observation days were not considered nonrespondents for purposes of constructing sample weights for this analysis. Rather, they were considered outside of scope.

NUTRIENTS AND NUTRIENT STANDARDS

Nutrients and food components examined in this study include those identified as priorities for public health monitoring by the Joint Nutrition Monitoring Evaluation Committee (JNMEC) of the U.S. Departments of Health and Human Services and Agriculture (1995) and/or targeted by USDA in ongoing efforts to improve the nutritional quality of meals offered in the National

School Lunch Program and the School Breakfast Program (7CFR, parts 210 and 220).⁵ These include:

- Food energy
- Total fat
- Saturated fat
- Carbohydrate
- Protein
- Vitamin A
- Vitamin C
- Calcium
- Iron
- Cholesterol
- Sodium

Defining Nutrient Standards

CACFP regulations and guidance materials provide broad standards for meals and snacks offered under the program, however, *specific nutrient-based standards have not been established for CACFP meals and snacks*. Therefore, for the purposes of this study, it was necessary to define a set of nutrient standards that could be used in evaluating the relative nutritional quality of meals and snacks offered and consumed. Such standards were identified for breakfast and lunch, drawing from three sources:

- standards used for other Child Nutrition programs (7CFR, Parts 210 and 220);
- the *Dietary Guidelines for Americans* (U.S. Departments of Health and Human Services and Agriculture, 1995); and
- the National Research Council's (1989b) *Diet and Health* report.

Standards were not defined for snacks because snacks are considered to be supplementary feedings that, on an individual basis, are not expected to make major contributions to children's daily nutrient intake. Likewise, standards were not defined for the total complement of meals and snacks offered or consumed. Without specific expectations regarding the contribution of snacks, it was not possible to define standards for the cumulative contribution of all meals and snacks consumed.⁶

⁵Tabulations were also prepared for thiamin, riboflavin, niacin, vitamin B₆, folate, vitamin B₁₂, phosphorus, magnesium, zinc, and dietary fiber. These data were summarized for FCS staff in an internal memo.

⁶Head Start performance standards require that children in part-day programs receive a total of at least one-third of the RDA from all meals and snacks and that children in full-day programs receive one-half to two-thirds of the RDA, depending on the length of the program. These are not USDA-endorsed standards, however, and therefore do not apply to non-Head Start CACFP providers.

The standards used in this study are summarized in Exhibit 2.2 and the rationale for their selection is discussed in the following sections. The reader is cautioned to bear in mind the fact that all standards are used strictly to facilitate interpretation of the data presented in this report; ***CACFP meals and snacks are not required to meet these, nor any other, nutrient-based standards.***

Recommended Dietary Allowances. The *Recommended Dietary Allowances* (RDAs), developed by the Food and Nutrition Board (FNB) of the National Research Council (NRC) (1989a), are the accepted standards for assessing the adequacy of nutrient intake among population groups. RDAs are defined as:

the levels of intake of essential nutrients that, on the basis of scientific knowledge, are judged by the FNB to be adequate to meet the known nutrient needs of practically all healthy persons (National Research Council, 1989b).

Separate RDAs are established for a variety of population groups based on age and/or gender.

The RDAs are traditionally used to both plan for and assess the relative nutrient contribution of meals provided in USDA Child Nutrition programs. Indeed, Federal regulations stipulate that lunches offered in the National School Lunch Program (NSLP) must provide, on average, one-third of the RDA (7CFR, Part 210). Breakfasts offered in the School Breakfast Program (SBP) must provide an average of one-fourth of the RDA (7CFR, Part 220). Head Start programs are also required to follow these standards (45CFR, Part 1304). These standards have been applied in this study to assess food energy, as well as protein, vitamin A, vitamin C, calcium, and iron (all examined nutrients that have established RDAs).

The Dietary Guidelines for Americans and NRC Diet and Health Recommendations. Several important nutrients and dietary components are not addressed by the RDAs. Specifically, the RDAs do not provide recommendations for intake of fat, carbohydrate, cholesterol, or sodium. Recommendations for these nutrients and dietary components are provided in the *Dietary Guidelines for Americans*, issued jointly by the U.S. Departments of Health and Human Services and Agriculture (1995), and/or in the NRC's *Diet and Health* report (1989b). The *Dietary*

Exhibit 2.2

Nutrient Standards Used in the Early Childhood and Child Care Study

Nutrient	Standard	Source
<p>Nutrients with established Recommended Dietary Allowances (RDAs)¹</p> <p>Food energy, protein, vitamin A, vitamin C, calcium, and iron</p>	<p>Breakfast: One-fourth of the RDA</p> <p>Lunch: One-third of the RDA</p>	<p>National School Lunch Program²</p> <p>School Breakfast Program³</p>
<p>Other nutrients and dietary components</p> <p>Total fat</p> <p>Saturated fat</p> <p>Carbohydrate</p> <p>Protein</p> <p>Cholesterol</p> <p>Sodium</p>	<p><i>Only for children five years of age and older:</i></p> <p>Breakfast and Lunch: ≤ 30% of total energy</p> <p>< 10% of total energy</p> <p>≥ 55% of total energy</p> <p>≤ 15% of total energy</p> <p>Breakfast: ≤ 75 mg⁷</p> <p>Lunch: ≤ 100 mg⁸</p> <p>Breakfast: ≤ 600 mg⁷</p> <p>Lunch: ≤ 800 mg⁸</p>	<p><i>Dietary Guidelines for Americans⁴</i></p> <p>National Research Council⁵</p> <p><i>Dietary Guidelines for Americans⁴</i></p> <p>National Research Council⁵</p> <p>National Research Council⁵</p> <p>National Research Council^{5,6}</p> <p>National Research Council⁵</p> <p>National Research Council⁵</p>

¹National Research Council (1989a). *Recommended Dietary Allowances*, 10th edition. Washington, D.C.: National Academy Press.

²CFR, Part 210.

³CFR, Part 220.

⁴U.S. Departments of Health and Human Services and Agriculture (1995). *Nutrition and Your Health: Dietary Guidelines for Americans*, fourth edition. Washington, DC: U.S. Government Printing Office.

⁵National Research Council (1989b). *Diet and Health: Implications for Reducing Chronic Disease Risk*. Washington DC: National Academy Press.

⁶The National Research Council's *Diet and Health* report recommends a maximum protein intake equivalent to less than twice the RDA. To achieve recommended levels of calories from fat and carbohydrate, the percentage of total calories from protein needs to be in this range.

⁷One-fourth of suggested daily limits of 300 mg of cholesterol and 2,400 mg of sodium.

⁸One-third of suggested daily limits of 300 mg of cholesterol and 2,400 mg of sodium.

Guidelines provide specific recommendations for fat and saturated fat intake, expressed as a percentage of total energy intake. The NRC *Diet and Health* report mirrors the *Dietary Guidelines* recommendations and also includes specific recommendations for intake of carbohydrate and protein, as a percentage of total energy intake, as well as suggestions for cholesterol and sodium intake.

While the dietary recommendations included in both the *Dietary Guidelines* and the NRC's *Diet and Health* report are generally considered appropriate for all healthy persons two years of age and older, the most recent edition of the *Dietary Guidelines* indicates that the specific recommendations for the percentage of energy from fat and saturated fat apply only to children *five years of age and older* (U.S. Departments of Health and Human Services and Agriculture, 1995). It is recommended that children between the ages of two and five be offered gradually diminishing amounts of fat so that, *at about five years of age*, children are consuming a diet that contains no more than 30 percent of calories (energy) from fat and less than 10 percent from saturated fat. The *Diet and Health* report describes a similar phased-in approach to dietary modification culminating at about age five. In keeping with these recommendations, quantified standards for the percentage of energy from the various energy-supplying nutrients, or macronutrients (fat, saturated fat, protein, and carbohydrate), are applied in this study only to meals offered to and consumed by children five years of age and older.⁷ Findings for younger children are summarized in detailed appendix exhibits. The text includes comment on trends across age groups, for example, the extent to which there is evidence of a gradual decline in the amount of energy from fat offered to increasingly older children.

Neither the *Dietary Guidelines* nor the *Diet and Health* report suggest restrictions on application of recommendations for sodium and cholesterol intake to young children. In theory, therefore, these recommendations are applicable to all healthy children two years of age and older. There is some debate, however, about whether recommendations for cholesterol and sodium intake should be adjusted for use with very young children to account for their substantially decreased

⁷While the above-mentioned comments on recommendations appropriate for children do not specifically address the percentage of energy from carbohydrate and protein, shifts in the percentage of energy from fat necessarily affect energy from carbohydrate and protein.

energy intake. [The *Dietary Guidelines* assume a reference adult diet of 2,000 calories per day; the energy RDAs for the majority of children served by the CACFP are 1,300 calories (one- and two-year-olds and three-year-olds) and 1,800 calories (four- to six-year-olds)]. Although the rationale for age-adjusted standards makes intuitive sense, there is no scientific consensus on the issue and specific age-adjusted standards have not been established. Therefore, a compromise approach has been used in this study. Quantified standards for cholesterol and sodium, like those for the percentage of energy from the various macronutrients, have been applied only to the oldest children, that is, to meals offered to and consumed by children age five and above. The interested reader will find results for younger children in detailed appendix exhibits.

OVERVIEW OF THE ANALYSES

This section provides an overview of the nutrient analyses: how they were conducted and how the results are presented in this report. The analysis of meals and snacks *offered* is presented first, followed by a discussion of the analysis of meals and snacks *consumed*. In both cases, the discussion is limited to a general description of the analytic approach; the reader is referred to Appendix A for more comprehensive details. The section concludes with a description of how data are presented in the report.

Meals and Snacks Offered by CACFP Providers

Analyses of the nutrient content of meals and snacks offered in the CACFP are based on average portion size estimates determined from the observation of children receiving CACFP meals and snacks rather than assuming the minimum portion sizes specified in meal pattern requirements. This approach provides a more accurate portrayal of what is actually being offered to children in the CACFP, particularly in a family-style meal service setting. Data suggest that the average portions taken at CACFP meals and snacks are generally equivalent to or greater than the minimum portion sizes specified in the CACFP meal pattern (Exhibits C.1 and C.7).

The minimum daily meal pattern requirements and the associated portion sizes for meals and snacks offered by CACFP providers are designed to ensure that meals and snacks are well-balanced and thus supply the kinds and amounts of food required to help children meet their

energy and nutrient needs. Because the observed portion sizes were generally at least as large, and sometimes much greater, than the minimum required portion sizes, the nutrient profile of CACFP meals and snacks presented in this report will generally exceed the nutrient profile that would result if minimum portion sizes were assumed.

The methodology used to determine the average nutrient content of meals and snacks offered by CACFP providers involved six distinct steps. First, because providers were not asked to report information on the size of portions offered (see preceding description of the Menu Survey), data from the observations of children receiving CACFP meals and snacks (discussed above) were used to develop estimates of *average portions offered* for 74 different types of food reported in the Menu Surveys. Separate estimates were developed for each of five age groups (one- and two-year-olds, three-year-olds, four-year-olds, five-year-olds, and six- to ten-year-olds) and, depending on the meals and snacks in which a food was offered, for up to three different meal types (breakfast, lunch/supper, and snacks).⁸

Once the portion size estimates had been developed, the second step in the process was to assign a portion size, by age group and meal/snack, to every food reported in the Menu Survey. The methodology used in estimating average portions and assigning portion sizes to menus is described in detail in Appendix A.

The third step in the process was to compute the nutrient (and energy) content of each portion of food and then tabulate the total for each daily meal or snack by adding together nutrients for all foods and beverages offered.⁹

Next, a weekly average was computed for each provider by adding together the energy and nutrients for each day and then dividing by five (or, for the sites that operated fewer than five

⁸Age groups used in this report differ from the standard CACFP age groups (one- and two-year-olds, three- to five-year-olds, and six- to twelve-year-olds) for two reasons. First, because the RDAs differ for three-year-olds and four- and five-year-olds, separate estimates were developed for *each* of the age groups in this range. Second, because the sample size of children over the age of ten (who have different RDAs) was too small to support a separate analysis (n=4), the oldest age group considered in this report is six- to ten-year-olds.

⁹The Food Intake Analysis System (FIAS), version 2.3, was used for all nutrient analyses.

days, by four or three). Separate tabulations were completed—for each age group served—for CACFP breakfasts, lunches, morning snacks, and afternoon snacks, as well as for the total complement of meals and snacks offered.¹⁰

The fifth step in the process was to determine, for each nutrient with an established RDA, the percentage of the RDA supplied in meals and snacks offered to each age group. Age-specific standards were used for all age groups except six- to ten-year-olds. Because this group spans two different RDA age groups (four- to six-year-olds and seven- to ten-year-olds), a weighted average RDA was used.¹¹ Comparable calculations were carried out for breakfasts and lunches offered to five-year-olds and six- to ten-year-olds to determine the percentage of energy provided by fat, saturated fat, carbohydrate, and protein.

Because findings for the analyses described in step five (above) were qualitatively similar across age groups, the sixth and final step in the analysis was to compute an overall average for each provider based on the age groups served (each age group was weighted evenly). Thus, the average percentage of the RDA for energy supplied in breakfasts offered by a provider who serves one- and two-year-olds, three-year-olds, and four-year-olds reflects the overall average for the three age groups served. These overall averages were used in estimating means and percentages presented and discussed in the main body of this report. Age-group-specific results for all major analyses are reported in detailed appendix exhibits.

Meals and Snacks Consumed by CACFP Participants

Results of this analysis reflects *CACFP participant's (children's) energy and nutrient intake on a typical day in care*. The methodology used in the analysis parallels the approach used in the analysis of meals and snacks offered.

¹⁰Because very few providers offer supper or an evening snack (see Volume I), separate tabulations for these CACFP offerings are not presented in this report. Contributions of evening snacks are included, when offered, in tabulations of energy and nutrients in all meals and snacks offered.

¹¹Weighted average RDAs were developed for each nutrient by applying a weight of .20 to the four- to six-year-old RDA and a weight of .80 to the seven- to ten-year-old RDA. This approach is consistent with the methodology used in the nutrient-based menu planning system (NuMenus) used in the NSLP and SBP.

First, data from the child observations were used to determine the total amount of food consumed by each observed child. A separate tabulation was done for each food, subtracting the estimate of the amount left over from the estimate of the total amount taken (amount consumed = amount taken – amount left over).

Next, the nutrient equivalent of each consumed portion was computed and added together, within a given meal or snack, to estimate the total amount of energy and nutrients consumed at each meal and snack. Meal- and snack-specific totals were also tallied to calculate total energy and nutrient intake from all CACFP meals and snacks consumed. Each child's energy and nutrient intake, for discrete meals and snacks as well as for the combination of all meals and snacks, was then compared to age-appropriate RDA standards. Comparable calculations were carried out to determine the percentage of energy provided by fat, saturated fat, carbohydrate, and protein in meals consumed by children five years of age and older.

Finally, because, as was true for the analysis of meals offered, the various age-group-specific results were, in large part, qualitatively similar, an overall average was computed for all children consuming CACFP meals and snacks, as well as for children served by each type of provider. Thus, the average percentage of the RDA provided in the meals and snacks consumed by all CACFP participants (children) reflects the average for all children consuming CACFP meals and snacks, based on comparison of individual intakes to age-appropriate RDAs. These overall averages were used in estimating means and percentages presented and discussed in the main body of this report. Age-group-specific results for all major analyses are reported in detailed appendix exhibits.

The analysis of meals and snacks consumed by CACFP participants also includes several additional lines of inquiry. For each meal and snack, children's mean rates of food consumption are examined, as well as the extent to which available energy and nutrients (i.e., the energy and nutrients in meals and snacks taken) are actually consumed. Rates of food consumption, expressed as percentages, were derived by dividing the total amount of food left over (i.e., not consumed) from the total amount of food taken, including second helpings (for example, children

consumed an average of 85 percent of the milk portion taken). Similarly, the percentage of *available* energy and nutrients actually consumed was determined by dividing the amount of energy and nutrients in the total amount of food consumed by the energy and nutrients *available* in the total amount of food taken.

Data Presentation

As noted in preceding discussions, exhibits included in the body of the report present findings based on overall averages for all groups of children. The interested reader will find age-group-specific results in appendices B (meals and snacks offered) and C (meals and snacks consumed). All reported statistics are based on weighted analyses (see Appendix E for a description of the methodologies used in developing sample weights). Exhibits report unweighted sample sizes (number of providers and number of child observations).

Exhibits present results for all types of providers (Chapter Three) and for all children participating in the CACFP (Chapter Four). Results are also stratified by type of provider (i.e., homes, Head Start centers, child care centers, and all centers combined). However, because preliminary analyses, which compared homes versus all centers and Head Start centers versus child care centers, revealed no meaningful pattern of differences among providers, differences among providers are not emphasized in the discussion of findings.¹² Rather, discussions focus primarily on findings for *all providers and all children*. Discussion of differences between providers (using the same between-group comparisons noted above) are limited to situations where conclusions about major research questions differ appreciably for the two groups, for example, a situation where the mean intake of a specific nutrient at breakfast is equivalent to or more than one-fourth of the RDA for one provider group and substantially less than one-fourth of the RDA for the other group.

¹²Differences that proved to be statistically significant had little substantive importance. For example, a minor difference in the percentage of the RDA for energy offered at lunch was significant, but the average for both provider groups was substantially less than the one-third RDA standard used in this study.

Chapter Three

Meals and Snacks Offered by CACFP Providers

This chapter presents information on the meals and snacks offered by child care providers participating in the CACFP. The analysis is based on foods included in menus offered during a specified five-day period, as reported by CACFP providers, and estimates of the average portions served to children of different ages, based on observations of children receiving meals and snacks in CACFP facilities.¹ Findings are therefore indicative of the *potential* contribution of CACFP meals and snacks to children's daily nutrient needs (assuming that all foods are consumed in specified portions), rather than meals and snacks *actually consumed* by children. Data on children's intake of energy and nutrients from CACFP meals and snacks actually consumed are presented in Chapter Four.

This chapter addresses the following research questions:

- Which meals and snacks do providers offer?
- Do meals and snacks offered by CACFP providers comply with meal component requirements?
- Which specific foods are offered most often? Do providers offer options within CACFP meal component categories on a given day? Do providers offer a variety of items within CACFP meal component categories over the course of a week?
- What is the potential contribution to children's daily nutrient needs of individual CACFP meals and snacks?
- How do CACFP breakfasts and lunches offered to children compare with *Dietary Guidelines* and NRC recommendations?
- Which food groups and/or specific foods are major contributors of energy and key nutrients in CACFP breakfasts and lunches?

¹An overview of the methodologies used in collecting and analyzing data is provided in Chapter Two; a detailed description is provided in Appendix A.

- What percentage of CACFP providers offer lunches that meet the *Dietary Guidelines* recommendation for the percentage of energy from total fat? How do lunches offered by these providers compare with other lunches offered by other providers, with regard to both nutrient content and specific food items offered?
- What is the potential contribution to children's daily nutrient needs of the total complement of CACFP meals and snacks offered? How does the total complement of meals and snacks offered compare with *Dietary Guidelines* and NRC recommendations?

Separate sections present detailed findings for CACFP breakfasts, lunches, and snacks.² The final section of the chapter presents data on the nutrient content of the total complement of CACFP meals and snacks offered. Results presented reflect the *nutrient profile of meals and snacks offered by typical (average) CACFP providers*.

As noted in Chapter Two, the data presented in this chapter are based on provider-level averages for meals and snacks offered to all age groups.^{3,4} Results of age-group-specific analyses are provided in Appendix B; standard errors are also provided for all nutrient estimates.⁵ Instances where a conclusion for a specific age group differs appreciably from the conclusion for all children are noted in the discussion (e.g., the overall mean for a specific nutrient in breakfasts offered is equivalent to or more than one-fourth of the RDA, but substantially less than one-fourth of the RDA for one specific age group). Unweighted sample sizes (number of providers) are reported in each exhibit.

²Few homes or centers offer supper or an evening snack. Data for these CACFP meal services are therefore not presented in this report.

³For example, the mean percentage RDA for breakfasts offered by a provider who serves one- and two-year-olds, and three- to five-year-olds was determined by first calculating the percentage of the RDA provided in the average breakfast offered to each age group (one- and two-year olds, three-year-olds, four-year-olds, and five-year-olds). Next, the overall mean percentage RDA was computed for breakfasts offered by the provider by averaging across the four age-group-specific RDA values. Preliminary analyses found that results were not affected by treating menus offered to the three- to five-year-old age group as three different menus rather than using an average for the age group.

⁴There is very little variation in the actual foods offered to different age groups in a particular child care site.

⁵As noted in Chapter Two, preliminary analyses indicated that findings for each age group were, for the most part, qualitatively similar with regard to the nutrient standards used in this study.

While data presentations are stratified by type of provider, for the interested reader, the discussion focuses primarily on findings for *all CACFP providers* (see Chapter Two). Discussions about differences between provider groups (family day care homes versus all centers or Head Start centers versus child care centers) are limited to situations where conclusions about major research questions differ appreciably for the two groups.⁶

All reported statistics are based on weighted analyses (see Appendix E). The reader will notice that findings for all providers resemble most closely findings for family day care homes. The reason for this is that family day care homes account for the majority of all CACFP providers nationwide.⁷ Consequently, results for family day care homes have a strong influence on overall results for all types of CACFP providers combined.

Finally, for ease in interpretation, all food-level analyses presented in this chapter are based on meals and snacks offered to three- to five-year-olds, unless otherwise noted. Since there is very little variation in foods offered to children of different ages within a child care site, findings for meals and snacks offered to one- and two-year olds and six- to ten-year-olds are virtually identical.

BREAKFASTS OFFERED

More than eight out of ten CACFP providers offer breakfast (Exhibit B.1). Breakfast is most common among CACFP providers that operate Head Start programs and among homes and child care centers that operate eight or more hours per day (full-day care). The increased prevalence of breakfast in Head Start centers, even among those that operate part-day programs, is consistent with Head Start performance standards which explicitly require programs to offer breakfast to any child who has not received breakfast at home.

⁶As noted in Chapter Two, preliminary analyses found no meaningful pattern of differences between homes and centers or between Head Start centers and child care centers. This is not unexpected since all providers follow the same meal patterns and, as will be discussed in this chapter, exhibit a high degree of compliance with CACFP meal component requirements.

⁷In FY 1993, when the sample for this study was drawn, homes comprised 87 percent of all CACFP providers. (Source: FCS administrative data, December 1996).

Foods Offered in CACFP Breakfasts

The CACFP meal pattern stipulates that, to receive Federal reimbursement, breakfasts must include at least one serving of three different meal components: fluid milk; fruit, vegetables, or full-strength fruit or vegetable juice; and bread or an acceptable bread alternate (e.g., ready-to-eat cereal). On an average day, more than nine out of ten CACFP breakfast menus comply with all component requirements.

CACFP providers rarely offer children options within a meal component category, for example, a choice between two types of fruit or two types of cereal. Most CACFP breakfasts include only one item within each CACFP meal component (Exhibit 3.1). Moreover, observations of CACFP meal service (see Chapter Two and Appendix A) indicate that, when more than one item is offered, for example, cereal *and* toast (two bread/bread alternate foods), children are generally served both items.

While daily menus tend to be fixed, CACFP providers do offer children a variety of different foods at breakfast over the course of a typical week. An average of four different types of fruits, vegetables, or juices are offered (Exhibit 3.1) as well as three to four different types of breads or acceptable bread alternates. Milk is an exception; providers tend to offer only one type of milk consistently from one day to the next.

The specific foods most frequently offered in CACFP breakfasts are listed in Exhibit 3.2.⁸ For this analysis, daily CACFP breakfast menus, as reported in the Menu Survey, were analyzed and the relative frequency of specific foods and food groups was tabulated. Figures presented in Exhibit 3.2 reflect the percentage of daily CACFP menus, or the percentage of CACFP breakfasts offered nationwide on any given day, that include specific foods (or food groups).⁹ Highlights are summarized by meal component in the following sections.

⁸The list is limited to foods included in 5 percent or more of the breakfasts offered by any provider group.

⁹The percentage of daily menus, as reported in exhibits 3.1 and 3.2, is not directly equivalent to the percentage of providers because the number of days of operation varies from three to five days for each provider.

Exhibit 3.1

**CACFP Providers Tend to Offer a Fixed Breakfast Menu Each Day
but Do Vary Menu Items Over the Course of a Week**

Component/Number of Items Offered per Day/Week	Center-Based Care				
	All Providers	Family Day Care Homes	Head Start Centers	Child Care Centers	All Centers
Percentage of Daily Breakfast Menus					
Milk					
0	2%	2%	2%	2%	2%
1	97	97	96	96	96
2	1	1	2	2	2
<i>Mean items per day</i>	1	1	1	1	1
<i>Mean number of different items per week</i>	1	1	1	1	1
Fruit, Vegetable, or Juice					
0	3%	3%	2%	5%	4%
1	89	89	91	86	88
2 or 3	8	8	7	9	8
<i>Mean items per day</i>	1	1	1	1	1
<i>Mean number of different items per week</i>	4	4	4	4	4
Bread or Bread Alternate					
0	1%	1%	1%	1%	1%
1	87	87	91	90	90
2 or 3	12	12	8	8	8
<i>Mean items per day</i>	1	1	1	1	1
<i>Mean number of different items per week</i>	3	3	4	4	4
Number of Daily Breakfast Menus (Unweighted)	7427	1882	3607	1938	5545

Notes: Based on breakfasts offered to three- to five-year-olds.
Detail may not sum to 100 percent due to rounding.

Exhibit 3.2

Foods Most Commonly Offered in CACFP Breakfasts

Breakfast Component/Food	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Daily Breakfast Menus in Which Item Is Offered					
Milk	98%	98%	98%	98%	98%
White, 2%	54	52	65	60	62
White, whole	23	24	15	23	20
White, nfs ¹	13	13	14	11	12
White, 1%/1.5%	5	5	5	4	5
White, skim	5	5	1	1	1
Fruits, Vegetables, and Juices	97	97	98	95	96
Juice, orange	22	22	23	22	23
Banana	20	22	8	10	9
Juice, apple	10	10	11	12	12
Apple, fresh	7	7	4	6	5
Orange, fresh	7	6	6	8	7
Applesauce	6	6	7	6	6
Juice, grape	4	3	9	8	8
Peach, canned	4	4	5	5	5
Juice, pineapple	1	1	6	4	5
Any fresh fruit	42	46	22	27	25
Breads and Bread Alternates	99	99	99	99	99
Ready-to-eat cereal	39	39	31	40	36
White bread/toast	24	24	22	21	21
Pancakes, waffles, French toast	18	19	12	12	12
Hot cereal	12	12	11	12	11
Muffins, sweet bread	3	3	7	5	6
Biscuit, croissant	3	2	6	5	5
Noncreditable Foods²	56	57	57	49	52
High-fat condiments ³	30	31	28	25	26
Syrup, honey	16	17	10	10	10
Eggs	9	10	8	6	7
Jelly	6	6	5	6	6
Sugar	6	6	3	4	4
Bacon, sausage ⁴	5	5	6	4	5
Cheese, not low-fat	2	1	5	3	4
Number of Daily Breakfast Menus (Unweighted)	7427	1882	3607	1938	5545

Note: Based on breakfasts offered to three- to five-year-olds. Only items included in 5 percent or more of daily menus for any provider group are listed.

¹No further specification. Menu Survey did not include information on fat content of milk. (For purposes of nutrient analysis, the database assumes a nutrient profile that approximates 2% milk).

²Foods that do not contribute to satisfying the CACFP meal pattern.

³Butter, margarine, cream cheese, gravy.

⁴Sausages are creditable if they are less than 30 percent fat by weight. Most sausages served by providers in this study were pork brown-and-serve style sausages that did not meet this criteria. Sausages that did meet the criteria were included with meats.

Milk. Two-percent milk is the most common type of milk offered in CACFP breakfasts, by a wide margin. Two-percent milk is offered in more than one-half of all CACFP breakfast menus. Skim milk is rarely offered; only 5 percent of all CACFP breakfast menus include skim milk. Flavored milk is even less common in CACFP breakfasts, offered in less than one-half of one percent of all daily menus (data not shown).

Fruits, Vegetables, and Juices. Orange juice, offered in nearly one out of four daily breakfast menus, is the food most often offered to satisfy the fruit, vegetable, juice requirement. Bananas, apple juice, fresh apples, and fresh oranges round out the list of the five most common fruits and juices offered. Overall, *fresh* fruit is included in 42 percent of all daily CACFP breakfast menus. Vegetables of any type are rarely offered in CACFP breakfasts.

Breads and Bread Alternates. Ready-to-eat cereal is the bread alternate most frequently offered in CACFP breakfasts. More than one-third of all daily CACFP breakfast menus includes a ready-to-eat cereal. White bread or toast, offered in roughly one-quarter of all daily breakfast menus, is the next most frequently offered food in this category. Pancakes, waffles, and French toast, as a group, and hot cereal are next on the list, offered in 18 and 12 percent of daily breakfast menus, respectively.

Noncreditable Foods. Providers are encouraged to supplement the CACFP meal pattern with other foods that may increase the overall appeal of the meal as well as its food energy. More than one-half of all daily CACFP breakfast menus include one or more noncreditable foods (i.e., foods that do not contribute to satisfying the CACFP meal pattern). Butter, margarine, cream cheese, and gravy are the most common noncreditable items offered at breakfast, included in almost one-third of all breakfast menus. Syrup and honey are the next most frequently offered noncreditable foods, followed by eggs, jelly, sugar, and bacon or sausage.¹⁰

¹⁰The CACFP breakfast meal pattern does not require that meat or an acceptable meat alternate, as defined in the lunch/supper meal pattern, e.g., eggs, cheese, or peanut butter, be offered at breakfast. Consequently, eggs are considered noncreditable at breakfast. Because of their low protein and/or high fat content, the CACFP does not consider bacon or most breakfast sausages to be an acceptable meat alternate; thus these foods are noncreditable for all meals.

Nutrient Content of CACFP Breakfasts Offered Relative to RDAs

Breakfasts offered in the CACFP provide more than one-fourth of the RDA, except for energy (Exhibit 3.3).¹¹ This general pattern is consistent across provider types as well as across age groups (Exhibit B.3). On average, breakfasts offered by CACFP providers supply more than one-half of the RDA for protein and vitamin A, about three-quarters of the RDA for vitamin C, and more than one-third of the RDA for calcium and iron. By comparison, breakfasts are low in energy, providing, on average, 19 percent of the RDA.

Percentage of Providers Offering at Least One-fourth of the RDA at Breakfast

With the exception of energy and iron, nearly all providers offer breakfasts that provide, on average, one-fourth or more of the RDA (Exhibit 3.4).¹² Only 3 percent of all providers offer breakfasts that supply one-fourth or more of the RDA for energy. And, despite an overall mean of 35 percent of the RDA for iron (Exhibit 3.3), about one-quarter of all providers offer breakfasts that provide an average of less than one-fourth of the RDA for iron.

A greater percentage of homes offer breakfasts that provide one-fourth of the RDA for iron than either Head Start centers or child care centers. This difference is largely attributable to differences in the number and/or types of breads and bread alternates offered. Homes are more likely than either Head Start centers or child care centers to offer two or more servings of breads and/or bread alternates at breakfast (Exhibit 3.1). As will be discussed later in this section, breads and bread alternates provide 83 percent of the iron in CACFP breakfasts. Moreover, Head Start centers offer ready-to-eat cereals less often than either homes or child care centers (Exhibit 3.2). Because most ready-to-eat cereals are fortified with iron, their inclusion can dramatically affect iron content.

¹¹Data on actual mean energy and nutrient content of CACFP breakfasts offered are presented, by age group, in Exhibit B.2. Standard errors for the estimates presented in Exhibit 3.3 are provided, along with age-group-specific estimates, in Exhibit B.3.

¹²Age-group-specific results are presented in Exhibit B.4.

Exhibit 3.3

Breakfasts Offered by CACFP Providers Supply More Than
One-fourth of the RDA, Except for Energy

	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Mean Percentage of RDA in CACFP Breakfasts as Offered					
Total Energy	19%	19%	20%	19%	20%
Protein	54	54	56	52	54
Vitamin A	54	55	51	53	52
Vitamin C	76	76	74	77	76
Calcium	36	36	37	35	36
Iron	35	36	31	34	33
Number of Providers (Unweighted)	1659	430	809	420	1229

Exhibit 3.4

With the Exception of Energy, Most Providers Offer Breakfasts That Provide at Least One-fourth or More of the RDA

	Center-Based Care				
	All Providers	Family Day Care Homes	Head Start Centers	Child Care Centers	All Centers
Percentage of Providers Offering One-fourth of the RDA					
Total Energy	3%	3%	5%	5%	5%
Protein	100	100	100	100	100
Vitamin A	97	97	98	98	98
Vitamin C	93	94	93	91	92
Calcium	98	98	99	98	99
Iron	74	76	62	68	65
Number of Providers (Unweighted)	1659	430	809	420	1229

Nutrient Content of CACFP Breakfasts Offered Relative to Dietary Guidelines and NRC Recommendations

CACFP breakfasts offered to five- to ten-year-olds are largely consistent with *Dietary Guidelines* and NRC recommendations (Exhibit 3.5).¹³ This is true for all providers as well as for the two age groups (five-year-olds and six- to ten-year-olds). On average, CACFP breakfasts derive 23 percent of total energy from fat, a level that is consistent with the *Dietary Guidelines* recommendation of no more than 30 percent of total energy from fat. The proportion of energy derived from carbohydrate and protein is also consistent with recommendations, as are levels of cholesterol and sodium.

Breakfasts offered by CACFP providers do not, however, meet the *Dietary Guidelines* recommendation for the percentage of energy from saturated fat. This is true for all providers and for breakfasts offered to both five-year-olds and six- to ten-year-olds. On average, 11 percent of the energy in breakfasts offered to children five years of age and older comes from saturated fat; the recommended level is less than 10 percent. In addition, there is little evidence of decreasing amounts of saturated fat in breakfasts offered to children between the ages of two and five, as recommended by the *Dietary Guidelines* (Exhibits B.2 and B.5).

While on average CACFP breakfasts offered to five- to ten-year-olds provide more energy from saturated fat than recommended, the average amount of saturated fat in CACFP breakfasts is not really excessive. The average amount of saturated fat in breakfasts offered to five- to ten-year-olds does not exceed the amount of saturated fat allowable in an “ideal” breakfast, that is, a breakfast that supplies one-third of the RDA for energy and derives less than 10 percent of its energy from saturated fat. An “ideal” breakfast for this age group could include up to 5.0 gm of saturated fat.¹⁴ CACFP breakfasts offered to five- to ten-year-olds provide an average of 4.1 gm of saturated fat, or about 80 percent of the allowable maximum.

¹³Data on actual mean energy and nutrient content of CACFP breakfasts offered are presented, by age group, in Exhibit B.2. Standard errors for the estimates presented in Exhibit 3.5 are provided, along with age-group-specific estimates, in Exhibit B.5.

¹⁴Based on one-fourth of the RDA for energy [1933 calories (weighted average of RDA for four- to six-year-olds and RDA for seven- to ten-year-olds)] and 9.4 percent of food energy (operational definition of “less than 10 percent”) from saturated fat.

Exhibit 3.5

Breakfasts Offered by CACFP Providers Are Largely Consistent with Dietary Guidelines and NRC Recommendations

Recommendation	All Providers	Family Day Care Homes	Center-Based Care			All Centers
			Head Start Centers	Child Care Centers	All Centers	
Mean Nutrient Content of CACFP Breakfasts As Offered						
Percent of Energy from Fat (%)	≤ 30%	23	23	24	23	23
Percent of Energy from Saturated Fat (%)	< 10%	11	11	12	11	11
Percent of Energy from Carbohydrate (%)	≥ 55%	64	64	63	65	64
Percent of Energy from Protein (%)	≤ 15%	14	14	14	14	14
Cholesterol (mg)	≤ 75 mg	51	53	48	43	45
Sodium (mg)	≤ 600 mg	445	445	456	431	441
Number of Providers (Unweighted)		1631	413	808	410	1218

Note: Based on breakfasts offered to five-year-olds and six- to ten-year-olds. See Chapter Two for a discussion of *Dietary Guidelines* and NRC recommendations and the rationale for age groups used in this analysis.

Thus, the reason CACFP breakfasts do not satisfy the recommendation for the percentage of energy from saturated fat has more to do with the amount of energy provided (relatively low) than with an excessive amount of saturated fat. In fact, if the average energy content of CACFP breakfasts were increased by about 70 calories for five-year-olds and 55 calories for six- to ten-year-olds, by offering more carbohydrate-rich foods such as juices, fruit, and low-fat breads and bread alternates, there would be no need to lower actual saturated fat content.

If increasing the energy content of CACFP breakfasts is not feasible, the saturated fat content would need to be reduced in order to meet the recommendation for the percentage of energy from saturated fat. To avoid further reductions in the contribution of CACFP breakfasts to children's daily energy needs, however, energy lost as a result of reductions in saturated fat will need to be replaced with energy from carbohydrate-rich foods. One way in which the saturated fat content of CACFP breakfasts might be decreased is through increased use of 1% and skim milks and decreased use of 2% and whole milks. Milk contributes 61 percent of the saturated fat in CACFP breakfasts (Exhibit 3.7) and 2% and whole milks are the types of milk most often offered in CACFP breakfasts (Exhibit 3.2).

Percentage of Providers Meeting Dietary Guidelines and NRC Recommendations at Breakfast

More than 80 percent of all providers offer breakfasts to five- to ten-year-olds that meet recommendations for the percentage of energy from fat (Exhibit 3.6).¹⁵ The same is true for recommendations related to the percentage of energy from carbohydrate and protein and to sodium content. A somewhat smaller percentage of providers (72%) offer breakfasts that meet the recommendation for cholesterol content. Mean cholesterol content is strongly influenced by the frequency with which eggs, or products containing eggs, e.g., French toast, pancakes, and waffles, are offered.

¹⁵Detailed distributions are shown in Exhibit B.6.

Exhibit 3.6

With the Exception of Saturated Fat, Most Providers Offer Breakfasts That Meet *Dietary Guidelines* and NRC Recommendations

Recommendation	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Providers Meeting Recommendation					
Percent of Energy from Fat	89%	89%	86%	91%	89%
Percent of Energy from Saturated Fat	27	28	16	27	23
Percent of Energy from Carbohydrate	93	93	91	96	94
Percent of Energy from Protein	82	82	76	85	81
Cholesterol	72	71	78	81	80
Sodium	93	93	87	95	92
Number of Providers (Unweighted)	1631	413	808	410	1218

Note: Based on breakfasts offered to five-year-olds and six- to ten-year-olds. See Chapter Two for a discussion of *Dietary Guidelines* and NRC recommendations and the rationale for age groups used in this analysis.

Exhibit 3.7

**Sources of Energy and Nutrients in CACFP Breakfasts:
Relative Contribution of CACFP Meal Components**

	CACFP Breakfast Component			
	Milk	Fruits/ Vegetables/Juices	Breads/Bread Alternates	Noncreditable Foods
	Percentage Contribution to Average Amount Offered			
Total Energy	28%	21%	37%	13%
Protein	54	6	31	10
Vitamin A	37	6	46	12
Vitamin C	7	71	21	1
Calcium	74	4	19	3
Iron	3	10	83	4
Total Fat	42	3	29	26
Saturated Fat	61	2	17	20
Carbohydrate	17	33	42	9
Cholesterol	47	0	24	30
Sodium	22	1	64	13

Notes: Based on breakfasts offered to three- to five-year-olds.

A more detailed breakout is provided in Exhibit B.8.

Rows may not total to 100 percent due to rounding.

Sources of Nutrients in CACFP Breakfasts

To assess how the various CACFP meal components, as well as specific foods offered within meal component categories, contribute to the energy and nutrient content of CACFP breakfasts, the percentage contribution of 16 different foods and food groups was calculated for energy and for each of the key nutrients examined in this study. Findings from this analysis may be useful in identifying foods which may be contributing to undesirable characteristics (e.g., high levels of saturated fat) and/or foods which may help boost levels of energy, iron, or other nutrients. Results are summarized, by CACFP breakfast component, in Exhibit 3.7. A more detailed tabulation is provided in Exhibit B.7. Figures reported in both exhibits represent the percentage contribution of the specific food or food group to the average energy or nutrient content of breakfasts offered in the CACFP.

Important findings from this analysis are summarized below:

- Breads and bread alternates provide more than one-third of the energy in CACFP breakfasts. Noncreditable foods contribute 13 percent of the energy in CACFP breakfasts.
- Milk provides more than one-half of the protein in CACFP breakfasts. Breads and bread alternates are the second major contributor of this nutrient.
- Breads and bread alternates, primarily in the form of ready-to-eat cereals (see Exhibit B.7), contribute 46 percent of the vitamin A in CACFP breakfasts. Milk provides another 37 percent of the vitamin A.
- The vast majority of vitamin C (71%) is contributed by fruits, vegetables, and juices. Ready-to-eat cereals, most of which are fortified with vitamins and minerals, provide 21 percent of the vitamin C in CACFP breakfasts. Other foods and food groups contribute relatively minor amounts of vitamin C.
- The principal source of calcium in CACFP breakfasts is fluid milk.
- The major source of iron in CACFP breakfasts is breads and bread alternates, specifically ready-to-eat cereals. Breads and bread alternates as a group provide 83 percent of the iron in CACFP breakfasts; ready-to-eat cereals alone contribute 55 percent.

This finding supports the previous conclusion that differences among providers in the percentage that offer breakfasts supplying one-fourth of the RDA for iron is largely attributable to differences in the number and type of breads and bread alternates provided, particularly ready-to-eat cereals.

- Milk is the primary source of both fat and saturated fat in CACFP breakfasts, providing 42 percent and 61 percent, respectively, of the fat and saturated fat in CACFP breakfasts. This is consistent with the fact that most providers offer 2% or whole milk (Exhibit 3.2). Noncreditable foods, specifically meats and meat alternates and butter, margarine, cream cheese, and gravy (see exhibits 3.2 and B.7) also contribute substantially to fat and saturated fat content.
- Milk and noncreditable foods, primarily meat and meat alternates such as eggs, bacon, sausage, and cheese, are also the leading sources of cholesterol in CACFP breakfasts.
- Breads and bread alternates provide close to two-thirds of the sodium in CACFP breakfasts.

LUNCHES OFFERED

Foods Offered in CACFP Lunches

Almost 90 percent of all CACFP providers offer lunch; providers that do not offer lunch generally operate during before- and/or after-school hours. CACFP lunches must include five specific components: fluid milk; two (or more) different types of fruit, vegetables, or full-strength fruit juice; bread or an acceptable bread alternate; and meat or an acceptable meat alternate. On an average day in the CACFP, about 87 percent of lunches offered include all five required components; the specific component most often missing in noncompliant lunches is the second type of fruit, vegetable, or juice (Exhibit 3.8).

As noted for CACFP breakfasts, most CACFP lunches include only one food within each CACFP meal component. When more than one food is offered, children are generally served both foods; examples include spaghetti with garlic bread (a bread and bread alternate) and a ham and cheese sandwich (a meat and a meat alternate).

Exhibit 3.8

CACFP Providers Tend to Offer a Fixed Lunch Menu Each Day but Do Vary Menu Items Over the Course of a Week

Component/Number of Items Offered per Day/Week	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Daily Lunch Menus					
Milk					
0	3%	3%	4%	2%	3%
1	96	96	94	95	95
2	1	1	2	2	2
<i>Mean items per day</i>	1	1	1	1	1
<i>Mean number of different items per week</i>	1	1	1	1	1
Fruit, Vegetable, or Juice					
0	0%	0%	0%	0%	0%
1	7	8	5	4	4
2 or 3	92	92	95	96	95
<i>Mean items per day</i>	2	2	3	2	2
<i>Mean number of different items per week</i>	9	9	10	11	10
Bread or Bread Alternate					
0	3%	3%	4%	3%	3%
1	79	80	73	70	71
2 or 3	18	17	22	25	24
<i>Mean items per day</i>	1	1	1	1	1
<i>Mean number of different items per week</i>	3	3	3	4	3
Meat or Meat Alternate					
0	2%	2%	2%	2%	2%
1	84	84	84	86	85
2 or 3	13	13	13	12	12
<i>Mean items per day</i>	1	1	1	1	1
<i>Mean number of different items per week</i>	5	5	4	5	5
Number of Daily Lunch Menus (Unweighted)	8207	2178	3892	2137	6029

Notes: Based on lunches offered to three- to five-year-olds.

Detail may not sum to 100 percent due to rounding.

Over the course of a week, CACFP providers offer children a considerable variety of foods at lunch. The type of milk offered tends to be consistent from one day to the next (indeed, from one *meal* to the next). However, on average, providers offer 9 to 10 different types of fruit, vegetables, and full-strength juices over the course of a typical week, as well as 3 different types of breads or acceptable bread alternates; and 5 different meats or meat alternates. The decreased variety of foods offered in the bread/bread alternate component, relative to other components, is attributable to a preponderance of sandwiches and a reliance on white bread and sandwich rolls.

The specific foods most frequently offered in CACFP lunches are listed in Exhibit 3.9.¹⁶ Figures reflect the percentage of daily CACFP lunch menus, or the percentage of CACFP lunches offered nationwide on any given day, that include specific foods or food groups. Highlights are summarized below.

Milk. As noted in the preceding analysis of breakfasts offered, 2% milk is the most common type of milk offered in the CACFP. Skim milk and flavored milks are much less common, offered in less than 5 percent of daily lunch menus (data not shown).

Fruits and Juices. Eight out of ten daily CACFP lunch menus include fruit or juice. The five specific items offered most frequently include fresh apples, applesauce, canned peaches, fruit cocktail, and canned pears. Thirty-seven percent of all daily CACFP lunch menus include *fresh* fruit.

Vegetables. Vegetables are offered in CACFP lunches somewhat more frequently than fruit, appearing in more than nine out of ten daily CACFP lunch menus. The specific vegetables offered most frequently include cooked green beans, raw carrots, corn, fried potatoes, and canned tomatoes or tomato sauce (occurring primarily in mixed dishes such as spaghetti, pizza, etc.).

¹⁶The list is limited to foods included in 5 percent or more of the lunches offered by any provider group.

Exhibit 3.9

Foods Most Commonly Offered in CACFP Lunches

Lunch Component/Food	All Providers	Family Day Care Homes	Center-Based Care		All Centers
			Head Start Centers	Child Care Centers	
Percentage of Daily Lunch Menus in Which Item Is Offered					
Milk	97%	97%	96%	98%	97%
White, 2%	52	51	62	56	58
White, whole	22	22	15	23	20
White, nfs ¹	14	14	13	12	12
White, 1%/1.5%	5	5	5	6	6
Fruits and Juices	80	79	80	83	82
Apple, fresh	13	13	12	10	11
Applesauce	11	12	6	8	7
Peach, canned	11	11	11	13	12
Fruit cocktail, canned	8	7	11	12	12
Pear, canned	7	7	7	10	9
Banana	7	7	4	4	4
Orange, fresh	6	6	10	8	9
Pineapple, canned	5	4	8	9	8
Grapes	4	5	2	1	1
Any fresh fruit	37	38	33	29	30
Vegetables	92	91	97	96	97
Green beans, cooked	13	13	11	15	13
Carrots, raw	12	13	11	8	9
Corn	12	12	10	10	10
Potatoes, fried	12	12	11	11	11
Tomatoes, cooked	10	9	13	15	14
Peas	9	9	7	10	9
Lettuce, salad mix	8	7	18	13	15
Legumes	7	7	8	8	8
Potatoes, mashed/scalloped	7	6	10	11	10
Broccoli, cooked	5	5	7	6	6
Potatoes, baked/roasted	5	5	6	6	6
Carrots, cooked	5	5	4	5	4
Vegetables in mixed dishes	4	4	6	5	5
Tomatoes, raw	4	4	6	4	5
Mixed vegetables	3	3	6	7	6
Cabbage, raw (including coleslaw)	2	1	6	4	5
Any raw vegetables	30	29	42	33	36
Breads and Bread Alternates	97	97	96	97	97
White bread/rolls	60	60	58	59	59
Pasta	20	19	18	21	20
Tortillas, taco shells, pizza crust	9	8	12	10	11
Breading on nuggets/sticks	8	8	6	8	7
Rice	6	6	8	8	8
Cornbread	4	3	7	7	7

**Exhibit 3.9
(continued)**

Lunch Component/Food	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Daily Lunch Menus in Which Item Is Offered					
Meats and Meat Alternates	98%	98%	98%	98%	98%
Cheese, not low fat	15	15	12	11	11
Beef in mixed dishes	12	11	16	15	15
Cheese in mixed dishes	11	11	11	11	11
Beef, ground	10	10	12	11	11
Chicken/Turkey, roasted/baked	10	9	13	10	11
Hot dogs	9	10	5	7	7
Chicken/Turkey, fried/processed	6	6	7	7	7
Ham	5	5	6	6	6
Peanut butter/nuts	5	6	2	3	3
Fish, fried/processed	5	5	4	5	5
Fish, canned	5	5	3	3	3
Beef, roast	4	4	5	4	5
Chicken/Turkey in mixed dishes	3	3	4	5	4
Noncreditable Foods²	50	48	57	55	56
High-fat condiments ³	36	34	41	41	41
Low-fat condiments ⁴	11	11	11	10	11
Cakes, brownies, cookies	2	1	5	3	4
Number of Daily Lunch Menus (Unweighted)	8207	2178	3892	2137	6029

Note: Based on lunches offered to three- to five-year-olds. Only items included in 5 percent or more of daily menus for any provider group are listed.

¹No further specification. Menu Survey did not include information on fat content of milk. (For purposes of nutrient analysis, the database assumes a nutrient profile that approximates 2% milk.)

²Foods that do not contribute to satisfying the CACFP meal pattern.

³Butter, margarine, regular salad dressing, regular mayonnaise, gravy, whipped cream, cream cheese, and other high-fat toppings.

⁴Low-fat salad dressing, low-fat mayonnaise, reduced-calorie margarine, sugar, honey, jelly, syrup, catsup, mustard, and other low-fat toppings.

Breads and Bread Alternates. White bread and rolls are the most frequently offered breads, as noted above, appearing in 60 percent of daily lunch menus. Pasta, the next most common food in this group, is offered much less frequently (19% of daily menus). Other bread alternates offered in 5 percent or more of lunch menus are tortillas, taco shells, or pizza crust; breading on items such as chicken nuggets or fish sticks; and rice.

Meats and Meat Alternates. Ground beef and cheese, either alone or in mixed dishes, are the most frequently offered meat and meat alternate. In the aggregate, ground beef and cheese are offered in about one-half of all daily CACFP lunch menus. It is worth noting that both ground beef and cheese are relatively high in fat and saturated fat compared to other meat alternates such as chicken, turkey, and fish. Chicken and turkey are the next most commonly offered foods in this group. Roasted or baked chicken and turkey is offered somewhat more often than breaded, fried, or processed chicken or turkey.

Noncreditable Foods. One-half of all CACFP lunch menus includes one or more noncreditable foods, that is, foods that do not contribute to satisfying the CACFP meal pattern. High-fat condiments such as butter, margarine, salad dressing, mayonnaise, gravy, and whipped cream are the most common noncreditable foods offered at lunch, included in more than one-third of all daily lunch menus.

Nutrient Content of CACFP Lunches Offered Relative to RDAs

On average, CACFP lunches provide more than one-third of the RDA, except for energy and iron (Exhibit 3.10). This general pattern is consistent across provider types as well as across age groups (see Exhibit B.9).¹⁷ The one exception is lunches offered to six- to ten-year-olds which supply exactly one-third of the RDA for iron.

¹⁷Lunches offered to six-year-olds, as well as to five-year-olds in some provider groups, meet the one-third RDA standard for iron (Exhibit B.9).

Exhibit 3.10

Lunches Offered by CACFP Providers Supply More Than One-third of the RDA, Except for Energy and Iron

	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Mean Percentage of RDA in CACFP Lunches as Offered					
Total Energy	28%	27%	29%	30%	30%
Protein	104	103	107	108	107
Vitamin A	99	99	107	99	102
Vitamin C	51	50	62	57	59
Calcium	42	41	42	42	42
Iron	27	27	30	30	30
Number of Providers (Unweighted)	1820	486	878	456	1334

On average, lunches offered by CACFP providers supply about 100 percent of the RDA for protein and vitamin A; 50 percent of the RDA for vitamin C; and about 40 percent of the RDA for calcium (Exhibit 3.10).¹⁸ CACFP lunches provide lesser amounts of energy and iron, averaging about one-fourth (rather than one-third) of the RDA for each.

Percentage of Providers Offering at Least One-third of the RDA at Lunch

Most providers offer lunches that supply, on average, one-third (or more) of the RDA for protein, vitamin A, calcium, and vitamin C (Exhibit 3.11).¹⁹ Few providers, however, offer one-third or more of the RDA for energy or iron. Only eight percent of providers offer lunches that provide, on average one-third of the RDA for energy; and only 14 percent meet this standard for iron.

Nutrient Content of Lunches Offered Relative to Dietary Guidelines and NRC Recommendations

With the exception of cholesterol, lunches offered by CACFP providers do not meet *Dietary Guidelines* and NRC recommendations (Exhibit 3.12).²⁰ Lunches offered to children five years of age and older do not meet *Dietary Guidelines* and NRC recommendations for fat, saturated fat, protein, and carbohydrate.

This pattern is generally consistent across providers and for lunches offered to both five-year-olds and six- to ten-year-olds. Moreover, there is no evidence of a gradual decline in the percentage of calories from fat or saturated fat in lunches offered to children between the ages of two and five, as recommended by the *Dietary Guidelines* (see Exhibits B.8 and B.11).

¹⁸Data on actual mean energy and nutrient content are presented in Exhibit B.8. Age-group-specific results and standard errors for estimates presented in Exhibit 3.10 are provided in Exhibit B.9.

¹⁹Age-group-specific results are presented in Exhibit B.10.

²⁰Data on actual mean energy and nutrient content are presented in Exhibit B.8. Age-group-specific results and standard errors for the estimates presented in Exhibit 3.12 are provided in Exhibit B.11.

Exhibit 3.11

With the Exception of Energy and Iron, Most Providers Offer Lunches That Provide at Least One-third of the RDA

	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Providers Offering One-third of the RDA					
Total Energy	8%	7%	16%	16%	16%
Protein	100	100	100	100	100
Vitamin A	96	95	100	98	99
Vitamin C	76	74	92	89	90
Calcium	94	93	95	96	95
Iron	14	12	27	23	24
Number of Providers (Unweighted)	1820	486	878	456	1334

Exhibit 3.12

Lunches Offered by CACFP Providers Are Not Consistent with *Dietary Guidelines* and NRC Recommendations

	Recommendation	All Providers	Family Day Care Homes	Center-Based Care		
				Head Start Centers	Child Care Centers	All Centers
Mean Nutrient Content of CACFP Lunches as Offered						
Percent of Energy from Fat (%)	≤ 30%	35	35	36	35	36
Percent of Energy from Saturated Fat (%)	< 10%	14	14	14	14	14
Percent of Energy from Carbohydrates (%)	≥ 55%	47	47	47	47	47
Percent of Energy from Protein (%)	≤ 15%	20	20	19	19	19
Cholesterol (mg)	≤ 100 mg	65	65	67	67	67
Sodium (mg)	≤ 800 mg	919	910	939	985	966
Number of Providers (Unweighted)		1794	471	877	446	1323

Note: Based on lunches offered to five-year-olds and six- to ten-year-olds. See Chapter Two for a discussion of *Dietary Guidelines* and NRC recommendations and the rationale for age groups used in this analysis.

CACFP lunches offered to children five years of age and older do not meet the NRC recommendation for sodium.

Percentage of Providers Meeting Dietary Guidelines and NRC Recommendations at Lunch

With the exception of cholesterol, few providers offer lunches that meet *Dietary Guidelines* and NRC recommendations (Exhibit 3.13).²¹ One-quarter of providers offer lunches to children five years of age and older that provide, on average, one-third or less of the suggested daily limit (800 mg) of sodium.

The percentage of providers satisfying other recommendations is even lower. Only 14 percent of all CACFP providers offer lunches that supply, on average, no more than 30 percent of energy from fat (the *Dietary Guidelines* recommendation). Fewer than 5 percent of all providers offer lunches that are consistent with recommendations for energy from saturated fat, carbohydrate, and protein.

Characteristics of Low-Fat Lunches

As noted elsewhere in this report, CACFP providers are not required to meet nutrient-based standards. Nonetheless, USDA is committed to lowering the level of fat in meals offered through all Child Nutrition programs. For this reason, an analysis was undertaken to examine the potential impact of lower fat levels on overall nutrient profiles of CACFP lunches; in other words, to determine whether lunches that are lower in fat (as a percentage of total energy) provide substantially different amounts of nutrients. The analysis also examines, in a general way, variations in menu offerings among providers that offer lunches with varying levels of fat. This analysis is limited to menus offered to five-year-olds because five-year-olds are the largest CACFP age group to whom the *Dietary Guidelines* recommendation ($\leq 30\%$ of energy from fat) has been applied in this study.

²¹Detailed distributions are provided in Exhibit B.12.

Exhibit 3.13

With the Exception of Cholesterol, Few Providers Offer Lunches That Meet *Dietary Guidelines* and NRC Recommendations

Recommendation	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Providers Meeting Recommendation					
Percent of Energy from Fat	14%	15%	8%	10%	9%
Percent of Energy from Saturated Fat	4	4	2	1	1
Percent of Energy from Carbohydrate	2	3	2	2	2
Percent of Energy from Protein	4	4	2	4	3
Cholesterol	91	90	93	93	93
Sodium	24	25	19	14	16
Number of Providers (Unweighted)	1794	471	877	446	1323

Note: Based on lunches offered to five-year-olds and six- to ten-year-olds. See Chapter Two for a discussion of *Dietary Guidelines* and NRC recommendations and the rationale for age groups used in this analysis.

Providers were stratified into one of four groups based on the average percentage of energy from fat in lunches offered to five-year-olds. The four groups include providers that offer:

- **Low-Fat Lunches:** Mean percentage of energy from fat is less than or equal to 30 percent (lunches meet *Dietary Guidelines* recommendation);
- **Moderate-Fat Lunches:** Mean percentage of energy from fat ranges from 31 to 35 percent;
- **High-Fat Lunches:** Mean percentage of energy from fat ranges from 36 to 38 percent; and
- **Highest-Fat Lunches:** Mean percentage of energy from fat is 39 percent or greater.

The following sections detail findings related to the nutrient profile of low-fat lunches compared to other lunches, as well as differences in types of foods offered by providers that serve low-fat and higher-fat lunches.²²

Nutrient Profiles. As Exhibit 3.14 demonstrates, the nutrient profile of lunches offered by providers in the low-fat group is quite comparable to that of lunches offered by providers in the other three groups.²³ Lunches offered by all groups of providers supply, on average, less than one-third of the daily RDA for energy and iron and more than one-third of the RDA for all other key nutrients. Moreover, lunches offered by providers in the low-fat group derive less energy from saturated fat (although the mean percentage of energy from saturated fat still exceeds the *Dietary Guidelines* recommendation), and more energy from carbohydrate (although still not meeting the NRC recommendation). Finally, lunches offered by providers in the low-fat group provide less cholesterol and sodium than lunches offered by other providers.

These findings suggest that a decrease in the percentage of energy derived from fat does not result in detrimental changes in other nutritional characteristics, and may even result in

²²Low-fat lunches meet *Dietary Guidelines* recommendation; cutoffs used for other groups are based on sample distribution.

²³Data on actual mean energy and nutrient content are presented in Exhibit B.13.

Exhibit 3.14

Low-Fat Lunches Are Somewhat Lower in Total Energy Than Other Lunches
but Provide Comparable Amounts of Key Nutrients

Nutrient	Level of Fat in CACFP Lunches Offered ¹			
	Low	Moderate	High	Highest
	Mean Percentage of RDA			
Total Energy	23%	26%	27%	27%
Protein	95	93	94	91
Vitamin A	116	95	100	100
Vitamin C	57	52	51	50
Calcium	42	44	45	45
Iron	28	29	30	28
	Mean Percentage of Total Energy			
Fat	27%	33%	37%	41%
Saturated Fat	11	13	15	17
Protein	23	20	19	18
Carbohydrate	52	49	46	42
	Mean Amount			
Cholesterol	54 mg	61 mg	64 mg	69 mg
Sodium	786	895	914	913
Number of Providers (Unweighted)	134	672	559	401

Note: Based on lunches offered to five-year-olds.

¹Low fat is defined as 30 percent or less of total energy from fat; moderate fat as 31 to 35 percent; high fat as 36 to 38 percent; highest fat as 39 to 52 percent. Low-fat group meets *Dietary Guidelines* recommendation; cutoffs used for other groups are based on sample distribution.

additional positive changes (e.g., fewer calories from saturated fat and less cholesterol and sodium).

Foods Offered. Exhibit 3.15 shows the percentage of providers that offer a specific food or food group, in lunches offered to five-year-olds, *at least once per week*. Separate tabulations are presented for *daily* use of some foods: all types of fruit, fresh fruit, juice, all vegetables, and raw vegetables.

Notable differences in foods offered by providers of low-fat lunches in comparison to other provider groups are summarized below. These findings provide some insight into menu planning practices which may influence the level of fat in CACFP lunches.

- **Milk.** A greater percentage of providers in the low-fat group offer 1% and skim milk than providers in the other groups. In addition, a greater percentage of providers in the high- and highest-fat groups offer whole milk than providers in the low-fat group.
- **Fruits and Juices.** Compared to providers in the highest-fat group, a greater percentage of providers in the low-fat group offer fruit on a daily basis.
- **Vegetables.** Fewer providers in the low-fat lunch group offer fried potatoes than providers in the other groups.
- **Breads and Bread Alternates.** More providers in the low-fat group offer rice than providers in the high- and highest-fat groups. Fewer providers in the low-fat group offer breaded processed meat, poultry, or fish than the highest-fat group.
- **Meats and Meat Alternates.** Providers in the low-fat group offer less ground beef than other providers. Moreover, the ground beef that they do offer tends to be included in mixed dishes (e.g., spaghetti with meat sauce, chili, lasagna, burritos) rather than offered by itself (e.g., as a hamburger patty or meatloaf). Providers in the low-fat group also offer more tuna than other providers.

The reverse is true for regular (i.e., not lean or low-fat) cheese and hot dogs, as well as fried chicken. All of these foods are more prevalent among providers in the high-fat and highest-fat groups.

Exhibit 3.15

Providers That Offer Low-Fat Lunches Tend to Offer Certain Foods More Often Than Providers That Offer Higher-Fat Lunches

Lunch Component/Food	Level of Fat in CACFP Lunches Offered ¹			
	Low	Moderate	High	Highest
Percentage of Providers Offering Item at Least Once per Week				
Milk				
Whole milk	13	13	27	51
2% milk	65	85	86	58
1% milk	18	8	3	2
Skim milk	27	6	0	1
Fruits and Juices				
Fresh fruit	85	71	75	82
Canned fruit	84	89	88	73
Juice	9	9	4	2
<i>Fruit daily</i>	67	57	44	41
<i>Fresh fruit daily</i>	9	9	3	12
<i>Juice daily</i>	0	0	0	0
Vegetables				
Baked potato	15	19	21	25
Mashed potato	25	30	30	26
Fried potato	18	40	52	52
Raw vegetables	74	73	80	76
Cooked vegetables	100	100	100	100
High-fat cooked vegetables ²	100	100	100	100
<i>Raw vegetables daily</i>	6	2	1	3
Breads and Bread Alternates				
White bread	97	96	93	98
Wheat bread	10	12	15	8
Biscuit	2	10	8	8
Pancakes, waffles	1	3	2	1
Cornbread	20	14	20	15
Tortilla	17	9	13	9
Crackers	7	20	15	15
Pasta	70	70	62	58
Rice	36	31	19	15
Breading on processed meats/fish/poultry	20	32	31	41
Meats and Meat Alternates				
Ground beef, regular	17	37	37	37
Ground beef in mixed dishes	58	50	42	34
Beef, roast	14	15	18	19
Ground beef, lean	4	8	7	4
Cheese, not low-fat	24	43	62	64
Cheese in mixed dishes	34	42	48	44
Cheese, low-fat	6	4	1	1
Chicken/turkey, fried/processed	17	26	32	37

Exhibit 3.15
(continued)

Lunch Component/Food	Level of Fat in CACFP Lunches Offered ¹			
	Low	Moderate	High	Highest
Percentage of Providers Offering Item at Least Once Per Week				
Meats and Meat Alternates				
(continued)				
Chicken/turkey, roasted/baked	49	34	42	28
Chicken/turkey in mixed dishes	17	14	16	9
Hot dog, regular	8	23	33	48
Hot dog, low-fat	10	12	11	15
Cold cuts	4	11	12	17
Fish, fried/processed	12	24	26	30
Tuna/tuna salad	59	25	16	12
Fish in mixed dishes	9	13	3	4
Fish, not fried	4	12	7	4
Peanut butter/nuts	13	21	28	20
Eggs	12	10	12	13
Ham	13	24	23	26
Pork	11	7	5	5
Noncreditable Foods				
High-fat condiments ³	67	78	89	83
Low-fat condiments ⁴	23	40	38	44
Bacon, sausage, ⁵ salami	4	9	5	7
Yogurt ⁶	3	1	1	2
Snack chips	1	3	3	5
Sugar, syrup, jelly	13	19	24	21
Ice cream, pudding	2	3	3	2
Jello, popsicle, sweetened beverages ⁷	1	2	3	1
Cakes, cookies, brownies	3	7	7	3
Number of Providers (Unweighted)	134	672	559	401

Notes: Based on lunches offered to five-year-olds. Tests of statistical significance not performed.

¹Low fat is defined as 30 percent or less of total energy from fat; moderate fat as 31 to 35 percent; high fat as 36 to 38 percent; highest fat as 39 to 52 percent. Low-fat group meets *Dietary Guidelines* recommendation; cutoffs used for other groups are based on sample distribution.

²Defined as vegetable dishes (other than entrees) that derive more than 20 percent of total energy from fat.

³Butter, margarine, regular salad dressing, regular mayonnaise, gravy, whipped cream, cream cheese, and other high-fat toppings.

⁴Low-fat salad dressing, low-fat mayonnaise, reduced-calorie margarine, sugar, honey, jelly, syrup, catsup, mustard, and other low-fat toppings.

⁵Sausages are creditable if they are less than 30 percent fat by weight. Most sausages served by providers in this study were pork brown-and-serve style sausages that did not meet this criteria. Sausages that did meet the criteria were included with meats.

⁶Yogurt is not creditable for lunch, but is creditable for snacks.

⁷Kool-Aid, Hawaiian Punch, fruit drinks, and sodas.

- **Noncreditable Foods.** In comparison to other providers, fewer providers in the low-fat lunch group offer high-fat condiments such as butter, sour cream, cream cheese, and regular salad dressings.

Sources of Nutrients in CACFP Lunches

The percentage contribution to the average energy and nutrient content of lunches offered by CACFP providers was computed for each lunch component as well as for specific foods offered within each component group. Results for each meal component are summarized in Exhibit 3.16; a more detailed tabulation is provided in Exhibit B.14. Important findings from this analysis are summarized below:

- Meats and meat alternates provide 30 percent of the energy in CACFP lunches. Milk; fruits, juices, and vegetables; and breads and bread alternates make up most of the remainder, each providing 20 to 25 percent of total energy. Noncreditable foods provide only 5 percent of the energy in CACFP lunches.
- Meats and meat alternates are the major source of protein in CACFP lunches (44% of total). Milk and breads and bread alternates also make substantial contributions (28% and 19%, respectively).
- The fruit, juice, and vegetable component provides about one-half of the vitamin A and more than two-thirds of the vitamin C in CACFP lunches. Essentially all of the vitamin A and more than two-thirds of the vitamin C contributed by this combination of foods comes from vegetables (see Exhibit B.14).
- The principal source of calcium in CACFP lunches is fluid milk.
- The major sources of iron in CACFP lunches are breads and bread alternates (37% of total) and meats and meat alternates (33%).
- Meats and meat alternates are the primary source of fat in CACFP lunches, accounting for 43 percent of total fat.
- Meats and meat alternates also contribute substantial amounts of saturated fat and cholesterol (39% and 58%, respectively). Milk is also an important source of saturated fat and cholesterol, contributing 33% and 26%, respectively, of the total amount.
- The major sources of sodium in CACFP lunches are meats and meat alternates (38%) and breads and bread alternates (29%).

Exhibit 3.16

**Sources of Energy and Nutrients in CACFP Lunches:
Relative Contribution of CACFP Meal Components**

	CACFP Lunch Component				
	Milk	Fruits/Vegetables/ Juices	Breads/Bread Alternates	Meats/Meat Alternates	Noncreditable Foods
	Percentage of Total Amount Offered				
Total Energy	20%	21%	25%	30%	5%
Protein	28	8	19	44	1
Vitamin A	24	54	6	11	5
Vitamin C	9	69	8	13	2
Calcium	64	7	15	13	1
Iron	3	25	37	33	1
Total Fat	19	10	18	43	9
Saturated Fat	33	7	15	39	6
Carbohydrate	17	37	32	11	3
Cholesterol	26	1	13	58	2
Sodium	11	17	29	38	5

Notes: Based on all lunches offered to three- to five-year-olds.

A more detailed breakout is provided in Exhibit B.14.

Rows may not total to 100 percent due to rounding.

SNACKS OFFERED

CACFP providers may offer three different types of snacks: morning, afternoon, or evening. Fewer than 10 percent of CACFP providers offer evening snacks, so the present discussion is limited to morning and afternoon snacks.

All but 4 percent of CACFP providers offer one or more snacks (Exhibit 3.17). The afternoon snack is by far the most frequently offered snack. Ninety-one percent of all providers offer an afternoon snack, compared to less than one-half (45%) of providers offering a morning snack. Forty percent of providers offer both morning and afternoon snacks. Head Start centers are much more likely than either homes or child care centers to *not* offer snacks; 30 percent of Head Start centers offer neither a morning nor an afternoon snack. This is simply a reflection of the fact that most Head Start centers operate part-day programs and offer meals (breakfast and lunch) rather than snacks. Evening snacks are offered infrequently (fewer than 10 percent of all providers).

This section describes morning and afternoon snacks offered by CACFP providers. The analysis differs from those presented for breakfasts and lunches in two important ways. First, the mean nutrient content of snacks is evaluated relative to the RDA, but results are not compared to a specific standard (e.g., the one-third RDA standard used for lunches). As outlined in Chapter Two, nutrient standards were not defined for snacks because, as supplementary feedings, single snacks (as opposed to the cumulative total of all snacks consumed over an extended period of time) are not expected to make substantial contributions to nutrient intake.

Second, the nutrient content of snacks is *not* evaluated relative to *Dietary Guidelines* or NRC recommendations. Both the *Dietary Guidelines* and NRC recommendations are for usual dietary intake (i.e., average *daily* intake). While it is permissible to apply these goals to major meals such as lunch and breakfast, the assumption being that meals that meet the goals increase the likelihood that total daily intake will meet the goals, it is not reasonable to apply such standards to minor eating occasions such as snacks.

Exhibit 3.17

The Afternoon Snack is, by Far, the Most Commonly Offered CACFP Snack

Snack(s) Offered	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Providers Offering Snack(s)					
Afternoon Snack Only	51%	49%	54%	58%	57%
Afternoon and Morning Snacks	40	43	8	33	24
Morning Snack Only	5	6	8	3	5
Neither Afternoon nor Morning Snack	4	2	30	6	15
Number of Providers (Unweighted)	1962	501	891	570	1461

Foods Offered in CACFP Morning and Afternoon Snacks

The CACFP meal pattern requires that snacks include foods from any two of the four general CACFP meal component categories: milk; fruit, vegetables, or full-strength juice; bread or an acceptable bread alternate; and meat or an acceptable meat alternate. In keeping with findings reported for CACFP meals, more than 90 percent of daily CACFP snack menus satisfy these meal component requirements. There is evidence of some redundancy in snack menus. Over the course of a typical week, providers offer only two different fruits or juices, two different breads or bread alternates, and one meat/meat alternate (data not shown).

Exhibits 3.18 and 3.19 present data on the specific foods most frequently offered in morning and afternoon snacks. In general, there are few differences between the two types of snacks.

Milk. Milk is offered in 44 percent of daily morning snack menus and 50 percent of afternoon snack menus. As noted elsewhere, 2% milk is the most common type of milk offered.

Fruits and Juices. Fruit or full-strength juice is offered in more than two-thirds of daily morning snack menus and about 60 percent of daily afternoon snack menus. The two most common juices offered, in both morning and afternoon snacks, are apple juice and orange or grapefruit juice. Fresh fruits are offered in about one-quarter of all daily snack menus, both morning and afternoon.

Vegetables. Vegetables are rarely offered for either morning or afternoon snacks. When vegetables are offered, they are almost always raw vegetables, most commonly (but not on more than 5% of daily menus) carrots and celery.

Breads and Bread Alternates. Breads and bread alternates are the foods most frequently offered in both morning and afternoon snacks (77% of all daily menus), and crackers are the specific

Exhibit 3.18
Foods Most Commonly Offered in CACFP Morning Snacks

Snack Component/Food	All Providers	Family Day Care Homes	Center-Based Care		All Centers
			Head Start Centers	Child Care Centers	
Percentage of Daily Morning Snack Menus in Which Item Is Offered					
Milk	44%	45%	50%	37%	40%
White, 2%	22	22	31	22	23
White, whole	10	10	10	7	8
White, nfs ¹	7	7	3	4	3
White, 1%/1.5%	4	4	5	4	4
Fruits and Juices	69	69	69	67	68
Juice, apple	20	20	9	15	14
Juice, orange/grapefruit	10	10	12	14	14
Apple, fresh	7	8	6	4	4
Banana	7	7	5	4	4
Juice blends, non-citrus	6	6	5	5	5
Juice, grape	5	5	7	9	9
Orange, fresh	3	3	6	4	5
Juice, pineapple	1	1	6	3	4
Any fresh fruit	23	24	18	16	16
Vegetables	4	4	8	3	4
Any raw vegetables	4	4	5	2	3
Breads and Bread Alternates	77	77	80	81	81
Crackers	40	40	35	44	42
White bread/rolls	11	11	9	8	8
Ready-to-eat cereal	6	6	9	6	7
Muffins, sweet bread	5	6	6	5	5
Cookies ²	4	4	5	5	5
Meats and Meat Alternates	25	25	26	19	21
Cheese, not low fat	10	11	9	7	7
Peanut butter/nuts	9	9	11	8	9
Noncreditable Foods³	18	18	19	22	21
High-fat condiments ⁴	8	8	11	8	9
Number of Daily Morning Snack Menus (Unweighted)	2530	1034	574	922	1496

Note: Based on morning snacks offered to three- to five-year-olds. Only items included in 5 percent or more of daily menus for any provider group are listed.

¹No further specification. Menu survey did not include information on fat content of milk. (For purposes of nutrient analysis, the database assumes a nutrient profile that approximates 2% milk.)

²Cookies are creditable for snacks up to two times per week.

³Foods that do not contribute to satisfying the CACFP meal pattern.

⁴Butter, margarine, cream cheese, regular salad dressing or mayonnaise, whipped cream, and other high-fat toppings.

Exhibit 3.19
Foods Most Commonly Offered in CACFP Afternoon Snacks

Snack Component/Food	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
Percentage of Daily Afternoon Snack Menus in Which Item Is Offered					
Milk	50%	50%	44%	47%	46%
White, 2%	27	27	30	28	28
White, whole	10	10	6	11	10
White, nfs ¹	7	7	5	5	5
Fruits and Juices	60	59	62	60	60
Juice, apple	15	15	8	13	11
Apple, fresh	10	11	5	6	6
Juice, orange/grapefruit	7	7	11	7	8
Juice blends, non-citrus	6	7	3	5	5
Banana	5	5	4	5	5
Juice, grape	4	3	7	7	7
Juice, pineapple	1	1	5	3	3
Any fresh fruit	24	25	17	18	18
Vegetables	6	6	6	4	5
Any raw vegetables	5	5	5	3	4
Breads and Bread Alternates	77	76	84	83	83
Crackers	39	38	40	45	44
White bread/rolls	11	11	11	8	9
Cookies ²	10	9	13	16	15
Muffins, sweet bread	6	6	7	4	5
Meats and Meat Alternates	31	33	28	24	25
Peanut butter, nuts	14	15	13	11	12
Cheese, not low fat	12	12	9	8	8
Noncreditable Foods³	17	17	16	17	17
High-fat condiments ⁴	6	6	7	5	6
Number of Daily Afternoon Snack Menus (Unweighted)	6765	1989	2547	2229	4776

Note: Based on afternoon snacks offered to three- to five-year-olds. Only items included in 5 percent or more of daily menus for any provider group are listed.

¹No further specification. Menu survey did not include information on fat content of milk. (For purposes of nutrient analysis, the data base assumes a nutrient profile that approximates 2% milk.)

²Cookies are creditable for snacks up to two times per week.

³Foods that do not contribute to satisfying the CACFP meal pattern.

⁴Butter, margarine, cream cheese, regular salad dressing or mayonnaise, whipped cream, and other high-fat toppings.

bread alternate item offered most often. White bread and rolls are a distant second, along with, for afternoon snacks, cookies.²⁴

Meats and Meat Alternates. Meats and meat alternates are offered in 25 percent of all daily morning snack menus and just over 30 percent of all afternoon snack menus. In both cases, cheese and peanut butter or nuts are the foods offered most frequently.

Noncreditable Foods. Noncreditable foods are offered in 17 to 18 percent of daily menus for both morning and afternoon snack. High-fat condiments such as butter, margarine, and cream cheese are the specific foods offered most frequently.

Nutrient Content of Snacks Offered Relative to RDAs

Both morning and afternoon snacks, as offered, provide an average of more than 10 percent of the RDA for energy and equivalent or greater percentages of the RDA for all key nutrients (Exhibit 3.20).²⁵ This pattern is generally consistent across types of providers as well as across age groups. Snacks offered to four-year-olds tend to supply a somewhat smaller percentage of the RDA for energy (10%) in comparison to other age groups. The actual energy and nutrient content of snacks offered to three- and four-year-olds is generally quite similar (Exhibits B.15 and B.17), however, because the energy RDA for four-year-olds is 39 percent higher than the energy RDA for three-year-olds (1,300 calories compared to 1,800 calories), the mean RDA contribution is lower for four-year-olds.²⁶

Snacks are especially rich in vitamin C, particularly morning snacks, providing one-third or more of the RDA. Most of the vitamin C in snacks comes from fruits and juices. Two of the

²⁴Cookies are creditable as a bread alternate only for snacks and are limited to twice per week.

²⁵Data on actual mean energy and nutrient content are presented in exhibits B.15 and B.17. Age-group-specific results as well as standard errors for estimates presented in Exhibit 3.20 are provided in exhibits B.16 and B.18.

²⁶This pattern is also noted for other CACFP meals (see age-group-specific exhibits in Appendix B), however, these variations generally do not affect conclusions relative to the nutrient standards used in this study.

Exhibit 3.20

Snacks Offered by CACFP Providers Supply More Than 10 Percent of the RDA for Energy and Comparable or Greater Percentages of the RDA for Key Nutrients

	Center-Based Care				
	All Providers	Family Day Care Homes	Head Start Centers	Child Care Centers	All Centers
Morning Snacks	Mean Percentage of RDA in CACFP Morning Snacks as Offered				
Total Energy	13%	13%	13%	13%	13%
Protein	29	29	32	27	28
Vitamin A	22	22	26	19	20
Vitamin C	40	38	50	51	51
Calcium	18	18	20	16	17
Iron	13	13	16	14	14
Number of Providers (Unweighted)	572	236	133	203	336
Afternoon Snacks	Mean Percentage of RDA in CACFP Afternoon Snacks as Offered				
Total Energy	13%	13%	13%	13%	13%
Protein	32	32	30	29	29
Vitamin A	23	23	23	18	19
Vitamin C	32	31	41	36	37
Calcium	20	20	18	18	18
Iron	11	11	13	12	12
Number of Providers (Unweighted)	1558	458	582	518	1100

most commonly offered juices are orange and grapefruit juices; both of which are high in vitamin C.

ALL MEALS AND SNACKS OFFERED

The preceding discussions provide useful information on the potential nutrient contributions of individual CACFP meals and snacks. However, because more than 60 percent of all children are in care for eight or more hours per day (see Volume I), it is important to assess the potential nutrient contribution of the total complement of meals and snacks offered by CACFP providers. The more hours a child spends in care, the greater his or her dependence on CACFP meals and snacks for meeting daily nutritional requirements and, with respect to *Dietary Guidelines* and NRC recommendations, the more influence CACFP meals and snacks have on the overall quality of total daily intake. While the specific meals and snacks children have access to is influenced by both schedule and the total number of hours in care, as described in Chapter Four, information on the potential cumulative contribution of CACFP meals and snacks is useful for planning purposes.

This section presents information on the average nutrient content of the full complement of meals and snacks offered by CACFP providers. The general analytic approach is comparable to that used in preceding sections; however, results are not compared to a specific RDA standard. Similarly, specific standards for cholesterol and sodium are not applied; in the absence of an RDA standard, it is not possible to establish prorated standards for these nutrients. Instead, the cumulative amount of sodium and cholesterol supplied in all CACFP meals and snacks offered, expressed as a percentage of the suggested daily limit defined by the NRC recommendations, is compared to the average percentage contribution to the RDA for energy. If the contribution to the recommended maximum for sodium or cholesterol outstrips the contribution to the RDA for energy, the cumulative sodium and/or cholesterol content of CACFP meals and snacks may be considered high. If the converse is true, cumulative sodium and/or cholesterol content may be considered acceptable.

The two most common meal and snack combinations offered are breakfast, lunch, and one snack and breakfast, lunch, and two snacks. These combinations provide an average of more than one-half of the RDA for energy and well over one-half of the RDA for all key nutrients examined in this study.

Combinations of Meals and Snacks Offered

Providers offer over 21 different combinations of the six CACFP meals and snacks (breakfast, morning snack, lunch, afternoon snack, supper, evening snack). Most providers offer at least two meals and one snack (Exhibit 3.21). The most common combination of meals and snacks offered is breakfast, lunch, and one snack (most often an afternoon snack, but sometimes a morning snack); this combination is offered by 43 percent of all providers. The next most common combination is breakfast, lunch, and two snacks, which is offered by 26 percent of all providers.²⁷ Other combinations are much less common and none is offered by more than 10 percent of providers overall.

Meal combinations vary by type of provider. Homes and child care centers are fairly comparable, however, child care centers are more likely than homes to offer just one snack (10% versus 2%),²⁸ and homes are more likely than child care centers to offer all available CACFP meals and snacks, with the exception of an evening snack (9% versus less than 1%). In addition, Head Start centers differ from other types of providers in that the second most common meal combination among this group of providers is breakfast and lunch, rather than breakfast, lunch, and two snacks. This pattern probably reflects the fact that most Head Start centers operate part-day programs. Almost 50 percent of children enrolled in Head Start centers are in care less than five hours per day, compared to about 20 percent of children enrolled in homes and child care centers (see Volume I).

²⁷This may change in the future. During the time this study was conducted, centers could receive reimbursement for an additional meal or snack, above and beyond the standard two meals and one snack or one meal and two snacks, for children in care eight or more hours per day. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-193) has since eliminated this "fourth meal" provision.

²⁸As noted elsewhere in this report, most of these centers operate before- or after-school programs.

Exhibit 3.21

Most CACFP Providers Offer Breakfast and Lunch with One or Two Snacks

Meal and Snack Combination	All Providers	Family Day Care Homes	Center-Based Care		
			Head Start Centers	Child Care Centers	All Centers
	Percentage of Providers Offering Combination				
Breakfast, Lunch, and One Snack	43%	42%	54%	43%	47%
Breakfast, Lunch, and Two Snacks	26	28	5	22	16
Breakfast and Lunch	2	*	28	2	12
Lunch and One Snack	1	1	6	1	3
Lunch and Two Snacks	5	5	3	7	5
Breakfast, Lunch, Supper, and Two Snacks	7	9	0	*	*
One Snack	2	1	*	10	6
Other	14	14	3	15	11
Number of Providers (Unweighted)	1962	501	891	570	1461

* = Less than one percent.

Note: All combinations that were offered by fewer than 25 providers (unweighted) were included in the Other category.

Nutrient Content of Combinations of Meals and Snacks Offered Relative to RDAs

Exhibit 3.22 presents information on average nutrient contribution of the five most common meal and snack combinations expressed as percentages of the RDA.^{29,30} Figures reflect overall means for all types of providers; results for each type of provider are presented in exhibits B.20 through B.23 and B.25 through B.28.

Both of the most common meal and snack combinations (breakfast, lunch, and one snack and breakfast, lunch, and two snacks) provide, on average, more than one-half of the RDA for energy and substantially more than two-thirds of the RDA for all key nutrients. Indeed, with the exception of iron, nutrients are supplied at levels that, on average, approximate or exceed 100 percent of the RDA. This general pattern holds for all provider types and virtually all age groups. The one exception is mean iron content of the combination of breakfast, lunch, and one snack as offered to one- and two-year-olds. This combination provides somewhat less than two-thirds (63%) of the RDA for iron for this age group.

The less common combinations of breakfast and lunch and lunch and two snacks also provide an average of 50 percent or more of the RDA for energy and more than 75 percent of the RDA for all key nutrients except iron. Protein, vitamin A, and vitamin C are provided at levels that, on average, exceed 100 percent of the RDA.

Finally, the combination of lunch and one snack provides about 40 percent of the RDA for energy and iron, about two-thirds of the RDA for calcium, and about 100 percent of the RDA for protein and vitamins A and C.

²⁹Data are not presented for the combination of breakfast, lunch, supper, and two snacks because individual children are rarely in care long enough to have access to all of these meals and snacks. Moreover, at the time the study was conducted, CACFP reimbursement was limited to a maximum of four meals or snacks for children in care eight or more hours per day.

³⁰Data on actual energy and nutrient content are presented in Exhibit B.19. Age-group-specific results and standard errors for the estimates presented in Exhibit 3.22 are provided in Exhibit B.24.

Exhibit 3.22

**The Full Complement of Meals and Snacks Offered by Most CACFP Providers
Supplies More Than One-half of the RDA for Energy and Substantially
More Than Two-thirds of the RDA for Key Nutrients**

	Breakfast, Lunch, and Snack	Breakfast, Lunch, and Two Snacks	Breakfast and Lunch	Lunch and Snack	Lunch and Two Snacks
Mean Percentage of RDA in all CACFP Meals and Snacks Offered					
Total Energy	61%	71%	51%	41%	53%
Protein	189	216	169	137	165
Vitamin A	169	203	151	120	150
Vitamin C	154	195	146	99	142
Calcium	96	112	83	66	80
Iron	72	86	61	44	56
Number of Providers (Unweighted)	1051	343	265	115	103

Notes: 43 percent of providers offer breakfast, lunch, and one snack and 26 percent of providers offer breakfast, lunch, and two snacks.

Data are not presented for the combination of breakfast, lunch, supper, and two snacks because individual children generally do not have access to all of these meals and snacks.

Nutrient Content of Combinations of Meals and Snacks Offered Relative to Dietary Guidelines and NRC Recommendations

Exhibit 3.23 presents information on the mean macronutrient, cholesterol, and sodium content of the five most common meal and snack combinations.³¹ Figures reflect means for all providers; results for each type of provider are presented in exhibits B.30 through B.33.

The two most common CACFP meal and snack combinations (breakfast, lunch, and one snack and breakfast, lunch, and two snacks), as offered to children five years of age and older, meet or approximate the *Dietary Guidelines* and NRC recommendations for the percentage of energy from fat (30% to 31%), carbohydrate (55% to 56%), and protein (16%). These combinations do not, however, meet the recommendation for the percentage of energy from saturated fat (13% versus a recommendation of less than 10%). This general pattern is true for all types of providers as well as for meals and snacks offered to both five-year-olds and six- to ten-year-olds.

³¹Data on actual energy and nutrient content are presented in Exhibit B.19. Standard errors for the estimates presented in Exhibit 3.23 are provided in Exhibit B.29.

Exhibit 3.23

The Meal and Snack Combinations Offered by Most CACFP Providers Meet or Approximate *Dietary Guidelines* and NRC Recommendations, with the Exception of the Percentage of Energy from Saturated Fat

	Recommendation	Breakfast, Lunch, and Snack	Breakfast, Lunch, and Two Snacks	Breakfast and Lunch	Lunch and Snack	Lunch and Two Snacks
Mean Nutrient Content of all CACFP Meals and Snacks Offered						
Percent of Energy from Fat (%)	≤ 30%	31	30	32	33	30
Percent of Energy from Saturated Fat (%)	< 10%	13	13	13	13	12
Percent of Energy from Carbohydrate (%)	≥ 55%	55	56	53	51	56
Percent of Energy from Protein (%)	≤ 15%	16	16	17	18	16
Cholesterol (mg)	n.s.	133	151	127	87	92
Sodium (mg)	n.s.	1624	1788	1452	1203	1311
Number of Providers (Unweighted)		1023	326	264	108	94

n.s. = Not specified.

Notes: Based on meals and snacks offered to five-year-olds and six- to ten-year-olds. See Chapter Two for a discussion of *Dietary Guidelines* and NRC recommendations and the rationale for age groups used in this analysis.

43 percent of providers offer breakfast, lunch, and one snack and 26 percent of providers offer breakfast, lunch, and two snacks (see Exhibit 3.21).

Data are not presented for the combination of breakfast, lunch, supper, and two snacks because individual children generally do not have access to all of these meals and snacks.