

**NHANES 2001-2002 Data Release  
September 2004  
MEC Examination**

**Dietary Interview - Total Nutrient Intakes File (DRXTOT\_B)**

Survey Years Included in this File: 2001-2002

**Component Description:**

The objective of the dietary interview component is to obtain detailed dietary intake information from the NHANES participants. The dietary intake data are used to estimate the types and amounts of foods and beverages consumed during the 24-hour period prior to the interview (midnight to midnight), and to estimate intakes of energy, nutrients, and other food components from those foods and beverages. Following the dietary recall, respondents are asked questions on water consumption during the previous 24-hour period, salt use, and whether the person's intake on the previous day was usual or unusual. Children 1 to 5 years old and women 16 to 49 years old are also asked about their frequency of fish and shellfish consumption during the past 30 days.

This release of the dietary intake data represents, for the first time, the integration of two nationwide dietary intake surveys - USDA's Continuing Survey of Food Intakes by Individuals (CSFII) and DHHS's National Health and Nutrition Examination Survey (NHANES). This new integrated dietary component is collected as part of NHANES and is called ***What We Eat in America***. Under the integrated framework, DHHS is responsible for the sample design and data collection and USDA is responsible for the survey's dietary data collection methodology, maintenance of the databases used to code and process the data, and data review and processing.

Survey integration of dietary data collection began in NHANES 2002. Because NHANES is on a two-year data release cycle, this first release of the integrated survey includes dietary data collected in 2001 from NHANES plus the integrated data collected in 2002. Collection and processing procedures for the two years were similar. Differences between the two years, along with steps taken to reconcile these differences, are discussed throughout this document.

Data collection for the *What We Eat in America 2002* also included a second day recall that was collected by telephone. Because of confidentiality issues concerning the release of single-year data from NHANES, dietary data for the 2002 Day 2 telephone interview will not be publicly released. Only Day 1 interview data are included in the present release.

Restricted data, such as the 2002 Day 2 dietary data, may be made available at the Research Data Center located at the National Center for Health Statistics (NCHS)

headquarters in Hyattsville, MD. A research proposal for using the restricted data must be submitted to NCHS for review and approval. Instructions for requesting use of these data are available at <http://www.cdc.gov/nchs/r&d/rdc.htm>

Two data files were produced from the Day 1 dietary interview for this release:

1. Total Nutrient Intakes File (DRXTOT\_B) that consists of daily total nutrient intakes from foods and beverages, total amount of water consumed, and frequency of fish and shellfish consumption for survey participants.
2. Individual Foods File (DRXIFF\_B) that includes detailed information about the type and amount of individual foods reported by each respondent, as well as amounts of nutrients from each food.

Nutrient intakes reported in these files do not include those obtained from dietary supplements, medications or plain drinking water.

This document provides additional details important to understanding the content of the Total Nutrient Intakes File (DRXTOT\_B). The Total Nutrient Intakes File provides a summary record of total nutrient intakes for individuals, as well as detailed information about the characteristics of the dietary interview. This file includes one record for each survey participant. Each record contains daily aggregates of nutrient intake in units appropriate to the nutrient. A complete [list of nutrients](#)<sup>1</sup> contained in USDA's Food and Nutrient Database for Dietary Studies ([FNDDS](#))<sup>2</sup> is available at the Food Surveys Research Group (FSRG) website.

Information about the individual foods reported by respondents during the dietary interview is contained in a separate NHANES 2001-2002 dietary data file titled Individual Foods File (DRXIFF\_B).

### **Eligible Sample and Component-Specific Exclusions:**

All NHANES examined survey participants are eligible for the dietary interview component. However, several questions that follow the 24-hour recall are only asked of a subset of survey participants. Frequency of fish and shellfish consumption is only reported for children 1-5 years old and women 16-49 years of age, and information on the use of table salt is only reported for participants 1 year and older.

### **Examination Protocol:**

The examination protocol and data collection methods are fully documented in the NHANES Dietary Interviewers Procedures Manual. [3.4](#)

Proxy interviews were conducted for survey participants less than six years of age. Assisted interviews were conducted with survey participants 6 to 11 years of age.

Dietary interviews were conducted in English and Spanish. Translators were used to conduct interviews in other languages.

The in-person interview was conducted in a private room in the NHANES mobile examination center (MEC). A set of standard measuring guides was available in the MEC dietary interview room for the respondent to use for reporting amounts of foods.

In 2001, dietary intake data were collected using the NHANES computer-assisted dietary interview system (CADI), which was also used to collect dietary data for the 1999-2000 collection period. The CADI is a multiple pass recall method which provides instructions to interviewers for recording information about foods. Additional information about the CADI system is provided in the [NHANES 1999-2000 Dietary Interviewers Procedures Manual](#).<sup>4</sup>

In 2002, What We Eat in America data were collected using USDA's dietary data collection instrument, the [Automated Multiple Pass Method](#) (AMPM).<sup>5</sup> The AMPM was designed to provide a more efficient and accurate means of collecting intakes for large-scale national surveys. The AMPM is a fully computerized recall method that includes an extensive compilation of standardized food-specific questions and possible response options. It features automated routing of questions based on previous answers. The AMPM is updated yearly to capture the changing food supply and to address research needs from the data user community. Additional information about the AMPM is provided in [Raper et al. \(2004\)](#).<sup>6</sup>

### **Quality Control during Data Collection:**

All dietary interviewers had to complete an intensive one-week training course followed by supervised interview practices before working independently in the field. Retraining sessions were conducted periodically and annually to reinforce the proper protocols and technique.

Interviewers were monitored throughout the data collection period. Monitoring consisted of the following:

- Reviews of data transmittal sheets to verify receipt of data files.
- Reviews of audio taped interviews for approximately 5% of each interviewer's work; in-person observations were also conducted periodically.
- Interviews were checked for completeness of the recalls, missing information, inconsistent reports, and unclear notes. Written notification and feedback were provided to the interviewers.

In 2001, interviewers reviewed each interview after completion, performing appropriate edits. Interviewers were not required to review interviews collected in 2002 using the USDA's AMPM because quality control features are built into the software and incorrect entries are minimized due to automated routing of questions and built-in

edits.

## Data Processing and Editing:

Two similar systems were used to code the intake data for 2001 and 2002. The University of Texas Food Intake Analysis System (FIAS, version 3.99) was used for coding intakes for 2001. For 2002, interview files were imported into Survey Net, a computer-assisted food coding and data management system developed by USDA.<sup>6</sup> FIAS is a general-use version of the Survey Net software that is available to researchers through the University of Texas.<sup>7</sup>

The USDA [FNDDS, version 1](#),<sup>2</sup> was used for processing the intakes for 2001-2002. The FNDDS includes comprehensive information that can be used to code individual foods and portion sizes and contains nutrient values for calculating nutrient intakes. The FNDDS is available for use in research projects using the 2001-2002 food intake data and in other food intake studies, as well. Additional information [6, 8](#) about the FNDDS and related tools is available at the FSRG website.

Coders were monitored to ensure quality and completeness. Approximately 10 percent of the coder's work was double-coded and adjudicated, if necessary.

After intake data were coded, various types of reviews were conducted to ensure the quality of the data, including:

- Overall acceptability of each recall. This review determined if the recall met minimum criteria.

Minimum criteria for the 2001 data collection included the following:

1. Less than 25% of the foods with missing descriptive information.
2. Less than 15% of the foods with missing amounts.
3. Any meal reported must have at least one identified food.

Minimum criteria for 2002 data collection included the following:

1. The first 4 steps of the 5-step AMPM were completed. Because the AMPM includes automated routing of questions, missing descriptive or amount information cannot occur.
  2. Foods consumed for each reported meal must be identified.
- Interviewers' and coders' questions and comments were reviewed to ensure that they had been accounted for in coding.
  - Resolution of unknown foods or food quantities that were reported by respondents but could not be coded to foods in the database.

- Specific edit checks for reasonableness, consistency, and logic. Examples are meals reported at unusual times and extremely large quantities of foods.
- Intakes with extremes levels for individual nutrients.

An overview of [quality assurance](#) procedures conducted during the data processing stage is available at the FSRG website.<sup>9</sup>

During the data processing, the following edits were made to ensure the logical consistency and analytic usefulness of the data:

### **1. Adjusted sodium values for certain foods**

Sodium values for home-prepared foods are based on the sodium values of recipe ingredients in the FNDDS. The amount of salt in recipes was reduced, or eliminated, in some cases based on questions about salt use in the dietary interview.

### **2. Computing water consumption**

The total nutrient intakes file includes three water variables: total plain water (DRD320GW), tap water (DRD330GW), and plain carbonated water (DRDCWATR). Total plain water includes tap water and non-carbonated bottled water. Plain carbonated water includes unsweetened carbonated water, seltzer water, club soda, and carbonated bottled water such as Perrier. Information on water consumption was collected differently in 2001 and 2002. The following adjustments were made in order to report the three variables:

- In 2001, consumption of total plain water and tap water were asked separately and these questions were used to create DRD320GW and DRD330GW, respectively. The variable, DRDCWATR, was created by summing all plain carbonated water that the respondent reported during the 24-hour recall that was not consumed in combination with another food (for example, juice and club soda). These records were then removed from the individual foods file.
- In 2002, consumption of tap, bottled, and plain carbonated water was asked separately. Total plain water (DRD320GW) was calculated as the sum of tap water and non-carbonated bottled water.

### **Component-Specific Analytic Notes:**

The [analytic guidelines](#)<sup>10</sup> provided with the 2001-2002 NHANES data release recommend combining 2-year cycles, such as 1999-2000 and 2001-2002, to increase sample size and analytic options. However, the guidelines also advise that the user should verify that data items were collected and reported in a comparable manner in

all combined years. Thus, before combining the 1999-2000 and 2001-2002 dietary data, researchers should carefully consider the following information. Between these two time periods, nutrient values for many foods were revised, based on improvements in sampling and analyzing foods. Also, values for new nutrients and food components became available, and units of expression for some existing nutrients were changed. NHANES 2001-2002 nutrient intakes were calculated using USDA's FNDDS version 1.0,<sup>2</sup> which contains the most up-to-date food composition values available for this time frame. NHANES 1999-2000 nutrient intakes were calculated using an earlier version of the database, the [USDA 1994-1998 Survey Nutrient Database](#).<sup>11, 12</sup> Thus, analyzing merged intake data for these two data sets should be carefully considered for each nutrient. Analyses conducted based on changes in the nutrient databases show that the impact can be significant depending on the nutrient. [13, 14](#)

A status code (DRDDRSTZ) is used in the NHANES 2001-2002 dietary interview component to indicate the quality and completeness of the response to the dietary recall section. The dietary recall section status is coded as one of the following:

1. Reliable and met the minimum criteria
2. Not reliable or not met the minimum criteria

No data on total nutrient intake or individual food consumption is provided for these cases.

4. Reported consuming breast-milk

Human milk was reported in some dietary recalls. Few respondents could quantify the human milk intake for their breast-fed infants/children. For those cases, no total nutrient intakes were derived. The foods consumed by nursing infants and children are reported in the Individual Foods File.

5. Not Done.

The dietary recall section of the interview did not take place due to various reasons (such as came late/left early, refusal, illness, emergency, or equipment failure).

In addition to the status code described above, the variable DRD300 indicates the nature of the reported dietary recall information from a different perspective. It denotes the respondent's assessment of the overall intake for the recall day as to whether the amount of food consumed was a usual amount, much more than usual, or much less than usual.

In 2002, the respondent was asked the question "Are you currently on any kind of diet, either to lose weight or for some other health-related reason?" Because this question

was not asked in 2001, the responses will not be publicly released but may be accessible through the NCHS Research Data Center. Instructions for requesting use of these data at the NCHS Data Research Center are available at <http://www.cdc.gov/nchs/r&d/rdc.htm>.

#### Data Access:

The Total Nutrient Intakes File (DRXTOT\_B) is publicly available at <http://www.cdc.gov/nchs/about/major/nhanes/nhanes01-02.htm>

#### Reference:

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