NHANES 1999-2000 Data Release

Dietary Interview Component
Individual Foods File

Component Description

The objective of the dietary interview component is to obtain detailed dietary intake information from the NHANES examined sample. All examinees are eligible for this component. The dietary intake data are used to estimate total intake of energy, nutrients, and non-nutrient food components from foods and beverages that were consumed during the 24-hour period prior to the interview (midnight to midnight). Following the dietary recall, a short "post-recall" questionnaire is administered; respondents estimate their intake of plain water during the previous 24-hour time period, and frequency of fish and shellfish consumption during the past 30 days. Two data files were produced from the dietary interview dataset: the Total Nutrient Intakes File (DRXTOT) that consists of total nutrient intakes, intake of plain water, and frequency of fish and shellfish data; and the Individual Foods File (DRXIFF) that includes detailed information about the individual foods reported by respondents. Nutrient intakes reported in these files do not include those obtained from dietary supplements, medications or plain drinking water.

Data Collection Methods

The NHANES computer-assisted dietary interview (CADI) system is an automated data collection form that was developed using Power Builder™; several databases (i.e., Quick List food list, brand name food list, and food amount unit list) are linked to this system. Food probes that were used in previous NHANES and USDA surveys became part of the built-in features of the system, developed using RoboHelp™. The CADI provides a standardized interview format to collect NHANES dietary interview data.

The interviewers follow the scripts provided in the system screens to explain the dietary interview component to the respondents. The CADI screens include data entry screens, food probe information screens, and a post-recall questionnaire. The interviewers also record administrative information about the interview such as the main respondent and language of the interview, and reliability and completeness of the data.

The CADI interface includes the following screen features and data collection components:

- Online data entry screens

- Instructions for recording information about foods such as:
  - brand names (selected food groups)
  - food preparation methods: use of fat and salt in preparation, cooking methods, type of liquid added in recipe foods (selected food groups)
- Food amount options: food group-specific guidelines were listed for the interviewers so they would know how to probe for food amounts and record amount information
- Post-recall questionnaire

A "multiple pass" 24-hour dietary interview format was used to collect detailed information about all foods and beverages. The interview passes included the following:

1) Quick List: Respondent was asked to recall all foods and beverages consumed in a 24-hour period the day before the interview without interrupting.
2) Time, Occasion and Place: Respondent was asked to report the time and place each food was eaten and what they would call the eating occasion for the food. Afterwards, a list of frequently forgotten foods was shown to probe the respondent for any forgotten foods or drinks.
3) Food Details: Specific food probes were used to collect detailed information for each food reported. This includes a complete description of each food and the amount eaten.
4) Final Review: The reported foods were reviewed with the respondent in chronological order. Any additional foods remembered during the process were added to the record as well as modifications for reported foods.

The Post-Dietary Recall Questionnaire was administered after the 24-hour recall.

Detailed descriptions of the dietary interview methods are provided in the NHANES Dietary Interviewer's Training Manual [†].

Examination Protocol

All examinees are eligible for the dietary interview component. Proxy respondents were permitted for survey participants less than six years of age. Assisted interviews were completed with survey participants 6-11 years of age.

The primary interview mode for the NHANES 1999-2000 dietary recall component is the in-person interview mode. Interviews were conducted in a private setting in the NHANES Mobile Examination Centers (MECs). A methodological study, the Dietary Interview Mode Evaluation Study (DIMES) was conducted on a subsample of primary sampling units (PSUs) in both 1999 and 2000. The purpose of the DIMES was to test

---

[†] NHANES manuals are available on line at: http://www.cdc.gov/nchs/about/major/nhanes/datalink.htm

the operational feasibility of the telephone interview mode within the NHANES setting. For dietary interviews conducted in the DIMES PSUs, half were completed in-person and half were completed by telephone.

According to the NHANES sampling procedure, each participant was randomly assigned to either a morning exam session or an afternoon/evening exam session for his/her MEC visit. During the DIMES, examinees randomly assigned to the morning session completed the dietary interviewin- person in the MEC. Those persons randomly assigned to an afternoon or evening MEC examination session were asked to schedule an appointment for a telephone dietary interview; a small percentage of afternoon and evening sample examinees completed their interviews in-person due to lack of telephone or personal scheduling problems. Telephone dietary interviews were conducted 4-10 days after the MEC health examination.

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

Survey Staff

Trained, bilingual dietary interviewers collected all dietary interview data. Dietary interviewers were required to have a B.S. Degree in Food and Nutrition or Home Economics (with at least 10 credit hours in food and nutrition). All interviewers completed an intensive 2-week training course; formal training was followed by a week of supervised, practice interviewing.

Data Collection Forms

Please refer to the Dietary Interviewer's Training Manual [‡]. The Manual includes pictures of the CADI system screens, measurement guides, and charts used to collect dietary information. All data were collected and transmitted via automated systems; no printed forms were used.

Quality Control Procedures

The interviewers were required to review and edit all of their interviews. Written guidelines for completing the required procedures were developed for all survey staff. These procedures were reinforced during reviews of taped interviews and in-person observations, staff retraining, memos to the field, and informal e-mail correspondence.

The initial quality control consisted of:

[‡] NHANES manuals are available on line at: http://www.cdc.gov/nchs/about/major/nhanes/datalink.htm

- Reviews of data transmittal sheets to verify receipt of data files;
- Reviews of audio taped interviews for approximately 5% of each interviewer's work;
- Reviews of completeness of the recalls: recalls were checked for missing information, inconsistent reports, and unclear notes; written notification and feedback were provided to the interviewers;
- 10% of the coders' work was double-coded and adjudicated if necessary to ensure quality and completeness;
- Staff retraining for interviewers and coders was conducted as needed; annual retraining sessions are held with all MEC staff.

Data Processing and File Preparation

Interview data files were sent back to the home office electronically. The interview files were imported into the University of Texas Food Intake Analysis System (FIAS) for coding. FIAS version 3.99 with the USDA 1994-98 Survey Nutrient Database was used to code and report the NHANES 1999-2000 data.

After the initial coding, data files were transmitted for final processing. The final data processing consisting of:

- Modifying food records specified as "no salt added".

  NCHS applied modified sodium values to foods when respondents specified that they did not use salt in preparation. An USDA Technical Support Recipe Data File developed for use with CSFII 1994-96 data was used to assign sodium values to foods reported as prepared without salt. (Note: No attempt was made to quantify salt added at the table.)

- Assigning USDA food codes to foods with modified recipes.

  During the initial coding process, Westat coders assigned a 6-digit modified recipe food code and food description to modified recipe foods. An example of a modified recipe is an egg scrambled in olive oil instead of regular oil. The modified recipe code documents the actual recipe. Nutrients assigned to modified recipe foods reflect the recipe modification. The modified recipe codes were linked to a USDA food code that best characterized the food. All foods reported in the current NHANES are released with an 8-digit USDA food code as a means of providing a basic description of the food.

- Assigning USDA food codes to foods that are not in the USDA database.

  During the initial coding process, Westat coders assigned a 7-digit food code and food description to foods that are not in the USDA database. Coding decisions were

made in consultation with NCHS to assign nutrient values to the foods. Resources such as manufacturer information and University of Minnesota Nutrition Coordinating Center (NCC) nutrient composition database are used in making these decisions. An 8-digit USDA food code was assigned to the food to describe the basic characteristics of the food for reporting purposes.

- Computing total plain water and total home tap water intakes.

- Tabulating shellfish and fish frequency questionnaire data.

This file, titled "Individual Foods File", provides detailed information including eating occasions (meal names), places where foods were eaten and time of eating of all individual foods and beverages reported by respondents during the dietary interview. All foods have been assigned an USDA food code. Foods with modified recipes including those that are not in the USDA database are flagged by variable DRDMRUF. Gram weight consumed and nutrient values are reported for each food.

The text descriptions of each food record are provided in a separate data file called "Food Code Format File (DRXFMT)". Please refer to the documentation for DRXFMT for details. SAS code to link the Food Code Format File with the Individual Foods File or to obtain a list of formatted text labels of the food codes is provided in the documentation.

Food records reported by the respondent are sequentially numbered. Foods that were eaten in combination with other foods, such as cereal with milk, are flagged by the variable DRDCFF with value equal to "1". All the combination foods reported by a respondent are numbered with a "combination food number (DRXCCMNM)". The same combination food number identifies foods eaten together. The types of combination foods are categorized by a combination type code (DRDCCMTY) with 24 categories.

Information about total nutrient intakes, intake of plain water during the previous 24-hours, and frequency of fish and shellfish consumption during the past 30 days of the respondent is contained in a separate NHANES 1999-2000 Dietary Data File titled "Total Nutrient Intakes File".

Analytic Recommendations

As was mentioned previously, two interview modes (in-person and telephone) were used to collect NHANES 1999-2000 dietary interview data. The variable DRDINTMD indicates the actual mode by which the interview was administered. Analysis of dietary data should include investigation of the potential effect of interview mode on the estimates of interest. Data users who are interested in linking dietary data with data

from other exam components such as blood biochemical data should be cognizant of the time lapse between the collections of phone-administered dietary interview (DRDINTMD=2) and other data of interest. Telephone dietary interviews were conducted 4-10 days after the NHANES health examination.

Special Notes on Using the Dataset

The Individual Foods File is comprised of food records. In most cases, there are multiple records per survey participant in the file. This file can be linked with other NHANES files by the combination of respondent sequence number (SEQN) and food number (DRXILINE).

A status code (DRDDRSTS) is used in the current NHANES dietary interview component to indicate the quality and completeness of response to the dietary recall section. The dietary recall section status is coded as follows:

1. <u>Reliable and met the minimum criteria</u>

   The recall record was verified as reliable and met the following minimum criteria for the overall quality and completeness of the reported dietary information:

   a. Less than 25% foods with missing descriptive information (e.g., caffeinated or decaffeinated, preparation methods, or brand names);
   b. Less than 15% foods with missing amounts; and
   c. Any meal reported must have at least one known food. For example, if a respondent reported having a lunch but could not remember any foods from that lunch, the recall did not meet the criterion.

2. <u>Reliable but did not meet the minimum criteria</u>

   The dietary recall record was verified as reliable but did not meet the minimum criteria as stated in code 1.

3. <u>Not reliable</u>

   The dietary recall information provided by the respondent was determined to be unreliable. No data on individual food consumption or total nutrient intake was provided in the dataset for unreliable cases.

4. <u>Breast-fed infant or child</u>

   The foods reported during the dietary recall interview included human milk. Few respondents could quantify the human milk intake for their breast-fed

infants/children. The foods consumed by nursing infants and children are reported in the Individual Foods File. For those who could not quantify the amount of human milk intake, gram weight consumed and nutrient values of the human milk records were set to missing.

5. <u>Not Done</u>

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