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Diet Quality of American Young Children by WIC Participation Status:

Data from the National Health and Nutrition Examination Survey, 2005–2008

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Data from the National Health and Nutrition Examination Survey, 2005–2008

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EXECUTIVE SUMMARY

Over time, nutrition assistance programs have expanded their focus from ensuring that program participants have enough to eat to improving the quality of the foods participants can access with program benefits. This shift reflects a growing consensus about the important role diet plays in the development of chronic diseases, including obesity, and recognition that benefits provided by nutrition assistance programs should reflect Federal nutrition policy, which is based on the *Dietary Guidelines for Americans*. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides nutrient-dense foods, nutrition education, and referral to health care services for low-income pregnant, breastfeeding, and postpartum women, infants, and children up to 5 years old who are at nutritional risk. WIC aims to combat malnutrition and under-nutrition during critical periods of early childhood growth and development.

The Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA) recognizes that strategies for improving the nutrition of WIC participants should be scientifically -based and use valid and reliable information about their current dietary practices. This study was commissioned to provide such information. The study analyzed National Health and Nutrition Examination Survey (NHANES) data from 2005–2008, updating a previous study that analyzed 1999–2004 NHANES data.[1] Because the numbers of infants and pregnant, postpartum, and breastfeeding women in NHANES were small, the analysis focused on children who were age-eligible for WIC (1–4 years old, including children up to 5 years old). The report provides information on the quality of young children's diets from multiple perspectives, including usual nutrient intakes and food consumption patterns.

This report contains tabulations of dietary measures for children 1–4 years old and describes differences in diet quality between WIC participants and two groups of nonparticipants—those children who were income-eligible for WIC but did not participate in the program, and higher-income children who were not eligible for the program. WIC participants were defined as children who were reported to be currently receiving WIC benefits. Income-eligible nonparticipants were defined as children from families with annual income at or below 185 percent of the Department of Health and Human Services (DHHS) poverty guideline. Higher-income nonparticipants were defined as children from families with annual income greater than 185 percent of the poverty guideline.

The WIC Program

WIC is the third largest of the 15 domestic nutrition assistance programs administered by FNS. In Federal fiscal year (FY) 2013, the program provided benefits to nearly 8.7 million participants

[1] More recent data were available (NHANES 2009–2010) when this study was conducted, but were not used because substantial changes were made to the WIC food packages in 2009. However, data from NHANES 2007–2010 were used to analyze dietary supplement use and nutrient intakes from dietary supplements because these data were not available in NHANES 2005–2006.

per month, on average, at an annual cost of $6.5 billion.[2] WIC food benefits comprise the largest component of program costs at $4.5 billion, or 70 percent of total program costs (USDA, 2014).

WIC provides Federal grants to States for supplemental foods, health care referrals, and nutrition education. Food benefits are provided to participants through food instruments, including electronic benefits, which are redeemable at authorized food retailers. Benefits are based on specific food items and, therefore, the cash value of monthly benefits varies by State and region. The national average cash value of monthly benefit in FY 2013 was $43.26 per month (USDA, 2014). In FY 2013, about 54 percent of WIC cases were children 1–4 years old, 23 percent were infants, and 24 percent were women.[3] Over half of all infants in the United States participate in the WIC program.[4] WIC operates in 50 States, the District of Columbia, 34 Indian Tribal Organizations, and 5 territories.

WIC food packages are designed to supplement participants' diets with specific nutrients and food groups and to contribute to an overall dietary pattern that is consistent with the *Dietary Guidelines for Americans* and infant feeding practice guidelines. Food packages are tailored to the specific needs of different participant groups (for example, infants, children, pregnant women, and breastfeeding women). Federal regulations specify the types and quantities of foods provided in the food packages. State WIC agencies designate specific brands and sizes of approved food products according to the Federal regulations and cost containment goals of each State agency. The WIC food packages for children that were in place when NHANES 2005–2008 data were collected included foods in five categories: juice, cereal, milk and/or cheese, eggs, and legumes (dried beans or peanut butter). Major changes in the content of WIC food packages were implemented nationwide in 2009. Changes focused on providing additional nutrients and foods that are typically under-consumed by the WIC population, and less of the nutrients that are typically over-consumed. New food packages are based on recommendations of the Institute of Medicine, and align with the recommendations of the *Dietary Guidelines for Americans* and infant feeding practice guidelines of the American Academy of Pediatrics. The new food packages also provide participants with a wider variety of foods, including fruits and vegetables and whole grains.

Federal regulations require local WIC agencies to offer participants (or their mothers or other care providers) at least two nutrition education sessions during each six month certification period[5] (Johnson et al., 2013). Participants may be counseled in one-on-one settings or attend group classes. Nutrition education has two main goals: (1) to emphasize the relationship between nutrition, physical activity, and health , with special emphasis on the nutritional needs of pregnant, postpartum, and breastfeeding women, infants, and children under five years old; and (2) to assist individuals at nutritional risk in achieving positive changes in dietary and physical

[2] Data obtained at http://www.fns.usda.gov/pd/wisummary.htm
[3] Data obtained at http://www.fns.usda.gov/sites/default/files/pd/37WIC_Monthly.pdf
[4] Data obtained at http://www.fns.usda.gov/wic/about-wic-wic-glance
[5] The State agency may permit its local agencies to certify an infant under six months old up to the last day of the month in which the infant turns 1 year old, provided the quality and accessibility of health care services are not diminished.

activity habits, resulting in improved nutritional status and in the prevention of nutrition-related problems through optimal use of WIC supplemental foods and other nutritious foods.

Focus of the Research

Strategies for improving the diets of WIC children—whether developed by policymakers, program administrators, nutrition educators, or researchers—should be scientifically-based. This report provides a comprehensive picture of the diets of WIC children immediately prior to the 2009 changes in the food packages. Findings can be used to target efforts to improve the quality of participants' diets and as a benchmark for monitoring participants' diets over time.

The following measures were used to examine the quality of diets consumed by children 1–4 years old and to identify differences in the diets of WIC children and nonparticipant children:

- Usual nutrient intakes—to assess the proportions of children with adequate or excessive intakes
- Body mass index (BMI)—to assess the prevalence of overweight and obesity
- Proportions of children consuming foods from "supermarket aisle" food groups (Cole & Fox, 2008) food groups, and the average amounts of those food groups consumed—to assess food consumption patterns
- Healthy Eating Index-2005—to assess overall diet quality[6]

This research was not designed to assess the impact of WIC or in any way attribute differences observed between WIC children and nonparticipant children to an effect of the program. Estimation of program impacts requires a randomized experiment or quasi-experimental design to control for selection bias (Wilde, 2007; and Fox et al., 2004). In this report, we present only results of descriptive data analyses and comparisons between WIC children and nonparticipant children. We discuss only statistically significant differences between these groups in the comparisons throughout the report.

Usual Nutrient Intakes

We estimated usual intakes of vitamins, minerals, macronutrients, and other dietary components.[7] We then compared usual intake distributions to the Dietary Reference Intakes (DRIs) and selected 2010 *Dietary Guidelines* recommendations to assess the prevalence of adequate and excessive nutrient intakes.

Usual Intakes of Vitamins and Minerals with Defined Estimated Average Requirements

The prevalence of adequate usual intakes of vitamins and minerals is assessed by comparing the intakes of a population group to Estimated Average Requirements (EARs). The proportion of a group with usual intakes greater than or equal to the EAR is an estimate of the prevalence of

[6] We also used the Healthy Eating Index-2010 to assess overall diet quality. Findings are provided in Appendix D.
[7] We also assessed the prevalence of dietary supplement use and the contribution of supplements to nutrient intakes. Findings are discussed in Chapter 2.

adequate intakes for the population group.[8] We focused on the prevalence of adequate usual intakes for the following vitamins and minerals that have defined EARs: vitamin A, vitamin C, vitamin D, vitamin B_6, vitamin B_{12}, vitamin E, folate, niacin, riboflavin, thiamin, calcium, iron, magnesium, phosphorus, and zinc.

Key findings include the following:

- Nearly all children 1–4 years old (98% to 100%) had adequate usual intakes of folate, iron, magnesium, niacin, phosphorus, riboflavin, thiamin, vitamin A, vitamin B_6, vitamin B_{12}, vitamin C, and zinc (Exhibit 1). Eighty-five percent of children had adequate usual intakes of calcium. The prevalence of adequate usual intakes was markedly lower for vitamin E (17%) and vitamin D (16%)[9,10]
- For most vitamins and minerals, the prevalence of adequate usual intakes was similar for WIC children and both groups of nonparticipant children. The only difference was for vitamin E—WIC children were more likely than higher-income nonparticipant children to have adequate usual intakes of vitamin E (22% versus 10%).

Usual Intakes of Nutrients Assessed Using Adequate Intake Levels

EARs are not defined for potassium, fiber, or sodium, so it is not possible to assess the adequacy of usual intakes. Instead, assessment focuses on comparison of mean usual intakes to Adequate Intake (AI) levels, which are recommended intake levels that are assumed to be adequate for healthy individuals in a life stage and gender group, based on observed or experimentally determined estimates. Populations with mean usual intakes that meet or exceed AI levels can be assumed to have high levels of nutrient adequacy. However, when mean usual intakes fall below the AI, no firm conclusions can be drawn about the prevalence of adequate usual intakes.

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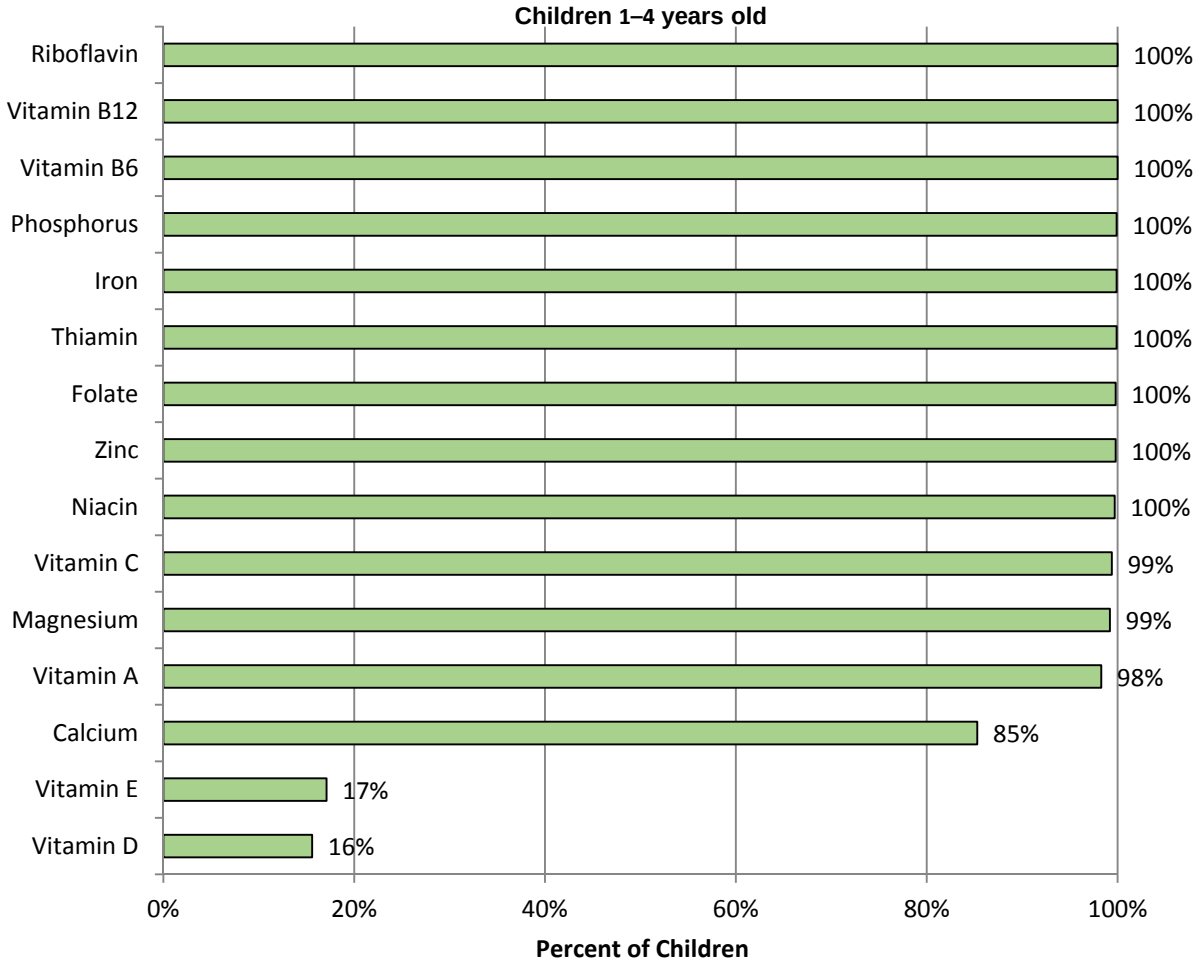
[8] For women of childbearing age, it is not appropriate to use this method to assess the prevalence of adequate usual intakes of iron. The exception for iron, however, is not applicable to this analysis which focuses on young children.
[9] It is important to note that the low prevalence of adequate usual intakes of vitamin E among children is unlikely to have meaningful public health significance. The 2010 Dietary Guidelines Advisory Committee examined nutrients with usual intakes below recommendations—referred to as "shortfall nutrients"—to identify those of public health concern (Dietary Guidelines Advisory Committee, 2010). Examination of biochemical indices did not indicate a related public health problem for vitamin E. In addition, it has been suggested that the EARs for vitamin E may need to be reassessed (Devaney et al., 2007). For these reasons, findings related to the prevalence of adequate usual intakes for vitamin E should be interpreted with caution.
[10] Although the 2010 Dietary Guidelines Advisory Committee did consider vitamin D to be of public health concern, it also stated that 80 percent of Americans have adequate vitamin D blood levels (USDA & DHHS, 2010). Vitamin D is unique in that sunlight on the skin enables the body to make vitamin D. Thus, findings should be interpreted with caution.

Exhibit 1. Percentage of Children with Adequate Usual Intakes



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

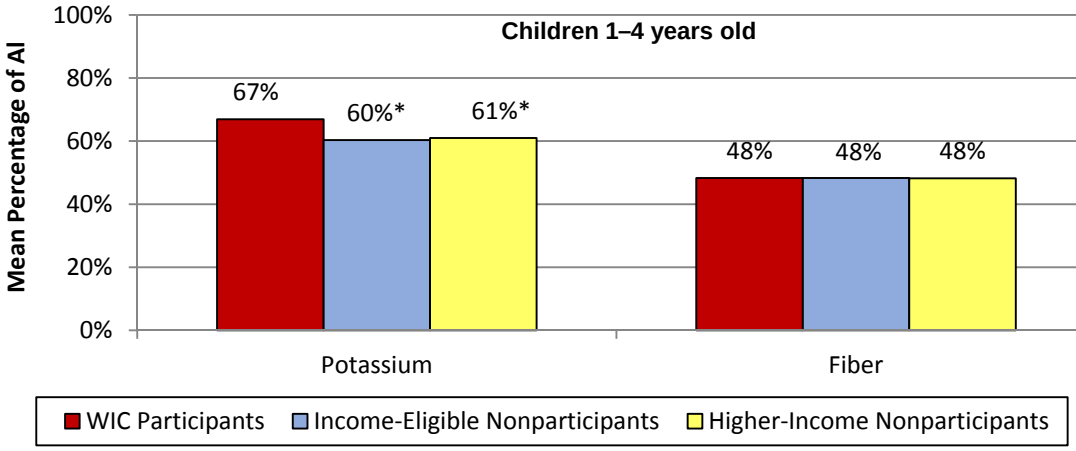
Notes: Estimates are based on two dietary recalls per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants.

For sodium, the major concern is the potential for excessive intakes, so usual intakes were also compared to the Tolerable Upper Intake Level (UL)—the maximum intake level considered to be safe for long-term consumption. Specific findings for these nutrients are summarized below.

- Overall, children 1–4 years old had a mean usual intake of potassium that was equivalent to 63 percent of the AI. WIC children had a higher mean usual intake of potassium than either income-eligible or higher-income nonparticipant children (Exhibit 2). Given the limitations of the AI standard, these differences do not necessarily imply that WIC children were more likely than nonparticipant children to have adequate usual intakes of potassium.

- Children's mean usual fiber intake was equivalent to 48 percent of the AI, for WIC children and both nonparticipant groups (Exhibit 2).

Exhibit 2. Usual Intakes of Potassium and Fiber, as a Percentage of Adequate Intake (AI) Levels

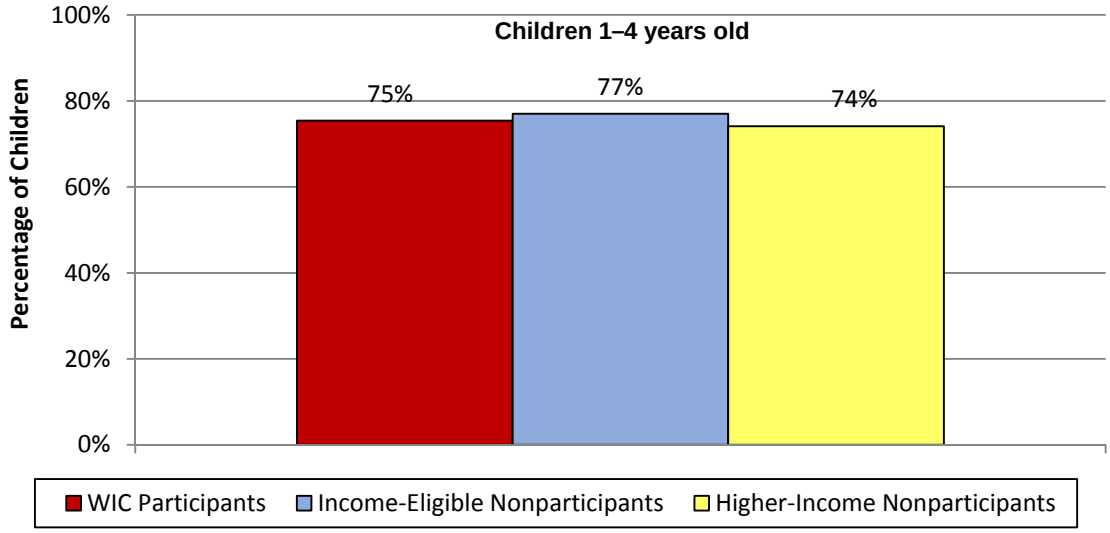


Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

- On a gram-per-1,000 calorie basis, children's mean usual intake of fiber was about 7 grams, which is approximately half of the 14-gram standard used in setting the AI. When fiber intakes were examined on a gram-per-calorie basis, WIC children had a lower mean usual intake of fiber than higher-income nonparticipant children, although the magnitude of the difference was small (6.7 g per 1,000 calories versus 7.2 g per 1,000 calories). Again, given the limitations of the AI standard, this difference does not necessarily imply that WIC children were less likely than nonparticipant children to have adequate usual intakes of fiber.
- Overall, 74 percent of all children had usual sodium intakes that were excessive relative to the UL. There were no differences between WIC children and nonparticipant children in the proportion of children with usual intakes that exceeded the UL (Exhibit 3).

Exhibit 3. Percentage of Children with Usual Sodium Intakes above the Tolerable Upper Intake Level (UL)



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Usual Intakes of Macronutrients

The DRIs define Acceptable Macronutrient Distribution Ranges (AMDRs) for intakes of macronutrients (for example, total fat, protein, and carbohydrate). AMDRs are expressed as a percentage of total calorie intakes and reflect a range of usual intakes associated with reduced risk of chronic disease, while providing adequate intakes of other essential nutrients (IOM, 2005). Intakes that are above or below the AMDR may increase risk of chronic disease. In assessing usual intakes relative to the AMDRs, we focused on the percentage of children with usual intakes of total fat, protein, and carbohydrate (as a percentage of calories) that were above, below, or within the respective AMDR. We also examined the percentage of children with usual intakes of saturated fat that were consistent with the 2010 *Dietary Guidelines* recommendation (less than 10 percent of total calories from saturated fat). Children under 2 years old were excluded from the analysis of saturated fat intakes because the *Dietary Guidelines* do not apply to them.

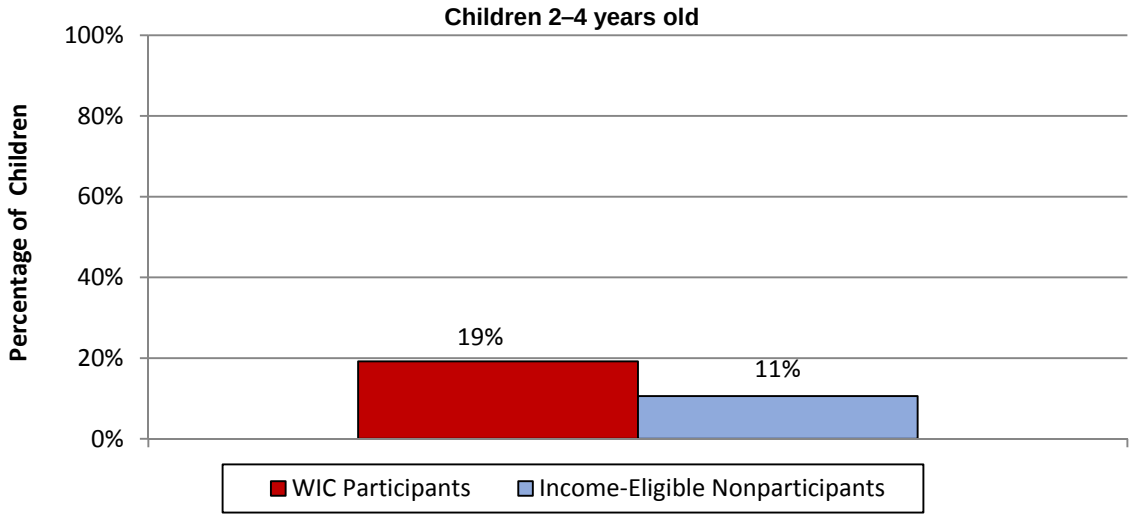
Key findings include the following:

- Overall, 70 percent of children 1–4 years old had usual intakes of total fat that were consistent with the AMDR. Children with usual fat intakes that were not consistent with the AMDR were more likely to have intakes that were below the recommended range than to exceed it. WIC children were less likely than higher-income nonparticipant children to have usual intakes of fat that were consistent with the AMDR (64% versus 74%); however, the proportions of WIC children

and nonparticipant children with intakes above and below the AMDR were comparable.

- Almost all WIC children and nonparticipant children had usual intakes of protein and carbohydrate that were consistent with the AMDR (99% for protein and 94% for carbohydrate). Usual intakes of protein and carbohydrate were comparable for WIC children and nonparticipant children.
- Less than 1 in 5 children (17%) met the *Dietary Guidelines* recommendation for saturated fat. There were no differences between WIC children and nonparticipant children in the proportion that met the *Dietary Guidelines* recommendation for saturated fat (Exhibit 4).[11]

Exhibit 4. Percentage of Children Meeting the *Dietary Guidelines* Recommendation for Saturated Fat



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. For higher-income nonparticipants, the proportion of children with usual intakes of saturated fat that met the *Dietary Guidelines* recommendation could not be estimated using the NCI method. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Prevalence of Overweight and Obesity

Achieving and maintaining an appropriate body weight is vital to sustaining good health (USDA, 2010). The key to maintaining a healthy weight is achieving calorie balance over time—this

[11] For higher-income nonparticipants, the proportion of children with usual intakes of saturated fat that met the *Dietary Guidelines* recommendation could not be estimated using the NCI method.

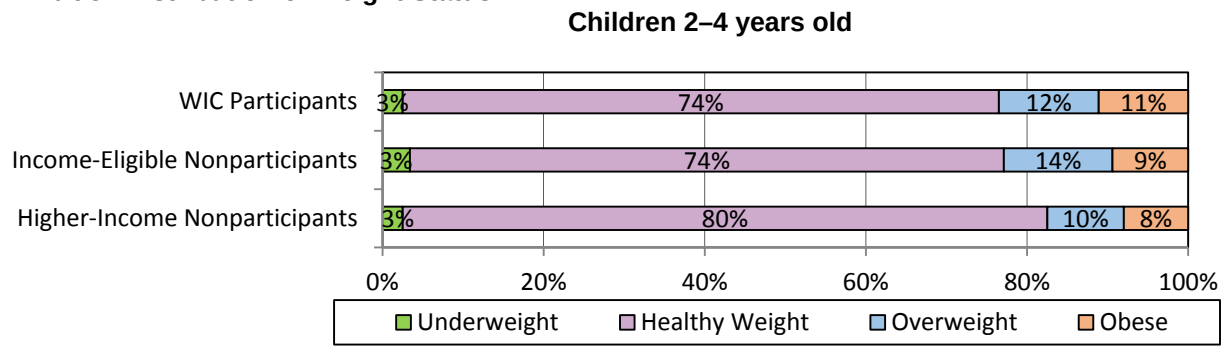
refers to the relationship between calories consumed and expended. The total number of calories a child needs each day varies by age, gender, height, weight, and level of physical activity. Excess calorie consumption over time can result in overweight and obesity. As recommended by the Institute of Medicine (2005a), we assessed the appropriateness of usual calorie intakes for children 2 years old and older using BMI.

BMI is a widely accepted index for classifying the weight status of individuals. Because children grow at different rates at different times, children's weight status is determined by using BMI-for-age percentiles that take into account a child's age and gender. The Centers for Disease Control and Prevention (CDC) define four different weight categories for children based on BMI-for-age percentiles—underweight, healthy weight, overweight, and obese. A BMI in the healthy range indicates that usual calorie intakes are consistent with requirements, and a BMI above the healthy range indicates that usual calorie intakes exceed requirements.

The percentages of WIC children and nonparticipant children in each weight category are shown in Exhibit 5. Key findings include the following:

- More than three-quarters (77%) of children 2–4 years old had a healthy weight. Approximately 1 in 10 (12%) were overweight and another 9 percent were obese.
- There were no differences between WIC children and either group of nonparticipant children in the proportion of children in each weight category.
- Compared to children 2 and 3 years old, children 4 years old had a higher rate of obesity (11% versus 7% and 8% for children 2 and 3 years old, respectively). Children 2 years old had the highest prevalence of overweight, relative to children 3 and 4 years old (15% versus 11% and 10% for 3 and 4 years old).

Exhibit 5. Distribution of Weight Status



Source: NHANES 2005–2008 body measures data. Sample includes NHANES respondents with complete dietary recall data and height and weight data, 2–4 years old.

Notes: For children, weight categories are defined as: underweight if BMI-for-age is < the 5th percentile on the CDC BMI-for-age growth chart; healthy weight if BMI-for-age is >= 5th and < the 85th percentiles; overweight if BMI-for-age is >= than the 85th and < the 95th percentiles; and obese if BMI-for-age is >= the 95th percentile. Percentages for all children 2–4 years old are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in percentages are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Consumption of Empty Calories

The consumption of empty calories is an important aspect of diet quality. Foods and beverages that contain empty calories contribute calories while providing few nutrients. For children, consumption of empty calories come from two main sources: solid fats and added sugars. The 2010 *Dietary Guidelines* recommend reducing consumption of solid fats and added sugars to allow for intake of recommended amounts of nutrient-dense foods (that is, foods that are fat-free or low-fat with no added sugars) without exceeding overall calorie needs. The *Dietary Guidelines* specify maximum daily limits for empty calories for individuals 2 years old and older, based on estimated calorie needs for three different physical activity levels. Maximum daily limits for empty calories (based on a calorie levels for sedentary level of physical activity) range from 10 to 14 percent of total calories among children 2–4 years old.[12] To assess the consumption of empty calories, we estimated the percentage contribution of empty calories to total calorie intakes.

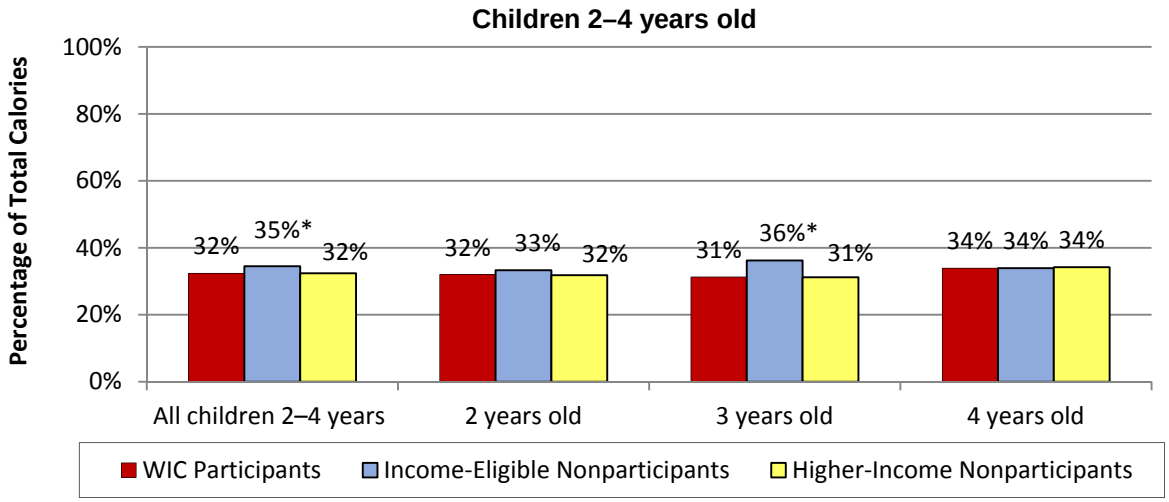
Results show that children's consumption of empty calories greatly exceeds the maximum limits specified in the 2010 *Dietary Guidelines*.

Key findings are shown in Exhibit 6 and summarized below:

- Among children 2 and 3 years old, the contribution of empty calories to total calorie intakes was more than double the maximum recommended limit (32% versus 14%). Among children 4 years old, empty calories contributed more than three times the maximum recommended limit (34% versus 10%).
- WIC children obtained a smaller share of their total calorie intake from consumption of empty calories than income-eligible nonparticipant children (32% versus 35%). This difference was driven largely by children 3 years old—WIC children in this age group obtained approximately 5 percent less of their total calorie intake from consumption of empty calories, relative to income-eligible nonparticipants (31% versus 36%).
- There were no differences between WIC children and higher-income nonparticipant children in the proportion of total calories contributed by consumption of empty calories.

[12] Since we were unable to match activity level with calorie needs, we used the sedentary level of physical activity to provide context for the findings. However, this may overstate the extent to which excess empty calories are consumed.

Exhibit 6. Average Percentage of Total Calories Contributed by Consumption of Empty Calories



Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. 'All children' includes children with missing WIC participation or income. Total percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Food Consumption Patterns

We examined the proportions of WIC children and nonparticipant children consuming the types of foods provided in the WIC food package (hereafter referred to as WIC foods), as well as the proportions consuming foods from a broader array of specific food groups and subgroups.[13] For the latter analysis, we refer to the "supermarket aisle" food groups and subgroups. The proportions of children consuming a specific food subgroup for the analysis using the supermarket aisle groups may differ from the proportion of children consuming a WIC food. The estimates using the supermarket aisle subgroups are conditional and include only children who consumed one or more foods from the major (supermarket aisle) food group; whereas, the estimates for the proportions of children consuming WIC foods includes all children.

WIC Foods

The WIC food package for children that was in place when NHANES 2005–2008 data were collected included milk and/or cheese, eggs, 100% fruit juice, cereal, and legumes (dried beans

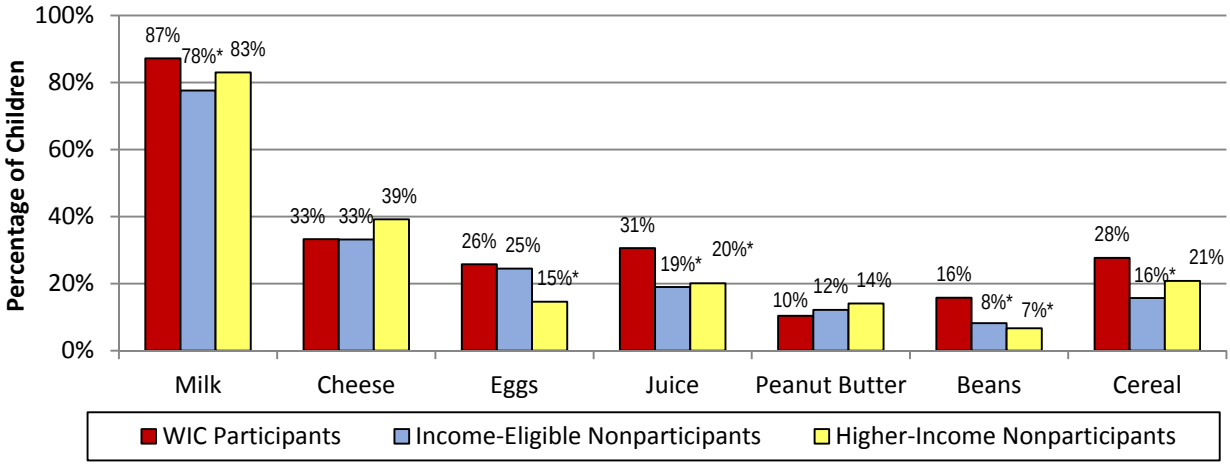
[13] We also examined the average amounts of foods consumed in specific food groups and subgroups.

or peanut butter). We compared the proportions of WIC children and nonparticipant children who consumed the various WIC foods on the day covered in the dietary recall.

WIC children were more likely than one or both groups of nonparticipant children to consume five of the seven types of foods provided in the WIC food package on the day covered in the dietary recall (Exhibit 7). Specific differences included the following:

- WIC children were more likely than either income-eligible or higher-income nonparticipant children to consume WIC juice (31% versus 19% and 20%, respectively) and beans (16% versus 8% and 7%, respectively).
- WIC children were also more likely than income-eligible nonparticipant children to consume milk (87% versus 78%) and WIC cereals (28% versus 16%).
- Compared to higher-income nonparticipant children, WIC children were more likely to consume eggs (26% versus 15%).

Exhibit 7. Percentage of Children Consuming WIC Foods



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

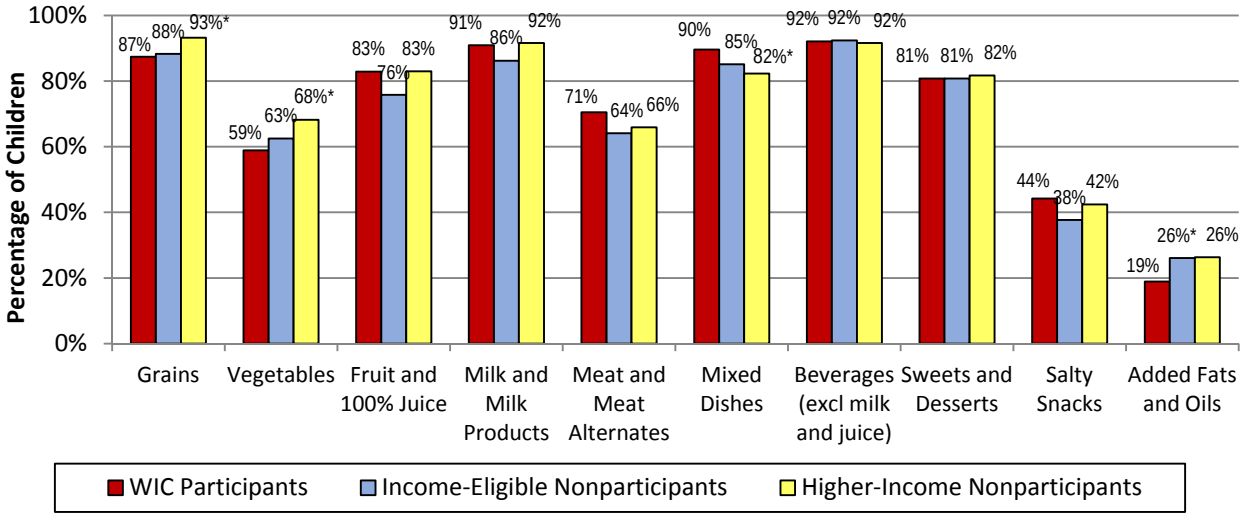
Notes: Estimates are based on a single dietary recall per child. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC at the time of the interview

Supermarket Aisle Food Groups and Subgroups

To examine children's food consumption patterns more broadly, we defined food groups and subgroups using a "supermarket aisle" approach (Cole & Fox, 2008). This approach categorizes foods into one of ten major food groups and then into subgroups within the major groups. For example, whole milk, 2% milk, cheese, and yogurt are subgroups in the milk and milk products group. Findings reported for all of the supermarket aisle food groups and subgroups reflect foods consumed as *discrete* items.

We examined the proportions of WIC children and nonparticipant children consuming foods from each of the ten major food groups (Exhibit 8). WIC children were less likely than higher-income nonparticipant children to consume discrete grain items and discrete vegetable items, but were more likely to consume mixed dishes. WIC children were also less likely than income-eligible nonparticipant children to consume fats and oils that were added to foods (for example, butter or margarine).

Exhibit 8. Percentage of WIC Children and Nonparticipant Children Consuming Any Discrete Foods from Major Supermarket Aisle Food Groups



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Starting in NHANES 2005-2006, the consumption of drinking water was collected during the dietary recall. This analysis includes drinking water in the "beverages excluding milk and juice" major food group. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

There were a number of differences between WIC children and nonparticipant children in the specific food subgroups consumed. Some differences reflect less healthy food choices among WIC children. For example, WIC children were:

- less likely than higher-income nonparticipant children to consume discrete whole grain items
- less likely than higher-income nonparticipant children to consume raw vegetables (or any discrete vegetables, as mentioned above)
- less likely than either group of nonparticipant children to consume discrete portions of fruit (fresh, frozen, canned, or dried)

- more likely than either group of nonparticipant children to consume whole milk and less likely than higher-income nonparticipants to consume lower-fat milk (including 2%, 1%, and skim milk)
- more likely than higher-income nonparticipant children to consume regular soda and noncarbonated sweetened beverages (e.g., juice drinks)

On the other hand, WIC children were:

- more likely than either group of nonparticipant children to consume cow's milk
- less likely than income-eligible nonparticipant children to consume fats and oils that were added to foods

Healthy Eating Index-2005

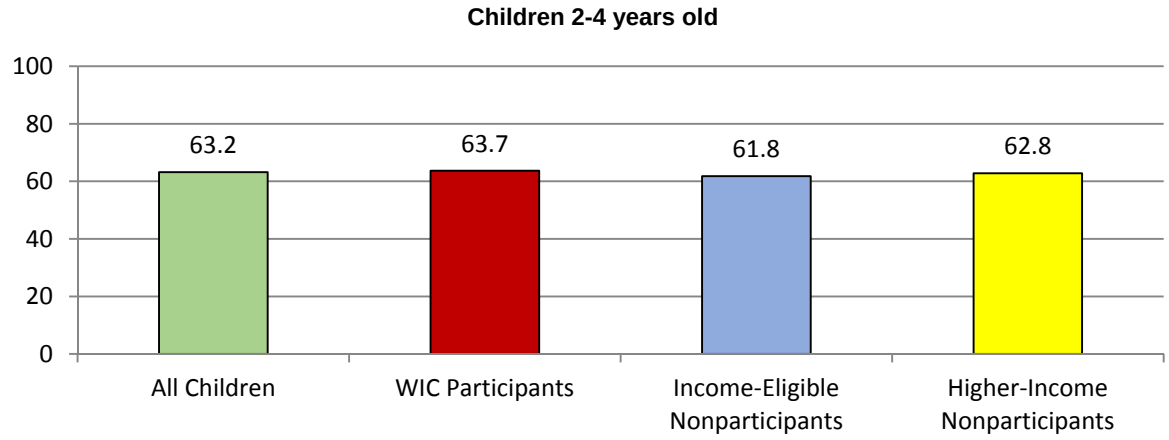
We examined the overall quality of the diets consumed by young children using the Healthy Eating Index-2005 (HEI-2005). The HEI is a measure of diet quality that assesses conformance to key recommendations of the *Dietary Guidelines* (DHHS & USDA, 2010). The HEI-2005 is a scoring metric that is made up of 12 components, each reflecting a key aspect of diet quality. The standards used to assign HEI-2005 component scores are expressed on a density basis (that is, amounts per 1,000 calories or a percentage of calories) rather than absolute amounts of foods consumed. The use of such standards in assessing diet quality reflects the recommendation that individuals should strive to meet food group and nutrient guidelines while maintaining calorie balance, rather than meeting these guidelines simply by consuming large quantities of food.

Nine of the twelve components included in the HEI-2005 are adequacy components, which assess intakes of dietary components individuals are recommended to consume to ensure adequate nutrient intakes. These include the following: (1) Total Fruit, including Juice; (2) Whole Fruit; (3) Total Vegetables; (4) Dark Green and Orange Vegetables and Legumes; (5) Total Grains; (6) Whole Grains; (7) Milk; (8) Meat and Beans; and (9) Oils. The remaining three components, referred to as moderation components, assess dietary components that individuals are recommended to limit. These include Saturated Fat, Sodium, and Empty Calories. Higher scores for the adequacy components reflect greater consumption and higher diet quality (up to a maximum score of 5 or 10 points per component). Higher scores for the moderation components reflect *lower* consumption and higher diet quality (up to a maximum score of 10 or 20 points per component). Scores for each of the 12 components are summed to create the total HEI-2005 score, with a maximum score of 100. Estimates are limited to children 2 to 4 years old because the *Dietary Guidelines* do not apply to children under 2 years old.

Results show that the diets consumed by children in all participation/eligibility groups fell considerably short of the *Dietary Guidelines* recommendations.

- For all children 2–4 years old, the total HEI-2005 score was 63 out of a possible 100. Total HEI-2005 scores were comparable for WIC children and nonparticipant children (Exhibit 9).
- Children in all three WIC participation and eligibility groups achieved or came close to achieving the maximum score (of 5.0) for Total Fruit, Whole Fruit, and Total Grains, and the maximum score (of 10.0) for Milk.

Exhibit 9. Healthy Eating Index-2005 Total Scores



Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Health Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. 'All children' includes children with missing WIC participation or income. Scores are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

- For all children, scores for Whole Grains and Dark Green and Orange Vegetables and Legumes were very low. In addition, the score for Total Vegetables was about 50 percent of the maximum possible score. These low scores indicate that children are not consuming recommended amounts of foods that contain vegetables—specifically dark green vegetables, orange vegetables, and legumes—and whole grains.
- For all children, scores for Saturated Fat, Sodium, and Empty Calories were roughly half of the maximum possible scores. The low scores for these components indicate that children are consuming more saturated fat, sodium, and empty calories than is recommended.

There were a few differences between WIC children and nonparticipant children in HEI-2005 component scores:

- WIC children received a higher score for Sodium than either group of nonparticipant children, and also received a higher score for Empty Calories than income-eligible nonparticipant children. Compared with higher-income nonparticipant children, WIC children had lower scores for Dark Green and Orange Vegetables and Legumes and for Whole Grains, but had a higher score for Meat and Beans.

Summary of Findings and Implications for WIC Nutrition Education

This report describes the quality of the diets consumed by WIC children and nonparticipant children. Overall, the findings indicate that the diets of children that participate in WIC were generally comparable to the diets of children who did not participate in the program.

Diet Adequacy and Excess

- Almost all children (98% to 100%) had adequate usual intakes of vitamins and minerals with defined EARs, except for calcium, vitamin E, and vitamin D.

- In general, WIC children and nonparticipant children had usual intakes of vitamins and minerals that were similar.

- For all children, usual intakes of potassium and fiber were below the AI. Given the limitations of the AI standard, no firm conclusions can be drawn about the adequacy of children's intakes of potassium or fiber.

- There were no differences between WIC children and nonparticipant children in usual intakes of sodium or saturated fat; however, intakes of these dietary components were excessive relative to recommendations. Three-quarters (74%) of children had usual sodium intakes that were excessive relative to the UL. In addition, less than 1 in 5 children (17%) met the *Dietary Guidelines* recommendation for saturated fat.

Diet Quality

- Total HEI-2005 scores, which provide an overall measure of diet quality, were comparable for WIC children and nonparticipant children.

- For all children, HEI-2005 scores indicated that intakes of whole grains and dark green and orange vegetables and legumes were low relative to recommendations.
- In addition, HEI-2005 scores indicate that all children had intakes of saturated fat, sodium, and empty calories that exceeded recommended limits.
- Compared with higher-income nonparticipant children, WIC children had lower scores for Dark Green and Orange Vegetables and Legumes, and for Whole Grains.
- On the other hand, WIC children had a higher score for Sodium than either group of nonparticipants and had a higher score for Meat and Beans than higher-income nonparticipants.

- WIC children obtained a smaller share of their total calorie intake from empty calories than income-eligible nonparticipant children. The difference in intakes of empty calories could be attributable to the fact that WIC children were more likely than income-eligible nonparticipant children to consume WIC cereals, which are lower in sugar.

Food Consumption Patterns

Differences in food consumption patterns provide context for the differences in diet adequacy and excess and diet quality described above. Some examples of this include the following:[14]

- WIC children were less likely than higher-income nonparticipant children to consume discrete portions of vegetables and raw vegetables. These differences in food choices likely contributed to the lower HEI-2005 scores for Dark Green and Orange Vegetables and Legumes observed among WIC children in relation to higher-income nonparticipant children.

- WIC children were less likely than either group of nonparticipant children to consume discrete portions of fruit (excluding juice).

- WIC children were also less likely than higher-income nonparticipant children to consume discrete whole grain items, which resulted in a lower HEI score for Whole Grains among WIC children, relative to higher-income nonparticipant children.

- WIC children were more likely than higher-income nonparticipant children to consume regular soda and noncarbonated sweetened beverages. WIC children were also more likely than either group of nonparticipant children to consume whole milk.

- On the other hand, WIC children were more likely than either group of nonparticipant children to consume cow's milk and less likely than income-eligible nonparticipants to consume added fats and oils.

Overweight and Obesity

- Approximately 21 percent of WIC children and nonparticipant children were overweight or obese (12% and 9%, respectively).

- There were no differences between WIC children and nonparticipant children in the proportions that were overweight or obese.

Implications for WIC Nutrition Education

Findings from this study confirm that continued nutrition education efforts are needed to help improve the quality of WIC children's diets. The findings point to specific food consumption practices that may be useful targets for WIC nutrition education efforts with parents or caregivers:

[14] Differences in the proportions of children consuming foods from the "supermarket aisle" food groups do not necessarily reflect differences in total food consumption from a food group because some foods may be consumed as part of a mixed dish and are therefore not counted in estimates for individual food groups.

- ***Consumption of whole milk.*** WIC children were more likely than either group of nonparticipant children to consume whole milk and less likely to consume lower-fat milk (including 2%, 1% and skim milk). Consumption of whole milk is not recommended for individuals over 2 years old because it is less nutrient-dense and contributes more empty calories than lower fat versions. Lower-fat milks have the same amounts of calcium and other nutrients as whole milk, but contribute fewer empty calories and less saturated fat. Whole milk is allowed in the new food packages for children 12–23 months old, and low-fat (1%), and fat-free (skim) milk are the standard milks authorized for children 2 years old and older. WIC nutrition education efforts should educate caregivers on the benefits of providing lower-fat milks to children over 2 years old.

- ***Low consumption of fruits and vegetables.*** WIC children were less likely than higher-income nonparticipants to consume discrete portions vegetables and fruit (excluding juice). Increasing total consumption of fruits and vegetables is an effective strategy for increasing intakes of potassium and fiber and better aligning WIC children's food choices with the *Dietary Guidelines*. Since the new WIC food package for children includes separate benefits to purchase fruits and vegetables, nutrition education efforts should encourage caregivers to offer a variety of fruits and vegetables to children each day—both as discrete items and as part of mixed dishes.

- ***Low consumption of whole grains.*** WIC children had lower concentrations of whole grains in their diets relative to higher-income nonparticipant children. The recommended concentration of whole grains in the *Dietary Guidelines* allows individuals to meet nutrient requirements without exceeding calorie needs. However, whole grains must replace refined (or non-whole) grains so that excess calories are not consumed. The new WIC food packages allow options for whole grain items such as whole grain cereals and breads. Nutrition education efforts with caregivers should focus on selecting WIC foods that are whole grain over non-whole grain options.

- ***Consumption of empty calories.*** Another important focal point for WIC nutrition education is intakes of empty calories. For all children, intakes of empty calories greatly exceeded limits specified in the *Dietary Guidelines*. In addition, WIC children were more likely than higher-income nonparticipant children to consume regular soda and noncarbonated sweetened beverages, such as juice drinks. Nutrition education efforts should focus on decreasing intakes of foods that contribute empty calories in order to improve the overall quality of WIC children's diets. This is also essential for reducing the prevalence of overweight and obesity.

Continuing to target specific food choices through WIC nutrition education, such as the ones described above, may be an effective way to affect behavioral change that results in improved diet quality among WIC children.

CHAPTER 1. INTRODUCTION

Over time, nutrition assistance programs have expanded their focus from ensuring that program participants have enough to eat to improving the quality of the foods participants can access with program benefits. This shift reflects a growing consensus about the important role diet plays in the development of chronic diseases and recognition that benefits provided by Federal nutrition assistance programs should appropriately reflect Federal nutrition policy, which is based on the *Dietary Guidelines for Americans*, for the target populations. The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides nutrient-dense foods, nutrition education, and referrals to health care services for low-income pregnant, breastfeeding, and postpartum women; infants; and children up to 5 years old who are at nutritional risk. WIC aims to combat malnutrition and under-nutrition during critical periods of early childhood growth and development. WIC is funded by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA).

FNS recognizes that strategies for improving the nutrition of WIC participants should be scientifically-based and use valid and reliable information about the current dietary practices of WIC participants. This study was commissioned in 2012 to provide such information. The study analyzes National Health and Nutrition Examination Survey (NHANES) data from 2005 to 2008 to examine differences in diet quality between WIC participants and nonparticipants. Although more recent data were available (NHANES 2009–2010), these data were not used for the primary analyses in this study due to substantial changes in the WIC food packages implemented in 2009. Due to the gradual implementation of new WIC food packages during the 2009-2010 NHANES wave, we were unable to determine whether NHANES respondents were receiving the old or new WIC food package during the survey data collection. However, NHANES 2007–2010 data were used to analyze dietary supplement use and nutrient intakes from supplements, because these data were not available in NHANES 2005–2006.

Because the numbers of infants and pregnant, postpartum, and breastfeeding women in NHANES were small, the analysis focused on children who were age-eligible for WIC (children 1–4 years old; up to 5 years old) (WIC children). Appendix E provides key findings for a limited set of outcomes for women and infants. The report updates a previous study that analyzed 1999–2004 NHANES data and provides information on the quality of young children's from multiple perspectives, including usual nutrient intakes and food consumption patterns. Information is presented for WIC children and two groups of nonparticipant children—those who were income-eligible for WIC but did not participate in the program (based on caregiver report), and higher-income children who were not eligible for the program. Income-eligible nonparticipants were defined as children from families whose annual income is at or below 185 percent of the U.S. Department of Health and Human Services (DHHS) poverty guideline. Higher-income nonparticipants were defined as children from families with annual income greater than 185 percent of the poverty guideline.

The intent of this report is to provide comprehensive picture of the diets of WIC children—a reference point that can be used to target efforts to improve children's diets and as a benchmark for monitoring children's diets over time. This research was not designed to assess the impact of WIC or in any way attribute differences observed between WIC participants and nonparticipants

to an effect of the program. Estimation of program impacts requires a randomized experiment or quasi-experimental design to control for selection bias (Wilde, 2007; Fox, Hamilton, & Lin, 2004). In this report, we present only results of descriptive data analyses and comparisons between WIC participants and nonparticipants.

We provide data on the adequacy of usual nutrient intakes of WIC participants and nonparticipants measured relative to accepted nutrition standards. Overall diet quality is measured in terms of the Healthy Eating Index-2005 and Healthy Eating Index-2010. We also present data on calorie intakes and weight status, as measured by body mass index. We provide context for these findings by examining food consumption patterns from three different perspectives: (1) proportions of children consuming the types of foods provided in the WIC food package, (2) proportions of children consuming foods from specific food groups and subgroups, and (3) average amounts of foods consumed from these food groups and subgroups, as measured in USDA Food Pattern units and in grams.

This introductory chapter provides an overview of WIC, as well as a brief description of the data and methods used in the study. Findings are discussed in the chapters that follow: usual intakes of nutrients (Chapter 2), calorie intakes and body mass index (Chapter 3), empty calories (Chapter 4), food consumption patterns (Chapter 5), and the Healthy Eating Index-2005 (Chapter 6). Key findings and conclusions are discussed in Chapter 7. Supporting information for the data and documentation of analytic methods is provided in Appendix A. Detailed data tables are presented in Appendices B and C. Appendix D discusses and presents data on the Healthy Eating Index-2010. Lastly, Appendix E provides a summary of key findings for a limited set of outcomes for women and infants and corresponding data tables.

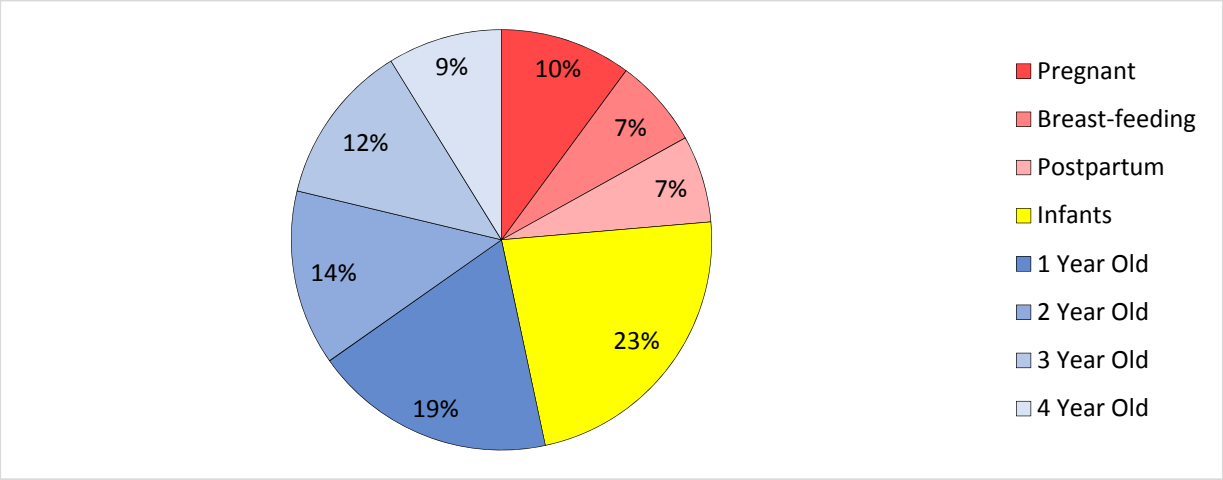
The WIC Program

WIC is the third largest of the 15 domestic nutrition assistance programs administered by FNS. In Federal fiscal year (FY) 2013, the program provided benefits to nearly 8.7 million participants per month, on average, at an annual cost of $6.5 billion. WIC food benefits comprise the largest component of program costs at $4.5 billion, or 70 percent of total program costs (USDA, 2014).

WIC provides Federal grants to States for supplemental foods, health care referrals, and nutrition education. Food benefits are provided to participants through food instruments, including electronic benefits, which are redeemable at authorized food stores. Benefits are based on specific food items determined by individual States and therefore, the cash value of monthly benefits varies by State and region. The national average value of monthly benefits in FY 2013 was $43.26 per month (USDA, 2014). In FY 2012, about 54 percent of WIC participants were children 1–4 years old, 23 percent were infants, and 24 percent were women (Exhibit 1-1).[15] Over half of all infants born in the U.S. participate in the WIC program.[16] WIC operates in 50 States, the District of Columbia, 34 Indian Tribal Organizations, and 5 territories.

[15] http://www.fns.usda.gov/sites/default/files/pd/37WIC_Monthly.pdf , accessed 5/2/2014.
[16] Data obtained at http://www.fns.usda.gov/wic/about-wic-wic-glance

Exhibit 1-1. Distribution of WIC Participants by Eligibility Category



Source: Johnson et al. (2013) WIC Participant and Program Characteristics 2012

WIC Eligibility

Applicants to WIC must reside in the State where they apply to the program and they must meet three eligibility criteria: categorical eligibility, income or adjunct eligibility, and be individually determined to be at "nutritional risk" by a health professional. There are five categories of WIC eligibility: (1-3) pregnant, breastfeeding, and postpartum women; (4) infants; and (5) children up to 5 years old. Income eligibility is assessed in two ways. Individuals in these groups are automatically income-eligible due to enrollment (or enrollment of a family member) in the Supplemental Nutrition Assistance Program (SNAP), Medicaid, Temporary Assistance for Needy Families (TANF), or certain other State-administered programs. Individuals who are not automatically income-eligible must have a gross annual family income at or below 185 percent of the DHHS poverty guideline for the size of their family. In 2012, three-quarters (74.6%) of WIC enrollees reported receiving benefits from at least one public assistance program that classified them as automatically income-eligible for WIC (Johnson et al., 2013).

Additionally, applicants must be determined to be at nutritional risk by a health care professional such as a physician, nutritionist, or nurse. The health professional can be the applicant's personal provider or a professional from the WIC clinic. Nutritional risk is based on medical and dietary conditions such as anemia, underweight status or high weight-for-height status, maternal age, history of pregnancy complications, poor pregnancy outcomes, inappropriate dietary patterns, or inadequate diet. All applicants must be seen by a health professional, and have their height and weight measured and blood drawn to test for anemia. The USDA provides a list of nutritional risk criteria, based on recommendations from the Institute of Medicine (IOM), to establish consistency across States; however, very few income-eligible people fail to meet nutrition risk criteria (Oliveira & Blaylock, 2003).

Food Benefits

State agencies use Federal grant money to provide WIC participants with food instruments—and in some States or select areas within States, electronic benefit cards—that can be used to purchase specific food items from authorized food vendors. WIC food packages are designed to supplement participants' diets with specific nutrients and food groups. Food packages are

tailored to the specifics needs of different participation groups (for example, infants, children, and pregnant and breastfeeding women). State WIC agencies designate specific brands and sizes of approved food products within categories determined by FNS according to the nutritional content of each item and cost containment goals of each State agency. The WIC food package for children that was in place when NHANES 2005–2008 data were collected included foods in five categories: juice, cereal, milk and/or cheese, eggs, and legumes (dried beans or peanut butter).

Major changes in the content of the WIC food packages were implemented nationwide in 2009, after the data used in this study were collected. Changes focused on providing additional nutrients and foods that are typically under-consumed by the WIC population, and less of the nutrients that are typically over-consumed. New food packages provide participants with a wider variety of foods, including fruits and vegetables and whole grains. They also provide WIC State agencies greater flexibility in prescribing food packages to accommodate the cultural food preferences of participants.

Nutrition Education

FNS regulations require local WIC service agencies to offer participants (or their caregivers) at least two nutrition education sessions during each certification period (Johnson et al., 2013). Participants may be counseled in one-on-one settings or attend group classes. As part of nutrition education and counseling, breastfeeding is promoted as the optimal source of infant nutrition.

Nutrition education has two main goals:

1. to emphasize the relationship between nutrition, physical activity, and health, with special emphasis on the nutritional needs of pregnant, postpartum, and breastfeeding women, infants, and children under 5 years old

2. to assist individuals at nutritional risk in achieving positive changes in dietary and physical activity habits through optimal use of WIC supplemental foods and other nutritious foods.

National Health and Nutrition Examination Survey

NHANES is conducted by the National Center for Health Statistics (NCHS) and is designed to provide national estimates of the health and nutrition status of the civilian, non-institutionalized population in the 50 United States. The survey includes interviews, physical examinations, and laboratory tests. Beginning in 1999, NHANES became a continuous annual survey with data released in public data files every two years. All of the analyses in this report are based on survey data from NHANES 2005–2008, except the analyses of dietary supplement use and nutrient intakes from supplements. These analyses were based on NHANES 2007–2010 data, because 24-hour data on dietary supplements were not available in NHANES 2005–2006. These data are described below and more fully in Appendix A.

NHANES Dietary Interview Data

This study relies primarily on data from the NHANES 24-hour dietary recall interview, which collects quantitative data on foods and beverages consumed during the preceding 24 hours (Day-1 Dietary Recall). The dietary recall is collected using USDA's dietary data collection method—

the Automated Multiple-Pass Method (AMPM). Respondents are provided with measurement aids to assist in estimating the portion sizes of foods consumed. The first dietary interview is conducted in person and the second dietary interview is conducted by telephone, 3–10 days after the initial dietary interview. The Day-2 Dietary Recall is used to control for within-person day-to-day variance in nutrient intakes when estimating usual nutrient intakes. For children less than 6 years old, the dietary recall interviews are conducted with a proxy who is generally the person most knowledgeable about the child's dietary intake. For children 6 to 11 years, the interviews are conducted with the child and the proxy.

The dietary interview component of NHANES is referred to as What We Eat in America (WWEIA),[17] and is designed in partnership between NCHS and the USDA's Food Surveys Research Group. USDA's Food and Nutrient Database for Dietary Studies (FNDDS) is used to process the dietary intake data. FNDDS includes comprehensive information that is used to code individual foods and portion sizes reported by respondents, and it also includes nutrient values for calculating daily nutrient intakes. FNDDS nutrient values are updated for every 2-year WWEIA release cycle. NCHS' public data releases of NHANES data include an individual food-level file (containing one record for each food item reported by each respondent) and a total nutrient-intakes file (containing one record per respondent with total nutrient intakes for the day) (CDC, 2013).

NHANES Interview and Examination Data

This study also uses data collected through the NHANES household interview, survey questionnaires, and physical examination. These NHANES components gather information on socio-demographic characteristics (WIC program participation, age, and sex) and body measurements (height and weight).

Other Data Sources

Food Patterns equivalents data—which were formerly referred to as MyPyramid equivalents data—were used to construct several nutrition outcome measures (Bowman et al., 2013). The analysis was conducted prior to the release of the Food Patterns Equivalents Database (FPED), so the main source of Food Patterns data was the MyPyramid Equivalents Database (MPED). The following data sources were used to obtain Food Patterns data for each food reported in the NHANES 2005–2008 data:

- MyPyramid Equivalents Database for USDA Survey Foods, version 2.0 (MPED 2.0)
- Center for Nutrition Policy and Promotion (CNPP) Addendum to MPED 2.0B
- CNPP Fruit Database (03–04)

[17] What We Eat in America (WWEIA), NHANES is a national food survey conducted as a partnership between the U.S. Department of Health and Human Services (DHHS) and the U.S. Department of Agriculture (USDA). WWEIA represents the integration of two nationwide surveys—USDA's Continuing Survey of Food Intakes by Individuals (CSFII) and DHHS' NHANES. Under the integrated framework, DHHS is responsible for the sample design and data collection. USDA is responsible for the survey's dietary data collection methodology, development and maintenance of the food and nutrient databases used to code and process the data, and data review and processing. The two surveys were integrated in 2002.

These sources provide data on the amounts of over 30 Food Pattern components included in 100 grams of food (Bowman et al., 2008; Bowman et al., 2013). The Food Pattern components are defined as the numbers of cup equivalents of fruit, vegetables, and dairy; ounce equivalents of grains and protein foods; teaspoon equivalents of added sugars; and gram equivalents of solid fats and oils; and number of alcoholic drinks. We linked each unique food reported in the NHANES 2005–2008 food-level files to the appropriate Food Patterns data source, and computed the amounts of each Food Pattern component consumed, based on the amount of food reported by each individual.

NHANES Samples for Tabulation

This report contains tabulations of dietary measures for WIC participants and two groups of nonparticipants. WIC participants were defined as children whose caregiver reported that they currently received WIC benefits. Children whose caregiver did not report current receipt of WIC benefits were considered nonparticipants. Income-eligible nonparticipants were defined as children in families with an annual family income of less than or equal to 185 percent of the DHHS poverty guidelines for the size of their family. Higher-income nonparticipants were defined as children in families with an annual family income greater than 185 percent of the DHHS poverty guidelines.

All analyses in this report are based on NHANES respondents with complete Day-1 Dietary Recall data. To compute all dietary measures other than usual nutrient intakes, we used only Day-1 Dietary Recall data. For the usual nutrient intake analysis, we used both Day-1 and Day-2 Dietary Recall data. For most analyses, the analysis sample included children 1–4 years old (that is, children 1 year old up to 5 years old).[18] Appendix E includes a summary of key findings for selected outcomes for pregnant, breastfeeding, and postpartum women and for infants 0–11 months old (up to 12 months) and corresponding tabulations. Because sample sizes for many of the analyses of infants and women are small, many point estimates are statistically unreliable. We report these point estimates in Appendix E, but they should be interpreted with caution.

Tabulations of WIC participants, income-eligible nonparticipants, and higher-income nonparticipants are provided for all children 1–4 years old. In addition, most of the tabulations included in the appendices provide separate estimates for children 1 year old, 2 years old, 3 years old, and 4 years old. Sample sizes and weighted population counts for the groups of WIC participant children and both groups of nonparticipant children are shown in Exhibit 1-2.[19] Sampling weights for this subsample of the NHANES population are discussed in Appendix A.

[18] Children 1 year old are excluded from estimates for nutrition outcomes that apply only to children 2 years old and older.

[19] Similar tables for infants and women are presented in Appendix E.

Exhibit 1-2. WIC Analytic Sample: Sample Sizes and Weighted Population Counts

	All children	WIC participants	Income-eligible nonparticipants	Higher-income nonparticipants
	Sample sizes			
All children	1,956	791	496	606
1 year old	566	305	96	153
2 years old	587	223	162	183
3 years old	389	132	104	134
4 years old	414	131	134	136
	Weighted population counts			
All children	16,139,722	4,511,493	3,467,431	7,529,940
1 year old	3,851,898	1,492,788	533,805	1,721,087
2 years old	4,231,516	1,171,965	962,333	1,961,955
3 years old	3,817,675	914,437	814,992	1,864,752
4 years old	4,238,633	932,302	1,156,301	1,982,146

Source: NHANES 2005–2008 dietary recall data. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: 'All children" includes respondents with missing WIC participation or income. Weighted population counts are based on NHANES dietary day-1 sample weights.

Characteristics of WIC Participant and Nonparticipant Children

Exhibit 1-3 presents race and ethnicity data for WIC children, income-eligible nonparticipant children, and higher-income nonparticipant children. WIC children were more likely than income-eligible and higher-income nonparticipant children to be Mexican American or other Hispanic, and were less likely to be non-Hispanic white. WIC children were also more likely than higher-income nonparticipant children to be non-Hispanic black.

Exhibit 1-3. Race and Ethnicity of WIC Participants and Nonparticipants

	All children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
	Race/ethnicity							
Children 1–4 years old								
Mexican American	15.9	(1.86)	29.5	(3.23)	17.0 **	(2.42)	7.3 ***	(1.10)
Other Hispanic	7.1	(1.28)	12.1	(2.89)	5.8 *	(1.29)	4.5 *	(1.19)
Non-Hispanic White	55.1	(3.38)	29.8	(5.43)	48.2 **	(4.40)	72.8 ***	(3.00)
Non-Hispanic Black	14.3	(1.96)	22.6	(3.57)	19.4	(3.49)	7.3 ***	(1.06)
Other race, multi-racial	7.7	(1.25)	5.9	(1.11)	9.6	(2.17)	8.1	(1.84)
Sample size, unweighted	1,956		791		496		606	
Sample size, weighted	16,139,722		4,511,493		3,467,431		7,529,940	

Source: NHANES 2005–2008 demographics data. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: 'All children includes respondents with missing WIC participation or income. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

General Analytic Approach

We describe differences between WIC children and nonparticipant children in their nutrient intakes, body mass index, food consumption patterns, and overall diet quality. We provide descriptive statistics with significance tests that indicate whether differences between WIC children and either group of nonparticipant children are statistically significant.

WIC participants generally tend to be younger than both groups of nonparticipant children. For this reason, we present age-adjusted estimates that eliminate between-group differences that are due solely to differences in the age distributions of the groups. Data for all children are "built-up" from estimates for smaller age groups, standardized according to the age distribution of the U.S. population in the year 2010.[20]

We tested the statistical significance of differences between WIC children and each group of nonparticipant children using t-tests. Detailed tables provided in Appendices B–E differentiate three levels of statistical significance ($p < .001$, .01, and .05). Because of the large number of t-tests conducted (comparing WIC children and each group of nonparticipant children, overall and by age group), we urge caution in interpreting results; a proportion of these tests would be expected to be significant just by chance. Although some comparisons may be statistically significant, the practical significance of the results may be limited, and should be interpreted with this limitation in mind.

We generally focus discussions on differences between WIC participants and one or both groups of nonparticipants, although we may make reference to other between-group differences (for example, by year of age) when the differences are noteworthy. The statistical significance of these secondary comparisons has not been tested, however, because of the large number of statistical tests computed and because these comparisons are not the focus of this report.

Additional information about the analytic approach, including use of NHANES sampling weights, calculation of standard errors, and age standardization is provided in Appendix A. We also identify individual point estimates that do not meet the standards of reliability or precision because of large coefficients of variation. In keeping with NHANES reporting guidelines, such estimates are reported in detailed tables, but are clearly flagged with a "u" for unreliable. In some cases, between-group differences may be statistically significant even when one point estimate is unreliable. We do not discuss results in the text that were determined to be unreliable and do not discuss comparisons where either estimate in the comparison was determined to be unreliable.

In the following chapters, we summarize key findings and illustrate observed differences between WIC children and nonparticipant children in a variety of graphics and tables. In the graphics, we denote differences that are statistically significant at the 5-percent level or better.

[20] Age standardization was applied to estimates for the following age groups: children 1 year old, children 2 years old, children 3 years old, children 4 years old.

As noted previously, this research was not designed to measure the impact of WIC participation on diet quality. Thus, significant differences that appear between WIC participants and nonparticipants cannot be attributed to participation in WIC. At the same time, the absence of a significant difference cannot be interpreted as evidence that participation in WIC has no effect. Accurate assessment of WIC impacts requires specially designed studies or, at minimum, complex analytical models that require a variety of measures, some of which are not available in the NHANES data.

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CHAPTER 2. USUAL NUTRIENT INTAKES

To assess the prevalence of adequate and excessive nutrient intakes among WIC children and nonparticipant children (1–4 years old), we estimated usual intakes of vitamins, minerals, macronutrients, and other dietary components. We then compared usual intake distributions to the Dietary Reference Intakes (DRIs) and selected 2010 *Dietary Guidelines* recommendations. The DRIs, established by the Food and Nutrition Board of the Institute of Medicine provide guidelines on intake amounts appropriate for a given individual based on age, gender, and life stage (IOM, 1997; IOM, 1998; IOM, 2000; IOM, 2001; IOM, 2005a; IOM, 2005b; IOM, 2006; IOM, 2011).The DRIs are the most up-to-date scientific standards for determining whether diets provide enough nutrients to meet requirements without being excessive. The DRIs include four different standards (see text box) and we used the most appropriate standard for each nutrient.

Usual Nutrient Intakes

Data

- NHANES 2005–2008: One or two 24-hour recalls per child

Sample

- Children 1–4 years old; children 2–4 years for comparison to 2010 *Dietary Guidelines*

Measures

- National Cancer Institute (NCI) method for estimating:
  - Mean usual intake
  - Percent of children with usual intakes above, below, or within standards
  - Distributions of usual intake

Dietary Supplement Use

Data

- NHANES 2007–2010: Total Nutrient Intakes files and Dietary Supplements files

Sample

- Children 1–4 years old

Measures

- Percent taking dietary supplement
- Percent contribution of dietary supplements to total nutrient intakes

We used the method developed by the National Cancer Institute (NCI) to estimate usual intake distributions, mean intakes, and the percent of individuals with usual intakes that were above, below, or within DRI standards or 2010 *Dietary Guidelines* recommendations (Parsons, Munuo, Buckman, Tooze, & Dodd, 2009). Estimates reflect nutrient intakes from foods and beverages and do not include nutrient contributions from dietary supplements. A detailed description of the NCI method and the DRI standards are provided in Appendix A. Full tabulations (including mean intakes, usual intake distributions, and percent of children above, below, or within standards and recommendations) are provided in Appendix B, Tables B-1 to B-36. When discussing differences between WIC participants and nonparticipants, we focus only on statistically significant differences.

Dietary Reference Intakes (DRIs) and *Dietary Guidelines* Recommendations

Estimated Average Requirement (EAR): The EAR is the average daily nutrient intake level estimated to meet the requirement of half of the healthy individuals in a life stage and gender group. The proportion of a group with usual intakes equal to or greater than the EAR is an estimate of the prevalence of adequate usual intakes in that population group. In this chapter, we focus on the prevalence of adequate usual intakes for the following vitamins and minerals that have defined EARs: vitamin A, vitamin C, vitamin D, vitamin B_6, vitamin B_{12}, vitamin E, folate, niacin, riboflavin, thiamin, calcium, iron, magnesium, phosphorus, and zinc.

Adequate Intake (AI): The AI is a recommended average intake level that is assumed to be adequate for healthy individuals in a life stage and gender group, based on observed or experimentally determined estimates of intake. An AI is defined when insufficient data are available to estimate requirements and establish an EAR. Unlike an EAR, the AI cannot be used to estimate the prevalence of adequate intakes in a population. Instead, assessment focuses on comparison of mean usual intakes to the AI. Populations with mean usual intakes that meet or exceed AI levels can be assumed to have high levels of nutrient adequacy. However, when mean usual intakes fall below the AI, no firm conclusions can be drawn about the prevalence of adequate usual intakes. In this chapter, we focus on intakes of potassium, dietary fiber, and sodium by examining the mean usual intakes as a percent of the AI.

Tolerable Upper Intake Level (UL): The UL is the maximum level of daily nutrient intake that is likely to pose no risk of adverse health effects for almost all individuals in the general population. As intake increases above the UL, the potential risk of adverse effects may increase. We assessed intakes of sodium relative to the UL. (ULs for other nutrients are based on intakes from foods and supplements and are not examined in this report.)

Acceptable Macronutrient Distribution Range (AMDR): The AMDRs reflect a range of usual intakes associated with reduced risk of chronic disease, while providing adequate intakes of other essential nutrients (IOM 2005). The DRIs define AMDRs for intakes of macronutrients as percentages of total calorie intake. Intakes that are above or below the AMDR may increase risk of chronic disease. In this chapter, we focus on the percent of individuals with usual intakes of total fat, protein, and carbohydrate (as a percent of total calories) above, below, or within the AMDRs.

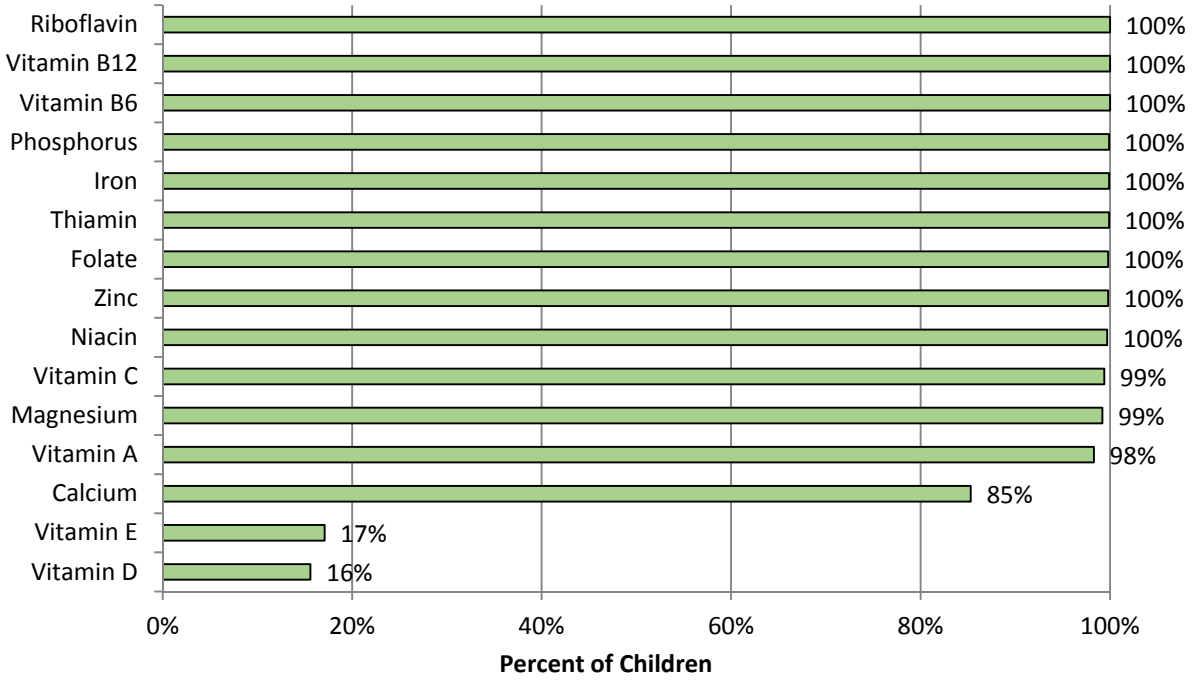
2010 *Dietary Guidelines* Recommendations: The 2010 *Dietary Guidelines* provide quantitative recommendations for intakes of saturated fat (as a percent of total calories), sodium, and cholesterol. The recommendations apply to individuals 2 years old and older. In this chapter, we focus on usual intakes of saturated fat that meet the *Dietary Guidelines* recommendation of less than 10 percent of total calories from saturated fat.

Usual Intakes of Vitamins and Minerals with Defined Estimated Average Requirements

The EAR is the average daily nutrient intake level estimated to meet the requirement of half of the healthy individuals in a life stage and gender group. The proportion of a group with usual intakes greater than or equal to the EAR is an estimate of the prevalence of adequate intakes in that

population group.[21] We assessed the prevalence of adequate usual intakes for the following vitamins and minerals with defined EARs: vitamin A, vitamin C, vitamin D, vitamin B_6, vitamin B_{12}, vitamin E, folate, niacin, riboflavin, thiamin, calcium, iron, magnesium, phosphorus, and zinc. Nearly all children 1–4 years old (98% to 100%) had adequate usual intakes of folate, iron, magnesium, niacin, phosphorus, riboflavin, thiamin, vitamin A, vitamin B_6, vitamin B_{12}, vitamin C, and zinc (Exhibit 2-1).

Exhibit 2-1. Percent of Children 1–4 Years Old with Adequate Usual Intakes



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants.

Eighty-five percent of children had adequate usual intakes of calcium. The prevalence of adequate usual intakes was markedly lower for vitamin E (17%) and vitamin D (16%). For most vitamins and minerals, the prevalence of adequate usual intakes was similar for WIC children and both groups of nonparticipant children (Exhibit 2-2).

[21] For women of childbearing age, it is not appropriate to use this method to assess the prevalence of adequate usual intakes of iron. The exception for iron, however, is not applicable to this analysis which focuses on young children.

Exhibit 2-2. Prevalence of Adequate Usual Intakes of Vitamins and Minerals

	Percent of children 1–4 years old			
	All children	WIC participants	Income-eligible nonparticipant	Higher-income nonparticipant
	Vitamins			
Vitamin A	98.3	98.0	98.2	98.9
Vitamin C	99.4	99.6	99.5	99.4
Vitamin D	15.6	16.7	12.5	16.7
Vitamin B_6	100.0	100.0	99.8	100.0
Vitamin B_{12}	100.0	100.0	100.0	100.0
Vitamin E	17.1	21.5	18.1	10.2*
Folate	99.8	99.9	99.4	99.9
Niacin	99.7	99.8	99.4	99.6
Riboflavin	100.0	100.0	100.0	100.0
Thiamin	99.9	100.0	99.8	99.9
	Minerals			
Calcium	85.3	86.6	84.4	86.3
Iron	99.9	100.0	100.0	99.8
Magnesium	99.2	99.2	99.0	99.2
Phosphorus	99.9	99.9	99.8	99.9
Zinc	99.8	99.8	99.9	99.8

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

It is important to note that the low prevalence of adequate usual intakes of vitamin E among children is unlikely to have meaningful public health significance. The 2010 *Dietary Guidelines* Advisory Committee examined nutrients with usual intakes below recommendations—referred to as "shortfall nutrients"—to identify those of public health concern (Dietary Guidelines Advisory Committee, 2010). Examination of biochemical indices did not indicate a related public health problem for vitamin E. In addition, it has been suggested that the EARs for vitamin E may need to be reassessed (Devaney et al., 2007). Although the 2010 Dietary Guidelines Advisory Committee did consider vitamin D to be of public health concern, it also stated that 80 percent of Americans have adequate vitamin D blood levels (USDA & DHHS, 2010). Vitamin D is unique in that sunlight on the skin enables the body to make vitamin D. For these reasons, findings related to the prevalence of adequate usual intakes for these nutrients should be interpreted with caution.

For these reasons, findings related to the prevalence of adequate usual intakes for these nutrients should be interpreted with caution.

Usual Intakes of Nutrients Assessed Using Adequate Intake Levels

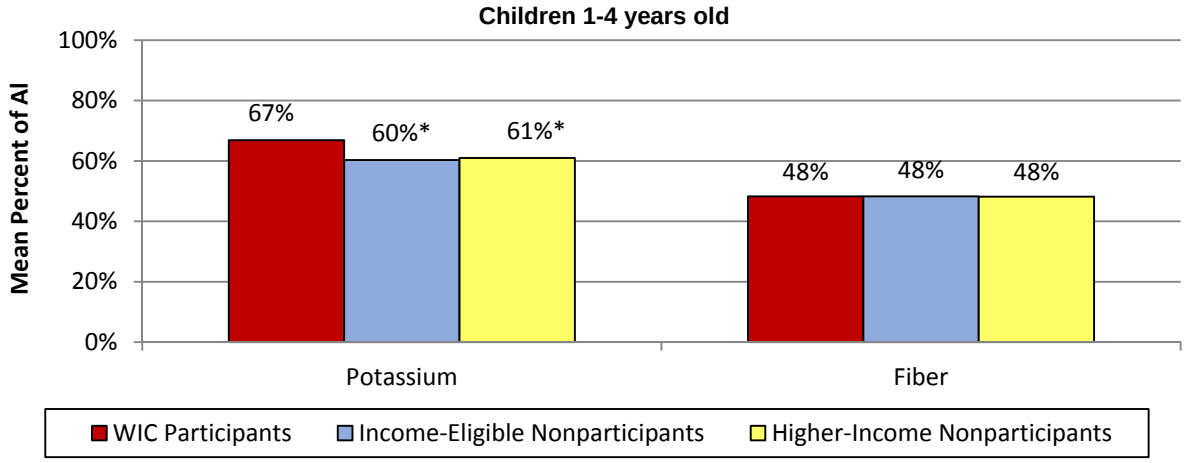
EARs are not defined for potassium, fiber, or sodium, so it is not possible to assess the adequacy of usual intakes of these dietary components. Populations with mean usual intakes that meet or exceed AI levels can be assumed to have high levels of nutrient adequacy. However, when mean usual intakes fall below the AI, no firm conclusions can be drawn about the prevalence of

adequate usual intakes. We examined intakes of potassium, fiber, and sodium by examining mean usual intakes as a percent of the AI.

Potassium

Children 1–4 years old had a mean usual intake of potassium that was equivalent to 63 percent of the AI (Appendix B, Table B-18). WIC children had a higher mean usual intake of potassium than either income-eligible or higher-income nonparticipant children (67% of AI versus 60% and 61% of AI, respectively) (Exhibit 2-3). Given the limitations of the AI standard, these differences do not necessarily imply that WIC children were more likely than nonparticipant children to have adequate usual intakes of potassium.

Exhibit 2-3. Usual Intakes of Potassium and Fiber, as a Percent of Adequate Intake (AI)



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Fiber

Mean usual intakes of fiber were assessed as a percent of the AI and on a gram-per-calorie basis. The standard used to establish AIs for fiber is 14 grams per 1,000 calories, based on the median calorie intake for each age and gender group, as reported in the 1994–96, 98 Continuing Survey of Food Intakes by Individuals (IOM, 2005b).[22]

Usual fiber intakes of WIC children and nonparticipant children were low relative to the AI. Overall, children's mean usual intake of fiber was equivalent to 48 percent of the AI (Appendix B, Table B-21). There were no differences between WIC children and nonparticipant children in

[22] Estimated intakes of fiber include dietary fiber only, but AIs are established for *total* fiber (dietary and functional). Therefore, mean usual intakes of fiber may be underestimated.

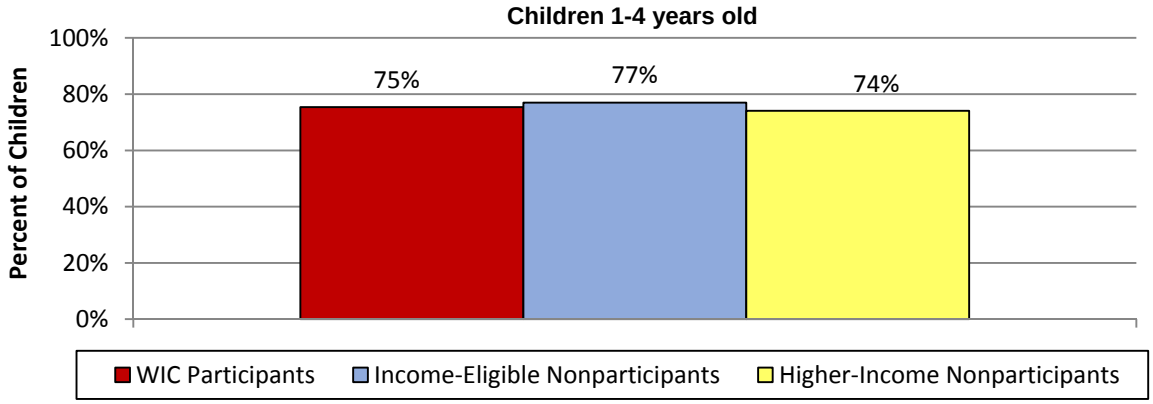
usual fiber intakes (Exhibit 2-3). On a gram-per-1,000 calorie basis, mean usual intakes of fiber were about 7, which is approximately half of the 14 gram standard used in setting the AI (Appendix B, Table B-22). When fiber intakes were examined on a gram-per-calorie basis, WIC children had a lower mean usual intake of fiber than higher-income nonparticipant children, although the magnitude of the difference was small (6.7 g per 1,000 calories versus 7.2 g per 1,000 calories). This suggests that WIC children are achieving a comparable usual fiber intake because they are consuming more calories than higher-income nonparticipant children (this is discussed in Chapter 3).

Sodium

For sodium, we assessed usual intakes relative to the UL as well as the AI. The UL is the maximum level of daily nutrient intake that is likely to pose no risk of adverse health effects for almost all individuals in the general population. As intake increases above the UL, the potential risk for adverse effects may increase. For sodium, individuals with usual intakes that exceed the UL may be at increased risk of hypertension.

Overall, children's mean usual intake of sodium was almost twice the AI (194% of AI) (Appendix B, Table B-19). There were no differences between WIC children and nonparticipant children in usual sodium intakes. In addition, 74 percent of all children had usual sodium intakes that were excessive relative to the UL. There were no differences between WIC children and nonparticipant children in the proportion of children with usual intakes that exceeded the UL (Exhibit 2-4).

Exhibit 2-4. Percent of Children with Usual Sodium Intakes above the Tolerable Upper Intake Level (UL)



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Usual Intakes of Macronutrients

The DRIs define AMDRs for intakes of macronutrients (for example, total fat, protein, and carbohydrate). AMDRs are expressed as a percent of total calorie intakes and reflect a range of usual intakes associated with reduced risk of chronic disease, while providing adequate intakes of other essential nutrients (IOM, 2005). Intakes that are above or below the AMDR may increase risk of chronic disease. In assessing usual intakes relative to the AMDRs, we focused on the percent of children with usual intakes of total fat, protein, and carbohydrate (as a percent of calories) that were above, below, or within the respective AMDR. We also examined the percent of children with usual intakes of saturated fat that were consistent with the 2010 *Dietary Guidelines* recommendation (less than 10% of total calories from saturated fat). Children less than 2 years old were excluded from the analysis of usual saturated fat intakes because the *Dietary Guidelines* do not apply to them.

Total Fat

Overall, 70 percent of children 1–4 years old had usual intakes of total fat that were consistent with the AMDR (Exhibit 2-5). Children with intakes that were not consistent with the AMDR were more likely to have fat intakes that were below the range recommended in the AMDR than to exceed the range. WIC children were less likely than higher-income nonparticipant children to have usual intakes of fat that were consistent with the AMDR (64% versus 74%); however, the proportions of WIC children and nonparticipant children with intakes above and below the AMDR were comparable (Exhibit 2-5).

Exhibit 2-5. Usual Intakes of Macronutrients Compared to Standards

	Percent of children 1– 4 years old			
	All children	WIC participants	Income-eligible nonparticipant	Higher-income nonparticipant
Total fat				
Less than the AMDR	23.3	26.5	21.1	22.3
Within the AMDR	69.8	63.8	69.6	73.7*
Above the AMDR	6.9	9.8	9.4	4.1
Protein				
Less than the AMDR	0.3	0.1	0.1	0.7
Within the AMDR	98.7	99.3	99.7	97.2
Above the AMDR	1.0	0.6	0.2	2.1
Carbohydrate				
Less than the AMDR	3.3	4.1	3.5	3.3
Within the AMDR	94.4	92.1	94.7	94.3
Above the AMDR	2.3	3.8	1.8	2.4
Saturated fat, consistent w/ DG[a]	17.1	19.2	10.6	nr

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person For higher-income nonparticipants, the proportion of children with usual intakes of saturated fat that met the *Dietary Guidelines* recommendation could not be estimated using the NCI method. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the

interview. AMDR = Acceptable Macronutrient Distribution Range; DG = 2010 *Dietary Guidelines*; nr = not reliable.

[a] The 2010 *Dietary Guidelines* recommendation is less than 10 percent of calories from saturated fat. Estimates exclude children less than 2 years old.

Protein

The vast majority (99%) of WIC children and nonparticipant children had usual intakes of protein that were consistent with the AMDR (Exhibit 2-5). Usual intakes of protein were comparable for WIC children and nonparticipant children.

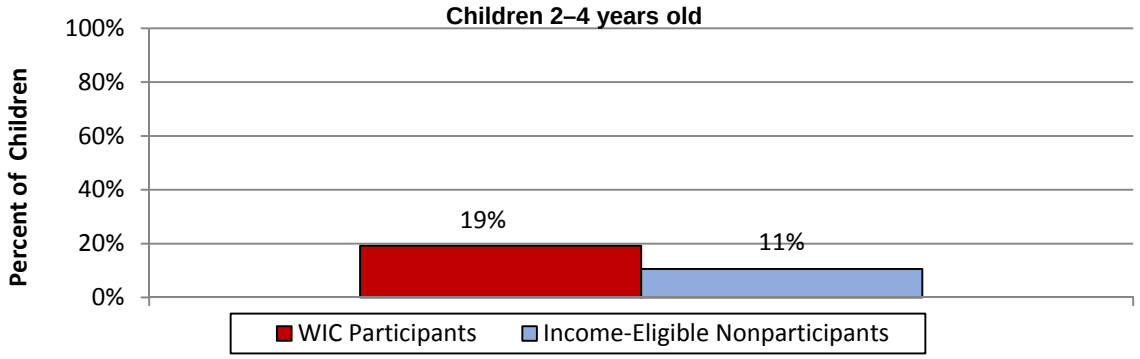
Carbohydrate

Similarly, almost all children (94%) had usual intakes of carbohydrate that were consistent with the AMDR, and intakes were comparable for WIC children and nonparticipant children (Exhibit 2-5).

Saturated Fat

Less than 1 in 5 children (17%) met the *Dietary Guidelines* recommendation for saturated fat (Exhibit 2-5). There were no differences between WIC children and nonparticipant children in the proportion that met the *Dietary Guidelines* recommendation for saturated fat (Exhibits 2-5 and 2-6).[23]

Exhibit 2-6. Percent of Children Meeting the Dietary Guidelines Recommendation for Saturated Fat



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level. Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[23] For higher-income nonparticipants, the proportion of children with usual intakes of saturated fat that met the *Dietary Guidelines* recommendation could not be estimated using the NCI method.

Use of Dietary Supplements and Nutrient Intakes from Dietary Supplements

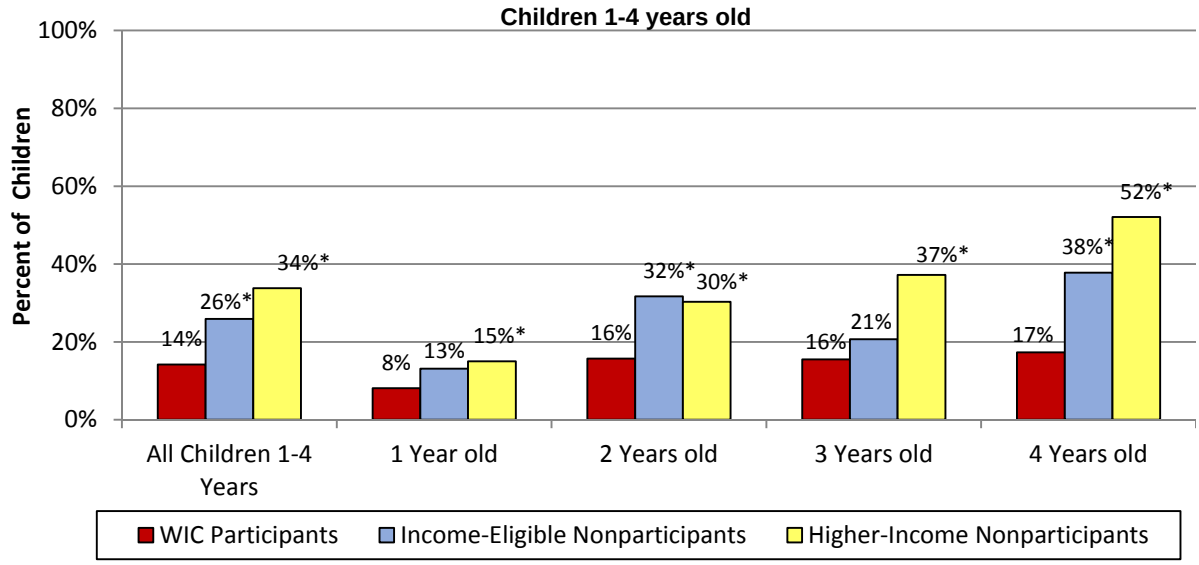
Information on dietary supplement use is important in assessing usual nutrient intakes. Because the NHANES dietary recall interview did not start collecting data on 24-hour dietary supplement use until NHANES 2007–2008, the usual nutrient intake estimates reported previously in this chapter do not include contributions from dietary supplements.

To gain some perspective on the contributions of dietary supplements to children's nutrient intakes, we estimated the prevalence of supplement use and mean daily nutrient intakes from supplements using data from NHANES 2007–2010. We also examined the percent contribution of supplements to total nutrient intakes. Mean daily intakes of nutrients from foods and supplements are provided in Appendix C, Table C-2. The contribution of dietary supplements to nutrient intake levels recommended in the DRIs was also examined. Findings are not discussed in the chapter but are provided in Appendix C, Table C-4. All estimates were based on one-day intakes, and the analysis focused on intakes of vitamin and minerals among supplement users. The NHANES dietary supplement files do not include data for vitamin A and vitamin E, so these nutrients are not included in the analysis. Full tabulations are provided in Appendix C, Tables C-1 to C-4.

Prevalence of Supplement Use

More than 1 in 4 children (27%) took one or more supplements on the day covered in the dietary recall (Appendix C, Table C-1). Overall, WIC children were less likely than either income-eligible or higher-income nonparticipant children to use supplements on the intake day (14% versus 26% and 34%, respectively) (Exhibit 2-7).

Exhibit 2-7. Prevalence of Dietary Supplement Use on Intake Day



Source: NHANES 2007–2010 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on one dietary recall per person. Totals for all children are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level. Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Supplement use was more common after the first year of life, increasing from 12 percent among children 1 year to 26-28 percent among children 2 and 3 years old and 40 percent among children 4 years old (Appendix C, Table C-1). WIC children in each age group were less likely than their higher-income nonparticipant counterparts to use dietary supplements (Exhibit 2-7). The magnitude of the differences between WIC children and higher-income nonparticipant children was largest among children 4 years old (17% versus 52%). Among children 2 and 4 years old, WIC children were less likely than income-eligible children to use a dietary supplement (16% versus 32% for children 2 years old, and 17% versus 38% for children 4 year old).

Contribution of Supplements to Total Daily Nutrient Intakes

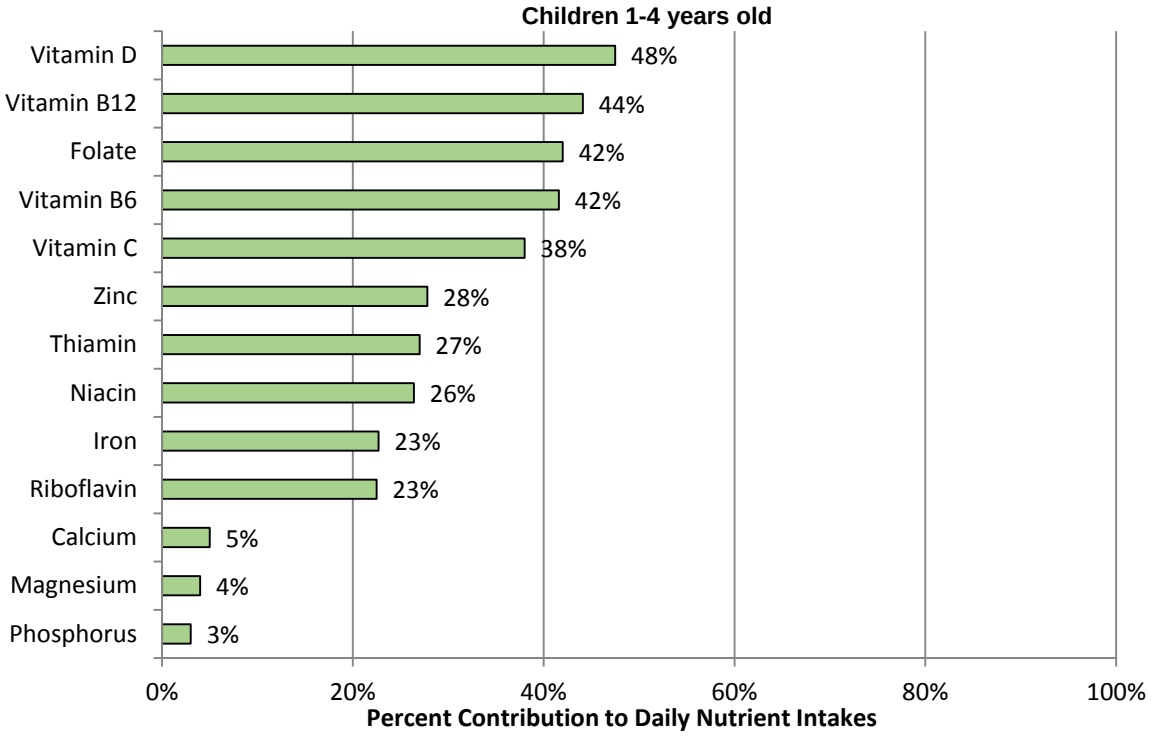
We examined the percent contribution of supplements to total nutrient intakes in two groups of supplement users: (1) all supplement users, which includes children that took any dietary supplement on the day covered in the dietary recall; and (2) multivitamin users, which includes the subset of supplement users that took at least one multivitamin on the intake day. Multivitamins were defined as supplements that contained three or more vitamins and at least one mineral.

Among all supplement users, supplements contributed approximately half (48%) of total daily intakes of vitamin D and 42 to 44 percent of total daily intakes of vitamin B_6, vitamin B_{12}, and folate (Exhibit 2-8). Supplements contributed 38 percent of vitamin C intakes and 23 to 28 percent of iron, riboflavin, niacin, thiamin, and zinc intakes. Supplements made smaller contributions to total daily intakes of calcium (5%), magnesium (4%), phosphorus (3%), and potassium (less than 1%).

Among multivitamin users, multivitamins contributed approximately 50 percent of users' total daily intakes of vitamin D, B_6, B_{12}, and folate (Appendix C, Table C-3). In addition, multivitamins contributed 36 to 39 percent of zinc and vitamin C intakes and 23 to 28 percent of riboflavin, niacin, thiamin, and iron intakes. Multivitamins made smaller contributions to total daily intakes of calcium (6%), magnesium (5%), phosphorus (4%), and potassium (less than 1%).

In both groups of supplement users, there were no differences between WIC children and nonparticipant children in the contribution of supplements and multivitamins to total daily nutrient intakes.

Exhibit 2-8. Proportion of Daily Nutrient Intakes from Dietary Supplements, among All Supplement Users



Source: NHANES 2007–2010 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods, beverages, and dietary supplements.

Notes: Estimates are based on one dietary recall per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants.

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CHAPTER 3. USUAL INTAKES OF CALORIES AND BODY MASS INDEX

In this chapter, we examine usual intakes of calories and body mass index (BMI). Achieving and maintaining an appropriate body weight is vital to sustaining good health (USDA & DHHS, 2010). The key to maintaining a healthy weight is achieving calorie (or energy) balance over time—this refers to the relationship between calories consumed and expended. The total number of calories a child needs each day varies by age, gender, height, weight, and level of physical activity (Exhibit 3-1). Imbalances between calorie intake and expenditure result in gains or losses of body fat, which affects body weight. Excess calorie consumption over time can result in overweight and obesity.

It is difficult to assess whether usual calorie intakes are consistent with or exceed requirements. An individual's estimated energy requirement (EER) is only an approximation of calorie requirements and actual requirements vary among individuals. Calorie requirements are also strongly influenced by physical activity, but activity levels are not precisely measured in most surveys, including NHANES. In addition, dietary intake is often underreported in surveys, especially by individuals who are overweight or obese (Moshfegh, et al., 2008), which makes it difficult to assess accurately the appropriateness of usual calorie intakes. Thus, BMI is recommended for assessing the appropriateness of usual calorie intakes (for children 2 years and older) because it provides a reliable indicator of the extent to which long-run (or usual) calorie intakes are consistent with or exceed requirements (IOM, 2005a).

Exhibit 3-1. Estimated Daily Calorie Needs by Age and Physical Activity Level[a,b]

Age	Estimated daily calories needs[c]		
	Sedentary	Moderately active	Active
Children			
2–3 years old	1,000–1,200[d]	1,000–1,400[d]	1,000–1,600[d]
4 years old	1,200–1,400[d]	1,400–1,600[d]	1,500–1,900[d,e]

Source: U.S. Department of Agriculture and U.S. Department of Health and Human Services. *Dietary Guidelines for Americans, 2010.* 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010. http://www.cnpp.usda.gov/DGAs2010-PolicyDocument.htm

Notes: Estimated amounts of calories needed to maintain calorie balance for various age groups at three different levels of physical activity. The estimates are rounded to the nearest 100 or 200 calories. An individual's calorie needs may be higher or lower than these average estimates.

[a] Calorie needs are not estimated for children 1 year old.

[b] Sedentary means a lifestyle that includes only the light physical activity associated with typical day-to-day life. Moderately active means a lifestyle that includes physical activity equivalent to walking about 1.5 to 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life. Active means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour, in addition to the light physical activity associated with typical day-to-day life.

[c] Based on Estimated Energy Requirements (EER) equations, using reference heights (average) and reference weights (healthy) for each age group. For children, reference height and weight vary. EER equations are from the Institute of Medicine. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington (DC): The National Academies Press; 2002.

[d] The calorie ranges shown are to accommodate needs of different ages within the group. For children, more calories are needed at older ages.

[e] Estimates for children 4 years old reflect averages for active boys and girls.

Usual Intakes of Calories

Data

- NHANES 2005–2008: One or two 24-hour recalls per child

Sample

- Children 1–4 years old

Measures

- National Cancer Institute (NCI) method for estimating:
  - Mean usual intake
  - Distributions of usual intake

Body Mass Index

Data

- NHANES 2005–2008
  - Single 24-hour recall per person
  - Body measures file

Sample

- Children 2–4 years old

Measures

- Proportion of children in each weight category, based on BMI-for-age percentiles

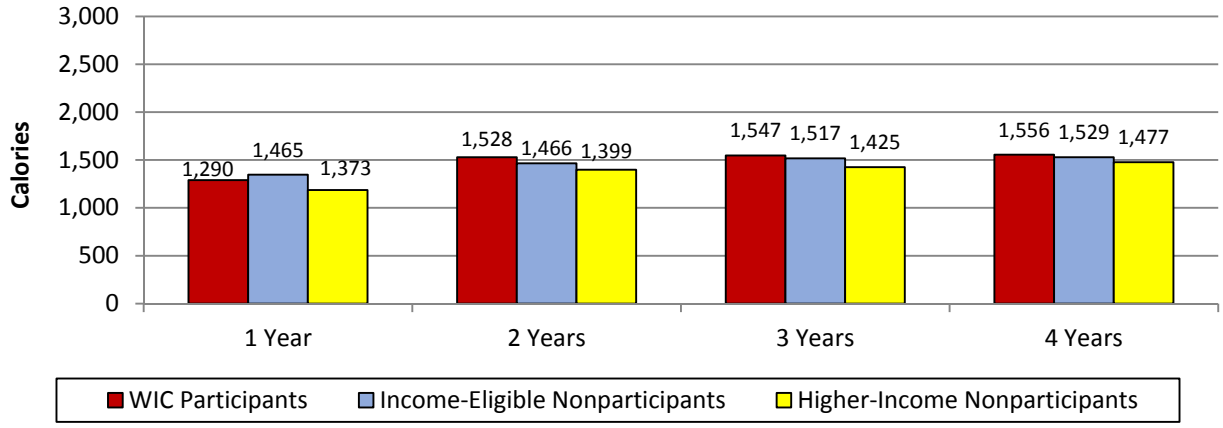
In this chapter, we present key findings on usual calorie intakes and BMI separately for each age group. We discuss only statistically significant differences between WIC children and nonparticipant children below.

Usual Intakes of Calories

We used the method developed by the National Cancer Institute (NCI) to estimate usual intakes of calories (Parsons, Munuo, Buckman, Tooze, & Dodd, 2009). A detailed description of the NCI method is provided in Appendix A.

WIC children overall had a higher usual calorie intake than higher-income nonparticipants (1,482 calories versus 1,373 calories) (Appendix C, Table C-5). No differences were observed between WIC children and nonparticipant children by year of age (Exhibit 3-2).

Exhibit 3-2. Usual Intakes of Calories



Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Body Mass Index

BMI is a measure of the relationship between height and weight and is a widely accepted index for classifying the weight status of individuals as underweight, having a healthy weight, overweight, or obese. Individuals who are overweight or obese have an increased risk of many health problems, including type 2 diabetes, heart disease, and certain types of cancer (USDA & DHHS 2010). BMI can also be used to assess the appropriateness of usual calorie intakes (IOM, 2005a).

The Centers for Disease Control and Prevention (CDC) recommends using BMI to screen for overweight and obesity in children beginning at 2 years old. Because children grow at different rates at different times, children's weight status is determined by using BMI-for-age percentiles that take into account a child's age and gender. The CDC defines four different weight categories for children based on BMI-for-age percentiles (Exhibit 3-3). A BMI in the healthy range indicates that usual calorie intakes are consistent with requirements, and a BMI above the healthy range indicates that usual calorie intakes exceed requirements.

To assess weight status and estimate the prevalence of overweight and obesity among WIC children and nonparticipant children, we assigned NHANES sample members to weight categories based on their BMI-for-age percentiles. The analysis excludes children 2 years old and younger because BMI standards do not apply to them.

Exhibit 3-3. Weight Categories for Children, Based on BMI-for-Age Percentiles

Weight category	Children (2–4 years old)[a]
Underweight	BMI < 5th percentile
Healthy weight	5th percentile ≤ BMI < 85th percentile
Overweight	85th ≤ BMI < 95th percentile
Obese	BMI ≥ 95th percentile

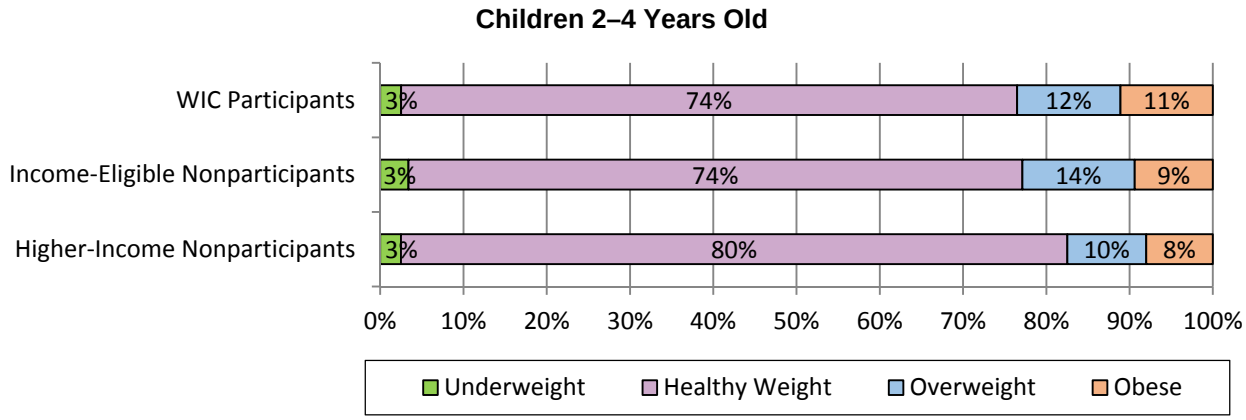
[a] The CDC recommends using BMI to screen for overweight and obesity in children beginning at 2 years old.

More than three-quarters of children 2–4 years old (77%) had a healthy weight (Appendix C, Table C-6). Approximately 1 in 10 (12%) were overweight and another 9 percent were obese.

Compared to children 2 and 3 years old, children 4 years old had a higher rate of obesity (11% versus 7% and 8% for children 2 and 3 years old, respectively) (Appendix C, Table C-6). Children 2 years old had the highest prevalence of overweight, relative to children 3 and 4 years old (15% versus 11% and 10% for children 3 and 4 years old).

When examining all children 2–4 years old together, there were no differences between WIC children and either group of nonparticipant children in the proportion of children in each weight category (Exhibit 3-4).

Exhibit 3-4. Distributions of Weight Status



Source: NHANES 2005–2008 body measures data. Sample includes NHANES respondents with complete dietary recall data and height and weight data, 2–4 years old.

Notes: For children, weight categories are defined as: underweight if BMI-for-age is < the 5th percentile on the CDC BMI-for-age growth chart; healthy weight if BMI-for-age is >= 5th and < the 85th percentiles; overweight if BMI-for-age is >= than the 85th and < the 95th percentiles; and obese if BMI-for-age is >= the 95th percentile. Percentages for all children 2–4 years old are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

CHAPTER 4. CONSUMPTION OF EMPTY CALORIES

In this chapter, we examine the contribution of empty calories to total calorie intakes for WIC children and nonparticipant children. The consumption of empty calories is an important aspect of diet quality. Foods and beverages that contain empty calories contribute calories to a diet while providing few nutrients. For children, empty calories come from two main sources: solid fats and added sugars. The 2010 *Dietary Guidelines* recommend reducing consumption of solid fats and added sugars to allow for intake of recommended amounts of nutrient-dense foods (that is, foods that are fat-free or low fat with no added sugars) without exceeding overall calorie needs. The *Dietary Guidelines* specify maximum daily limits for empty calories for individuals 2 years and older, based on estimated calorie needs for three different physical activity levels (Exhibit 4-1). As shown in Exhibit 4-1, maximum daily limits for empty calories range from 121 to 137 calories, or 10 to 14 percent of total calories for sedentary individuals,[24] among children 2–4 years old. Children under 2 years old were excluded from the analysis because the *Dietary Guidelines* do not apply to them.

To assess the consumption of empty calories among WIC participants and nonparticipants, we estimated the percent contribution of empty calories to total calorie intakes. Additional information on the construction of the empty calories measures is provided in Appendix A. Estimates are based on a single day of intake. In this chapter, we discuss only statistically significant differences between WIC participants and income-eligible or higher-income nonparticipants.

Exhibit 4-1. Estimated Calorie Needs and Maximum Limits on Empty Calories

Age Group	Estimated daily calories needs[a]			Maximum daily limit on empty calories	
	Sedentary	Moderately active	Active	Calories	As a percent of total calories[b]
Children					
2–3 years old	1,000	1,200	1,400	137	14
4 years old[c]	1,300	1,500	1,900	121	10

[a] Estimated daily calorie needs are rounded to the nearest 200 calories for consistency with USDA Food Patterns. An individual's calorie needs may be higher or lower than these average estimates.
[b] Maximum limits for empty calories are expressed as a percent of total calories, based on estimated calorie needs for sedentary individuals.
[c] Estimates for children 4 years old reflect averages for boys and girls.

Empty Calories Consumed by WIC Children and Nonparticipant Children

All groups of children greatly exceeded maximum limits for empty calories specified in the 2010 *Dietary Guidelines* (Exhibit 4-1 and Appendix C, Table C-7). Among children 2 and 3 years old, the contribution of empty calories to total calorie intakes was more than double the maximum

[24] Since we were unable to match activity level with calorie needs, we used the sedentary level of physical activity to provide context for the findings. However, this may overstate the extent to which excess empty calories are consumed.

limit (32% versus 14%). Among children 4 years old, empty calories contributed more than three times the maximum limit (34% versus 10%).

Empty Calories

Data

- NHANES 2005–208: Single 24-hour recall per child
- MyPyramid Equivalents Database, Version 2.0
- CNPP Addendum to MPED 2.0B

Sample

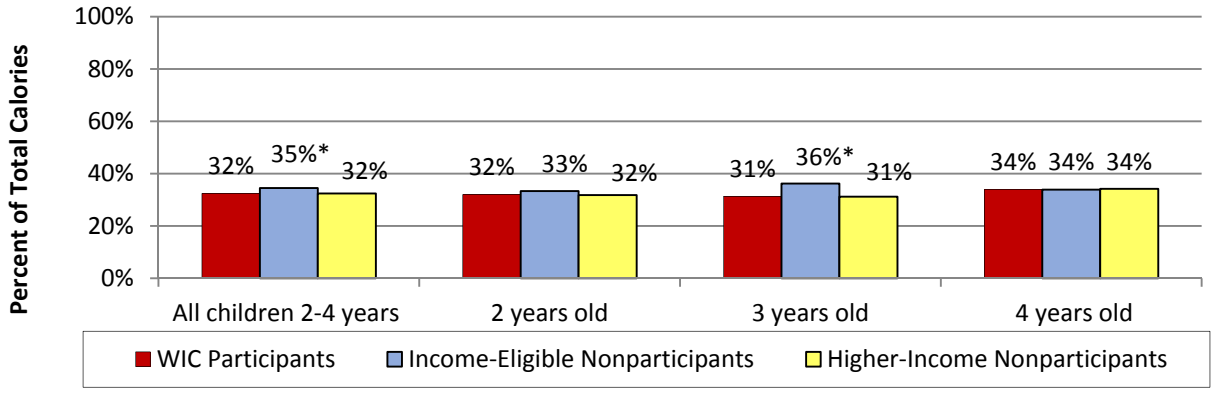
- Children 2–4 years old

Measures

- Percent of total calories contributed by empty calories, from solid fats and added sugars

WIC children obtained a smaller share of their total calorie intake from empty calories than income-eligible nonparticipant children (32% versus 35%) (Exhibit 4-2). This difference was driven largely by children 3 years old—WIC children in this age group obtained approximately 5 percent less of their total calorie intake from empty calories, relative to income-eligible nonparticipants (31% versus 36%). There were no differences between WIC children and higher-income nonparticipant children in the proportion of total calories contributed by empty calories.

Exhibit 4-2. Average Percent of Total Calories Contributed by Consumption of Empty Calories



Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. Total percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted * (at least the .05 level. Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

CHAPTER 5. FOOD CONSUMPTION PATTERNS

In this chapter, we examine the food consumption patterns of WIC children and nonparticipant children using three measures: (1) the proportions of children consuming foods provided in the WIC food package, (2) the proportions of children consuming foods from specific food groups and subgroups, and (3) the average amounts of those food groups and subgroups consumed. The food groups and subgroups used in the analysis were defined using the "supermarket aisle" approach (Cole & Fox, 2008). This approach categorizes foods into one of ten major food groups (see Exhibit 5-1) and then into subgroups within the major groups. For example, whole milk, 2% milk, cheese, and yogurt are subgroups in the milk and milk products group. The complete list of major food groups and subgroups included in the supermarket aisle approach is shown in Exhibit 5-1.

Food Consumption Patterns

Data

- NHANES 2005–2008: Single 24-hour recall per child
- MyPyramid Equivalents Database, Version 2.0
- CNPP Addendum to MPED 2.0B
- CNPP Fruit Database (03–04)

Sample

- Children 1–4 years old

Measures

- Proportion of children consuming foods provided by WIC
- Proportion of children consuming foods from supermarket aisle food groups in a day
  - Proportion of children consuming foods from supermarket aisle subgroups, among those consuming the major food group
- Mean amounts of supermarket aisle food groups and subgroups consumed in a day, across the total population
  - Amounts in USDA Food Pattern units
  - Amounts in grams

The first outcome summarized involves the **consumption of foods provided in the WIC food package**. The WIC food package for children that was in place when NHANES 2005–2008 data were collected included the following types of foods (see Exhibit 5-2): milk, cheese, eggs, 100% fruit juice, peanut butter, legumes, and cereal. Federal WIC regulations specify the types and quantities of each type of food allowed to be provided in the food package. We identified the types of foods provided by WIC in the NHANES data based on food descriptions (hereafter referred to as WIC foods). For juices and cereals, we also compared the nutrient content of the food to WIC regulatory requirements in order to identify the types of juices and cereals that are allowed by WIC (see Exhibit 5-2). We compared the proportions of WIC children and nonparticipant children who consumed the various WIC foods on the day covered in the dietary recall.

Exhibit 5-1. Supermarket Aisle Food Groups and Subgroups Used to Classify Types and Amounts of Foods Consumed by WIC Children and Nonparticipant Children

Grains	Fruit and 100% Fruit Juice	Organ meats	Beverages Other Than Milk and 100% Fruit Juice
Bread	Fresh orange	Hot dogs	Coffee
Rolls	Fresh other citrus	Turkey	Tea
English muffin	Fresh apple	Cold cuts	Beer
Bagels	Fresh banana	Fish	Wine
Biscuits, scones, croissants	Fresh melon	Shellfish	Liquor
Muffins	Fresh watermelon	Bacon/sausage	Water
Cornbread	Fresh grapes	Eggs	Regular soda
Corn tortillas	Fresh peach/nectarine	Beans (dry, cooked)	Sugar-free soda
Flour tortillas	Fresh pear	Baked/refried beans	Noncarbonated sweetened drinks
Taco shells	Fresh berries	Soy products	Noncarbonated low-calorie/ sugar free drinks
Crackers	Other fresh fruit	Chili con carne	Sweets and Desserts
Breakfast/granola bar	Avocado/guacamole	Meat mixtures w/ red meat	Sugar and sugar substitutes
Pancakes, waffles, French toast	Lemon/lime - any form	Meat mixtures w/ chicken/turkey	Syrups/sweet toppings
Cold cereal	Canned or frozen in syrup	Meat mixtures w/ fish	Jelly
Hot cereal	Canned or frozen, no syrup	Hamburgers/cheeseburgers	Jello
Rice	Applesauce, canned/frozen apples	Sandwiches (excl hamburger)	Candy
Pasta	Canned/frozen peaches	Hot dogs	Ice cream
Vegetables	Canned/frozen pineapple	Luncheon meat	Pudding
Raw lettuce/greens	Other canned/frozen	Beef, pork, ham	Ice/popsicles
Raw carrots	Non-citrus juice	Protein/meal enhancement	Sweet rolls
Raw tomatoes	Citrus juice	Nuts	Cake/cupcakes
Raw cabbage/coleslaw	Dried fruit	Peanut/almond butter	Cookies
Other raw vegetables, higher in vitamins A or C[a]	Milk and Milk Products	Seeds	Pies/cobblers
Other raw vegetables, lower in vitamins A or C[a]	Unflavored whole milk	Mixed Dishes	Pastries
Salads (w/greens)	Unflavored 2% milk	Tomato sauce & meat (no pasta)	Doughnuts
Cooked green beans	Unflavored 1% milk	Chili con carne	Salty Snacks
Cooked corn	Unflavored skim milk	Meat mixtures w/ red meat	Corn-based salty snacks
Cooked peas	Unflavored milk-% fat nfs	Meat mixtures w/ chicken/turkey	Pretzels/party mix
Cooked carrots	Flavored whole milk	Meat mixtures w/ fish	Popcorn
Cooked broccoli	Flavored 2% milk	Hamburgers/cheeseburgers	Potato chips
Cooked tomatoes	Flavored 1% milk	Sandwiches (excl hamburger)	Added Fats and Oils
Cooked mixed	Flavored skim milk	Hot dogs	Butter
Cooked starchy	Flavored milk-% fat nfs	Luncheon meat	Margarine
Other cooked deep yellow	Soymilk	Beef, pork, ham	Other added fats
Other cooked dark green	Dry or evaporated milk	Chicken, turkey	Other added oils
Other cooked vegetable, higher in vitamins A or C[a]	Yogurt	Mexican entrees	Salad dressing
Other cooked vegetable, lower in vitamins A or C[a]	Cheese	Macaroni & cheese	Mayonnaise
Other fried	Meat and Meat Alternates	Pasta dishes, Italian style	Gravy
Cooked potatoes-not fried	Beef	Rice dishes	Cream cheese
Cooked potatoes-fried	Ground beef	Other grain mixtures	Cream /sour cream
Vegetable juice	Pork	Meat soup	Other
	Ham	Bean soup	
	Lamb and misc. meats	Grain soups	
	Chicken	Vegetables mixtures (inc soup)	

Exhibit 5-2. Foods Provided to Children in the WIC Food Package (WIC Food Package IV)[a]

Food Group	Allowed Forms and Quantity per Month	Food or Nutrient Requirement
Milk	24 quarts (qts) fluid whole milk or fluid skim or low fat milk; Substitutions for fluid milk: • Cultured buttermilk (1 qt for 1qt) • Evaporated whole milk or evaporated skim milk (13 oz for 1qt fluid milk) • Dry whole milk (1 lb for 3qt fluid milk) • Nonfat or low fat dry milk (1 lb for 5 qt fluid milk) • Cheese (1 lb for 3 qt fluid milk; to maximum of 4 lb of cheese)	Flavored or unflavored whole milk with 100 International Units of vitamin D per qt; Or Flavored or unflavored pasteurized fluid skim or low fat milk with 100 International Units (IU) of vitamin D per qt and 2000 IU of vitamin A per qt. Domestic cheese (pasteurized process American, Monterey Jack, Colby, natural Cheddar, Swiss, Brick, Muenster, Provolone, Mozzarella Part-skim or Whole)
Eggs	2 or 2 ½ dozen fresh eggs 1.5 lb dried egg mix may be substituted for 2 dozen; 2 lb dried egg mix may be substituted for 2½ dozen	
Juice	288 fl oz. (9.6 oz/day)	100% fruit or vegetable juice; ≥ 30 mg vitamin C per 100 milliliters
Cereal	36 oz. (3.6 oz/day)	≥ 28 mg iron per 100g ≤ 21.2 g total sugar per 100g
Legumes	1lb dry beans or peas Or 18 oz peanut butter	

[a] The 2005–2008 NHANES data were collected prior to the implementation of the revised WIC food packages in 2009 (Federal Registrar 2007). Thus, the analysis for this study was based on the foods provided in the WIC food packages prior to revisions.

The second outcome we discuss involves **estimates of the proportions of children consuming foods from supermarket aisle food groups and subgroups**, in any amount, on the day covered in the dietary recall. Percentages reported for *food subgroups* are conditional and include only children who consumed one or more foods from the major (supermarket aisle) food group. So, for example, the percentage of children consuming fluid milk was computed with a denominator equal to the number of children consuming any foods from the "milk and milk products" major group. This approach allows us to compare food choices of WIC children with those of nonparticipant children while controlling for overall levels of consumption at the major food group level. The proportions of children consuming a specific food subgroup for the analysis using the supermarket aisle groups may differ from the proportion of children consuming a WIC food. The estimates using the supermarket aisle subgroups are conditional and include only children who consumed one or more foods from the major (supermarket aisle) food group; whereas, the estimates for the proportions of children consuming WIC foods includes all children.

All of the supermarket aisle food groups and subgroups reflect foods consumed as *discrete* items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/ hamburger" subgroup. In discussing findings, we focus on major

food groups and subgroups that were consumed by at least 2 percent of children in any participation/eligibility group. Appendix C, Table C-9, includes data for every food group and subgroup defined in the supermarket aisle approach.

The third outcome discussed involves estimates of the **average amounts of foods consumed from supermarket aisle food groups and subgroups** across the total population—that is, including both children that consumed the supermarket aisle food group or subgroup and children that did not. These average amounts were computed in both grams and USDA Food Patterns units (cup and ounce equivalents; cup eq or oz eq). Average amounts are reported in Food Pattern units of cup or ounce equivalents for most major food groups and for subgroups within these major groups. For selected major food groups and subgroups (mixed dishes, other beverages, sweets and desserts, salty snacks, and added fats and oils), average amounts are more appropriately reported in grams. The estimates reflect average daily amounts of foods consumed on the day covered in the dietary recall. Because the estimates include both consumers and non-consumers, findings for some food groups and subgroups are heavily influenced by large proportions of non-consumers.[25]

In summarizing findings, we focus on significant differences between WIC children and nonparticipant children in amounts consumed at the major food group level. We also focus findings on food subgroups that were consumed in an average amount of at least 0.1 cup or ounce equivalent for grains, fruits, vegetables, milk and milk products, and meat/meat alternates; or a minimum gram amount, depending on the food group. Detailed data are shown in Appendix C, Tables C-10 and C-12.

It is important to note that findings presented in this chapter should not be construed as representing total intakes of USDA Food Pattern food groups or compared to recommendations for these food groups. We did not estimate total intakes of USDA Food Pattern food groups. These data have been estimated by the USDA using NHANES 2005–2006 and 2007–2008 data and can be found on the USDA website (by age/gender, race/ethnicity, and income subgroups): http://www.ars.usda.gov/Services/docs.htm?docid=23868. In this chapter, we include comparisons to these data to provide some perspective on how intakes of food groups from discrete food items compare to total consumption.

Consumption of WIC Foods

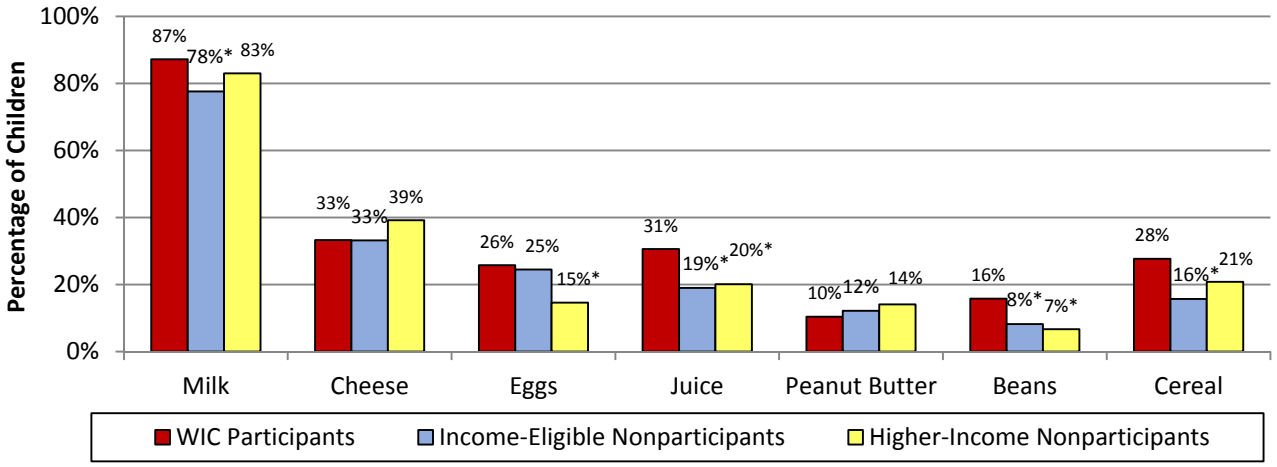
To obtain foods through WIC, participants redeem WIC food instruments, including electronic benefits at approved retailers. To aid both WIC participants and retailers, the vouchers are preprinted with allowable types and quantities of WIC-approved foods. The flexibility of food offerings varies by food group. Substitutions for fluid milk and eggs may be granted by the local WIC agency (and printed on vouchers) to meet individual dietary needs. Legumes may be provided as dry beans or peas, or as peanut butter. For cereal and juice, participants are given a list of "WIC-Approved Foods" that specifies all brands, types, and package sizes of allowable items that can be selected. Each State's list of WIC-approved foods is based on the Federal

[25] Average amounts consumed were also estimated among consumers only. Full tabulations for this analysis are provided in Appendix C, Tables C-11 and C-13 in Food Pattern units and in grams, respectively.

nutrient requirements for WIC foods as well as cost containment practices, which vary by State WIC agency.

Virtually all children (95%) consumed at least one WIC food on the day covered in the dietary recall (Appendix C, Table C-8). There were no differences between WIC participants and nonparticipants in this regard. However, there were a number of differences between WIC participants and nonparticipants in the proportions consuming specific types of WIC foods. WIC children were more likely than one or both groups of nonparticipant children to consume five of the seven types of foods provided in the WIC food package on the day covered in the dietary recall (Exhibit 5-3).

Exhibit 5-3. Percent of Children Consuming WIC Foods



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC at the time of the interview

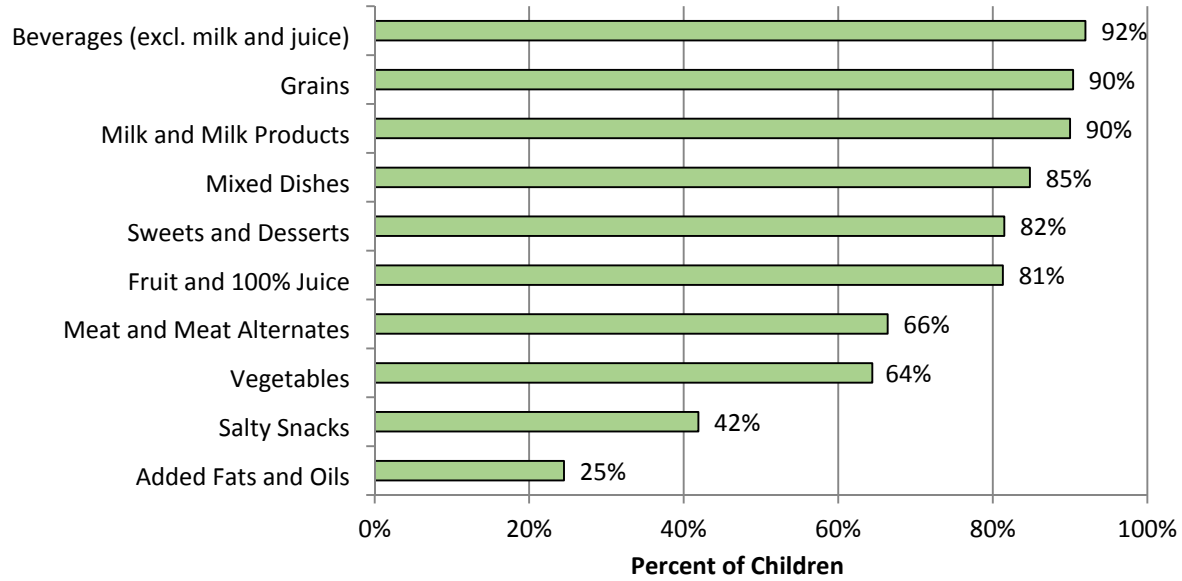
There were no differences between WIC children and nonparticipant children in the percentages consuming peanut butter or WIC cheese. However, WIC children were more likely than either income-eligible or higher-income nonparticipant children to consume WIC juice (31% versus 19% and 20%, respectively) and beans (16% versus 8% and 7%, respectively). WIC children were also more likely than income-eligible nonparticipant children to consume milk (87% versus 78%) and WIC cereals (28% versus 16%). Compared to higher-income nonparticipant children, WIC children were more likely to consume eggs (26% versus 15%).

Consumption of Supermarket Aisle Food Groups

Consumption of Grains as Discrete Food Items

Almost all children (90%) consumed a discrete grain or grain-based item on the day covered in the dietary recall (Exhibit 5-4). This excludes grains and grain-based foods included in mixed dishes, such as sandwiches and pasta-based dishes. Overall, WIC children were less likely than higher-income nonparticipant children to consume a discrete grain item (87% versus 93%) (Exhibit 5-5).

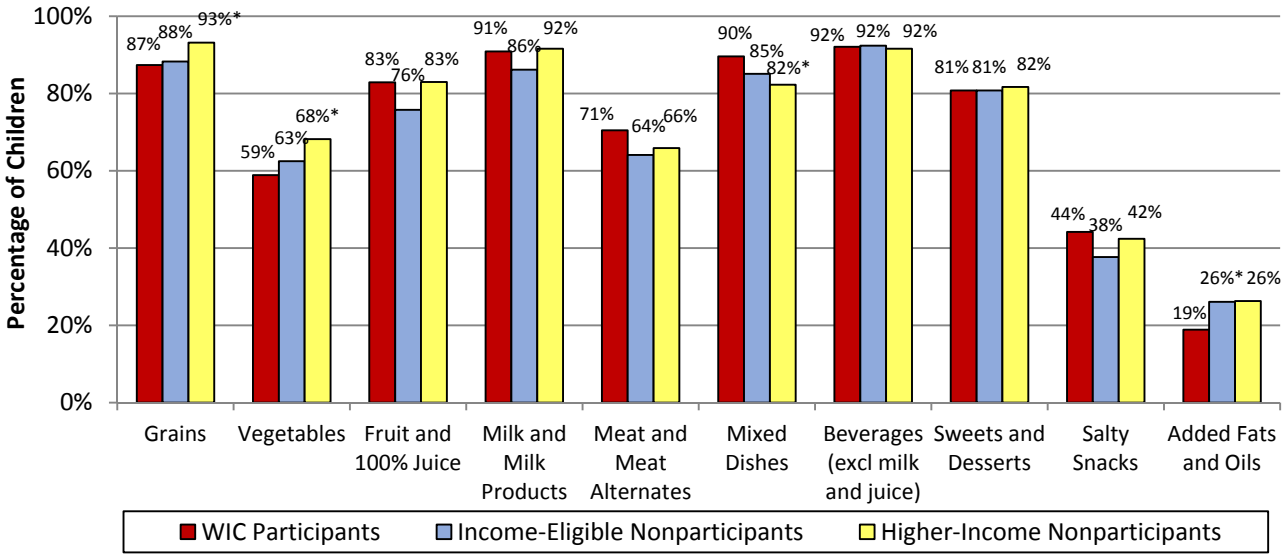
Exhibit 5-4. Percent of Children Consuming Any Discrete Foods from 10 Major Supermarket Aisle Food Groups



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Starting in NHANES 2005-2006, the consumption of drinking water was collected during the dietary recall. This analysis includes drinking water in the "beverages excluding milk and juice" major food group. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. 'All children' includes children with missing WIC participation or income. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants.

Exhibit 5-5. Percent of WIC Children and Nonparticipant Children Consuming Any Discrete Foods from Major Supermarket Aisle Food Groups

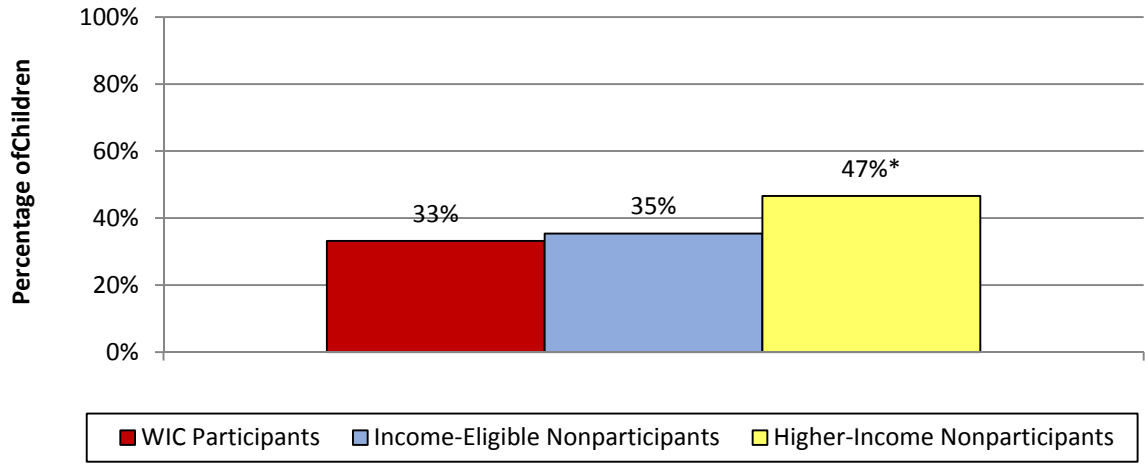


Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Starting in NHANES 2005-2006, the consumption of drinking water was collected during the dietary recall. This analysis includes drinking water in the "beverages excluding milk and juice" major food group. . Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Consumption of discrete whole-grain items was low for all children—among children consuming at least one discrete grain item, only 40 percent consumed a whole grain item. WIC children were less likely than higher-income nonparticipant children to consume a whole grain item (33% versus 47%) (Exhibit 5-6).

Exhibit 5-6. Percent of Children Consuming Discrete Whole Grain Items, Among Those Consuming Any Discrete Grain Items



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the.05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Average Amounts Consumed

On average, children consumed 1.7 ounce equivalents of discrete grain items and 0.4 ounce equivalents of discrete whole grain items over the course of a day (Appendix C, Table C-10).[26] The average amounts of discrete grain items consumed were comparable for WIC children and nonparticipant children. However, WIC children consumed a smaller average amount of discrete whole grain items than higher-income nonparticipant children (0.3 oz eq versus 0.4 oz eq) (Appendix C, Table C-10).

Consumption of Specific Grain Items

Among children eating at least one discrete grain item, cold cereal was the most common item consumed (55% of all children) (Appendix C, Table C-9). There were several differences between WIC participants and nonparticipants in the specific types of discrete grain items consumed and the average amounts of these items consumed. These differences are summarized in Exhibit 5-7.

Exhibit 5-7. Differences between WIC Participants and Nonparticipants in Discrete Grain Choices and Average Amounts Consumed

	WIC Participants:			
	Were ***less likely*** to consume…	Consumed ***smaller*** amounts of…	Were ***more likely*** to consume…	Consumed ***larger*** amounts of …
Income-eligible nonparticipants	Pancakes, waffles, French toast	Pancakes, waffles, French toast;	Corn tortillas; Cold cereal	--
Higher-income nonparticipants	Crackers; Breakfast/granola bar; Pancakes, waffles, French toast; Pasta	Pancakes, waffles, French toast	Bread; Corn tortillas; Cold cereal	Cold cereal

Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Findings are limited to foods consumed by at least 2 percent of children and/or an average amount of at least 0.1 ounce equivalent. Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Differences are statistically significant at the .05 level or better.

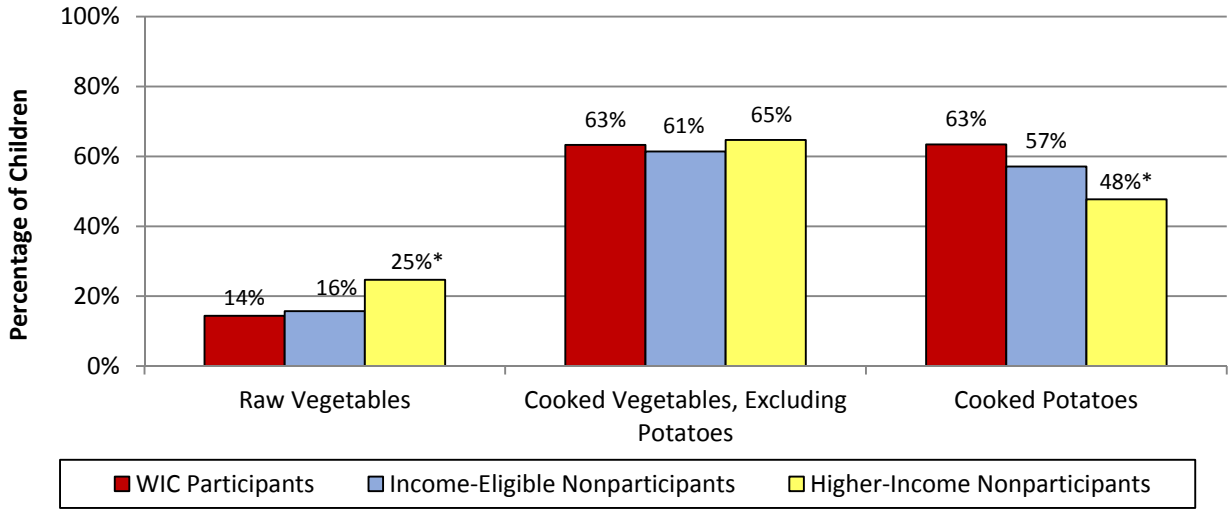
-- Denotes no significant differences.

[26] When grains and whole grains from mixed dishes and other food groups (for example, sweets and desserts) are included in estimates of average consumption of grains, means range from 4.3 to 5.1 ounce equivalents for grains and 0.4 to 0.6 ounce equivalents for whole grains (NHANES, WWEIA 2005–2006 and 2007–2008, children 2–5 years old; available at http://www.ars.usda.gov/Services/docs.htm?docid=23868). Thus, grains and whole grains are consumed from many different sources, not just as discrete items.

Consumption of Vegetables as Discrete Food Items

Overall, 64 percent of children consumed at least one vegetable as a discrete food item on the day covered in the dietary recall (Exhibit 5-4). WIC children were less likely than higher-income nonparticipant children to consume at least one discrete vegetable (59% versus 68%) (Exhibit 5-5). Among children consuming any discrete vegetables, WIC children were less likely than higher-income nonparticipant children to consume raw vegetables and the magnitude of the difference was quite large (14% versus 25%) (Exhibit 5-8). WIC children consumed cooked vegetables other than potatoes at about the same rate as nonparticipant children; however, WIC children were considerably more likely to consume cooked potatoes than higher-income nonparticipant children (63% versus 48%) (Exhibit 5-8).

Exhibit 5-8. Percentage of Children Consuming Discrete Raw and Cooked Vegetables, Among Those Consuming Any Discrete Vegetables



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. 'Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the.05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Average Amounts Consumed

On average, children consumed 0.4 cup equivalents of discrete vegetables over the course of a day (Appendix C, Table C-10).[27] There were no differences between WIC children and nonparticipant children in the average amounts of discrete vegetables consumed over the course

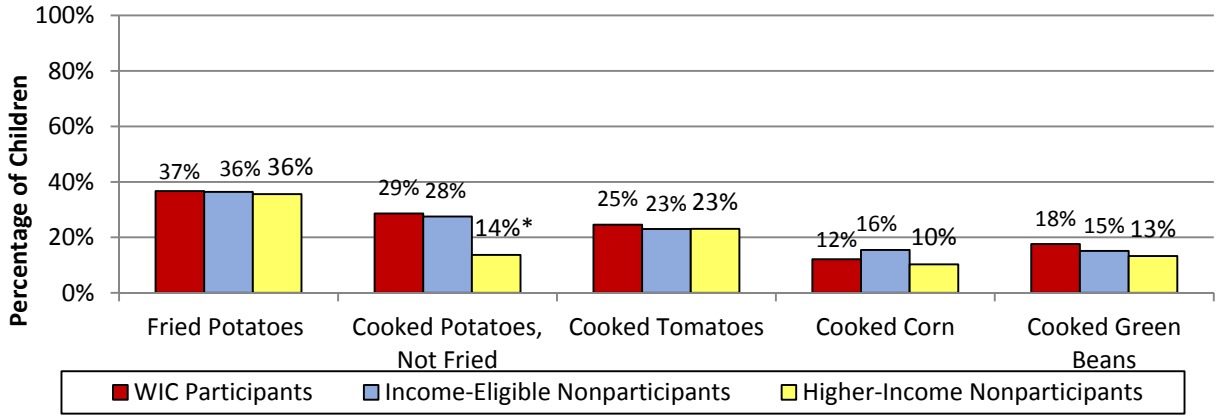
[27] When vegetables from mixed dishes and other food groups are included, average consumption of vegetables was 0.7 to 0.8 cup equivalents (NHANES, WWEIA 2005–2006 and 2007–2008, children 2–5 years old; available at http://www.ars.usda.gov/Services/docs.htm?docid=23868). Thus, vegetables are consumed from different sources, not just as discrete items.

of a day (Appendix C, Table C-10). In addition, WIC children and nonparticipant children consumed comparable amounts of raw vegetables and cooked vegetables.

Consumption of Specific Vegetable Items

Among WIC children and nonparticipant children that consumed at least one discrete vegetable, fried potatoes were the most commonly consumed vegetable (36%), followed by cooked tomatoes (23%),[28] cooked potatoes that were not fried (20%), cooked green beans (15%), and cooked corn (12%) (Appendix C, Table C-9). WIC children were more likely than higher-income nonparticipant children to consume cooked potatoes overall and cooked potatoes that were not fried (Exhibit 5-9 and Appendix C, Table C-9). There were no differences between WIC children and nonparticipant children in the average amounts of specific types of discrete vegetables consumed.

Exhibit 5-9. Percentage of Children Consuming the Five Most Common Vegetables, Among Those Consuming Any Discrete Vegetables



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

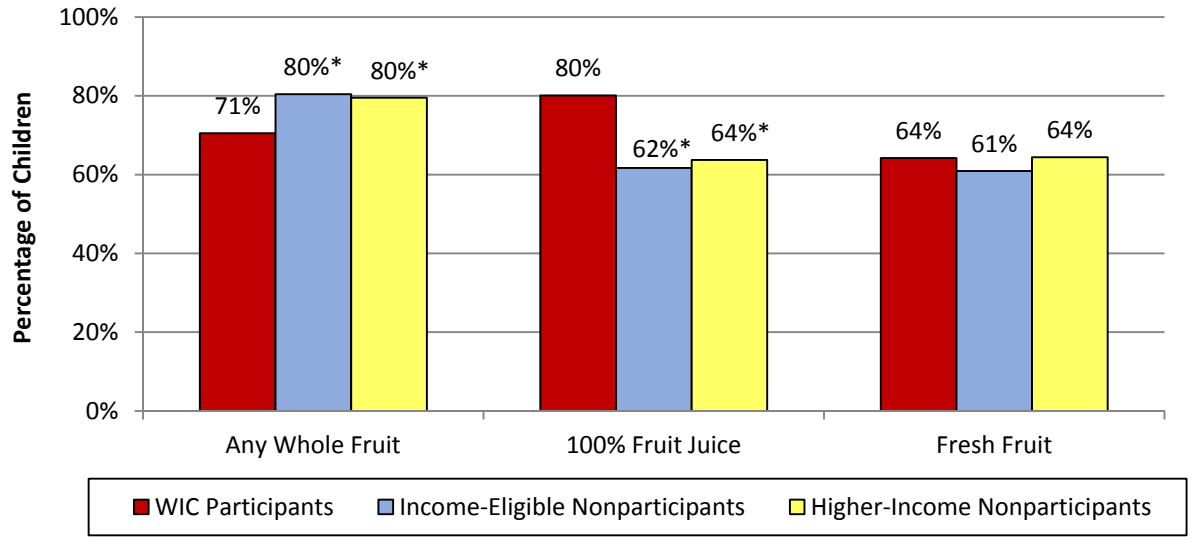
Consumption of Fruit and 100% Fruit Juice as Discrete Food Items

More than three-quarters (81%) of all children consumed fruit or 100% fruit juice on the day covered in the dietary recall (Exhibit 5-4). There were no differences between WIC children and nonparticipant children in the proportions who consumed a discrete item from the fruit and 100% fruit juice group (Exhibit 5-5). Among children consuming any fruit or 100% fruit juice as discrete items, WIC children were less likely than either group of nonparticipant children to

[28] Tomatoes may be more likely to be consumed than reflected in this analysis since many mixed dishes contain tomatoes.

consume whole fruit[29] (71% versus 80% for both groups of nonparticipants) and were more likely to consume 100% fruit juice (80% versus 62% and 64%) (Exhibit 5-10). Rates of consumption of fresh fruit were similar for WIC participants and nonparticipants.

Exhibit 5-10. Percentage of Children Consuming Whole Fruit, 100% Fruit Juice, and Fresh Fruit, Among Those Consuming Fruit or 100% Fruit Juice as Discrete Items



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. 'All children' includes children with missing WIC participation or income. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the.05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Average Amounts Consumed

Children consumed an average of 1.5 cup equivalents of fruit and 100% fruit juice as discrete items over the course of a day (Appendix C, Table C-10).[30] WIC children consumed a larger average amount of fruit and 100% fruit juice than income-eligible nonparticipants (1.6 cup eq versus 1.3 cup eq) (Appendix C, Table C-10). Average amounts consumed of fresh fruit, whole fruit, and canned or frozen fruit were comparable for WIC children and nonparticipant children. However, WIC children consumed a larger amount of 100% fruit juice than either income-eligible or higher-income nonparticipant children (0.9 cup eq versus 0.5 and 0.7 cup eq, respectively). The difference for 100% fruit juice was driven by a larger amount of non-

[29] Whole fruit was defined as fresh, canned, frozen, or dried fruit.

[30] Estimates are comparable when all fruit sources are included (1.4 to 1.5 cup equivalents; NHANES, WWEIA 2005–2006 and 2007–2008, children 2–5 years old; available at http://www.ars.usda.gov/Services/docs.htm?docid=23868). Thus, most fruit is consumed as discrete items.

citrus juice consumed by WIC children, as compared to either income-eligible or higher-income nonparticipant children (0.8 cup eq versus 0.4 and 0.5 cup eq, respectively).

Consumption of Specific Fruits and 100% Fruit Juices

For children in all participation/eligibility groups, fresh bananas and apples were the most commonly consumed fruits (Appendix C, Table C-9). There were several differences between WIC children and nonparticipant children in the specific types of fruits and 100% fruit juices consumed and the average amounts of these items consumed. These differences are summarized in Exhibit 5-11.

Exhibit 5-11. Differences between WIC Participants and Nonparticipants in Discrete Fruit and 100% Fruit Juice Choices and Average Amounts Consumed

	WIC Participants:			
	Were ***less likely*** to consume…	Consumed ***smaller*** amounts of…	Were ***more likely*** to consume…	Consumed ***larger*** amounts of …
Income-eligible nonparticipants	Other canned or frozen fruit;[a]	--	Fresh banana; Non-citrus juice	Fresh banana; Non-citrus juice
Higher-income nonparticipants	Other canned or frozen fruit;[a]	--	Non-citrus juice	Non-citrus juice

Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Findings are limited to foods consumed by at least 2 percent of children and/or an average amount of at least 0.1 cup equivalents. Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Differences are statistically significant at the .05 level or better.

[a] Includes other canned or frozen fruits such as fruit cocktail, pears, mandarin oranges, grapes, blueberries, strawberries, mangoes, and papaya.

-- Denotes no significant differences.

Consumption of Milk and Milk Products as Discrete Food Items

Almost all children (90%) consumed milk or milk products (including cheese and yogurt) as discrete items on the day covered in the dietary recall (Exhibit 5-4). The proportions of WIC children and nonparticipant children consuming foods from the milk and milk products group were similar (Exhibit 5-5). Among children consuming milk or milk products, WIC children were more likely than either group of nonparticipant children to consume any cow's milk (96% versus 89% and 91%).

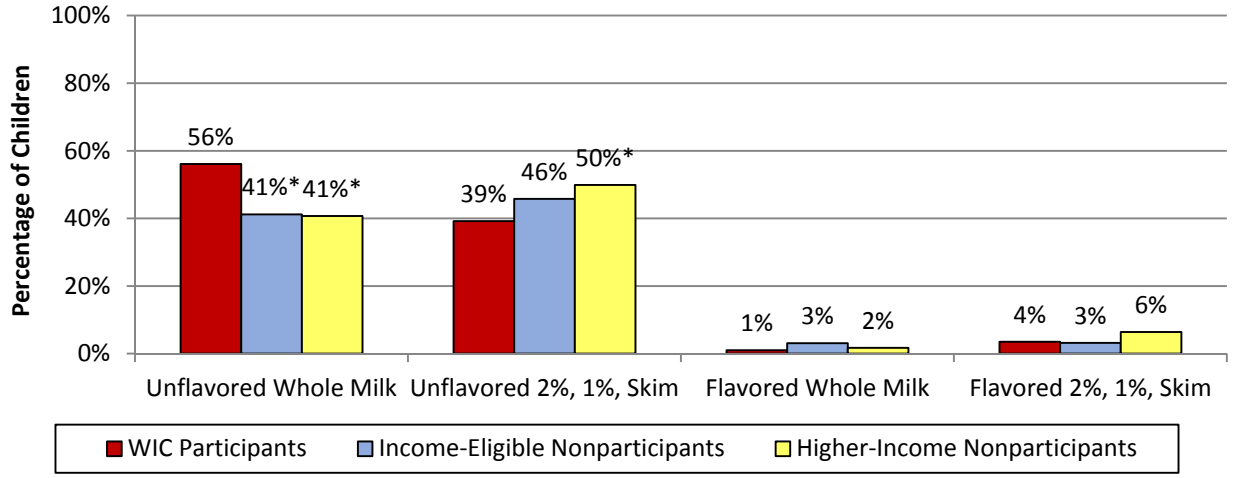
Average Amounts Consumed

On average, children consumed 1.9 cup equivalents of milk and milk products as discrete items over the course of a day (Appendix C, Table C-10).[31] This was mostly consumed in the form of cow's milk (1.6 cup equivalents). WIC children consumed a larger average amount of milk and milk products and cow's milk than income-eligible nonparticipant children (for milk and milk products: 2.1 cup eq versus 1.5 cup eq; for cow's milk: 1.8 cup eq versus 1.3 cup eq) (Appendix C, Table C-10).

Consumption of Specific Types of Milk and Milk Products

For children in all three participation/eligibility groups, unflavored whole milk was the most commonly consumed type of milk (45% of all children) (Appendix C, Table C-9). Among those consuming any discrete milk and milk products, WIC children were more likely to consume unflavored whole milk than income-eligible or higher-income nonparticipant children (56% versus 41% for both groups of nonparticipants) and were less likely than higher-income nonparticipant children to consume unflavored non-whole milk (2%, 1% and skim) (39% versus 50%) (Exhibit 5-12). WIC children were also less likely than higher-income nonparticipant

Exhibit 5-12. Percentage of Children Consuming Whole Milk and Non-Whole Milk, Among Those Consuming Any Milk and Milk Products as Discrete Items



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[31] Estimates are similar when all sources of milk and milk products are included (2.0 to 2.3 cup equivalents; NHANES, WWEIA 2005–2006 and 2007–2008, children 2–5 years; available at http://www.ars.usda.gov/Services/docs.htm?docid=23868). Thus, most milk and milk products are consumed as discrete items.

children to consume yogurt (12% versus 20%), cheese (26% versus 36%), and soy milk (1% versus 5%). WIC children consumed a larger amount of unflavored whole milk than either group of nonparticipant children (1.1 cup eq versus 0.6 and 0.8 cup eq, respectively) and consumed a larger amount of yogurt compared with income-eligible nonparticipant children (0.1 cup eq versus 0.0 cup eq).

Consumption of Meat and Meat Alternates as Discrete Food Items

Two-thirds (66%) of all children consumed a discrete meat or meat alternate on the day covered in the dietary recall (Exhibit 5-4). This excludes meat and meat alternates included in mixed dishes, such as sandwiches and pasta-based dishes. There were no differences between WIC children and nonparticipant children in the proportions consuming a discrete meat or meat alternate item (Exhibit 5-5).

Average Amounts Consumed

Children consumed an average of 1.5 ounce equivalents of discrete meat and meat alternates over the course of a day (Appendix C, Table C-10).[32] WIC children consumed a larger average amount of meat and meat alternates than higher-income nonparticipant children (1.6 oz eq versus 1.3 oz eq) (Appendix C, Table C-10).

Consumption of Specific Meat and Meat Alternate Items

Chicken was the most common meat item consumed by children (43%) (Appendix C, Table C-9). Among children consuming meat and meat alternates as discrete items, WIC children were more likely than higher-income nonparticipant children to consume eggs (32% versus 19%) and beans (11% versus 3%).

There were few differences between WIC children and nonparticipant children in the amounts of individual types of meat and meat alternates consumed. WIC children consumed a larger amount of eggs than higher-income nonparticipant children (0.3 oz eq versus 0.2 oz eq).

Consumption of Mixed Dishes

Most children (85%) consumed one or more mixed dish on the day covered in the dietary recall (Exhibit 5-4). WIC children were more likely than higher-income nonparticipant children to consume a mixed dish over the course of a day (90% versus 82%) (Exhibit 5-5).

Average Amounts Consumed

WIC children consumed a larger average amount of mixed dishes overall than higher-income nonparticipant children (197 g versus 160 g) (Appendix C, Table C-10).

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[32] When meat and meat alternates from mixed dishes and other food groups are included, average consumption of protein foods was 2.8 to 3.0 ounce equivalents (NHANES, WWEIA 2005–2006 and 2007–2008, children 2–5 years old; available at http://www.ars.usda.gov/Services/docs.htm?docid=23868). Thus, meat and meat alternates are consumed from many different sources, not just as discrete items.

Consumption of Specific Mixed Dishes

Sandwiches were the most commonly consumed type of mixed dish for children in all three participation/eligibility groups (Appendix C, Table C-9). There were several differences between WIC children and nonparticipant children in the specific types and amounts of mixed dishes consumed, as summarized in Exhibit 5-13.

Exhibit 5-13. Differences between WIC Participants and Nonparticipants in Types and Average Amounts of Mixed Dishes Consumed

	WIC participants:			
	Were ***less likely*** to consume…	Consumed ***smaller*** amounts of…	Were ***more likely*** to consume…	Consumed ***larger*** amounts of …
Income-eligible nonparticipants	Pizza with meat	Pizza with meat	--	--
Higher-income nonparticipants	Peanut butter sandwiches; Vegetables mixtures (including soup)	--	Meat soup; Grain soup	Rice dishes

Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Findings are limited to foods consumed by at least 2 percent of children and/or an average amount of at least 7 grams. Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Differences are statistically significant at the .05 level or better.

-- Denotes no significant differences.

Consumption of Beverages Other Than Milk and 100% Fruit Juice

Most children (92%) drank at least one beverage other than milk or 100% fruit juice (including water)[33] on the day covered in the dietary recall (Exhibit 5-4). There were no differences between WIC children and nonparticipant children in the proportions consuming these beverages (Exhibit 5-5).

Average Amounts Consumed

WIC children consumed a smaller average amount of beverages other than milk and 100% fruit juice than income-eligible nonparticipant children (519 grams versus 649 grams) (Appendix C, Table C-10).

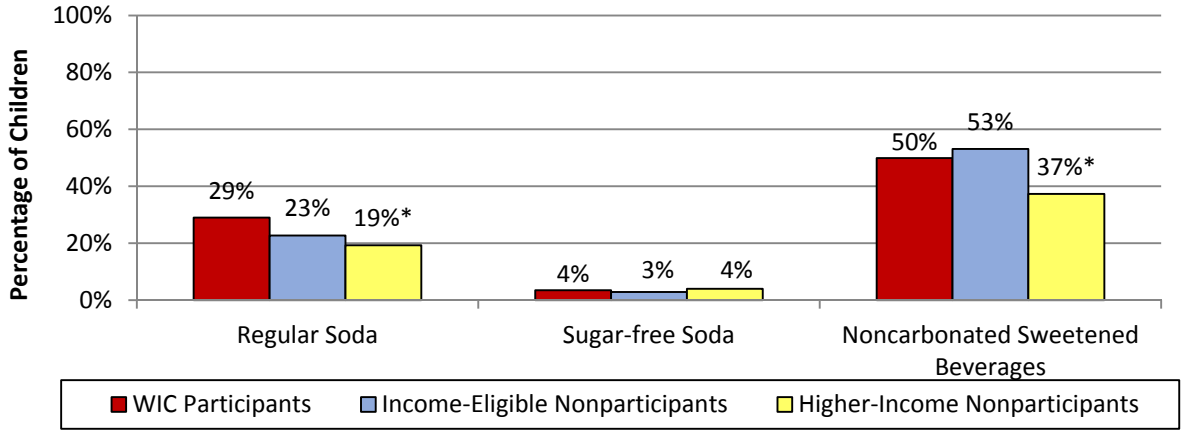
Consumption of Specific Types of Beverages

Plain water, noncarbonated sweetened drinks (for example, fruit drinks and sports drinks), and regular soda were the most frequently consumed beverages other than milk and 100% fruit juice (Appendix C, Table C-9). WIC children were more likely than higher-income nonparticipant

[33] Starting in NHANES 2005-2006, the consumption of drinking water was collected during the dietary recall. This analysis includes drinking water in the "beverages excluding milk and juice" major food group.

children to consume regular soda (29% versus 19%) and noncarbonated sweetened beverages (50% versus 37%) (Exhibit 5-14). Other differences between WIC children and nonparticipant children in the specific types and amounts of beverages consumed are shown in Exhibit 5-15.

Exhibit 5-14. Percent of Children Consuming Regular Soda, Sugar-free Soda, and Sweetened Beverages, Among Those Consuming Any Beverages (Other than Milk and 100% Fruit Juice) as Discrete Items



Sources: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. 'Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Exhibit 5-15. Differences between WIC Participants and Nonparticipants in Beverage Choices and Average Amounts Consumed

	WIC participants:			
	Were ***less likely*** to consume…	Consumed ***smaller*** amounts of…	Were ***more likely*** to consume…	Consumed ***larger*** amounts of …
Income-eligible nonparticipants	--	Water; Noncarbonated, sweetened drinks	--	--
Higher-income nonparticipants	Water	--	Tea; Noncarbonated, sweetened drinks; Regular soda	Noncarbonated, sweetened drinks; Regular soda

Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Findings are limited to foods consumed by at least 2 percent of persons and/or an average amount of at least 15 grams. Estimates reflect foods consumed as discrete items. Combination items, including sandwiches, Mexican entrees, green salads, and soups that were reported in the dietary recall as individual components, were counted as one food choice. For example, a sandwich reported as beef patty, cheese, and roll was counted as one item and included in the "cheeseburger/hamburger" subgroup. Differences are statistically significant at the .05 level or better.

-- Denotes no significant differences.

Consumption of Sweets and Desserts

About eight in ten children (82%) consumed at least one type of sweet or dessert as a discrete item on the day covered in the dietary recall (Exhibit 5-4). There were no differences between WIC children and nonparticipant children in the proportions consuming sweets and desserts (Exhibit 5-5).

Average Amounts Consumed

WIC children consumed a smaller average amount of sweets and desserts than income-eligible nonparticipant children (56 g versus 67 g) (Appendix C, Table C-10).

Consumption of Specific Types of Sweets and Desserts

For WIC children and nonparticipant children, cookies and candy were the most commonly consumed sweets and desserts (Appendix C, Table C-9). Cookies were consumed by nearly half of all children (46%) and candy was consumed by 41 percent of all children. Among children consuming sweets and desserts, there were few differences between WIC children and nonparticipant children in the specific types and amounts of sweets and desserts consumed. WIC children were more likely than higher-income nonparticipants to consume sugar and sugar substitutes (10% versus 4%) and were less likely than either group of nonparticipants to consume syrups and sweet toppings (13% versus 20% and 22%). WIC children consumed a smaller amount of ice cream than either income-eligible or higher-income nonparticipant children (11 g versus 18 g and 17 g, respectively).

Consumption of Salty Snacks

Overall, 42 percent of children consumed a salty snack food on the day covered in the dietary recall (Exhibit 5-4). WIC children and nonparticipant children consumed salty snacks at similar rates (Exhibit 5-5).

Average Amounts Consumed

There were no differences between WIC children and nonparticipant children in the average amounts of salty snacks consumed (Appendix C, Table C-10).

Consumption of Specific Types of Salty Snacks

Among those consuming salty snacks, WIC children were less likely than higher-income nonparticipant children to consume pretzels and party mix (11% versus 23%) (Appendix C, Table C-9). Rates of consumption and average amounts consumed for other types of salty snacks were comparable for WIC children and nonparticipant children.

Consumption of Added Fats and Oils

One-quarter of all children consumed fats and oils that were added to foods (for example butter, margarine or salad dressing) (Exhibit 5-4). This does not include fats added during cooking or included as part of a mixed dish. WIC children were less likely than income-eligible nonparticipant children to consume added fats and oils as discrete items (19% versus 26%) (Exhibit 5-5).

Average Amounts Consumed

There were no differences between WIC participants and nonparticipants in the average amounts of added fats and oils consumed (Appendix C, Table C-10).

Consumption of Specific Types Added Fats and Oils

Rates of consumption of different types of added fats and oils were comparable for WIC children and nonparticipant children consuming any added fats and oils (Appendix C, Table C-9).

CHAPTER 6. THE HEALTHY EATING INDEX-2005

In this chapter, we examine the overall quality of the diets consumed by WIC children and nonparticipant children using the Healthy Eating Index (HEI). The HEI is a measure of diet quality that assesses conformance to key recommendations of the *Dietary Guidelines* (USDA & DHHS 2010). It has been adopted by the USDA as a tool to monitor the quality of foods consumed by the U.S. population overall, as well as progress toward healthier eating habits among nutrition assistance program participants (Guenther et al., 2008). The HEI was first created in 1995 by the USDA's Center for Nutrition Policy and Promotion (CNPP). It was revised in 2006 to reflect the 2005 *Dietary Guidelines* (HEI-2005) and updated in 2012 to reflect the 2010 *Dietary Guidelines* (HEI-2010). Because the HEI-2005 provides a measure of diet quality relative to the dietary recommendations that were in place at the time the data used in this analysis were collected, we present findings based on the HEI-2005 in this chapter and findings based on the HEI-2010 in Appendix D.

All analyses are limited to children 2–4 years old because the *Dietary Guidelines* do not apply to children less than 2 years old. HEI scores were estimated at the population level, using the population ratio method.[34] The analysis is based on data from the NHANES 2005–2008, and estimates are based on a single day of intake. We discuss only statistically significant differences of WIC children and nonparticipant children below. We present detailed results in Appendix C, Table C-14.

Healthy Eating Index-2005 (HEI-2005)

Data

- NHANES 2005–2008: Single 24-hour recall per child
- MyPyramid Equivalents Database, version 2.0
- CNPP Addendum to MPED 2.0B
- CNPP 03–04 Fruit Database

Sample

- Children 2–4 years old

Measures

- HEI-2005 Total Score
- HEI-2005 Component Scores

[34] This method involves calculating mean intakes of relevant food groups, nutrients, and calories for the population, and then calculating the ratios of the means with calories in the denominator, and comparing with HEI standards for scoring (as shown in Exhibit 6-1 and Appendix E, Figure E-1). See Appendix A for more detail.

Healthy Eating Index-2005

The HEI-2005 is a scoring metric that is made up of 12 components, each reflecting a key aspect of diet quality. The standards used to assign HEI-2005 component scores are expressed on a density basis (that is, amounts per 1,000 calories or a percent of calories) rather than absolute amounts of foods consumed. The use of such standards in assessing diet quality reflects the recommendation that individuals should strive to meet food group and nutrient guidelines while maintaining energy balance, rather than meeting these guidelines simply by consuming large quantities of food.

The HEI-2005 consists of nine adequacy components, which are dietary components individuals are recommended to consume to ensure adequate nutrient intakes, and include the following: Total Fruit, including Juice; Whole Fruit; Total Vegetables; Dark Green and Orange Vegetables and Legumes; Total Grains; Whole Grains; Milk; Meat and Beans; and Oils. The remaining three components, referred to as moderation components that individuals are recommended to limit, assess intakes of Saturated Fat, Sodium, and Empty Calories, which are commonly consumed in excess.

The HEI-2005 components and standards for scoring are shown in Exhibit 6-1. The exhibit also shows the intake criteria corresponding to minimum and maximum scores for each component.

Maximum scores range from 5 to 20 points. Scores for intakes between the minimum and maximum standards are scored proportionately.[35] For example, an intake that is halfway between the criteria for the maximum and minimum scores yields a score that is half the maximum score. Higher scores for each of the adequacy components reflect greater consumption, while higher scores for each of the moderation components reflect lower consumption. Scores for each of the 12 components are summed to create a total HEI-2005 score, with a range from 0 to 100.

Total HEI-2005 Scores

The total HEI-2005 score for all children was 63 out of a possible 100 points (Exhibit 6-2). There were no differences in total HEI-2005 scores between WIC children and either group of nonparticipant children. The low total HEI-2005 score suggest that the diets of children in all three participation/eligibility groups fell considerably short of meeting the recommendations in the 2005 *Dietary Guidelines*.

[35] For Saturated Fat and Sodium, a score of 8 is assigned for intake levels that reflect the 2005 *Dietary Guidelines* recommendations—less than 10 percent of calories from saturated fat and less than 1.0 grams of sodium per 1,000 calories, respectively. Intakes between the standard for scores of 0 and 8 and between 8 and 10 are scored proportionately.

Exhibit 6-1. Healthy Eating Index-2005 Components and Standards for Scoring

Component	Maximum score	Standard for minimum score of zero	Standard for maximum score
Adequacy components (higher score indicates *higher* consumption)			
1. Total Fruit (including 100% fruit juice)	5	No intake	≥ 0.8 cup equiv. per 1,000 kcal
2. Whole Fruit	5	No intake	≥ 0.4 cup equiv. per 1,000 kcal
3. Total Vegetables	5	No intake	≥ 1.1 cup equiv. per 1,000 kcal
4. Dark Green and Orange Vegetables and Legumes	5	No intake	≥ 0.4 cup equiv. per 1,000 kcal
5. Total Grains	5	No intake	≥ 3.0 oz equiv. per 1,000 kcal
6. Whole Grains	5	No intake	≥ 1.5 oz equiv. per 1,000 kcal
7. Milk	10	No intake	≥ 1.3 cup equiv. per 1,000 kcal
8. Meat and Beans	10	No intake	≥ 2.5 oz equiv. per 1,000 kcal
9. Oils	10	No intake	≥ 12 grams per 1,000 kcal
Moderation components (higher score indicates *lower* consumption)			
10. Saturated Fat[a]	10	≥ 15%	≤ 7% of calories
11. Sodium[a]	10	≥ 2.0 grams	≤ 0.7 grams per 1,000 kcal
12. Empty Calories[b]	20	≥ 50%	≤ 20% of calories
Total Score	**100**		

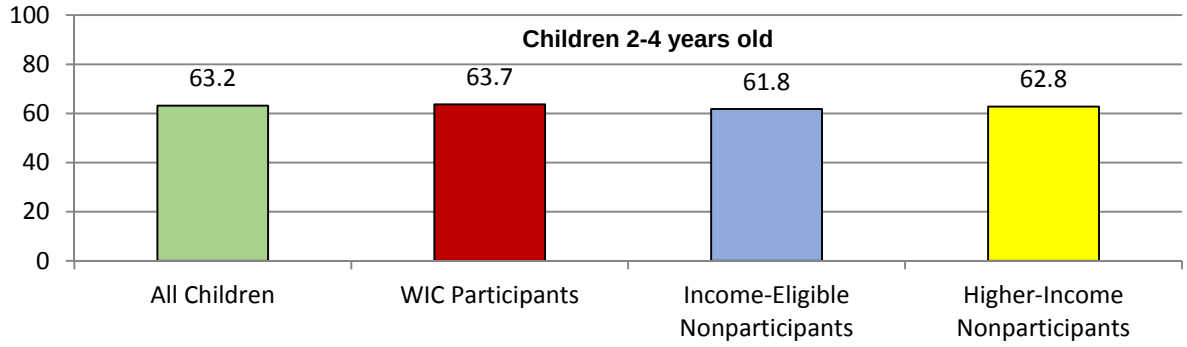
Source: Healthy Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006.

Note: Equiv. = equivalent; kcal = calories; oz equiv. = ounce equivalent.

[a] Saturated fat and sodium get a score of 8 for the intake levels that reflect the 2005 *Dietary Guidelines*, <10% of calories from saturated fat and 1.1 grams of sodium per 1,000 kcal, respectively.

[b] The term "Empty Calories" was substituted for the HEI-2005 component for "calories from solid fats, alcoholic beverages, and added sugars" to promote consistency throughout the report. The HEI-2010 renamed this component to be empty calories to provide a more concise term that would convey the concept to consumers (Guenther et al., 2013). All calories consumed from alcohol are included in the empty calories component.

Exhibit 6-2. Health Eating Index-2005 Total Scores



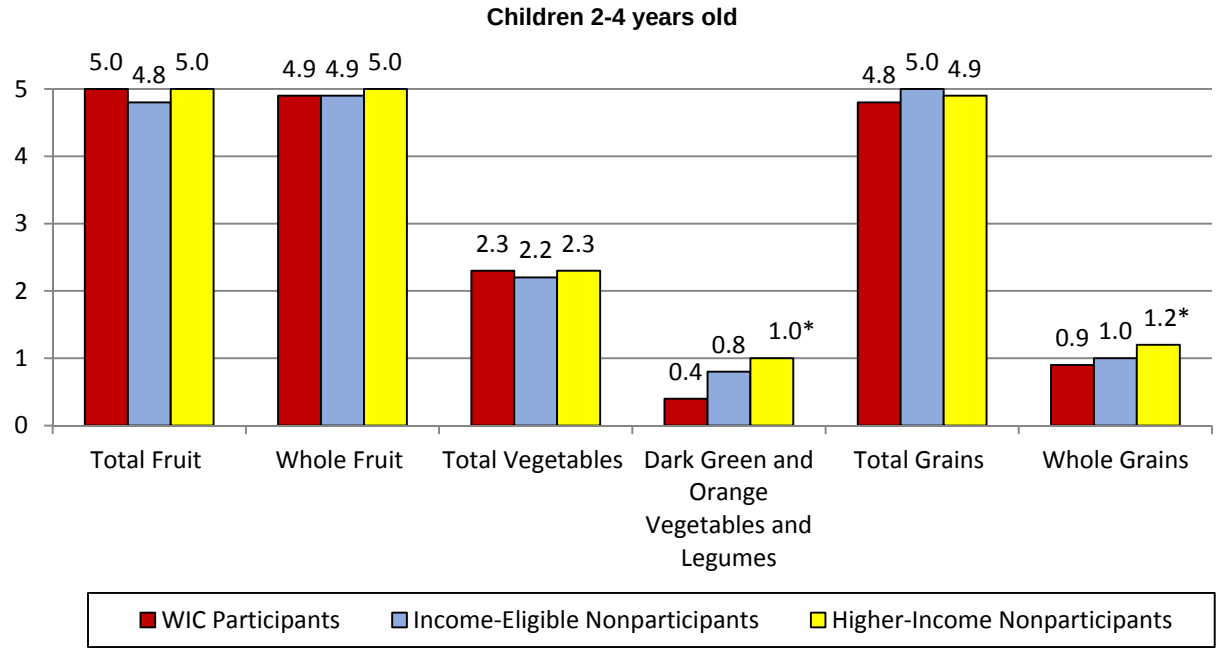
Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Health Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. 'All children' includes children with missing WIC participation or income. Scores are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

HEI-2005 Component Scores

Children in all three participation/eligibility groups achieved or came close to achieving the maximum score (of 5.0) for Total Fruit, Whole Fruit, and Total Grains (Exhibit 6-3), and the maximum score (of 10.0) for Milk (Exhibit 6-4). For WIC children and nonparticipant children, scores for Dark Green and Orange Vegetables and Legumes were very low, ranging from 0.4 to 1.0 out of a possible 5. Scores for Whole Grains were also low, ranging from 0.9 to 1.2. In addition, the score for Total Vegetables was about 50 percent of the maximum possible score, ranging from 2.2 to 2.3 out of 5. These low scores indicate that children are not consuming recommended amounts of foods that contain vegetables—specifically dark green vegetables, orange vegetables, and legumes—and whole grains.

Exhibit 6-3. Healthy Eating Index-2005 Component Scores for Components with a Maximum Score of 5 Points



Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Health Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006. Sample includes NHANES respondents with complete dietary recall data, 2 to 4 years old.

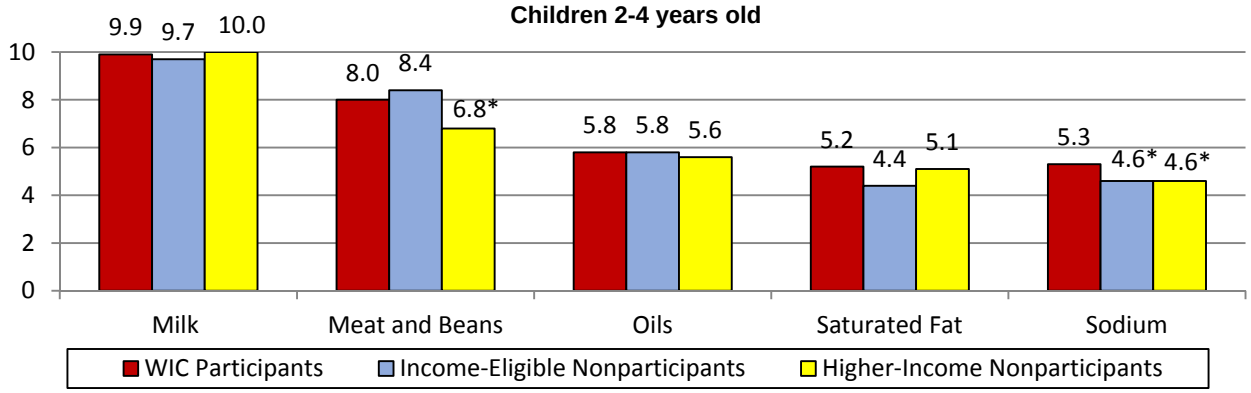
Notes: Estimates are based on a single dietary recall per person. Scores are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

For children in all three participation/eligibility groups, scores for Saturated Fat (ranging from 4.4 to 5.2 out of 10), Sodium (ranging from 4.6 to 5.3 out of 10), and Empty Calories (ranging from 10.2 to 11.3 out of 20) were roughly half of the maximum possible scores. The low scores for these components indicate that children are consuming more saturated fat, sodium, and empty calories than is recommended.

Compared with higher-income nonparticipant children, WIC children had lower scores for Dark Green and Orange Vegetables and Legumes (0.4 versus 1.0) and for Whole Grains (0.9

versus 1.2) (Exhibit 6-3). They also had a higher score for Meat and Beans (8.0 versus 6.8) (Exhibit 6-4). WIC children received a higher score for Sodium than either group of nonparticipant children (5.3 versus 4.6 for both groups of nonparticipants) (Exhibit 6-4), and also received a higher score for Empty Calories than income-eligible nonparticipant children (11.3 versus 10.2) (Exhibit 6-5). Higher scores for Sodium and Empty Calories indicate lower consumption of these components.

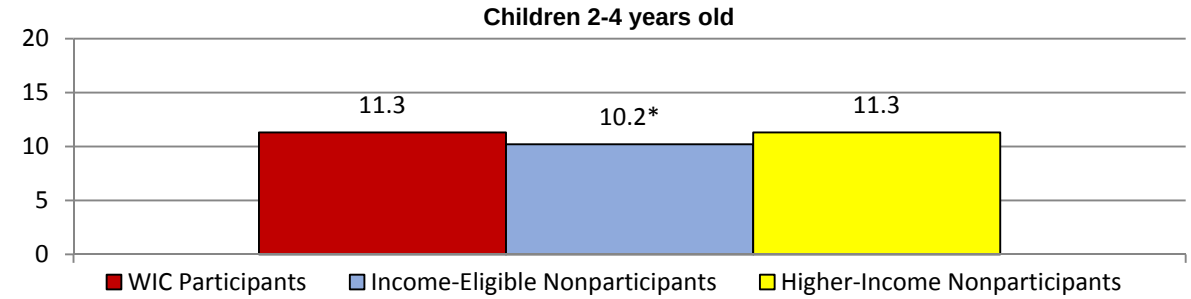
Exhibit 6-4. Healthy Eating Index-2005 Component Scores for Components with a Maximum Score of 10 Points



Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Health Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006. Sample includes NHANES respondents with complete dietary recall data, 2 to 4 years old.

Notes: Estimates are based on a single dietary recall per person. Scores are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

Exhibit 6-5. Healthy Eating Index-2005 Component Score for Empty Calories



Sources: NHANES 2005–2008 dietary recalls; MyPyramid Equivalents Database (MPED 2.0); CNPP 03–04 Fruit Database; CNPP Addendum to MPED 2.0B. Health Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. Scores are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (at least the .05 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

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CHAPTER 7. CONCLUSION

This report uses data available from NHANES 2005–2008 to provide a comprehensive picture of the diets of children participating in WIC. This information can be used to target efforts to improve participants' diets and as a benchmark for monitoring participants' diets over time. The diets of WIC children are compared to the diets of two groups of nonparticipants—those who were income-eligible for WIC but did not participate in the program, and higher-income children who were not eligible for the program. This research was not designed to assess the impact of WIC or in any way attribute differences observed between WIC participants and nonparticipants to an effect of the program.

The report examines the quality of the diets consumed by WIC children and nonparticipant children. Main findings from this study include the following:

- Overall, the findings indicate that the diets of children that participated in WIC were generally comparable to the diets of children who did not participate in the program.

Diet Adequacy and Excess

- Almost all young children (98% to 100%) had adequate usual intakes of vitamins and minerals with defined EARs, except calcium, vitamin E, and vitamin D.

- In general, WIC children and nonparticipant children had usual intakes of vitamins and minerals that were similar.

- For all children, usual intakes of potassium and fiber were below the AI. Given the limitations of the AI standard, no firm conclusions can be drawn about the adequacy of children's intakes of potassium or fiber.

- There were no differences between WIC children and nonparticipant children in usual intakes of saturated fat or sodium; however, intakes of these dietary components were excessive relative to recommendations. Three-quarters (74%) of children had usual sodium intakes that were excessive relative to the UL. In addition, less than 1 in 5 children (17%) met the *Dietary Guidelines* recommendation for saturated fat.

Diet Quality

- Total HEI-2005 scores, which provide an overall measure of diet quality, were comparable for WIC children and nonparticipant children.

- For all children, HEI-2005 scores indicate that intakes of whole grains and dark green and orange vegetables and legumes were low relative to recommendations.

- HEI-2005 scores indicate that all children had intakes of saturated fat, sodium, and empty calories that exceeded recommended limits.

- Compared with higher-income nonparticipant children, HEI-2005 scores indicate that WIC children consumed fewer dark green and orange vegetables and legumes, and

fewer whole grains. On the other hand, WIC children had a higher score for Sodium than either group of nonparticipants and had a higher score for Meat and Beans than higher-income nonparticipants.

- Compared with income-eligible nonparticipant children, WIC children obtained a smaller share of their total calorie intake from empty calories. The difference in intakes of empty calories could be attributable to the fact that WIC children were more likely than income-eligible nonparticipant children to consume WIC-approved cereals, which are lower in sugar.

Food Consumption Patterns

Differences in food consumption patterns provide context for the differences in diet adequacy and excess and diet quality described above. Some examples of this include the following:[36]

- WIC children were less likely than higher-income nonparticipant children to consume discrete portions of vegetables and raw vegetables. These differences in food choices likely contributed to the lower HEI-2005 scores for Dark Green and Orange Vegetables and Legumes observed among WIC children in relation to higher-income nonparticipant children.

- WIC children were less likely than either group of nonparticipant children to consume discrete portions of fruit (excluding juice).

- WIC children were also less likely than higher-income nonparticipant children to consume discrete whole grain items, which resulted in a lower HEI score for Whole Grains among WIC children, relative to higher-income nonparticipant children.

- WIC children were more likely than higher-income nonparticipant children to consume regular soda and noncarbonated sweetened beverages. WIC children were also more likely than either group of nonparticipants to consume whole milk.

- On the other hand, WIC children were more likely than either group of nonparticipant children to consume cow's milk and less likely than income-eligible nonparticipant children to consume added fats and oils.

Overweight and Obesity

- Approximately 21 percent of WIC children and nonparticipant children were overweight or obese (12% and 9% were overweight and obese, respectively).

[36] Differences in the proportions of children consuming foods from the "supermarket aisle" food groups do not necessarily reflect differences in total food consumption from a food group because some foods may be consumed as part of a mixed dish and are therefore not counted in estimates for individual food groups.

- There were no differences between WIC children and nonparticipant children in the proportions that were overweight or obese.

Implications for WIC Nutrition Education

Findings from this study confirm that continued nutrition education efforts are needed to help improve the quality of WIC participants' diets. The findings point to specific food consumption practices that may be useful targets for WIC nutrition education efforts with parents or caregivers:

Consumption of whole milk

WIC children were more likely than either group of nonparticipant children to consume whole milk and less likely to consume lower-fat milk (including 2%, 1% and skim milk). Consumption of whole milk is not recommended for individuals over 2 years old because it is less nutrient-dense and contributes more empty calories than lower-fat versions. Lower-fat milks have the same amounts of calcium and other nutrients as whole milk, but contribute fewer empty calories and less saturated fat. Whole milk is allowed in the new food packages for children 12–23 months old, and low-fat (1%), and fat-free (skim) milk are the standard milks authorized for children 2 years old and older. WIC nutrition education efforts should educate caregivers on the benefits of providing lower-fat milks to children over 2 years old.

Low consumption of fruits and vegetables

WIC children were less likely than higher-income nonparticipants to consume discrete portions vegetables and fruit (excluding juice). Increasing total consumption of fruits and vegetables is an effective strategy for increasing intakes of potassium and fiber and better aligning WIC children's food choices with the *Dietary Guidelines*. Since the new WIC food package for children includes separate benefits to purchase fruits and vegetables, nutrition education efforts should encourage caregivers to offer a variety of fruits and vegetables to children each day—both as discrete items and as part of mixed dishes.

Low consumption of whole grains

WIC children had lower concentrations of whole grains in their diets relative to higher-income nonparticipant children. The recommended concentration of whole grains in the *Dietary Guidelines* allows individuals to meet nutrient requirements without exceeding calorie needs. However, whole grains must replace refined (or non-whole) grains so that excess calories are not consumed. The new WIC food packages allow options for whole grain items such as whole grain cereals and breads. Nutrition education efforts with caregivers should focus on selecting WIC-approved whole-grain items over refined grain options.

Consumption of empty calories

Another important focal point for WIC nutrition education is intakes of empty calories. For all children, intakes of empty calories greatly exceeded limits specified in the *Dietary Guidelines*. In addition, WIC children were more likely than higher-income nonparticipant children to consume regular soda and noncarbonated sweetened beverages, such as juice drinks. Nutrition education efforts should focus on decreasing intakes of foods that contribute empty calories in order to improve the overall quality of WIC children's diets. This is also essential for reducing the prevalence of overweight and obesity.

Continuing to target specific food choices through WIC nutrition education, such as the ones described above, may be an effective way to affect behavioral change that results in improved diet quality among WIC children.

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APPENDIX A. DATA AND METHODS

All estimates in this report are based on data from the National Health and Nutrition Examination Survey (NHANES), analyzed alone or in conjunction with various Food Patterns equivalents data sources. In this appendix, we describe the data, estimation procedures for the nutrition outcomes, and statistical methods.

Data Sources

NHANES Data

The NHANES is designed to assess the health and nutritional status of adults and children in the United States. The survey collects both interviews and physical examination data on a nationally representative sample of the U.S. population. NHANES is conducted by the National Center for Health Statistics (NCHS), part of the Centers for Disease Control and Prevention (CDC). NHANES has been conducted on a periodic basis since 1971. Beginning in 1999, NHANES became a continuous annual survey with data released in public data files every 2 years (e.g., 1999–2000, 2001–2002, 2003–2004, etc.). Each 2-year survey wave collects data on approximately 10,000 persons. NCHS recommends combining two or more 2-year survey waves of the continuous NHANES to increase sample size and produce estimates with greater statistical reliability.

All of the estimates in this report are based on two 2-year cycles of NHANES data. We based analyses on NHANES 2005–2006 and 2007–2008, except for the analysis of dietary supplement use among children, which was based on NHANES 2007–2008 and 2009–2010 (24-hour supplement data was not available in NHANES 2005–2006). We excluded data from NHANES 2009–2010 for most analyses in this study to prevent including any impact of the 2009 change to the WIC food package on the findings.

NHANES includes a household interview conducted in respondents' homes, and a physical examination conducted in Mobile Exam Centers (MEC). Additional interview data are collected at the time of the MEC exam, including a 24-hour dietary recall interview. A second dietary recall interview is conducted by telephone 3 to 10 days after the MEC exam. Starting in 2007–2008, NHANES began collecting 24-hour intakes of dietary supplements as part of the dietary recall interview. For this study, we used data from the following NHANES data files:

- Body Measures (BMX)
- Demographics Variables and Sample Weights (DEMO)
- Dietary Interview: Individual Foods–Day 1 (DR1IFF)
- Dietary Interview: Individual Foods–Day 2 (DR2IFF)
- Dietary Interview: Total Nutrient Intakes–Day 1 (DR1TOT)
- Dietary Interview: Total Nutrient Intakes–Day 2 (DR2TOT)
- Dietary Supplement Use 24-Hour: Total Dietary Supplements–Day 1 (DS1TOT)
- Dietary Supplement Use 24-Hour: Individual Dietary Supplements–Day 1 (DS1IDS)
- Dietary Supplement Database: Product Information(DSPI)
- Food Security (FSQ)
- Income (INQ)
- Reproductive Health (RHQ)

All analyses in this report are based on NHANES respondents with complete Day-1 Dietary Recall data. To compute all dietary measures, we used Day-1 Dietary Recall data. To estimate usual nutrient intakes, we used Day-1 Dietary Recall data in conjunction with Day-2 Dietary Recall data to control for within-person day-to-day variance in nutrient intakes.

Food Patterns Equivalents Data

Food Patterns equivalents data—which were formerly referred to as MyPyramid equivalents data—were used to construct several nutrition outcome measures for this study (Bowman et al., 2008; Bowman et al., 2013). The analysis for this study was conducted prior to the release of the Food Patterns Equivalents Database (FPED) in 2013, so the main source of Food Patterns data was the former MyPyramid Equivalents Database (MPED). The following data sources were used to obtain Food Patterns data for each food reported in the NHANES 2005–2008 data:

- MyPyramid Equivalents Database for USDA Survey Foods, version 2.0 (MPED 2.0)
- Center for Nutrition Policy and Promotion (CNPP) Addendum to MPED 2.0B
- CNPP Fruit Database (03–04)

The Food Patterns data sources provide data on the amounts of over 30 Food Patterns components included in 100 grams of food (Bowman et al., 2008; Bowman et al., 2013). The Food Pattern components are defined as the number of cup equivalents of fruit, vegetables, and dairy; ounce equivalents of grains and protein foods; teaspoon equivalents of added sugars; gram equivalents of solid fats and oils; and number of alcoholic drinks. We linked each unique food reported in the NHANES 2005–2008 Individual Foods Files to the appropriate Food Patterns data source, and computed the amounts of each Food Pattern component consumed, based on the amount of food consumed by each individual.

Analysis Sample

For most analyses, our analysis sample consisted of children 1–4 years old. Children that consumed breast milk were excluded because they have incomplete dietary recall data. Several of the outcome measures used in this study do not apply to children younger than 2 years, including the HEI, BMI, consumption of empty calories, and usual nutrient intakes of saturated fat, sodium, and cholesterol relative to *Dietary Guidelines* recommendations. The analyses for these measures were limited to children 2-4 years. Appendix E includes tabulations for selected outcomes for infants 0–11 months old and pregnant, breastfeeding, and postpartum women. Because sample sizes for many of the analyses of infants and women are small, many point estimates are statistically unreliable. We report these point estimates in the Appendix E, but they should be interpreted with caution.

Subgroups for Tabulation

For each outcome, we calculated estimates for all children 1–4 years old in the sample and for subgroups defined by program participation and income, and for some outcomes, by age.

Program Participation and Income

WIC participation was measured at the individual level, based on persons (or caregiver) reporting that they currently receive WIC benefits using variable FSD660. Those who did not report current WIC receipt were considered nonparticipants. Income-eligible nonparticipants

were defined as persons with annual family income less than or equal to 185 percent of the U.S. Department of Health and Human Services (DHHS) poverty guidelines. Higher-income nonparticipants were defined as persons with annual family income greater than 185 percent of the DHHS poverty guideline. Income as a percent of poverty level was identified through the variable INDFMPIR.

Age Groups

We tabulated data for all children 1–4 years old, and by age groups:

- Children 1 year old
- Children 2 years old
- Children 3 years old
- Children 4 years old

Ages are calculated based on age at the time of the MEC exam when the first dietary recall was collected, rather than age at the time of the household interview.

Methods for Estimating Nutrition Outcome Measures

We used several outcome measures to examine the diet quality of WIC participants and nonparticipants. In this section, we describe the methods used to construct each measure.

Usual Nutrient Intakes

To assess the prevalence of adequate and excessive nutrient intakes among WIC children and nonparticipant children, we estimated usual nutrient intakes of vitamins, minerals, macronutrients, and other dietary components. We then compared usual nutrient intake distributions to the Dietary Reference Intakes (DRIs) and selected recommendations of the 2010 *Dietary Guidelines*.

Dietary Reference Intakes

The DRIs, established by the Food and Nutrition Board of the Institute of Medicine, provide guidelines on intake amounts appropriate for a given individual based on age, gender and life stage (IOM, 1997; IOM, 1998; IOM, 2000; IOM, 2001; IOM, 2005a; IOM, 2005b; IOM, 2006; IOM, 2011). The DRIs are the most up-to-date scientific standards for determining whether diets provide enough nutrients to meet requirements without being excessive. Four different DRI standards were used to assess the usual nutrient intakes of WIC children and nonparticipant children:

- Estimated Average Requirements (EARs)
- Adequate Intake Levels (AIs)
- Tolerable Upper Intake Levels (ULs)
- Acceptable Macronutrient Distribution Ranges (AMDRs).

DRI values for each nutrient in the analysis are shown in Figure A-1 for each age group.

Figure A-1. Dietary Reference Intakes and *Dietary Guidelines* Recommendations, by Age

Age	Estimated Average Requirement (EAR)									
	Vitamin A (mcg RAE)	Vitamin C (mg)	Vitamin D (mcg)	Vitamin B_6 (mg)	Vitamin B_{12} (mcg)	Vitamin E (mcg)	Folate (mcg DFE)	Niacin (mg)	Selenium (mcg)	Copper (mg)
1–3 years	210	13	10	0.4	0.7	5	120	5	17	0.26
4 years	275	22	10	0.5	1.0	6	160	6	23	0.34

	Estimated Average Requirement (EAR)							
	Riboflavin (mg)	Thiamin (mg)	Calcium (mg)	Iron (mg)	Magnesium (mg)	Zinc (mg)	Carbohydrate (g)	Protein (g/kg body weight)
1–3 years	0.4	0.4	500	3.0	65	2.5	100	0.87
4 years	0.5	0.5	800	4.1	110	4.0	100	0.76

	Adequate Intake (AI)					
	Potassium (mg)	Sodium (mg)	Fiber (g)	Linoleic acid (g)	Linolenic acid (g)	Choline (mg)
1–3 years	3000	1000	19	7	0.7	200
4 years	3800	1200	25	10	0.9	250

	Upper Tolerable Intake Level (UL)
	Sodium (mg)
1–3 years	1500
4 years	1900

	Acceptable Macronutrient Distribution Range (AMDR)				
	Total Fat	Linoleic Acid	Linolenic Acid	Carbohydrate	Protein
	Percent of total calories				
1–3 years	30–40	5–10	0.6–1.2	45–65	5–20
4 years	25–35	5–10	0.6–1.2	45–65	10–30

	2010 *Dietary Guidelines* Recommendations	
	Saturated fat (percent of total calories)	Cholesterol (mg)
2–4 years[a]	< 10	< 300
	Sodium (mg)	
2–4 years[a]	< 2,300	

Sources: Institute of Medicine (IOM). "The Dietary Reference Intakes: The Essential Guide to Nutrient Requirements." Washington, DC: National Academies Press, 2006; IOM. "Dietary Reference Intakes for Calcium and Vitamin D." Washington, DC: National Academies Press, 2010.

Note: g = grams, mg = milligrams, mcg = micrograms, kg = kilograms, RAE = retinol activity equivalent, DFE = dietary folate equivalent.

[a] Children younger than 2 years old are excluded from the usual intake analysis of saturated fat, cholesterol, and sodium relative to the *Dietary Guidelines* since the recommendations apply only to children 2 years and older.

When enough information is available about the distribution of nutrient requirements in the population, the DRIs define an **Estimated Average Requirement (EAR)**. The EAR is the average daily nutrient intake level estimated to meet the requirement of half of the healthy individuals in a life stage and gender group. The EAR is used to assess the prevalence of

inadequate intakes using the IOM-recommended "EAR cut-point method" (IOM, 2006). The EAR cut-point method was used to analyze all nutrients for which EARs have been established.

When information on the distribution of requirements is insufficient to establish an EAR, the DRIs define an **Adequate Intake level (AI)**. The AI is the level of intake that is assumed to be adequate, based on observed or experimentally determined estimates of intake by apparently healthy people. AIs cannot be used to determine the proportion of a population with inadequate intakes. Instead, assessment focuses on comparison of mean usual intakes to the AI. Populations with a mean usual intake equivalent to or greater than the population-specific AI can be assumed to have high levels of nutrient adequacy. However, when mean usual intakes fall below the AI, no firm conclusions can be drawn about the prevalence of adequate usual intakes.

The **Tolerable Upper Intake Level (UL)** is the highest usual nutrient intake level that is likely to pose no risk of adverse health effects to individuals in the specified life stage group. As intake increases above the UL, the risk of adverse effects increases. For most nutrients for which ULs have been established, the UL is based on intake from food, water, and dietary supplements (IOM, 2006). For some nutrients, the UL applies only to synthetic forms obtained from dietary supplements, fortified foods, or over-the-counter medications.

The DRIs also define **Acceptable Macronutrient Distribution Ranges (AMDRs)** for intakes of macronutrients (total fat, carbohydrate, and protein) and key fatty acids (linoleic acid and linolenic acid). The AMDRs reflect a range of usual nutrient intake associated with reduced risk of chronic disease, while providing adequate intakes of other essential nutrients (IOM, 2005a). AMDRs are expressed as percentages of total calorie intake because their requirements are not independent of each other or of the total calorie requirement of the individual (IOM, 2006). A key feature of AMDRs is that they specify ranges of intake. Intakes that fall outside of these ranges (i.e., exceed upper bound or fall below lower bound) may increase risk of chronic disease.

The 2010 *Dietary Guidelines* also include quantitative recommendations for saturated fat, cholesterol, and sodium that encourage reduced intakes of these nutrients. Recommendations for saturated fat (as a percent of total calories) and cholesterol are the same for all age groups. Sodium recommendations vary by age. *Dietary Guidelines* recommendations are shown in Figure A-1.

Estimating Usual Nutrient Intakes

The DRIs, which are used to assess the prevalence of inadequate and excessive nutrient intakes, are intended to be applied to measures of usual intakes or long-term averages of daily intakes. Therefore, information about the distribution of usual nutrient intakes is needed for assessing diets of population groups. Experts in dietary assessment have found that data from single 24-hour dietary recalls will lead to biased estimates of the distribution of usual intakes, as well as the proportion of a group with usual intakes above or below a standard (Beaton et al., 1983). This is due to the fact that nutrient intakes for an individual vary from day to day. An extensive body of methodological research investigating the use of 24-hour recall data to estimate the distribution of usual intakes for population groups has evolved, which recommends that the data include a second 24-hour recall for at least a subset of the population (National Research Council, Subcommittee on Criteria for Dietary Evaluation, 1986; Nusser et al., 1996; Dodd, 2006; Tooze et al., 2006).

We used the method developed by the National Cancer Institute (NCI) to estimate the usual intake distributions, mean intakes, and percent of individuals above, below, or within the standards established in the DRIs or recommended in the 2010 *Dietary Guidelines*. The NCI method involves the use of two SAS macros that are available on NCI's website (Parsons et al., 2009). The first macro, Mixtran, transforms the data and fits the model. The second macro, Distrib, uses the parameters estimated by the Mixtran macro to estimate the usual intake statistics through simulation. The Distrib macro also provides the estimated percent of the population whose intake falls below a given value (e.g., a DRI value or *Dietary Guidelines* recommendation). To estimate standard errors of the estimated percentiles and percentages, we used the balanced repeated replication (BRR) method.

Use of Dietary Supplements and Nutrient Intake from Supplements

Information on dietary supplement use is important in assessing usual nutrient intakes. Because the NHANES dietary recall interview did not start collecting data on 24-hour dietary supplement use until NHANES 2007–2008, the estimates of usual nutrient intakes presented in this report do not include contributions from dietary supplements. To gain some perspective on the contributions of dietary supplements to nutrient intakes, we estimated the (1) prevalence of supplement use, (2) mean daily nutrient intakes from supplements, (3) percent contribution of supplements to total nutrient intakes, and (4) percent contribution of supplements to DRIs.

This analysis used data from NHANES 2007–2010, which is the only analysis in the report that used NHANES 2009–2010 data. All estimates were based on one-day intakes and estimated for three groups: all children (supplement users and nonusers), supplement users only, and multivitamin users only. To be classified as a multivitamin, a dietary supplement had to contain at least 3 vitamins and at least 1 mineral. The Dietary Supplement Database: Product Information file identified the number of vitamins and mineral contained in each dietary supplement reported by NHANES participants. Nutrients included in the analysis were vitamin C, vitamin B_6, vitamin B_{12}, vitamin D, folate, niacin, thiamin, riboflavin, calcium, iron, potassium, magnesium, phosphorus, zinc, copper, selenium, and choline. The NHANES dietary supplement files did not include data for vitamin A and vitamin E, so these nutrients were not included in the analysis.

Usual Intake of Calories

Usual intake of calories was computed using the NCI Mixtran and Distrib SAS macros (Parsons et al., 2009). The Mixtran macro transforms the data and fits the model used for calculating the estimates. The Distrib macro uses the parameters estimated by the Mixtran macro to calculate the mean and distribution of the variable of interest based on the model established for the population being examined.

Body Mass Index

Weight status is defined using the body mass index (BMI), a measure of the relationship between height and weight. BMI is a widely accepted index for classify the weight status of individuals as underweight, healthy weight, overweight, or obese. NHANES collects body measurement data during the MEC exam, including body weight and height (or recumbent length for children less than 2 years old). These data are available in the NHANES Body Measures Files. These files also include a variable for BMI, defined as follows:

$$\text{BMI} = \text{weight in kilograms} \div (\text{height in meters})^2$$

For children, the CDC recommends using BMI to screen for overweight and obesity beginning at 2 years old. Because children grow at different rates at different times, children's weight status is determined by using BMI-for-age percentiles that take into account a child's age and gender. We used the SAS program provided on CDC's website to estimate BMI-for-age percentiles for children. We classified children's weight status based on comparison of BMI-for-age percentiles with the standards defined by the CDC (Exhibit 3-3). Children 1 year old and individuals with missing BMI or height and weight data were excluded from the analysis.

Consumption of Empty Calories

The consumption of empty calories is an important aspect of diet quality. Foods and beverages that contain empty calories contribute calories to a diet while providing few nutrients. Empty calories come from two main sources: solid fats and added sugars. The 2010 *Dietary Guidelines* recommend reducing consumption of solid fats and added sugars to allow for increased intake of recommended amounts of nutrient-dense foods (that is, foods that are fat-free or low fat with no added sugars) without exceeding overall calorie needs. The *Dietary Guidelines* specify maximum daily limits for empty calories for individuals 2 years and older, based on estimated calorie needs for three different physical activity levels (Exhibit 4-1). As shown in Exhibit 4-1, maximum daily limits for empty calories range from 121 to 137 calories, or 10 to 14 percent of total calories, among children who are age-eligible to participate in WIC.

To assess the consumption of empty calories among WIC children and nonparticipant children, we estimated the percent contribution of empty calories to total calorie intakes. Children less than 2 years old were excluded from the analysis because the *Dietary Guidelines* do not apply to them. To construct this measure, we obtained data on total calories from the NHANES Individual Foods Files and Total Nutrients Files, and obtained data on solid fats and added sugars from the Food Patterns equivalents data sources described previously. The HEI SAS programs include a formula for estimating the number of calories from solid fats, added sugars, and alcohol for each individual. We modified this code to also estimate the number of calories from solid fats and added sugars only. We then estimated percent of total calories from empty calories among all children and by participation/eligibility status and age group.

Consumption of Foods Provided in the WIC Food Package

We examined the proportion of children consuming the types of foods provided in the WIC food package (hereafter referred to as WIC foods). The WIC food package for children that was in place when NHANES 2005–2008 data were collected included the following types of foods (see Exhibit 5-1): milk, cheese, eggs, 100% fruit juice, peanut butter, legumes, and cereal. For each type of food, WIC specifies the allowable types and quantities of foods to be provided in the food package. We identified WIC foods in the NHANES data based on food descriptions. For juices and cereals, we also compared the nutrient content of the food to WIC regulatory requirements in order to identify the specific types of juices and cereals allowed by WIC (see Exhibit 5-1). We compared the proportions of WIC children and nonparticipant children who consumed of the various WIC food on the day covered in the dietary recall.

Food Choices Defined Using the Supermarket Aisle Approach

To further examine the food choices of WIC children and nonparticipant children, we categorized all foods reported in Day-1 Dietary Recalls according to the food groups and subgroups defined in the supermarket aisle approach used by Cole & Fox (2008). This approach categorizes foods into major food groups and subgroups based on supermarket groupings, as

show in Figure A-2. We made slight modifications to the food groups defined by Cole & Fox (2008) to reflect the types of foods reported in NHANES 2005–2008. Sandwiches, Mexican entrees, salads, and soups that were reported as multiple components in a dietary recall were counted as one food choice. Grains were classified as whole grains if at least 50 percent of the total grains were whole grains (using data the Food Patterns equivalents data sources). Vegetables that were not categorized separately by type were assigned to the “other raw” or “other cooked” vegetables groups. Within these two groups, vegetables in the top quartile of the distribution of vitamins A or C per 100 grams were categorized as "higher in vitamins A or C" (at least 58 mg of vitamin C and/or 54 mcg of vitamin A for raw vegetables; and at least 24 mg of vitamin C and/or 47 mcg of vitamin A for cooked vegetables); all others were categorized as "lower in vitamins A or C."

We estimated the percent of children consuming one or more foods (in any amount) from each of the 11 major supermarket aisle food groups on the day covered in the dietary recall. Within the supermarket aisle subgroups, we estimated the percent of children consuming one or more foods from the subgroup among those who consumed any foods in the corresponding major group. For example, the percent of children consuming each of the grain subgroups is conditional on consuming any grains. This approach allows us to compare food choices of WIC children and nonparticipant children while controlling for different overall levels of consumption at the major food group level. All of the supermarket aisle food groups and subgroups reflect foods consumed as *discrete* items.

Average Amounts of Food Consumed from Supermarket Aisle Food Groups

We examined the mean amounts of food consumed by WIC children and nonparticipant children on the day covered in the dietary recall from each of the major food groups and subgroups defined in the supermarket aisle approach. We estimated amounts in both grams and Food Patterns units among the total population and among consumers only. To construct these measures, we used the Individual Foods Files, the Food Patterns equivalents data, and the major food groups and subgroups defined in the supermarket aisle approach. To estimate average amounts consumed in grams, gram amounts for foods reported consumed within each food group and subgroup were summed to create daily totals for each child. To estimate average amounts consumed in Food Patterns units, we used Food Patterns equivalents data to obtain cup and ounce equivalents data for foods in the milk and milk products, fruits, vegetables, meat and meat alternates, and grains groups and their associated subgroups. Food Patterns units for each food group and subgroup were summed to create daily totals in cup or ounce equivalents for each child. For foods that were reported as multiple components but counted as one item in the food choices analysis, we summed the gram and Food Patterns units for all components reported so that foods were handled the same way in both analyses. We then estimated the mean amounts of grams and Food Patterns units over the total population, which included all children regardless of whether or not the food group or subgroup was consumed. To estimate the average amounts consumed among consumers only, we included only those children that consumed the specific food group or subgroup. The estimates reflect average daily amounts of foods consumed on the day covered in the dietary recall.

Figure A-2. Supermarket Aisle Food Groups and Subgroups

Major Group	Subgroup
Grains	
	Bread
	Rolls
	English muffins
	Bagels
	Biscuits, scones, croissants
	Muffins
	Cornbread
	Corn tortillas
	Flour tortillas
	Taco shells
	Crackers
	Breakfast/granola bars
	Pancakes, waffles, French toast
	Cold cereal
	Hot cereal
	Rice
	Pasta
Vegetables	
	Raw vegetables
	Raw lettuce/greens
	Raw carrots
	Raw tomatoes
	Raw cabbage/coleslaw
	Other raw vegetables (higher in vitamins A and C)[1]
	Other raw vegetables (lower in vitamins A and C)[1]
	Salads (w/greens)
	Cooked vegetables, excl. potatoes
	Cooked green beans
	Cooked corn
	Cooked peas
	Cooked carrots
	Cooked broccoli
	Cooked tomatoes
	Cooked mixed
	Cooked starchy
	Other cooked deep yellow
	Other cooked dark green
	Other cooked vegetables (higher in vitamins A and C)[1]
	Other cooked vegetables (lower in vitamins A and C)[1]
	Other fried
	Cooked potatoes-not fried
	Cooked potatoes-fried
	Vegetable juice

Major Group	Subgroup
Fruit and 100% Fruit Juice	
	Fresh orange
	Fresh other citrus
	Fresh apple
	Fresh banana
	Fresh melon
	Fresh watermelon
	Fresh grapes
	Fresh peach/nectarine
	Fresh pear
	Fresh berries
	Other fresh fruit
	Avocado/guacamole
	Lemon/lime-any form
	Canned or frozen fruit, total
	Canned or frozen in syrup
	Canned or frozen, no syrup
	Applesauce, canned/frozen apples
	Canned/frozen peaches
	Canned/frozen pineapple
	Other canned/frozen
	Fruit juice
	Non-citrus juice
	Citrus juice
	Dried fruit
Meat and Meat Alternates	
	Beef
	Ground beef
	Pork
	Ham
	Lamb and misc. meats
	Chicken
	Turkey
	Organ meats
	Hot dogs
	Cold cuts
	Fish
	Shellfish
	Bacon/sausage
	Eggs
	Beans (dry, cooked)
	Baked/refried beans
	Soy products
	Protein/meal enhancement

Figure A-2. Supermarket Aisle Food Groups and Subgroups–Continued

Mixed Dishes
Tomato sauce and meat (no pasta)
Chili con carne
Meat mixtures w/red meat
Meat mixtures w/chicken/turkey
Meat mixtures w/fish
Hamburgers/cheeseburgers
Sandwiches (excl. hamburger)
Hot dogs
Luncheon meats
Beef, pork, ham
Chicken, turkey
Cheese (no meat)
Fish
Peanut butter
Breakfast sandwiches
Pizza (no meat)
Pizza w/meat
Mexican entrees
Macaroni and cheese
Pasta dishes, Italian style
Rice dishes
Other grain mixtures
Meat soup
Bean soup
Grain soups
Vegetable mixtures (inc soup)
Entrée salad
Beverages (excluding milk and 100% fruit juice)
Coffee
Tea
Beer
Wine
Liquor
Energy drinks
Water
Regular soda
Sugar-free soda
Noncarbonated sweetened beverage
Non carbonated low-calorie/sugar free beverage
Salty Snacks
Corn-based salty snacks
Pretzels/party mix
Popcorn
Potato chips
Nuts
Peanut/almond butter
Seeds
Milk and Milk Products
Unflavored whole milk
Unflavored 2% milk
Unflavored 1% milk
Unflavored skim milk
Unflavored milk-% fat nfs
Flavored whole milk
Flavored 2% milk
Flavored 1% milk
Flavored skim milk
Flavored milk-% fat nfs
Soymilk
Dry of evaporated milk
Yogurt
Cheese
Breast milk
Infant formula
Sweets and Desserts
Sugar and sugar substitutes
Syrups/sweet toppings
Jelly
Jello
Candy
Ice cream
Pudding
Ice/popsicles
Sweet rolls
Cake/cupcakes
Cookies
Pies/cobblers
Pastries
Doughnuts
Added Fats and Oils
Butter
Margarine
Other added fats
Other added oils
Salad dressing
Mayonnaise
Gravy
Cream cheese
Cream/sour cream
Other

[1] "Other raw" and "Other cooked" vegetables include all vegetables not categorized separately. Within these two groups, vegetables in the top quartile of the distribution of Vitamins A or C per 100 grams were categorized as "higher in vitamins A or C"; all others are "lower in vitamins A or C." Raw vegetables higher in vitamins A or C include broccoli, peppers (sweet and hot), snow peas, seaweed, and leeks. Raw vegetables lower in vitamins A or C include onions, cucumbers, celery, radishes, mushrooms, asparagus, squash, and green peas. Cooked vegetables higher in nutrients include cabbage, peppers, asparagus, cauliflower, Brussels sprouts, and snow peas. Cooked vegetables lower in vitamins A or C include squash, artichokes, onions, mushrooms, eggplant, beets, and yellow string beans.

The results for the average amounts of foods consumed from supermarket aisle food groups should not be used to represent total food group intake or compared to USDA Food Pattern recommendations. Total food group intakes for each USDA Food Pattern group were not estimated for this study, but have been estimated by the USDA using NHANES 2005–2006 and 2007–2008 data and can be found at the website listed below.
http://www.ars.usda.gov/Services/docs.htm?docid=23868

Health Eating Index-2005 (HEI-2005) and HEI-2010

To estimate mean HEI-2005 and HEI-2010 component and total scores, we used the following resources developed by the National Cancer Institute (NCI) and available on their website:

- SAS programs that estimate mean component and total scores, and corresponding standard errors and confidence intervals (HEI2005_NHANES0102_MC_PopulationScore.sas; and HEI2010_NHANES0708_MC_PopulationScore.sas)

- Two SAS macros that allocate beans and peas to the protein/meat and beans and vegetable components, and apply the HEI scoring algorithm (hei2005.beanspeas.allocation.macro.sas and hei2005.score.macro.sas; hei2010.beanspeas.allocation.macro.sas and hei2010.score.macro.sas)

NCI's SAS programs and macros are designed to estimate mean HEI component and total scores and corresponding standard errors and confidence intervals using one day of dietary intake data from NHANES (NCI, 2013). The SAS code uses SAS survey procedures to account for the complex survey design and a Monte Carlo simulation step to compute standard errors. The SAS programs read in the variables needed from the NHANES Individual Foods Files and Total Nutrient Intakes Files, as well as variables from the Food Patterns equivalents database. We adapted NCI's SAS code to calculate HEI scores for NHANES 2005–2008 and to import the Food Patterns data sources (described previously).

The SAS programs use the population ratio method and one day of dietary intake data to estimate mean component and total HEI scores. In this method, the ratio between the population's total intake of a food group or nutrient of interest and their total calorie intake is computed, rather than using means of individual scores or means of individual ratios. This convention is usually suggested largely because of two factors: (1) it reduces possible bias resulting from correlations between an individual's one-day food or nutrient to energy ratio and his or her energy intake, and (2) there is usually less score truncation in the HEI scoring system for the group-level HEI measure than in the mean of the individual-level HEI scores (Freedman et al., 2008).

Statistical Methods

The study team produced all estimates for this report using SAS (version 9.3 and 9.4). Sample weights were used to account for sample design and nonresponse. Information about the NHANES survey design (strata and primary sampling units) was used for estimating variances and testing for statistical significance. Thus, the SAS procedures used included SURVEYREG and SURVEYMEANS.

The NHANES analytic guidelines recommend calculating standard errors using procedures that account for the complex sampling design effect to produce an asymptotically unbiased estimate of the variance. Following the NHANES guidelines, we estimated standard errors using replicate weights that account for the complex survey design. Standard errors are included in Appendix tables only.

Sampling Weights

The study team applied weights reflecting the sampling design of the NHANES to project sample statistics to population statistics. We constructed 4-year weights according to the NHANES analytic guidelines because all estimates are based on two waves of NHANES data.

NHANES provides several weights for use in analyzing each wave of data, including full sample 2-year interview weights, full sample 2-year examination weights, and day-1 dietary sample weights. Because we subset the NHANES sample to those with complete and reliable Day-1 Dietary Recall data, we primarily used the day-1 dietary sample weights. Day-1 weights adjust for the non-response in the Day-1 Dietary Recall and the differential allocation by day of the week for the dietary intake data collection.

Age-Adjusted Statistics

We used age-adjustment to produce estimates for the "All children ages 1–4" group. When adjusting the estimates, we used a single weight for each age included in the total group. Age-adjustment eliminates differences between comparison groups due solely to differences in the age distributions of the groups. The age-adjusted estimates are calculated as the weighted average of estimates computed for each age using weights equal to the proportion of the 2010 United States population of the same age. Figure A-3 shows the population distribution used for age-adjustment. Two approaches were used for age-adjustment.

Figure A-3. Census 2010 population for DRI Age Groups

Age	Population	Percent
1 year old	3,978,070	24.47
2 years old	4,096,929	25.20
3 years old	4,119,040	25.34
4 years old	4,063,170	24.99

Source: Census 2010 Summary File 1 (SF1).
http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_SF1_QTP2&prodType=table

We used the first approach for the HEI-2005, HEI-2010, and usual nutrient intakes outcomes. In this approach, each DRI age-group mean score was calculated. The mean score for each comparison group was computed as the weighted average of the age-group estimates for that group, using population weights. We used the same set of weights for each comparison group. We used the following equation to calculate standard errors for HEI-2005, HEI-2010, and usual nutrient intakes:

$$\sqrt{\sum_{i=1}^{J}\left[\left(SE_{X_i}\right)^2 \times (K_i)^2\right]}$$

where SE_{X_i} is the standard error for DRI age-group "i" and K_i is the population weight adjustment for that age group.

The second approach was used for the consumption of empty calories, BMI, and food choices outcomes. In this approach, the outcome was first calculated for each individual. Special SAS procedures were used to calculate age-adjusted estimates and standard errors. Population weight adjustments for each DRI age group were incorporated into PROC SURVEYMEANS and PROC SURVEYREG. Output from running PROC SURVEYREG provided separate estimates and standard errors for all persons, WIC participants, income-eligible nonparticipants, and higher-income nonparticipants.

Age-adjustment was not applied to the average amounts of foods consumed outcome. Insufficient sample sizes prevented the computation of reliable estimates for numerous components of this analysis. For many of the food subgroups included, specific age groups contained zero participants consuming food in that subgroup. When no one in an age or comparison group consumed a food, we lacked the variation required to use age-adjustment procedures.

Statistical Significance

We conducted t-tests to determine whether differences in outcomes between WIC participants and each group of nonparticipants (income-eligible nonparticipants and higher-income nonparticipants) reached statistical significance. When examining multiple outcome categories simultaneously for the usual nutrient intake distributions, we use the Bonferroni adjustment for multiplicity (Lohr, 1999). All tabulations in the Appendices indicate statistically significant differences at the .05, .01, and .001 levels. All graphics throughout the report indicate statistically significant differences at the .05 level or better.

Indicators of Statistical Reliability

We tested all estimates for statistical reliability according to recommendations in the NHANES analytic guidelines on variance estimation. These guidelines recommend that estimates have a relative standard error of 30% or less, rather than a minimum sample size. Because the design effect is highly variable for different variables within each 2-year cycle of the continuous NHANES, the analytic guidelines do not set a single minimum sample size for analysis (CDC, 2013b). We flagged estimates in each table with “u” if the coefficient of variation (ratio of the standard error to the mean expressed as a percent) was greater than 30%, to indicate that the estimate is statistically unreliable. We did not discuss estimates in the text that were determined to be unreliable and did not discuss comparisons where either variable in the comparison was unreliable. Although some comparisons may be statistically significant, the practical significance of the results may be limited, and should be interpreted with this limitation in mind.

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Appendix B.

Detailed Tables for Usual Nutrient Intakes from Foods and Beverages

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Table B-1. Vitamin A (mcg RAE): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	551	(11.5)	791	535	(15.7)	496	543	(18.5)	606	566	(19.4)
1 year olds	566	551	(17.4)	305	541	(26.4)	96	536	(41.0)	153	564	(31.6)
2 year olds	587	569	(18.3)	223	555	(37.6)	162	538	(22.8)	183	589	(34.5)
3 year olds	389	534	(27.9)	132	521	(27.4)	104	494	(41.9)	134	573	(44.8)
4 year olds	414	550	(26.5)	131	521	(32.5)	134	605	(39.4)	136	537	(42.6)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)[1]											
All children, 1–4 years old	1,956	98.3	(0.62)	791	98.0	(0.90)	496	98.2	(1.09)	606	98.9	(0.80)
1 year olds	566	99.6	(0.37)	305	99.8	(0.35)	96	99.7	(1.32)	153	99.6	(0.59)
2 year olds	587	98.3	(0.88)	223	99.3	(0.82)	162	99.7	(0.57)	183	98.5	(0.87)
3 year olds	389	98.7	(1.17)	132	99.8	(0.38)	104	96.7	(2.85)	134	99.4	(1.55)
4 year olds	414	96.5	(1.96)	131	93.1	(3.45)	134	96.9	(2.92)	136	98.2	(2.58)

See notes at end of table.

Table B-1. Vitamin A (mcg RAE): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	285	331	363	416	530	662	742	800	890
1 year olds	309	352	382	430	533	652	723	774	856
2 year olds	266	317	353	413	543	693	789	859	966
3 year olds	271	318	351	403	516	645	722	775	860
4 year olds	293	338	369	419	528	656	735	790	878
WIC participants	294	335	364	410	513	632	708	764	849
1 year olds	314	353	381	424	521	634	704	755	837
2 year olds	284	329	360	410	526	666	755	822	927
3 year olds	321	359	386	428	516	603	658	695	748
4 year olds	259	299	328	378	491	626	717	783	886
Income-eligible nonparticipants	289	332	364	416	526	648	724	779	861
1 year olds	305	344	375	425	526	630	696	746	815
2 year olds	315	357	386	433	528	630	690	732	796
3 year olds	232	275	308	359	473	601	684	743	833
4 year olds	303	351	387	446	577	730	828	895	1,001
Higher-income nonparticipants	301	347	380	434	550	675	753	808	890
1 year olds	313	357	388	442	551	667	737	791	863
2 year olds	276	329	368	428	567	720	814	880	984
3 year olds	301	346	379	435	555	687	769	827	912
4 year olds	317	354	384	429	527	627	690	733	798

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-2. Vitamin B_6 (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	1.31	(0.021)	791	1.45	(0.038)	496	1.31 **	(0.036)	606	1.24 ***	(0.035)
1 year olds	566	1.13	(0.040)	305	1.16	(0.047)	96	1.14	(0.069)	153	1.09	(0.070)
2 year olds	587	1.33	(0.030)	223	1.49	(0.042)	162	1.34	(0.066)	183	1.23 ***	(0.050)
3 year olds	389	1.34	(0.045)	132	1.59	(0.108)	104	1.32	(0.083)	134	1.23 **	(0.071)
4 year olds	414	1.44	(0.049)	131	1.56	(0.085)	134	1.41	(0.066)	136	1.42	(0.084)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)[1]											
All children, 1–4 years old	1,956	100.0	(0.03)	791	100.0	(0.05)	496	99.8	(0.30)	606	100.0	(0.05)
1 year olds	566	100.0	(0.01)	305	100.0	(0.00)	96	99.6	(1.17)	153	100.0	(0.00)
2 year olds	587	100.0	(0.06)	223	100.0	(0.03)	162	100.0	(0.04)	183	99.9	(0.15)
3 year olds	389	100.0	(0.03)	132	99.9	(0.16)	104	99.9	(0.08)	134	100.0	(0.01)
4 year olds	414	99.9	(0.10)	131	99.9	(0.13)	134	99.8	(0.35)	136	99.9	(0.14)

See notes at end of table.

Table B-2. Vitamin B_6 (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	0.78	0.88	0.94	1.05	1.27	1.53	1.68	1.79	1.97
1 year olds	0.75	0.82	0.86	0.94	1.10	1.29	1.40	1.48	1.61
2 year olds	0.77	0.87	0.95	1.06	1.30	1.56	1.72	1.84	2.01
3 year olds	0.79	0.89	0.95	1.06	1.29	1.57	1.73	1.84	2.03
4 year olds	0.82	0.94	1.01	1.14	1.40	1.70	1.88	2.00	2.20
WIC participants	0.84	0.94	1.02	1.14	1.41	1.70	1.89	2.02	2.22
1 year olds	0.78	0.85	0.90	0.97	1.13	1.31	1.42	1.50	1.63
2 year olds	0.89	1.01	1.09	1.20	1.46	1.74	1.90	2.02	2.19
3 year olds	0.80	0.93	1.02	1.17	1.52	1.90	2.16	2.35	2.62
4 year olds	0.87	0.99	1.07	1.21	1.51	1.85	2.06	2.21	2.44
Income-eligible nonparticipants	0.73	0.83	0.90	1.02	1.27	1.54	1.71	1.83	2.02
1 year olds	0.58	0.67	0.74	0.86	1.11	1.37	1.54	1.67	1.85
2 year olds	0.84	0.93	0.99	1.10	1.32	1.55	1.69	1.79	1.94
3 year olds	0.75	0.85	0.92	1.04	1.29	1.56	1.73	1.85	2.02
4 year olds	0.76	0.87	0.95	1.07	1.35	1.68	1.89	2.03	2.25
Higher-income nonparticipants	0.80	0.88	0.94	1.03	1.22 **	1.42 ***	1.55 **	1.63 **	1.76 **
1 year olds	0.81	0.86	0.90	0.96	1.08	1.20	1.28	1.34	1.41
2 year olds	0.72	0.81	0.88 *	0.98 **	1.21 **	1.45 *	1.59 *	1.69	1.85
3 year olds	0.83	0.90	0.95	1.03	1.21	1.39	1.51	1.59	1.70
4 year olds	0.86	0.96	1.03	1.15	1.39	1.64	1.80	1.91	2.07

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-3. Vitamin B_{12} (mcg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	4.33	(0.079)	791	4.64	(0.131)	496	4.34	(0.140)	606	4.17 **	(0.110)
1 year olds	566	4.25	(0.114)	305	4.53	(0.211)	96	4.02	(0.308)	153	4.12	(0.155)
2 year olds	587	4.45	(0.146)	223	4.66	(0.218)	162	4.20	(0.228)	183	4.49	(0.217)
3 year olds	389	4.26	(0.181)	132	4.88	(0.329)	104	4.30	(0.288)	134	4.04 *	(0.260)
4 year olds	414	4.35	(0.177)	131	4.50	(0.271)	134	4.83	(0.293)	136	4.05	(0.227)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)[1]											
All children, 1–4 years old	1,956	100.0	(0.01)	791	100.0	(0.00)	496	100.0	(0.03)	606	100.0	(0.03)
1 year olds	566	100.0	(0.00)	305	100.0	(0.02)	96	99.9	(0.12)	153	100.0	(0.03)
2 year olds	587	100.0	(0.02)	223	100.0	(0.00)	162	100.0	(0.01)	183	99.9	(0.10)
3 year olds	389	100.0	(0.00)	132	100.0	(0.00)	104	100.0	(0.02)	134	100.0	(0.01)
4 year olds	414	100.0	(0.02)	131	100.0	(0.01)	134	100.0	(0.04)	136	100.0	(0.07)

See notes at end of table.

Table B-3. Vitamin B_{12} (mcg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	2.34	2.70	2.95	3.35	4.19	5.15	5.73	6.14	6.77
1 year olds	2.34	2.69	2.93	3.32	4.13	5.05	5.57	5.96	6.55
2 year olds	2.18	2.58	2.86	3.32	4.29	5.39	6.07	6.56	7.30
3 year olds	2.37	2.72	2.95	3.33	4.13	5.05	5.59	5.97	6.56
4 year olds	2.47	2.81	3.04	3.41	4.21	5.12	5.68	6.06	6.68
WIC participants	2.63	2.98	3.23	3.63	4.49	5.47	6.08	6.51	7.18
1 year olds	2.39	2.76	3.03	3.44	4.36	5.41	6.05	6.51	7.24
2 year olds	2.58	2.96	3.21	3.62	4.51	5.52	6.13	6.58	7.27
3 year olds	2.89	3.24	3.49	3.89	4.76	5.68	6.29	6.72	7.33
4 year olds	2.65	2.96	3.19	3.55	4.34	5.25	5.83	6.24	6.88
Income-eligible nonparticipants	2.31	2.66	2.92	3.34	4.22	5.18	5.77	6.19	6.81
1 year olds	1.81	2.16	2.45	2.92	3.90	4.93	5.59	6.09	6.78
2 year olds	2.40	2.74	2.97	3.35	4.12	4.94	5.44	5.78	6.30
3 year olds	2.22	2.59	2.86	3.28	4.18	5.16	5.77	6.20	6.84
4 year olds	2.80	3.15	3.40	3.81	4.69	5.67	6.28	6.70	7.34
Higher-income nonparticipants	2.32	2.65	2.89	3.28	4.09	4.94	5.46	5.82	6.36
1 year olds	2.57	2.88	3.09	3.44	4.10	4.75	5.12 *	5.40 *	5.75 *
2 year olds	2.04	2.46	2.76	3.24	4.33	5.52	6.25	6.76	7.57
3 year olds	2.38	2.68	2.89	3.25	3.97	4.73	5.18	5.49	5.94
4 year olds	2.28	2.58	2.82	3.18	3.96	4.77	5.28	5.63	6.16

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-4. Vitamin C (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	90	(2.6)	791	112	(5.0)	496	86 ***	(4.5)	606	78 ***	(3.9)
1 year olds	566	84	(5.8)	305	99	(8.3)	96	87	(10.7)	153	72 *	(6.7)
2 year olds	587	103	(4.7)	223	134	(12.6)	162	110	(9.2)	183	81 ***	(4.5)
3 year olds	389	89	(5.9)	132	117	(9.7)	104	72 ***	(9.2)	134	82 *	(9.8)
4 year olds	414	82	(4.7)	131	100	(8.5)	134	75 *	(6.0)	136	78	(9.0)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.4	(0.29)	791	99.6	(0.16)	496	99.5	(0.68)	606	99.4	(0.63)
1 year olds	566	99.4	(0.40)	305	99.7	(0.23)	96	99.3	(0.89)	153	99.4	(1.13)
2 year olds	587	99.4	(0.35)	223	99.4	(0.36)	162	99.9	(0.24)	183	99.6	(0.42)
3 year olds	389	99.2	(0.76)	132	99.7	(0.29)	104	98.8	(2.45)	134	99.3	(1.63)
4 year olds	414	99.5	(0.70)	131	99.4	(0.34)	134	99.9	(0.72)	136	99.5	(1.47)

See notes at end of table.

Table B-4. Vitamin C (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	29	37	43	54	80	115	138	156	185
1 year olds	26	33	39	50	75	108	130	148	176
2 year olds	28	38	45	58	91	133	163	186	222
3 year olds	24	32	38	49	76	115	141	161	195
4 year olds	36	44	49	58	78	102	117	128	145
WIC participants	33	43	51	65	99	144	175	199	237
1 year olds	30	39	46	58	87	126	153	173	208
2 year olds	29	42	51	67	111	175	219	254	313
3 year olds	35	46	55	70	106	150	181	203	237
4 year olds	38	47	53	65	92	125	147	163	188
Income-eligible nonparticipants	31	39	45	55	80 **	109 ***	128 **	142 **	164 **
1 year olds	25	33	40	52	80	112	133	151	175
2 year olds	37	47	55	69	101	140	166	185	215
3 year olds	21 u	28 u	33 u	42	65 **	93 *	113	128	151
4 year olds	42 u	48 u	52	58	73	89	99	106	116
Higher-income nonparticipants	27	34	39	48 **	71 ***	99 ***	118 ***	133 ***	157 ***
1 year olds	23	29	34	43	64	91	109	124	146
2 year olds	28	36	42	51	75 **	103 ***	122 **	135 **	158 **
3 year olds	23 u	29 u	34 u	44	69 *	104	131	152	187
4 year olds	35	42	47	56	75	96	110	120	135

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-5. Vitamin D (mcg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	6.9	(0.14)	791	7.3	(0.22)	496	6.5 *	(0.32)	606	6.9	(0.21)
1 year olds	566	8.5	(0.29)	305	8.8	(0.46)	96	7.8	(0.94)	153	8.7	(0.38)
2 year olds	587	7.3	(0.31)	223	7.7	(0.54)	162	6.5	(0.44)	183	7.5	(0.47)
3 year olds	389	6.0	(0.30)	132	6.9	(0.41)	104	5.8	(0.60)	134	6.0	(0.45)
4 year olds	414	5.7	(0.23)	131	5.8	(0.28)	134	5.9	(0.41)	136	5.5	(0.40)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	15.6	(1.26)	791	16.7	(2.16)	496	12.5	(2.40)	606	16.7	(1.90)
1 year olds	566	31.2	(2.85)	305	33.6	(4.69)	96	25.9 u	(7.91)	153	32.2	(4.40)
2 year olds	587	20.9	(2.74)	223	22.2	(5.50)	162	13.2	(2.70)	183	23.3	(4.31)
3 year olds	389	7.6 u	(2.68)	132	11.0 u	(4.34)	104	6.1 u	(3.60)	134	7.8 u	(3.99)
4 year olds	414	3.1 u	(1.60)	131	0.5 u	(1.87)	134	5.1 u	(3.36)	136	3.7 u	(2.05)

See notes at end of table.

Table B-5. Vitamin D (mcg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	2.6	3.4	3.9	4.7	6.5	8.7	9.9	10.8	12.2
1 year olds	3.4	4.3	5.0	6.0	8.2	10.7	12.1	13.2	14.7
2 year olds	2.2	3.0	3.6	4.6	6.8	9.4	11.1	12.3	14.2
3 year olds	2.3	2.9	3.4	4.1	5.7	7.6	8.7	9.5	10.7
4 year olds	2.6	3.2	3.6	4.2	5.5	7.0	7.9	8.4	9.4
WIC participants	3.4	4.1	4.6	5.4	7.0	8.9	10.0	10.8	12.1
1 year olds	3.8	4.7	5.4	6.4	8.5	10.9	12.4	13.4	15.0
2 year olds	3.0	3.8	4.3	5.2	7.2	9.6	11.1	12.2	13.9
3 year olds	3.3	3.9	4.4	5.1	6.7	8.4	9.4	10.2	11.2
4 year olds	3.6	4.1	4.3	4.8	5.7	6.7	7.3	7.7	8.2
Income-eligible nonparticipants	2.3 **	2.9 **	3.4 **	4.3 *	6.2	8.3	9.6	10.5	12.0
1 year olds	2.1	2.9	3.6	4.7	7.3	10.2	12.0	13.5	15.5
2 year olds	2.2	2.9	3.4	4.3	6.2	8.4	9.7	10.7	12.1
3 year olds	2.3	2.9	3.3	4.0	5.5	7.3	8.4	9.1	10.3
4 year olds	2.5	3.1	3.5	4.2	5.7	7.3	8.3	9.0	10.0
Higher-income nonparticipants	2.6	3.3 *	3.8	4.7	6.6	8.7	10.0	11.0	12.3
1 year olds	3.8	4.7	5.4	6.4	8.6	10.7	12.0	12.9	14.2
2 year olds	2.1	2.9	3.5	4.5	6.9	9.8	11.6	12.8	14.9
3 year olds	2.2	2.8	3.2	4.0	5.7	7.6	8.7	9.6	10.8
4 year olds	2.2	2.7	3.2	3.8	5.3	6.9	7.9	8.5	9.5

Source: NHANES 2005-2008 dietary recalls and Vitamin D addendum to the FNDDS 3. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-6. Vitamin E (mg AT): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	4.1	(0.09)	791	4.2	(0.14)	496	4.2	(0.15)	606	3.9	(0.13)
1 year olds	566	3.7	(0.18)	305	3.4	(0.16)	96	4.1	(0.42)	153	3.7	(0.27)
2 year olds	587	4.0	(0.13)	223	4.2	(0.22)	162	4.1	(0.19)	183	3.8	(0.20)
3 year olds	389	4.1	(0.18)	132	4.2	(0.27)	104	4.1	(0.21)	134	3.9	(0.28)
4 year olds	414	4.5	(0.19)	131	4.9	(0.42)	134	4.6	(0.31)	136	4.3	(0.28)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	17.1	(2.27)	791	21.5	(3.01)	496	18.1	(4.88)	606	10.2 * u	(3.55)
1 year olds	566	15.7	(3.85)	305	10.3 u	(4.12)	96	26.5 u	(11.11)	153	14.1 u	(5.52)
2 year olds	587	18.9	(3.77)	223	26.6	(4.68)	162	17.5 u	(8.47)	183	8.0 ** u	(5.44)
3 year olds	389	17.5 u	(6.13)	132	25.7	(5.97)	104	15.0 u	(9.59)	134	6.5 u	(10.51)
4 year olds	414	16.1	(3.87)	131	22.9 u	(8.38)	134	13.8 u	(9.78)	136	12.2 u	(5.39)

See notes at end of table.

Table B-6. Vitamin E (mg AT): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	2.3	2.6	2.8	3.1	3.9	4.8	5.4	5.8	6.5
1 year olds	1.8	2.1	2.3	2.6	3.4	4.4	5.1	5.5	6.3
2 year olds	2.2	2.5	2.7	3.1	3.8	4.7	5.3	5.7	6.3
3 year olds	2.5	2.8	3.0	3.3	3.9	4.7	5.1	5.4	5.9
4 year olds	2.5	2.8	3.0	3.4	4.3	5.4	6.1	6.6	7.4
WIC participants	2.0	2.4	2.6	3.0	3.9	5.0	5.8	6.3	7.2
1 year olds	1.7	1.9	2.1	2.4	3.2	4.0	4.6	5.0	5.7
2 year olds	1.9	2.2	2.4	2.9	3.8	5.1	6.0	6.7	7.8
3 year olds	2.1	2.5	2.7	3.1	4.0	5.0	5.7	6.2	7.0
4 year olds	2.5	2.8	3.1	3.5	4.6	5.8	6.7	7.4	8.4
Income-eligible nonparticipants	2.4	2.7	3.0	3.3	4.1	4.9	5.5	5.8	6.4
1 year olds	1.7 u	2.1	2.4	2.9	4.0	5.1	5.8	6.4	7.1
2 year olds	2.5	2.8	3.0	3.3	4.0	4.7	5.1	5.4	5.9
3 year olds	2.7	2.9	3.1	3.4	4.0	4.6	5.0	5.3	5.6
4 year olds	2.7	3.0	3.3	3.6	4.4	5.3	5.9	6.3	6.9
Higher-income nonparticipants	2.4	2.6	2.8	3.1	3.8	4.5	5.0	5.3	5.9
1 year olds	1.9	2.2	2.4	2.7	3.5	4.3	4.9	5.4	6.0
2 year olds	2.6	2.8	2.9	3.2	3.7	4.3	4.6	4.9	5.3
3 year olds	2.8	3.0	3.1	3.3	3.8	4.3	4.6	4.8	5.1
4 year olds	2.3	2.5	2.8	3.2	4.0	5.1	5.8	6.3	7.0

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-7. Folate (mcg DFE): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	383	(7.1)	791	416	(12.7)	496	403	(13.9)	606	357 ***	(9.7)
1 year olds	566	299	(9.7)	305	317	(13.7)	96	308	(21.8)	153	279	(14.0)
2 year olds	587	381	(11.5)	223	409	(21.0)	162	411	(28.4)	183	356 *	(16.4)
3 year olds	389	422	(18.6)	132	474	(34.5)	104	439	(34.1)	134	383 *	(22.8)
4 year olds	414	429	(15.4)	131	460	(26.8)	134	450	(25.1)	136	410	(22.4)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.8	(0.11)	791	99.9	(0.13)	496	99.4	(0.50)	606	99.9	(0.15)
1 year olds	566	99.7	(0.19)	305	99.9	(0.16)	96	99.0	(1.57)	153	99.8	(0.34)
2 year olds	587	99.9	(0.11)	223	99.9	(0.16)	162	99.6	(0.82)	183	100.0	(0.21)
3 year olds	389	100.0	(0.04)	132	100.0	(0.07)	104	99.9	(0.12)	134	100.0	(0.08)
4 year olds	414	99.6	(0.36)	131	99.7	(0.47)	134	99.1	(0.95)	136	99.8	(0.43)

See notes at end of table.

Table B-7. Folate (mcg DFE): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	213	241	262	295	367	453	507	546	609
1 year olds	174	195	210	235	288	351	389	417	462
2 year olds	203	233	254	288	364	453	511	553	620
3 year olds	246	277	298	333	408	496	548	586	644
4 year olds	227	260	283	321	407	512	579	626	705
WIC participants	227	258	279	315	396	491	554	601	673
1 year olds	186	208	224	248	304	370	412	443	493
2 year olds	209	242	264	302	387	490	556	606	685
3 year olds	279	312	335	374	459	552	615	660	726
4 year olds	233	267	292	334	431	550	630	691	786
Income-eligible nonparticipants	203	235	260	300	386	485	548	593	663
1 year olds	160	185	205	237	302	369	411	443	486
2 year olds	193	228	252	295	388	499	571	622	706
3 year olds	242	277	303	343	429	521	578	619	679
4 year olds	216	251	277	322	423	547	628	684	776
Higher-income nonparticipants	217	240	258	286	347 *	415 **	458 **	489 **	536 *
1 year olds	167	185	199	222	270	324	358	385	421
2 year olds	213	237	255	282	345	415	459	490	540
3 year olds	250	273	289	317	375	438	478	506	546
4 year olds	236	264	286	320	397	480	536	574	634

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-8. Niacin (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	14.0	(0.22)	791	14.7	(0.36)	496	14.4	(0.36)	606	13.4 *	(0.35)
1 year olds	566	11.7	(0.42)	305	12.1	(0.47)	96	11.8	(0.72)	153	11.3	(0.81)
2 year olds	587	13.7	(0.40)	223	14.6	(0.60)	162	14.7	(0.71)	183	12.7 *	(0.48)
3 year olds	389	14.9	(0.46)	132	16.0	(0.89)	104	15.5	(0.74)	134	14.1	(0.68)
4 year olds	414	15.6	(0.45)	131	15.9	(0.82)	134	15.7	(0.69)	136	15.4	(0.76)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.7	(0.11)	791	99.8	(0.07)	496	99.4	(0.52)	606	99.6	(0.30)
1 year olds	566	99.2	(0.38)	305	99.6	(0.23)	96	97.6	(2.09)	153	99.0	(1.02)
2 year olds	587	99.9	(0.12)	223	99.9	(0.13)	162	99.9	(0.25)	183	99.8	(0.33)
3 year olds	389	100.0	(0.01)	132	100.0	(0.02)	104	100.0	(0.04)	134	100.0	(0.00)
4 year olds	414	99.7	(0.23)	131	99.9	(0.11)	134	99.8	(0.29)	136	99.4	(0.55)

See notes at end of table.

Table B-8. Niacin (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	8.4	9.4	10.1	11.2	13.6	16.3	18.0	19.1	20.9
1 year olds	6.6	7.5	8.1	9.1	11.3	13.8	15.3	16.4	18.2
2 year olds	8.2	9.2	9.9	11.1	13.4	15.9	17.5	18.6	20.2
3 year olds	10.0	10.9	11.6	12.6	14.6	17.0	18.4	19.4	20.9
4 year olds	8.7	9.9	10.7	12.1	15.0	18.5	20.6	22.1	24.5
WIC participants	8.8	9.9	10.6	11.7	14.3	17.1	18.8	20.1	22.0
1 year olds	6.9	7.8	8.5	9.5	11.7	14.2	15.8	16.9	18.6
2 year olds	8.6	9.8	10.5	11.7	14.3	17.1	18.8	20.0	21.9
3 year olds	10.5	11.5	12.2	13.3	15.7	18.2	19.9	21.1	22.7
4 year olds	9.2	10.3	11.1	12.4	15.3	18.6	20.8	22.3	24.8
Income-eligible nonparticipants	8.6	9.7	10.4	11.7	14.2	16.9	18.5	19.6	21.2
1 year olds	6.0	7.1	7.9	9.2	11.7	14.1	15.5	16.6	18.1
2 year olds	8.8	9.9	10.7	11.9	14.5	17.2	18.8	19.9	21.7
3 year olds	10.0	11.0	11.8	12.9	15.3	17.7	19.2	20.3	21.8
4 year olds	9.4	10.5	11.3	12.6	15.4	18.4	20.2	21.4	23.2
Higher-income nonparticipants	8.2	9.1	9.7	10.8	13.0	15.5	17.1	18.2	19.9
1 year olds	6.2	6.9	7.5	8.5	10.8	13.3	15.0	16.3	18.2
2 year olds	7.8	8.7	9.4	10.4	12.5	14.8	16.1	17.0	18.3
3 year olds	10.5	11.2	11.6	12.4	14.0	15.6	16.6	17.3	18.3
4 year olds	8.2	9.3	10.3	11.6	14.8	18.4	20.7	22.4	24.9

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-9. Riboflavin (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	1.87	(0.028)	791	1.97	(0.043)	496	1.86	(0.050)	606	1.84 *	(0.044)
1 year olds	566	1.93	(0.048)	305	2.01	(0.063)	96	1.85	(0.139)	153	1.89	(0.082)
2 year olds	587	1.91	(0.051)	223	1.99	(0.083)	162	1.82	(0.072)	183	1.92	(0.077)
3 year olds	389	1.83	(0.066)	132	1.99	(0.106)	104	1.82	(0.106)	134	1.78	(0.102)
4 year olds	414	1.82	(0.060)	131	1.87	(0.081)	134	1.93	(0.073)	136	1.75	(0.087)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	100.0	(0.01)	791	100.0	(0.01)	496	100.0	(0.02)	606	100.0	(0.03)
1 year olds	566	100.0	(0.00)	305	100.0	(0.00)	96	100.0	(0.02)	153	100.0	(0.03)
2 year olds	587	100.0	(0.03)	223	100.0	(0.00)	162	100.0	(0.06)	183	99.9	(0.12)
3 year olds	389	100.0	(0.01)	132	100.0	(0.02)	104	100.0	(0.00)	134	100.0	(0.00)
4 year olds	414	100.0	(0.00)	131	100.0	(0.01)	134	100.0	(0.04)	136	100.0	(0.03)

See notes at end of table.

Table B-9. Riboflavin (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	1.11	1.25	1.35	1.51	1.83	2.19	2.40	2.54	2.77
1 year olds	1.18	1.32	1.42	1.58	1.90	2.24	2.44	2.58	2.80
2 year olds	1.01	1.18	1.29	1.47	1.85	2.28	2.54	2.73	3.01
3 year olds	1.11	1.25	1.34	1.49	1.79	2.13	2.32	2.46	2.66
4 year olds	1.13	1.26	1.35	1.49	1.78	2.10	2.29	2.41	2.61
WIC participants	1.21	1.35	1.45	1.60	1.93	2.27	2.49	2.64	2.86
1 year olds	1.25	1.39	1.49	1.64	1.96	2.32	2.54	2.69	2.93
2 year olds	1.22	1.37	1.46	1.62	1.94	2.31	2.52	2.68	2.91
3 year olds	1.19	1.33	1.44	1.60	1.96	2.32	2.56	2.72	2.95
4 year olds	1.20	1.33	1.42	1.56	1.84	2.15	2.33	2.46	2.65
Income-eligible nonparticipants	1.10	1.24	1.34	1.49	1.82	2.17	2.38	2.53	2.75
1 year olds	1.10	1.23	1.33	1.49	1.82	2.15	2.36	2.52	2.73
2 year olds	0.99	1.14	1.25	1.42	1.78	2.17	2.40	2.56	2.82
3 year olds	1.15	1.27	1.36	1.50	1.79	2.10	2.30	2.44	2.64
4 year olds	1.16	1.30	1.40	1.56	1.90	2.25	2.47	2.61	2.83
Higher-income nonparticipants	1.10	1.23	1.33	1.48	1.80	2.14	2.34	2.49	2.70
1 year olds	1.18	1.32	1.41	1.57	1.88	2.18	2.36	2.50	2.67
2 year olds	0.98	1.14	1.26	1.44	1.86	2.32	2.60	2.79	3.10
3 year olds	1.18	1.29	1.36	1.49	1.75	2.03	2.20	2.31	2.48
4 year olds	1.08	1.19	1.29	1.42	1.72	2.03	2.22	2.35	2.55

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-10. Thiamin (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	1.17	(0.017)	791	1.26	(0.026)	496	1.17 *	(0.029)	606	1.13 ***	(0.026)
1 year olds	566	1.06	(0.030)	305	1.12	(0.034)	96	1.05	(0.070)	153	1.01	(0.050)
2 year olds	587	1.17	(0.031)	223	1.26	(0.042)	162	1.16	(0.052)	183	1.13 *	(0.047)
3 year olds	389	1.21	(0.038)	132	1.30	(0.068)	104	1.25	(0.056)	134	1.16	(0.060)
4 year olds	414	1.24	(0.036)	131	1.33	(0.060)	134	1.24	(0.056)	136	1.23	(0.053)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.9	(0.04)	791	100.0	(0.02)	496	99.8	(0.17)	606	99.9	(0.07)
1 year olds	566	100.0	(0.04)	305	100.0	(0.01)	96	99.8	(0.25)	153	99.9	(0.07)
2 year olds	587	99.9	(0.09)	223	100.0	(0.02)	162	99.9	(0.31)	183	99.8	(0.22)
3 year olds	389	100.0	(0.01)	132	100.0	(0.02)	104	100.0	(0.03)	134	100.0	(0.00)
4 year olds	414	99.9	(0.12)	131	99.9	(0.08)	134	99.5	(0.54)	136	99.9	(0.14)

See notes at end of table.

Table B-10. Thiamin (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	0.73	0.81	0.87	0.96	1.14	1.35	1.48	1.57	1.71
1 year olds	0.68	0.75	0.79	0.87	1.03	1.22	1.33	1.41	1.53
2 year olds	0.68	0.77	0.83	0.93	1.14	1.37	1.51	1.62	1.77
3 year olds	0.83	0.90	0.95	1.03	1.19	1.37	1.48	1.55	1.66
4 year olds	0.76	0.84	0.90	1.00	1.21	1.44	1.59	1.69	1.85
WIC participants	0.80	0.89	0.94	1.03	1.23	1.44	1.57	1.66	1.81
1 year olds	0.75	0.82	0.87	0.94	1.09	1.27	1.37	1.45	1.57
2 year olds	0.80	0.89	0.95	1.04	1.24	1.45	1.58	1.67	1.80
3 year olds	0.85	0.93	0.99	1.08	1.28	1.48	1.62	1.72	1.85
4 year olds	0.81	0.90	0.96	1.07	1.29	1.54	1.70	1.82	2.00
Income-eligible nonparticipants	0.71	0.80	0.86	0.96	1.15	1.37	1.49	1.58	1.72
1 year olds	0.63	0.70	0.76	0.85	1.04	1.22	1.33	1.42	1.53
2 year olds	0.67	0.76	0.82	0.93	1.13	1.36	1.49	1.58	1.72
3 year olds	0.84	0.92	0.98	1.06	1.24	1.41	1.52	1.59	1.69
4 year olds	0.70	0.79	0.86	0.97	1.21	1.47	1.63	1.74	1.91
Higher-income nonparticipants	0.73	0.79	0.85	0.93	1.10 **	1.29 *	1.42	1.50	1.63
1 year olds	0.63	0.69	0.74 *	0.82 *	0.98	1.16	1.27	1.36	1.48
2 year olds	0.64	0.73	0.79	0.88	1.09	1.33	1.47	1.57	1.74
3 year olds	0.85	0.91	0.95	1.01	1.14	1.28	1.37	1.43	1.51
4 year olds	0.77	0.84	0.90	0.99	1.20	1.41	1.55	1.65	1.79

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-11. Calcium (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	966	(18.1)	791	972	(24.5)	496	929	(31.6)	606	986	(27.5)
1 year olds	566	1,048	(24.4)	305	1,072	(39.4)	96	1,018	(88.9)	153	1,047	(37.4)
2 year olds	587	1,017	(34.1)	223	999	(58.9)	162	948	(45.0)	183	1,073	(44.6)
3 year olds	389	940	(48.1)	132	958	(55.0)	104	900	(67.5)	134	967	(73.1)
4 year olds	414	858	(33.3)	131	859	(38.8)	134	855	(40.9)	136	860	(56.8)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	85.3	(1.42)	791	86.6	(1.39)	496	84.4	(1.84)	606	86.3	(2.13)
1 year olds	566	97.7	(0.80)	305	98.1	(1.27)	96	95.1	(3.56)	153	98.7	(0.78)
2 year olds	587	95.6	(1.56)	223	96.5	(1.46)	162	93.4	(2.03)	183	97.4	(1.74)
3 year olds	389	92.6	(2.46)	132	94.9	(1.96)	104	95.0	(2.79)	134	93.7	(2.65)
4 year olds	414	55.4	(4.80)	131	56.9	(4.84)	134	54.2	(5.44)	136	55.7	(7.87)

See notes at end of table.

Table B-11. Calcium (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	504	587	646	738	936	1,158	1,292	1,386	1,532
1 year olds	581	669	731	827	1,026	1,244	1,369	1,458	1,595
2 year olds	513	601	664	766	982	1,226	1,377	1,486	1,650
3 year olds	456	540	599	695	902	1,145	1,290	1,392	1,553
4 year olds	467	540	589	668	834	1,020	1,132	1,208	1,329
WIC participants	533	613	667	754	943	1,151	1,281	1,372	1,511
1 year olds	589	679	741	838	1,044	1,272	1,408	1,503	1,652
2 year olds	533	619	675	766	964	1,191	1,328	1,429	1,582
3 year olds	498	577	633	725	928	1,144	1,287	1,389	1,535
4 year olds	514	577	620	691	839	1,001	1,101	1,171	1,276
Income-eligible nonparticipants	482	556	612	703	898	1,114	1,250	1,349	1,496
1 year olds	502	579	643	748	974	1,226	1,391	1,523	1,707
2 year olds	471	554	612	710	915	1,145	1,287	1,386	1,542
3 year olds	500	571	622	703	876	1,065	1,183	1,268	1,393
4 year olds	455	523	573	654	828	1,023	1,142	1,223	1,348
Higher-income nonparticipants	527	609	669	764	965	1,176	1,305	1,395	1,527
1 year olds	620	707	768	864	1,046	1,220	1,319	1,392	1,485
2 year olds	568	658	721	821	1,044	1,283	1,429	1,530	1,689
3 year olds	476	557	615	717	932	1,171	1,322	1,427	1,581
4 year olds	448	518	574	658	841	1,029	1,149	1,230	1,351

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-12. Iron (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	10.6	(0.19)	791	11.3	(0.34)	496	10.8	(0.31)	606	10.1 **	(0.29)
1 year olds	566	9.5	(0.40)	305	9.9	(0.52)	96	9.8	(0.73)	153	9.0	(0.66)
2 year olds	587	10.1	(0.35)	223	10.8	(0.55)	162	10.4	(0.44)	183	9.6	(0.48)
3 year olds	389	11.1	(0.41)	132	12.3	(0.93)	104	11.1	(0.74)	134	10.5	(0.62)
4 year olds	414	11.6	(0.39)	131	12.2	(0.66)	134	11.7	(0.54)	136	11.4	(0.60)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.9	(0.05)	791	100.0	(0.04)	496	100.0	(0.12)	606	99.8	(0.12)
1 year olds	566	99.6	(0.19)	305	99.9	(0.13)	96	99.9	(0.44)	153	99.5	(0.41)
2 year olds	587	99.9	(0.07)	223	100.0	(0.08)	162	100.0	(0.13)	183	99.9	(0.13)
3 year olds	389	100.0	(0.01)	132	100.0	(0.05)	104	100.0	(0.06)	134	100.0	(0.00)
4 year olds	414	99.9	(0.07)	131	99.9	(0.08)	134	99.9	(0.09)	136	99.9	(0.27)

See notes at end of table.

Table B-12. Iron (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	6.0	6.8	7.4	8.3	10.2	12.5	13.9	14.9	16.5
1 year olds	4.7	5.5	6.0	6.9	9.0	11.5	13.1	14.3	16.2
2 year olds	5.7	6.5	7.0	7.9	9.8	11.9	13.2	14.1	15.6
3 year olds	7.0	7.7	8.2	9.1	10.8	12.8	14.0	14.9	16.2
4 year olds	6.7	7.6	8.1	9.1	11.1	13.6	15.1	16.1	17.9
WIC participants	6.3	7.1	7.7	8.7	10.8	13.3	15.0	16.2	18.0
1 year olds	5.1	5.9	6.4	7.3	9.4	11.9	13.5	14.7	16.8
2 year olds	5.9	6.8	7.4	8.3	10.4	12.8	14.2	15.3	16.9
3 year olds	6.9	7.8	8.4	9.4	11.7	14.4	16.2	17.5	19.5
4 year olds	7.1	8.0	8.6	9.6	11.8	14.3	15.9	17.1	18.9
Income-eligible nonparticipants	6.4	7.2	7.8	8.7	10.6	12.6	13.8	14.7	16.0
1 year olds	5.7	6.4	7.0	7.9	9.7	11.5	12.6	13.5	14.6
2 year olds	5.9	6.7	7.3	8.3	10.2	12.3	13.5	14.4	15.7
3 year olds	6.7	7.5	8.1	9.0	11.0	13.0	14.2	15.1	16.4
4 year olds	7.3	8.0	8.6	9.5	11.4	13.5	14.8	15.7	17.1
Higher-income nonparticipants	6.1	6.7	7.2	8.0	9.8	11.8	13.1	14.0	15.5
1 year olds	4.2	4.9	5.4	6.3	8.4	10.9	12.6	14.0	15.9
2 year olds	5.6	6.3	6.8	7.6	9.3	11.2	12.4	13.2	14.5
3 year olds	7.9	8.3	8.7	9.2	10.4	11.6	12.3	12.8	13.5
4 year olds	6.4	7.2	7.8	8.8	10.9	13.3	15.0	16.1	17.9

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-13. Magnesium (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	186	(2.5)	791	192	(3.7)	496	183	(4.1)	606	184	(4.2)
1 year olds	566	175	(4.7)	305	176	(4.9)	96	179	(10.5)	153	172	(7.8)
2 year olds	587	193	(4.9)	223	201	(8.2)	162	186	(6.7)	183	194	(7.0)
3 year olds	389	186	(5.4)	132	201	(9.0)	104	182	(7.8)	134	181	(8.5)
4 year olds	414	188	(5.3)	131	189	(7.1)	134	185	(7.3)	136	188	(9.9)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.2	(0.28)	791	99.2	(0.45)	496	99.0	(0.68)	606	99.2	(0.48)
1 year olds	566	100.0	(0.07)	305	100.0	(0.02)	96	99.7	(1.56)	153	100.0	(0.05)
2 year olds	587	99.9	(0.05)	223	100.0	(0.04)	162	100.0	(0.14)	183	99.9	(0.09)
3 year olds	389	100.0	(0.01)	132	99.9	(0.08)	104	99.9	(0.13)	134	100.0	(0.00)
4 year olds	414	96.9	(1.12)	131	97.0	(1.81)	134	96.4	(2.22)	136	97.0	(1.92)

See notes at end of table.

Table B-13. Magnesium (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	118	131	140	154	182	214	233	246	266
1 year olds	113	125	133	146	172	201	217	229	247
2 year olds	117	132	142	158	190	225	246	261	283
3 year olds	125	137	145	158	184	212	229	240	257
4 year olds	117	131	140	154	184	218	238	252	275
WIC participants	119	133	142	157	188	222	242	257	279
1 year olds	117	128	136	148	173	200	216	228	245
2 year olds	121	136	146	162	196	234	257	273	298
3 year olds	123	137	148	164	198	233	255	271	292
4 year olds	117	130	139	153	184	218	240	256	279
Income-eligible nonparticipants	110	123	133	149	180	213	233	247	268
1 year olds	97 u	111	122	140	175	213	236	254	278
2 year olds	116	130	139	154	184	214	232	244	263
3 year olds	111	125	134	149	179	211	230	243	263
4 year olds	115	128	137	151	181	214	234	248	268
Higher-income nonparticipants	124	135	143	155	182	209	225	237	254
1 year olds	118	128	135	147	170	194	209	220	234
2 year olds	119	134	144	159	192	225	245	258	279
3 year olds	140	147	153	162	180	199	210	218	229
4 year olds	118	129	139	153	184	216	238	252	274

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-14. Phosphorus (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	1,025	(15.8)	791	1,042	(23.6)	496	1,020	(25.1)	606	1,025	(23.8)
1 year olds	566	1,020	(23.7)	305	1,028	(29.4)	96	1,032	(66.0)	153	1,015	(39.2)
2 year olds	587	1,064	(34.9)	223	1,072	(57.2)	162	1,008	(42.7)	183	1,097	(45.1)
3 year olds	389	1,017	(39.8)	132	1,065	(53.8)	104	1,005	(50.0)	134	1,015	(60.0)
4 year olds	414	999	(24.8)	131	1,002	(42.4)	134	1,034	(38.1)	136	973	(42.7)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.9	(0.06)	791	99.9	(0.07)	496	99.8	(0.29)	606	99.9	(0.10)
1 year olds	566	99.8	(0.12)	305	99.9	(0.11)	96	99.6	(1.13)	153	99.9	(0.08)
2 year olds	587	99.8	(0.16)	223	100.0	(0.05)	162	99.8	(0.29)	183	99.7	(0.33)
3 year olds	389	99.9	(0.12)	132	99.8	(0.19)	104	100.0	(0.06)	134	100.0	(0.04)
4 year olds	414	99.9	(0.10)	131	99.9	(0.17)	134	99.9	(0.23)	136	99.9	(0.23)

See notes at end of table.

Table B-14. Phosphorus (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	620	698	751	834	1,005	1,193	1,304	1,381	1,499
1 year olds	625	703	757	839	1,006	1,185	1,285	1,357	1,465
2 year olds	603	689	748	842	1,039	1,253	1,385	1,479	1,619
3 year olds	620	696	747	828	996	1,183	1,292	1,367	1,482
4 year olds	632	703	750	825	979	1,150	1,251	1,320	1,428
WIC participants	633	710	763	846	1,022	1,209	1,324	1,404	1,524
1 year olds	627	706	759	841	1,011	1,193	1,301	1,374	1,489
2 year olds	652	730	781	864	1,042	1,244	1,366	1,455	1,591
3 year olds	635	720	777	869	1,056	1,240	1,353	1,431	1,539
4 year olds	617	686	734	812	978	1,160	1,274	1,355	1,475
Income-eligible nonparticipants	606	680	734	821	1,000	1,190	1,307	1,390	1,512
1 year olds	549	629	695	798	1,010	1,229	1,367	1,473	1,616
2 year olds	591	668	721	809	987	1,180	1,298	1,378	1,504
3 year olds	644	712	761	836	991	1,153	1,252	1,322	1,424
4 year olds	639	709	760	841	1,012	1,199	1,313	1,389	1,506
Higher-income nonparticipants	638	710	762	843	1,011	1,184	1,289	1,361	1,467
1 year olds	665	734	783	861	1,011	1,157	1,242	1,304	1,384
2 year olds	615	705	768	865	1,076	1,298	1,430	1,520	1,661
3 year olds	652	716	761	837	995	1,164	1,270	1,343	1,450
4 year olds	622	685	735	808	963	1,116	1,212	1,275	1,369

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-15. Zinc (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	7.9	(0.14)	791	8.4	(0.21)	496	8.2	(0.22)	606	7.6 **	(0.20)
1 year olds	566	7.2	(0.19)	305	7.5	(0.28)	96	7.4	(0.32)	153	6.8	(0.28)
2 year olds	587	8.2	(0.24)	223	8.3	(0.28)	162	8.5	(0.52)	183	7.9	(0.31)
3 year olds	389	8.0	(0.32)	132	8.7	(0.52)	104	8.4	(0.48)	134	7.5	(0.48)
4 year olds	414	8.4	(0.30)	131	8.9	(0.50)	134	8.5	(0.42)	136	8.0	(0.50)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.8	(0.12)	791	99.8	(0.17)	496	99.9	(0.23)	606	99.8	(0.27)
1 year olds	566	100.0	(0.01)	305	100.0	(0.04)	96	100.0	(0.01)	153	100.0	(0.02)
2 year olds	587	100.0	(0.02)	223	100.0	(0.00)	162	100.0	(0.04)	183	99.9	(0.13)
3 year olds	389	100.0	(0.00)	132	100.0	(0.02)	104	100.0	(0.04)	134	100.0	(0.00)
4 year olds	414	99.3	(0.47)	131	99.2	(0.70)	134	99.4	(0.93)	136	99.1	(1.07)

See notes at end of table.

Table B-15. Zinc (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	5.1	5.6	6.0	6.5	7.7	9.1	9.9	10.5	11.4
1 year olds	4.8	5.2	5.5	6.0	7.0	8.1	8.8	9.3	10.0
2 year olds	5.0	5.5	5.9	6.6	8.0	9.5	10.4	11.1	12.1
3 year olds	5.7	6.1	6.4	6.9	7.9	9.0	9.7	10.1	10.8
4 year olds	5.0	5.6	6.0	6.6	8.0	9.7	10.8	11.5	12.7
WIC participants	5.1	5.7	6.1	6.7	8.1	9.7	10.7	11.4	12.5
1 year olds	4.4	5.0	5.3	5.9	7.2	8.7	9.7	10.4	11.5
2 year olds	5.5	6.1	6.5	7.0	8.2	9.5	10.2	10.8	11.6
3 year olds	5.4	6.0	6.4	7.0	8.5	10.0	11.1	11.8	12.9
4 year olds	5.0	5.6	6.1	6.9	8.6	10.5	11.8	12.7	14.1
Income-eligible nonparticipants	5.2	5.7	6.1	6.8	8.1	9.5	10.3	10.9	11.9
1 year olds	5.3	5.7	6.0	6.4	7.4	8.3	8.8	9.2	9.8
2 year olds	5.2	5.8	6.2	6.9	8.3	9.9	10.8	11.5	12.6
3 year olds	5.1	5.7	6.1	6.8	8.2	9.8	10.7	11.4	12.4
4 year olds	5.2	5.8	6.2	6.9	8.3	9.9	10.9	11.6	12.6
Higher-income nonparticipants	5.5	5.9	6.1	6.6	7.5	8.4 **	9.0 **	9.4 **	10.1 **
1 year olds	5.0	5.3	5.6	6.0	6.7	7.5	8.0	8.4	8.9
2 year olds	4.7	5.3	5.7	6.4	7.8	9.3	10.2	10.8	11.8
3 year olds	7.5	7.5	7.5	7.5	7.5	7.5	7.5 *	7.5 *	7.5 *
4 year olds	4.9	5.3	5.8	6.4	7.8	9.3	10.3	11.0	12.1

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-16. Copper (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	0.79	(0.012)	791	0.80	(0.016)	496	0.81	(0.020)	606	0.77	(0.017)
1 year olds	566	0.69	(0.019)	305	0.70	(0.025)	96	0.72	(0.034)	153	0.66	(0.030)
2 year olds	587	0.82	(0.024)	223	0.85	(0.031)	162	0.83	(0.041)	183	0.80	(0.035)
3 year olds	389	0.80	(0.023)	132	0.81	(0.034)	104	0.84	(0.045)	134	0.78	(0.031)
4 year olds	414	0.85	(0.026)	131	0.83	(0.033)	134	0.83	(0.040)	136	0.86	(0.039)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	99.9	(0.04)	791	100.0	(0.04)	496	99.9	(0.21)	606	99.8	(0.09)
1 year olds	566	99.9	(0.07)	305	100.0	(0.04)	96	99.7	(0.76)	153	99.8	(0.15)
2 year olds	587	99.9	(0.06)	223	100.0	(0.03)	162	100.0	(0.03)	183	99.7	(0.28)
3 year olds	389	100.0	(0.00)	132	100.0	(0.06)	104	100.0	(0.10)	134	100.0	(0.00)
4 year olds	414	99.9	(0.11)	131	99.8	(0.16)	134	99.8	(0.33)	136	99.9	(0.20)

See notes at end of table.

Table B-16. Copper (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	0.48	0.54	0.57	0.64	0.77	0.92	1.01	1.08	1.18
1 year olds	0.40	0.45	0.49	0.54	0.66	0.81	0.90	0.97	1.07
2 year olds	0.46	0.53	0.57	0.64	0.79	0.96	1.06	1.14	1.25
3 year olds	0.55	0.60	0.63	0.68	0.79	0.91	0.97	1.02	1.09
4 year olds	0.51	0.57	0.61	0.67	0.82	0.99	1.10	1.18	1.30
WIC participants	0.48	0.54	0.57	0.64	0.77	0.93	1.02	1.10	1.21
1 year olds	0.43	0.48	0.51	0.56	0.68	0.81	0.89	0.95	1.05
2 year olds	0.48	0.55	0.59	0.66	0.81	1.00	1.12	1.20	1.34
3 year olds	0.52	0.57	0.61	0.67	0.80	0.93	1.01	1.07	1.15
4 year olds	0.49	0.55	0.59	0.65	0.80	0.97	1.08	1.16	1.28
Income-eligible nonparticipants	0.49	0.54	0.59	0.65	0.79	0.94	1.03	1.09	1.19
1 year olds	0.39	0.44	0.48	0.55	0.70	0.86	0.96	1.04	1.15
2 year olds	0.54	0.60	0.63	0.69	0.82	0.94	1.02	1.07	1.15
3 year olds	0.50	0.56	0.61	0.68	0.83	0.99	1.08	1.15	1.25
4 year olds	0.52	0.57	0.61	0.68	0.82	0.97	1.05	1.11	1.20
Higher-income nonparticipants	0.48	0.53	0.57	0.63	0.75	0.89	0.98	1.04	1.14
1 year olds	0.38	0.42	0.45	0.51	0.64	0.78	0.87	0.95	1.05
2 year olds	0.43	0.50	0.55	0.62	0.78	0.95	1.05	1.12	1.23
3 year olds	0.62	0.65	0.67	0.71	0.77	0.84	0.88	0.91	0.95
4 year olds	0.50	0.56	0.60	0.67	0.83	1.00	1.11	1.20	1.32

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-17. Selenium (mcg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	66	(1.1)	791	68	(1.4)	496	69	(1.7)	606	63 *	(1.7)
1 year olds	566	61	(1.5)	305	63	(1.6)	96	63	(4.1)	153	59	(2.4)
2 year olds	587	66	(1.9)	223	69	(2.9)	162	69	(3.1)	183	64	(2.8)
3 year olds	389	67	(2.7)	132	69	(3.0)	104	70	(2.5)	134	64	(4.1)
4 year olds	414	69	(2.5)	131	70	(3.2)	134	76	(3.7)	136	64	(4.3)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	100.0	(0.02)	791	100.0	(0.02)	496	99.7	(0.39)	606	100.0	(0.07)
1 year olds	566	100.0	(0.03)	305	100.0	(0.01)	96	98.9	(1.61)	153	100.0	(0.00)
2 year olds	587	100.0	(0.00)	223	100.0	(0.00)	162	100.0	(0.00)	183	100.0	(0.09)
3 year olds	389	100.0	(0.00)	132	100.0	(0.00)	104	100.0	(0.00)	134	100.0	(0.00)
4 year olds	414	99.9	(0.08)	131	100.0	(0.07)	134	99.9	(0.07)	136	99.9	(0.26)

See notes at end of table.

Table B-17. Selenium (mcg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	40	45	48	53	64	76	84	89	96
1 year olds	38	42	45	50	60	71	77	82	89
2 year olds	42	47	50	55	65	76	83	88	95
3 year olds	43	47	50	55	65	77	84	89	96
4 year olds	39	44	48	54	66	81	90	96	106
WIC participants	43	48	51	56	66	78	85	90	97
1 year olds	40	44	47	52	62	72	78	83	89
2 year olds	45	49	53	57	68	79	86	91	98
3 year olds	47	51	54	59	69	78	85	89	95
4 year olds	42	47	50	56	68	81	90	96	105
Income-eligible nonparticipants	42	47	51	57	68	81	88	94	101
1 year olds	26	32	37	44	61	78	89	97	108
2 year olds	51	54	57	61	69	77	82	85	90
3 year olds	48	52	55	60	70	79	85	89	95
4 year olds	44	50	54	61	74	89	98	104	113
Higher-income nonparticipants	39	43	46	51	61	72	79	84	91
1 year olds	40	44	46	50	58	67	72	75	80
2 year olds	39	44	47	52	63	74	80	84	91
3 year olds	42	46	48	53	63	74	81	85	93
4 year olds	35	40	43	49	61	75	85	91	101

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-18. Potassium (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	1,978	(25.4)	791	2,114	(41.8)	496	1,911 ***	(45.3)	606	1,933 **	(42.4)
1 year olds	566	1,945	(47.1)	305	2,025	(47.2)	96	1,987	(107.8)	153	1,859	(72.9)
2 year olds	587	2,070	(48.1)	223	2,238	(87.9)	162	1,921 **	(79.7)	183	2,052	(76.9)
3 year olds	389	1,922	(56.9)	132	2,158	(103.2)	104	1,790 *	(99.4)	134	1,863 *	(84.9)
4 year olds	414	1,973	(50.5)	131	2,033	(83.5)	134	1,949	(71.1)	136	1,955	(101.0)
	Mean Usual Intake as a Percent of Adequate Intake (AI)1											
All children, 1–4 years old	1,956	62.5	(0.81)	791	66.9	(1.33)	496	60.3 ***	(1.46)	606	61.0 **	(1.31)
1 year olds	566	64.8	(1.57)	305	67.5	(1.57)	96	66.2	(3.59)	153	62.0	(2.43)
2 year olds	587	69.0	(1.60)	223	74.6	(2.93)	162	64.0 **	(2.66)	183	68.4	(2.56)
3 year olds	389	64.1	(1.90)	132	71.9	(3.44)	104	59.7 *	(3.31)	134	62.1 *	(2.83)
4 year olds	414	51.9	(1.33)	131	53.5	(2.20)	134	51.3	(1.87)	136	51.4	(2.66)

See notes at end of table.

Table B-18. Potassium (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	1,251	1,390	1,485	1,634	1,941	2,279	2,478	2,617	2,831
1 year olds	1,306	1,431	1,517	1,649	1,919	2,212	2,377	2,496	2,678
2 year olds	1,212	1,376	1,490	1,668	2,033	2,424	2,659	2,825	3,070
3 year olds	1,201	1,336	1,429	1,575	1,881	2,224	2,424	2,564	2,781
4 year olds	1,288	1,419	1,505	1,643	1,932	2,256	2,449	2,581	2,792
WIC participants	1,294	1,447	1,551	1,716	2,068	2,449	2,684	2,851	3,100
1 year olds	1,357	1,489	1,578	1,714	1,997	2,300	2,478	2,600	2,790
2 year olds	1,302	1,485	1,602	1,790	2,187	2,625	2,881	3,066	3,345
3 year olds	1,257	1,423	1,538	1,724	2,118	2,523	2,783	2,965	3,222
4 year olds	1,264	1,393	1,485	1,636	1,966	2,342	2,586	2,763	3,032
Income-eligible nonparticipants	1,139	1,278	1,380	1,543	1,876 *	2,229 *	2,445	2,598	2,822
1 year olds	1,136	1,279	1,394	1,576	1,947	2,333	2,575	2,761	3,015
2 year olds	1,196	1,337	1,433	1,589	1,897	2,219	2,410	2,539	2,737
3 year olds	1,003	1,148	1,252	1,415	1,754	2,114	2,336	2,492	2,721
4 year olds	1,221	1,350	1,444	1,593	1,908	2,253	2,463	2,604	2,821
Higher-income nonparticipants	1,312	1,428	1,512	1,642	1,913	2,188 **	2,354 **	2,469 **	2,635 **
1 year olds	1,372	1,467	1,533	1,640	1,849	2,057	2,180	2,271	2,389
2 year olds	1,232	1,391	1,501	1,669	2,027	2,393	2,607	2,753	2,977
3 year olds	1,330	1,427	1,495	1,608	1,839	2,084	2,233	2,337	2,487
4 year olds	1,313	1,429	1,520	1,653	1,935	2,216	2,392	2,509	2,683

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Adequate Intake (AI) is the approximate intake of the nutrient that appears to be adequate for all individuals in the population group. Mean intake at or above the AI implies a low prevalence of inadequate intake.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-19. Dietary Fiber (g): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	9.9	(0.17)	791	9.8	(0.25)	496	9.8	(0.29)	606	9.8	(0.30)
1 year olds	566	8.0	(0.29)	305	7.5	(0.27)	96	8.7	(0.68)	153	8.0	(0.52)
2 year olds	587	9.8	(0.26)	223	9.8	(0.46)	162	9.7	(0.34)	183	9.7	(0.49)
3 year olds	389	10.5	(0.34)	132	11.0	(0.64)	104	10.2	(0.59)	134	10.3	(0.52)
4 year olds	414	11.1	(0.45)	131	10.8	(0.50)	134	10.6	(0.64)	136	11.3	(0.80)
	Mean Usual Intake as a Percent of Adequate Intake (AI)1											
All children, 1–4 years old	1,956	48.4	(0.82)	791	48.3	(1.22)	496	48.3	(1.42)	606	48.2	(1.41)
1 year olds	566	42.0	(1.53)	305	39.7	(1.45)	96	45.6	(3.60)	153	42.2	(2.75)
2 year olds	587	51.6	(1.38)	223	51.8	(2.43)	162	51.2	(1.80)	183	51.1	(2.56)
3 year olds	389	55.3	(1.77)	132	57.9	(3.39)	104	53.7	(3.12)	134	54.2	(2.76)
4 year olds	414	44.2	(1.82)	131	43.2	(2.01)	134	42.4	(2.54)	136	45.1	(3.18)

See notes at end of table.

Table B-19. Dietary Fiber (g): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	5.1	6.0	6.6	7.5	9.5	11.8	13.2	14.2	15.7
1 year olds	3.7	4.4	5.0	5.8	7.6	9.8	11.0	12.0	13.4
2 year olds	5.1	6.0	6.6	7.6	9.6	11.7	13.1	14.0	15.4
3 year olds	6.1	6.9	7.4	8.3	10.2	12.4	13.7	14.6	16.0
4 year olds	5.6	6.6	7.2	8.3	10.6	13.3	15.0	16.2	18.1
WIC participants	5.1	5.9	6.5	7.4	9.4	11.7	13.2	14.2	15.8
1 year olds	3.9	4.5	5.0	5.7	7.3	9.1	10.1	10.9	12.1
2 year olds	4.8	5.7	6.4	7.3	9.5	11.9	13.4	14.5	16.1
3 year olds	6.2	7.1	7.7	8.6	10.7	12.9	14.4	15.4	16.9
4 year olds	5.4	6.3	6.9	7.9	10.2	13.0	14.8	16.1	18.1
Income-eligible nonparticipants	4.1	5.0	5.7	6.8	9.3	12.2	14.0	15.3	17.3
1 year olds	1.8 u	2.6 u	3.3 u	4.6 u	7.7	11.5 *	14.1	16.1	19.1
2 year olds	4.9	5.7	6.4	7.4	9.5	11.8	13.1	14.0	15.5
3 year olds	4.4	5.4	6.1	7.2	9.7	12.6	14.4	15.8	17.8
4 year olds	5.4	6.3	6.9	8.0	10.3	12.8	14.3	15.4	17.0
Higher-income nonparticipants	5.9	6.6	7.0	7.8	9.6	11.4	12.6	13.5	14.8
1 year olds	4.7	5.3	5.7	6.3	7.8	9.4	10.3	11.1	12.1
2 year olds	5.7	6.4	7.0	7.7	9.5	11.4	12.5	13.3	14.5
3 year olds	6.8	7.4	7.9	8.6	10.1	11.7	12.7	13.4	14.4
4 year olds	6.3	7.0	7.6	8.6	10.8	13.3	15.0	16.2	18.0

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Adequate Intake (AI) is the approximate intake of the nutrient that appears to be adequate for all individuals in the population group. Mean intake at or above the AI implies a low prevalence of inadequate intake.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-20. Dietary Fiber (g/1,000 kcal): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	7.0	(0.10)	791	6.7	(0.12)	496	6.7	(0.19)	606	7.2 **	(0.16)
1 year olds	566	6.4	(0.14)	305	6.0	(0.16)	96	6.3	(0.54)	153	6.7 *	(0.29)
2 year olds	587	6.9	(0.14)	223	6.5	(0.20)	162	6.8	(0.19)	183	7.1 *	(0.24)
3 year olds	389	7.3	(0.24)	132	7.2	(0.25)	104	6.7	(0.34)	134	7.4	(0.38)
4 year olds	414	7.4	(0.24)	131	7.0	(0.31)	134	7.0	(0.35)	136	7.6	(0.36)
	Percent of Persons with Usual Intake Greater than 14 g/1000 kcal											
All children, 1–4 years old	1,956	0.21 u	(0.081)	791	0.06 u	(0.109)	496	1.32 * u	(0.633)	606	0.14 u	(0.138)
1 year olds	566	0.12 u	(0.094)	305	0.04 u	(0.049)	96	3.23 u	(2.407)	153	0.01 u	(0.083)
2 year olds	587	0.07 u	(0.056)	223	0.02 u	(0.041)	162	0.14 u	(0.188)	183	0.11 u	(0.243)
3 year olds	389	0.50 u	(0.287)	132	0.00	(0.129)	104	1.72 * u	(0.823)	134	0.33 u	(0.457)
4 year olds	414	0.15 u	(0.097)	131	0.17 u	(0.413)	134	0.22 u	(0.355)	136	0.09 u	(0.155)

See notes at end of table.

Table B-20. Dietary Fiber (g/1,000 kcal): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	4.1	4.7	5.0	5.6	6.8	8.2	9.0	9.6	10.4
1 year olds	3.2	3.8	4.2	4.9	6.2	7.7	8.6	9.2	10.1
2 year olds	4.2	4.7	5.1	5.6	6.8	8.1	8.8	9.4	10.1
3 year olds	4.4	4.9	5.3	5.8	7.0	8.5	9.3	10.0	11.0
4 year olds	4.7	5.2	5.6	6.1	7.2	8.5	9.2	9.7	10.5
WIC participants	4.2	4.7	5.0	5.5	6.5	7.7	8.4	8.8	9.6
1 year olds	3.3	3.8	4.1	4.7	5.8	7.1	7.9	8.4	9.3
2 year olds	4.0	4.5	4.8	5.3	6.4	7.5	8.2	8.6	9.3
3 year olds	5.2	5.6	5.9	6.2	7.1	7.9	8.5	8.9	9.5
4 year olds	4.4	4.9	5.2	5.8	6.9	8.1	8.8	9.4	10.2
Income-eligible nonparticipants	3.2 *	3.8 *	4.2	4.9	6.4	8.1	9.2	10.0	11.2 *
1 year olds	1.3 u	2.0 u	2.6 u	3.6	5.8	8.3	9.9	11.2	12.9
2 year olds	4.1	4.6	4.9	5.5	6.7	7.9	8.7	9.2	10.0
3 year olds	3.3 *	3.8 **	4.2 *	4.8 *	6.3	8.1	9.3	10.2	11.6
4 year olds	4.2	4.7	5.0	5.6	6.8	8.2	9.0	9.6	10.4
Higher-income nonparticipants	4.8	5.2	5.5	6.0	7.1 *	8.2	8.9	9.4	10.2
1 year olds	4.4	4.8	5.1	5.6	6.6	7.7	8.3	8.8	9.4
2 year olds	4.6	5.1	5.4	5.9	7.0	8.2	8.9	9.4	10.2
3 year olds	4.7	5.2	5.5	6.0	7.2	8.4	9.3	9.8	10.7
4 year olds	5.4	5.8	6.1	6.6	7.5	8.5	9.2	9.6	10.2

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-21. Sodium (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All young children, 1–4 years old	1,956	2,032	(32.5)	791	2,062	(51.2)	496	2,097	(52.6)	606	1,997	(50.5)
1 year olds	566	1,647	(48.8)	305	1,742	(94.5)	96	1,705	(112.9)	153	1,557	(57.4)
2 year olds	587	2,040	(54.8)	223	2,094	(61.6)	162	2,113	(93.6)	183	1,995	(89.0)
3 year olds	389	2,143	(79.7)	132	2,132	(128.5)	104	2,277	(87.8)	134	2,122	(118.0)
4 year olds	414	2,288	(71.1)	131	2,273	(111.9)	134	2,281	(123.6)	136	2,303	(123.4)
	Mean Usual Intake as a Percent of Adequate Intake (AI)1											
All children, 1–4 years old	1,956	193.7	(3.10)	791	196.7	(4.88)	496	200.2	(4.98)	606	190.1	(4.75)
1 year olds	566	164.8	(4.88)	305	174.2	(9.45)	96	170.5	(11.29)	153	155.7	(5.74)
2 year olds	587	204.0	(5.48)	223	209.4	(6.16)	162	211.3	(9.37)	183	199.5	(8.91)
3 year olds	389	214.3	(7.97)	132	213.2	(12.85)	104	227.7	(8.78)	134	212.2	(11.81)
4 year olds	414	190.7	(5.93)	131	189.4	(9.32)	134	190.1	(10.30)	136	191.9	(10.29)
	Percent of Persons with Usual Intake Above the Tolerable Upper Intake Level (UL)2											
All children, 1–4 years old	1,956	74.4	(1.69)	791	75.4	(2.61)	496	77.0	(3.19)	606	74.1	(2.91)
1 year olds	566	57.7	(3.87)	305	62.6	(5.14)	96	56.7	(9.21)	153	55.2	(7.07)
2 year olds	587	83.7	(3.06)	223	82.4	(2.97)	162	87.3	(4.52)	183	84.3	(6.06)
3 year olds	389	88.2	(3.13)	132	87.5	(5.51)	104	94.8	(2.54)	134	88.8	(4.30)
4 year olds	414	67.4	(3.47)	131	68.7	(6.57)	134	68.4	(7.36)	136	67.4	(5.60)
	Percent of Persons Meeting Dietary Guidelines Recommendation3											
All children, 1–4 years old[4]	1,390	63.9	(2.60)	486	62.8	(4.09)	400	57.7	(4.38)	453	65.8	(4.62)
1 year olds	-	-	-	-	-	-	-	-	-	-	-	-
2 year olds	587	70.9	(3.75)	223	66.2	(4.20)	162	66.1	(7.42)	183	74.8	(7.62)
3 year olds	389	64.1	(5.71)	132	65.1	(9.31)	104	52.8	(7.63)	134	66.8	(9.17)
4 year olds	414	56.5	(3.73)	131	57.1	(6.78)	134	54.3	(7.70)	136	55.6	(7.03)

See notes at end of table.

Table B-21. Sodium (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	1,180	1,333	1,440	1,610	1,972	2,385	2,636	2,813	3,092
1 year olds	902	1,035	1,130	1,279	1,597	1,960	2,173	2,328	2,570
2 year olds	1,217	1,370	1,477	1,646	1,996	2,378	2,612	2,778	3,026
3 year olds	1,304	1,462	1,570	1,740	2,096	2,496	2,728	2,890	3,141
4 year olds	1,287	1,458	1,574	1,765	2,189	2,697	3,019	3,246	3,620
WIC participants	1,191	1,345	1,451	1,622	1,997	2,417	2,682	2,872	3,163
1 year olds	946	1,081	1,176	1,327	1,666	2,067	2,320	2,502	2,798
2 year olds	1,162	1,336	1,449	1,632	2,030	2,479	2,748	2,944	3,243
3 year olds	1,294	1,446	1,551	1,723	2,089	2,471	2,718	2,891	3,139
4 year olds	1,357	1,511	1,620	1,800	2,193	2,643	2,933	3,144	3,463
Income-eligible nonparticipants	1,159	1,327	1,450	1,647	2,054	2,485	2,747	2,933	3,205
1 year olds	597 u	766 u	908	1,140	1,634	2,163	2,498	2,758	3,112
2 year olds	1,286	1,441	1,548	1,723	2,077	2,454	2,681	2,836	3,077
3 year olds	1,492	1,653	1,765	1,934	2,267	2,599	2,795	2,928	3,120
4 year olds	1,246	1,429	1,562	1,776	2,226	2,716	3,011	3,208	3,510
Higher-income nonparticipants	1,235	1,366	1,462	1,616	1,950	2,308	2,535	2,696	2,936
1 year olds	1,053	1,148	1,215	1,325	1,542	1,763	1,893	1,992	2,120
2 year olds	1,251	1,392	1,489	1,639	1,964	2,304	2,506	2,644	2,861
3 year olds	1,338	1,474	1,569	1,733	2,075	2,447	2,679	2,841	3,079
4 year olds	1,292	1,444	1,568	1,760	2,206	2,706	3,048	3,289	3,666

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

1 Adequate Intake (AI) is the approximate intake of the nutrient that appears to be adequate for all individuals in the population group. Mean intake at or above the AI implies a low prevalence of inadequate intake.

2 The DRI Tolerable Upper Intake Level (UL) is the highest usual daily intake level that is likely to pose no risk of adverse health effects.

3 The Dietary Guidelines recommendation for sodium is less than 2,300 mg for 2-50 year olds.

4 Dietary Guideline recommendation is only reported for children 2 year olds and older.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-22. Choline (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	205	(3.5)	791	222	(5.2)	496	213	(6.2)	606	193 ***	(5.2)
1 year olds	566	202	(4.5)	305	214	(6.8)	96	205	(11.9)	153	191 *	(5.7)
2 year olds	587	215	(6.5)	223	232	(11.1)	162	206	(9.3)	183	211	(9.6)
3 year olds	389	196	(8.2)	132	226	(12.5)	104	202	(12.5)	134	184 *	(12.0)
4 year olds	414	207	(8.0)	131	214	(10.1)	134	238	(15.1)	136	188	(12.7)
	Mean Usual Intake as a Percent of Adequate Intake (AI)1											
All children, 1–4 years old	1,956	97.4	(1.64)	791	105.5	(2.49)	496	100.4	(2.87)	606	92.0 ***	(2.42)
1 year olds	566	100.9	(2.23)	305	106.8	(3.41)	96	102.6	(5.97)	153	95.5 *	(2.83)
2 year olds	587	107.4	(3.24)	223	116.2	(5.56)	162	102.8	(4.63)	183	105.4	(4.79)
3 year olds	389	98.2	(4.09)	132	113.2	(6.27)	104	101.1	(6.23)	134	92.0 *	(6.01)
4 year olds	414	83.0	(3.19)	131	85.6	(4.05)	134	95.3	(6.03)	136	75.0	(5.09)

See notes at end of table.

Table B-22. Choline (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	125	139	149	165	200	239	262	279	305
1 year olds	131	145	154	168	198	231	250	264	286
2 year olds	118	135	147	166	207	255	285	306	339
3 year olds	121	135	144	159	191	228	250	266	290
4 year olds	129	143	153	168	201	240	263	280	306
WIC participants	130	146	157	175	215	259	287	307	338
1 year olds	127	143	154	171	208	249	275	292	321
2 year olds	136	153	164	183	224	272	302	324	359
3 year olds	129	146	159	179	221	266	295	316	345
4 year olds	127	142	152	169	207	249	277	297	327
Income-eligible nonparticipants	136	150	160	176	209	244	266	282	305
1 year olds	121	135	146	164	201	239	264	283	308
2 year olds	143	155	164	177	203	231	248	259	277
3 year olds	121	135	145	161	196	236	261	279	306
4 year olds	159	174	184	201	235	271	293	308	330
Higher-income nonparticipants	122	134	143	158	189 **	223 ***	244 **	259 **	281 **
1 year olds	139	149	156	167	190	212 **	225 **	235 **	248 **
2 year olds	104	122	136	156	204	255	287	309	345
3 year olds	127	137	144	157	181	208	224 *	235 *	251 *
4 year olds	117	128	138	151	182	216	238	254	278

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Adequate Intake (AI) is the approximate intake of the nutrient that appears to be adequate for all individuals in the population group. Mean intake at or above the AI implies a low prevalence of inadequate intake.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-23. Total Fat (g): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
Mean Usual Intake												
All children, 1–4 years old	*1,956*	51	(0.8)	*791*	53	(1.2)	*496*	54	(1.3)	*606*	49 *	(1.3)
1 year olds	*566*	47	(1.0)	*305*	48	(1.4)	*96*	49	(2.9)	*153*	45	(1.7)
2 year olds	*587*	52	(1.5)	*223*	55	(2.0)	*162*	52	(2.3)	*183*	51	(2.2)
3 year olds	*389*	52	(2.1)	*132*	54	(2.8)	*104*	56	(2.4)	*134*	49	(3.5)
4 year olds	*414*	54	(1.6)	*131*	56	(3.2)	*134*	57	(3.0)	*136*	52	(2.6)

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
Distribution of Usual Intake									
All children, 1–4 years old	32	35	38	42	50	60	65	69	75
1 year olds	29	32	35	38	46	54	59	63	68
2 year olds	31	34	37	42	51	61	67	71	78
3 year olds	31	35	38	42	51	61	66	70	77
4 year olds	36	39	42	46	53	62	67	71	77
WIC participants	32	36	38	43	52	62	68	73	79
1 year olds	27	31	34	38	47	57	63	67	74
2 year olds	33	37	40	44	53	63	69	74	80
3 year olds	35	38	41	45	53	61	67	70	75
4 year olds	33	37	39	44	54	66	74	79	88
Income-eligible nonparticipants	33	37	40	44	53	62	67	71	77
1 year olds	26	30	33	38	48	59	65	70	77
2 year olds	32	36	38	43	51	60	65	69	75
3 year olds	40	43	46	49	56	63	67	70	74
4 year olds	35	39	42	46	56	65	71	75	81
Higher-income nonparticipants	32	35	37	41	48	57	61	65	70
1 year olds	31	34	36	39	45	51	54	57	60
2 year olds	30	34	36	40	50	60	66	70	77
3 year olds	28	32	34	39	48	58	64	69	75
4 year olds	37	40	42	45	51	58	61	64	68

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-24. Total Fat (% of calories): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
						Mean Usual Intake						
All children, 1–4 years old	1,956	32.2	(0.24)	791	32.0	(0.40)	496	32.8	(0.50)	606	32.1	(0.39)
1 year olds	566	33.8	(0.40)	305	33.4	(0.61)	96	33.3	(1.35)	153	34.5	(0.66)
2 year olds	587	31.9	(0.39)	223	31.9	(0.54)	162	31.6	(0.68)	183	32.3	(0.68)
3 year olds	389	31.2	(0.48)	132	30.9	(0.82)	104	33.4 *	(0.88)	134	30.4	(0.84)
4 year olds	414	32.0	(0.63)	131	31.9	(1.12)	134	33.0	(0.98)	136	31.2	(0.90)
						Percent of Persons with Usual Intake Below the AMDR[1]						
All children, 1–4 years old	1,956	23.3	(1.79)	791	26.5	(2.77)	496	21.1	(2.93)	606	22.3	(3.15)
1 year olds	566	20.8	(3.09)	305	25.4	(4.86)	96	30.7	(5.97)	153	11.6 * u	(4.76)
2 year olds	587	33.6	(3.79)	223	32.1	(5.36)	162	33.7	(7.63)	183	31.7	(6.02)
3 year olds	389	37.9	(5.11)	132	42.6	(6.84)	104	20.0 * u	(6.54)	134	44.7	(9.79)
4 year olds	414	0.5 u	(0.74)	131	5.4 u	(4.83)	134	0.0	(0.42)	136	0.5 u	(1.41)
						Percent of Persons with Usual Intake Above the AMDR[1]						
All children, 1–4 years old	1,956	6.9	(1.83)	791	9.8	(2.07)	496	9.4 u	(5.42)	606	4.1 u	(2.13)
1 year olds	566	9.3 u	(2.88)	305	9.6 u	(3.48)	96	15.7 u	(8.76)	153	5.8 u	(3.84)
2 year olds	587	3.1 u	(1.24)	223	2.0 u	(1.21)	162	1.4 u	(1.29)	183	4.7 u	(2.32)
3 year olds	389	1.6 u	(0.96)	132	3.9 u	(2.20)	104	4.6 u	(5.22)	134	0.5 u	(0.60)
4 year olds	414	13.9 u	(6.59)	131	23.8	(7.10)	134	16.1 u	(19.16)	136	5.4 u	(7.26)
						Percent of Persons with Usual Intake Within the AMDR[1]						
All children, 1–4 years old	1,956	69.8	(2.62)	791	63.8	(3.14)	496	69.6	(5.88)	606	73.7 *	(3.85)
1 year olds	566	69.9	(4.59)	305	65.0	(6.30)	96	53.7	(6.49)	153	82.7	(6.54)
2 year olds	587	63.4	(3.82)	223	65.9	(5.34)	162	64.9	(7.87)	183	63.6	(6.00)
3 year olds	389	60.5	(5.28)	132	53.4	(7.16)	104	75.4 *	(8.64)	134	54.8	(9.84)
4 year olds	414	85.7	(6.80)	131	70.8	(6.16)	134	83.9	(19.34)	136	94.1 *	(7.75)

See notes at end of table.

Table B-24. Total Fat (% of calories): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	25.7	27.2	28.1	29.6	32.2	34.9	36.3	37.3	38.7
1 year olds	25.8	27.7	28.9	30.7	33.9	37.1	38.7	39.8	41.4
2 year olds	25.1	26.6	27.5	29.0	31.8	34.6	36.2	37.3	38.9
3 year olds	24.3	25.9	26.9	28.4	31.3	34.1	35.6	36.5	38.0
4 year olds	27.5	28.5	29.2	30.2	32.0	33.9	34.9	35.5	36.5
WIC participants	24.3	26.0	27.2	28.9	32.1	35.1	36.8	38.0	39.6
1 year olds	24.6	26.7	28.0	29.9	33.5	36.9	38.7	39.9	41.7
2 year olds	25.3	26.8	27.8	29.2	31.9	34.5	36.0	37.0	38.4
3 year olds	22.4	24.3	25.5	27.4	31.0	34.3	36.3	37.6	39.4
4 year olds	24.8	26.4	27.4	29.0	32.0	34.8	36.5	37.6	39.1
Income-eligible nonparticipants	26.0	27.5	28.5	30.1	32.9	35.6	37.1	38.1	39.5
1 year olds	22.3	24.6	26.3	28.9	33.5	37.8	40.1	41.9	44.1
2 year olds	25.0	26.5	27.5	29.0	31.7	34.3	35.6	36.5	37.8
3 year olds	26.8	28.3	29.3	30.7	33.4	36.0	37.5	38.5	39.8
4 year olds	29.7	30.4	30.9	31.6	33.0	34.4	35.1	35.6	36.3
Higher-income nonparticipants	26.3	27.5	28.4	29.6	32.1	34.4	35.8	36.6	37.9
1 year olds	28.3	29.7	30.6	32.1	34.6	36.9	38.2	39.1	40.2
2 year olds	25.5	26.8	27.8	29.2	32.1	35.1	36.8	38.0	39.8
3 year olds	24.1	25.5	26.4	27.8	30.5	33.0	34.4	35.3	36.5
4 year olds	27.2	28.1	28.7	29.6	31.3	32.8	33.7	34.3	35.1

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Acceptable Macronutrient Distribution Ranges (AMDR) are the ranges of intake for macronutrients, as a percent of total calories, associated with reduced risk of chronic disease while providing intakes of essential nutrients.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-25. Protein (g): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
Mean Usual Intake												
All children, 1–4 years old	1,956	51.0	(0.79)	791	52.8	(1.08)	496	52.7	(1.22)	606	49.4 *	(1.22)
1 year olds	566	47.6	(1.04)	305	49.0	(1.38)	96	49.2	(2.90)	153	46.1	(1.72)
2 year olds	587	52.9	(1.49)	223	54.5	(2.19)	162	52.4	(2.19)	183	52.5	(1.93)
3 year olds	389	51.3	(1.96)	132	54.6	(2.59)	104	53.3	(2.34)	134	49.4	(2.92)
4 year olds	414	52.1	(1.65)	131	52.9	(2.24)	134	55.6	(2.30)	136	49.4	(2.89)

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
Distribution of Usual Intake									
All children, 1–4 years old	32.0	35.6	38.1	42.0	50.0	58.9	64.1	67.8	73.4
1 year olds	30.5	33.8	36.2	39.7	46.9	54.7	59.1	62.2	67.0
2 year olds	32.8	36.7	39.3	43.5	52.0	61.1	66.7	70.5	76.3
3 year olds	32.9	36.5	38.9	42.6	50.4	59.1	64.0	67.5	72.8
4 year olds	31.7	35.4	38.0	42.0	50.6	60.5	66.5	70.6	77.2
WIC participants	33.2	36.9	39.4	43.4	51.8	60.8	66.3	70.2	75.9
1 year olds	29.9	33.6	36.1	39.9	48.1	56.9	62.1	65.7	71.3
2 year olds	36.8	40.3	42.6	46.2	53.7	61.8	66.5	69.9	74.9
3 year olds	33.9	37.9	40.6	45.0	54.1	63.1	68.7	72.6	78.0
4 year olds	32.0	35.6	38.2	42.3	51.3	61.4	67.7	72.3	79.2
Income-eligible nonparticipants	32.2	36.0	38.7	43.1	51.9	61.1	66.6	70.5	76.2
1 year olds	26.2	30.3	33.5	38.6	48.6	58.7	64.8	69.4	75.6
2 year olds	34.1	37.6	40.0	43.9	51.7	59.9	64.9	68.2	73.5
3 year olds	34.4	37.9	40.5	44.4	52.5	61.1	66.3	70.0	75.4
4 year olds	33.9	37.9	40.8	45.4	54.8	64.7	70.6	74.5	80.5
Higher-income nonparticipants	32.3	35.4	37.6	41.1	48.6	56.4	61.2	64.5	69.5
1 year olds	33.4	35.8	37.6	40.4	45.8	51.2	54.4 *	56.8 *	59.8 *
2 year olds	31.6	35.6	38.4	42.6	51.8	61.2	66.8	70.6	76.5
3 year olds	34.0	36.8	38.7	41.9	48.6	55.7	60.2	63.3	67.8
4 year olds	30.1	33.3	35.8	39.6	48.2	57.3	63.2	67.3	73.5

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-26. Protein (g/kg body weight): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	3.92	(0.062)	791	4.07	(0.083)	496	4.03	(0.097)	606	3.79 *	(0.093)
1 year olds	566	3.97	(0.087)	305	4.08	(0.115)	96	4.10	(0.242)	153	3.84	(0.143)
2 year olds	587	4.41	(0.124)	223	4.54	(0.183)	162	4.37	(0.183)	183	4.38	(0.161)
3 year olds	389	4.28	(0.163)	132	4.55	(0.216)	104	4.44	(0.195)	134	4.12	(0.243)
4 year olds	414	3.01	(0.107)	131	3.10	(0.128)	134	3.22	(0.149)	136	2.83	(0.176)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	100.0	(0.00)	791	100.0	(0.01)	496	100.0	(0.04)	606	100.0	(0.01)
1 year olds	566	100.0	(0.00)	305	100.0	(0.00)	96	99.9	(0.17)	153	100.0	(0.00)
2 year olds	587	100.0	(0.00)	223	100.0	(0.00)	162	100.0	(0.00)	183	100.0	(0.03)
3 year olds	389	100.0	(0.00)	132	100.0	(0.02)	104	100.0	(0.00)	134	100.0	(0.00)
4 year olds	414	100.0	(0.00)	131	100.0	(0.02)	134	100.0	(0.05)	136	100.0	(0.01)

See notes at end of table.

Table B-26. Protein (g/kg body weight): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	2.45	2.73	2.92	3.22	3.84	4.52	4.93	5.21	5.65
1 year olds	2.54	2.82	3.01	3.31	3.91	4.56	4.93	5.19	5.58
2 year olds	2.73	3.06	3.28	3.62	4.33	5.09	5.55	5.88	6.36
3 year olds	2.75	3.04	3.24	3.55	4.20	4.92	5.34	5.62	6.07
4 year olds	1.77	1.99	2.14	2.38	2.90	3.51	3.89	4.15	4.58
WIC participants	2.54	2.83	3.03	3.34	4.00	4.70	5.12	5.42	5.87
1 year olds	2.49	2.80	3.01	3.33	4.01	4.74	5.18	5.48	5.95
2 year olds	3.06	3.36	3.55	3.85	4.48	5.15	5.54	5.82	6.24
3 year olds	2.82	3.16	3.39	3.75	4.50	5.25	5.72	6.05	6.50
4 year olds	1.80	2.01	2.17	2.43	2.99	3.63	4.04	4.34	4.79
Income-eligible nonparticipants	2.45	2.74	2.96	3.29	3.97	4.68	5.11	5.42	5.86
1 year olds	2.18	2.52	2.79	3.21	4.05	4.89	5.40	5.78	6.30
2 year olds	2.84	3.13	3.33	3.66	4.30	4.99	5.40	5.68	6.12
3 year olds	2.86	3.16	3.37	3.70	4.38	5.09	5.52	5.83	6.28
4 year olds	1.91	2.15	2.32	2.59	3.15	3.76	4.13	4.37	4.75
Higher-income nonparticipants	2.48	2.72	2.89	3.16	3.73	4.33	4.70	4.95	5.34
1 year olds	2.78	2.99	3.13	3.36	3.82	4.27	4.53 *	4.73 *	4.98 *
2 year olds	2.63	2.96	3.20	3.55	4.31	5.10	5.56	5.88	6.37
3 year olds	2.84	3.06	3.22	3.49	4.05	4.65	5.01	5.27	5.65
4 year olds	1.68	1.86	2.00	2.23	2.74	3.29	3.66	3.92	4.32

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-27. Protein (% of calories): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	14.5	(0.12)	791	14.5	(0.17)	496	14.5	(0.20)	606	14.5	(0.20)
1 year olds	566	15.3	(0.18)	305	15.3	(0.26)	96	14.7	(0.52)	153	15.8	(0.35)
2 year olds	587	14.8	(0.23)	223	14.5	(0.38)	162	14.5	(0.35)	183	15.1	(0.28)
3 year olds	389	14.1	(0.32)	132	14.5	(0.34)	104	14.1	(0.37)	134	14.1	(0.53)
4 year olds	414	13.8	(0.25)	131	13.7	(0.33)	134	14.7 *	(0.31)	136	13.3	(0.43)
	Percent of Persons with Usual Intake Below the AMDR[1]											
All children, 1–4 years old	1,956	0.3 u	(0.23)	791	0.1 u	(0.30)	496	0.1 u	(0.08)	606	0.7 u	(0.61)
1 year olds	566	0.0	(0.00)	305	0.0	(0.00)	96	0.0	(0.00)	153	0.0	(0.00)
2 year olds	587	0.0	(0.00)	223	0.0	(0.00)	162	0.0	(0.00)	183	0.0	(0.00)
3 year olds	389	0.0	(0.00)	132	0.0	(0.00)	104	0.0	(0.00)	134	0.0	(0.00)
4 year olds	414	1.2 u	(0.93)	131	0.4 u	(1.18)	134	0.2 u	(0.32)	136	2.9 u	(2.45)
	Percent of Persons with Usual Intake Above the AMDR[1]											
All children, 1–4 years old	1,956	1.0 u	(0.46)	791	0.6 u	(0.46)	496	0.2 u	(0.28)	606	2.1 u	(0.98)
1 year olds	566	1.8 u	(1.06)	305	1.4 u	(1.16)	96	0.5 u	(1.05)	153	3.4 u	(2.22)
2 year olds	587	1.3 u	(0.96)	223	0.4 u	(0.55)	162	0.3 u	(0.46)	183	3.7 u	(2.03)
3 year olds	389	0.7 u	(1.18)	132	0.6 u	(1.32)	104	0.0 u	(0.12)	134	1.4 u	(2.50)
4 year olds	414	0.0	(0.00)	131	0.0	(0.00)	134	0.0	(0.00)	136	0.0	(0.00)
	Percent of Persons with Usual Intake Within the AMDR[1]											
All children, 1–4 years old	1,956	98.7	(0.52)	791	99.3	(0.55)	496	99.7	(0.29)	606	97.2	(1.15)
1 year olds	566	98.2	(1.06)	305	98.6	(1.16)	96	99.5	(1.05)	153	96.6	(2.22)
2 year olds	587	98.7	(0.96)	223	99.6	(0.55)	162	99.7	(0.46)	183	96.4	(2.03)
3 year olds	389	99.3	(1.18)	132	99.4	(1.32)	104	100.0	(0.12)	134	98.6	(2.50)
4 year olds	414	98.8	(0.93)	131	99.6	(1.18)	134	99.8	(0.32)	136	97.2	(2.45)

See notes at end of table.

Table B-27. Protein (% of calories): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	11.2	11.9	12.4	13.1	14.4	15.8	16.7	17.2	18.1
1 year olds	11.9	12.7	13.1	13.9	15.3	16.8	17.6	18.1	19.0
2 year olds	11.4	12.1	12.5	13.2	14.7	16.1	17.0	17.6	18.5
3 year olds	10.8	11.5	11.9	12.6	14.0	15.5	16.4	17.0	17.9
4 year olds	10.9	11.5	11.9	12.5	13.8	15.0	15.7	16.2	16.9
WIC participants	11.6	12.2	12.6	13.2	14.4	15.7	16.4	16.9	17.6
1 year olds	12.2	12.9	13.3	13.9	15.2	16.6	17.3	17.9	18.7
2 year olds	11.8	12.4	12.7	13.3	14.5	15.7	16.4	16.9	17.6
3 year olds	11.2	11.9	12.4	13.0	14.4	15.8	16.6	17.1	17.9
4 year olds	11.3	11.8	12.1	12.6	13.6	14.6	15.2	15.6	16.2
Income-eligible nonparticipants	11.7	12.2	12.6	13.3	14.5	15.7	16.3	16.8	17.5
1 year olds	11.4	12.1	12.6	13.3	14.7	16.0	16.7	17.3	18.0
2 year olds	11.8	12.3	12.7	13.3	14.4	15.6	16.2	16.7	17.3
3 year olds	11.6	12.1	12.5	13.0	14.1	15.2	15.8	16.2	16.8
4 year olds	11.8	12.4	12.8	13.4	14.6	15.9	16.7	17.1	17.9
Higher-income nonparticipants	11.0	11.7	12.2	13.0	14.5	16.0	16.9	17.5	18.4
1 year olds	12.1	12.8	13.4	14.2	15.7	17.2	18.1	18.7	19.5
2 year olds	11.1	11.9	12.4	13.3	15.0	16.7	17.8	18.5	19.5
3 year olds	10.5	11.2	11.6	12.4	13.9	15.5	16.5	17.2	18.2
4 year olds	10.4	11.0	11.4	12.0	13.3	14.4	15.1	15.6	16.2

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Acceptable Macronutrient Distribution Ranges (AMDR) are the ranges of intake for macronutrients, as a percent of total calories, associated with reduced risk of chronic disease while providing intakes of essential nutrients.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-28. Carbohydrate (g): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	194	(2.3)	791	203	(3.4)	496	198	(4.0)	606	188 **	(3.6)
1 year olds	566	164	(4.6)	305	168	(4.5)	96	182	(10.1)	153	153	(7.5)
2 year olds	587	196	(4.0)	223	210	(8.0)	162	201	(6.6)	183	187 *	(6.1)
3 year olds	389	206	(5.2)	132	217	(7.7)	104	204	(7.3)	134	202	(8.8)
4 year olds	414	208	(4.1)	131	215	(6.6)	134	204	(7.4)	136	209	(5.9)
	Percent of Children with Usual Intake Greater than Estimated Average Requirements (EAR)1											
All children, 1–4 years old	1,956	98.9	(0.41)	791	99.3	(0.32)	496	98.1	(1.30)	606	98.8	(0.64)
1 year olds	566	96.7	(1.56)	305	98.4	(0.88)	96	93.6	(5.21)	153	96.9	(2.16)
2 year olds	587	98.8	(0.58)	223	99.3	(0.45)	162	99.2	(0.67)	183	98.4	(1.42)
3 year olds	389	99.9	(0.11)	132	99.6	(0.84)	104	99.8	(0.55)	134	100.0	(0.03)
4 year olds	414	99.9	(0.11)	131	99.9	(0.09)	134	99.6	(0.32)	136	99.9	(0.11)

See notes at end of table.

Table B-28. Carbohydrate (g): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	128	140	149	162	190	221	239	252	272
1 year olds	106	116	124	135	160	188	205	217	236
2 year olds	121	135	145	161	193	227	248	263	285
3 year olds	142	154	163	176	203	233	250	262	281
4 year olds	141	154	163	176	205	236	254	267	286
WIC participants	129	143	152	167	198	233	254	269	292
1 year olds	112	123	130	141	165	191	207	218	236
2 year olds	127	143	153	170	204	243	267	284	309
3 year olds	134	149	160	177	213	251	275	292	316
4 year olds	143	156	165	179	210	244	266	281	305
Income-eligible nonparticipants	123	136	147	162	195	229	250	264	285
1 year olds	96	110	122	140	178	217	241	260	286
2 year olds	126	141	151	167	199	232	252	265	285
3 year olds	134	148	157	172	202	233	252	265	284
4 year olds	133	146	155	170	200	233	253	266	287
Higher-income nonparticipants	131	141	149	161	186	211 *	227 *	238 *	254 *
1 year olds	105	113	119	129	150	173	187	197	212
2 year olds	117	131	140	155	185	216	235	247	266
3 year olds	154	163	169	179	200	222	235	244	257
4 year olds	146	157	166	179	207	234	252	263	281

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Reference Intakes (DRI) Estimated Average Requirement (EAR) is used to assess the adequacy of intakes for population groups.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-29. Carbohydrates (% of calories): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
						Mean Usual Intake						
All children, 1–4 years old	1,956	54.8	(0.31)	791	54.9	(0.45)	496	54.0	(0.55)	606	55.2	(0.47)
1 year olds	566	52.3	(0.48)	305	52.6	(0.81)	96	53.3	(1.13)	153	51.7	(0.86)
2 year olds	587	54.9	(0.54)	223	54.9	(0.70)	162	55.4	(0.97)	183	54.5	(0.80)
3 year olds	389	56.3	(0.59)	132	56.0	(0.93)	104	53.8	(1.19)	134	57.3	(0.90)
4 year olds	414	55.6	(0.78)	131	55.9	(1.08)	134	53.6	(1.13)	136	57.2	(1.12)
						Percent of Persons with Usual Intake Below the AMDR[1]						
All children, 1–4 years old	1,956	3.3	(0.78)	791	4.1	(1.15)	496	3.5 u	(1.72)	606	3.3 u	(1.40)
1 year olds	566	8.6 u	(2.66)	305	11.3 u	(3.52)	96	8.4 u	(4.97)	153	7.2 u	(4.84)
2 year olds	587	3.4 u	(1.46)	223	0.6 u	(0.84)	162	1.8 u	(1.65)	183	5.8 u	(2.93)
3 year olds	389	0.9 u	(0.72)	132	2.9 u	(2.58)	104	3.4 u	(4.15)	134	0.2 u	(0.31)
4 year olds	414	0.4 u	(0.47)	131	1.7 u	(1.33)	134	0.4 u	(1.85)	136	0.0 u	(0.21)
						Percent of Persons with Usual Intake Above the AMDR[1]						
All children, 1–4 years old	1,956	2.3 u	(0.75)	791	3.8 u	(1.48)	496	1.8 u	(0.93)	606	2.4 u	(1.29)
1 year olds	566	1.3 u	(0.88)	305	3.0 u	(1.78)	96	3.1 u	(2.00)	153	0.4 u	(0.73)
2 year olds	587	2.7 u	(1.27)	223	0.6 u	(0.82)	162	3.2 u	(2.81)	183	3.2 u	(1.85)
3 year olds	389	4.3 u	(2.39)	132	7.4 u	(4.57)	104	1.1 u	(1.36)	134	4.8 u	(4.12)
4 year olds	414	1.0 u	(0.85)	131	4.4 u	(3.13)	134	0.0 u	(0.32)	136	1.1 u	(2.27)
						Percent of Persons with Usual Intake Within the AMDR[1]						
All children, 1–4 years old	1,956	94.4	(1.27)	791	92.1	(2.23)	496	94.7	(2.24)	606	94.3	(2.07)
1 year olds	566	90.2	(3.27)	305	85.6	(4.37)	96	88.5	(6.09)	153	92.4	(5.23)
2 year olds	587	93.9	(2.33)	223	98.9	(1.47)	162	95.1	(3.84)	183	91.0	(4.11)
3 year olds	389	94.8	(2.92)	132	89.7	(6.69)	104	95.6	(4.93)	134	95.1	(4.36)
4 year olds	414	98.7	(1.10)	131	94.0	(3.67)	134	99.6	(2.12)	136	98.9	(2.39)

See notes at end of table.

Table B-29. Carbohydrates (% of calorie intake): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	46.7	48.5	49.7	51.4	54.8	58.1	59.9	61.2	63.0
1 year olds	43.6	45.5	46.7	48.5	52.1	55.9	57.9	59.4	61.5
2 year olds	46.0	48.1	49.4	51.4	55.0	58.5	60.4	61.7	63.5
3 year olds	48.2	50.0	51.1	52.8	56.2	59.6	61.5	62.7	64.6
4 year olds	49.0	50.5	51.5	52.9	55.7	58.4	59.8	60.8	62.2
WIC participants	46.1	48.0	49.3	51.1	54.8	58.4	60.5	61.9	63.9
1 year olds	42.4	44.6	46.0	48.2	52.5	56.8	59.3	60.9	63.4
2 year olds	48.4	49.9	50.9	52.3	55.0	57.6	59.0	60.0	61.4
3 year olds	46.4	48.4	49.7	51.8	55.9	59.9	62.3	64.0	66.3
4 year olds	47.2	49.1	50.3	52.2	55.9	59.4	61.4	62.7	64.6
Income-eligible nonparticipants	46.3	47.9	49.0	50.8	54.1	57.2	59.0	60.2	62.0
1 year olds	43.5	45.4	46.9	49.1	53.2	57.2	59.5	61.3	63.5
2 year olds	47.2	49.0	50.2	52.0	55.5	58.8	60.7	61.9	63.8
3 year olds	45.9	47.6	48.8	50.6	53.9	57.0	58.8	60.0	61.7
4 year olds	48.3	49.5	50.3	51.4	53.7	55.8	57.0	57.7	58.8
Higher-income nonparticipants	47.7	49.3	50.4	52.0	55.2	58.2	60.0	61.1	62.7
1 year olds	44.3	45.8	46.8	48.4	51.6	54.7	56.4	57.7	59.4
2 year olds	44.6	46.9	48.4	50.6	54.7	58.5	60.5	61.8	63.8
3 year olds	50.1	51.6	52.6	54.2	57.2	60.3	62.0	63.2	64.9
4 year olds	51.6	52.7	53.6	54.8	57.3	59.4	60.7	61.5	62.7

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Acceptable Macronutrient Distribution Ranges (AMDR) are the ranges of intake for macronutrients, as a percent of total calories, associated with reduced risk of chronic disease while providing intakes of essential nutrients.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-30. Saturated Fat (g): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	*1,956*	19.5	(0.36)	*791*	20.0	(0.47)	*496*	20.3	(0.59)	*606*	18.9	(0.56)
1 year olds	*566*	19.5	(0.40)	*305*	19.9	(0.67)	*96*	19.9	(1.36)	*153*	19.1	(0.70)
2 year olds	*587*	19.8	(0.65)	*223*	20.5	(0.94)	*162*	19.3	(0.96)	*183*	19.8	(0.83)
3 year olds	*389*	19.1	(1.01)	*132*	19.5	(1.06)	*104*	21.1	(1.16)	*134*	18.2	(1.68)
4 year olds	*414*	19.6	(0.66)	*131*	20.3	(1.05)	*134*	20.9	(1.17)	*136*	18.6	(0.99)

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	11.3	12.8	13.9	15.5	19.0	22.9	25.2	26.9	29.4
1 year olds	11.3	12.8	13.9	15.6	19.1	22.9	25.1	26.7	29.1
2 year olds	11.0	12.6	13.7	15.5	19.2	23.4	26.1	27.9	30.8
3 year olds	10.0	11.5	12.6	14.4	18.3	22.9	25.7	27.7	30.8
4 year olds	13.1	14.4	15.2	16.6	19.3	22.2	24.0	25.1	26.9
WIC participants	12.2	13.6	14.6	16.2	19.6	23.3	25.5	27.1	29.6
1 year olds	10.8	12.4	13.6	15.3	19.2	23.6	26.3	28.2	31.2
2 year olds	12.1	13.7	14.7	16.4	20.0	24.0	26.3	28.1	30.7
3 year olds	13.1	14.3	15.2	16.5	19.3	22.1	23.9	25.1	26.8
4 year olds	12.7	14.0	15.0	16.5	19.8	23.4	25.7	27.3	29.7
Income-eligible nonparticipants	11.7	13.2	14.3	16.1	19.9	23.9	26.3	28.1	30.6
1 year olds	9.9	11.5	12.8	15.0	19.4	24.0	26.9	29.2	32.2
2 year olds	10.5	12.1	13.2	15.1	18.9	23.0	25.5	27.2	30.0
3 year olds	13.6	15.0	16.0	17.6	20.7	24.1	26.2	27.6	29.8
4 year olds	12.5	14.1	15.2	16.9	20.5	24.4	26.7	28.2	30.5
Higher-income nonparticipants	11.7	12.9	13.9	15.3	18.5	21.9	24.0	25.5	27.8
1 year olds	12.1	13.5	14.5	16.0	19.0	21.9	23.6	24.8	26.4
2 year olds	11.6	13.1	14.1	15.7	19.2	23.2	25.6	27.3	30.0
3 year olds	8.6	10.0	11.1	13.0	17.2	22.2	25.5	27.9	31.6
4 year olds	14.4	15.2	15.9	16.7	18.6	20.3	21.3	22.0	23.0

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-31. Saturated Fat (% of calorie intake): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 2–4 years old	1,390	11.7	(0.15)	486	11.7	(0.20)	400	12.1	(0.24)	453	11.6	(0.23)
2 year olds	587	12.1	(0.19)	223	12.0	(0.33)	162	11.8	(0.35)	183	12.4	(0.25)
3 year olds	389	11.4	(0.31)	132	11.3	(0.30)	104	12.4	(0.45)	134	11.1	(0.53)
4 year olds	414	11.6	(0.28)	131	11.6	(0.38)	134	12.2	(0.45)	136	11.2	(0.38)
	Percent of Persons Meeting Dietary Guidelines Recommendation[1]											
All children, 2–4 years old	1,390	17.1	(2.95)	486	19.2	(4.24)	400	10.6	(2.67)	453	nr	nr
2 year olds	587	15.4	(2.94)	223	16.1 u	(5.29)	162	21.6	(4.79)	183	8.9 u	(4.57)
3 year olds	389	26.8	(5.83)	132	21.8 u	(8.78)	104	8.6 u	(4.22)	134	34.4	(9.66)
4 year olds	414	9.0 u	(5.97)	131	19.7 u	(7.51)	134	1.5 * u	(4.86)	136	nr	nr

See notes at end of table.

Table B-31. Saturated Fat (% of calorie intake): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 2–4 years old	8.8	9.4	9.8	10.4	11.7	12.9	13.6	14.0	14.7
2 year olds	8.8	9.5	10.0	10.7	12.1	13.5	14.3	14.9	15.7
3 year olds	7.9	8.7	9.2	9.9	11.3	12.8	13.6	14.2	15.0
4 year olds	9.6	10.1	10.4	10.8	11.6	12.3	12.8	13.1	13.5
WIC participants	8.7	9.3	9.7	10.4	11.6	12.9	13.6	14.1	14.8
2 year olds	8.7	9.5	9.9	10.6	12.0	13.4	14.1	14.6	15.4
3 year olds	8.6	9.2	9.6	10.2	11.3	12.4	13.1	13.6	14.2
4 year olds	8.6	9.3	9.7	10.3	11.6	12.8	13.5	14.0	14.7
Income-eligible nonparticipants	9.4	10.0	10.4	11.0	12.1	13.2	13.9	14.3	14.9
2 year olds	8.3	9.0	9.5	10.3	11.7	13.2	14.1	14.6	15.5
3 year olds	9.5	10.2	10.6	11.2	12.4	13.5	14.2	14.6	15.3
4 year olds	10.5	10.9	11.1	11.5	12.2	12.9	13.3	13.6	14.0
Higher-income nonparticipants	nr	nr	nr	nr	nr	nr	nr	nr	nr
2 year olds	9.5	10.1	10.5	11.1	12.4	13.6	14.4	14.8	15.5
3 year olds	7.2	8.0	8.5	9.4	11.0	12.7	13.7	14.3	15.2
4 year olds	nr	nr	nr	nr	nr	nr	nr	nr	nr

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Guidelines recommend that persons 2 year olds and older consume less than 10 percent of total daily calories from saturated fat.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

nr Indicates that the NCI macro does not run correctly for this age group. The resulting data are unreliable and have been suppressed.

Table B-32. Linoleic Acid (g): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	8.1	(0.14)	791	8.6	(0.28)	496	8.3	(0.22)	606	7.7*	(0.24)
1 year olds	566	6.4	(0.22)	305	6.5	(0.26)	96	7.0	(0.38)	153	6.0	(0.38)
2 year olds	587	8.2	(0.24)	223	8.7	(0.32)	162	8.5	(0.45)	183	8.0	(0.44)
3 year olds	389	8.5	(0.33)	132	9.0	(0.56)	104	8.8	(0.30)	134	7.9	(0.56)
4 year olds	414	9.4	(0.32)	131	10.1	(0.85)	134	9.0	(0.55)	136	8.8	(0.50)
	Mean Usual Intake as a Percent of Adequate Intake (AI)[1]											
All children, 1–4 years old	1,956	105.9	(1.85)	791	111.6	(3.29)	496	109.5	(2.73)	606	100.5*	(3.15)
1 year olds	566	90.9	(3.08)	305	92.7	(3.78)	96	100.6	(5.48)	153	85.9	(5.40)
2 year olds	587	117.6	(3.37)	223	123.9	(4.61)	162	120.7	(6.40)	183	114.1	(6.26)
3 year olds	389	120.9	(4.78)	132	128.1	(8.01)	104	126.2	(4.26)	134	112.9	(8.03)
4 year olds	414	93.6	(3.23)	131	101.0	(8.50)	134	89.9	(5.53)	136	88.4	(4.98)

See notes at end of table.

Table B-32. Linoleic Acid (g): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	5.0	5.5	5.9	6.5	7.9	9.4	10.4	11.0	12.1
1 year olds	3.3	3.8	4.2	4.8	6.1	7.7	8.6	9.3	10.4
2 year olds	4.5	5.1	5.6	6.3	7.9	9.8	10.9	11.7	13.0
3 year olds	6.5	6.9	7.2	7.6	8.4	9.3	9.8	10.1	10.6
4 year olds	5.5	6.1	6.6	7.4	9.0	11.0	12.2	13.0	14.4
WIC participants	4.5	5.2	5.6	6.4	8.2	10.2	11.6	12.5	14.1
1 year olds	3.2	3.7	4.1	4.7	6.1	7.8	8.9	9.7	11.0
2 year olds	4.6	5.4	5.8	6.6	8.3	10.3	11.5	12.4	13.8
3 year olds	5.0	5.7	6.2	7.0	8.7	10.6	11.8	12.6	13.9
4 year olds	5.0	5.8	6.3	7.3	9.4	12.1	13.9	15.3	17.4
Income-eligible nonparticipants	5.6	6.1	6.4	7.0	8.2	9.5	10.2	10.8	11.6
1 year olds	3.7	4.3	4.7	5.4	6.9	8.4	9.4	10.1	11.1
2 year olds	6.3 u	6.7	7.0	7.5	8.4	9.3	9.9	10.3	10.9
3 year olds	7.2	7.5	7.8	8.1	8.8	9.5	9.9	10.2	10.6
4 year olds	5.2	5.8	6.3	7.0	8.7	10.6	11.8	12.6	13.9
Higher-income nonparticipants	5.2	5.6	5.9	6.4	7.5	8.7 *	9.5 *	10.1 *	11.0 *
1 year olds	3.2	3.6	4.0	4.5	5.8	7.2	8.1	8.8	9.7
2 year olds	4.0	4.6	5.1	5.8	7.6	9.6	10.9	11.9	13.4
3 year olds	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
4 year olds	5.5	6.1	6.5	7.2	8.7	10.2	11.2	11.8	12.8

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Adequate Intake (AI) is the approximate intake of the nutrient that appears to be adequate for all individuals in the population group. Mean intake at or above the AI implies a low prevalence of inadequate intake.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-33. Linoleic Acid (% of calorie intake): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
						Mean Usual Intake						
All children, 1–4 years old	1,956	5.1	(0.07)	791	5.1	(0.12)	496	5.1	(0.11)	606	5.0	(0.11)
1 year olds	566	4.6	(0.12)	305	4.4	(0.14)	96	4.9	(0.33)	153	4.6	(0.21)
2 year olds	587	5.1	(0.10)	223	5.1	(0.17)	162	5.1	(0.19)	183	5.1	(0.20)
3 year olds	389	5.2	(0.14)	132	5.2	(0.21)	104	5.2	(0.15)	134	5.0	(0.27)
4 year olds	414	5.5	(0.16)	131	5.7	(0.37)	134	5.2	(0.21)	136	5.3	(0.21)
						Percent of Persons with Usual Intake Below the AMDR[1]						
All children, 1–4 years old	1,956	47.1	(5.12)	791	49.0	(5.26)	496	26.7 u	(21.37)	606	64.0 u	(23.25)
1 year olds	566	66.9	(4.05)	305	71.5	(5.44)	96	56.2	(11.68)	153	67.4	(7.21)
2 year olds	587	50.8	(4.73)	223	49.9	(11.11)	162	0.0 u	(80.07)	183	51.4	(6.68)
3 year olds	389	40.9 u	(17.58)	132	48.8	(6.30)	104	8.4 u	(23.89)	134	100.0 u	(87.97)
4 year olds	414	30.1	(7.97)	131	26.1 u	(15.76)	134	43.3	(8.63)	136	36.7 u	(24.54)
						Percent of Persons with Usual Intake Above the AMDR[1]						
All children, 1–4 years old	1,956	0.0 u	(0.02)	791	0.1 u	(0.15)	496	0.0 u	(0.09)	606	0.1 u	(0.07)
1 year olds	566	0.1 u	(0.07)	305	0.1 u	(0.09)	96	0.1 u	(0.35)	153	0.1 u	(0.11)
2 year olds	587	0.0 u	(0.03)	223	0.0	(0.06)	162	0.0	(0.00)	183	0.3 u	(0.26)
3 year olds	389	0.0	(0.00)	132	0.4 u	(0.46)	104	0.0	(0.00)	134	0.0	(0.00)
4 year olds	414	0.0	(0.06)	131	0.0 u	(0.34)	134	0.0 u	(0.08)	136	0.0	(0.00)
						Percent of Persons with Usual Intake Within the AMDR[1]						
All children, 1–4 years old	1,956	52.9	(5.12)	791	50.9	(5.26)	496	73.2	(21.36)	606	36.0 u	(23.25)
1 year olds	566	33.1	(4.01)	305	28.4	(5.38)	96	43.6	(11.52)	153	32.5	(7.19)
2 year olds	587	49.2	(4.73)	223	50.1	(11.12)	162	100.0 u	(80.07)	183	48.3	(6.64)
3 year olds	389	59.1	(17.58)	132	50.8	(6.19)	104	91.6	(23.89)	134	0.0	(87.97)
4 year olds	414	69.9	(7.98)	131	73.9	(15.78)	134	56.7	(8.63)	136	63.3 u	(24.54)

See notes at end of table.

Table B-33. Linoleic Acid (% of calorie intake): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	3.7	3.9	4.1	4.4	5.0	5.7	6.1	6.3	6.8
1 year olds	2.8	3.1	3.3	3.7	4.5	5.3	5.9	6.2	6.8
2 year olds	3.6	3.8	4.0	4.3	5.0	5.7	6.1	6.4	6.9
3 year olds	4.1	4.3	4.5	4.7	5.2	5.6	5.9	6.1	6.3
4 year olds	4.2	4.4	4.6	4.9	5.4	6.0	6.4	6.6	7.0
WIC participants	3.4	3.7	3.9	4.3	5.0	5.8	6.3	6.6	7.1
1 year olds	2.7	3.0	3.2	3.6	4.3	5.1	5.7	6.0	6.6
2 year olds	3.6	3.9	4.1	4.4	5.0	5.7	6.0	6.3	6.7
3 year olds	3.1	3.4	3.7	4.1	5.0	6.0	6.7	7.1	7.8
4 year olds	4.2	4.5	4.7	5.0	5.6	6.3	6.7	7.0	7.4
Income-eligible nonparticipants	4.1	4.3	4.4	4.7	5.1	5.5	5.8	6.0	6.2
1 year olds	2.8	3.2	3.5	3.9	4.8	5.7	6.3	6.7	7.3
2 year olds	5.0	5.0	5.1	5.1	5.1	5.1	5.1	5.1	5.1
3 year olds	5.0 *	5.0 *	5.1 *	5.1 *	5.3	5.4	5.4	5.5 *	5.5 *
4 year olds	3.7	3.9	4.2	4.5	5.2	5.9	6.4	6.7	7.1
Higher-income nonparticipants	3.8	4.0	4.2	4.4	4.9	5.5	5.8	6.0	6.4
1 year olds	2.8	3.1	3.3	3.7	4.5	5.3	5.8	6.2	6.8
2 year olds	3.3	3.6	3.8	4.2	5.0	5.8	6.4	6.7	7.4
3 year olds	5.0 *	5.0 *	5.0 *	5.0	5.0	5.0	5.0	5.0	5.0 *
4 year olds	4.2	4.4	4.5	4.8	5.3	5.7	6.0	6.2	6.5

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Acceptable Macronutrient Distribution Ranges (AMDR) are the ranges of intake for macronutrients, as a percent of total calories, associated with reduced risk of chronic disease while providing intakes of essential nutrients.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-34. Linolenic Acid (g): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	0.8	(0.02)	791	0.9	(0.02)	496	0.8	(0.02)	606	0.8 *	(0.03)
1 year olds	566	0.8	(0.02)	305	0.8	(0.03)	96	0.8	(0.05)	153	0.8	(0.03)
2 year olds	587	0.8	(0.03)	223	0.9	(0.03)	162	0.8 **	(0.05)	183	0.8	(0.05)
3 year olds	389	0.8	(0.04)	132	0.9	(0.06)	104	0.8	(0.04)	134	0.7	(0.07)
4 year olds	414	0.9	(0.05)	131	0.9	(0.06)	134	0.9	(0.06)	136	0.9	(0.08)
	Mean Usual Intake as a Percent of Adequate Intake (AI)[1]											
All children, 1–4 years old	1,956	111.8	(2.33)	791	119.2	(3.06)	496	110.8	(3.23)	606	107.3 *	(3.99)
1 year olds	566	116.4	(2.86)	305	121.2	(4.81)	96	117.4	(7.20)	153	113.2	(4.91)
2 year olds	587	118.5	(4.01)	223	130.8	(4.12)	162	110.6 **	(6.36)	183	115.7	(6.90)
3 year olds	389	114.2	(6.08)	132	125.1	(8.46)	104	120.5	(5.62)	134	105.5	(9.76)
4 year olds	414	98.1	(4.96)	131	99.5	(6.08)	134	94.9	(6.63)	136	94.9	(9.22)

See notes at end of table.

Table B-34. Linolenic Acid (g): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	0.5	0.5	0.6	0.7	0.8	1.0	1.1	1.2	1.3
1 year olds	0.4	0.5	0.6	0.6	0.8	1.0	1.1	1.2	1.3
2 year olds	0.4	0.5	0.5	0.6	0.8	1.0	1.1	1.2	1.4
3 year olds	0.5	0.6	0.6	0.7	0.8	0.9	1.0	1.0	1.1
4 year olds	0.5	0.6	0.6	0.7	0.8	1.0	1.2	1.3	1.4
WIC participants	0.5	0.6	0.6	0.7	0.8	1.0	1.2	1.3	1.4
1 year olds	0.4	0.5	0.6	0.6	0.8	1.0	1.2	1.2	1.4
2 year olds	0.5	0.5	0.6	0.7	0.9	1.1	1.2	1.3	1.5
3 year olds	0.6	0.6	0.7	0.7	0.9	1.0	1.1	1.1	1.2
4 year olds	0.5	0.5	0.6	0.7	0.8	1.1	1.2	1.3	1.5
Income-eligible nonparticipants	0.5	0.5	0.6	0.7	0.8	1.0	1.1	1.1	1.2
1 year olds	0.4	0.5	0.5	0.6	0.8	1.0	1.1	1.2	1.3
2 year olds	0.5	0.5	0.6	0.6	0.8	0.9 *	1.0	1.0	1.1
3 year olds	0.5	0.6	0.6	0.7	0.8	1.0	1.1	1.1	1.2
4 year olds	0.5	0.5	0.6	0.7	0.8	1.0	1.1	1.2	1.3
Higher-income nonparticipants	0.5	0.5	0.6	0.6	0.8	0.9	1.0	1.1	1.2
1 year olds	0.5	0.5	0.6	0.6	0.8	0.9	1.0	1.1	1.1
2 year olds	0.4	0.5	0.5	0.6	0.8	1.0	1.1	1.2	1.4
3 year olds	0.5	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0
4 year olds	0.5	0.5	0.6	0.7	0.8	1.0	1.1	1.2	1.4

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Adequate Intake (AI) is the approximate intake of the nutrient that appears to be adequate for all individuals in the population group. Mean intake at or above the AI implies a low prevalence of inadequate intake.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-35. Linolenic Acid (% of calorie intake): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	0.5	(0.01)	791	0.5	(0.01)	496	0.5	(0.01)	606	0.5	(0.01)
1 year olds	566	0.6	(0.01)	305	0.6	(0.02)	96	0.6	(0.03)	153	0.6	(0.02)
2 year olds	587	0.5	(0.01)	223	0.5	(0.02)	162	0.5 **	(0.02)	183	0.5	(0.02)
3 year olds	389	0.5	(0.02)	132	0.5	(0.02)	104	0.5	(0.02)	134	0.5	(0.02)
4 year olds	414	0.5	(0.02)	131	0.5	(0.03)	134	0.5	(0.02)	136	0.5	(0.04)
	Percent of Persons with Usual Intake Below the AMDR[1]											
All children, 1–4 years old	1,956	77.9	(2.31)	791	72.0	(2.89)	496	81.9 *	(3.23)	606	78.2	(3.97)
1 year olds	566	54.7	(3.00)	305	55.4	(5.08)	96	59.4	(8.53)	153	48.5	(6.54)
2 year olds	587	80.5	(3.13)	223	70.8	(4.21)	162	94.0 ***	(4.96)	183	81.2	(7.19)
3 year olds	389	93.7	(5.05)	132	82.1	(7.52)	104	88.2	(5.49)	134	97.1	(5.16)
4 year olds	414	82.0	(6.36)	131	79.2	(5.76)	134	85.3	(6.46)	136	85.2	(11.46)
	Percent of Persons with Usual Intake Above the AMDR[1]											
All children, 1–4 years old	1,956	0.0 u	(0.01)	791	0.0 u	(0.03)	496	0.0 u	(0.05)	606	0.0	(0.00)
1 year olds	566	0.0 u	(0.02)	305	0.0 u	(0.11)	96	0.2 u	(0.19)	153	0.0	(0.00)
2 year olds	587	0.0 u	(0.00)	223	0.0 u	(0.08)	162	0.0	(0.00)	183	0.0	(0.01)
3 year olds	389	0.0	(0.00)	132	0.0	(0.00)	104	0.0	(0.00)	134	0.0	(0.00)
4 year olds	414	0.0	(0.00)	131	0.0	(0.02)	134	0.0	(0.00)	136	0.0	(0.00)
	Percent of Persons with Usual Intake Within the AMDR[1]											
All children, 1–4 years old	1,956	22.1	(2.31)	791	28.0	(2.89)	496	18.1 *	(3.23)	606	21.8	(3.97)
1 year olds	566	45.3	(3.00)	305	44.6	(5.06)	96	40.4	(8.49)	153	51.5	(6.54)
2 year olds	587	19.5	(3.13)	223	29.2	(4.17)	162	6.0 ***	(4.96)	183	18.8 u	(7.19)
3 year olds	389	6.3 u	(5.05)	132	17.9 u	(7.52)	104	11.8 u	(5.49)	134	2.9 u	(5.16)
4 year olds	414	18.0 u	(6.36)	131	20.8	(5.75)	134	14.7 u	(6.46)	136	14.8 u	(11.46)

See notes at end of table.

Table B-35. Linolenic Acid (% of calorie intake): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7
1 year olds	0.4	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.8
2 year olds	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.7
3 year olds	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6
4 year olds	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7
WIC participants	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.8
1 year olds	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.8	0.9
2 year olds	0.3	0.4	0.4	0.4	0.5	0.6	0.7	0.7	0.8
3 year olds	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7
4 year olds	0.3	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.7
Income-eligible nonparticipants	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.7
1 year olds	0.3	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.9
2 year olds	0.4	0.4	0.4	0.4	0.5	0.5 *	0.6 *	0.6	0.6
3 year olds	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.6
4 year olds	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7
Higher-income nonparticipants	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7
1 year olds	0.4	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.8
2 year olds	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.7	0.7
3 year olds	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6
4 year olds	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7

Source: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Usual intake was estimated using a statistical method developed by the National Cancer Institute (NCI). Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] Acceptable Macronutrient Distribution Ranges (AMDR) are the ranges of intake for macronutrients, as a percent of total calories, associated with reduced risk of chronic disease while providing intakes of ssential nutrients.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table B-36. Cholesterol (mg): Usual Nutrient Intakes from Foods and Beverages

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 2–4 years old	1,390	169	(5.6)	486	201	(9.7)	400	201	(10.6)	453	141 ***	(7.0)
2 year olds	587	175	(7.7)	223	202	(14.4)	162	181	(11.1)	183	158 *	(11.8)
3 year olds	389	160	(10.7)	132	201	(18.5)	104	192	(19.0)	134	133 **	(13.6)
4 year olds	414	171	(10.3)	131	201	(17.1)	134	230	(23.1)	136	132 ***	(11.0)
	Percent of Persons Meeting Dietary Guidelines Recommendation[1]											
All children, 2–4 years old	1,390	96.0	(1.12)	486	89.2	(3.22)	400	92.4	(4.05)	453	98.2 **	(0.82)
2 year olds	587	94.7	(1.74)	223	91.8	(5.38)	162	99.5	(2.39)	183	95.9	(2.26)
3 year olds	389	95.9	(1.74)	132	86.9	(5.64)	104	92.7	(4.63)	134	98.9 *	(0.90)
4 year olds	414	97.4	(2.32)	131	88.9	(5.71)	134	85.0	(11.05)	136	99.9	(0.38)

See notes at end of table.

Table B-36. Cholesterol (mg): Usual Nutrient Intakes from Foods and Beverages–Continued

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 2–4 years old	84	97	106	122	159	203	233	254	289
2 year olds	86	100	110	127	164	211	242	266	303
3 year olds	69	83	93	110	149	198	229	252	289
4 year olds	95	108	117	131	163	202	226	244	273
WIC participants	99	114	125	144	188	242	279	307	350
2 year olds	112	127	137	154	192	238	268	290	325
3 year olds	87	103	115	135	184	245	289	323	376
4 year olds	98	113	124	143	188	242	279	307	350
Income-eligible nonparticipants	119	132	142	158	194	234	260	279	307
2 year olds	124 u	134	142	154	178	204	220	231	248
3 year olds	98	113	124	143	183	230	261	283	318
4 year olds	134 u	149	161	179	220	269	300	322	357
Higher-income nonparticipants	70	81 *	89 **	102 ***	133 ***	170 ***	194 ***	212 **	239 **
2 year olds	72	84	93	108 *	146	193	224	248	287
3 year olds	59	70	78	93	126	164 *	189	207	235
4 year olds	80	89	95	106	128 *	153 **	168 *	179 *	196

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on two dietary recalls per person. 'All young children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

[1] The Dietary Guidelines recommend that persons 2 years and older consume less than 300 mg of cholesterol a day.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Appendix C.

Detailed Tables of Analyses on Children

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Table C-1. Percent of Young Children Taking Dietary Supplements

	All children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
Sample size	*1,916*	-	*842*	-	*463*	-	*551*	-
Any dietary supplement, children 1–4 years old[1]	26.6	(1.44)	14.2	(1.57)	25.9 ***	(2.58)	33.8 ***	(2.52)
1 year old	11.9	(1.52)	8.1	(1.11)	13.1 u	(4.45)	15.0 *	(2.67)
2 years old	26.3	(2.39)	15.7	(2.95)	31.7 ***	(3.84)	30.3 **	(3.73)
3 years old	27.5	(3.01)	15.5	(3.05)	20.7	(5.36)	37.2 ***	(5.77)
4 years old	40.4	(3.99)	17.3	(4.43)	37.8 **	(6.53)	52.1 ***	(6.79)
Any dietary supplement[1] by poverty level	26.6	(1.44)	14.2	(1.57)	25.9 ***	(2.58)	33.8 ***	(2.52)
< 100%	17.4	(1.81)	13.1	(2.03)	18.3	(2.52)	--	--
101 – 185%	25.7	(2.89)	13.9	(2.59)	32.1 ***	(4.14)	--	--
> 185%	32.8	(2.30)	19.5	(4.96)	--	--	33.8 *	(2.52)

Source: NHANES 2007–2010 dietary recalls and demographics data. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[1] Intake of dietary supplements is based on the same 24-hour period as the dietary recall.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

-- Not applicable.

Table C-2. Mean Daily Intakes of Nutrients from Foods and Dietary Supplements

	All children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Dietary supplement users: intake from food								
Sample size	*442*	-	*119*	-	*119*	-	*186*	-
Vitamin C (mg)	79	(5.03)	88	(8.01)	77	(8.58)	73	(5.87)
Vitamin D (mcg)	7.6	(0.32)	7.8	(0.46)	6.5	(0.50)	8.1	(0.44)
Vitamin B_6 (mg)	1.28	(0.03)	1.40	(0.06)	1.28	(0.07)	1.23 *	(0.04)
Vitamin B_{12} (mcg)	4.33	(0.17)	4.52	(0.28)	4.36	(0.30)	4.31	(0.23)
Folate (mcg DFE)	366	(8.40)	390	(24.75)	400	(29.86)	351	(9.78)
Calcium (mg)	1,066	(47.15)	1,074	(61.49)	995	(62.84)	1,089	(49.34)
Iron (mg)	9.9	(0.17)	10.7	(0.41)	10.5	(0.50)	9.4 *	(0.28)
Potassium (mg)	1,996	(43.38)	2,038	(69.42)	1,955	(67.39)	1,987	(56.39)
Magnesium (mg)	198	(4.90)	201	(6.06)	198	(7.53)	195	(5.91)
Niacin (mg)	13.7	(0.35)	14.8	(0.64)	14.2	(0.60)	13.0 *	(0.47)
Thiamin (mg)	1.15	(0.03)	1.22	(0.04)	1.17	(0.05)	1.12	(0.04)
Riboflavin (mg)	1.89	(0.06)	1.99	(0.08)	1.85	(0.07)	1.89	(0.08)
Phosphorus (mg)	1,093	(35.40)	1,110	(46.58)	1,080	(49.54)	1,091	(38.75)
Zinc (mg)	7.8	(0.16)	8.3	(0.43)	7.8	(0.33)	7.7	(0.22)
Copper (mg)	0.81	(0.02)	0.80	(0.03)	0.85	(0.05)	0.80	(0.02)
Selenium (mcg)	69	(2.28)	75	(3.17)	71	(3.54)	66 *	(2.74)
Choline (mg)	223	(6.63)	247	(13.10)	228	(15.45)	215 *	(8.54)
Dietary supplement users: intake from supplements[1]								
Sample size	*442*	-	*119*	-	*119*	-	*186*	-
Vitamin C (mg)	60	(7.64)	58	(11.06)	65	(14.85)	62	(13.31)
Vitamin D (mcg)	7.7	(0.64)	8.2	(0.84)	6.9	(0.68)	7.9	(1.12)
Vitamin B_6 (mg)	1.17	(0.08)	1.22	(0.13)	1.07	(0.11)	1.22	(0.16)
Vitamin B_{12} (mcg)	4.38	(0.44)	4.12	(0.35)	3.78	(0.29)	4.77	(0.76)
Folate (mcg DFE)	366	(17.67)	412	(40.88)	389	(37.38)	352	(27.54)
Calcium (mg)	54	(6.15)	64	(12.70)	53	(9.93)	48	(9.25)
Iron (mg)	6.1	(0.64)	8.5	(1.39)	6.9	(1.24)	5.1 *	(0.79)
Potassium (mg)	2 u	(1.41)	0	(0.00)	0 u	(0.02)	4 u	(2.54)
Magnesium (mg)	8	(0.82)	8	(1.46)	9	(1.58)	8	(1.24)
Niacin (mg)	7.3	(0.47)	8.5	(1.29)	8.1	(1.01)	6.7	(0.67)
Thiamin (mg)	0.66	(0.04)	0.76	(0.12)	0.74	(0.10)	0.61	(0.06)
Riboflavin (mg)	0.75	(0.05)	0.86	(0.14)	0.85	(0.11)	0.69	(0.07)
Phosphorus (mg)	31	(3.34)	37	(7.37)	34	(8.16)	29	(4.46)
Zinc (mg)	4.5	(0.34)	5.4	(0.85)	4.8	(0.81)	4.2	(0.51)
Copper (mg)	0.62	(0.06)	0.77	(0.15)	0.70	(0.14)	0.54	(0.08)
Selenium (mcg)	1 u	(0.33)	0 u	(0.04)	0 u	(0.27)	1 u	(0.52)
Choline (mg)	13	(1.36)	14	(2.78)	14	(2.68)	12	(1.90)

See notes at end of table.

Table C-2. Mean Daily Intakes of Nutrients from Foods and Dietary Supplements–Continued

	All children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Dietary supplement nonusers: intake from food								
Sample size	*1,474*	-	*723*	-	*344*	-	*365*	-
Vitamin C (mg)	92	(2.71)	107	(5.41)	88 *	(6.92)	81 ***	(4.29)
Vitamin D (mcg)	7.2	(0.17)	7.6	(0.24)	6.7 *	(0.34)	7.3	(0.28)
Vitamin B_6 (mg)	1.34	(0.02)	1.44	(0.04)	1.30 *	(0.04)	1.29 *	(0.04)
Vitamin B_{12} (mcg)	4.40	(0.12)	4.86	(0.16)	4.07 ***	(0.15)	4.25 *	(0.18)
Folate (mcg DFE)	383	(10.43)	404	(14.35)	392	(15.64)	367	(17.32)
Calcium (mg)	1,014	(24.16)	1,035	(27.62)	967	(33.60)	1,041	(43.98)
Iron (mg)	10.5	(0.21)	11.1	(0.42)	10.9	(0.41)	10.0 *	(0.39)
Potassium (mg)	2,002	(27.99)	2,111	(41.17)	1,902 ***	(47.27)	1,978	(56.19)
Magnesium (mg)	192	(2.92)	198	(4.21)	186 *	(4.09)	192	(6.17)
Niacin (mg)	14.2	(0.22)	14.8	(0.36)	14.8	(0.27)	13.4 **	(0.39)
Thiamin (mg)	1.17	(0.02)	1.20	(0.03)	1.23	(0.04)	1.13	(0.04)
Riboflavin (mg)	1.83	(0.04)	1.91	(0.05)	1.77	(0.06)	1.82	(0.06)
Phosphorus (mg)	1,058	(19.83)	1,080	(23.03)	1,039	(25.50)	1,060	(34.44)
Zinc (mg)	8.0	(0.14)	8.7	(0.23)	8.0 *	(0.24)	7.6 ***	(0.24)
Copper (mg)	0.79	(0.02)	0.78	(0.02)	0.80	(0.02)	0.78	(0.03)
Selenium (mcg)	67	(1.21)	67	(1.31)	71	(1.81)	64	(2.20)
Choline (mg)	214	(4.02)	226	(5.42)	218	(7.71)	202 **	(5.74)

Source: NHANES 2007–2010 dietary recalls and Vitamin D addendum to the FNDDS 3. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Means are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[1] Intake of dietary supplements is based on the same 24-hour period as the dietary recall.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table C-3. Percent Contribution of Dietary Supplements to Total Nutrient Intakes

	All children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error
All children (dietary supplement users and nonusers[1])								
Sample size	*1,916*	-	*842*	-	*463*	-	*551*	-
Vitamin C (mg)	10	(0.86)	5	(0.88)	11 **	(1.76)	13 ***	(1.66)
Vitamin D (mcg)	13.3	(0.94)	6.6	(1.01)	12.7 **	(1.84)	17.0 ***	(1.95)
Vitamin B_6 (mg)	11.51	(0.85)	5.84	(0.90)	10.88 **	(1.70)	14.91 ***	(1.84)
Vitamin B_{12} (mcg)	12.29	(0.86)	6.28	(0.97)	11.41 **	(1.61)	15.80 ***	(1.95)
Folate (mcg DFE)	12	(0.88)	6	(0.99)	12 **	(1.63)	15 ***	(1.96)
Calcium (mg)	2	(0.13)	1	(0.18)	1	(0.30)	2 *	(0.32)
Iron (mg)	6.6	(0.71)	4.0	(0.80)	7.2	(1.52)	7.4 *	(1.28)
Potassium (mg)	0 u	(0.02)	0	(0.00)	0 u	(0.00)	0 u	(0.03)
Magnesium (mg)	1	(0.13)	1	(0.13)	1 *	(0.29)	1 **	(0.23)
Niacin (mg)	7.4	(0.63)	3.9	(0.77)	8.2 *	(1.59)	8.9 ***	(1.11)
Thiamin (mg)	7.68	(0.64)	4.09	(0.81)	8.24 *	(1.50)	9.25 ***	(1.17)
Riboflavin (mg)	6.51	(0.55)	3.49	(0.70)	6.97 *	(1.27)	7.77 ***	(1.00)
Phosphorus (mg)	1	(0.10)	1	(0.12)	1	(0.21)	1 *	(0.21)
Zinc (mg)	7.9	(0.70)	4.3	(0.82)	7.8 *	(1.37)	9.8 **	(1.56)
Copper (mg)	6.51	(0.74)	3.70	(0.88)	7.26	(1.59)	7.54 *	(1.35)
Selenium (mcg)	0 u	(0.08)	0 u	(0.01)	0 u	(0.12)	0 u	(0.17)
Choline (mg)	2	(0.20)	1	(0.20)	2 *	(0.38)	2 **	(0.35)
Dietary supplement users								
Sample size	*442*	-	*119*	-	*119*	-	*186*	-
Vitamin C (mg)	38	(2.02)	35	(2.95)	42	(3.20)	39	(3.19)
Vitamin D (mcg)	47.5	(1.63)	46.2	(3.02)	47.9	(3.06)	47.3	(2.96)
Vitamin B_6 (mg)	41.57	(1.95)	40.12	(2.89)	40.20	(2.69)	42.78	(3.18)
Vitamin B_{12} (mcg)	44.13	(1.66)	42.77	(2.72)	43.12	(2.55)	44.69	(2.97)
Folate (mcg DFE)	42	(2.00)	42	(3.03)	44	(2.94)	42	(3.42)
Calcium (mg)	5	(0.40)	6	(1.16)	5	(1.00)	4	(0.68)
Iron (mg)	22.7	(2.19)	27.3	(4.48)	25.3	(4.36)	19.9	(3.08)
Potassium (mg)	0 u	(0.06)	0	(0.00)	0 u	(0.00)	0 u	(0.11)
Magnesium (mg)	4	(0.39)	4	(0.65)	4	(0.76)	4	(0.59)
Niacin (mg)	26.4	(1.75)	27.6	(3.65)	29.7	(3.50)	24.8	(2.27)
Thiamin (mg)	26.99	(1.68)	28.42	(3.77)	30.17	(3.64)	25.05	(2.15)
Riboflavin (mg)	22.47	(1.43)	23.98	(3.29)	25.48	(3.16)	20.57	(1.83)
Phosphorus (mg)	3	(0.28)	4	(0.62)	3	(0.72)	3	(0.50)
Zinc (mg)	27.8	(1.87)	29.0	(3.47)	28.3	(3.61)	27.4	(3.26)
Copper (mg)	22.23	(2.12)	24.88	(4.45)	25.96	(4.83)	19.97	(2.98)
Selenium (mcg)	1 u	(0.24)	0 u	(0.13)	1 u	(0.40)	1 u	(0.36)
Choline (mg)	5	(0.48)	5	(0.98)	6	(1.02)	5	(0.68)

See notes at end of table.

Table C-3. Percent Contribution of Dietary Supplements to Total Nutrient Intakes–Continued

	All children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error
Multivitamin[2] users								
Sample size	*340*	-	*90*	-	*87*	-	*158*	-
Vitamin C (mg)	39	(2.15)	39	(3.33)	41	(3.65)	40	(3.23)
Vitamin D (mcg)	50.1	(1.45)	51.8	(2.25)	53.0	(2.68)	49.0	(2.47)
Vitamin B_6 (mg)	47.31	(1.96)	49.55	(2.74)	46.99	(2.78)	47.09	(2.96)
Vitamin B_{12} (mcg)	49.94	(1.77)	50.78	(2.59)	52.02	(1.74)	49.27	(2.97)
Folate (mcg DFE)	49	(2.33)	52	(3.65)	51	(3.21)	47	(3.52)
Calcium (mg)	6	(0.49)	6	(0.97)	6	(1.05)	5	(1.07)
Iron (mg)	28.2	(2.83)	34.1	(5.73)	32.8	(5.25)	24.2	(3.60)
Potassium (mg)	0 u	(0.09)	0	0.00	0 u	(0.00)	0 u	(0.15)
Magnesium (mg)	5	(0.54)	5	(0.84)	6	(0.76)	5	(0.71)
Niacin (mg)	27.1	(2.07)	32.1	(4.40)	32.3	(4.49)	24.2	(2.31)
Thiamin (mg)	27.82	(2.10)	33.16	(4.57)	32.67	(4.74)	24.82	(2.27)
Riboflavin (mg)	23.19	(1.81)	27.70	(3.94)	28.04	(3.99)	20.34	(1.93)
Phosphorus (mg)	4	(0.31)	5	(0.81)	4	(0.82)	3	(0.51)
Zinc (mg)	35.7	(2.21)	39.0	(3.84)	38.3	(3.60)	33.9	(3.16)
Copper (mg)	28.42	(2.85)	33.55	(5.45)	35.04	(5.20)	24.65	(3.40)
Selenium (mcg)	1 u	(0.29)	0 u	(0.21)	1 u	(0.53)	1 u	(0.42)
Choline (mg)	7	(0.58)	7	(1.22)	8	(1.14)	6	(0.75)

Source: NHANES 2007–2010 dietary recalls and Vitamin D addendum to the FNDDS 3.. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[1] Intake of dietary supplements is based on the same 24-hour period as the dietary recall.
[2] A multivitamin is identified as a dietary supplement that contains three or more vitamins and at least one mineral.
u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table C-4. Percent Contribution of Dietary Supplements to Recommended Intakes

	Dietary Reference Intakes (EAR/AI)		All children, 1–4 years old							
			All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Ages 1–3 years	Age 4 years	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error
All children (dietary supplement users and nonusers[1])										
Sample size			*1,916*	-	*842*	-	*463*	-	*551*	-
Vitamin C (mg)	13	22	102.5	(10.67)	54.3	(12.43)	103.7	(22.71)	137.8 **	(27.66)
Vitamin D (mcg)	10	10	21.2	(1.87)	11.7	(2.00)	17.8	(2.65)	28.3 **	(4.71)
Vitamin B_6 (mg)	0.4	0.5	75.0	(4.67)	42.2	(7.53)	66.5	(10.37)	97.7 ***	(12.07)
Vitamin B_{12} (mcg)	0.7	1	153.8	(14.28)	78.4	(12.68)	126.0 *	(17.55)	212.0 ***	(34.22)
Folate (mcg DFE)	120	160	78.6	(4.87)	47.3	(8.27)	78.2 *	(11.64)	96.3 ***	(11.50)
Calcium (mg)	500	800	2.6	(0.28)	1.5	(0.31)	2.4	(0.46)	3.1 *	(0.66)
Iron (mg)	3.0	4.1	52.3	(5.21)	38.5	(7.45)	57.8	(11.11)	56.4	(9.77)
Potassium (mg)	3,000	3,800	0.0 u	(0.01)	0.0	0.00	0.0 u	0.00	0.0 u	(0.02)
Magnesium (mg)	65	110	2.9	(0.30)	1.5	(0.36)	3.1 *	(0.68)	3.6 **	(0.58)
Niacin (mg)	5	6	38.8	(2.59)	23.3	(4.95)	40.7 *	(7.10)	46.4 **	(5.72)
Thiamin (mg)	0.4	0.5	43.6	(3.15)	26.0	(5.63)	46.0 *	(8.34)	52.3 **	(6.37)
Riboflavin (mg)	0.4	0.5	49.5	(3.52)	29.4	(6.37)	52.3 *	(9.42)	59.4 **	(7.20)
Phosphorus (mg)	380	405	2.3	(0.27)	1.5	(0.38)	2.4	(0.65)	2.8 *	(0.50)
Zinc (mg)	2.5	4.0	43.6	(3.36)	27.7	(5.95)	44.0	(8.48)	52.3 *	(7.87)
Copper (mg)	0.26	0.34	62.6	(6.51)	40.3	(10.06)	67.4	(15.35)	72.0 *	(12.18)
Selenium (mcg)	17	23	1.1 u	(0.56)	0.0 u	(0.02)	0.6 u	(0.43)	2.0 u	(1.15)
Choline (mg)	200	250	1.7	(0.22)	1.0	(0.24)	1.8	(0.39)	2.0 *	(0.42)
Dietary supplement users										
Sample size			*442*	-	*119*	-	*119*	-	*186*	-
Vitamin C (mg)	13	22	412.7	(58.48)	375.5	(62.27)	453.9	(112.06)	434.8	(102.41)
Vitamin D (mcg)	10	10	77.0	(6.36)	82.3	(8.41)	68.8	(6.84)	79.3	(11.20)
Vitamin B_6 (mg)	0.4	0.5	274.9	(20.70)	286.1	(29.75)	249.5	(26.63)	287.2	(38.17)
Vitamin B_{12} (mcg)	0.7	1	558.0	(48.13)	535.5	(45.10)	488.9	(41.19)	603.1	(85.11)
Folate (mcg DFE)	120	160	278.9	(14.28)	315.0	(31.05)	297.3	(30.43)	268.8	(22.49)
Calcium (mg)	500	800	9.2	(1.07)	10.8	(2.35)	9.3	(1.86)	8.0	(1.57)
Iron (mg)	3.0	4.1	185.4	(19.39)	263.5	(42.59)	207.1	(38.79)	153.9 *	(24.87)
Potassium (mg)	3,000	3,800	0.1 u	(0.05)	0.0	0.00	0.0 u	(0.00)	0.1 u	(0.08)
Magnesium (mg)	65	110	10.5	(1.19)	10.4	(1.93)	11.3	(2.18)	10.7	(1.85)
Niacin (mg)	5	6	136.6	(8.97)	160.7	(24.29)	153.2	(19.81)	125.4	(12.87)
Thiamin (mg)	0.4	0.5	153.2	(10.50)	177.5	(27.91)	173.6	(23.61)	140.7	(13.88)
Riboflavin (mg)	0.4	0.5	173.9	(11.86)	201.4	(31.67)	197.4	(26.66)	159.7	(15.76)
Phosphorus (mg)	380	405	7.9	(0.86)	9.6	(1.89)	8.8	(2.11)	7.4	(1.17)
Zinc (mg)	2.5	4.0	157.1	(12.38)	187.4	(29.08)	166.1	(29.64)	147.3	(18.76)
Copper (mg)	0.26	0.34	215.5	(22.26)	268.8	(52.13)	246.1	(52.37)	190.9	(28.71)
Selenium (mcg)	17	23	3.2 u	(1.50)	0.2 u	(0.22)	2.1 u	(1.48)	4.7 u	(2.30)
Choline (mg)	200	250	6.0	(0.62)	6.7	(1.28)	6.5	(1.28)	5.5	(0.87)

See notes at end of table.

Table C-4. Percent Contribution of Dietary Supplements to Recommended Intakes–Continued

	Dietary Reference Intakes (EAR/AI)		All children, 1–4 years old							
			All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Ages 1–3 years	Age 4 years	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error	Percent contribution	Standard error
Multivitamin[2] users										
Sample size			*340*	-	*90*	-	*87*	-	*158*	-
Vitamin C (mg)	13	22	421.7	(74.88)	396.3	(68.95)	287.6	(32.33)	483.1	(126.52)
Vitamin D (mcg)	10	10	81.5	(6.69)	95.7	(9.18)	70.2 *	(5.60)	82.3	(11.16)
Vitamin B_6 (mg)	0.4	0.5	327.1	(27.52)	358.6	(31.53)	298.3	(30.95)	334.5	(47.53)
Vitamin B_{12} (mcg)	0.7	1	653.3	(69.08)	658.4	(48.45)	569.1	(43.23)	696.9	(121.73)
Folate (mcg DFE)	120	160	325.0	(17.22)	393.8	(34.89)	351.6	(32.53)	305.2 *	(24.22)
Calcium (mg)	500	800	9.9	(1.16)	9.9	(1.73)	9.9	(1.61)	9.2	(2.21)
Iron (mg)	3.0	4.1	224.2	(24.62)	309.7	(53.12)	264.0	(49.21)	184.8 *	(28.54)
Potassium (mg)	3,000	3,800	0.1 u	(0.07)	0.0	0.00	0.0 u	(0.00)	0.2 u	(0.11)
Magnesium (mg)	65	110	13.5	(1.65)	13.9	(2.34)	15.5	(2.31)	13.1	(2.39)
Niacin (mg)	5	6	146.2	(12.43)	189.4	(28.39)	167.1	(23.92)	130.2	(15.84)
Thiamin (mg)	0.4	0.5	166.2	(14.52)	213.5	(33.04)	192.7	(29.64)	148.0	(17.03)
Riboflavin (mg)	0.4	0.5	189.1	(16.55)	242.6	(37.52)	219.2	(33.43)	168.3	(19.47)
Phosphorus (mg)	380	405	9.9	(1.01)	12.9	(2.26)	11.1	(2.32)	9.0	(1.29)
Zinc (mg)	2.5	4.0	201.3	(16.16)	250.2	(33.84)	228.0	(34.96)	181.7	(20.32)
Copper (mg)	0.26	0.34	275.3	(30.35)	360.3	(62.45)	335.6	(63.43)	235.5	(34.05)
Selenium (mcg)	17	23	4.0 u	(1.86)	0.4 u	(0.38)	2.9 u	(2.01)	5.7 u	(2.83)
Choline (mg)	200	250	7.7	(0.78)	9.1	(1.53)	8.9	(1.55)	6.9	(1.02)

Source: NHANES 2007–2010 dietary recalls and Vitamin D addendum to the FNDDS 3. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Dietary Reference Intakes provided recommended intake levels of nutrients as EARs or AIs. AIs are shown in bold. Percents are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview. AI = Adequate Intake; DFE = Dietary Folate Equivalents; EAR = Estimated Average Requirement.

[1] Intake of dietary supplements is based on the same 24-hour period as the dietary recall. Each child's intake from dietary supplements was compared to appropriate Dietary Reference Intakes based on his or her age at the time of the recall.

[2] A multivitamin is identified as a dietary supplement that contains three or more vitamins and at least one mineral.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table C-5. Mean Daily Calorie Intakes

	All **young** children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error	Sample size	Mean	Standard error
	Mean Usual Intake											
All children, 1–4 years old	1,956	1,422	(17.2)	791	1,482	(24.3)	496	1,465	(28.0)	606	1,373 **	(27.4)
1 year olds	566	1,252	(28.3)	305	1,290	(26.6)	96	1,347	(70.7)	153	1,186	(46.3)
2 year olds	587	1,447	(31.7)	223	1,528	(51.9)	162	1,466	(47.6)	183	1,399	(44.8)
3 year olds	389	1,474	(44.8)	132	1,547	(57.4)	104	1,517	(47.1)	134	1,425	(73.9)
4 year olds	414	1,510	(29.5)	131	1,556	(51.1)	134	1,529	(56.6)	136	1,477	(47.8)

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
	Distribution of Usual Intake								
All children, 1–4 years old	958	1,048	1,109	1,205	1,401	1,614	1,739	1,826	1,960
1 year olds	843	922	977	1,061	1,234	1,423	1,530	1,608	1,727
2 year olds	930	1,030	1,099	1,207	1,426	1,660	1,800	1,899	2,046
3 year olds	1,016	1,106	1,167	1,262	1,455	1,665	1,786	1,868	1,995
4 year olds	1,040	1,131	1,191	1,286	1,484	1,704	1,835	1,924	2,066
WIC participants	979	1,076	1,140	1,243	1,458	1,686	1,826	1,924	2,070
1 year olds	866	948	1,003	1,089	1,269	1,464	1,580	1,661	1,788
2 year olds	976	1,086	1,156	1,267	1,501	1,756	1,905	2,012	2,174
3 year olds	1,038	1,140	1,209	1,318	1,538	1,752	1,884	1,975	2,100
4 year olds	1,034	1,125	1,190	1,294	1,518	1,767	1,926	2,040	2,212
Income-eligible nonparticipants	948	1,047	1,118	1,229	1,451	1,678	1,814	1,909	2,046
1 year olds	762	867	950	1,079	1,333	1,586	1,740	1,856	2,011
2 year olds	961	1,061	1,129	1,238	1,452	1,673	1,803	1,890	2,024
3 year olds	1,063	1,155	1,219	1,316	1,509	1,703	1,817	1,896	2,010
4 year olds	1,002	1,098	1,168	1,278	1,505	1,749	1,895	1,992	2,140
Higher-income nonparticipants	967	1,042	1,096	1,180	1,357 *	1,540 *	1,651 *	1,728	1,841
1 year olds	858	918	961	1,032	1,173	1,320	1,408	1,475	1,564
2 year olds	919	1,011	1,074	1,171	1,381	1,598	1,726	1,813	1,949
3 year olds	1,033	1,104	1,153	1,236	1,406	1,587	1,698	1,775	1,887
4 year olds	1,056	1,132	1,191	1,278	1,463	1,648	1,764	1,841	1,957

Source: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old. Data reflect nutrient intake from foods and beverages, and do not include the contribution of vitamin and mineral supplements. Usual intake was estimated using the National Cancer Institute (NCI) method.

Notes: Estimates are based on a single dietary recall per person. 'All children' includes children with missing WIC participation or income. Totals are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means, proportions, and percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children in households receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table C-6. Body Mass Index

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Percent	Standard error	*Sample size*	Percent	Standard error	*Sample size*	Percent	Standard error	*Sample size*	Percent	Standard error
All children, 2–4 years old	***1,307***	-	-	***454***	-	-	***383***	-	-	***424***	-	-
Underweight		2.6	(0.52)		2.5 u	(1.18)		3.4	(1.00)		2.5	(0.65)
Healthy weight		76.5	(1.72)		74.0	(2.72)		73.8	(2.68)		80.1	(2.29)
Overweight		12.0	(1.39)		12.4	(1.73)		13.5	(2.43)		9.5	(1.87)
Obese		8.8	(0.93)		11.1	(1.97)		9.4	(1.34)		8.0	(1.34)
Children, 2 year olds	***516***	-	-	***195***	-	-	***147***	-	-	***158***	-	-
Underweight		2.6	(0.49)		0.9 u	(0.54)		4.0 u	(2.06)		2.8 **	(0.44)
Healthy weight		75.3	(2.34)		77.8	(3.24)		70.9	(5.37)		76.3	(4.02)
Overweight		15.0	(2.10)		13.2	(2.37)		15.2	(4.19)		15.5	(4.15)
Obese		7.1	(1.38)		8.0	(2.17)		9.9 u	(3.50)		5.4 u	(1.65)
Children, 3 year olds	***381***	-	-	***129***	-	-	***104***	-	-	***131***	-	-
Underweight		2.5 u	(0.86)		4.9 u	(2.88)		3.1 u	(1.77)		1.2 u	(0.55)
Healthy weight		77.8	(3.34)		74.2	(5.83)		73.0	(4.44)		82.7	(4.24)
Overweight		11.4	(2.66)		12.6	(3.16)		15.8 u	(5.03)		6.9 u	(2.87)
Obese		8.3	(1.64)		8.2 u	(3.25)		8.1 u	(2.54)		9.2 u	(2.97)
Children, 4 year olds	***410***	-	-	***130***	-	-	***132***	-	-	***135***	-	-
Underweight		2.8 u	(1.05)		1.7 u	(1.18)		3.0 u	(1.68)		3.4 u	(1.66)
Healthy weight		76.4	(3.44)		69.8	(5.86)		77.4	(4.53)		81.2	(5.08)
Overweight		9.7	(2.02)		11.4 u	(3.62)		9.5 u	(3.87)		6.1 u	(2.80)
Obese		11.1	(2.11)		17.1	(4.84)		10.1	(2.41)		9.3 u	(3.27)

Source: NHANES 2005–2008 body measures data. Sample includes NHANES respondents with complete dietary recall data and height and weight data, 2–4 years old.

Notes: 'All children' includes children with missing WIC participation or income. For children, weight categories are defined as: underweight if BMI-for-age is < the 5th percentile on the CDC BMI-for-age growth chart; healthy weight if BMI-for-age is >= 5th and < the 85th percentiles; overweight if BMI-for-age is >= than the 85th and < the 95th percentiles; and obese if BMI-for-age is >= the 95th percentile. Percents for all children 2–4 years old are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in percentages are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.
- Not applicable.

Table C-7. Consumption of Empty Calories

	All young children			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Mean percent of calories	Standard error	*Sample size*	Mean percent of calories	Standard error	*Sample size*	Mean percent of calories	Standard error	*Sample size*	Mean percent of calories	Standard error
Children, 2–4 years old	*1,390*	32.8	(0.34)	*486*	32.4	(0.49)	*400*	34.5 *	(0.65)	*453*	32.4	(0.56)
2 year olds	*587*	32.3	(0.39)	*223*	32.0	(0.64)	*162*	33.3	(0.86)	*183*	31.8	(0.68)
3 year olds	*389*	32.1	(0.83)	*132*	31.3	(0.93)	*104*	36.2 ***	(0.82)	*134*	31.2	(1.47)
4 year olds	*414*	33.9	(0.76)	*131*	33.9	(1.00)	*134*	33.9	(1.17)	*136*	34.2	(1.28)

Source: NHANES 2005–2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. 'All children' includes children with missing WIC participation or income. Total percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in means are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[1] Calories from solid fats and added sugars (SoFAS) are identified from the data sources listed above.

Table C-8. Percent of Young Children Consuming WIC Foods

	All young children		WIC children		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
	Percent of young children consuming at least once per day							
Sample size	*1,956*	--	*791*	--	*496*	--	*606*	--
WIC foods								
Any WIC food	94.9	(0.94)	95.5	(0.88)	93.4	(2.05)	95.5	(1.32)
Milk	83.2	(1.39)	87.2	(1.55)	77.6 *	(3.50)	83.0	(1.94)
Cheese	35.3	(1.75)	33.3	(3.05)	33.2	(3.81)	39.2	(3.72)
Eggs	20.0	(1.48)	25.8	(2.69)	24.5	(3.15)	14.6 ***	(1.75)
Juice	23.5	(1.38)	30.6	(2.10)	19.0 ***	(2.36)	20.1 ***	(1.67)
Peanut butter	12.4	(1.08)	10.4	(1.87)	12.2	(2.04)	14.1	(1.90)
Beans	9.7	(1.03)	15.8	(1.96)	8.2 **	(1.78)	6.7 ***	(1.34)
Cereal	21.3	(1.48)	27.7	(3.42)	15.7 *	(3.40)	20.8	(2.04)

Sources: NHANES 2005-2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. 'All children' includes children with missing WIC participation or income. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Table C-9. Food Choices

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
Sample size	*1,956*	-	*791*	-	*496*	-	*606*	-
Grains	90.4	(1.1)	87.4	(1.6)	88.3	(2.6)	93.2 **	(1.4)
Types of grains, among those eating any								
Whole grains[1]	40.2	(2.1)	33.2	(2.6)	35.4	(3.2)	46.6 ***	(3.1)
Refined grains	88.1	(1.2)	90.0	(2.0)	91.0	(1.8)	85.4	(1.5)
Bread	23.8	(1.5)	25.5	(1.9)	30.5	(3.4)	19.7 *	(2.2)
Rolls	3.9	(0.7)	3.8	(1.1)	3.3	(1.0)	4.0	(1.2)
English muffin	0.4 u	(0.3)	0.1 u	(0.1)	0.0	(0.0)	0.8 u	(0.6)
Bagels	2.5	(0.7)	0.7 u	(0.3)	2.3 u	(1.2)	3.6 * u	(1.2)
Biscuits, scones, croissants	4.1	(0.8)	5.3 u	(2.2)	7.4	(2.1)	2.8 u	(0.9)
Muffins	2.1	(0.5)	1.7 u	(0.9)	1.9 u	(1.3)	2.4 u	(0.8)
Cornbread	0.8	(0.2)	1.0 u	(0.5)	0.8 u	(0.4)	0.7 u	(0.3)
Corn tortillas	4.3	(0.7)	10.2	(1.7)	5.2 *	(1.2)	0.6 ***	(0.3)
Flour tortillas	1.4	(0.4)	1.9 u	(0.9)	0.9 u	(0.5)	1.4 u	(0.9)
Taco shells	0.5 u	(0.2)	0.2 u	(0.1)	0.4 u	(0.3)	0.7 u	(0.3)
Crackers	31.2	(1.8)	26.5	(2.5)	26.7	(2.9)	35.3 *	(3.0)
Breakfast/granola bar	5.1	(0.7)	1.6 u	(0.6)	1.8 u	(0.7)	8.5 ***	(1.2)
Pancakes, waffles, French toast	17.5	(1.3)	10.2	(1.6)	15.7 *	(2.0)	23.0 ***	(2.4)
Cold cereal	55.2	(1.9)	63.9	(2.7)	53.7 *	(4.0)	52.2 **	(2.5)
Hot cereal	11.5	(0.8)	11.7	(1.7)	11.4	(2.0)	11.2	(1.5)
Rice	12.3	(1.7)	13.3	(2.1)	11.1	(2.4)	12.1	(2.5)
Pasta	3.8	(0.8)	2.0	(0.5)	1.8	(0.5)	4.8 *	(1.2)
Vegetables	64.4	(1.82)	58.9	(2.51)	62.5	(3.31)	68.2 *	(3.32)
Types of vegetables, among those eating any								
Raw vegetables	21.2	(1.97)	14.4	(2.43)	15.7	(2.30)	24.7 **	(3.03)
Raw lettuce/greens	1.5 u	(0.74)	1.2 u	(0.50)	1.7 u	(1.05)	1.1 u	(1.00)
Raw carrots	7.1	(1.45)	2.0 u	(0.65)	5.5 *	(1.63)	9.4 **	(2.31)
Raw tomatoes	2.4	(0.52)	1.4 u	(0.51)	2.3 u	(0.95)	2.7 u	(0.94)
Raw cabbage/coleslaw	0.6 u	(0.26)	0.6 u	(0.34)	0.5 u	(0.39)	0.7 u	(0.45)
Other raw (higher in vitamins A or C)[2]	1.3 u	(0.48)	0.4 u	(0.28)	0.1 u	(0.08)	2.1 u	(0.93)
Other raw (lower in vitamins A or C)[2]	3.7	(0.75)	2.2	(0.63)	4.5	(1.19)	4.4	(1.27)
Salads (w/greens)	8.0	(1.17)	8.9	(2.08)	4.8	(0.82)	8.2	(1.57)
Cooked vegetables, excl. potatoes	63.3	(2.50)	63.3	(3.09)	61.4	(4.65)	64.7	(3.51)
Cooked green beans	14.8	(1.38)	17.6	(1.74)	15.1	(3.91)	13.3	(2.14)
Cooked corn	11.8	(1.23)	12.1	(2.47)	15.5	(3.41)	10.3	(1.60)
Cooked peas	4.3	(0.81)	3.1 u	(1.01)	4.4 u	(1.76)	4.5	(1.01)
Cooked carrots	8.9	(1.89)	4.8 u	(1.60)	7.6 u	(2.85)	10.3	(2.79)
Cooked broccoli	7.5	(1.75)	3.4 u	(1.15)	3.7 u	(1.45)	11.2 * u	(3.42)
Cooked tomatoes	22.9	(1.31)	24.6	(2.98)	23.0	(3.02)	23.1	(1.96)
Cooked mixed	4.3	(0.74)	3.8 u	(1.46)	4.2 u	(1.93)	4.5	(1.27)
Cooked starchy	1.1 u	(0.67)	1.0 u	(0.50)	0.3 u	(0.29)	1.7 u	(1.32)
Other cooked deep yellow	1.5 u	(0.46)	2.3 u	(1.13)	0.9 u	(0.58)	1.2 u	(0.88)
Other cooked dark green	2.2 u	(0.74)	3.1 u	(1.13)	3.2 u	(1.71)	1.5 u	(1.11)
Other cooked (higher in vitamins A or C)[2]	4.3	(1.09)	4.0 u	(1.45)	2.7 u	(1.11)	4.5 u	(1.71)
Other cooked (lower in vitamins A or C)[2]	4.4 u	(1.47)	1.6 u	(0.79)	0.4 u	(0.27)	7.2 * u	(2.40)
Other fried	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Cooked potatoes	53.5	(2.61)	63.4	(4.79)	57.1	(3.59)	47.7 **	(3.05)
Cooked potatoes-not fried	20.3	(2.41)	28.6	(4.40)	27.5	(4.01)	13.7 **	(2.21)
Cooked potatoes-fried	35.7	(2.12)	36.7	(3.85)	36.4	(3.90)	35.6	(2.95)
Vegetable juice	0.7 u	(0.27)	0.6 u	(0.44)	0.5 u	(0.41)	0.9 u	(0.40)

See notes at end of table.

Table C-9. Food Choices–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
Fruit and 100% fruit juice	81.3	(1.5)	82.9	(2.0)	75.8	(3.4)	83.0	(2.1)
Types of fruit, among those eating any								
Any whole fruit	77.1	(1.7)	70.5	(2.3)	80.4 **	(2.6)	79.5 *	(2.7)
Fresh fruit	64.0	(2.1)	64.2	(2.6)	60.9	(3.2)	64.4	(3.7)
Fresh orange	9.6	(1.0)	12.3	(2.3)	8.4	(1.9)	9.2	(1.8)
Fresh other citrus	0.2 u	(0.10)	0.3 u	(0.24)	0.1 u	(0.05)	0.1 u	(0.14)
Fresh apple	23.1	(2.0)	22.0	(3.2)	26.1	(3.1)	21.0	(3.1)
Fresh banana	26.1	(1.6)	29.6	(2.8)	20.0 *	(3.3)	26.5	(2.7)
Fresh melon	3.0 u	(1.0)	1.3 u	(0.7)	2.2 u	(0.9)	4.4 u	(1.9)
Fresh watermelon	4.9	(1.2)	2.7 u	(0.9)	3.1 u	(1.1)	7.4 *	(2.0)
Fresh grapes	13.5	(1.4)	11.4	(1.8)	9.9	(1.8)	15.8	(2.4)
Fresh peach/nectarine	3.1	(0.7)	2.1 u	(0.8)	5.6 **	(1.1)	2.4 u	(1.1)
Fresh pear	4.1 u	(1.3)	1.9 u	(0.9)	3.2 u	(1.8)	5.8 u	(2.3)
Fresh berries	7.3	(1.3)	6.1	(1.2)	4.0	(1.2)	9.6	(2.5)
Fresh pineapple	0.9 u	(0.3)	0.2 u	(0.2)	2.4 u	(1.2)	0.5 u	(0.4)
Other fresh fruit	4.1	(0.7)	4.1	(0.8)	3.6 u	(1.2)	3.8	(1.1)
Avocado/guacamole	0.2 u	(0.1)	0.3 u	(0.3)	0.5 u	(0.4)	0.1 u	(0.1)
Lemon/lime - any form	0.1 u	(0.06)	0.0 u	(0.04)	0.2 u	(0.23)	0.1 u	(0.07)
Canned or frozen fruit, total	21.9	(1.8)	12.1	(1.6)	26.5 ***	(3.3)	25.1 ***	(2.7)
Canned or frozen in syrup	2.5	(0.7)	1.2 u	(0.4)	4.5 * u	(1.5)	2.8 u	(1.3)
Canned or frozen, no syrup	19.5	(1.4)	11.1	(1.6)	22.6 **	(3.6)	22.4 ***	(2.3)
Applesauce, canned/ frozen apples	8.0	(1.0)	5.8	(1.3)	9.5	(2.5)	8.7	(1.6)
Canned/frozen peaches	5.8	(1.5)	2.6 u	(0.8)	8.3 **	(2.1)	6.4 u	(2.2)
Canned/frozen pineapple	1.3	(0.4)	0.3 u	(0.1)	2.5 u	(1.4)	1.2 u	(0.5)
Other canned/frozen	10.6	(1.5)	4.5	(1.0)	13.9 *	(3.7)	13.5 ***	(2.4)
100% Fruit juice	68.3	(2.1)	80.1	(2.3)	61.7 ***	(3.9)	63.7 ***	(2.8)
Non-citrus juice	54.0	(2.0)	64.2	(2.1)	48.1 ***	(3.6)	49.9 ***	(3.5)
Citrus juice	19.2	(1.5)	21.1	(1.8)	18.4	(3.0)	17.8	(2.2)
Dried fruit	4.4	(0.7)	0.7 u	(0.2)	4.0 **	(1.2)	6.3 ***	(1.1)
Milk and milk products	90.0	(1.1)	90.9	(1.4)	86.2	(3.4)	91.6	(1.6)
Types of milk, among those eating any								
Cow's milk, total	92.2	(1.0)	95.9	(1.0)	89.4 **	(2.0)	90.5 **	(1.8)
Unflavored white milk, total	89.4	(1.0)	94.5	(0.9)	86.5 **	(2.4)	87.0 ***	(1.9)
Unflavored whole milk	44.9	(2.1)	56.1	(3.6)	41.2 **	(4.3)	40.7 ***	(2.9)
Unflavored non-whole, total	46.5	(1.7)	39.2	(3.2)	45.8	(3.5)	49.9 **	(2.4)
2% milk, unflavored	35.5	(2.0)	33.5	(2.8)	37.9	(3.5)	36.6	(3.0)
1% milk, unflavored	7.0	(1.0)	5.3	(1.5)	5.7	(1.5)	7.2	(1.4)
Skim milk, unflavored	5.2	(1.2)	1.2 u	(0.5)	2.4 u	(0.8)	8.3 **	(2.2)
Unflavored, fat not specified	2.3	(0.6)	2.5 u	(1.2)	3.4 u	(1.4)	1.7 u	(0.7)
Flavored milk, total	8.0	(1.1)	4.6	(1.0)	8.7	(2.4)	9.5 *	(2.3)
Flavored, whole milk	1.8	(0.4)	1.0 u	(0.5)	3.1 u	(1.3)	1.7 u	(0.7)
Flavored non-whole, total	4.9	(0.9)	3.5	(0.8)	3.2 u	(1.3)	6.4	(1.9)
2% milk, flavored	3.4	(0.9)	1.8 u	(0.9)	2.2 u	(1.1)	4.9 u	(1.7)
1% milk, flavored	1.5 u	(0.5)	1.4 u	(0.8)	0.8 u	(0.4)	2.1 u	(1.0)
Skim milk, flavored	0.2 u	(0.1)	0.2 u	(0.2)	0.3 u	(0.3)	0.0	(0.0)
Flavored, fat not specified	1.4	(0.6)	0.1 u	(0.1)	2.3 * u	(1.1)	1.7 u	(1.1)
Soymilk	2.8	(0.5)	0.8 u	(0.3)	1.9 u	(0.9)	4.6 ***	(1.0)
Dry or evaporated milk	0.3 u	(0.1)	0.0 u	(0.0)	0.7 u	(0.4)	0.2 u	(0.1)
Yogurt	16.6	(1.5)	12.2	(1.8)	9.2	(2.2)	20.2 **	(1.9)
Cheese	29.7	(1.4)	26.3	(2.9)	21.7	(2.7)	35.9 *	(2.8)

See notes at end of table.

Table C-9. Food Choices–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
Meat and meat alternates	66.4	(1.7)	70.5	(2.5)	64.1	(3.8)	65.9	(2.6)
Types of meat, among those eating any								
Beef	12.5	(1.5)	8.9	(1.5)	15.3	(3.8)	13.5	(2.1)
Ground beef	3.4	(0.7)	2.4 u	(0.8)	3.3 u	(1.1)	4.2 u	(1.4)
Pork	6.5	(0.9)	8.9	(1.7)	4.1 * u	(1.7)	6.1 u	(2.0)
Ham	2.5	(0.7)	3.5 u	(2.0)	2.6 u	(1.4)	1.9 u	(0.8)
Lamb and misc. meats	0.2 u	(0.1)	0.6 u	(0.4)	-0.0	(0.0)	0.0	(0.0)
Chicken	43.3	(2.6)	40.8	(2.4)	41.4	(4.5)	46.7	(3.9)
Turkey	1.7	(0.5)	2.6 u	(1.3)	2.9 u	(1.3)	0.7 u	(0.4)
Organ meats	0.0	(0.0)	0.0 u	(0.0)	-0.0	(0.0)	0.0	(0.0)
Hot dogs	8.5	(1.1)	7.9	(1.8)	4.2 u	(1.3)	10.8	(2.1)
Cold cuts	9.3	(1.4)	8.2	(2.0)	8.1 u	(2.7)	11.2	(2.7)
Fish	5.8	(1.1)	3.5	(1.1)	5.2	(1.2)	7.0 u	(2.2)
Shellfish	1.6	(0.4)	1.4 u	(0.5)	3.3 u	(1.5)	0.9 u	(0.4)
Bacon/sausage	14.1	(1.5)	14.3	(2.3)	15.5	(2.5)	13.9	(1.9)
Eggs	26.5	(2.2)	31.6	(3.2)	34.3	(4.0)	19.1 **	(3.0)
Beans	5.5	(0.8)	10.9	(1.7)	4.2 ** u	(1.4)	3.2 ***	(0.9)
Baked/refried beans	2.1	(0.5)	2.2 u	(0.7)	0.4 * u	(0.4)	2.8 u	(1.0)
Soy products	1.8 u	(0.6)	0.5 u	(0.5)	1.6 u	(1.5)	2.2 *	(0.6)
Protein/meal enhancement	1.1 u	(0.5)	0.8 u	(0.6)	0.3 u	(0.3)	1.7 u	(0.8)
Nuts	4.3	(0.7)	4.3 u	(1.4)	2.3 u	(1.0)	4.8	(1.3)
Peanut/almond butter	2.8	(0.6)	3.1 u	(1.6)	3.1 u	(1.1)	2.6 u	(1.0)
Seeds	0.9 u	(0.4)	0.7 u	(0.5)	0.1 u	(0.1)	1.2 u	(0.8)
Mixed dishes	84.8	(1.2)	89.6	(1.5)	85.1	(2.2)	82.3 **	(2.3)
Types of mixed dishes, among those eating any								
Tomato sauce and meat (no pasta)	0.2 u	(0.1)	0.1 u	(0.1)	0.5 u	(0.3)	0.1	(0.0)
Chili con carne	1.1 u	(0.5)	0.6 u	(0.3)	0.8 u	(0.5)	1.6 u	(0.9)
Meat mixtures w/ red meat	8.8	(1.1)	9.0	(1.7)	10.5	(2.5)	8.4	(2.2)
Meat mixtures w/ chicken/turkey	12.2	(1.2)	11.6	(2.0)	14.2	(2.6)	12.0	(2.1)
Meat mixtures w/ fish	1.1	(0.3)	1.3 u	(1.0)	1.7 u	(0.6)	0.8 u	(0.4)
Hamburgers/cheeseburgers	8.1	(1.2)	6.2	(1.6)	9.9	(1.9)	8.5	(2.4)
Other sandwiches	40.6	(1.5)	35.0	(2.7)	43.5	(3.6)	43.9 *	(3.1)
Hot dogs	8.3	(1.0)	6.2	(1.2)	9.9	(2.0)	9.6	(1.6)
Luncheon meat	9.9	(1.1)	9.9	(1.6)	13.9	(2.3)	8.1	(1.5)
Beef, pork, ham	3.2	(0.8)	2.9 u	(1.1)	1.3 u	(0.7)	4.1 u	(1.7)
Chicken, turkey	1.5	(0.4)	1.9 u	(0.6)	0.8 u	(0.5)	1.2 u	(0.5)
Cheese (no meat)	5.9	(1.0)	4.0	(1.0)	6.1	(1.8)	7.5	(1.7)
Fish	1.1 u	(0.5)	1.2 u	(0.5)	1.2 u	(0.7)	1.1 u	(0.6)
Peanut butter	12.8	(1.3)	9.1	(1.9)	12.6	(2.4)	15.3 *	(2.3)
Breakfast sandwiches	1.8 u	(0.6)	2.4 u	(1.5)	2.2 u	(1.6)	1.3 u	(0.5)
Pizza (no meat)	7.3	(1.3)	4.1	(0.9)	7.1	(2.1)	7.9	(2.0)
Pizza w/ meat	8.7	(1.1)	6.9	(1.1)	13.9 *	(2.6)	8.3	(1.6)
Mexican entrees	11.3	(1.5)	13.8	(2.2)	10.2	(2.5)	9.8	(1.8)
Macaroni and cheese	15.5	(1.5)	12.9	(2.5)	17.6	(3.1)	16.2	(2.2)
Pasta dishes	21.1	(1.4)	19.6	(2.5)	14.8	(2.7)	24.4	(3.1)
Rice dishes	8.4	(1.1)	12.2	(2.2)	5.4 * u	(1.7)	7.9	(2.0)
Other grain mixtures	2.4	(0.4)	3.7 u	(1.2)	2.5 u	(1.4)	1.8	(0.4)
Meat soup	8.8	(1.2)	11.2	(1.9)	12.4	(2.1)	4.4 **	(1.1)
Bean soup	0.6 u	(0.2)	0.4 u	(0.2)	1.1 u	(0.8)	0.8 u	(0.4)
Grain soups	5.8	(0.7)	9.2	(1.3)	8.8	(2.1)	2.0 ***	(0.7)
Vegetables mixtures (incl. soup)	7.6	(1.7)	4.3	(0.8)	5.9 u	(2.3)	11.0 *	(2.9)
Entrée salads	0.6 u	(0.2)	0.3 u	(0.2)	0.3 u	(0.2)	1.0 u	(0.4)

See notes at end of table.

Table C-9. Food Choices–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
Beverages excluding milk and 100% fruit juice	92.0	(0.9)	92.1	(0.7)	92.4	(1.9)	91.6	(1.6)
Types of beverages, among those drinking any								
Coffee	0.9	(0.2)	2.1	(0.6)	1.0 u	(0.4)	0.3 ** u	(0.2)
Tea	8.7	(1.2)	10.2	(1.7)	10.2	(2.7)	5.5 *	(1.2)
Beer	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Wine	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Liquor	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Water (plain)	79.3	(1.2)	72.2	(2.8)	78.3	(2.4)	83.9 ***	(2.1)
Noncarbonated, sweetened drinks	44.3	(1.8)	49.9	(2.5)	53.1	(2.9)	37.3 **	(2.9)
Noncarbonated, low-calorie/sugar-free drinks	6.8	(1.0)	7.7	(2.0)	7.1 u	(2.2)	6.0	(1.3)
Energy drinks	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Any soda	25.9	(1.7)	31.6	(2.8)	25.6	(2.3)	22.8 *	(2.7)
Soda, regular	22.8	(1.8)	29.0	(2.6)	22.7	(1.9)	19.3 *	(2.7)
Soda, sugar-free	3.5	(0.5)	3.5	(1.0)	2.9 u	(1.6)	4.0	(0.8)
Sweets and desserts	81.5	(1.3)	80.8	(2.0)	80.8	(3.2)	81.7	(2.0)
Types of sweets and desserts, among those eating any								
Sugar and sugar substitutes	6.8	(0.8)	10.2	(1.7)	8.2	(1.6)	4.2 **	(1.0)
Syrups/sweet toppings	18.4	(1.6)	12.6	(2.0)	20.0 **	(2.0)	21.5 **	(2.6)
Jelly	3.5	(0.7)	3.2	(0.7)	4.3 u	(1.6)	3.3	(0.9)
Jello	3.4	(0.8)	1.5	(0.5)	5.3 u	(2.1)	4.3 * u	(1.3)
Candy	41.2	(1.7)	38.0	(3.1)	39.6	(3.6)	44.3	(3.1)
Ice cream	22.1	(1.6)	19.7	(2.3)	23.7	(2.3)	21.2	(2.8)
Pudding	3.4	(0.5)	2.5 u	(0.9)	3.2 u	(1.4)	3.9	(0.9)
Ice/popsicles	11.0	(1.3)	13.0	(2.3)	9.2	(1.4)	11.6	(2.5)
Sweet rolls	3.2	(0.5)	4.5	(1.2)	3.9	(1.1)	2.1 u	(0.7)
Cake/cupcakes	9.5	(0.9)	10.5	(2.0)	9.3	(1.4)	8.3	(1.4)
Cookies	46.1	(2.1)	46.7	(1.8)	47.4	(3.6)	46.5	(3.5)
Pies/cobblers	1.0	(0.3)	0.6 u	(0.4)	1.2 u	(0.5)	1.1 u	(0.5)
Pastries	5.5	(1.3)	4.4 u	(1.8)	4.0 u	(1.3)	6.7 u	(2.2)
Doughnuts	3.4	(0.7)	3.4	(0.8)	2.8 u	(1.0)	3.9	(1.0)
Salty Snacks	41.9	(1.9)	44.2	(3.0)	37.7	(2.7)	42.4	(3.0)
Types of salty snacks, among those eating any								
Corn-based salty snacks	39.0	(2.7)	41.3	(3.7)	40.8	(5.2)	38.7	(4.6)
Pretzels/party mix	17.7	(2.3)	10.7	(2.4)	15.9	(2.7)	23.2 **	(4.1)
Popcorn	21.6	(2.2)	22.4	(3.6)	18.4	(3.7)	21.0	(3.9)
Potato chips	36.2	(2.7)	38.8	(4.0)	41.7	(4.5)	29.1	(4.6)
Added Fats and Oils	24.5	(1.7)	18.9	(2.2)	26.1 *	(2.6)	26.3	(3.4)
Types of added fats/oils among those eating any								
Butter	36.4	(3.5)	38.6	(4.7)	40.0	(5.9)	36.7	(5.0)
Margarine	31.4	(3.9)	25.8	(4.5)	34.1	(6.0)	31.5	(6.0)
Other added fats	2.5 u	(0.8)	2.8 u	(1.6)	6.7 u	(2.9)	1.0 u	(1.0)
Other added oils	0.5 u	(0.3)	0.7 u	(0.7)	0.0	(0.0)	0.7 u	(0.6)
Salad dressing	15.4	(2.8)	7.5 u	(2.9)	10.2	(2.4)	19.1 *	(3.6)
Mayonnaise	2.0 u	(0.6)	4.5 u	(2.3)	1.7 u	(1.3)	0.7 u	(0.7)
Gravy	12.1	(2.5)	18.3	(3.8)	10.7 u	(3.6)	8.6 u	(3.4)
Cream cheese	6.1	(1.6)	1.4 u	(1.0)	2.3 u	(1.5)	10.4 **	(2.9)
Cream/sour cream	8.5	(1.7)	13.6 u	(4.4)	5.3 u	(2.5)	8.4	(2.0)
Other	5.4	(0.80)	3.6	(0.97)	3.2 u	(1.03)	7.7 *	(1.65)

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Foods consumed from the vegetables, fruits, grains, and meat/meat alternate food groups reflect foods consumed as discrete items and do not include foods consumed as part of mixed dishes. Food choices reflect individual foods consumed except when foods were reported to be eaten in 'combination' as sandwiches, Mexican entrees, green salads, and soups. In these cases, the foods reported in combination are counted as one food choice (for example, a sandwich reported as a beef, cheese, and roll was counted in the "cheeseburger/hamburger" group as one food choice). 'All children' includes children with missing WIC participation or income. Percentages are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[1] Grains are classified as whole grains if at least 50 percent of the total grains are whole grain. The MyPyramid data sources listed above were used to classify grains.

[2] "Other raw" and "Other cooked" vegetables include all vegetables not categorized separately. Within these two groups, vegetables in the top quartile of the distribution of Vitamins A or C per 100 grams were categorized as "higher in nutrients"; all others are "lower in nutrients." Raw vegetables higher in nutrients include broccoli, peppers (sweet and hot), snow peas, seaweed, and leeks. Raw vegetables that are low in nutrients include onions, cucumbers, celery, radishes, mushrooms, asparagus, squash, and green peas. Cooked vegetables higher in nutrients include cabbage, peppers, asparagus, cauliflower, Brussels sprouts, and snow peas. Cooked vegetables that are lower in nutrients include squash, artichokes, onions, mushrooms, eggplant, beets, and yellow string beans.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Table C-10. Average Amounts Consumed in Food Pattern Units among All Young Children, by Food Group and Subgroup

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Sample size	*1,956*	-	*791*	-	*496*	-	*606*	-
Grains (ounce eq.)	1.669	(0.0637)	1.635	(0.0664)	1.771	(0.1066)	1.645	(0.0952)
Whole grains[1]	0.365	(0.0280)	0.301	(0.0330)	0.342	(0.0485)	0.402 *	(0.0351)
Refined grains	1.305	(0.0554)	1.335	(0.0653)	1.429	(0.0882)	1.243	(0.0832)
Bread	0.271	(0.0219)	0.290	(0.0334)	0.383	(0.0652)	0.212	(0.0342)
Rolls	0.037	(0.0075)	0.043 u	(0.0147)	0.041	(0.0118)	0.031 u	(0.0107)
English muffin	0.003 u	(0.0018)	0.001 u	(0.0015)	0.000	0.0000	0.005 u	(0.0035)
Bagels	0.052	(0.0157)	0.012 u	(0.0057)	0.048 u	(0.0266)	0.081 * u	(0.0289)
Biscuits, scones, croissants	0.047	(0.0117)	0.072 u	(0.0297)	0.076 u	(0.0231)	0.024 u	(0.0089)
Muffins	0.027 u	(0.0091)	0.030 u	(0.0168)	0.030 u	(0.0240)	0.025 u	(0.0121)
Cornbread	0.012 u	(0.0050)	0.025 u	(0.0193)	0.004 u	(0.0027)	0.009 u	(0.0053)
Corn tortillas	0.047	(0.0091)	0.117	(0.0274)	0.051 *	(0.0150)	0.006 *** u	(0.0036)
Flour tortillas	0.020 u	(0.0105)	0.019 u	(0.0098)	0.009 u	(0.0058)	0.026 u	(0.0239)
Taco shells	0.004 u	(0.0016)	0.002 u	(0.0011)	0.006 u	(0.0055)	0.005 u	(0.0019)
Crackers	0.262	(0.0235)	0.213	(0.0264)	0.217	(0.0358)	0.294	(0.0410)
Breakfast/granola bar	0.028	(0.0047)	0.007 u	(0.0033)	0.014 u	(0.0060)	0.045 ***	(0.0081)
Pancakes, waffles, French toast	0.202	(0.0172)	0.116	(0.0195)	0.211 *	(0.0352)	0.249 **	(0.0371)
Cold cereal	0.311	(0.0166)	0.372	(0.0276)	0.336	(0.0331)	0.272 **	(0.0213)
Hot cereal	0.178	(0.0200)	0.173	(0.0246)	0.188	(0.0432)	0.177	(0.0322)
Rice	0.131	(0.0230)	0.123	(0.0231)	0.128 u	(0.0385)	0.138	(0.0382)
Pasta	0.039	(0.0075)	0.020 u	(0.0061)	0.031 u	(0.0104)	0.044 *	(0.0103)
Vegetables (cup eq.)	0.408	(0.0197)	0.368	(0.0230)	0.367	(0.0402)	0.435	(0.0335)
Raw vegetables	0.073	(0.0129)	0.043	(0.0093)	0.052	(0.0083)	0.096	(0.0263)
Raw lettuce/greens	0.002 u	(0.0009)	0.002 u	(0.0009)	0.001 u	(0.0010)	0.001 u	(0.0010)
Raw carrots	0.016	(0.0043)	0.004 u	(0.0020)	0.011 u	(0.0040)	0.023 * u	(0.0082)
Raw tomatoes	0.004 u	(0.0013)	0.003 u	(0.0019)	0.005 u	(0.0023)	0.004 u	(0.0021)
Raw cabbage/coleslaw	0.003 u	(0.0012)	0.002 u	(0.0010)	0.005 u	(0.0034)	0.002 u	(0.0016)
Other raw (higher in vitamins A or C)[2]	0.002 u	(0.0009)	0.002 u	(0.0017)	0.000 u	(0.0003)	0.003 u	(0.0017)
Other raw (lower in vitamins A or C)[2]	0.009	(0.0022)	0.005 u	(0.0024)	0.011 u	(0.0042)	0.011 u	(0.0035)
Salads (w/greens)	0.037 u	(0.0112)	0.024	(0.0060)	0.019	(0.0042)	0.052 u	(0.0227)
Cooked vegetables, excl. potatoes	0.185	(0.0161)	0.155	(0.0129)	0.162	(0.0259)	0.202	(0.0235)
Cooked green beans	0.039	(0.0039)	0.048	(0.0060)	0.037	(0.0093)	0.033	(0.0052)
Cooked corn	0.032	(0.0042)	0.035	(0.0077)	0.030 u	(0.0099)	0.029	(0.0064)
Cooked peas	0.007	(0.0016)	0.006 u	(0.0021)	0.008 u	(0.0034)	0.006 u	(0.0021)
Cooked carrots	0.021	(0.0050)	0.007 u	(0.0024)	0.028 u	(0.0120)	0.021 *	(0.0057)
Cooked broccoli	0.022	(0.0054)	0.006 u	(0.0027)	0.011 u	(0.0054)	0.035 * u	(0.0110)
Cooked tomatoes	0.016	(0.0016)	0.017	(0.0039)	0.013	(0.0022)	0.016	(0.0026)
Cooked mixed	0.010	(0.0022)	0.008 u	(0.0037)	0.012 u	(0.0055)	0.011 u	(0.0037)
Cooked starchy	0.004 u	(0.0031)	0.002 u	(0.0012)	0.000	0.0000	0.007 u	(0.0063)
Other cooked deep yellow	0.004 u	(0.0014)	0.005 u	(0.0028)	0.001 u	(0.0009)	0.003 u	(0.0025)
Other cooked dark green	0.005 u	(0.0019)	0.008 u	(0.0038)	0.011 u	(0.0074)	0.001 u	(0.0005)
Other cooked (higher in vitamins A or C)[2]	0.014 u	(0.0066)	0.006 u	(0.0023)	0.009 u	(0.0042)	0.018 u	(0.0131)
Other cooked (lower in vitamins A or C)[2]	0.013 u	(0.0052)	0.005 u	(0.0033)	0.000 u	(0.0002)	0.022 u	(0.0090)
Other fried	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)
Cooked potatoes	0.147	(0.0126)	0.168	(0.0196)	0.151	(0.0220)	0.134	(0.0171)
Cooked potatoes-not fried	0.074	(0.0129)	0.091	(0.0177)	0.088	(0.0210)	0.059	(0.0148)
Cooked potatoes-fried	0.073	(0.0070)	0.078	(0.0116)	0.064	(0.0093)	0.075	(0.0121)
Vegetable juice	0.003 u	(0.0011)	0.002 u	(0.0018)	0.003 u	(0.0026)	0.003 u	(0.0014)

See notes at end of table.

Table C-10. Average Amounts Consumed in Food Pattern Units among All Young Children, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Fruit and 100% fruit juice (cup eq.)	1.466	(0.0433)	1.632	(0.0915)	1.292 *	(0.0976)	1.456	(0.0689)
Any whole fruit	0.754	(0.0433)	0.686	(0.0530)	0.744	(0.0739)	0.796	(0.0757)
Fresh fruit	0.642	(0.0417)	0.618	(0.0560)	0.616	(0.0650)	0.670	(0.0754)
Fresh orange	0.048	(0.0047)	0.071	(0.0165)	0.050 u	(0.0190)	0.034 *	(0.0076)
Fresh other citrus	0.000 u	(0.0001)	0.000 u	(0.0003)	0.000 u	(0.0001)	0.000 u	(0.0001)
Fresh apple	0.211	(0.0233)	0.198	(0.0340)	0.247	(0.0380)	0.202	(0.0419)
Fresh banana	0.162	(0.0140)	0.191	(0.0267)	0.123 *	(0.0202)	0.162	(0.0226)
Fresh melon	0.015 u	(0.0051)	0.008 u	(0.0068)	0.008 u	(0.0035)	0.024 u	(0.0096)
Fresh watermelon	0.059 u	(0.0190)	0.027	(0.0065)	0.045 u	(0.0208)	0.088 u	(0.0306)
Fresh grapes	0.050	(0.0054)	0.042	(0.0065)	0.041	(0.0077)	0.059	(0.0105)
Fresh peach/nectarine	0.018	(0.0048)	0.015 u	(0.0057)	0.028	(0.0083)	0.014 u	(0.0079)
Fresh pear	0.025 u	(0.0076)	0.013 u	(0.0073)	0.035 u	(0.0213)	0.030 u	(0.0119)
Fresh berries	0.027	(0.0056)	0.026 u	(0.0081)	0.011 u	(0.0037)	0.036	(0.0105)
Fresh pineapple	0.003 u	(0.0010)	0.001 u	(0.0010)	0.007 u	(0.0039)	0.001 u	(0.0006)
Other fresh fruit	0.022	(0.0046)	0.023	(0.0059)	0.021 u	(0.0077)	0.021 u	(0.0079)
Avocado/guacamole	0.001 u	(0.0004)	0.000 u	(0.0001)	0.002 u	(0.0014)	0.000 u	(0.0004)
Lemon/lime - any form	0.000 u	(0.0000)	0.000 u	(0.0000)	0.000 u	(0.0001)	0.000 u	(0.0001)
Canned or frozen fruit, total	0.093	(0.0088)	0.067	(0.0103)	0.110	(0.0227)	0.097 *	(0.0104)
Canned or frozen in syrup	0.009	(0.0025)	0.005 u	(0.0022)	0.012 u	(0.0047)	0.010 u	(0.0046)
Canned or frozen, no syrup	0.084	(0.0078)	0.062	(0.0103)	0.098	(0.0230)	0.087	(0.0090)
Applesauce, canned/ frozen apples	0.029	(0.0044)	0.031	(0.0089)	0.029 u	(0.0090)	0.029	(0.0061)
Canned/frozen peaches	0.019	(0.0053)	0.009 u	(0.0026)	0.027 **	(0.0065)	0.015 u	(0.0045)
Canned/frozen pineapple	0.004 u	(0.0016)	0.001 u	(0.0007)	0.004 u	(0.0033)	0.006 u	(0.0026)
Other canned/frozen	0.041	(0.0050)	0.026	(0.0058)	0.050 u	(0.0151)	0.047 *	(0.0079)
100% Fruit juice	0.712	(0.0401)	0.946	(0.0697)	0.548 ***	(0.0545)	0.660 **	(0.0545)
Non-citrus juice	0.582	(0.0345)	0.784	(0.0704)	0.429 ***	(0.0456)	0.546 **	(0.0438)
Citrus juice	0.130	(0.0130)	0.162	(0.0183)	0.119	(0.0251)	0.114	(0.0171)
Dried fruit	0.019	(0.0033)	0.002 u	(0.0006)	0.018 * u	(0.0073)	0.029 ***	(0.0057)
Milk and milk products (cup eq.)	1.916	(0.0656)	2.082	(0.0898)	1.538 ***	(0.1087)	2.022	(0.0779)
Cow's milk, total	1.606	(0.0584)	1.826	(0.0881)	1.344 ***	(0.0998)	1.630	(0.0725)
Unflavored white milk, total	1.516	(0.0542)	1.768	(0.0864)	1.245 ***	(0.0838)	1.521 *	(0.0686)
Unflavored whole milk	0.819	(0.0410)	1.143	(0.0756)	0.573 ***	(0.0752)	0.761 ***	(0.0683)
Unflavored non-whole, total	0.673	(0.0499)	0.594	(0.0559)	0.643	(0.0860)	0.743	(0.0793)
2% milk, unflavored	0.473	(0.0403)	0.477	(0.0513)	0.519	(0.0738)	0.474	(0.0547)
1% milk, unflavored	0.107	(0.0190)	0.089 u	(0.0322)	0.073 u	(0.0224)	0.115 u	(0.0345)
Skim milk, unflavored	0.093 u	(0.0325)	0.028 u	(0.0148)	0.051 u	(0.0259)	0.154 u	(0.0643)
Unflavored, fat not specified	0.023	(0.0067)	0.031 u	(0.0176)	0.029 u	(0.0117)	0.017 u	(0.0069)
Flavored milk, total	0.090	(0.0148)	0.058 u	(0.0185)	0.099 u	(0.0322)	0.109	(0.0273)
Flavored, whole milk	0.021 u	(0.0065)	0.007 u	(0.0035)	0.038 u	(0.0166)	0.023 u	(0.0117)
Flavored non-whole, total	0.054	(0.0117)	0.050 u	(0.0183)	0.045 u	(0.0211)	0.062 u	(0.0191)
2% milk, flavored	0.033	(0.0086)	0.029 u	(0.0181)	0.026 u	(0.0147)	0.039 u	(0.0129)
1% milk, flavored	0.020 u	(0.0070)	0.020 u	(0.0126)	0.017 u	(0.0128)	0.023 u	(0.0120)
Skim milk, flavored	0.001 u	(0.0008)	0.001 u	(0.0011)	0.002 u	(0.0015)	0.000	(0.0000)
Flavored, fat not specified	0.015 u	(0.0087)	0.000 u	(0.0003)	0.017 u	(0.0086)	0.024 u	(0.0175)
Soymilk	0.033	(0.0073)	0.014 u	(0.0087)	0.016 u	(0.0092)	0.055 *	(0.0138)
Dry or evaporated milk	0.004 u	(0.0019)	0.004 u	(0.0040)	0.011 u	(0.0072)	0.001 u	(0.0010)
Yogurt	0.085	(0.0072)	0.076	(0.0098)	0.043 *	(0.0108)	0.097	(0.0097)
Cheese	0.188	(0.0158)	0.162	(0.0243)	0.124	(0.0258)	0.239 *	(0.0282)

See notes at end of table.

Table C-10. Average Amounts Consumed in Food Pattern Units among All Young Children, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Meat and meat alternates (oz. eq.)	1.477	(0.0629)	1.602	(0.0873)	1.658	(0.1334)	1.339 *	(0.0895)
Beef	0.136	(0.0201)	0.092	(0.0171)	0.214 u	(0.0705)	0.128	(0.0276)
Ground beef	0.042	(0.0118)	0.037 u	(0.0140)	0.023 u	(0.0092)	0.056 u	(0.0231)
Pork	0.059	(0.0112)	0.089	(0.0180)	0.032 * u	(0.0170)	0.053 u	(0.0211)
Ham	0.025 u	(0.0135)	0.053 u	(0.0458)	0.024 u	(0.0136)	0.013 u	(0.0076)
Lamb and misc. meats	0.003 u	(0.0025)	0.011 u	(0.0095)	0.000	(0.0000)	0.000	(0.0000)
Chicken	0.448	(0.0353)	0.462	(0.0372)	0.501	(0.0732)	0.417	(0.0483)
Turkey	0.024 u	(0.0080)	0.026 u	(0.0149)	0.056 u	(0.0310)	0.011 u	(0.0063)
Organ meats	0.000 u	(0.0001)	0.000 u	(0.0004)	0.000	(0.0000)	0.000	(0.0000)
Hot dogs	0.099	(0.0133)	0.134	(0.0356)	0.045 * u	(0.0144)	0.107	(0.0237)
Cold cuts	0.081	(0.0171)	0.080 u	(0.0333)	0.072 u	(0.0262)	0.091	(0.0226)
Fish	0.082	(0.0227)	0.037 u	(0.0114)	0.082 u	(0.0287)	0.109 u	(0.0456)
Shellfish	0.016	(0.0048)	0.013 u	(0.0068)	0.044 u	(0.0209)	0.006 u	(0.0025)
Bacon/sausage	0.095	(0.0126)	0.104	(0.0218)	0.124 u	(0.0402)	0.081	(0.0129)
Eggs	0.240	(0.0198)	0.326	(0.0336)	0.346	(0.0560)	0.157 ***	(0.0240)
Beans	0.016	(0.0037)	0.030	(0.0057)	0.022 u	(0.0115)	0.006 *** u	(0.0022)
Baked/refried beans	0.004	(0.0008)	0.005 u	(0.0018)	0.000 ** u	(0.0002)	0.004 u	(0.0013)
Soy products	0.019	(0.0055)	0.004 u	(0.0044)	0.016 u	(0.0161)	0.025 * u	(0.0076)
Protein/meal enhancement	0.000 u	(0.0001)	0.000 u	(0.0001)	0.000 u	(0.0003)	0.000 u	(0.0002)
Nuts	0.063	(0.0162)	0.070 u	(0.0219)	0.041 u	(0.0196)	0.053 u	(0.0235)
Peanut/almond butter	0.018 u	(0.0058)	0.022 u	(0.0151)	0.017 u	(0.0082)	0.017 u	(0.0085)
Seeds	0.008 u	(0.0043)	0.006 u	(0.0043)	0.000 u	(0.0005)	0.004 u	(0.0035)
Mixed dishes (grams)	184.049	(6.0727)	196.859	(9.9602)	220.966	(13.5392)	160.456 **	(6.4439)
Tomato sauce and meat (no pasta)	0.153 u	(0.0666)	0.033 u	(0.0335)	0.390 u	(0.2965)	0.131 u	(0.0520)
Chili con carne	1.166 u	(0.5095)	0.800 u	(0.4866)	2.158 u	(1.8194)	1.043 u	(0.6706)
Meat mixtures w/ red meat	8.792	(1.2180)	11.461	(1.9446)	9.391	(2.5639)	6.771 u	(2.0437)
Meat mixtures w/ chicken/turkey	13.398	(1.5965)	12.494	(1.9648)	16.294	(3.5720)	12.006	(2.7416)
Meat mixtures w/ fish	0.995 u	(0.3855)	1.929 u	(1.2849)	1.366 u	(0.5714)	0.389 u	(0.2482)
Hamburgers/cheeseburgers	6.470	(1.0257)	6.542	(1.7263)	7.718	(1.5952)	6.180	(1.7713)
Other sandwiches	33.024	(1.7741)	29.615	(3.2464)	38.039	(3.4268)	33.663	(3.7527)
Hot dogs	7.112	(0.7458)	6.083	(1.3402)	10.289	(1.7898)	6.914	(1.3314)
Luncheon meat	8.759	(1.2225)	8.851	(1.7918)	12.603	(2.4299)	7.695	(2.2162)
Beef, pork, ham	3.202 u	(1.0451)	3.650 u	(1.4519)	0.987 u	(0.4923)	3.942 u	(2.0515)
Chicken, turkey	1.227	(0.3476)	1.397 u	(0.4955)	0.670 u	(0.4248)	0.945 u	(0.4679)
Cheese (no meat)	3.945	(0.7586)	2.641 u	(0.7954)	2.872 u	(0.8725)	5.128	(1.3137)
Fish	0.734 u	(0.2825)	0.765 u	(0.3971)	1.093 u	(0.7392)	0.623 u	(0.3745)
Peanut butter	6.867	(0.7651)	4.517	(1.1195)	7.825	(1.3766)	7.842	(1.4632)
Breakfast sandwiches	1.176 u	(0.4016)	1.710 u	(0.9592)	1.702 u	(1.0303)	0.574 u	(0.2317)
Pizza (no meat)	4.893	(0.8674)	2.813	(0.6158)	5.546 u	(1.7343)	4.972	(1.4574)
Pizza w/ meat	6.869	(1.0391)	5.065	(0.8868)	10.837 **	(1.7696)	6.627	(1.8194)
Mexican entrees	12.055	(2.1943)	15.547	(3.5895)	13.129 u	(4.6062)	8.186	(1.7327)
Macaroni and cheese	16.564	(1.8376)	15.312	(3.4739)	21.759	(4.3862)	15.316	(2.7560)
Pasta dishes	31.638	(2.2973)	30.639	(4.0687)	28.195	(5.4831)	32.553	(4.3607)
Rice dishes	6.917	(0.9313)	12.226	(2.3313)	7.781 u	(2.8459)	3.965 **	(1.1208)
Other grain mixtures	2.116	(0.5845)	3.725 u	(1.5989)	2.842 u	(2.2522)	1.069	(0.2609)
Meat soup	18.877	(2.7585)	26.310	(6.0852)	31.552	(7.7579)	9.326 * u	(3.5176)
Bean soup	0.632 u	(0.2806)	0.315 u	(0.1951)	0.308 u	(0.2401)	1.003 u	(0.5595)
Grain soups	9.987	(1.5309)	16.304	(2.3270)	17.465	(5.0330)	3.607 *** u	(1.0842)
Vegetables mixtures (incl. soup)	8.905	(2.5153)	5.465	(1.1604)	5.762 u	(1.9463)	12.744 u	(4.6272)
Entrée salads	0.599 u	(0.1954)	0.265 u	(0.1352)	0.436 u	(0.3098)	0.907 u	(0.3753)

See notes at end of table.

Table C-10. Average Amounts Consumed in Food Pattern Units among All Young Children, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Beverages excluding milk and 100% fruit juice (grams)	524.072	(16.3607)	519.030	(21.3545)	648.866 **	(36.3808)	469.577	(24.4829)
Coffee	0.754 u	(0.2292)	2.192 u	(0.7632)	0.432 * u	(0.1985)	0.140 ** u	(0.1320)
Tea	15.361	(2.8459)	18.844	(4.1035)	15.138	(4.3961)	11.629 u	(4.1777)
Beer	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)
Wine	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)
Liquor	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)
Water (plain)	310.270	(13.1721)	265.371	(11.8049)	362.506 **	(31.1670)	306.848	(20.9627)
Noncarbonated, sweetened drinks	133.354	(7.9019)	152.158	(13.3585)	194.023 *	(15.7047)	99.077 **	(10.6126)
Noncarbonated, low-calorie/sugar-free drinks	16.065	(2.5267)	16.503	(4.0951)	19.254	(5.0073)	14.624	(3.7703)
Energy drinks	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)	0.000	(0.0000)
Any soda	48.269	(4.3891)	63.962	(9.9190)	57.513	(6.9385)	37.260 *	(5.5606)
Soda, regular	43.929	(4.2825)	59.572	(9.6337)	50.930	(6.1588)	33.600 *	(5.5324)
Soda, sugar-free	4.340	(1.0560)	4.390 u	(1.3679)	6.583 u	(4.0910)	3.660	(0.8822)
Sweets and desserts (grams)	62.235	(2.9250)	55.982	(3.2180)	66.820 *	(4.4395)	63.882	(5.6681)
Sugar and sugar substitutes	0.346	(0.0693)	0.666	(0.1873)	0.337 u	(0.1013)	0.192 * u	(0.0722)
Syrups/sweet toppings	3.101	(0.3345)	2.025	(0.3635)	3.480 *	(0.5483)	3.553 *	(0.6681)
Jelly	0.374	(0.0869)	0.480 u	(0.1878)	0.540 u	(0.1884)	0.274 u	(0.0977)
Jello	2.953 u	(1.2404)	1.608 u	(0.5447)	3.484 u	(1.1106)	3.682 u	(2.1415)
Candy	8.142	(0.6012)	6.946	(0.6939)	7.505	(0.7174)	9.267	(1.1415)
Ice cream	15.324	(1.2590)	10.623	(1.5191)	18.054 **	(2.1721)	16.567 *	(2.5230)
Pudding	3.119	(0.4975)	2.248 u	(0.9949)	2.869 u	(1.2764)	3.733	(0.7709)
Ice/popsicles	7.856	(1.0204)	7.528	(1.4744)	8.417	(2.3268)	7.937	(1.9049)
Sweet rolls	1.312	(0.2931)	1.853	(0.4982)	1.710 u	(0.5525)	0.892 u	(0.4255)
Cake/cupcakes	4.744	(0.5220)	5.938	(1.5974)	5.621	(1.2253)	3.236	(0.7627)
Cookies	10.348	(0.7770)	12.175	(1.3263)	10.665	(1.2179)	9.466	(1.0367)
Pies/cobblers	0.875 u	(0.3497)	0.944 u	(0.7679)	0.722 u	(0.2682)	0.954 u	(0.6070)
Pastries	2.353	(0.6360)	1.414 u	(0.5217)	2.257 u	(0.8526)	2.674 u	(1.0176)
Doughnuts	1.388	(0.2679)	1.532 u	(0.4639)	1.158 u	(0.4477)	1.453	(0.3868)
Salty Snacks (grams)	10.126	(0.5733)	10.140	(0.7990)	11.397	(1.2247)	9.681	(0.9982)
Corn-based salty snacks	3.892	(0.3658)	3.972	(0.6909)	5.252	(0.8725)	3.527	(0.5691)
Pretzels/party mix	1.640	(0.3137)	0.852	(0.1958)	1.474 u	(0.4556)	2.212 *	(0.6046)
Popcorn	1.358	(0.1644)	1.473	(0.2839)	1.068	(0.2166)	1.399	(0.2903)
Potato chips	3.236	(0.3298)	3.842	(0.6319)	3.602	(0.6602)	2.542	(0.5646)
Added Fats and Oils (grams)	3.468	(0.4182)	2.842	(0.7805)	4.443	(0.7922)	3.125	(0.5347)
Butter	0.541	(0.0861)	0.344	(0.0594)	0.812 *	(0.1983)	0.498	(0.1105)
Margarine	0.436	(0.0812)	0.336 u	(0.1329)	0.571	(0.1587)	0.427	(0.1089)
Other added fats	0.179 u	(0.0599)	0.097 u	(0.0764)	0.534 u	(0.2393)	0.088 u	(0.0867)
Other added oils	0.024 u	(0.0162)	0.022 u	(0.0219)	0.000	0.0000	0.037 u	(0.0309)
Salad dressing	0.603	(0.1512)	0.297 u	(0.1500)	0.549	(0.1628)	0.630 u	(0.2427)
Mayonnaise	0.038 u	(0.0139)	0.093 u	(0.0482)	0.030 u	(0.0270)	0.008 u	(0.0059)
Gravy	0.759 u	(0.2562)	0.680 u	(0.2827)	1.502 u	(0.7172)	0.387 u	(0.2504)
Cream cheese	0.337 u	(0.1082)	0.030 u	(0.0227)	0.228 u	(0.2147)	0.585 ** u	(0.1995)
Cream/sour cream	0.551 u	(0.1945)	0.943 u	(0.6127)	0.219 u	(0.1240)	0.465 u	(0.1717)
Other (grams)	2.206	(0.5313)	2.169 u	(1.2221)	0.921 u	(0.4144)	2.949	(0.8131)

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Foods consumed from the vegetables, fruits, grains, and meat/meat alternate food groups reflect foods consumed as discrete items and do not include foods consumed as part of mixed dishes. Food choices reflect individual foods consumed except when

foods were reported to be eaten in 'combination' as sandwiches, Mexican entrees, green salads, and soups. In these cases, the foods reported in combination are counted as one food choice (for example, a sandwich reported as a beef, cheese, and roll was counted in the "cheeseburger/hamburger" group as one food choice). 'All children' includes children with missing WIC participation or income. Means are not age-adjusted. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview. Numbers are displayed to three decimal points to provide additional detail for estimates with low values. oz. = ounces eq. = equivalent.

[1] Grains are classified as whole grains if at least 50 percent of the total grains are whole grain. The MyPyramid data sources listed above were used to classify grains.

[2] "Other raw" and "Other cooked" vegetables include all vegetables not categorized separately. Within these two groups, vegetables in the top quartile of the distribution of Vitamins A or C per 100 grams were categorized as "higher in nutrients"; all others are "lower in nutrients." Raw vegetables higher in nutrients include broccoli, peppers (sweet and hot), snow peas, seaweed, and leeks. Raw vegetables that are lower in nutrients include onions, cucumbers, celery, radishes, mushrooms, asparagus, squash, and green peas. Cooked vegetables higher in nutrients include cabbage, peppers, asparagus, cauliflower, Brussels sprouts, and snow peas. Cooked vegetables that are lower in nutrients include squash, artichokes, onions, mushrooms, eggplant, beets, and yellow string beans.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Table C-11. Average Amounts Consumed in Food Pattern Units among Young Children Consuming, by Food Group and Subgroup

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Sample size	*1,956*	-	*791*	-	*496*	-	*606*	-
Grains (ounce eq.)	1.8	(0.07)	1.8	(0.07)	1.9	(0.11)	1.8	(0.10)
Whole grains[1]	1.0	(0.04)	0.9	(0.08)	1.1	(0.10)	0.9	(0.05)
Refined grains	1.6	(0.06)	1.6	(0.07)	1.7	(0.09)	1.5	(0.10)
Bread	1.1	(0.06)	1.2	(0.10)	1.3	(0.15)	1.1	(0.08)
Rolls	1.1	(0.14)	1.2	(0.22)	1.2	(0.22)	0.9	(0.20)
English muffin	0.6	(0.07)	2.0	(0.00)	.	(.)	0.5	(0.00)
Bagels	2.2	(0.25)	1.9	(0.14)	2.1	(0.41)	2.2	(0.29)
Biscuits, scones, croissants	1.2	(0.16)	1.4	(0.12)	1.1	(0.31)	0.9 *	(0.20)
Muffins	1.2	(0.24)	1.7	(0.39)	1.5	(0.02)	0.9 u	(0.32)
Cornbread	1.6	(0.43)	2.0 u	(0.63)	0.7 *	(0.15)	1.5 u	(0.53)
Corn tortillas	1.2	(0.08)	1.2	(0.11)	1.2	(0.21)	0.8 *	(0.11)
Flour tortillas	1.7	(0.51)	1.1	(0.32)	1.0	(0.25)	2.5 u	(0.78)
Taco shells	0.8	(0.19)	0.6	(0.14)	1.5 u	(0.51)	0.7	(0.15)
Crackers	0.9	(0.05)	0.8	(0.06)	0.9	(0.07)	0.9	(0.08)
Breakfast/granola bar	0.6	(0.04)	0.5	(0.10)	0.8	(0.11)	0.6	(0.04)
Pancakes, waffles, French toast	1.2	(0.06)	1.2	(0.18)	1.4	(0.09)	1.2	(0.10)
Cold cereal	0.6	(0.02)	0.7	(0.03)	0.7	(0.04)	0.5 *	(0.03)
Hot cereal	1.6	(0.12)	1.3	(0.12)	1.8	(0.24)	1.7	(0.16)
Rice	1.1	(0.08)	0.9	(0.09)	1.1	(0.20)	1.1	(0.17)
Pasta	0.9	(0.11)	0.9 u	(0.30)	1.7	(0.34)	0.9	(0.11)
Vegetables (cup eq.)	0.6	(0.03)	0.6	(0.03)	0.6	(0.05)	0.6	(0.04)
Raw vegetables	0.4	(0.06)	0.4	(0.07)	0.4	(0.06)	0.5	(0.09)
Raw lettuce/greens	0.2	(0.05)	0.2 u	(0.07)	0.2	(0.03)	0.1	(0.02)
Raw carrots	0.3	(0.03)	0.3 u	(0.08)	0.3	(0.05)	0.3	(0.05)
Raw tomatoes	0.2	(0.05)	0.3 u	(0.08)	0.2	(0.04)	0.2 u	(0.10)
Raw cabbage/coleslaw	0.6	(0.09)	0.5	(0.04)	0.9 ***	(0.13)	0.4	(0.05)
Other raw (higher in vitamins A or C)[2]	0.2	(0.06)	0.5	(0.04)	0.5	(0.00)	0.2 *** u	(0.06)
Other raw (lower in vitamins A or C)[2]	0.3	(0.04)	0.3 u	(0.10)	0.3	(0.09)	0.3	(0.05)
Salads (w/greens)	0.6	(0.13)	0.4	(0.06)	0.4	(0.05)	0.8	(0.19)
Cooked vegetables, excl. potatoes	0.4	(0.03)	0.4	(0.03)	0.4	(0.04)	0.4	(0.05)
Cooked green beans	0.4	(0.02)	0.4	(0.03)	0.4	(0.04)	0.4	(0.03)
Cooked corn	0.4	(0.03)	0.4	(0.04)	0.3	(0.06)	0.4	(0.06)
Cooked peas	0.2	(0.02)	0.3	(0.05)	0.3	(0.04)	0.2 *	(0.04)
Cooked carrots	0.3	(0.02)	0.2	(0.03)	0.5 **	(0.07)	0.3	(0.02)
Cooked broccoli	0.4	(0.05)	0.3	(0.07)	0.5 *	(0.08)	0.4	(0.05)
Cooked tomatoes	0.1	(0.01)	0.1	(0.02)	0.1	(0.01)	0.1	(0.01)
Cooked mixed	0.3	(0.04)	0.3	(0.04)	0.5	(0.11)	0.3	(0.06)
Cooked starchy	0.4	(0.05)	0.3	(0.07)	.	(.)	0.5	(0.04)
Other cooked deep yellow	0.4	(0.03)	0.4	(0.05)	0.2 **	(0.04)	0.4	(0.04)
Other cooked dark green	0.3	(0.07)	0.3 u	(0.11)	0.4	(0.07)	0.1 u	(0.07)
Other cooked (higher in vitamins A or C)[2]	0.5 u	(0.14)	0.3	(0.04)	0.5 **	(0.08)	0.5 u	(0.24)
Other cooked (lower in vitamins A or C)[2]	0.4	(0.05)	0.4 u	(0.27)	0.1	(0.01)	0.4	(0.04)
Other fried	.	(.)	.	(.)	.	(.)	.	(.)
Cooked potatoes	0.4	(0.02)	0.4	(0.02)	0.4	(0.04)	0.4	(0.03)
Cooked potatoes-not fried	0.5	(0.04)	0.5	(0.04)	0.5	(0.06)	0.6	(0.08)
Cooked potatoes-fried	0.3	(0.02)	0.4	(0.03)	0.3	(0.03)	0.3	(0.03)
Vegetable juice	0.5	(0.09)	0.7	(0.08)	0.9 u	(0.44)	0.4 *	(0.09)

See notes at end of table.

Table C-11. Average Amounts Consumed in Food Pattern Units among Young Children Consuming, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Fruit and 100% fruit juice (cup eq.)	1.7	(0.04)	1.9	(0.10)	1.6	(0.10)	1.7	(0.07)
Any whole fruit	1.1	(0.05)	1.1	(0.07)	1.1	(0.09)	1.2	(0.08)
Fresh fruit	1.1	(0.04)	1.1	(0.07)	1.2	(0.09)	1.2	(0.08)
Fresh orange	0.5	(0.06)	0.7	(0.09)	0.7	(0.12)	0.4 **	(0.06)
Fresh other citrus	0.1 u	(0.05)	0.2	(0.01)	0.2	(0.00)	0.0 ***	(0.00)
Fresh apple	1.0	(0.04)	1.0	(0.08)	1.1	(0.09)	1.0	(0.07)
Fresh banana	0.7	(0.03)	0.7	(0.06)	0.7	(0.05)	0.7	(0.04)
Fresh melon	0.6	(0.06)	0.6	(0.16)	0.4	(0.07)	0.7	(0.08)
Fresh watermelon	1.3	(0.21)	1.0	(0.20)	1.7 u	(0.68)	1.2	(0.19)
Fresh grapes	0.4	(0.02)	0.4	(0.03)	0.5	(0.05)	0.4	(0.04)
Fresh peach/nectarine	0.7	(0.07)	0.7	(0.09)	0.6	(0.14)	0.7	(0.12)
Fresh pear	0.7	(0.11)	0.9	(0.15)	1.1	(0.09)	0.6	(0.11)
Fresh berries	0.4	(0.06)	0.4	(0.08)	0.3	(0.04)	0.4	(0.09)
Fresh pineapple	0.3	(0.03)	0.3	(0.06)	0.3	(0.04)	0.3	(0.02)
Other fresh fruit	0.6	(0.05)	0.6	(0.09)	0.6	(0.09)	0.7	(0.09)
Avocado/guacamole	0.3 u	(0.18)	0.0	(0.00)	0.5 u	(0.27)	0.5	(0.00)
Lemon/lime - any form	0.1 u	(0.03)	0.0	(0.00)	0.0	(0.00)	0.1	(0.00)
Canned or frozen fruit, total	0.5	(0.03)	0.5	(0.04)	0.5	(0.08)	0.5	(0.03)
Canned or frozen in syrup	0.4	(0.04)	0.5	(0.08)	0.4	(0.09)	0.5	(0.03)
Canned or frozen, no syrup	0.5	(0.03)	0.5	(0.05)	0.5	(0.08)	0.4	(0.03)
Applesauce, canned/ frozen apples	0.4	(0.04)	0.5	(0.05)	0.4	(0.07)	0.4	(0.06)
Canned/frozen peaches	0.4	(0.02)	0.3	(0.06)	0.5	(0.04)	0.3	(0.02)
Canned/frozen pineapple	0.3	(0.05)	0.4 u	(0.17)	0.2 u	(0.12)	0.4	(0.03)
Other canned/frozen	0.4	(0.03)	0.5	(0.07)	0.5	(0.06)	0.4	(0.04)
100% Fruit juice	1.2	(0.05)	1.3	(0.09)	1.1 *	(0.05)	1.2	(0.07)
Non-citrus juice	1.3	(0.04)	1.4	(0.11)	1.1	(0.07)	1.3	(0.05)
Citrus juice	0.8	(0.06)	0.9	(0.06)	0.8	(0.05)	0.8	(0.12)
Dried fruit	0.5	(0.04)	0.2	(0.04)	0.5 **	(0.07)	0.5 ***	(0.06)
Milk and milk products (cup eq.)	2.1	(0.07)	2.2	(0.09)	1.8 ***	(0.09)	2.2	(0.09)
Cow's milk, total	1.9	(0.06)	2.0	(0.09)	1.7 *	(0.09)	1.9	(0.08)
Unflavored white milk, total	1.9	(0.06)	2.0	(0.09)	1.6 **	(0.09)	1.9	(0.08)
Unflavored whole milk	2.0	(0.08)	2.1	(0.12)	1.6 **	(0.11)	2.0	(0.12)
Unflavored non-whole, total	1.6	(0.08)	1.7	(0.10)	1.6	(0.12)	1.6	(0.13)
2% milk, unflavored	1.5	(0.08)	1.6	(0.12)	1.6	(0.14)	1.4	(0.09)
1% milk, unflavored	1.5	(0.17)	1.8	(0.30)	1.3	(0.18)	1.5	(0.33)
Skim milk, unflavored	2.0	(0.28)	2.2	(0.61)	1.9 u	(0.57)	2.0	(0.35)
Unflavored, fat not specified	1.1	(0.16)	1.5 u	(0.48)	0.9	(0.15)	0.9	(0.14)
Flavored milk, total	1.3	(0.10)	1.4	(0.24)	1.2	(0.12)	1.3	(0.12)
Flavored, whole milk	1.3	(0.23)	0.9	(0.09)	1.1	(0.10)	1.7	(0.48)
Flavored non-whole, total	1.2	(0.15)	1.5	(0.28)	1.3	(0.25)	1.1	(0.14)
2% milk, flavored	1.0	(0.11)	1.5	(0.43)	1.2	(0.26)	0.9	(0.07)
1% milk, flavored	1.4	(0.23)	1.5	(0.25)	1.8	(0.50)	1.2	(0.32)
Skim milk, flavored	0.9	(0.07)	1.1	(0.00)	0.7	(0.00)	.	(.)
Flavored, fat not specified	1.1	(0.12)	0.3 u	(0.13)	0.9 ***	(0.11)	1.3 ***	(0.10)
Soymilk	1.7	(0.31)	2.1	(0.59)	2.0	(0.28)	1.6	(0.35)
Dry or evaporated milk	1.6	(0.46)	5.5	(0.00)	1.9 *** u	(0.73)	0.7 *** u	(0.31)
Yogurt	0.5	(0.02)	0.6	(0.04)	0.6	(0.06)	0.5	(0.03)
Cheese	0.6	(0.04)	0.6	(0.06)	0.6	(0.08)	0.7	(0.06)

See notes at end of table.

Table C-11. Average Amounts Consumed in Food Pattern Units among Young Children Consuming, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Meat and meat alternates (oz. eq.)	2.2	(0.08)	2.2	(0.09)	2.5	(0.17)	2.0	(0.12)
Beef	1.5	(0.13)	1.4	(0.17)	1.9	(0.47)	1.4	(0.13)
Ground beef	1.6	(0.27)	1.7	(0.26)	1.0 *	(0.19)	1.8	(0.48)
Pork	1.3	(0.19)	1.3	(0.25)	0.8 u	(0.28)	1.4	(0.23)
Ham	1.5 u	(0.51)	2.1 u	(0.93)	1.3 u	(0.48)	1.0	(0.25)
Lamb and misc. meats	3.2 u	(1.44)	3.2 u	(1.44)	.	(.)	.	(.)
Chicken	1.6	(0.07)	1.6	(0.08)	2.0 *	(0.14)	1.4 *	(0.08)
Turkey	2.3	(0.34)	1.9 u	(0.58)	3.1	(0.65)	2.0	(0.52)
Organ meats	1.6	(0.00)	1.6	(0.00)	.	(.)	.	(.)
Hot dogs	1.7	(0.15)	2.4	(0.21)	1.3 * u	(0.44)	1.5 ***	(0.15)
Cold cuts	1.2	(0.15)	1.3	(0.32)	1.3	(0.22)	1.2	(0.17)
Fish	2.0	(0.30)	1.2	(0.25)	1.8	(0.53)	2.3 *	(0.46)
Shellfish	1.3	(0.26)	1.1	(0.17)	1.5 u	(0.56)	0.8	(0.20)
Bacon/sausage	0.9	(0.09)	1.0	(0.14)	1.1	(0.26)	0.8	(0.10)
Eggs	1.3	(0.05)	1.3	(0.07)	1.4	(0.13)	1.1 *	(0.07)
Beans	0.4	(0.06)	0.4	(0.04)	0.9 *	(0.27)	0.3	(0.08)
Baked/refried beans	0.2	(0.03)	0.3	(0.05)	0.1 *** u	(0.04)	0.2	(0.03)
Soy products	1.3	(0.19)	1.0	(0.00)	1.0	(0.00)	1.5	(0.29)
Protein/meal enhancement	0.0	(0.01)	0.0 u	(0.01)	0.2 ***	(0.00)	0.0 u	(0.01)
Nuts	1.8	(0.31)	2.0	(0.41)	2.6	(0.62)	1.5 u	(0.49)
Peanut/almond butter	0.8	(0.13)	0.9	(0.25)	0.6	(0.08)	0.9	(0.19)
Seeds	0.9 u	(0.52)	1.3 u	(0.60)	0.6	(0.00)	0.4 u	(0.34)
Mixed dishes (grams)	215.0	(8.03)	219.0	(11.00)	253.0	(14.73)	193.0	(9.51)
Tomato sauce and meat (no pasta)	77.7	(11.49)	62.3	(0.00)	69.6	(3.87)	95.1 u	(31.03)
Chili con carne	125.0	(35.03)	156.0	(43.87)	296.0 u	(99.64)	78.3	(9.82)
Meat mixtures w/ red meat	111.0	(8.76)	129.0	(9.72)	111.0	(18.66)	94.5 *	(11.53)
Meat mixtures w/ chicken/turkey	127.0	(9.25)	116.0	(9.82)	142.0	(20.98)	127.0	(17.84)
Meat mixtures w/ fish	93.2	(19.66)	150.0	(29.21)	72.7 u	(28.42)	56.8 ** u	(21.37)
Hamburgers/cheeseburgers	90.6	(5.07)	101.0	(9.56)	84.8	(7.97)	87.9	(6.53)
Other sandwiches	87.9	(2.94)	89.9	(6.53)	93.2	(4.94)	85.1	(4.94)
Hot dogs	92.0	(7.02)	95.9	(9.06)	116.0	(11.80)	80.0	(9.87)
Luncheon meat	91.8	(7.89)	89.7	(12.76)	85.9	(7.30)	97.9	(19.57)
Beef, pork, ham	113.0	(13.26)	131.0	(15.14)	92.1	(24.57)	108.0	(21.23)
Chicken, turkey	85.2	(7.53)	85.4	(11.39)	89.0	(6.96)	74.8	(9.80)
Cheese (no meat)	69.7	(7.38)	65.1	(6.94)	68.2	(7.23)	73.3	(11.32)
Fish	65.4	(8.27)	57.0	(14.78)	101.0 *	(12.75)	56.2	(12.14)
Peanut butter	59.1	(1.74)	56.9	(3.52)	61.6	(3.64)	59.5	(3.05)
Breakfast sandwiches	80.0	(9.77)	97.1	(13.76)	74.2	(17.71)	60.4 *	(7.67)
Pizza (no meat)	85.6	(6.56)	73.4	(11.18)	94.4	(11.56)	84.6	(12.44)
Pizza w/ meat	98.3	(9.53)	85.8	(9.32)	102.0	(8.93)	103.0	(20.15)
Mexican entrees	119.0	(10.96)	118.0	(15.64)	133.0	(21.82)	98.4	(13.77)
Macaroni and cheese	128.0	(8.10)	131.0	(7.66)	130.0	(17.63)	121.0	(8.23)
Pasta dishes	178.0	(8.01)	174.0	(9.64)	239.0 ***	(13.38)	160.0	(11.47)
Rice dishes	96.3	(8.11)	112.0	(9.71)	152.0	(23.19)	61.7 ***	(7.10)
Other grain mixtures	96.4	(15.20)	117.0	(23.92)	109.0	(30.66)	65.0 *	(8.36)
Meat soup	256.0	(19.35)	272.0	(39.39)	279.0	(24.60)	228.0	(46.02)
Bean soup	125.0	(23.41)	92.1	(19.07)	60.8 u	(32.17)	156.0	(27.24)
Grain soups	220.0	(17.35)	206.0	(13.29)	214.0	(28.66)	274.0	(64.65)
Vegetables mixtures (incl. soup)	127.0	(21.26)	125.0	(23.13)	116.0	(23.25)	130.0	(29.28)
Entrée salads	81.4	(18.54)	50.8 u	(20.55)	193.0 ***	(10.30)	79.9	(20.16)

See notes at end of table.

Table C-11. Average Amounts Consumed in Food Pattern Units among Young Children Consuming, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Beverages excluding milk and 100% fruit juice (grams)	563.0	(16.02)	563.0	(22.40)	680.0 **	(32.23)	509.0	(24.49)
Coffee	74.1	(9.17)	95.4	(11.00)	34.2 ***	(6.55)	51.5 u	(39.02)
Tea	186.0	(23.89)	195.0	(19.67)	132.0 **	(12.54)	236.0	(62.28)
Beer	.	(.)	.	(.)	.	(.)	.	(.)
Wine	.	(.)	.	(.)	.	(.)	.	(.)
Liquor	.	(.)	.	(.)	.	(.)	.	(.)
Water (plain)	409.0	(12.94)	377.0	(16.85)	474.0 **	(33.07)	390.0	(20.18)
Noncarbonated, sweetened drinks	318.0	(15.63)	338.0	(23.49)	379.0	(26.38)	281.0	(19.70)
Noncarbonated, low-calorie/sugar-free drinks	246.0	(20.56)	228.0	(24.87)	296.0	(49.15)	243.0	(24.90)
Energy drinks	.	(.)	.	(.)	.	(.)	.	(.)
Any soda	193.0	(10.31)	212.0	(21.77)	218.0	(20.43)	170.0	(12.95)
Soda, regular	201.0	(11.69)	216.0	(23.20)	220.0	(23.47)	183.0	(15.30)
Soda, sugar-free	118.0	(15.96)	127.0	(18.76)	198.0 ***	(8.55)	86.7	(10.29)
Sweets and desserts (grams)	74.3	(3.23)	67.8	(3.31)	79.2	(5.11)	76.4	(5.82)
Sugar and sugar substitutes	5.6	(0.72)	6.6	(1.15)	4.8	(0.95)	4.7	(1.30)
Syrups/sweet toppings	18.7	(1.59)	17.6	(1.83)	18.1	(2.58)	19.7	(2.60)
Jelly	11.2	(1.64)	16.3	(4.60)	11.7	(2.64)	8.4	(1.70)
Jello	99.9	(21.42)	103.0	(11.20)	85.2	(23.39)	110.0 u	(34.13)
Candy	22.3	(1.27)	21.6	(1.74)	21.5	(1.24)	23.4	(2.02)
Ice cream	78.9	(6.03)	60.2	(5.45)	81.2 **	(5.36)	88.7 *	(10.60)
Pudding	110.0	(10.81)	93.1	(16.27)	103.0	(21.59)	119.0	(17.37)
Ice/popsicles	77.8	(6.79)	70.7	(5.64)	105.0	(18.18)	71.1	(7.81)
Sweet rolls	51.9	(5.54)	52.1	(4.82)	50.5	(7.43)	52.5	(14.99)
Cake/cupcakes	57.4	(4.70)	66.4	(12.49)	64.6	(6.51)	46.3	(4.82)
Cookies	26.5	(1.48)	29.7	(2.51)	26.2	(1.55)	24.7	(2.03)
Pies/cobblers	103.0	(19.73)	145.0	(21.82)	56.5 ***	(9.85)	115.0	(23.24)
Pastries	50.8	(5.24)	45.5	(12.33)	66.1	(8.71)	49.7	(7.85)
Doughnuts	48.7	(3.61)	58.6	(9.96)	60.3	(10.39)	42.6	(3.51)
Salty Snacks (grams)	23.0	(1.07)	22.5	(1.13)	27.2 *	(2.09)	21.8	(1.86)
Corn-based salty snacks	23.5	(1.18)	22.9	(2.44)	29.4	(3.01)	21.3	(1.78)
Pretzels/party mix	20.0	(2.35)	14.6	(2.54)	23.7	(5.67)	21.7	(3.16)
Popcorn	13.8	(0.98)	14.5	(1.55)	13.3	(1.88)	14.0	(2.03)
Potato chips	19.6	(0.82)	21.0	(1.37)	20.4	(2.23)	18.1	(1.78)
Added Fats and Oils (grams)	12.7	(1.18)	13.4	(2.68)	14.8	(2.24)	10.9	(1.14)
Butter	5.2	(0.42)	4.4	(0.67)	6.9	(1.41)	4.4	(0.41)
Margarine	5.3	(0.44)	5.4	(0.91)	5.8	(0.91)	5.2	(0.67)
Other added fats	22.6	(3.33)	10.4 u	(3.36)	30.1 ***	(3.93)	24.5 ***	(0.00)
Other added oils	10.8	(1.69)	8.8	(0.00)	.	(.)	11.7	(1.89)
Salad dressing	15.5	(2.34)	15.7 u	(5.23)	16.6	(3.38)	12.4	(2.58)
Mayonnaise	6.3 u	(2.16)	9.8	(2.63)	4.2 *	(0.41)	3.1 u	(2.32)
Gravy	21.9	(3.82)	23.1 u	(9.29)	34.7	(7.58)	15.0	(4.27)
Cream cheese	17.9	(3.22)	7.4	(1.83)	21.5 u	(9.50)	18.2 **	(3.76)
Cream/sour cream	21.7	(4.10)	30.2	(6.83)	15.3	(4.35)	18.2	(4.97)
Other (grams)	34.5	(7.78)	50.2 u	(27.37)	27.7 u	(11.81)	31.7	(7.85)

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Foods consumed from the vegetables, fruits, grains, and meat/meat alternate food groups reflect foods consumed as discrete items and do not include foods consumed as part of mixed dishes. Food choices reflect individual foods consumed except when

foods were reported to be eaten in 'combination' as sandwiches, Mexican entrees, green salads, and soups. In these cases, the foods reported in combination are counted as one food choice (for example, a sandwich reported as a beef, cheese, and roll was counted in the "cheeseburger/hamburger" group as one food choice). 'All children' includes children with missing WIC participation or income. Means are not age-adjusted. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview. oz. = ounces eq. = equivalent.

[1] Grains are classified as whole grains if at least 50 percent of the total grains are whole grain. The MyPyramid data sources listed above were used to classify grains.

[2] "Other raw" and "Other cooked" vegetables include all vegetables not categorized separately. Within these two groups, vegetables in the top quartile of the distribution of Vitamins A or C per 100 grams were categorized as "higher in nutrients"; all others are "lower in nutrients." Raw vegetables higher in nutrients include broccoli, peppers (sweet and hot), snow peas, seaweed, and leeks. Raw vegetables that are lower in nutrients include onions, cucumbers, celery, radishes, mushrooms, asparagus, squash, and green peas. Cooked vegetables higher in nutrients include cabbage, peppers, asparagus, cauliflower, Brussels sprouts, and snow peas. Cooked vegetables that are lower in nutrients include squash, artichokes, onions, mushrooms, eggplant, beets, and yellow string beans.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Table C-12. Average Amounts Consumed in Grams among All Young Children, by Food Group and Subgroup

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Sample size	*1,956*	-	*791*	-	*496*	-	*606*	-
Grains	71.7	(3.74)	67.8	(4.12)	76.1	(5.10)	71.6	(4.65)
Whole grains[1]	21.4	(2.39)	17.2	(2.66)	21.0	(3.91)	23.2	(2.96)
Refined grains	50.2	(2.64)	50.6	(3.30)	55.1	(3.67)	48.4	(3.63)
Bread	7.1	(0.56)	7.8	(0.90)	9.9	(1.74)	5.4	(0.89)
Rolls	1.0	(0.20)	1.1 u	(0.36)	1.1 u	(0.34)	0.9 u	(0.30)
English muffin	0.1 u	(0.05)	0.0 u	(0.04)	0.0	(0.00)	0.1 u	(0.10)
Bagels	1.4	(0.41)	0.3 u	(0.15)	1.2 u	(0.69)	2.1 * u	(0.75)
Biscuits, scones, croissants	1.5	(0.38)	2.3 u	(0.95)	2.3 u	(0.71)	0.8 u	(0.30)
Muffins	1.2 u	(0.41)	1.4 u	(0.76)	1.4 u	(1.08)	1.1 u	(0.55)
Cornbread	0.5 u	(0.23)	1.1 u	(0.87)	0.2 u	(0.12)	0.4 u	(0.24)
Corn tortillas	1.1	(0.22)	2.8	(0.66)	1.2 *	(0.36)	0.2 *** u	(0.09)
Flour tortillas	0.5 u	(0.22)	0.5 u	(0.24)	0.3 u	(0.17)	0.6 u	(0.49)
Taco shells	0.1 u	(0.04)	0.0 u	(0.02)	0.2 u	(0.15)	0.1 u	(0.04)
Crackers	5.9	(0.52)	4.6	(0.61)	4.9	(0.80)	6.7	(0.92)
Breakfast/granola bar	1.6	(0.27)	0.5 u	(0.18)	0.7 u	(0.34)	2.7 ***	(0.45)
Pancakes, waffles, French toast	8.6	(0.81)	5.0	(0.91)	8.5 *	(1.36)	10.7 **	(1.68)
Cold cereal	13.1	(0.59)	14.9	(0.96)	14.6	(1.24)	11.7 *	(0.80)
Hot cereal	14.5	(2.04)	14.0	(2.70)	16.9	(4.21)	13.8	(2.81)
Rice	10.6	(1.84)	10.0	(1.87)	10.3	(3.06)	11.1	(3.04)
Pasta	2.8	(0.54)	1.5	(0.42)	2.4 u	(0.71)	3.2 *	(0.77)
Vegetables	66.2	(3.51)	61.2	(4.18)	60.6	(6.86)	69.6	(6.02)
Raw vegetables	11.4	(2.21)	6.9	(1.57)	7.3	(1.20)	15.6	(4.55)
Raw lettuce/greens	0.2 u	(0.09)	0.2 u	(0.10)	0.2 u	(0.11)	0.1 u	(0.10)
Raw carrots	2.0	(0.55)	0.5 u	(0.26)	1.4 u	(0.51)	2.9 * u	(1.05)
Raw tomatoes	0.7 u	(0.23)	0.6 u	(0.34)	0.9 u	(0.42)	0.7 u	(0.37)
Raw cabbage/coleslaw	0.3 u	(0.12)	0.2 u	(0.11)	0.6 u	(0.40)	0.2 u	(0.15)
Other raw (higher in vitamins A or C)[2]	0.2 u	(0.10)	0.3 u	(0.25)	0.0 u	(0.02)	0.3 u	(0.16)
Other raw (lower in vitamins A or C)[2]	1.1	(0.29)	0.7 u	(0.32)	1.3 u	(0.53)	1.4 u	(0.46)
Salads (w/greens)	6.8 u	(2.06)	4.4	(1.04)	3.0	(0.69)	9.9 u	(4.22)
Cooked vegetables, excl. potatoes	30.4	(2.69)	24.7	(2.10)	26.8	(4.29)	33.5	(3.98)
Cooked green beans	5.3	(0.54)	6.6	(0.84)	5.1	(1.28)	4.5	(0.73)
Cooked corn	5.4	(0.73)	5.9	(1.29)	5.2 u	(1.66)	5.1	(1.07)
Cooked peas	1.2	(0.27)	1.1 u	(0.37)	1.4 u	(0.56)	1.0 u	(0.34)
Cooked carrots	3.3	(0.82)	1.1 u	(0.38)	4.5 u	(1.93)	3.2 *	(0.87)
Cooked broccoli	3.8	(0.94)	1.0 u	(0.43)	2.5 u	(1.37)	5.9 ** u	(1.84)
Cooked tomatoes	2.8	(0.27)	3.1	(0.70)	2.3	(0.39)	2.9	(0.46)
Cooked mixed	1.9	(0.38)	1.5 u	(0.67)	1.9 u	(0.91)	2.1 u	(0.67)
Cooked starchy	0.9 u	(0.58)	0.3 u	(0.22)	0.5 u	(0.55)	1.4 u	(1.16)
Other cooked deep yellow	0.8 u	(0.30)	1.1 u	(0.58)	0.2 u	(0.18)	0.6 u	(0.51)
Other cooked dark green	0.7 u	(0.28)	1.2 u	(0.56)	1.6 u	(1.04)	0.2 u	(0.08)
Other cooked (higher in vitamins A or C)[2]	2.2 u	(1.11)	0.9 u	(0.35)	1.5 u	(0.74)	3.1 u	(2.23)
Other cooked (lower in vitamins A or C)[2]	2.1 u	(0.87)	0.8 u	(0.60)	0.0 u	(0.03)	3.5 u	(1.50)
Other fried	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)
Cooked potatoes	23.7	(1.91)	29.0	(3.44)	25.7	(3.64)	20.0 *	(2.37)
Cooked potatoes-not fried	12.5	(1.95)	16.8	(3.19)	15.5	(3.52)	8.9 *	(1.96)
Cooked potatoes-fried	11.2	(1.01)	12.2	(1.87)	10.2	(1.48)	11.1	(1.68)
Vegetable juice	0.7 u	(0.26)	0.6 u	(0.45)	0.7 u	(0.62)	0.6 u	(0.34)

See notes at end of table.

Table C-12. Average Amounts Consumed in Grams among All Young Children, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Fruit and 100% fruit juice	288.0	(9.02)	337.0	(19.51)	247.0 ***	(18.36)	281.0 *	(12.52)
Any whole fruit	111.0	(5.71)	101.0	(6.50)	110.0	(11.08)	117.0	(9.91)
Fresh fruit	87.9	(5.49)	85.2	(7.16)	83.0	(8.96)	92.2	(9.87)
Fresh orange	8.9	(0.86)	13.1	(3.04)	9.2 u	(3.49)	6.3 *	(1.42)
Fresh other citrus	0.0 u	(0.03)	0.1 u	(0.08)	0.0 u	(0.02)	0.0 u	(0.02)
Fresh apple	22.4	(2.47)	21.0	(3.61)	26.2	(4.03)	21.4	(4.44)
Fresh banana	22.0	(1.91)	26.0	(3.63)	16.7 *	(2.75)	22.0	(3.08)
Fresh melon	2.4 u	(0.79)	1.3 u	(1.07)	1.2 u	(0.54)	3.8 u	(1.50)
Fresh watermelon	9.0 u	(2.88)	4.1	(0.99)	6.8 u	(3.16)	13.4 u	(4.65)
Fresh grapes	8.1	(0.87)	6.7	(1.04)	6.5	(1.23)	9.4	(1.69)
Fresh peach/nectarine	2.9	(0.75)	2.3 u	(0.86)	4.3	(1.30)	2.2 u	(1.24)
Fresh pear	4.2 u	(1.26)	2.2 u	(1.21)	5.8 u	(3.51)	4.9 u	(1.96)
Fresh berries	4.3	(0.89)	4.3 u	(1.35)	1.7 u	(0.60)	5.6	(1.63)
Fresh pineapple	0.4 u	(0.15)	0.2 u	(0.15)	1.1 u	(0.60)	0.1 u	(0.10)
Other fresh fruit	3.3	(0.69)	3.8	(0.98)	3.2 u	(1.19)	3.0 u	(1.14)
Avocado/guacamole	0.1 u	(0.05)	0.0 u	(0.02)	0.2 u	(0.22)	0.1 u	(0.06)
Lemon/lime - any form	0.0 u	(0.01)	0.0 u	(0.00)	0.0 u	(0.02)	0.0 u	(0.02)
Canned or frozen fruit, total	21.6	(2.09)	15.8	(2.50)	26.0	(5.30)	22.5	(2.45)
Canned or frozen in syrup	2.1	(0.62)	1.2 u	(0.53)	3.0 u	(1.16)	2.4 u	(1.14)
Canned or frozen, no syrup	19.5	(1.86)	14.6	(2.51)	23.0	(5.39)	20.1	(2.10)
Applesauce, canned/ frozen apples	7.2	(1.10)	7.7	(2.23)	7.1 u	(2.28)	7.3	(1.54)
Canned/frozen peaches	4.4	(1.19)	2.1 u	(0.66)	6.6 **	(1.59)	3.4	(1.01)
Canned/frozen pineapple	0.9 u	(0.33)	0.3 u	(0.17)	1.0 u	(0.82)	1.2 u	(0.50)
Other canned/frozen	9.1	(1.11)	5.8	(1.21)	11.2 u	(3.40)	10.5 *	(1.73)
100% Fruit juice	177.0	(9.97)	235.0	(17.37)	136.0 ***	(13.56)	164.0 **	(13.55)
Non-citrus juice	145.0	(8.59)	195.0	(17.55)	107.0 ***	(11.35)	136.0 **	(10.89)
Citrus juice	32.4	(3.23)	40.4	(4.55)	29.5	(6.25)	28.3	(4.24)
Dried fruit	1.4	(0.24)	0.1 u	(0.04)	1.3 * u	(0.53)	2.1 ***	(0.41)
Milk and milk products	436.0	(15.11)	477.0	(21.53)	358.0 ***	(24.96)	455.0	(19.10)
Cow's milk, total	392.0	(14.29)	446.0	(21.56)	328.0 ***	(24.47)	399.0	(17.76)
Unflavored white milk, total	370.0	(13.23)	431.0	(21.09)	304.0 ***	(20.45)	371.0 *	(16.76)
Unflavored whole milk	200.0	(10.00)	279.0	(18.43)	140.0 ***	(18.34)	186.0 ***	(16.65)
Unflavored non-whole, total	164.0	(12.18)	145.0	(13.64)	157.0	(20.98)	181.0	(19.38)
2% milk, unflavored	115.0	(9.82)	116.0	(12.51)	127.0	(18.00)	116.0	(13.34)
1% milk, unflavored	26.0	(4.62)	21.7 u	(7.85)	17.8 u	(5.46)	28.0 u	(8.42)
Skim milk, unflavored	22.9 u	(7.97)	6.8 u	(3.64)	12.4 u	(6.36)	37.8 u	(15.77)
Unflavored, fat not specified	5.6	(1.63)	7.5 u	(4.30)	7.1 u	(2.85)	4.2 u	(1.67)
Flavored milk, total	22.6	(3.75)	14.9 u	(4.84)	24.8 u	(8.06)	27.3	(6.82)
Flavored, whole milk	5.2 u	(1.62)	1.9 u	(0.88)	9.4 u	(4.15)	5.8 u	(2.92)
Flavored non-whole, total	13.6	(2.97)	13.0 u	(4.79)	11.2 u	(5.27)	15.5 u	(4.78)
2% milk, flavored	8.2	(2.20)	7.6 u	(4.81)	6.5 u	(3.67)	9.8 u	(3.22)
1% milk, flavored	5.0 u	(1.75)	5.1 u	(3.14)	4.3 u	(3.21)	5.7 u	(3.01)
Skim milk, flavored	0.3 u	(0.19)	0.3 u	(0.28)	0.4 u	(0.38)	0.0	(0.00)
Flavored, fat not specified	3.8 u	(2.17)	0.1 u	(0.06)	4.2 u	(2.15)	6.1 u	(4.38)
Soymilk	12.1	(2.39)	3.5 u	(2.14)	8.3 u	(4.04)	19.6 **	(4.59)
Dry or evaporated milk	0.8 u	(0.38)	1.0 u	(0.97)	2.0 u	(1.19)	0.3 u	(0.24)
Yogurt	20.8	(1.76)	18.7	(2.40)	10.6 *	(2.64)	23.7	(2.37)
Cheese	10.1	(1.02)	7.8	(1.16)	8.2	(2.29)	12.7 *	(1.68)

See notes at end of table.

Table C-12. Average Amounts Consumed in Grams among All Young Children, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Meat and meat alternates	60.3	(2.36)	67.6	(3.57)	68.9	(5.39)	53.7 **	(3.18)
Beef	4.3	(0.66)	2.8	(0.52)	6.9 u	(2.17)	4.1	(0.95)
Ground beef	1.3	(0.36)	1.1 u	(0.43)	0.7 u	(0.28)	1.7 u	(0.71)
Pork	1.8	(0.34)	2.8	(0.54)	1.0 * u	(0.52)	1.6 u	(0.66)
Ham	0.7 u	(0.38)	1.5 u	(1.30)	0.7 u	(0.39)	0.4 u	(0.22)
Lamb and misc. meats	0.1 u	(0.07)	0.3 u	(0.27)	0.0	(0.00)	0.0	(0.00)
Chicken	17.6	(1.42)	17.7	(1.39)	19.4	(2.82)	16.7	(1.87)
Turkey	0.7 u	(0.23)	0.7 u	(0.42)	1.6 u	(0.89)	0.3 u	(0.18)
Organ meats	0.0 u	(0.00)	0.0 u	(0.01)	0.0	(0.00)	0.0	(0.00)
Hot dogs	3.4	(0.47)	4.6	(1.21)	1.6 * u	(0.51)	3.8	(0.84)
Cold cuts	2.4	(0.50)	2.3 u	(0.94)	2.2 u	(0.80)	2.7	(0.67)
Fish	3.0	(0.79)	1.4 u	(0.46)	3.1 u	(0.98)	3.8 u	(1.56)
Shellfish	0.5	(0.16)	0.5 u	(0.26)	1.4 u	(0.64)	0.2 u	(0.09)
Bacon/sausage	3.4	(0.44)	3.8	(0.78)	4.5 u	(1.42)	2.9	(0.44)
Eggs	14.1	(1.15)	19.0	(1.95)	20.2	(3.39)	9.3 ***	(1.36)
Beans	2.9	(0.61)	5.5	(1.04)	3.6 u	(1.96)	1.3 *** u	(0.42)
Baked/refried beans	1.2	(0.26)	1.5 u	(0.52)	0.1 ** u	(0.08)	1.6 u	(0.51)
Soy products	1.1 u	(0.36)	0.4 u	(0.38)	1.0 u	(1.00)	1.5 u	(0.56)
Protein/meal enhancement	0.4 u	(0.15)	0.2 u	(0.16)	0.1 u	(0.06)	0.7 u	(0.28)
Nuts	1.0	(0.27)	1.0 u	(0.31)	0.6 u	(0.28)	0.8 u	(0.34)
Peanut/almond butter	0.3 u	(0.09)	0.4 u	(0.24)	0.3 u	(0.13)	0.3 u	(0.14)
Seeds	0.1 u	(0.06)	0.1 u	(0.06)	0.0 u	(0.01)	0.1 u	(0.05)
Mixed dishes	184.0	(6.07)	197.0	(9.96)	221.0	(13.54)	160.0 **	(6.44)
Tomato sauce and meat (no pasta)	0.2 u	(0.07)	0.0 u	(0.03)	0.4 u	(0.30)	0.1 u	(0.05)
Chili con carne	1.2 u	(0.51)	0.8 u	(0.49)	2.2 u	(1.82)	1.0 u	(0.67)
Meat mixtures w/ red meat	8.8	(1.22)	11.5	(1.94)	9.4	(2.56)	6.8 u	(2.04)
Meat mixtures w/ chicken/turkey	13.4	(1.60)	12.5	(1.96)	16.3	(3.57)	12.0	(2.74)
Meat mixtures w/ fish	1.0 u	(0.39)	1.9 u	(1.28)	1.4 u	(0.57)	0.4 u	(0.25)
Hamburgers/cheeseburgers	6.5	(1.03)	6.5	(1.73)	7.7	(1.60)	6.2	(1.77)
Other sandwiches	33.0	(1.77)	29.6	(3.25)	38.0	(3.43)	33.7	(3.75)
Hot dogs	7.1	(0.75)	6.1	(1.34)	10.3	(1.79)	6.9	(1.33)
Luncheon meat	8.8	(1.22)	8.9	(1.79)	12.6	(2.43)	7.7	(2.22)
Beef, pork, ham	3.2 u	(1.05)	3.7 u	(1.45)	1.0 u	(0.49)	3.9 u	(2.05)
Chicken, turkey	1.2	(0.35)	1.4 u	(0.50)	0.7 u	(0.42)	0.9 u	(0.47)
Cheese (no meat)	3.9	(0.76)	2.6 u	(0.80)	2.9 u	(0.87)	5.1	(1.31)
Fish	0.7 u	(0.28)	0.8 u	(0.40)	1.1 u	(0.74)	0.6 u	(0.37)
Peanut butter	6.9	(0.77)	4.5	(1.12)	7.8	(1.38)	7.8	(1.46)
Breakfast sandwiches	1.2 u	(0.40)	1.7 u	(0.96)	1.7 u	(1.03)	0.6 u	(0.23)
Pizza (no meat)	4.9	(0.87)	2.8	(0.62)	5.5 u	(1.73)	5.0	(1.46)
Pizza w/ meat	6.9	(1.04)	5.1	(0.89)	10.8 **	(1.77)	6.6	(1.82)
Mexican entrees	12.1	(2.19)	15.5	(3.59)	13.1 u	(4.61)	8.2	(1.73)
Macaroni and cheese	16.6	(1.84)	15.3	(3.47)	21.8	(4.39)	15.3	(2.76)
Pasta dishes	31.6	(2.30)	30.6	(4.07)	28.2	(5.48)	32.6	(4.36)
Rice dishes	6.9	(0.93)	12.2	(2.33)	7.8 u	(2.85)	4.0 **	(1.12)
Other grain mixtures	2.1	(0.58)	3.7 u	(1.60)	2.8 u	(2.25)	1.1	(0.26)
Meat soup	18.9	(2.76)	26.3	(6.09)	31.6	(7.76)	9.3 * u	(3.52)
Bean soup	0.6 u	(0.28)	0.3 u	(0.20)	0.3 u	(0.24)	1.0 u	(0.56)
Grain soups	10.0	(1.53)	16.3	(2.33)	17.5	(5.03)	3.6 *** u	(1.08)
Vegetables mixtures (incl. soup)	8.9	(2.52)	5.5	(1.16)	5.8 u	(1.95)	12.7 u	(4.63)
Entrée salads	0.6 u	(0.20)	0.3 u	(0.14)	0.4 u	(0.31)	0.9 u	(0.38)

See notes at end of table.

Table C-12. Average Amounts Consumed in Grams among All Young Children, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Beverages excluding milk and 100% fruit juice	524.0	(16.36)	519.0	(21.35)	649.0 **	(36.38)	470.0	(24.48)
Coffee	0.8 u	(0.23)	2.2 u	(0.76)	0.4 * u	(0.20)	0.1 ** u	(0.13)
Tea	15.4	(2.85)	18.8	(4.10)	15.1	(4.40)	11.6 u	(4.18)
Beer	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)
Wine	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)
Liquor	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)
Water (plain)	310.0	(13.17)	265.0	(11.80)	363.0 **	(31.17)	307.0	(20.96)
Noncarbonated, sweetened drinks	133.0	(7.90)	152.0	(13.36)	194.0 *	(15.70)	99.1 **	(10.61)
Noncarbonated, low-calorie/sugar-free drinks	16.1	(2.53)	16.5	(4.10)	19.3	(5.01)	14.6	(3.77)
Energy drinks	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)
Any soda	48.3	(4.39)	64.0	(9.92)	57.5	(6.94)	37.3 *	(5.56)
Soda, regular	43.9	(4.28)	59.6	(9.63)	50.9	(6.16)	33.6 *	(5.53)
Soda, sugar-free	4.3	(1.06)	4.4 u	(1.37)	6.6 u	(4.09)	3.7	(0.88)
Sweets and desserts	62.2	(2.92)	56.0	(3.22)	66.8 *	(4.44)	63.9	(5.67)
Sugar and sugar substitutes	0.3	(0.07)	0.7	(0.19)	0.3 u	(0.10)	0.2 * u	(0.07)
Syrups/sweet toppings	3.1	(0.33)	2.0	(0.36)	3.5 *	(0.55)	3.6 *	(0.67)
Jelly	0.4	(0.09)	0.5 u	(0.19)	0.5 u	(0.19)	0.3 u	(0.10)
Jello	3.0 u	(1.24)	1.6 u	(0.54)	3.5 u	(1.11)	3.7 u	(2.14)
Candy	8.1	(0.60)	6.9	(0.69)	7.5	(0.72)	9.3	(1.14)
Ice cream	15.3	(1.26)	10.6	(1.52)	18.1 **	(2.17)	16.6 *	(2.52)
Pudding	3.1	(0.50)	2.2 u	(0.99)	2.9 u	(1.28)	3.7	(0.77)
Ice/popsicles	7.9	(1.02)	7.5	(1.47)	8.4	(2.33)	7.9	(1.90)
Sweet rolls	1.3	(0.29)	1.9	(0.50)	1.7 u	(0.55)	0.9 u	(0.43)
Cake/cupcakes	4.7	(0.52)	5.9	(1.60)	5.6	(1.23)	3.2	(0.76)
Cookies	10.3	(0.78)	12.2	(1.33)	10.7	(1.22)	9.5	(1.04)
Pies/cobblers	0.9 u	(0.35)	0.9 u	(0.77)	0.7 u	(0.27)	1.0 u	(0.61)
Pastries	2.4	(0.64)	1.4 u	(0.52)	2.3 u	(0.85)	2.7 u	(1.02)
Doughnuts	1.4	(0.27)	1.5 u	(0.46)	1.2 u	(0.45)	1.5	(0.39)
Salty Snacks	10.1	(0.57)	10.1	(0.80)	11.4	(1.22)	9.7	(1.00)
Corn-based salty snacks	3.9	(0.37)	4.0	(0.69)	5.3	(0.87)	3.5	(0.57)
Pretzels/party mix	1.6	(0.31)	0.9	(0.20)	1.5 u	(0.46)	2.2 *	(0.60)
Popcorn	1.4	(0.16)	1.5	(0.28)	1.1	(0.22)	1.4	(0.29)
Potato chips	3.2	(0.33)	3.8	(0.63)	3.6	(0.66)	2.5	(0.56)
Added Fats and Oils	3.5	(0.42)	2.8	(0.78)	4.4	(0.79)	3.1	(0.53)
Butter	0.5	(0.09)	0.3	(0.06)	0.8 *	(0.20)	0.5	(0.11)
Margarine	0.4	(0.08)	0.3 u	(0.13)	0.6	(0.16)	0.4	(0.11)
Other added fats	0.2 u	(0.06)	0.1 u	(0.08)	0.5 u	(0.24)	0.1 u	(0.09)
Other added oils	0.0 u	(0.02)	0.0 u	(0.02)	0.0	(0.00)	0.0 u	(0.03)
Salad dressing	0.6	(0.15)	0.3 u	(0.15)	0.5	(0.16)	0.6 u	(0.24)
Mayonnaise	0.0 u	(0.01)	0.1 u	(0.05)	0.0 u	(0.03)	0.0 u	(0.01)
Gravy	0.8 u	(0.26)	0.7 u	(0.28)	1.5 u	(0.72)	0.4 u	(0.25)
Cream cheese	0.3 u	(0.11)	0.0 u	(0.02)	0.2 u	(0.21)	0.6 ** u	(0.20)
Cream/sour cream	0.6 u	(0.19)	0.9 u	(0.61)	0.2 u	(0.12)	0.5 u	(0.17)
Other	2.2	(0.53)	2.2 u	(1.22)	0.9 u	(0.41)	2.9	(0.81)

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Foods consumed from the vegetables, fruits, grains, and meat/meat alternate food groups reflect foods consumed as discrete items and do not include foods consumed as part of mixed dishes. Food choices reflect individual foods consumed except when

foods were reported to be eaten in 'combination' as sandwiches, Mexican entrees, green salads, and soups. In these cases, the foods reported in combination are counted as one food choice (for example, a sandwich reported as a beef, cheese, and roll was counted in the "cheeseburger/hamburger" group as one food choice). 'All children' includes children with missing WIC participation or income. Means are not age-adjusted. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[1] Grains are classified as whole grains if at least 50 percent of the total grains are whole grain. The MyPyramid data sources listed above were used to classify grains.

[2] "Other raw" and "Other cooked" vegetables include all vegetables not categorized separately. Within these two groups, vegetables in the top quartile of the distribution of Vitamins A or C per 100 grams were categorized as "higher in nutrients"; all others are "lower in nutrients." Raw vegetables higher in nutrients include broccoli, peppers (sweet and hot), snow peas, seaweed, and leeks. Raw vegetables that are lower in nutrients include onions, cucumbers, celery, radishes, mushrooms, asparagus, squash, and green peas. Cooked vegetables higher in nutrients include cabbage, peppers, asparagus, cauliflower, Brussels sprouts, and snow peas. Cooked vegetables that are lower in nutrients include squash, artichokes, onions, mushrooms, eggplant, beets, and yellow string beans.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Table C-13. Average Amounts Consumed in Grams among Young Children Consuming, by Food Group and Subgroup

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Sample size	*1,956*	-	*791*	-	*496*	-	*606*	-
Grains	77.7	(3.89)	75.4	(4.46)	83.6	(5.37)	76.4	(4.84)
Whole grains[1]	56.1	(4.52)	53.9	(7.07)	65.2	(10.08)	52.0	(4.90)
Refined grains	61.5	(2.80)	61.9	(3.52)	66.5	(4.12)	60.3	(4.13)
Bread	29.8	(1.60)	31.1	(2.70)	33.1	(3.92)	27.4	(2.17)
Rolls	28.8	(3.60)	30.7	(4.85)	32.5	(6.45)	24.2	(5.54)
English muffin	16.3	(2.16)	58.0	(0.00)	.	(.)	14.5	(0.00)
Bagels	56.4	(6.41)	48.2	(3.71)	53.6	(10.60)	58.0	(7.55)
Biscuits, scones, croissants	37.3	(5.01)	46.7	(3.63)	34.0	(9.79)	30.9 *	(7.16)
Muffins	52.8	(10.76)	75.3	(17.45)	65.3	(0.83)	40.4 u	(14.47)
Cornbread	70.2	(19.78)	88.4 u	(28.50)	30.1 *	(6.80)	67.5 u	(24.19)
Corn tortillas	28.0	(1.82)	28.6	(2.52)	29.2	(5.08)	19.7 *	(2.54)
Flour tortillas	39.5	(9.80)	29.4	(6.75)	29.3	(7.42)	52.4	(15.17)
Taco shells	18.7	(5.25)	13.5	(2.85)	42.2 * u	(14.19)	14.7	(3.25)
Crackers	19.8	(1.11)	17.1	(1.42)	20.6	(1.60)	20.4	(1.73)
Breakfast/granola bar	33.3	(2.27)	29.2	(2.81)	41.5	(6.49)	33.2	(2.64)
Pancakes, waffles, French toast	51.8	(3.15)	50.7	(8.08)	54.9	(3.74)	50.7	(4.64)
Cold cereal	25.8	(0.72)	26.4	(1.13)	29.9	(1.56)	23.6	(1.16)
Hot cereal	130.0	(13.76)	109.0	(11.20)	164.0	(26.98)	132.0	(17.08)
Rice	87.5	(5.93)	76.5	(6.86)	91.7	(15.43)	89.8	(13.75)
Pasta	66.5	(7.61)	67.1 u	(20.94)	131.0 *	(21.52)	63.5	(8.48)
Vegetables	97.7	(4.88)	97.6	(5.36)	90.6	(8.87)	98.6	(8.09)
Raw vegetables	69.2	(11.31)	65.0	(11.06)	58.8	(8.67)	77.6	(18.24)
Raw lettuce/greens	21.8	(5.57)	24.0 u	(7.99)	22.3	(3.21)	13.5	(2.05)
Raw carrots	38.3	(3.99)	33.0 u	(10.74)	33.2	(5.98)	39.9	(5.86)
Raw tomatoes	42.1	(9.41)	48.7 u	(14.82)	37.1	(7.13)	44.3 u	(18.12)
Raw cabbage/coleslaw	59.3	(12.41)	48.7	(6.84)	110.0 ***	(15.37)	44.1	(8.94)
Other raw (higher in vitamins A or C)[2]	21.6 u	(6.55)	73.4	(10.01)	44.0 **	(0.00)	16.7 *** u	(5.19)
Other raw (lower in vitamins A or C)[2]	38.3	(5.16)	36.6 u	(13.11)	39.2 u	(12.13)	38.4	(6.22)
Salads (w/greens)	98.9	(23.54)	68.0	(7.83)	67.8	(10.70)	135.0	(35.88)
Cooked vegetables, excl. potatoes	68.5	(5.18)	60.8	(4.43)	63.4	(6.54)	71.5	(7.86)
Cooked green beans	52.6	(3.08)	56.8	(4.22)	49.3	(6.09)	49.8	(3.72)
Cooked corn	66.1	(4.99)	71.1	(7.18)	50.2	(9.19)	73.0	(9.17)
Cooked peas	40.9	(4.15)	59.4	(9.65)	48.3	(7.39)	31.8 *	(6.78)
Cooked carrots	50.2	(4.30)	34.0	(4.16)	73.4 ***	(10.23)	41.8	(2.13)
Cooked broccoli	67.7	(9.37)	44.4	(11.55)	109.0 *	(24.94)	67.5	(9.39)
Cooked tomatoes	17.1	(1.17)	19.9	(3.10)	14.3	(1.80)	16.7	(1.66)
Cooked mixed	62.3	(6.62)	50.1	(5.53)	77.1	(16.62)	62.4	(9.29)
Cooked starchy	93.6	(10.71)	59.1	(12.45)	236.0 ***	(0.00)	92.1 *	(9.01)
Other cooked deep yellow	84.9	(6.15)	89.1	(11.84)	48.6 **	(8.75)	91.6	(6.56)
Other cooked dark green	44.7	(10.36)	51.4 u	(16.97)	53.9	(10.40)	18.9 u	(9.26)
Other cooked (higher in vitamins A or C)[2]	74.4 u	(25.16)	42.0	(6.50)	89.3 **	(13.83)	91.5 u	(40.18)
Other cooked (lower in vitamins A or C)[2]	58.9	(8.40)	66.3 u	(48.28)	11.8	(0.70)	59.2	(7.27)
Other fried	.	(.)	.	(.)	.	(.)	.	(.)
Cooked potatoes	66.5	(2.64)	73.5	(4.23)	67.8	(7.66)	60.4 *	(4.38)
Cooked potatoes-not fried	86.9	(5.10)	88.7	(7.82)	81.6	(10.76)	88.7	(9.18)
Cooked potatoes-fried	48.7	(2.59)	55.3	(4.88)	44.0	(4.85)	46.2	(3.78)
Vegetable juice	137.0	(22.85)	162.0	(20.87)	226.0 u	(106.44	99.8 *	(20.62)

See notes at end of table.

Table C-13. Average Amounts Consumed in Grams among Young Children Consuming, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Fruit and 100% fruit juice	343.0	(9.73)	391.0	(21.71)	312.0 **	(18.72)	329.0 *	(13.42)
Any whole fruit	167.0	(6.25)	160.0	(7.33)	170.0	(13.63)	170.0	(10.23)
Fresh fruit	157.0	(6.00)	149.0	(8.42)	163.0	(11.96)	161.0	(9.91)
Fresh orange	99.3	(10.29)	125.0	(15.77)	126.0	(22.55)	70.3 **	(11.08)
Fresh other citrus	29.3 u	(11.26)	48.2	(1.65)	45.0	(0.00)	11.3 ***	(0.00)
Fresh apple	108.0	(3.82)	105.0	(8.81)	119.0	(9.52)	109.0	(7.63)
Fresh banana	93.6	(4.16)	93.1	(8.08)	102.0	(6.89)	91.9	(4.84)
Fresh melon	99.7	(9.13)	98.8	(24.60)	67.9	(10.83)	107.0	(12.89)
Fresh watermelon	192.0	(32.09)	152.0	(30.83)	258.0 u	(102.95	189.0	(28.69)
Fresh grapes	65.4	(3.29)	59.7	(5.30)	74.3	(8.24)	67.2	(6.34)
Fresh peach/nectarine	104.0	(11.39)	106.0	(12.52)	93.3	(21.78)	105.0	(19.06)
Fresh pear	118.0	(17.97)	152.0	(25.46)	182.0	(15.14)	95.8	(17.73)
Fresh berries	63.6	(9.85)	68.4	(14.01)	47.1	(6.11)	66.0	(15.49)
Fresh pineapple	50.8	(3.88)	50.0	(8.72)	53.0	(6.53)	44.3	(2.39)
Other fresh fruit	91.2	(8.16)	93.4	(15.81)	86.5	(16.13)	94.4	(12.92)
Avocado/guacamole	46.0 u	(26.79)	4.8	(0.00)	76.6 u	(41.02)	77.7	(0.00)
Lemon/lime - any form	13.7 u	(6.22)	7.0	(0.00)	7.0	(0.00)	29.0	(0.00)
Canned or frozen fruit, total	113.0	(7.31)	124.0	(10.43)	124.0	(18.92)	105.0	(7.53)
Canned or frozen in syrup	106.0	(9.04)	118.0	(19.83)	88.8	(20.40)	114.0	(8.51)
Canned or frozen, no syrup	113.0	(7.75)	123.0	(11.06)	127.0	(19.07)	103.0	(8.50)
Applesauce, canned/ frozen apples	104.0	(10.00)	129.0	(12.95)	91.8	(18.51)	98.4	(14.02)
Canned/frozen peaches	83.9	(6.09)	78.4	(15.40)	113.0	(11.66)	63.4	(5.70)
Canned/frozen pineapple	74.4	(12.02)	96.2 u	(41.69)	54.6 u	(29.19)	83.4	(8.66)
Other canned/frozen	99.7	(8.43)	115.0	(14.09)	104.0	(17.14)	93.5	(9.24)
100% Fruit juice	306.0	(11.73)	334.0	(22.12)	281.0 *	(12.84)	299.0	(17.33)
Non-citrus juice	314.0	(10.76)	340.0	(28.17)	284.0	(16.75)	313.0	(13.43)
Citrus juice	199.0	(15.20)	221.0	(15.24)	193.0	(12.03)	186.0	(28.55)
Dried fruit	34.8	(2.81)	15.7	(2.97)	33.8 **	(4.96)	37.9 ***	(4.53)
Milk and milk products	481.0	(15.66)	511.0	(22.37)	420.0 **	(19.55)	495.0	(20.74)
Cow's milk, total	466.0	(14.58)	495.0	(20.86)	420.0 *	(21.80)	476.0	(18.72)
Unflavored white milk, total	451.0	(14.74)	485.0	(21.24)	401.0 **	(20.80)	460.0	(19.31)
Unflavored whole milk	480.0	(19.56)	509.0	(30.04)	402.0 **	(27.73)	487.0	(29.85)
Unflavored non-whole, total	386.0	(20.50)	407.0	(24.88)	380.0	(29.10)	390.0	(31.87)
2% milk, unflavored	359.0	(19.56)	385.0	(29.74)	383.0	(33.36)	343.0	(22.04)
1% milk, unflavored	363.0	(42.27)	444.0	(73.32)	306.0	(43.67)	376.0	(81.32)
Skim milk, unflavored	481.0	(69.84)	534.0	(148.72	462.0 u	(139.36	486.0	(86.47)
Unflavored, fat not specified	264.0	(39.64)	373.0 u	(116.56	223.0	(36.74)	231.0	(34.00)
Flavored milk, total	317.0	(26.21)	357.0	(64.04)	292.0	(29.45)	319.0	(30.46)
Flavored, whole milk	335.0	(56.55)	240.0	(22.01)	284.0	(25.80)	430.0	(121.01
Flavored non-whole, total	309.0	(37.60)	393.0	(75.08)	336.0	(63.11)	276.0	(35.73)
2% milk, flavored	265.0	(30.16)	406.0	(115.61	299.0	(64.91)	224.0	(17.28)
1% milk, flavored	347.0	(58.62)	386.0	(61.49)	450.0	(124.78	309.0	(79.84)
Skim milk, flavored	233.0	(18.05)	264.0	(0.00)	187.0	(0.00)	.	(.)
Flavored, fat not specified	285.0	(29.59)	73.6 u	(32.84)	227.0 ***	(27.34)	316.0 ***	(24.82)
Soymilk	468.0	(79.24)	476.0	(139.41	503.0	(80.45)	461.0	(96.68)
Dry or evaporated milk	321.0 u	(98.14)	1342.0	(0.00)	340.0 *** u	(114.15	155.0 *** u	(82.46)
Yogurt	126.0	(4.98)	138.0	(9.01)	141.0	(13.77)	119.0	(7.71)
Cheese	34.0	(2.59)	30.1	(2.78)	42.5	(8.49)	35.3	(3.74)

See notes at end of table.

Table C-13. Average Amounts Consumed in Grams among Young Children Consuming, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Meat and meat alternates	88.7	(3.01)	93.6	(4.37)	102.0	(6.41)	80.2 *	(4.21)
Beef	47.9	(4.00)	41.2	(5.44)	61.4	(12.73)	43.7	(4.81)
Ground beef	49.6	(8.30)	53.6	(8.10)	29.7 *	(5.99)	54.3	(14.79)
Pork	39.7	(5.68)	40.8	(7.30)	26.6 u	(9.01)	43.1	(6.59)
Ham	43.3 u	(14.38)	58.7 u	(26.37)	35.9 u	(13.60)	29.9	(7.14)
Lamb and misc. meats	93.4 u	(41.98)	93.4 u	(41.98)	.	(.)	.	(.)
Chicken	61.7	(2.82)	61.6	(3.14)	77.4 **	(5.26)	54.7	(3.39)
Turkey	67.1	(9.72)	52.9 u	(16.41)	89.8	(17.80)	58.9	(15.69)
Organ meats	46.7	(0.00)	46.7	(0.00)	.	(.)	.	(.)
Hot dogs	59.3	(5.13)	84.2	(6.87)	44.4 * u	(15.69)	51.8 ***	(5.47)
Cold cuts	36.9	(4.40)	37.7	(8.90)	38.9	(7.75)	36.0	(4.98)
Fish	71.5	(10.91)	46.1	(10.69)	70.8	(16.98)	80.9	(17.20)
Shellfish	42.3	(7.23)	40.5	(7.00)	48.1 u	(14.66)	29.4	(7.52)
Bacon/sausage	33.5	(3.02)	34.5	(4.80)	38.9	(9.09)	29.2	(3.15)
Eggs	75.0	(3.03)	78.5	(4.11)	81.6	(7.34)	67.3	(4.43)
Beans	74.7	(9.99)	66.1	(6.14)	150.0 u	(45.53)	58.9	(14.01)
Baked/refried beans	69.7	(7.48)	83.4	(15.12)	20.9 *** u	(6.38)	68.0	(8.01)
Soy products	80.3	(11.78)	91.0	(0.00)	62.0	(0.00)	89.9	(18.52)
Protein/meal enhancement	63.3	(14.52)	43.8 u	(28.46)	34.0	(0.00)	69.9 u	(22.04)
Nuts	28.1	(5.07)	28.1	(5.88)	37.4	(8.29)	21.4 u	(6.85)
Peanut/almond butter	13.5	(2.12)	15.2	(3.95)	10.3	(1.24)	14.5	(3.11)
Seeds	12.9 u	(7.32)	18.5 u	(8.44)	8.4	(0.00)	5.1 u	(4.85)
Mixed dishes	215.0	(8.03)	219.0	(11.00)	253.0	(14.73)	193.0	(9.51)
Tomato sauce and meat (no pasta)	77.7	(11.49)	62.3	(0.00)	69.6	(3.87)	95.1 u	(31.03)
Chili con carne	125.0	(35.03)	156.0	(43.87)	296.0 u	(99.64)	78.3	(9.82)
Meat mixtures w/ red meat	111.0	(8.76)	129.0	(9.72)	111.0	(18.66)	94.5 *	(11.53)
Meat mixtures w/ chicken/turkey	127.0	(9.25)	116.0	(9.82)	142.0	(20.98)	127.0	(17.84)
Meat mixtures w/ fish	93.2	(19.66)	150.0	(29.21)	72.7 u	(28.42)	56.8 ** u	(21.37)
Hamburgers/cheeseburgers	90.6	(5.07)	101.0	(9.56)	84.8	(7.97)	87.9	(6.53)
Other sandwiches	87.9	(2.94)	89.9	(6.53)	93.2	(4.94)	85.1	(4.94)
Hot dogs	92.0	(7.02)	95.9	(9.06)	116.0	(11.80)	80.0	(9.87)
Luncheon meat	91.8	(7.89)	89.7	(12.76)	85.9	(7.30)	97.9	(19.57)
Beef, pork, ham	113.0	(13.26)	131.0	(15.14)	92.1	(24.57)	108.0	(21.23)
Chicken, turkey	85.2	(7.53)	85.4	(11.39)	89.0	(6.96)	74.8	(9.80)
Cheese (no meat)	69.7	(7.38)	65.1	(6.94)	68.2	(7.23)	73.3	(11.32)
Fish	65.4	(8.27)	57.0	(14.78)	101.0 *	(12.75)	56.2	(12.14)
Peanut butter	59.1	(1.74)	56.9	(3.52)	61.6	(3.64)	59.5	(3.05)
Breakfast sandwiches	80.0	(9.77)	97.1	(13.76)	74.2	(17.71)	60.4 *	(7.67)
Pizza (no meat)	85.6	(6.56)	73.4	(11.18)	94.4	(11.56)	84.6	(12.44)
Pizza w/ meat	98.3	(9.53)	85.8	(9.32)	102.0	(8.93)	103.0	(20.15)
Mexican entrees	119.0	(10.96)	118.0	(15.64)	133.0	(21.82)	98.4	(13.77)
Macaroni and cheese	128.0	(8.10)	131.0	(7.66)	130.0	(17.63)	121.0	(8.23)
Pasta dishes	178.0	(8.01)	174.0	(9.64)	239.0 ***	(13.38)	160.0	(11.47)
Rice dishes	96.3	(8.11)	112.0	(9.71)	152.0	(23.19)	61.7 ***	(7.10)
Other grain mixtures	96.4	(15.20)	117.0	(23.92)	109.0	(30.66)	65.0 *	(8.36)
Meat soup	256.0	(19.35)	272.0	(39.39)	279.0	(24.60)	228.0	(46.02)
Bean soup	125.0	(23.41)	92.1	(19.07)	60.8 u	(32.17)	156.0	(27.24)
Grain soups	220.0	(17.35)	206.0	(13.29)	214.0	(28.66)	274.0	(64.65)
Vegetables mixtures (incl. soup)	127.0	(21.26)	125.0	(23.13)	116.0	(23.25)	130.0	(29.28)
Entrée salads	81.4	(18.54)	50.8 u	(20.55)	193.0 ***	(10.30)	79.9	(20.16)

See notes at end of table.

Table C-13. Average Amounts Consumed in Grams among Young Children Consuming, by Food Group and Subgroup–Continued

	Children, 1–4 years old							
	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Beverages excluding milk and 100% fruit juice	563.0	(16.02)	563.0	(22.40)	680.0 **	(32.23)	509.0	(24.49)
Coffee	74.1	(9.17)	95.4	(11.00)	34.2 ***	(6.55)	51.5 u	(39.02)
Tea	186.0	(23.89)	195.0	(19.67)	132.0 **	(12.54)	236.0	(62.28)
Beer	.	(.)	.	(.)	.	(.)	.	(.)
Wine	.	(.)	.	(.)	.	(.)	.	(.)
Liquor	.	(.)	.	(.)	.	(.)	.	(.)
Water (plain)	409.0	(12.94)	377.0	(16.85)	474.0 **	(33.07)	390.0	(20.18)
Noncarbonated, sweetened drinks	318.0	(15.63)	338.0	(23.49)	379.0	(26.38)	281.0	(19.70)
Noncarbonated, low-calorie/sugar-free drinks	246.0	(20.56)	228.0	(24.87)	296.0	(49.15)	243.0	(24.90)
Energy drinks	.	(.)	.	(.)	.	(.)	.	(.)
Any soda	193.0	(10.31)	212.0	(21.77)	218.0	(20.43)	170.0	(12.95)
Soda, regular	201.0	(11.69)	216.0	(23.20)	220.0	(23.47)	183.0	(15.30)
Soda, sugar-free	118.0	(15.96)	127.0	(18.76)	198.0 ***	(8.55)	86.7	(10.29)
Sweets and desserts	74.3	(3.23)	67.8	(3.31)	79.2	(5.11)	76.4	(5.82)
Sugar and sugar substitutes	5.6	(0.72)	6.6	(1.15)	4.8	(0.95)	4.7	(1.30)
Syrups/sweet toppings	18.7	(1.59)	17.6	(1.83)	18.1	(2.58)	19.7	(2.60)
Jelly	11.2	(1.64)	16.3	(4.60)	11.7	(2.64)	8.4	(1.70)
Jello	99.9	(21.42)	103.0	(11.20)	85.2	(23.39)	110.0 u	(34.13)
Candy	22.3	(1.27)	21.6	(1.74)	21.5	(1.24)	23.4	(2.02)
Ice cream	78.9	(6.03)	60.2	(5.45)	81.2 **	(5.36)	88.7 *	(10.60)
Pudding	110.0	(10.81)	93.1	(16.27)	103.0	(21.59)	119.0	(17.37)
Ice/popsicles	77.8	(6.79)	70.7	(5.64)	105.0	(18.18)	71.1	(7.81)
Sweet rolls	51.9	(5.54)	52.1	(4.82)	50.5	(7.43)	52.5	(14.99)
Cake/cupcakes	57.4	(4.70)	66.4	(12.49)	64.6	(6.51)	46.3	(4.82)
Cookies	26.5	(1.48)	29.7	(2.51)	26.2	(1.55)	24.7	(2.03)
Pies/cobblers	103.0	(19.73)	145.0	(21.82)	56.5 ***	(9.85)	115.0	(23.24)
Pastries	50.8	(5.24)	45.5	(12.33)	66.1	(8.71)	49.7	(7.85)
Doughnuts	48.7	(3.61)	58.6	(9.96)	60.3	(10.39)	42.6	(3.51)
Salty Snacks	23.0	(1.07)	22.5	(1.13)	27.2 *	(2.09)	21.8	(1.86)
Corn-based salty snacks	23.5	(1.18)	22.9	(2.44)	29.4	(3.01)	21.3	(1.78)
Pretzels/party mix	20.0	(2.35)	14.6	(2.54)	23.7	(5.67)	21.7	(3.16)
Popcorn	13.8	(0.98)	14.5	(1.55)	13.3	(1.88)	14.0	(2.03)
Potato chips	19.6	(0.82)	21.0	(1.37)	20.4	(2.23)	18.1	(1.78)
Added Fats and Oils	12.7	(1.18)	13.4	(2.68)	14.8	(2.24)	10.9	(1.14)
Butter	5.2	(0.42)	4.4	(0.67)	6.9	(1.41)	4.4	(0.41)
Margarine	5.3	(0.44)	5.4	(0.91)	5.8	(0.91)	5.2	(0.67)
Other added fats	22.6	(3.33)	10.4 u	(3.36)	30.1 ***	(3.93)	24.5 ***	(0.00)
Other added oils	10.8	(1.69)	8.8	(0.00)	.	(.)	11.7	(1.89)
Salad dressing	15.5	(2.34)	15.7 u	(5.23)	16.6	(3.38)	12.4	(2.58)
Mayonnaise	6.3 u	(2.16)	9.8	(2.63)	4.2 *	(0.41)	3.1 u	(2.32)
Gravy	21.9	(3.82)	23.1 u	(9.29)	34.7	(7.58)	15.0	(4.27)
Cream cheese	17.9	(3.22)	7.4	(1.83)	21.5 u	(9.50)	18.2 **	(3.76)
Cream/sour cream	21.7	(4.10)	30.2	(6.83)	15.3	(4.35)	18.2	(4.97)
Other	34.5	(7.78)	50.2 u	(27.37)	27.7 u	(11.81)	31.7	(7.85)

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Sample includes NHANES respondents with complete dietary recall data, 1–4 years old.

Notes: Estimates are based on a single dietary recall per child. Foods consumed from the vegetables, fruits, grains, and meat/meat alternate food groups reflect foods consumed as discrete items and do not include foods consumed as part of mixed dishes. Food choices reflect individual foods consumed except when

foods were reported to be eaten in 'combination' as sandwiches, Mexican entrees, green salads, and soups. In these cases, the foods reported in combination are counted as one food choice (for example, a sandwich reported as a beef, cheese, and roll was counted in the "cheeseburger/hamburger" group as one food choice). 'All children' includes children with missing WIC participation or income. Means are not age-adjusted. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

[1] Grains are classified as whole grains if at least 50 percent of the total grains are whole grain. The MyPyramid data sources listed above were used to classify grains.

[2] "Other raw" and "Other cooked" vegetables include all vegetables not categorized separately. Within these two groups, vegetables in the top quartile of the distribution of Vitamins A or C per 100 grams were categorized as "higher in nutrients"; all others are "lower in nutrients." Raw vegetables higher in nutrients include broccoli, peppers (sweet and hot), snow peas, seaweed, and leeks. Raw vegetables that are lower in nutrients include onions, cucumbers, celery, radishes, mushrooms, asparagus, squash, and green peas. Cooked vegetables higher in nutrients include cabbage, peppers, asparagus, cauliflower, Brussels sprouts, and snow peas. Cooked vegetables that are lower in nutrients include squash, artichokes, onions, mushrooms, eggplant, beets, and yellow string beans.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Table C-14. Healthy Eating Index-2005 (HEI-2005) Scores: Children, 2–4 Years Old

Children, 2–4 years

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*1,390*	-	*486*	-	*400*	-	*453*	-
Total Fruit	5.0	(0.02)	5.0	(0.03)	4.8	(0.18)	5.0	(0.03)
Whole Fruit	5.0	(0.03)	4.9	(0.13)	4.9	(0.16)	5.0	(0.10)
Total Vegetables	2.3	(0.08)	2.3	(0.10)	2.2	(0.11)	2.3	(0.14)
Dark Green and Orange Vegetables, and Legumes	0.8	(0.09)	0.4	(0.07)	0.8	(0.18)	1.0 ***	(0.15)
Total Grains	4.9	(0.03)	4.8	(0.08)	5.0	(0.04)	4.9	(0.05)
Whole Grains	1.1	(0.06)	0.9	(0.08)	1.0	(0.09)	1.2 *	(0.09)
Milk	9.9	(0.08)	9.9	(0.12)	9.7	(0.21)	10.0	(0.08)
Meat and Beans	7.5	(0.18)	8.0	(0.23)	8.4	(0.33)	6.8 **	(0.29)
Oils	5.8	(0.20)	5.8	(0.37)	5.8	(0.32)	5.6	(0.31)
Saturated Fat	5.0	(0.25)	5.2	(0.32)	4.4	(0.37)	5.1	(0.39)
Sodium	4.8	(0.12)	5.3	(0.20)	4.6 *	(0.22)	4.6 *	(0.23)
Empty Calories	11.1	(0.24)	11.3	(0.35)	10.2 *	(0.38)	11.3	(0.44)
Total HEI-2005 Score	**63.2**	**(0.62)**	**63.7**	**(0.65)**	**61.8**	**(1.18)**	**62.8**	**(1.02)**

Children, 2 year olds

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*587*	-	*223*	-	*162*	-	*183*	-
Total Fruit	5.0	(0.00)	5.0	(0.00)	5.0	(0.02)	5.0	(0.00)
Whole Fruit	5.0	(0.00)	5.0	(0.15)	5.0	(0.07)	5.0	(0.01)
Total Vegetables	2.2	(0.10)	2.3	(0.16)	2.1	(0.15)	2.1	(0.22)
Dark Green and Orange Vegetables, and Legumes	0.8	(0.11)	0.4	(0.11)	0.7	(0.15)	1.0 *	(0.23)
Total Grains	4.7	(0.09)	4.6	(0.20)	4.9	(0.10)	4.6	(0.15)
Whole Grains	1.2	(0.12)	0.8	(0.11)	1.1	(0.13)	1.4 **	(0.18)
Milk	10.0	(0.00)	10.0	(0.02)	10.0	(0.02)	10.0	(0.00)
Meat and Beans	7.5	(0.22)	7.7	(0.37)	7.8	(0.48)	7.2	(0.34)
Oils	5.3	(0.23)	5.4	(0.36)	5.5	(0.38)	5.4	(0.42)
Saturated Fat	4.2	(0.35)	4.6	(0.57)	4.9	(0.55)	3.7	(0.49)
Sodium	5.2	(0.19)	5.6	(0.28)	5.0	(0.30)	5.1	(0.34)
Empty Calories	11.4	(0.25)	11.5	(0.43)	11.0	(0.56)	11.7	(0.50)
Total HEI-2005 Score	**62.6**	**(0.70)**	**63.0**	**(0.96)**	**63.0**	**(1.28)**	**62.2**	**(1.30)**

See notes at end of table.

Table C-14. Healthy Eating Index-2005 (HEI-2005) Scores: Children, 2–4 Years–Continued

Children, 3 years old

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*389*	-	*132*	-	*104*	-	*134*	-
Total Fruit	5.0	(0.00)	5.0	(0.01)	4.8 ***	(0.02)	5.0	(0.00)
Whole Fruit	5.0	(0.08)	4.9	(0.29)	4.9	(0.07)	4.9	(0.27)
Total Vegetables	2.2	(0.12)	2.1	(0.12)	2.0	(0.15)	2.2	(0.22)
Dark Green and Orange Vegetables, and Legumes	0.7	(0.13)	0.3	(0.05)	0.3 u	(0.15)	1.1 **	(0.25)
Total Grains	5.0	(0.00)	4.9	(0.11)	5.0	(0.10)	5.0	(0.00)
Whole Grains	1.1	(0.09)	1.0	(0.15)	0.8	(0.13)	1.3	(0.18)
Milk	10.0	(0.05)	10.0	(0.06)	9.7 ***	(0.02)	10.0	(0.05)
Meat and Beans	7.2	(0.30)	8.2	(0.38)	8.1	(0.48)	6.3 **	(0.53)
Oils	5.5	(0.29)	5.3	(0.42)	5.4	(0.38)	5.4	(0.55)
Saturated Fat	5.4	(0.49)	5.8	(0.44)	4.1 *	(0.55)	5.6	(0.89)
Sodium	4.8	(0.23)	5.4	(0.38)	4.4 *	(0.30)	4.6	(0.40)
Empty Calories	11.4	(0.50)	12.1	(0.70)	9.3 **	(0.56)	11.8	(0.96)
Total HEI-2005 Score	**63.2**	**(1.21)**	**65.0**	**(1.09)**	**58.8 *** **	**(1.28)**	**63.2**	**(2.16)**

Children, 4 years old

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*414*	-	*131*	-	*134*	-	*136*	-
Total Fruit	5.0	(0.06)	5.0	(0.08)	4.7	(0.42)	5.0	(0.09)
Whole Fruit	5.0	(0.07)	4.9	(0.21)	4.8	(0.38)	5.0	(0.15)
Total Vegetables	2.6	(0.19)	2.5	(0.22)	2.4	(0.27)	2.7	(0.28)
Dark Green and Orange Vegetables, and Legumes	0.9	(0.21)	0.5 u	(0.18)	1.3 u	(0.49)	0.9 u	(0.31)
Total Grains	5.0	(0.02)	4.9	(0.11)	5.0	(0.04)	5.0	(0.05)
Whole Grains	1.0	(0.08)	0.9	(0.16)	0.9	(0.19)	1.0	(0.11)
Milk	9.8	(0.24)	9.6	(0.37)	9.5	(0.41)	9.9	(0.23)
Meat and Beans	8.0	(0.38)	8.0	(0.46)	9.2	(0.55)	7.0	(0.59)
Oils	6.5	(0.47)	6.5	(0.97)	6.4	(0.76)	6.1	(0.61)
Saturated Fat	5.3	(0.42)	5.1	(0.62)	4.2	(0.71)	5.9	(0.60)
Sodium	4.4	(0.23)	4.8	(0.38)	4.5	(0.49)	4.1	(0.45)
Empty Calories	10.5	(0.47)	10.4	(0.64)	10.5	(0.76)	10.4	(0.75)
Total HEI-2005 Score	**63.9**	**(1.20)**	**63.3**	**(1.32)**	**63.5**	**(2.65)**	**62.9**	**(1.74)**

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Health Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. 'All children' includes children with missing WIC participation or income. Only scores for the age group 2–4 years are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

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Appendix D.

The Healthy Eating Index-2010

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The Healthy Eating Index-2010

In this Appendix, we examine the overall quality of the diets consumed by WIC children and nonparticipating children using the Healthy Eating Index-2010 (HEI-2010). As described in Chapter 6, the HEI is a measure of diet quality that assesses conformance to key recommendations of the *Dietary Guidelines* (USDA and DHHS 2010). It has been adopted by the USDA as a tool to monitor the quality of foods consumed by the U.S. population overall, as well as progress toward healthier eating habits among food assistance program participants (Guenther et al. 2008). The HEI was first created in 1995 by the USDA's Center for Nutrition Policy and Promotion (CNPP). It was revised in 2006 to reflect the 2005 *Dietary Guidelines* (HEI-2005) and updated in 2012 to reflect the 2010 *Dietary Guidelines* (HEI-2010). In this Appendix, we present findings based on the HEI-2010.

All HEI analyses in this appendix are limited to children 2–4 years old because the *Dietary Guidelines* do not apply to children under the age of 2 years. HEI scores were estimated at the population level, using the population ratio method.[1] The HEI-2010 analyses assess the quality of diets consumed by WIC participants and nonparticipants relative to the most recent dietary guidance. The analysis is based on data from the NHANES 2005-2008, and estimates are based on a single day of intake. In this Appendix, we discuss only statistically significant comparisons between WIC participants and either income-eligible or higher-income nonparticipants.

Healthy Eating Index-2010

The HEI-2010 is a scoring metric that is made up of 12 components, each reflecting a key aspect of diet quality. The standards used to assign HEI-2010 component scores are expressed on a density basis (that is, amounts per 1,000 calories or a percentage of calories) rather than absolute amounts of foods consumed. The use of such standards in assessing diet quality reflects the recommendation that individuals should strive to meet food group and nutrient guidelines while maintaining energy balance, rather than meeting these guidelines simply by consuming large quantities of food.

The HEI-2010 consists of nine adequacy components, which are dietary components individuals are recommended to consume to ensure adequate nutrient intakes, and include the following: total fruit, including juice; whole fruit; total vegetables; greens and beans; whole grains; refined grains; dairy; total protein foods; and seafood and plant proteins. The remaining three components, referred to as moderation components that individuals are recommended to limit, assess intakes of fatty acids, sodium, and empty calories, which are commonly consumed in excess.

The HEI-2010 components and standards for scoring are shown in Figure D-1. The figure also shows the intake criteria corresponding to minimum and maximum scores for each component. Maximum scores range from 5 to 20 points. Scores for intakes between the minimum and

[1] In this method, the ratio between the population's total intake of a food group or nutrient of interest and their total calorie intake is computed, rather than using means of individual scores or means of individual ratios. This convention is usually suggested largely because of two factors: (1) it reduces possible bias resulting from correlations between an individual's one-day food or nutrient to energy ratio and his or her energy intake, and (2) there is usually less score truncation in the HEI scoring system for the group-level HEI measure than in the mean of the individual-level HEI scores (Freedman et al. 2008).

maximum standards are scored proportionately. For example, an intake that is halfway between the criteria for the maximum and minimum scores yields a score that is half the maximum score. Higher scores for each of the adequacy components reflect greater consumption, while higher scores for each of the moderation components reflect lower consumption. Scores for each of the 12 components are summed to create a total HEI-2010 score, with a range from 0 to 100.

Figure D-1. Healthy Eating Index-2010 Components and Standards for Scoring

Component[a]	Maximum Score	Standard for Minimum Score of Zero	Standard for Maximum Score
Adequacy Components (higher score indicates *higher* consumption)			
1. Total Fruit	5	No intake	≥ 0.8 cup equiv. per 1,000 kcal
2. Whole Fruit	5	No intake	≥ 0.4 cup equiv. per 1,000 kcal
3. Total Vegetables	5	No intake	≥ 1.1 cup equiv. per 1,000 kcal
4. Greens and Beans	5	No intake	≥ 0.2 cup equiv. per 1,000 kcal
5. Whole Grains	10	No intake	≥ 1.5 oz equiv. per 1,000 kcal
6. Dairy	10	No intake	≥ 1.3 cup equiv. per 1,000 kcal
7. Total Protein Foods	5	No intake	≥ 2.5 oz equiv. per 1,000 kcal
8. Seafood and Plant Proteins	5	No intake	≥ 0.8 oz. equiv. per 1,000 kcal
9. Fatty Acids[b]	10	(PUFAs + MUFAs)/SFAs ≤ 1.2	(PUFAs + MUFAs)/SFAs ≥ 2.5
Moderation Components (higher score indicates *lower* consumption)			
10. Refined Grains	10	≥ 4.3 oz. equiv. per 1,000 calories	≤ 1.8 oz equiv. per 1,000 kcal
11. Sodium	10	≥ 2.0 grams per 1,000 calories	≤ 1.1 grams per 1,000 kcal
12. Empty Calories[c]	20	≥ 50% of energy	≤ 19% of energy
Total Score	**100**		

Source: Healthy Eating Index-2010, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 2, February 2013.

Notes: In the HEI-2010, calories from alcohol are considered to be empty calories only when alcohol is consumed beyond moderate amounts. Equiv. = equivalent; kcal = calories; oz equiv. = ounce equivalent.

[a] Intakes between the minimum and maximum standards are scored proportionately.
[b] Ratio of poly- and monounsaturated fatty acids (PUFAs and MUFAs) to saturated fatty acids (SFAs).
[c] Calories from solid fats, alcohol, and added sugars; threshold for counting alcohol is > 13 grams/1,000 kcal.

Differences between the HEI-2010 and HEI-2005

The HEI-2010 maintains several of the components of its predecessor (the HEI-2005), including Total Fruit, Whole Fruit, Total Vegetables, Whole Grains, Sodium, and Empty Calories. In addition, the Milk and Meat and Beans components were carried forward but are renamed Dairy and Total Protein Foods. However, a number of components were changed from the 2005 version: (1) Greens and Beans replaced the Dark Green and Orange Vegetables and Legumes component; (2) Seafood and Plant Proteins was introduced as a new component; (3) Refined Grains replaced Total Grains; and (3) Fatty Acids replaced Oils and Saturated Fat. The HEI-2010 also incorporates the following changes to the maximum point values of the components and scoring standards:

- Whole Grains has a maximum score of 10 in the HEI-2010 versus 5 in the HEI-2005.
- Total Protein Foods has a maximum score of 5 in the HEI-2010 versus 10 in the HEI-2005 (named Meat and Beans).
- The standard for the maximum score for sodium in the HEI-2010 is no more than 1.1 grams per 1,000 calories versus no more than 0.7 grams per 1,000 calories in the HEI-2005.
- The standard for the maximum score for Empty Calories in the HEI-2010 is no more than 19 percent of calories versus 20 percent of calories in the HEI-2005.
- In the HEI-2010, calories from alcohol are included in the Empty Calories component only when consumed beyond moderate amounts (more than 13 grams per 1,000 calories). In the HEI-2005, all calories from alcohol are included in the Empty Calories component.
- Intakes between the minimum and maximum standards are scored proportionately for all HEI-2010 components and for all HEI-2005 components, except for Saturated Fat and Sodium. In the HEI-2005, Saturated Fat and Sodium get a score of 8 for intake levels that reflect the 2005 *Dietary Guidelines* recommendations—less than 7 percent of calories from saturated fat and less than 1.0 grams of sodium per 1,000 calories, respectively. Intakes between the standard for scores of 0 and 8 and between 8 and 10 are scored proportionately.

Total HEI-2010 Scores

The total HEI-2010 score for all young children was 56.2 out of a possible 100 points (Table D-1). These low total HEI-2010 scores suggest that the diets of children in all three comparison groups fell considerably short of meeting the recommendations in the 2010 *Dietary Guidelines*. However, caution should be taken when comparing the HEI-2005 scores in Chapter 6 with the relatively lower HEI-2010 scores in this appendix. The HEI-2010 scores are provided simply for comparison purposes, as the analyses in this appendix have been performed by comparing data from 2005-2008 to the *Dietary Guidelines* in place in 2010.

HEI-2010 Component Scores

Young children in all three groups achieved or came close to achieving the maximum scores for Total Fruit, Whole Fruit, and Dairy (Table D-1). For children in all three groups, scores for the following components were substantially below the maximum possible scores: Greens and Beans (ranging from 0.3 to 1.0 out of 5), Whole Grains (ranging from 1.8 to 2.4 out of 10), and Fatty

Table D-1. Healthy Eating Index-2010 (HEI-2010) Scores: Children, 2–4 Years Old

Children, 2–4 years old

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*1,390*	-	*486*	-	*400*	-	*453*	-
Total Fruit	5.0	(0.02)	5.0	(0.03)	4.8	(0.18)	5.0	(0.03)
Whole Fruit	5.0	(0.03)	4.9	(0.13)	4.9	(0.16)	5.0	(0.10)
Total Vegetables	2.3	(0.08)	2.3	(0.10)	2.2	(0.11)	2.3	(0.14)
Greens and Beans	0.7	(0.11)	0.3	(0.10)	0.5 u	(0.17)	1.0 **	(0.20)
Whole Grains	2.2	(0.11)	1.8	(0.16)	1.9	(0.18)	2.4 *	(0.19)
Dairy	9.9	(0.08)	9.9	(0.12)	9.7	(0.21)	10.0	(0.08)
Total Protein Foods	3.8	(0.09)	4.0	(0.12)	4.2	(0.16)	3.4 **	(0.14)
Seafood and Plant Proteins	2.3	(0.17)	2.2	(0.21)	2.6	(0.35)	2.1	(0.24)
Fatty Acids	2.1	(0.16)	2.1	(0.18)	1.9	(0.19)	2.0	(0.28)
Refined Grains	6.2	(0.16)	6.6	(0.26)	5.6 **	(0.30)	6.3	(0.25)
Sodium	6.0	(0.16)	6.6	(0.25)	5.8 *	(0.28)	5.8 *	(0.29)
Empty Calories	10.8	(0.23)	11.0	(0.33)	9.9 *	(0.36)	11.0	(0.43)
Total HEI-2010 Score	**56.2**	**(0.62)**	**56.7**	**(0.74)**	**54.0**	**(1.20)**	**56.2**	**(0.98)**

Children, 2 years old

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*587*	-	*223*	-	*162*	-	*183*	-
Total Fruit	5.0	(0.00)	5.0	(0.00)	5.0	(0.02)	5.0	(0.00)
Whole Fruit	5.0	(0.00)	5.0	(0.14)	5.0	(0.06)	5.0	(0.01)
Total Vegetables	2.2	(0.10)	2.3	(0.16)	2.1	(0.15)	2.1	(0.22)
Greens and Beans	0.7	(0.15)	0.3 u	(0.11)	0.3 u	(0.15)	1.1 **	(0.31)
Whole Grains	2.4	(0.23)	1.6	(0.22)	2.3	(0.26)	2.8 **	(0.37)
Dairy	10.0	(0.00)	10.0	(0.02)	10.0	(0.02)	10.0	(0.00)
Total Protein Foods	3.7	(0.11)	3.9	(0.18)	3.9	(0.24)	3.6	(0.17)
Seafood and Plant Proteins	2.5	(0.28)	1.7	(0.28)	3.2	(0.76)	2.6	(0.42)
Fatty Acids[2]	1.5	(0.18)	1.6	(0.33)	1.9	(0.31)	1.2	(0.29)
Refined Grains	7.3	(0.21)	7.2	(0.45)	6.5	(0.43)	7.8	(0.40)
Sodium	6.6	(0.23)	7.0	(0.35)	6.2	(0.37)	6.4	(0.43)
Empty Calories[3]	11.0	(0.24)	11.2	(0.42)	10.6	(0.54)	11.4	(0.48)
Total HEI-2010 Score	**57.9**	**(0.78)**	**56.7**	**(0.78)**	**57.0**	**(1.42)**	**59.0**	**(1.44)**

See notes at end of table.

Table D-1. Healthy Eating Index-2010 (HEI-2010) Scores: Children, 2–4 Years Old–Continued

Children, 3 year olds

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*389*	-	*132*	-	*104*	-	*134*	-
Total Fruit	5.0	(0.00)	5.0	(0.02)	4.8	(0.33)	5.0	(0.00)
Whole Fruit	5.0	(0.07)	4.9	(0.29)	4.9	(0.30)	4.9	(0.25)
Total Vegetables	2.2	(0.12)	2.1	(0.12)	2.0	(0.15)	2.2	(0.22)
Greens and Beans	0.5	(0.12)	0.3	(0.06)	0.2 u	(0.11)	0.8 * u	(0.24)
Whole Grains	2.2	(0.19)	1.9	(0.30)	1.7	(0.30)	2.5	(0.36)
Dairy	10.0	(0.04)	10.0	(0.06)	9.7	(0.46)	10.0	(0.05)
Total Protein Foods	3.6	(0.15)	4.1	(0.19)	4.1	(0.33)	3.1 **	(0.26)
Seafood and Plant Proteins	2.2	(0.26)	2.7	(0.42)	2.1	(0.39)	2.0	(0.45)
Fatty Acids	2.2	(0.34)	2.3	(0.31)	1.9	(0.34)	2.0 u	(0.62)
Refined Grains	5.4	(0.33)	6.4	(0.33)	4.7 *	(0.63)	5.2 *	(0.43)
Sodium	6.0	(0.29)	6.8	(0.47)	5.5 *	(0.43)	5.8	(0.49)
Empty Calories	11.0	(0.48)	11.7	(0.66)	9.0 **	(0.59)	11.5	(0.94)
Total HEI-2010 Score	**55.2**	**(1.19)**	**58.1**	**(1.38)**	**50.5 ** **	**(1.99)**	**55.0**	**(1.93)**

Children, 4 year olds

	All young children		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*414*	-	*131*	-	*134*	-	*136*	-
Total Fruit	5.0	(0.06)	5.0	(0.09)	4.7	(0.43)	5.0	(0.10)
Whole Fruit	5.0	(0.05)	4.9	(0.21)	4.8	(0.38)	5.0	(0.14)
Total Vegetables	2.6	(0.19)	2.5	(0.22)	2.4	(0.27)	2.7	(0.28)
Greens and Beans	0.9	(0.25)	0.5 u	(0.26)	1.1 u	(0.49)	1.0 u	(0.47)
Whole Grains	1.9	(0.15)	1.8	(0.32)	1.8	(0.37)	2.0	(0.22)
Dairy	9.8	(0.24)	9.6	(0.36)	9.5	(0.42)	9.9	(0.23)
Total Protein Foods	4.0	(0.19)	4.0	(0.23)	4.6	(0.27)	3.5	(0.29)
Seafood and Plant Proteins	2.2	(0.35)	2.1	(0.39)	2.3	(0.61)	1.8	(0.39)
Fatty Acids	2.6	(0.30)	2.3	(0.28)	2.0	(0.36)	2.7	(0.47)
Refined Grains	5.9	(0.30)	6.2	(0.56)	5.6	(0.47)	5.8	(0.47)
Sodium	5.5	(0.28)	6.0	(0.47)	5.6	(0.62)	5.1	(0.57)
Empty Calories	10.2	(0.45)	10.1	(0.62)	10.1	(0.73)	10.1	(0.73)
Total HEI-2010 Score	**55.5**	**(1.18)**	**55.1**	**(1.57)**	**54.5**	**(2.65)**	**54.6**	**(1.68)**

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Healthy Eating Index-2010, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 2, February 2013. Sample includes NHANES respondents with complete dietary recall data, 2–4 years old.

Notes: Estimates are based on a single dietary recall per person. 'All children' includes children with missing WIC participation or income. Only scores for the age group 2–4 years are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as children receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Acids (ranging from 1.9 to 2.1 out of 10). These low component scores indicate that children's intakes of Dark Green Vegetables, Legumes, and Whole Grain foods in 2005–2008 were inadequate relative to 2010 *Dietary Guidelines* recommendations.

On average, scores for Refined Grains and Sodium were roughly 60 percent of their maximums for children in all three groups (Table D-1). For Empty Calories, scores were between 50 and 55 percent of the maximum. For each of these components, lower scores indicate that children's diets in 2005–2008 included more Refined Grains, Sodium, and Empty Calories than recommended in the 2010 *Dietary Guidelines*.

There were several differences in individual component scores between WIC children and income-eligible or higher-income nonparticipants. WIC children had a higher score for Sodium than either group of nonparticipants (6.6 versus 5.8 for both nonparticipant groups). Compared with income-eligible nonparticipant children, WIC children also received higher scores for Refined Grains (6.6 versus 5.6) and Empty Calories (11.0 versus 9.9). WIC children had lower scores than higher-income nonparticipants for Greens and Beans (0.3 versus 1.0) and Whole Grains (1.8 versus 2.4) and a higher score for Total Protein Foods (4.0 versus 3.4)

Appendix E.

Infants and Pregnant, Breastfeeding, and Postpartum Women

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Infants and Pregnant, Breastfeeding, and Postpartum Women

In addition to children 1–4 years old, the population on which the main body of this report is focused, WIC serves four other groups of low-income individuals who are at nutritional risk: (1) infants (0-11 months), (2) pregnant women, (3) breastfeeding women up to one year postpartum, and (4) non-breastfeeding postpartum women up to six months after birth. Because sample numbers of infants and pregnant, postpartum, and breastfeeding women in NHANES were small, the primarily analysis in this report focuses on only children, ages 1–4 years old who are age-eligible for WIC. In this appendix, we summarize findings for selected outcomes for infants and pregnant, postpartum, and breastfeeding women using NHANES 2005–2008 data. Supporting data tables are provided at the end of this appendix.

Major changes in the content of the WIC food packages were implemented nationwide in 2009. The NHANES 2005–2008 data used in this analysis were collected prior to the changes in the WIC food packages. Changes focused on providing additional amounts of nutrients and foods that are typically under-consumed by the WIC population and less of the nutrients that are typically over-consumed. They were also designed to strengthen breastfeeding promotion efforts and provide additional incentives to encourage women to initiate and continue breastfeeding. New food packages are based on recommendations of the Institute of Medicine, and align with the recommendations of the *U.S. Dietary Guidelines for Americans* and infant feeding practice guidelines of the American Academy of Pediatrics and provide participants with a wider variety of foods, including fruits and vegetables and whole grains.

Infants

The sample for infants available in the NHANES 2005–2008 data is shown in Figure E-1. The sample include infants up to 12 months (0-11 months) that had a complete Day-1 Dietary Recall and those that had an incomplete recall due to the consumption of breast milk. The latter group of infants has complete information about the types of foods consumed, but incomplete information about total calorie and nutrient intakes. The NHANES data do not include nutrient values for breast milk because amounts of breast milk consumed are not quantified by respondents during the dietary recall interview.

Because of this limitation, our analysis of infants focused primarily on outcomes related to food consumption patterns. We examined the following outcomes: (1) weight status and (2) nutrient intakes from complementary foods.[2] Outcomes were estimated for all infants combined and separately for younger infants 0–5 months and for older infants 6–11 months because food consumption patterns vary considerably based on an infant's age (Siega-Riz et al., 2010). However, due to the small sample sizes of infants in the NHANES data, many point estimates are statistically unreliable when data are examined by age group. Because of small sample sizes, particularly for some groups of nonparticipants (Figure E-1), findings should be interpreted with caution.

[2] Data on mean nutrient intakes from complementary foods are not discussed in this appendix, but full tabulations are provided in Tables E-2–E-31. Estimates are based on one day of intake and exclude nutrients from infant formula and breast milk.

Figure E–1. NHANES Respondents with Complete Dietary Recalls, 2005–2008: Sample Sizes and Weighted Population Counts

	All persons	WIC participants	Income-eligible nonparticipants	Higher-income nonparticipants
	Sample sizes			
All infants	880	555	102	209
0–5 months old	407	257	56	86
6–11 months old	473	298	46	123
All pregnant, breastfeeding, and postpartum women	604	244	83	211
Pregnant women	373	144	54	136
Breastfeeding women	71	31	12	24
Postpartum women	226	114	25	63
	Weighted population counts			
All infants	4,138,750	2,009,278	419,409	1,640,053
0–5 months old	1,800,213	942,377	208,503	620,732
6–11 months old	2,338,537	1,066,901	210,906	1,019,321
All pregnant, breastfeeding, and postpartum women	8,194,749	2,718,480	966,693	3,602,926
Pregnant women	3,256,326	946,489	494,289	1,446,124
Breastfeeding women	1,454,227	403,415	226,842	722,892
Postpartum women	3,975,402	1,658,298	329,831	1,549,811

Source: NHANES 2005–2008 demographics data. Sample includes NHANES respondents with complete dietary recall data. Sample includes infants, 0–11 months old, and pregnant, breastfeeding, and postpartum women, 20–44 years old. Postpartum women are non-breastfeeding women up to 12 months postpartum and include an unknown number of non-breastfeeding women who are more than 6-months postpartum.

Notes: Estimates are based on a single dietary recall per person. 'All persons' includes respondents with missing WIC participation or income. Weighted population counts are based on NHANES dietary day-1 sample weights.

Figure E-2 presents demographic data for WIC infants, income-eligible nonparticipant infants, and higher-income nonparticipant infants. There were no differences in race/ethnicity between WIC infants and income-eligible nonparticipant infants. Relative to higher-income nonparticipant infants, WIC infants were more likely to be Mexican-American (27% versus 6%) and less likely to be non-Hispanic white (42% versus 76%).

Figure E-2. Demographic Characteristics of WIC Participants and Nonparticipants

	All persons		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
Race/ethnicity								
All persons								
Mexican American	16.8	(1.81)	29.0	(3.18)	19.2 *	(2.26)	7.0 ***	(1.03)
Other Hispanic	6.7	(1.34)	10.4	(2.65)	6.7	(1.60)	3.3 *	(0.84)
Non-Hispanic White	55.8	(3.47)	35.9	(5.39)	47.3	(3.73)	74.5 ***	(3.01)
Non-Hispanic Black	14.1	(2.04)	20.1	(3.38)	18.5	(3.27)	7.2 ***	(1.47)
Other race, multi-racial	6.7	(1.15)	4.6	(0.96)	8.4	(1.81)	8.0	(1.78)
Infants, 0–11 months old								
Mexican American	17.8	(2.33)	27.1	(3.84)	21.1	(4.89)	6.1 ***	(1.41)
Other Hispanic	5.3	(1.28)	7.9	(2.23)	6.3 u	(2.36)	1.7 ** u	(0.76)
Non-Hispanic White	56.4	(4.07)	41.6	(6.36)	51.0	(8.06)	75.5 ***	(3.93)
Non-Hispanic Black	13.2	(2.39)	17.4	(4.04)	13.7 u	(5.17)	7.5 * u	(2.34)
Other race, multi-racial	7.4	(1.69)	6.0	(1.69)	7.9 u	(4.23)	9.2	(2.58)
Pregnant, breastfeeding, postpartum women								
Mexican American	18.1	(2.17)	29.4	(4.45)	26.3	(6.58)	6.7 ***	(1.70)
Other Hispanic	6.5	(1.93)	9.4 u	(3.89)	9.7 u	(4.31)	1.6 u *	(0.65)
Non-Hispanic White	57.0	(4.58)	42.0	(7.32)	42.4	(10.72)	77.7 ***	(4.65)
Non-Hispanic Black	14.0	(3.06)	17.9	(4.42)	17.2 u	(6.00)	6.9 u *	(2.53)
Other race, multi-racial	4.4 u	(1.36)	1.3 u	(1.13)	4.4 u	(3.16)	7.1 u	(3.00)
Education								
Pregnant, breastfeeding, postpartum women								
Less than HS	22.4	(2.76)	36.9	(4.78)	35.4	(5.57)	7.2 *** u	(3.13)
HS diploma or GED	28.3	(2.99)	35.0	(4.25)	24.4	(6.93)	22.1 *	(4.96)
More than HS	49.4	(3.54)	28.1	(5.08)	40.3	(8.25)	70.8 ***	(6.45)
Marital status								
Pregnant, breastfeeding, postpartum women								
Married	63.7	(3.04)	44.6	(4.90)	46.7	(5.25)	86.0 ***	(3.98)
Widowed, divorced, separated	5.0	(1.43)	4.4 u	(1.46)	10.9 u	(5.64)	3.2 u	(2.97)
Never married	18.2	(2.63)	25.9	(4.77)	27.4	(7.59)	7.3 *** u	(2.88)
Cohabitating	13.2	(2.17)	25.1	(4.63)	15.0 u	(5.44)	3.5 ***	(1.00)
Sample sizes								
Infants, 0–11 months old								
Unweighted	880		555		102		209	
Weighted	4,138,750		2,009,278		419,409		1,640,053	
Pregnant, breastfeeding, postpartum women								
Unweighted	604		244		83		211	
Weighted	8,194,749		2,718,480		966,693		3,602,926	

Source: NHANES 2005–2008 demographics data. Sample includes NHANES respondents with complete dietary recall data. Sample includes infants, 0–11 months old, and pregnant, breastfeeding, and postpartum women, 20–44 years old. Postpartum women are non-breastfeeding women up to 12 months postpartum and include an unknown number of non-breastfeeding women who are more than 6-months postpartum.

Notes: 'All persons' includes respondents with missing WIC participation or income. Significant differences in proportions are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as persons receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Weight Status

To monitor the growth of infants, the Center for Disease Control and Prevention (CDC) recommends the use of the World Health Organization (WHO) weight-for-length growth charts. In 2012, the WIC program updated their nutrition risk criteria to incorporate the new WHO growth charts (USDA, WIC 2012). Infant weight status can be determined using the gender-specific percentiles for weight-for-length in the WHO growth charts. The CDC defines weight-for-length categories based on percentiles in these growth charts (Figure E-3). Low weight-for-length is defined as at or above the 2nd percentile, and high weight-for-length is defined as at or above the 98th percentile. The 2nd and 98th percentiles are recommended for identification of children whose growth might be indicative of adverse health conditions (CDC 2010).

Figure E-3. Weight-for-Length Categories for Infants[a]

Weight-for-length category	Percentile standard
Low weight-for-length	Weight-for-length ≤ 2nd percentile
Healthy weight-for-length	2nd percentile < weight-for-length < 98th percentile
High weight-for-length	Weight-for-length ≥ 98th percentile

[a] The Center for Disease Control and Prevention recommends using the Word Health Organization growth chart standards for infants and children 0–2 years old.

The distribution of weight status for infants is shown in Table E-1. Overall, 91 percent of infants had a healthy weight-for length and 6 percent had a high weight-for-length. When data were examined by age group, the above pattern in the distribution of weight status was observed for infants 0–5 months old and 6–11 months old. Among infants 0–5 months old, WIC infants were less likely than income-eligible nonparticipant infants to have a healthy weight-for-length (90% versus 97%).

Pregnant, Breastfeeding, and Postpartum Women

Available samples for pregnant, breastfeeding, and postpartum women in the NHANES 2005-2008 data are shown in Figure E-1.[3] The sample includes women 20–44 years old who were pregnant and women 20–59 years old who were breastfeeding or postpartum. Pregnant, breastfeeding, and postpartum women outside of these age ranges could not be identified in the NHANES data.[4] Postpartum women are non-breastfeeding women up to 12 months postpartum. The NHANES data did not allow for the distinction between non-breastfeeding women who were 0–6 months postpartum (and potentially WIC-eligible) from non-breastfeeding women who were 7–12 months postpartum (and ineligible for WIC). Thus, an unknown number of non-breastfeeding women who were 6–12 months postpartum were included in the analysis.

We estimated scores for both the 2005 and 2010 Healthy Eating Indices (HEI-2005 and HEI-2010) for pregnant, breastfeeding, and postpartum women. The components included in each index and the scoring algorithms used are described in Chapter 6 and Appendix D. The HEI-2005 provides a measure of diet quality relative to the dietary recommendations that were in

[3] There were four women in NHANES 2005–2008 who responded that they were both pregnant and breastfeeding and 62 women who responded that they were both pregnant and postpartum.
[4] NHANES 2005–2008 data indicate that there are 123 pregnant, breastfeeding, or postpartum women 12–19 years old that could not be identified in the data.

place when the NHANES 2005-2008 data were collected. The HEI-2010 assesses diet quality relative to the most recent dietary guidance available.

Due to the small sample sizes of women in the various subgroups (see Figure E-1) and the limitations with identifying all pregnant, breastfeeding, and postpartum women in the data, we focus on findings for all women combined (pregnant, breastfeeding, and postpartum). Because of small sample sizes and differences between WIC participants and nonparticipants in the distribution of pregnant, breastfeeding, and postpartum women, all findings should be interpreted with caution.[5]

Figure E-2 presents demographic data for pregnant, breastfeeding, and postpartum women by participation status. There were no differences in race/ethnicity, education level, or marital status between WIC women and income-eligible nonparticipant women. Relative to higher-income nonparticipant women, WIC women were more likely to be Mexican American (29% versus 7%) and less likely to be non-Hispanic white (42% versus 78%). WIC women were also more likely than higher-income nonparticipant women to have no more than a high school diploma or GED (35% versus 22%) and less likely to have education beyond high school (28% versus 71%). WIC women were less likely than higher-income women to be married (45% versus 86%) and more likely to be cohabitating (25% versus 4%).

HEI-2005 Scores for Pregnant, Breastfeeding, and Postpartum Women

The total HEI-2005 score for all pregnant, breastfeeding, and postpartum women was 61.5 out of the maximum possible score of 100 (Table E-32). This low total HEI-2005 score suggests that the diets of pregnant, breastfeeding, and postpartum women fell considerably short of meeting the recommendations in the 2005 *Dietary Guidelines*. Total HEI-2005 scores were comparable for WIC women and both groups of nonparticipant women. It is important to note that the distribution of pregnant women and postpartum women within each of the participation/eligibility groups varied (Figure E-1) and may be influencing HEI-2005 scores for women overall. Postpartum women had the lowest total HEI-2005 score (56.3) compared with pregnant women (64.5) and breastfeeding women (65.3).

Preganant, breastfeeding, and postpartum women achieved or came close to achieving the maximum score for Total Grains (5.0 out of 5) and Meat and Beans (10.0 out of 10). Scores for Whole Grains and Dark Green and Orange Vegetables and Legumes were very low for all women (1.3 out of 5 for both components). In addition, scores for Sodium (3.6 out of 10) and Empty Calories (9.6 out of 20) were more than 50 percent below the maximum possible scores. Scores for Saturated Fat averaged 5.6 out of 10 for all women. These low scores indicate that pregnant, breastfeeding, and postpartum women are not consuming recommended amounts of foods that contain vegetables—specifically dark green vegetables, orange vegetables, and legumes—and whole grains. In addition, intakes of sodium, saturated fat, and empty calories among these women are exceeding levels recommended in the 2005 *Dietary Guidelines*.

[5] The formula for computing HEI scores is the same for all individuals, including pregnant, breastfeeding, and postpartum women.

There was only one difference observed in component scores between WIC women and nonparticipant women. WIC participants scored lower than higher-income nonparticipants on Total Vegetables (2.8 versus 3.8).

HEI-2010 Scores for Pregnant, Breastfeeding, and Postpartum Women

The total HEI-2010 score for all pregnant, breastfeeding, and postpartum women was 53.3 out of the maximum possible score of 100 (Table E-33). WIC women had a lower total HEI-2010 score than higher-income nonparticipant women (49.9 versus 56.8). Given that the group of WIC participants included a larger share of postpartum women than higher-income nonparticipants (47% versus 30%) (Figure E-1) and that postpartum women had the lowest total HEI-2010 score (45.6 versus 57.7 and 61.3 for pregnant and breastfeeding women, respectively), the lower scores for WIC participants relative to higher-income nonparticipants might reflect compositional differences between the groups.

These low total HEI-2010 scores suggest that the diets of women in all three comparison groups fell considerably short of meeting the recommendations in the 2010 *Dietary Guidelines*. However, caution should be taken when comparing the HEI-2005 scores presented earlier in this appendix with the relatively lower HEI-2010 scores. The HEI-2010 scores are provided simply for comparison purposes, as this analysis has been performed by comparing data from 2005–2008 to the *Dietary Guidelines* in place in 2010.

Women achieved or came close to achieving the maximum score for Total Protein Foods only. Scores for the following components were more than 50 percent below the maximum possible scores for all women: Greens and Beans (1.8 out of 5), Whole Grains (2.5 out of 10), Fatty Acids (4.1 out of 10), Sodium (4.5 out of 10), and Empty Calories (9.7 out of 20). Similar to the findings for the HEI-2005, there was only one difference in component scores between WIC women and nonparticipating women. WIC women scored lower than higher-income nonparticipant women on Total Vegetables (2.8 versus 3.8).

Table E-1. Weight Status: Infants

	All infants			WIC participants			Income-eligible nonparticipants			Higher-income nonparticipants		
	Sample size	Percent	Standard error	*Sample size*	Percent	Standard error	*Sample size*	Percent	Standard error	*Sample size*	Percent	Standard error
All infants, 0–11 months old	*875*	-	-	*552*	-	-	*101*	-	-	*208*	-	-
Low weight-for-length		2.4 u	(0.80)		2.1 u	(0.66)		3.4 u	(2.60)		2.6 u	(1.70)
Healthy weight-for-length		91.3	(1.30)		90.8	(1.93)		92.5	(3.11)		91.2	(2.05)
High weight-for-length		6.3	(1.13)		7.1	(1.95)		4.0 u	(2.27)		6.2	(1.46)
Infants, 0–5 months old	*405*	-	-	*257*	-	-	*55*	-	-	*85*	-	-
Low weight-for-length		4.1 u	(1.71)		3.2 u	(1.20)		1.7 u	(1.17)		6.3 u	(4.50)
Healthy weight-for-length		90.1	(2.05)		90.3	(1.97)		96.7 *	(1.91)		87.3	(4.77)
High weight-for-length		5.8	(1.34)		6.5	(1.81)		1.6 * u	(1.51)		6.4 u	(2.24)
Infants, 6–11 months old	*470*	-	-	*295*	-	-	*46*	-	-	*123*	-	-
Low weight-for-length		1.1 u	(0.58)		1.1 u	(0.69)		5.1 u	(4.76)		0.3 u	(0.23)
Healthy weight-for-length		92.2	(1.50)		91.2	(2.28)		88.6	(5.90)		93.6	(2.21)
High weight-for-length		6.7	(1.40)		7.7	(2.26)		6.3 u	(4.26)		6.1 u	(2.18)

Source: NHANES 2005–2008 body measures data. Sample includes NHANES respondents with complete length and weight data, and those with complete dietary recall data or incomplete recall due to the consumption of breast milk, 0–11 months old.

Notes: 'All infants' includes infants with missing WIC participation or income. For infants, weight categories are defined based on weight-for-length percentiles on the World Health Organization (WHO) growth charts for infants 0 to 2 years old: low weight-for-length is <= to the 2nd percentile; healthy weight-for-length is > the 2nd and < the 98th percentiles; and high weight-for-length is >= the 98th percentile. Total percentages are not age-adjusted. Significant differences in percentages are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.
- Not applicable.

Table E-2. Mean Nutrient Intakes from Complementary Foods: Infants

	Infants, 0–11 months old							
	All infants		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Sample size	*880*	-	*555*	-	*102*	-	*209*	-
Calories (kcal)	232.73	(13.282)	246.93	(22.500)	210.12	(27.543)	220.31	(17.560)
Total fat (g)	6	(0.6)	6	(1.1)	5	(0.7)	5	(0.5)
Saturated fat (g)	2.0	(0.24)	2.3	(0.42)	2.1	(0.28)	1.6	(0.24)
Linoleic acid (g)	1.0	(0.09)	1.1	(0.16)	0.8	(0.12)	0.8	(0.08)
Linolenic acid (g)	0.1	(0.01)	0.1	(0.02)	0.1	(0.02)	0.1	(0.01)
Carbohydrate (g)	40	(1.8)	41	(2.6)	35	(4.8)	40	(3.0)
Protein (g)	6.82	(0.521)	7.09	(0.837)	6.61	(0.887)	6.51	(0.670)
Dietary fiber (g)	3.0	(0.17)	2.8	(0.25)	2.5	(0.34)	3.5	(0.28)
Cholesterol (mg)	20	(2.9)	26	(5.6)	18	(2.5)	12 *	(1.5)
Sodium (mg)	220	(27.5)	257	(50.9)	182	(23.0)	187	(23.5)
Vitamin C (mg)	31	(1.9)	35	(2.8)	30	(4.9)	25 *	(2.8)
Vitamin A (mcg RAE)	150	(7.9)	134	(13.4)	199	(34.3)	158	(19.5)
Vitamin D (mcg)	0.6	(0.11)	0.6	(0.15)	1.0	(0.17)	0.5	(0.15)
Vitamin E (mg AT)	1.2	(0.05)	1.2	(0.08)	1.1	(0.16)	1.1	(0.08)
Vitamin B-6 (mg)	0.28	(0.015)	0.29	(0.022)	0.23	(0.027)	0.28	(0.027)
Vitamin B-12 (mcg)	0.40	(0.055)	0.41	(0.085)	0.50	(0.084)	0.35	(0.073)
Folate (mcg DFE)	55	(4.7)	53	(7.7)	45	(7.3)	60	(7.1)
Niacin (mg)	4.6	(0.20)	4.8	(0.30)	3.7	(0.61)	4.6	(0.34)
Riboflavin (mg)	0.47	(0.025)	0.48	(0.035)	0.45	(0.072)	0.47	(0.038)
Thiamin (mg)	0.39	(0.017)	0.40	(0.028)	0.32	(0.056)	0.39	(0.028)
Iron (mg)	5.9	(0.27)	6.1	(0.36)	4.7	(0.86)	6.0	(0.48)
Potassium (mg)	403	(23.2)	407	(36.2)	381	(51.7)	401	(38.0)
Magnesium (mg)	46	(2.2)	45	(3.0)	38	(5.5)	48	(3.9)
Zinc (mg)	1.4	(0.13)	1.5	(0.28)	1.3	(0.18)	1.4	(0.15)
Calcium (mg)	171	(10.8)	171	(14.4)	175	(28.4)	169	(18.5)
Phosphorus (mg)	168	(10.7)	168	(16.7)	165	(24.6)	167	(16.1)
Copper (mg)	0.18	(0.011)	0.18	(0.018)	0.14	(0.018)	0.18	(0.014)
Selenium (mcg)	10	(0.7)	10	(1.2)	9	(1.0)	9	(0.9)
Choline (mg)	32	(2.7)	34	(4.6)	31	(4.5)	29	(3.1)

See notes at end of table.

Table E-2. Mean Nutrient Intakes from Complementary Foods: Infants–Continued

	Infants, 0–5 months old							
	All infants		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Sample size	*407*	-	*257*	-	*56*	-	*86*	-
Calories (kcal)	34.69	(3.985)	45.74	(6.504)	21.29 ***	(2.937)	17.74 ***	(3.201)
Total fat (g)	0	(0.1)	1	(0.1)	0 **	(0.0)	0 **	(0.0)
Saturated fat (g)	0.1	(0.02)	0.1	(0.03)	0.0 **	(0.01)	0.0 **	(0.01)
Linoleic acid (g)	0.1	(0.02)	0.2	(0.03)	0.1 ***	(0.01)	0.1 **	(0.01)
Linolenic acid (g)	0.0	(0.00)	0.0	(0.00)	0.0 ***	(0.00)	0.0 **	(0.00)
Carbohydrate (g)	7	(0.8)	9	(1.3)	4 ***	(0.6)	4 ***	(0.6)
Protein (g)	0.73	(0.123)	0.90	(0.148)	0.41 **	(0.039)	0.33 ***	(0.070)
Dietary fiber (g)	0.4	(0.06)	0.6	(0.10)	0.3 **	(0.03)	0.1 ***	(0.06)
Cholesterol (mg)	1 u	(0.3)	0 u	(0.2)	0	(0.0)	0 *	(0.0)
Sodium (mg)	8	(1.9)	13	(3.8)	5 *	(0.5)	2 **	(0.6)
Vitamin C (mg)	6	(0.7)	7	(1.2)	8	(0.9)	1 ***	(0.2)
Vitamin A (mcg RAE)	22	(4.9)	30	(7.4)	5 ***	(1.1)	13 u	(7.3)
Vitamin D (mcg)	0.0 u	(0.00)	0.0 u	(0.00)	0.0	(0.00)	0.0	(0.00)
Vitamin E (mg AT)	0.3	(0.04)	0.4	(0.05)	0.2 ***	(0.03)	0.2 **	(0.04)
Vitamin B-6 (mg)	0.04	(0.005)	0.06	(0.008)	0.03 **	(0.004)	0.02 ***	(0.004)
Vitamin B-12 (mcg)	0.01 u	(0.003)	0.01 u	(0.004)	0.00	(0.000)	0.00	(0.000)
Folate (mcg DFE)	4	(0.5)	5	(0.9)	2 **	(0.2)	2 **	(0.4)
Niacin (mg)	1.7	(0.21)	2.1	(0.32)	0.9 ***	(0.14)	1.2 **	(0.22)
Riboflavin (mg)	0.14	(0.019)	0.18	(0.028)	0.09 **	(0.010)	0.09 **	(0.018)
Thiamin (mg)	0.15	(0.019)	0.19	(0.028)	0.08 ***	(0.012)	0.10 **	(0.019)
Iron (mg)	2.6	(0.34)	3.3	(0.50)	1.5 **	(0.21)	1.7 *	(0.34)
Potassium (mg)	59	(7.0)	78	(11.8)	31 ***	(5.1)	30 ***	(5.8)
Magnesium (mg)	12	(1.4)	16	(2.1)	6 ***	(1.1)	8 **	(1.5)
Zinc (mg)	0.2	(0.03)	0.2	(0.04)	0.1 **	(0.01)	0.1 **	(0.02)
Calcium (mg)	48	(5.6)	62	(8.2)	22 ***	(3.8)	32 **	(5.9)
Phosphorus (mg)	35	(4.5)	45	(6.4)	18 ***	(2.8)	23 **	(4.3)
Copper (mg)	0.03	(0.004)	0.04	(0.006)	0.02 ***	(0.003)	0.02 ***	(0.003)
Selenium (mcg)	1	(0.2)	1	(0.3)	1 *	(0.1)	1 ***	(0.1)
Choline (mg)	3	(0.5)	4	(0.6)	2 **	(0.2)	1 ***	(0.3)

See notes at end of table.

Table E-2. Mean Nutrient Intakes from Complementary Foods: Infants–Continued

	Infants, 6–11 months old							
	All infants		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean	Standard error	Mean	Standard error	Mean	Standard error	Mean	Standard error
Sample size	*473*	-	*298*	-	*46*	-	*123*	-
Calories (kcal)	385.19	(26.266)	424.63	(46.761)	396.79	(24.224)	343.66	(24.696)
Total fat (g)	9	(1.2)	12	(2.3)	10	(0.7)	7	(0.7)
Saturated fat (g)	3.4	(0.46)	4.2	(0.84)	4.1	(0.25)	2.5	(0.36)
Linoleic acid (g)	1.6	(0.16)	1.9	(0.32)	1.5	(0.16)	1.3 *	(0.09)
Linolenic acid (g)	0.2	(0.02)	0.2	(0.03)	0.2	(0.02)	0.2	(0.01)
Carbohydrate (g)	65	(3.4)	69	(5.5)	65	(4.3)	62	(4.2)
Protein (g)	11.51	(1.013)	12.56	(1.673)	12.74	(0.941)	10.28	(1.010)
Dietary fiber (g)	5.1	(0.30)	4.8	(0.50)	4.6	(0.49)	5.5	(0.35)
Cholesterol (mg)	35	(5.2)	49	(10.2)	36	(2.4)	19 **	(2.2)
Sodium (mg)	382	(53.9)	473	(102.4)	357	(26.1)	300	(39.6)
Vitamin C (mg)	50	(3.2)	60	(4.7)	52	(6.6)	40 **	(4.2)
Vitamin A (mcg RAE)	248	(14.0)	227	(25.2)	392 **	(55.3)	246	(25.6)
Vitamin D (mcg)	1.1	(0.20)	1.1	(0.29)	1.9 *	(0.20)	0.9	(0.24)
Vitamin E (mg AT)	1.8	(0.08)	2.0	(0.15)	2.0	(0.19)	1.6 *	(0.09)
Vitamin B-6 (mg)	0.46	(0.029)	0.49	(0.045)	0.43	(0.028)	0.43	(0.038)
Vitamin B-12 (mcg)	0.70	(0.101)	0.77	(0.167)	0.99	(0.107)	0.57	(0.103)
Folate (mcg DFE)	94	(9.3)	96	(15.8)	87	(11.5)	95	(10.7)
Niacin (mg)	6.9	(0.38)	7.1	(0.62)	6.5	(0.82)	6.8	(0.47)
Riboflavin (mg)	0.73	(0.047)	0.74	(0.077)	0.81	(0.086)	0.70	(0.052)
Thiamin (mg)	0.57	(0.036)	0.58	(0.064)	0.56	(0.072)	0.57	(0.037)
Iron (mg)	8.5	(0.50)	8.5	(0.79)	7.9	(1.13)	8.6	(0.62)
Potassium (mg)	667	(44.8)	697	(72.2)	727	(54.1)	626	(53.7)
Magnesium (mg)	71	(4.2)	70	(6.6)	70	(6.7)	73	(5.3)
Zinc (mg)	2.4	(0.26)	2.6	(0.56)	2.4	(0.24)	2.2	(0.20)
Calcium (mg)	266	(19.6)	267	(29.2)	327	(37.1)	252	(26.8)
Phosphorus (mg)	270	(20.9)	277	(34.8)	311	(29.5)	255	(23.5)
Copper (mg)	0.29	(0.020)	0.30	(0.039)	0.27	(0.020)	0.27	(0.015)
Selenium (mcg)	16	(1.4)	18	(2.3)	17	(0.8)	14	(1.3)
Choline (mg)	54	(5.2)	60	(8.9)	60	(4.7)	47	(4.5)

Source: NHANES 2007–2010 dietary recalls and Vitamin D addendum to the FNDDS 3. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in means are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-3. Vitamin A (mcg RAE): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	29	217	342	477	666
0–5 months old	0	0	0	0	0	0	1 u	15 u	199
6–11 months old	1 u	8 u	17 u	48	149	342	522	657	836
WIC participants									
All infants	0	0	0	0	17 u	204	302	407	621
0–5 months old	0	0	0	0	0	0	7 u	50 u	228 u
6–11 months old	0	5 u	16 u	50	149	301	417	547	789
Income-eligible nonparticipants									
All infants	0	0	0	0	6 u	224 u	447	719 *	1,013 *
0–5 months old	0	0	0	0	0	0	0	0	1 ** u
6–11 months old	7 ***	15 **	33 *	79 u	221	614 ***	833 *	1,012 **	1,139
Higher-income nonparticipants									
All infants	0	0	0	0	42 u	231	391	524	662
0–5 months old	0	0	0	0	0	0	0	3 u	73 u
6–11 months old	2	7 u	14 u	43 u	134	370	526	656	699

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-4. Vitamin B_6 (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.00	0.00	0.00	0.00	0.14	0.41	0.55	0.70	0.98
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.14	0.25
6–11 months old	0.03 u	0.07	0.10	0.21	0.37	0.57	0.76	0.92	1.23
WIC participants									
All infants	0.00	0.00	0.00	0.00	0.13	0.41	0.55	0.73	1.01
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.05 u	0.13	0.18	0.27
6–11 months old	0.03 u	0.08	0.10	0.19	0.38	0.63	0.84	1.01	1.28
Income-eligible nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.07 u	0.41	0.54	0.69	0.84
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 * u	0.25 u
6–11 months old	0.05	0.08 u	0.12	0.19	0.38	0.58	0.79	0.84 **	0.89
Higher-income nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.18	0.40	0.57	0.64	0.98
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.03 u	0.06 * u	0.08 **	0.12 **
6–11 months old	0.03	0.04 u	0.09 u	0.23	0.35	0.56	0.70	0.84	1.15

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-5. Vitamin B_{12} (mcg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.00	0.00	0.00	0.00	0.00	0.31	0.57	1.05	2.14 u
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6–11 months old	0.00	0.00	0.00	0.00 u	0.17 u	0.60	1.36	1.95	3.48
WIC participants									
All infants	0.00	0.00	0.00	0.00	0.00	0.32	0.60	1.18	2.07 u
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02 u
6–11 months old	0.00	0.00	0.00	0.01 u	0.26	0.69	1.39	2.01 u	3.38 u
Income-eligible nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.00	0.23 u	0.94	1.13	1.67 u
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6–11 months old	0.00	0.00	0.00	0.01 u	0.20 u	1.01	1.27	1.66 u	6.16
Higher-income nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.00	0.24 u	0.49	0.77 u	2.24 u
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6–11 months old	0.00	0.00	0.00	0.00	0.09 u	0.47	0.93 u	1.75 u	2.89

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-6. Vitamin C (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	12	45	67	87	126
0–5 months old	0	0	0	0	0	0	3 u	13 u	43
6–11 months old	0 u	2 u	7	15	32	67	94	118	159
WIC participants									
All infants	0	0	0	0	14	50	77	98	139
0–5 months old	0	0	0	0	0	1 u	14 u	30	46
6–11 months old	0 u	5 u	8	17	45	85	111	137	178
Income-eligible nonparticipants									
All infants	0	0	0	0	1 ** u	24 ** u	54 u	88 u	177
0–5 months old	0	0	0	0	0	0	0 *	0 ***	4 u
6–11 months old	0 u	3 u	9	13	22 ***	54 u	100	155	210 **
Higher-income nonparticipants									
All infants	0	0	0	0	11 u	34	58	76	99
0–5 months old	0	0	0	0	0	0 u	0 * u	1 ***	3
6–11 months old	0 u	2 u	4 u	13	28 ***	58 *	76 *	84 **	124

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-7. Vitamin D (mcg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.0	2.9 u
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6–11 months old	0.0	0.0	0.0	0.0	0.1	0.6	1.2 u	2.5 u	8.2
WIC participants									
All infants	0.0	0.0	0.0	0.0	0.0	0.2 u	0.6	1.0 u	2.7 u
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6–11 months old	0.0	0.0	0.0	0.0	0.1 u	0.7	1.2 u	2.6 u	8.0 u
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.0	0.1 u	0.8 u	1.4 u	4.4 u
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6–11 months old	0.0	0.0	0.0	0.0	0.1 u	1.0 u	2.2 u	4.4 u	12.4
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.7 u	2.9 u
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6–11 months old	0.0	0.0	0.0	0.0	0.1 u	0.3 *	0.7 u	1.6 u	7.5

Source: NHANES 2005–2008 dietary recalls and Vitamin D addendum to the FNDDS 3. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-8. Vitamin E (mg AT): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	0.6	1.8	2.3	3.0	3.8
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.4	0.7	1.1	1.8
6–11 months old	0.1 u	0.3	0.4	0.6	1.5	2.3	3.1	3.5	4.6
WIC participants									
All infants	0.0	0.0	0.0	0.0	0.6	2.0	2.6	3.1	4.0
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.4 u	0.9	1.4	1.9
6–11 months old	0.1 u	0.3	0.5	0.7	1.7	2.6	3.2	3.8	5.5
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.3 u	1.7	2.4	2.7	4.7
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.1 ** u	0.3 * u
6–11 months old	0.2	0.3 u	0.4	0.8	1.5	2.5	2.9 u	4.1	6.0
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.8	1.7	2.1 *	2.7	3.5
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.3 u	0.6	0.8 *	1.1 **
6–11 months old	0.1	0.2 u	0.3	0.6	1.4	2.0 **	2.8	3.4	4.1

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-9. Folate (mcg DFE): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	15	66	104	147	263
0–5 months old	0	0	0	0	0	2	7	11	22
6–11 months old	4 u	9	13	24	57	114	181	255	322
WIC participants									
All infants	0	0	0	0	14	59	91	138	257
0–5 months old	0	0	0	0	0	4	10	18	26
6–11 months old	1 u	8 u	13	24	56	100	158 u	254	352
Income-eligible nonparticipants									
All infants	0	0	0	0	7 u	80	112	154	198
0–5 months old	0	0	0	0	0	0	0 **	0 ***	16
6–11 months old	5	8	10	15 *	74	121	177	198	206
Higher-income nonparticipants									
All infants	0	0	0	0	21 u	69	123 u	216	285
0–5 months old	0	0	0	0	0	1 * u	4 * u	7 **	10 **
6–11 months old	4	9	15	27	59	118 u	235	263	312

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-10. Niacin (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	2.6	7.1	10.0	12.2	16.9
0–5 months old	0.0	0.0	0.0	0.0	0.0	1.4 u	3.6	5.6	10.1
6–11 months old	0.3 u	0.9	1.3	2.5	5.8	9.6	12.3	14.5	18.9
WIC participants									
All infants	0.0	0.0	0.0	0.0	2.4	7.4	10.8	13.0	18.7
0–5 months old	0.0	0.0	0.0	0.0	0.0	2.3	4.4 u	8.0	10.9
6–11 months old	0.2 u	0.8	1.3	2.0	5.5	9.8	13.1	15.6	20.2
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.8 * u	5.2	10.1	12.0	12.3
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.3 ***	6.3 u
6–11 months old	0.8	0.8	1.7	2.2	4.1	10.4	12.2	12.3	17.0
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	3.6	7.1	9.6	10.8	15.1
0–5 months old	0.0	0.0	0.0	0.0	0.0	1.5 u	3.2	3.7 * u	4.9 *
6–11 months old	0.4	0.8	1.1 u	3.0	6.1	8.1	11.4	13.1	17.6

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-11. Riboflavin (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.00	0.00	0.00	0.00	0.25	0.67	1.03	1.26	1.68
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.13	0.26	0.50	0.81
6–11 months old	0.04 u	0.09	0.16	0.25	0.54	0.97	1.30	1.51	2.16
WIC participants									
All infants	0.00	0.00	0.00	0.00	0.23	0.69	1.05	1.23	1.74
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.17	0.41	0.70	1.05
6–11 months old	0.02 u	0.09	0.13	0.24	0.56	1.02	1.26	1.54	2.30
Income-eligible nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.09 u	0.57	0.91	1.35	2.32
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	0.00 ** u	0.02 ** u	0.57 *
6–11 months old	0.08	0.11	0.19	0.28	0.38	1.19	1.53	2.24	2.63
Higher-income nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.30	0.66	0.97	1.23	1.51
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.12 u	0.22	0.28 * u	0.38 ***
6–11 months old	0.05	0.07 u	0.18	0.30	0.57	0.95	1.28	1.48	1.68

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-12. Thiamin (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.00	0.00	0.00	0.00	0.21	0.59	0.84	1.03	1.32
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.13 u	0.30	0.50	0.84
6–11 months old	0.02 u	0.07	0.12	0.21	0.46	0.80	1.03	1.16	1.47
WIC participants									
All infants	0.00	0.00	0.00	0.00	0.20	0.61	0.87	1.03	1.40
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.19 u	0.45	0.76	0.98
6–11 months old	0.02 u	0.07	0.12	0.17	0.43	0.84	1.03	1.29	1.66
Income-eligible nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.06 * u	0.39 u	0.82	1.00	1.30
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00 *	0.00 ** u	0.02 ***	0.46 * u
6–11 months old	0.03	0.08 u	0.14	0.21	0.35	0.91	1.09	1.17	1.39
Higher-income nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.31	0.57	0.77	1.03	1.14
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.14 u	0.24	0.33 * u	0.41 **
6–11 months old	0.02	0.05 u	0.12	0.28	0.48	0.76	1.03	1.13	1.31

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-13. Calcium (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	75	231	324	441	653
0–5 months old	0	0	0	0	0	47	98	153	272
6–11 months old	15 u	30	41	73	173	313	466	577	964
WIC participants									
All infants	0	0	0	3 u	66	241	335	481	618
0–5 months old	0	0	0	0	3 u	65	144	226	302
6–11 months old	9 u	27	36	59	201	328	483	582	838 u
Income-eligible nonparticipants									
All infants	0	0	0	0	39 u	186	325	428 u	1,059
0–5 months old	0	0	0	0	0	0 ***	7 ***	14 ***	61 ***
6–11 months old	33	46	59 *	72	131 *	361	439 u	1,057	1,368
Higher-income nonparticipants									
All infants	0	0	0	0	93	223	289	375	639
0–5 months old	0	0	0	0	0	45 u	91	102 * u	137 *
6–11 months old	16 u	28	42	88	171	283	408	532	839

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-14. Iron (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	2.9	9.1	12.7	16.4	20.7
0–5 months old	0.0	0.0	0.0	0.0	0.0	2.3 u	5.4	9.0	15.2
6–11 months old	0.4 u	0.9	1.3	2.5	6.7	11.5	16.4	17.9	22.8
WIC participants									
All infants	0.0	0.0	0.0	0.0	2.3	9.3	14.2	16.4	23.1
0–5 months old	0.0	0.0	0.0	0.0	0.0	3.3 u	7.9	12.2	17.4
6–11 months old	0.2 u	0.9	1.2	1.9 u	6.3	12.0	16.3	18.0	25.8
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	1.0 u	6.0 u	11.8	15.8	19.0 u
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0 ** u	0.4 ***	10.4
6–11 months old	0.5 *	1.0	1.5	2.3	4.9	11.9	18.0	18.8	20.5
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	4.4 *	9.2	11.6	16.4	17.9
0–5 months old	0.0	0.0	0.0	0.0	0.0	2.4 u	4.0	6.0 * u	7.4 **
6–11 months old	0.5 u	0.8	1.4 u	3.6	7.9	11.0	16.5	17.5	21.7

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-15. Magnesium (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	29	69	98	115	153
0–5 months old	0	0	0	0	0	14	26	37	66
6–11 months old	8	14	18	32	59	97	120	130	182
WIC participants									
All infants	0	0	0	0 u	25	67	91	115	160
0–5 months old	0	0	0	0	0 u	17	35	49	78
6–11 months old	6 u	12	17	32	57	90	121	147	182
Income-eligible nonparticipants									
All infants	0	0	0	0	13 u	58	92	104	151
0–5 months old	0	0	0	0	0	0 ***	1 ***	5 ***	22 * u
6–11 months old	11	16	23	27	49	97	109	151	181
Higher-income nonparticipants									
All infants	0	0	0	0	34	71	102	116	135
0–5 months old	0	0	0	0	0	11 u	21	31 *	36 *
6–11 months old	8	15	17	37	63	101	119	126	178

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-16. Phosphorus (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	79	232	314	408	653
0–5 months old	0	0	0	0	0	35	70	110	199
6–11 months old	20 u	32	50	97	190	312	427	593	851
WIC participants									
All infants	0	0	0	0	74	225	340	422	666
0–5 months old	0	0	0	0	0	45	107	138	230
6–11 months old	12 u	31	46	87	195	340	470	618	850
Income-eligible nonparticipants									
All infants	0	0	0	0	47 u	187	320	423	765
0–5 months old	0	0	0	0	0	0 *	0 ***	6 ***	53 ***
6–11 months old	42	48 *	59	96	168	366	474	749	1254
Higher-income nonparticipants									
All infants	0	0	0	0	98	240	304	377	630
0–5 months old	0	0	0	0	0	32 u	67	73 u	96 **
6–11 months old	23	31	49	107	196	303	393	524	679

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-17. Zinc (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	0.5	1.7	2.9	3.9	5.8
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.9 u
6–11 months old	0.1	0.2	0.3	0.7	1.4	3.1	4.1	4.9	7.4
WIC participants									
All infants	0.0	0.0	0.0	0.0	0.4	1.6	2.6	3.9	5.8
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.8	1.2
6–11 months old	0.1 u	0.2 u	0.3	0.6	1.3	2.7	4.4	5.8	8.1 u
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.3 u	1.3 u	3.2	4.0	6.0
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0 ***	0.0 ***	0.1 ***	0.3 ** u
6–11 months old	0.3 ***	0.3	0.4 *	0.6	1.3	3.5	4.6	5.9	7.0
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.7	2.1	3.2	3.9	4.8
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.1 u	0.3 u	0.3 *	0.5 *
6–11 months old	0.1	0.2	0.3 u	0.7	1.6	3.2	3.9	4.7	6.9

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-18. Copper (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.00	0.00	0.00	0.00	0.10	0.26	0.36	0.44	0.58
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.10	0.18
6–11 months old	0.03	0.07	0.09	0.13	0.22	0.37	0.46	0.54	0.66
WIC participants									
All infants	0.00	0.00	0.00	0.00 u	0.10	0.25	0.36	0.44	0.60
0–5 months old	0.00	0.00	0.00	0.00	0.00 u	0.05	0.10	0.14	0.21
6–11 months old	0.02 u	0.06	0.08	0.13	0.22	0.37	0.50	0.59	0.78 u
Income-eligible nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.07 u	0.25	0.36	0.42	0.50
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00 ***	0.00 ***	0.01 ** u	0.17
6–11 months old	0.05	0.07	0.09	0.12	0.24	0.37	0.45	0.49	0.57
Higher-income nonparticipants									
All infants	0.00	0.00	0.00	0.00	0.12	0.28	0.38	0.43	0.51
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.02 u	0.04 *	0.05 ***	0.09 **
6–11 months old	0.03	0.07	0.09	0.13	0.23	0.37	0.44	0.49	0.59

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-19. Selenium (mcg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	3	12	20	25	44
0–5 months old	0	0	0	0	0	1	2	3	6
6–11 months old	0 u	1 u	2	4	9	20	29	38	59
WIC participants									
All infants	0	0	0	0	3	12	24	28	49
0–5 months old	0	0	0	0	0	1	3	5 u	8
6–11 months old	0 u	1 u	1 u	4	10	24	33	48	62
Income-eligible nonparticipants									
All infants	0	0	0	0	1 u	11	18	25	36
0–5 months old	0	0	0	0	0	0	0 *	0 * u	4 u
6–11 months old	1 ***	2 *	2	4	10	21	27	36	61
Higher-income nonparticipants									
All infants	0	0	0	0	4	12	16 *	21	35
0–5 months old	0	0	0	0	0	1 u	1 *	2 u	2 **
6–11 months old	0	1 u	2 u	4	9	16 **	23	34	47

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-20. Potassium (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	240	575	814	982	1,417
0–5 months old	0	0	0	0	0	41	120	198	350
6–11 months old	68	146	200	304	513	839	1,076	1,320	1,904
WIC participants									
All infants	0	0	0	0	224	550	804	1,000	1,433
0–5 months old	0	0	0	0	0	89	165	263	433
6–11 months old	33 u	160	199	295	496	854	1,162	1,409	1,991
Income-eligible nonparticipants									
All infants	0	0	0	0	146 u	559	871	1,087	1,558
0–5 months old	0	0	0	0	0	0	1 * u	5 ***	327
6–11 months old	54	184	228	272	538	1,049 *	1,260	1,553	2,157
Higher-income nonparticipants									
All infants	0	0	0	0	268	594	809	920	1,279
0–5 months old	0	0	0	0	0	27 ** u	59 * u	87 ** u	153 **
6–11 months old	74	142	185	307	520	801	937	1,173	1,555

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-21. Dietary Fiber (g): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	1.7	4.7	6.8	8.3	10.2
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.6 u	1.2	2.6
6–11 months old	0.3 u	1.0	1.5	2.2	4.2	7.1	9.0	9.9	11.9
WIC participants									
All infants	0.0	0.0	0.0	0.0	1.7	4.0	5.9	7.6	9.9
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.2 u	1.2	2.0 u	3.7
6–11 months old	0.1 u	0.7 u	1.4	2.1	3.6	6.5	8.4	9.7	11.5
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.7 u	3.9	5.6	7.0	9.3
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0 *	0.0 **	1.9 *
6–11 months old	0.7	0.8	1.0	1.3 u	3.6	5.9	7.2	9.3	13.8
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	2.3	5.4 *	8.0 *	9.4 *	10.6
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.1 ** u	0.3 * u	0.9 * u
6–11 months old	0.5 u	1.4	1.6	2.8	4.8 **	7.9	9.4	10.2	11.7

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-22. Sodium (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	25	216	428	641	1,127
0–5 months old	0	0	0	0	0	3	8	15	37
6–11 months old	4 u	12	21	42	160	459	718	1,013	1,431
WIC participants									
All infants	0	0	0	0 u	25	244	494	712	1,242
0–5 months old	0	0	0	0	0 u	5 u	15 u	26 u	50 u
6–11 months old	5 u	14	25	48	201	573	909	1,150	1,669 u
Income-eligible nonparticipants									
All infants	0	0	0	0	17 u	232	375	516	925
0–5 months old	0	0	0	0	0	0 *	0 * u	3 ** u	15 u
6–11 months old	16	21	25	33 u	165 u	489	813	924	1,223
Higher-income nonparticipants									
All infants	0	0	0	0	28 u	200	396	556	862
0–5 months old	0	0	0	0	0	2 u	4	6 * u	10
6–11 months old	3	7 u	16 u	39	142	374 *	626	759	1,285

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-23. Choline (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	12	40	61	82	138
0–5 months old	0	0	0	0	0	2	5	9	16
6–11 months old	3 u	8	9	15	34	61	98	134	193
WIC participants									
All infants	0	0	0	0	10	37	65	105	159
0–5 months old	0	0	0	0	0	3	9	12	23
6–11 months old	1 u	7	9	14	32	69	120	150	194
Income-eligible nonparticipants									
All infants	0	0	0	0	9 u	30 u	64	90	145
0–5 months old	0	0	0	0	0	0	0 ** u	0 ***	10 * u
6–11 months old	4	8	12	15	29	74	107	145	223
Higher-income nonparticipants									
All infants	0	0	0	0	15	41	56	67	110
0–5 months old	0	0	0	0	0	1 u	3 ** u	5 * u	8 ***
6–11 months old	4 u	8	12	16	37	55	72 *	98	137

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-24. Total Fat (g): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	1	5	11	15	25
0–5 months old	0	0	0	0	0	0	1	1	2
6–11 months old	0 u	0 u	1	2	5	11	17	24	35
WIC participants									
All infants	0	0	0	0	1	6	13	16	32
0–5 months old	0	0	0	0	0	0	1	2	3
6–11 months old	0 u	0	1 u	2	5	14	20	32	40 u
Income-eligible nonparticipants									
All infants	0	0	0	0	1 u	5	10	15	22
0–5 months old	0	0	0	0	0	0	0 **	0 ** u	1 ***
6–11 months old	1 ***	1	1	2	5	13	18	22	46
Higher-income nonparticipants									
All infants	0	0	0	0	1	5	7 *	13	20
0–5 months old	0	0	0	0	0	0 u	1	1 * u	1 ***
6–11 months old	0	0 u	1	2	4	7 **	14	18	24

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-25. Protein (g): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.00	0.00	0.00	0.00	2.15	8.35	12.74	17.57	30.88
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.54	1.35	2.04	3.92
6–11 months old	0.55 u	1.06	1.71	3.45	7.00	12.93	20.56	27.61	43.77
WIC participants									
All infants	0.00	0.00	0.00	0.00	2.12	8.47	14.03	18.45	33.51
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.81	1.93	2.95	4.63
6–11 months old	0.23 u	0.91	1.52	3.30	7.95	14.76	23.38	32.43	43.91
Income-eligible nonparticipants									
All infants	0.00	0.00	0.00	0.00	1.09 u	7.61	10.10 u	19.78	25.57
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	0.00 **	0.07 ** u	2.49 *
6–11 months old	1.06 ***	1.55	1.84	3.35	7.06	14.77	24.01	25.35	54.85
Higher-income nonparticipants									
All infants	0.00	0.00	0.00	0.00	2.71	8.33	12.42	15.39	27.37
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.46 u	0.90 *	1.21 *	1.67 ***
6–11 months old	0.64	1.11	1.93	3.55	6.96	11.81	16.38	24.65	35.69

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

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Table E-26. Carbohydrate (g): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	25	63	83	102	134
0–5 months old	0	0	0	0	0	6	15	24	44
6–11 months old	6 u	14	22	33	56	85	107	126	167
WIC participants									
All infants	0	0	0	0	24	62	85	103	142
0–5 months old	0	0	0	0	0	10	23	32	48
6–11 months old	5 u	12	22	32	56	88	115	142	183
Income-eligible nonparticipants									
All infants	0	0	0	0	11 u	63	80	93	116
0–5 months old	0	0	0	0	0	0	0 ***	1 ***	42 u
6–11 months old	8	13	18	30	58	89	103	116	156
Higher-income nonparticipants									
All infants	0	0	0	0	25	66	80	90	117
0–5 months old	0	0	0	0	0	5 u	10 **	12 **	15 ***
6–11 months old	6	15	20	32	55	80	94	111	148

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-27. Saturated Fat (g): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	0.3	1.6	3.2	5.6	10.0
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5
6–11 months old	0.0 u	0.1 u	0.2	0.4	1.4	3.6	6.4	8.9	15.2
WIC participants									
All infants	0.0	0.0	0.0	0.0	0.2	1.8	3.8	6.3	11.5
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5
6–11 months old	0.0 u	0.1 u	0.1 u	0.5	1.7	4.2	7.1	11.3 u	19.6 u
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.1 u	1.5	3.3 u	5.2	9.2
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0 ** u	0.0 ** u	0.2 **
6–11 months old	0.1 ***	0.1	0.3	0.5	1.5	4.0 u	8.2	9.2	18.7
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.3 u	1.5	2.1 u	4.8 u	8.7
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.1 u	0.1	0.1 * u	0.2 ***
6–11 months old	0.0 u	0.1 u	0.2	0.4	1.0 *	2.1 *	5.3	7.9	10.0

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-28. Linoleic Acid (g): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	0.3	1.2	1.8	2.6	3.9
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.7
6–11 months old	0.0 u	0.1	0.2	0.4	1.0	1.8	2.8	3.7	5.2
WIC participants									
All infants	0.0	0.0	0.0	0.0	0.3	1.2	2.2	3.2	4.3
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.8
6–11 months old	0.0 u	0.1	0.2 u	0.5	1.0	2.4	3.7	4.2	6.9
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.1 * u	1.0	2.0	2.5	3.0
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0 ***	0.0 ***	0.2 ***
6–11 months old	0.1 *	0.2	0.3 *	0.3	1.0	2.0	2.8	3.0	3.3
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.4	1.2	1.5	1.8 **	2.8
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.1 u	0.2 *	0.2 * u	0.3 ***
6–11 months old	0.1	0.2 u	0.2	0.4	0.9	1.5	1.8 ***	2.6	3.9

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-29. Linolenic Acid (g): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
6–11 months old	0.0 u	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.7
WIC participants									
All infants	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0 u	0.0	0.1	0.1
6–11 months old	0.0 u	0.0 u	0.0	0.1	0.1	0.3	0.4	0.5	0.8
Income-eligible nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.0 u	0.1	0.2	0.3	0.5 u
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0	0.0 **	0.0 ** u	0.0 u
6–11 months old	0.0	0.0	0.0	0.0	0.1	0.3	0.3 u	0.5	0.7
Higher-income nonparticipants									
All infants	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2 *	0.4
0–5 months old	0.0	0.0	0.0	0.0	0.0	0.0 u	0.0 *	0.0 u	0.0 *
6–11 months old	0.0	0.0	0.0	0.1	0.1	0.2 **	0.2	0.3	0.5 u

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-30. Cholesterol (mg): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0	0	0	0	0	11	26	51	102
0–5 months old	0	0	0	0	0	0	0	0	0
6–11 months old	0	0	0	0	9	27	61	96	181
WIC participants									
All infants	0	0	0	0	0	13	34 u	84 u	177
0–5 months old	0	0	0	0	0	0	0	0	0
6–11 months old	0	0	0	0	10	45 u	103 u	172	223 u
Income-eligible nonparticipants									
All infants	0	0	0	0	0	10 u	24	39	143
0–5 months old	0	0	0	0	0	0	0	0	0
6–11 months old	0	0	0	1 u	10	37	69	143	175
Higher-income nonparticipants									
All infants	0	0	0	0	0	11	24	36	60 ***
0–5 months old	0	0	0	0	0	0	0	0	0
6–11 months old	0	0	0	0	8	22	37	56 ***	71

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-31. Calories (kcal): Distribution of Nutrient Intakes from Complementary Foods

	Percentiles								
	5th	10th	15th	25th	50th	75th	85th	90th	95th
All infants	0.00	0.00	0.00	0.00	128.30	346.89	467.85	589.13	853.40
0–5 months old	0.00	0.00	0.00	0.00	0.00	29.76	64.80	109.90	202.22
6–11 months old	28.44 u	74.15	98.63	171.62	309.58	471.98	650.19	771.42	1,105.92
WIC participants									
All infants	0.00	0.00	0.00	0.00	117.20	346.96	495.35	613.45	950.68
0–5 months old	0.00	0.00	0.00	0.00	0.00	46.37	103.41	151.69	219.99
6–11 months old	21.66 u	64.40	95.04	179.59	312.85	534.70	696.78	930.17	1,219.23
Income-eligible nonparticipants									
All infants	0.00	0.00	0.00	0.00	63.61 u	348.86	471.67	551.31	787.85
0–5 months old	0.00	0.00	0.00	0.00	0.00	0.00	1.21 ***	4.98 ***	191.35 u
6–11 months old	47.30	69.32	90.00	160.00	336.12	483.49	672.24	787.08	1,103.91
Higher-income nonparticipants									
All infants	0.00	0.00	0.00	0.00	146.33	342.96	408.25	523.89	723.39
0–5 months old	0.00	0.00	0.00	0.00	0.00	23.76 u	46.88 **	60.17 **	77.71 ***
6–11 months old	29.81	75.10	98.72	160.08	305.21	404.89 *	567.34	661.04	932.33

Source: NHANES 2005–2008 dietary recalls. Sample includes NHANES respondents with complete dietary recall data and incomplete recall due to the consumption of breast milk, 0–11 months old. Complementary foods exclude breast milk and formula.

Notes: 'All infants' includes infants with missing WIC participation or income. Totals for infants are not age-adjusted. Significant differences in percentiles are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as infants receiving WIC benefits at the time of the interview. In the comparison of percentiles across WIC participation and eligibility groups, a Bonferroni adjustment was used to adjust levels of significance and control for multiplicity in the number of tests.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

Table E-32. Healthy Eating Index-2005 (HEI-2005) Scores: Pregnant, Breastfeeding, and Postpartum Women

	Pregnant, breastfeeding, and postpartum women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*604*	-	*244*	-	*83*	-	*211*	-
Total Fruit	3.6	(0.31)	3.5	(0.37)	3.3	(0.38)	3.7	(0.55)
Whole Fruit	4.0	(0.39)	3.5	(0.55)	3.5	(0.53)	4.3	(0.59)
Total Vegetables	3.2	(0.16)	2.8	(0.28)	2.9	(0.26)	3.8 *	(0.33)
Dark Green and Orange Vegetables, and Legumes	1.3	(0.24)	0.7 u	(0.30)	1.2	(0.24)	1.8 *	(0.34)
Total Grains	5.0	(0.00)	5.0	(0.00)	5.0	(0.01)	5.0	(0.02)
Whole Grains	1.3	(0.16)	1.1	(0.16)	1.0 u	(0.35)	1.6	(0.29)
Milk	6.8	(0.38)	6.7	(0.37)	6.0	(0.89)	7.5	(0.58)
Meat and Beans	10.0	(0.09)	9.8	(0.33)	10.0	(0.02)	9.7	(0.32)
Oils	7.5	(0.35)	7.5	(0.69)	6.4	(0.74)	7.9	(0.57)
Saturated Fat	5.6	(0.44)	5.9	(0.54)	6.2	(0.80)	4.7	(0.59)
Sodium	3.6	(0.28)	4.0	(0.43)	4.5	(0.51)	2.8	(0.51)
Empty Calories	9.6	(0.55)	8.9	(0.97)	9.7	(0.76)	10.5	(0.58)
Total HEI-2005 Score	61.5	(1.67)	59.5	(2.43)	59.8	(2.14)	63.3	(2.08)
	Pregnant women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*373*	-	*144*	-	*54*	-	*136*	-
Total Fruit	4.8	(0.24)	4.8	(0.30)	4.1	(0.54)	4.7	(0.49)
Whole Fruit	4.9	(0.16)	4.5	(0.56)	3.9	(0.73)	5.0	(0.17)
Total Vegetables	3.4	(0.31)	2.7	(0.52)	3.2	(0.30)	4.0	(0.46)
Dark Green and Orange Vegetables, and Legumes	1.2	(0.36)	0.8 u	(0.50)	1.7 u	(0.53)	1.4	(0.28)
Total Grains	5.0	(0.02)	5.0	(0.09)	5.0	(0.00)	4.9	(0.12)
Whole Grains	1.1	(0.17)	1.1	(0.23)	1.1 u	(0.73)	1.3	(0.26)
Milk	6.8	(0.49)	6.7	(0.42)	5.2 *	(0.47)	7.5	(0.76)
Meat and Beans	9.8	(0.26)	9.6	(0.57)	10.0	(0.02)	9.3	(0.60)
Oils	7.0	(0.46)	7.1	(0.69)	7.2	(0.93)	7.4	(0.87)
Saturated Fat	5.8	(0.58)	5.7	(0.75)	6.4	(1.02)	5.5	(1.03)
Sodium	3.9	(0.42)	4.6	(0.66)	4.6	(0.68)	3.1	(0.80)
Empty Calories	10.6	(0.87)	9.8	(1.92)	11.4	(0.71)	11.0	(1.01)
Total HEI-2005 Score	64.5	(2.04)	62.4	(4.05)	63.8	(2.73)	65.2	(2.41)

See notes at end of table.

Table E-32. Healthy Eating Index-2005 (HEI-2005) Scores: Pregnant, Breastfeeding, and Postpartum Women–Continued

	Breastfeeding women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*71*	-	*31*	-	*12*	-	*24*	-
Total Fruit	4.0	(0.45)	4.7	(0.55)	4.1	(0.54)	3.5	(0.67)
Whole Fruit	4.9	(0.26)	4.9	(0.43)	3.9	(0.73)	4.3	(0.88)
Total Vegetables	3.7	(0.65)	3.8	(0.67)	3.2	(0.30)	4.1	(0.84)
Dark Green and Orange Vegetables, and Legumes	2.8 u	(0.92)	2.0 u	(1.13)	1.7 u	(0.53)	3.7 u	(1.21)
Total Grains	5.0	(0.09)	4.9	(0.19)	5.0	(0.00)	4.8	(0.27)
Whole Grains	2.0	(0.35)	2.0	(0.59)	1.1 u	(0.73)	1.9	(0.47)
Milk	7.7	(0.65)	8.1	(1.07)	5.2 *	(0.47)	8.2	(0.93)
Meat and Beans	10.0	(0.15)	9.8	(0.42)	10.0	(0.02)	9.9	(0.37)
Oils	5.8	(0.57)	4.7	(0.86)	7.2	(0.93)	6.2	(1.05)
Saturated Fat	5.6	(0.61)	6.9	(0.95)	6.4	(1.02)	4.4	(1.02)
Sodium	3.9	(0.78)	4.9	(0.42)	4.6	(0.68)	2.8 u	(1.37)
Empty Calories	10.0	(1.30)	10.5	(2.03)	11.4	(0.71)	10.9	(1.82)
Total HEI-2005 Score	65.3	(2.59)	67.4	(4.01)	63.8	(2.73)	64.6	(3.38)

	Postpartum women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*226*	-	*114*	-	*25*	-	*63*	-
Total Fruit	2.4	(0.37)	2.3	(0.46)	1.7 u	(0.92)	2.6	(0.71)
Whole Fruit	2.0	(0.30)	1.9	(0.45)	1.4 u	(0.62)	2.0	(0.47)
Total Vegetables	2.9	(0.21)	2.6	(0.30)	2.8	(0.41)	3.4	(0.33)
Dark Green and Orange Vegetables, and Legumes	0.9	(0.25)	0.5 u	(0.23)	0.6 u	(0.50)	1.3 u	(0.39)
Total Grains	5.0	(0.00)	5.0	(0.00)	5.0	(0.14)	5.0	(0.05)
Whole Grains	1.1	(0.26)	1.0	(0.20)	0.4 * u	(0.17)	1.6 u	(0.55)
Milk	6.5	(0.54)	6.4	(0.53)	6.4 u	(1.97)	7.2	(0.99)
Meat and Beans	9.8	(0.24)	9.6	(0.50)	9.8	(0.53)	9.3	(0.48)
Oils	8.5	(0.63)	8.2	(1.01)	6.4	(0.94)	9.1	(0.83)
Saturated Fat	5.4	(0.69)	5.9	(0.82)	6.7	(1.63)	4.2	(0.96)
Sodium	3.2	(0.38)	3.5	(0.63)	3.7	(0.78)	2.4	(0.61)
Empty Calories	8.7	(0.78)	8.2	(1.16)	9.4	(1.33)	9.9	(0.91)
Total HEI-2005 Score	56.3	(1.62)	55.1	(2.40)	54.5	(4.00)	58.1	(2.38)

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Health Eating Index-2005, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 1, December 2006. Sample includes NHANES respondents with complete dietary recall data. Sample includes pregnant, breastfeeding, and postpartum women, 20–44 years old. Postpartum women are non-breastfeeding women up to 12 months postpartum and include an unknown number of non-breastfeeding women who are more than 6-months postpartum.

Notes: Estimates are based on a single dietary recall per person. 'All Women' includes women with missing WIC participation or income. Scores are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as women receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

Table E-33. Healthy Eating Index-2010 (HEI-2010) Scores: Pregnant, Breastfeeding, and Postpartum Women

	Pregnant, breastfeeding, and postpartum women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*604*	-	*244*	-	*83*	-	*211*	-
Total Fruit	3.6	(0.32)	3.5	(0.37)	3.3	(0.38)	3.7	(0.55)
Whole Fruit	4.0	(0.39)	3.5	(0.54)	3.5	(0.52)	4.4	(0.58)
Total Vegetables	3.2	(0.16)	2.8	(0.27)	2.9	(0.26)	3.8 *	(0.32)
Greens and Beans	1.8	(0.41)	0.9 u	(0.49)	2.1	(0.51)	2.4 *	(0.52)
Whole Grains	2.5	(0.31)	2.2	(0.33)	2.1 u	(0.70)	3.1	(0.58)
Dairy	6.8	(0.38)	6.7	(0.37)	6.0	(0.90)	7.5	(0.58)
Total Protein Foods	5.0	(0.05)	4.9	(0.16)	5.0	(0.01)	4.8	(0.16)
Seafood and Plant Proteins	2.9	(0.35)	2.6	(0.42)	3.3 u	(1.06)	3.0	(0.39)
Fatty Acids	4.1	(0.34)	4.3	(0.39)	3.5	(0.62)	4.0	(0.56)
Refined Grains	5.2	(0.35)	4.7	(0.51)	4.3	(0.82)	6.0	(0.65)
Sodium	4.5	(0.35)	5.0	(0.53)	5.6	(0.63)	3.4	(0.63)
Empty Calories	9.7	(0.54)	8.7	(0.94)	9.7	(0.72)	10.7	(0.56)
Total HEI-2010 Score	53.3	(1.68)	49.9	(2.38)	51.3	(2.34)	56.8 *	(2.51)

	Pregnant women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*373*	-	*144*	-	*54*	-	*136*	-
Total Fruit	4.8	(0.25)	4.8	(0.31)	4.1	(0.54)	4.7	(0.50)
Whole Fruit	5.0	(0.16)	4.5	(0.56)	3.9	(0.73)	5.0	(0.17)
Total Vegetables	3.4	(0.31)	2.7	(0.51)	3.2	(0.30)	4.0 *	(0.47)
Greens and Beans	1.8 u	(0.66)	1.3 u	(0.89)	2.9 u	(1.04)	2.0	(0.44)
Whole Grains	2.3	(0.34)	2.1	(0.45)	2.1 u	(1.47)	2.7	(0.52)
Dairy	6.8	(0.50)	6.7	(0.41)	5.2 *	(0.47)	7.5	(0.76)
Total Protein Foods	4.9	(0.13)	4.8	(0.29)	5.0	(0.01)	4.7	(0.30)
Seafood and Plant Proteins	3.8	(0.57)	4.4	(0.68)	2.2 * u	(0.84)	3.4	(0.70)
Fatty Acids	4.1	(0.39)	4.2	(0.64)	4.3	(0.83)	4.3	(0.61)
Refined Grains	5.6	(0.45)	5.8	(0.59)	4.6	(0.81)	6.3	(0.85)
Sodium	4.9	(0.52)	5.8	(0.83)	5.8	(0.85)	3.9	(1.00)
Empty Calories	10.3	(0.84)	9.5	(1.87)	11.0	(0.68)	10.7	(0.96)
Total HEI-2010 Score	57.7	(1.96)	56.6	(3.36)	54.3	(3.16)	59.1	(2.81)

See notes at end of table.

Table E-33. Healthy Eating Index-2010 (HEI-2010) Scores: Pregnant, Breastfeeding, and Postpartum Women–Continued

	Breastfeeding women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample size	*71*	-	*31*	-	*12*	-	*24*	-
Total Fruit	4.0	(0.45)	4.7	(0.56)	4.1	(0.54)	3.5	(0.68)
Whole Fruit	4.9	(0.26)	4.9	(0.44)	3.9	(0.73)	4.3	(0.87)
Total Vegetables	3.7	(0.65)	3.8	(0.68)	3.2	(0.30)	4.1	(0.85)
Greens and Beans	3.2 u	(1.15)	2.0 u	(1.17)	2.9 u	(1.04)	3.9 u	(1.34)
Whole Grains	3.9	(0.70)	3.9 u	(1.18)	2.1 u	(1.47)	3.7	(0.92)
Dairy	7.7	(0.64)	8.1	(1.06)	5.2 *	(0.47)	8.2	(0.93)
Total Protein Foods	5.0	(0.07)	4.9	(0.21)	5.0	(0.01)	4.9	(0.18)
Seafood and Plant Proteins	3.3	(0.91)	2.0 u	(0.80)	2.2 u	(0.84)	2.7 u	(0.94)
Fatty Acids	3.1	(0.49)	2.8	(0.55)	4.3	(0.83)	3.2	(0.72)
Refined Grains	7.0	(0.77)	6.2	(1.84)	4.6	(0.81)	7.8	(1.08)
Sodium	4.9	(0.97)	6.2	(0.53)	5.8	(0.85)	3.4 u	(1.70)
Empty Calories	10.6	(1.25)	10.5	(1.70)	11.0	(0.68)	11.7	(1.73)
Total HEI-2010 Score	61.3	(2.88)	60.0	(4.29)	54.3	(3.16)	61.6	(3.69)

	Postpartum women							
	All women		WIC participants		Income-eligible nonparticipants		Higher-income nonparticipants	
	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error	Mean score	Standard error
Sample Size	*226*	-	*114*	-	*25*	-	*63*	-
Total Fruit	2.4	(0.37)	2.3	(0.46)	1.7 u	(0.92)	2.6	(0.72)
Whole Fruit	2.0	(0.30)	1.9	(0.45)	1.4 u	(0.61)	2.0	(0.47)
Total Vegetables	2.9	(0.21)	2.6	(0.30)	2.8	(0.41)	3.4	(0.33)
Greens and Beans	1.2 u	(0.38)	0.6 u	(0.38)	1.1 u	(0.99)	2.1 * u	(0.66)
Whole Grains	2.2	(0.51)	2.0	(0.41)	0.9 * u	(0.33)	3.3 u	(1.11)
Dairy	6.5	(0.53)	6.4	(0.52)	6.4 u	(1.96)	7.2	(0.97)
Total Protein Foods	4.9	(0.12)	4.8	(0.25)	4.9	(0.27)	4.7	(0.24)
Seafood and Plant Proteins	2.1	(0.36)	1.6	(0.45)	2.8 u	(1.10)	2.3	(0.58)
Fatty Acids	4.4	(0.47)	4.7	(0.52)	3.6	(0.97)	4.2	(0.99)
Refined Grains	4.2	(0.65)	3.8	(0.72)	2.6 u	(1.96)	4.8	(1.25)
Sodium	4.0	(0.47)	4.3	(0.78)	4.7	(0.98)	3.0	(0.75)
Empty Calories	8.9	(0.76)	8.0	(1.16)	9.1	(1.26)	10.2	(0.89)
Total HEI-2010 Score	45.6	(1.47)	43.1	(2.19)	41.9	(4.03)	49.7	(2.86)

Sources: NHANES 2005-2008 dietary recalls. MyPyramid Equivalents Database (MPED 2.0); CNPP 03-04 Fruit Database; CNPP Addendum to MPED 2.0B. Healthy Eating Index-2010, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion (CNPP) Fact Sheet No. 2, February 2013. Sample includes NHANES respondents with complete dietary recall data. Sample includes pregnant, breastfeeding, and postpartum women, 20–44 years old. Postpartum women are non-breastfeeding women up to 12 months postpartum and include an unknown number of non-breastfeeding women who are more than 6-months postpartum.

Notes: Estimates are based on a single dietary recall per person. 'All Women' includes women with missing WIC participation or income. Scores are age-adjusted to account for different age distributions of WIC participants and nonparticipants. Significant differences in mean scores are noted by * (.05 level), ** (.01 level), or *** (.001 level). Differences are tested in comparison to WIC participants, identified as pregnant, breastfeeding, and postpartum women receiving WIC benefits at the time of the interview.

u Denotes individual estimates not meeting the standards of reliability or precision due to large coefficient of variation.

- Not applicable.

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