

**DIET QUALITY OF YOUNG AMERICAN CHILDREN BY WIC PARTICIPATION STATUS: DATA FROM THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY, 2005-2008 – SUMMARY**

**Background**

This report uses data from the National Health and Nutrition Examination Survey (NHANES 2005-2008) to provide a comprehensive picture of the nutrient intakes, food choices, and diet quality of USDA Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) participants.

Data are presented for WIC-participant children ages 1 through 4, income-eligible nonparticipants, and higher income children. An appendix presents select data on infants and pregnant, postpartum, and breastfeeding women.

**Data and Methods**

The report relies primarily on 24-hour dietary recall data from the 2005-2008 NHANES, supplemented with the NHANES household interview, health survey, and physical examination data, to describe food choices and supplement use, and to assess the adequacy of nutrient intakes of young children by income class and WIC-participant status.

**Nutrient Intakes**

This study examined intakes of 18 essential vitamins and macronutrients (protein, carbohydrates, and fat) as a percentage of energy consumed, as well as the percentage of energy consumed as solid fats and added sugars.

- Most children, regardless of WIC eligibility or participant status, had adequate usual intakes of most nutrients. However, most children did not meet the Adequate Intake (AI) levels for fiber, and only a small minority had adequate intakes of vitamins D and E.
- WIC-participant children and both groups of nonparticipants were about as likely to have adequate intakes for most vitamins, minerals, and macronutrients. WIC-participant children were more likely to have adequate intakes of vitamin E than higher income nonparticipant children. WIC-participant children also had higher usual mean intakes of potassium than

either income-eligible or higher income nonparticipants.

- WIC-participant children were less likely than either income-eligible nonparticipants or higher income children to use vitamin or mineral supplements.
- WIC-participant children obtained a smaller share (32 percent) of their energy from empty calories than low-income nonparticipant children (35 percent). The study found no difference between WIC participants and higher income children in the share of total energy from empty calories.

**Intake of Calories and Weight Status**

Intake of calories and measures of Body Mass Index (BMI) were used to assess the appropriateness of usual daily energy intakes.

- More than three-quarters (77 percent) of children age 2-4 years had a healthy weight. Twelve percent 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.

**Food Consumption Patterns**

This study examined the proportion of children consuming the types of foods provided through WIC at the time data were collected, along with the proportion of children consuming foods from 10 broad food groups and the average amounts consumed from each group. Key findings include:

- WIC-participant children were more likely than low-income nonparticipants to consume milk and cereal, more likely than higher income nonparticipants to consume eggs, and more likely than both groups of nonparticipants to consume juice and beans.

- WIC-participant children were less likely than higher income nonparticipant children to consume separate grain and vegetable items but more likely to consume mixed dishes. WIC-participant children were also less likely than low-income nonparticipants to consume added fats and oils.

### Diet Quality

This study examined the overall quality of 2- to 4-year old children's diets using the Healthy Eating Index-2005 (HEI-2005), a measure used to assess how well individuals' diets compare to the *Dietary Guidelines for Americans* (DGA). Higher scores indicate healthier diets.

- Generally, children's diets fell far short of DGA recommendations. The overall score on the HEI-2005 was 63 out of a possible 100. HEI-2005 scores were similar for WIC-participant children and both groups of nonparticipant children.
- Children in all three groups achieved or came close to achieving the maximum score for total fruit, whole fruit, total grains, and milk. However, for all children, scores for whole grains, dark green and orange vegetables and legumes, and total vegetables were low.
- WIC-participant children had higher (better) sodium and empty calorie component scores than both nonparticipant groups.

The report includes findings on the updated version of the HEI (HEI-2010) in an appendix.

### Infants and Women

Although the study focuses on the dietary quality of children, the report includes select measures for women and infants. Among these are the weight status and nutrient intakes of infants and HEI scores for women.

- Among all infants, ages 0-11 months, 91 percent had a healthy weight for length; the study found no difference by WIC participant status or income. However, among the subset of infants ages 0-5 months, income eligible non-participants were more likely than WIC participants to have a healthy weight for length – 97 percent compared to 90 percent. The WIC

infants in this age group were more likely to have a high weight for length (6.5 percent) than low income nonparticipants (1.6 percent).

- The average HEI-2005 score for all pregnant, breastfeeding, and postpartum women was 62 out of 100. Scores were similar for WIC participants, income-eligible nonparticipants, and higher income nonparticipants. Breastfeeding and pregnant women had an average score of 65 compared to an average score of 56 among postpartum women.

### Implications for Future Research

This analysis provides a baseline measure of diet quality of WIC-participant children just prior to the 2009 introduction of the new WIC food packages. The food package reforms adopted by the program in 2009 directly address several of the dietary shortcomings identified by this study:

- **Consumption of whole milk.** Among children consuming milk, WIC-participant children were more likely than either income-eligible or higher income nonparticipants to consume whole milk, which is not recommended for children age 2 and older.
- **Consumption of whole fruits.** Among children consuming any fruit, WIC-participant children consumed less whole fruit and more fruit juice than either group of nonparticipants.
- **Consumption of vegetables.** WIC participant children are less likely to consume vegetables as discrete items than higher income nonparticipants.
- **Consumption of whole grains.** Low consumption was a problem for all participant, age, and income groups.

### For More Information

Condon, Elizabeth and Susan Drilea, Carolyn Lichtenstein, James, Mabli, Emily Madden, and Katherine Niland. (2015). *Diet Quality of American Young Children by WIC Participation Status: Data from the National Health and Nutrition Examination Survey, 2005-2008*. Prepared by Walter R. McDonald & Associates, Inc. for FNS (available online at [www.fns.usda.gov/research-and-analysis](http://www.fns.usda.gov/research-and-analysis)).