Third National Health and Nutrition Examination Survey
(NHANES III), 1988-94

NHANES III SECOND EXAM FILE DOCUMENTATION

Series 11, No. 3A

July 1999

Table of Contents

Introduction

The National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC) collects, analyzes, and disseminates data on the health status of U.S. residents. The results of surveys, analyses, and studies are made known through a number of data release mechanisms including publications, mainframe computer data files, CD-ROMs (Search and Retrieval Software, Statistical Export and Tabulation System (SETS)), and the Internet.

The National Health and Nutrition Examination Survey (NHANES) is a periodic survey conducted by NCHS. The third National Health and Nutrition Examination Survey (NHANES III), conducted from 1988 through 1994, was the seventh in a series of these surveys based on a complex, multi-stage sample design. It was designed to provide national estimates of the health and nutritional status of the United States' civilian, noninstitutionalized population aged two months and older.

The following table summarizes the NHANES III data which are currently available on CD-ROM, including this release.

Table 1. Available NHANES III CD-ROMs

CD-ROM Name	Release Date	Size in Megabytes	Data Files / Description
NHANES III, 1988-94, Series 11, No. 3A, ASCII Version (this release)	July 1999	33	Second exam sample files for dietary recall, examination, laboratory, additional laboratory analytes and documentation
NHANES III, 1988-94, Series 11, No. 2A, ASCII Version	April 1998	407	Dietary recall (replacement), electrocardiography, laboratory (additional analytes), and vitamins/medicines data files and documentation
NHANES III, 1988-94, Series 11, No. 1, Revised SETS Version 1.22a	October 1997	285	Adult and youth household questionnaire, examination, and laboratory data files and documentation, plan and operation, analytic and reporting guidelines, weighting and estimation methodology, field operations, non-response bias
NHANES III, 1988-94, Series 11, No. 1A, ASCII Version	July 1997	454	Adult and youth household questionnaire, dietary recall, examination, and laboratory data files and documentation
NHANES III, 1988-94, Series 11, No. 1, SETS Version 1.22a *	July 1997	285	Adult and youth household questionnaire, examination, and laboratory data files and documentation
NHANES III Reference Manuals and Reports October 1996	October 1996	152	Plan and operation, analytic and reporting guidelines, weighting and estimation methodology, field operations, non-response bias

* Do not use this CD-ROM It had technical problems and has been superseded by the revised SETS version 1.22a, Series 11, No. 1, released in October 1997.

This CD-ROM, Series 11 No. 3A, contains data obtained from a second exam of selected survey participants who had a primary exam. This release does not replace the previous NHANES III data releases series 11 Nos. 1A and 2A).

Table 2. Location of the interview and examination components in the NHANES III public use data files

Topic	Data File						
	HA	HY	EXAM	LAB	DIET	VMS	ECG
Sample weights	X	X	X	X	.	.	X
Age/race/sex	X	X	X	X	.	.	X
Ethnic background	X	X	.	.	.	.	.
Household composition	X	X	.	.	.	.	.
Individual characteristics	X	X	.	.	.	.	.
Health insurance	X	X	.	.	.	.	.
Family background	X	X	.	.	.	.	.
Occupation of family head	X	X	.	.	.	.	.
Housing characteristics	X	X	.	.	.	.	.
Family characteristics	X	X	.	.	.	.	.
Orientation	X	X	.	.	.	.	.
Health services	X	X	.	.	.	.	.
Selected health conditions	X	X	X	.	.	.	.
Diabetes questions	X	.	.	.	.	.	.
High blood pressure and cholesterol questions	X	.	.	.	.	.	.
Cardiovascular disease questions	X	.	.	.	.	.	.
Musculoskeletal conditions	X	.	.	.	.	.	.
Physical functioning questions	X	.	.	.	.	.	.
Gallbladder disease questions	X	.	.	.	.	.	.

Table 2. (continued) Location of the interview and examination components in the NHANES III public use data files

	Data File						
Topic	HA	HY	EXAM	LAB	DIET	VMS	ECG
Kidney conditions	X	.	.	.	.	.	.
Respiratory and allergy questions	X	X	.	.	.	.	.
Diet questions	X	.	.	.	.	.	.
Food frequency	X	.	X	.	.	.	.
Vision questions	X	X	.	.	.	.	.
Hearing questions	X	X	.	.	.	.	.
Dental care and status	X	X	.	.	.	.	.
Tobacco	X	.	X	.	.	.	.
Occupation	X	.	.	.	.	.	.
Language usage	X	X	.	.	.	.	.
Exercise	X	.	.	.	.	.	.
Social support/residence	X	.	.	.	.	.	.
Vitamin/mineral/medicine usage	X	X	X	.	.	.	.
Blood pressure measurement	X	.	X	.	.	.	.
Birth	.	X	X	.	.	.	.
Infant feeding practices/diet	.	X	.	.	.	.	.
Motor and social development	.	X	.	.	.	.	.
Functional impairment	X	X	.	.	.	.	.
School attendance	.	X	.	.	.	.	.
Cognitive function	.	X	X	.	.	.	.

Table 2. (continued) Location of the interview and examination components in the NHANES III public use data files

Topic	Data File						
	HA	HY	EXAM	LAB	DIET	VMS	ECG
Alcohol and drug use	.	.	X	.	.	.	.
Reproductive health	.	.	X	.	.	.	.
Diagnostic interview schedule	.	.	X	.	.	.	.
Activity	.	.	X	.	.	.	.
Physician's examination	.	.	X	.	.	.	.
Height and weight	.	.	X	.	.	.	.
Body measurements	.	.	X	.	.	.	.
Dental examination	.	.	X	.	.	.	.
Allergy skin test	.	.	X	.	.	.	.
Audiometry	.	.	X	.	.	.	.
Tympanometry	.	.	X	.	.	.	.
WISC and WRAT	.	.	X	.	.	.	.
Spirometry	.	.	X	.	.	.	.
Bone densitometry	.	.	X	.	.	.	.
Gallbladder ultrasonography	.	.	X	.	.	.	.
Central nervous system function evaluation	.	.	X	.	.	.	.
Fundus photography	.	.	X	.	.	.	.
Physical function evaluation	.	.	X	.	.	.	.
Fasting questions	.	.	.	X	.	.	.

Table 2. (continued) Location of the interview and examination components in the NHANES III public use data files

Topic	Data File						
	HA	HY	EXAM	LAB	DIET	VMS	ECG
Laboratory tests on blood and urine	.	.	.	X	.	.	.
Total nutrient intakes	.	.	X	.	.	.	.
Individual foods	.	.	.	.	X	.	.
Combination foods	.	.	.	.	X	.	.
Ingredients	.	.	.	.	X	.	.
Prescription Medicines	X	X	.	.	.	X	.
Vitamins and Minerals	X	X	.	.	.	X	.
Electrocardiography	.	.	.	.	.	.	X

Data File Definitions

HA - Household Adult Data File
HY - Household Youth Data File
EXAM - Examination Data File
LAB - Laboratory Data File and Second Laboratory Data File
DIET - Dietary Recall Data Files
VMS - Vitamin Mineral Supplement Data File
ECG - Electrocardiography Data File

This document includes the documentation for the NHANES III Second Exam Total Nutrient Intake File and also contains a general overview of the survey and the use of the data files. The general overview includes five sections. The first section, entitled "Guidelines for Data Users," contains important information about the use of the data files. The second section, "Survey Description," is a brief overview of the survey plan and operation. The third section, "Sample Design and Analysis Guidelines," describes some technical aspects of the sampling plan and discusses some analytic issues particularly related to the use of data from complex sample surveys. The "Data Preparation and Processing Procedures" section describes the editing conventions and the codes used to represent the data. The last and fifth section, "General References," includes a reference list for the survey overview sections of the document.

Public Use Data Files for the third National Health and Nutrition Examination Survey will also be available from the National Technical Information Service (NTIS). A list of NCHS public use data tapes available for purchase from NTIS may be obtained from the Data Dissemination Branch at NCHS. Information regarding a bibliography (on disk) of journal articles citing data from all the NHANES and the availability of NHANES III data in CD-ROM/SETS software format can be obtained from the Data Dissemination Branch at:

Data Dissemination Branch
National Center for Health Statistics
Room 1018
6525 Belcrest Road
Hyattsville, Maryland 20782

Phone: (301)458-4636

URL:http://www.cdc.gov/nchswww

NTIS can be contacted at:

NTIS - Computer Products Office
5285 Port Royal Road
Springfield, Virginia 22161
(703) 487-4807

Copies of all NHANES III questionnaires and data collection forms are included in the Plan and Operation of the Third National Health and Nutrition Examination Survey, 1988-94 (NCHS, 1994; U.S. DHHS, 1996). This publication, along with detailed information on NHANES procedures, interviewing, data collection, quality control techniques, survey design, nonresponse, and sample weighting can be found on the NHANES III Reference

Manuals and Reports CD-ROM (U.S. DHHS, 1996). Information on how to order this CD-ROM is also available from the Data Dissemination Branch at NCHS at the address and telephone number given above.

NHANES III Second Exam Sample

The NHANES III Second Exam Sample was a sub-study of NHANES III, conducted for research purposes. These research files are intended to provide additional data for use with special statistical methods to improve estimates from the main survey data and for methodologic investigations. Following this description of the Second Exam Sample is information on the overall survey which is also relevant for the Second Exam Sample, including: general guidelines for data users, a description of the survey, sample design, analysis guidelines and a description of the data preparation and processing procedures.

Sample design and survey description

No statistical sampling design was applied for the second exam. However, a nonrandom sample of about five percent was obtained by selecting approximately 20
participants from the roughly 400 sample persons examined at each survey location. The following general guidelines were used by the MEC staff to select participants for the second exam:

1) select mainly adults, 2)half between the ages of 20-39 years, and half over 40 years; 3) select about half men and half women. The sample obtained consists of 2,603 persons, with 1,205 males (46 percent)and 1,398 females (54 percent).

Age group	2nd # of Exams	Percentage of 2nd Exams
< 12	212	8
12-19	231	9
20-39	809	31
40-59	578	22
> 60	773	30

The second exams were scheduled after the first or primary exams, when possible at the same time of day as the first exam. The second exams were conducted over the same time period as the primary exams for a particular survey location by the
same MEC staff, although priority was given to scheduling and completing primary exams. The second exams were administered following the same protocols as for the primary exam, with the following exceptions: the food frequency questionnaire
was not administered to adolescents 12-16 years; the WISC/WRAT was not administered to youths 6-16 years, and hand/knee x-rays were not re-

administered on adults aged 60 and over.

Analytic Issues

Due to the research nature of these data, special caution should be used in analysis. All analyses should include thorough investigation of the potential selection bias of this small non-random sub-sample. Careful attention to identifying and evaluating differences in important characteristics (e.g., age and race-ethnicity) between the subsample and the main sample should be considered along with other issues.

The second exam data can be linked to the primary exam data and the household interview data using the unique identifier (SEQN). This is necessary to obtain the demographic data for the sample. NCHS recommends that the survey design variables (e.g., sample weights) not be linked with the second exam data, since the survey design variables were created for the full sample. There are no sample weights or other design variables specifically created for the second exam sample. There are weights labeled as "replicate...weight," but these are Fay's BRR Replicate Interview Weights. These weights are to be applied to the primary exam sample, with software which uses the balanced repeated replication (BRR) method. They should not be used with the Second Exam Sample.

Because the second exams were identical to the primary exams, with the exceptions noted above, the file structure for the second exams is the same as for the primary exam files. The variable nomenclature is the same with the following important distinction: the first or primary exam variable names have a 'p' in the third position while the second or "replicate" exam variable names have a 'r' in the third position (e.g., 'BMPWT' or 'BMRWT').

GUIDELINES FOR DATA USERS

Please refer to the following important information before analyzing data.

NHANES III Background Documents

- The Plan and Operation of the Third National Health and Nutrition Examination Survey, 1988-94, (NCHS, 1994; U.S. DHHS, 1996) provides an overview of the survey and includes copies of the survey forms.

- The sample design, nonresponse, and analytic guidelines documents on the NHANES III Reference Manuals and Reports CD-ROM (U.S. DHHS, 1996) discuss the reasons that sample weights and the complex survey design should be taken into account when conducting any analysis.

- Instruction manuals, laboratory procedures, and other NHANES III reference manuals on the NHANES III Reference Manuals and Reports CD-ROM(U.S. DHHS, 1996) are also available for further information on the details of the survey.

Analytic Data Set Preparation

- Most NHANES III survey design and demographic variables are found only on the Adult and Youth Household Data Files available on the first release. In preparing a data set for analysis, other data files must be merged with either or both of these files to obtain many important analytic variables.

- All of the NHANES III public use data files are linked with the common survey participant identification number (SEQN). Merging information from multiple NHANES III data files using this variable ensures that the appropriate information for each survey participant is linked correctly.

- NHANES III public use data files do not have the same number of records on each file. The Household Questionnaire Files (divided into two files, Adult and Youth) contain more records than the Examination Data File because not everyone who was interviewed completed the examination. The Laboratory Data File contains data only for persons aged one year and older. The Individual Foods Data File based on the dietary recall has multiple records for each person rather than the one record per sample person contained in the other data files.

- For each data file, SAS program code with standard variable names and labels is provided as separate text files on the CD-ROM that contains the data files. This SAS program code can be used to create a SAS data set from the data file.

- Modifications were made to items in the questionnaires, laboratory, and examination components over the course of the survey; as a result, data may not be available for certain variables for the full six years. In addition, variables may differ by phase since some changes were implemented between phases. Users are encouraged to read the Notes

sections of this document carefully for information about changes.

- Extremely high and low values have been verified whenever possible, and numerous consistency checks have been performed. Nonetheless, users should examine the range and frequency of values before analyzing data.

- Some data were not ready for release at the time of this publication due to continued processing of the data or analysis of laboratory specimens. A listing of those data are available in the general information section of each data file.

- Confidential and administrative data are not being released to the public. Additionally, some variables have been recoded to help protect the confidentiality of the survey participants. For example, all age-related variables were recoded to 90+ years for persons who were 90 years of age and older.

- Some variable names may differ from those used in the Phase 1 NHANES III Provisional Data Release and some variables included in the Phase 1 provisional release may not appear on these files.

- Although the data files have been edited carefully, errors may be detected. Please notify NCHS staff (301-458-4636) of any errors in the data file or the documentation.

Analytic Considerations

- NHANES III (1988-94) was designed so that the survey's first three years, 1988-91, its last three years, 1991-94, and the entire six years were national probability samples. Analysts are encouraged to use all six years of survey results.

- Sample weights are available for analyzing NHANES III data. One of the following three sample weights will be appropriate for nearly all analyses: interviewed sample final weight (WTPFQX6), examined sample final weight (WTPFEX6), and mobile examination center (MEC)- and home-examined sample final weight (WTPFHX6). Choosing which of these sample weights to use in any analysis depends on the variables being used. A good rule of thumb is to use "the least common denominator" approach. In this approach, the user checks the variables of interest. The variable that was collected on the smallest number of persons is the "least common denominator," and the sample weight that applies to that variable is the appropriate one to use for that analysis. For more detailed information, see the Analytic and Reporting Guidelines for NHANES III (U.S. DHHS, 1996).

Referencing or Citing NHANES III Data

- In publications, please acknowledge NCHS as the original data source. For instance, the reference for the NHANES III Laboratory Data File on this CD-ROM is:

  U.S. Department of Health and Human Services (DHHS). National Center for Health Statistics. Third National Health and Nutrition

Examination Survey, 1988-1994, NHANES III Second Laboratory Data File (CD-ROM, Series 11, No. 3A). Hyattsville, MD.: Centers for Disease Control and Prevention, 1999.

- Please place the acronym "NHANES III" in the titles or abstracts of journal articles and other publications in order to facilitate the retrieval of such materials in bibliographic searches.

SURVEY DESCRIPTION

The third National Health and Nutrition Examination Survey (NHANES III) was the seventh in a series of large health examination surveys conducted in the United States beginning in 1960. Three of these surveys, the National Health Examination Surveys (NHES), were conducted in the 1960's (NCHS, 1965; NCHS, 1967; NCHS, 1969). In 1970, an expanded nutrition component was added to provide data with which to assess nutritional status and dietary practices, and the name was changed to the National Health and Nutrition Examination Survey (Miller, 1973; Engel, 1978; McDowell, 1981). A special survey of Hispanic populations in the United States was conducted during 1982-1984 (NCHS, 1985).

The general structure of the NHANES III sample design was similar to that of the previous NHANES. All of the surveys used complex, multi-stage, stratified, clustered samples of civilian, noninstitutionalized populations. NHANES III was the first NHANES without an upper age limit; in fact, the age range for the survey was two months and older. A home examination option was employed for the first time in order to obtain examination data for very young children and for elderly persons who were unable to visit the mobile examination center (MEC). The home examination included only a subset of the components used in the full MEC examination since it would have been difficult to collect some types of data in a home setting. A detailed description of design specifications and copies of the data collection forms can be found in the Plan and Operation of the Third National Health and Nutrition Examination Survey, 1988-1994 (NCHS, 1994; U.S. DHHS, 1996).

NHANES III was conducted from October 1988 through October 1994 in two phases, each of which comprised a national probability sample. The first phase was conducted from October 18, 1988, through October 24, 1991, at 44 locations. The second phase was conducted from September 20, 1991, through October 15, 1994, at 45 different locations. In NHANES III, 39,695 persons were selected over the six years; of those, 33,994 (86%) were interviewed in their homes. All interviewed persons were invited to the MEC for a medical examination. Seventy-eight percent (30,818) of the selected persons were examined in the MEC, and an additional 493 persons were given a special, limited examination in their homes.

Data collection began with a household interview. Several questionnaires were administered in the household: Household Screener Questionnaire, Family Questionnaire, Household Adult Questionnaire, and Household Youth Questionnaire.

At the MEC, an examination was performed, and five automated questionnaires or interviews were administered: MEC Adult Questionnaire, MEC Youth Questionnaire, MEC Proxy Questionnaire, 24-Hour Dietary Recall, and Dietary Food Frequency (ages 12-16 years). The health examination component included a variety of tests and procedures. The examinee's age at the time of the interview and other factors determined which procedures were administered. Blood and urine specimens were obtained, and a number of tests and measurements were performed including body measurements, spirometry, fundus photography, x-rays, electrocardiography, allergy and glucose tolerance tests, and ultrasonography. Measurements were taken of bone

density, hearing, and physical, cognitive, and central nervous system

functions. A physician performed a limited standardized medical examination and a dentist performed a standardized dental examination. While some of the blood and urine analyses were performed in the MEC laboratory, most analyses were conducted elsewhere by contract laboratories.

A home examination was conducted for those sample persons aged 2-11 months and aged 20 years or older who were unable to visit the mobile examination center. The home examination consisted of an abbreviated version of the tests and interviews performed in the MEC. Depending on age of the sample person, the components included body measurements, blood pressure, spirometry, venipuncture, physical function evaluation, and a questionnaire to inquire about infant feeding, selected health conditions, cognitive function, tobacco use, and reproductive history.

SAMPLE DESIGN AND ANALYSIS GUIDELINES

Sample Design

The general structure of the NHANES III sample design is the same as that of the previous NHANES. Each of these surveys used a stratified, multi-stage probability design. The major design parameters of the two previous NHANES and the special Hispanic HANES, as well as NHANES III, have been previously summarized (Miller, 1973; McDowell, 1981; NCHS, 1985; NCHS, 1994). The NHANES III sample was designed to be self-weighting within a primary sampling unit (PSU) for subdomains (age, sex, and race-ethnic groups). While the sample was fairly close to self-weighting nationally for each of these subdomain groups, it was not representative of the total population, which includes institutionalized, non-civilian persons that were outside the scope of the survey.

The NHANES III sample represented the total civilian, noninstitutionalized population, two months of age or over, in the 50 states and the District of Columbia of the United States. The first stage of the design consisted of selecting a sample of 81 PSU's that were mostly individual counties. In a few cases, adjacent counties were combined to keep PSU's above a minimum population size. The PSU's were stratified and selected with probability proportional to size (PPS). Thirteen large counties (strata) were chosen with certainty (probability of one). For operational reasons, these 13 certainty PSU's were divided into 21 survey locations. After the 13 certainty strata were designated, the remaining PSU's in the United States were grouped into 34 strata, and two PSU's were selected per stratum (68 survey locations). The selection was done with PPS and without replacement. The NHANES III sample therefore consists of 81 PSU's or 89 locations.

The 89 locations were randomly divided into two groups, one for each phase. The first group consisted of 44 and the other of 45 locations. One set of PSU's was allocated to the first three-year survey period (1988-91) and the other set to the second three-year period (1991-94). Therefore, unbiased estimates (from the point of view of sample selection) of health and nutrition characteristics can be independently produced for both Phase 1 and Phase 2 as well as for both phases combined.

For most of the sample, the second stage of the design consisted of area segments composed of city or suburban blocks, combinations of blocks, or other area segments in places where block statistics were not produced in the 1980 Census. In the first phase of NHANES III, the area segments were used only for a sample of persons who lived in housing units built before 1980. For units built in 1980 and later, the second stage consisted of sets of addresses selected from building permits issued in 1980 or later. These are referred to as "new construction segments." In the second phase, 1990 Census data and maps were used to define the area segments. Because the second phase followed within a few years of the 1990 Census, new construction did not account for a significant part of the sample, and the entire sample came from the area segments.

The third stage of sample selection consisted of households and certain types of group quarters, such as dormitories. All households and eligible

group quarters in the sample segments were listed, and a subsample was designated for screening to identify potential sample persons. The subsampling rates enabled production of a national, approximately equal-probability sample of households in most of the United States with higher rates for the geographic strata with high Mexican-American populations. Within each geographic stratum, there was a nearly equal-probability sample of households across all 89 stands.

Persons within the sample of households or group quarters were the fourth stage of sample selection. All eligible members within a household were listed, and a subsample of individuals was selected based on sex, age, and race or ethnicity. The definitions of the sex, age, race or ethnic classes, subsampling rates, and designation of potential sample persons within screened households were developed to provide approximately self-weighting samples for each subdomain within geographic strata and at the same time to maximize the average number of sample persons per sample household. Previous NHANES indicated that this increased the overall participation rate. Although the exact sample sizes were not known until data collection was completed, estimates were made. Below is a summary of the sample sizes for the full six-year NHANES III at each stage of selection:

Number of PSU's	81
Number of stands (survey locations)	89
Number of segments	2,144
Number of households screened	93,653
Number of households with sample persons	19,528
Number of designated sample persons	39,695
Number of interviewed sample persons	33,994
Number of MEC-examined sample persons	30,818
Number of home-examined sample persons	493

More detailed information on the sample design and weighting and estimation procedures for NHANES III can be found in the Plan and Operation of the Third National Health and Nutrition Examination Survey, 1988-94 (NCHS, 1994; U.S. DHHS, 1996) and in the Analytic and Reporting Guidelines: Third National Health and Nutrition Examination Survey (NHANES III), 1988-94 (U.S. DHHS, 1996).

Analysis Guidelines

Because of the complex survey design used in NHANES III, traditional methods of statistical analysis based on the assumption of a simple random sample are not applicable. Detailed descriptions of this issue and possible analytic methods for analyzing NHANES data have been described earlier (NCHS, 1985; Yetley, 1987; Landis, 1982; Delgado, 1990). Recent analytic and reporting guidelines that should be used for most NHANES III analyses and publications are contained in Analytic and Reporting Guidelines (U.S. DHHS, 1996). These recommendations differ slightly from those used by analysts for previous NHANES surveys. These suggested guidelines provide a framework to users for producing estimates that conform to the analytic design of the survey. All users are strongly urged to review these analytic and reporting guidelines before beginning any analyses of NHANES III data.

It is important to remember that this set of statistical guidelines is not absolute. When conducting analyses, the analyst needs to use his/her subject matter knowledge (including methodological issues) as well as

information about the survey design. The more one deviates from the original analytic categories defined in the sample design, the more important it is to evaluate the results carefully and to interpret the findings cautiously.

In NHANES III, 89 survey locations were randomly divided into two sets or phases, the first consisting of 44 and the other of 45 locations. One set of PSU's was allocated to the first three-year survey period (1988-91) and the other set to the second three-year period (1991-94). Therefore, unbiased national estimates of health and nutrition characteristics can be independently produced for each phase as well as for both phases combined. Computation of national estimates from both phases combined (i.e., total NHANES III) is the preferred option; individual phase estimates may be highly variable. In addition, individual phase estimates are not statistically independent. It is also difficult to evaluate whether differences in individual phase estimates are real or due to methodological differences. That is, differences may be due to changes in sampling methods or data collection methodology over time. At this time, there is no valid statistical test for examining differences between Phase 1 and Phase 2. Therefore, although point estimates can be produced separately for each phase, no test is available to test whether those estimates are significantly different from each other.

NHANES III is based on a complex, multi-stage probability sample design. Several aspects of the NHANES design must be taken into account in data analysis, including the sample weights and the complex survey design. Appropriate sample weights are needed to estimate prevalence, means, medians, and other statistics. Sample weights are used to produce correct population estimates because each sample person does not have the same probability of selection. The sample weights incorporate the differential probabilities of selection and include adjustments for noncoverage and nonresponse. A detailed discussion of nonresponse adjustments and issues related to survey coverage have been published (U.S. DHHS, 1996). With the large oversampling of young children, older persons, black persons, and Mexican-Americans in NHANES III, it is essential that the sample weights be used in all analyses. Otherwise, a misinterpretation of results is highly likely. Other aspects of the design that must be taken into account in data analyses are the strata and PSU pairings from the sample design. These pairings should be used to estimate variances and test for statistical significance. For weighted analyses, analysts can use special computer software packages that use an appropriate method for estimating variances for complex samples such as SUDAAN (Shah, 1995) and WesVarPC (Westat, 1996).

Although initial exploratory analyses may be performed on unweighted data using standard statistical packages and assuming simple random sampling, final analyses should be done on weighted data using appropriate sample weights. A summary of the weighting methodology and the type of sample weights developed for NHANES III is included in Weighting and Estimation Methodology (U.S. DHHS, 1996).

The purpose of weighting the sample data is to permit analysts to produce estimates of statistics that would have been obtained if the entire sampling frame (the United States) had been surveyed. Sample weights can be considered as measures of the number of persons the particular sample

observation represents. Weighting takes into account several features of the survey: the specific probabilities of selection for the individual domains that were oversampled as well as nonresponse and differences between

the sample and the total U.S. population. Differences between the sample and the population may arise due to sampling variability, differential undercoverage in the survey among demographic groups, and possibly other types of response errors, such as differential response rates or misclassification errors. Sample weighting in NHANES III was used to:

1. Compensate for differential probabilities of selection among subgroups (i.e., age-sex-race-ethnicity subdomains where persons living in different geographic strata were sampled at different rates);
2. Reduce biases arising from the fact that nonrespondents may be different from those who participate;
3. Bring sample data up to the dimensions of the target population totals;
4. Compensate, to the extent possible, for inadequacies in the sampling frame (resulting from omissions of some housing units in the listing of area segments, omissions of persons with no fixed address, etc.); and
5. To reduce variances in the estimation procedure by using auxiliary information that is known with a high degree of accuracy.

In NHANES III, the sample weighting was carried out in three stages. The first stage involved the computation of weights to compensate for unequal probabilities of selection (objective 1, above). The second stage adjusted for nonresponse (objective 2). The third stage used poststratification of the sample weights to Census Bureau estimates of the U.S. population to accomplish the third, fourth, and fifth objectives simultaneously. In NHANES III, several types of sample weights (see the sample weights table that follows) were computed for the interviewed and examined sample and are included in the NHANES III data file. Also, sample weights were computed separately for Phase 1 (1988-91), Phase 2 (1991-94), and total NHANES III (1988-94) to facilitate analysis of items collected only in Phase 1, only in Phase 2, and over six years of the survey. Three sets of pseudo strata and PSU pairings are provided to use with SUDAAN in variance estimation. Since NHANES III is based on a complex, multi-stage sample design, appropriate sample weights should be used in analyses to produce national estimates of prevalence and associated variances while accounting for unequal probability of selection of sample persons. For example, the final interview weight, WTPFQX6, should be used for analysis of the items or questions from the family or household questionnaires, and the final MEC examination weight, WTPFEX6, should be used for analysis of the questionnaires and measurements administered in the MEC. Furthermore, for a combined analysis of measurements from the MEC examinations and associated medical history questions from the household interview, the final MEC examination weight, WTPFEX6, should be used. We recommend using SUDAAN (Shah, 1995) to estimate statistics of interest and the associated variance. However, one can also use other published methods for variance estimation. Application of SUDAAN and alternative methods, such as the average design effect approach, balance repeated replication (BRR) methods, or jackknife methods for variance estimation, are discussed in Weighting and Estimation Methodology (U.S. DHHS, 1996).

Appropriate Uses of the NHANES III Sample Weights

Final interview weight, WTPFQX6

Use only in conjunction with the sample interviewed at home and with items collected during the household interview.

Final examination (MEC only) weight, WTPFEX6

Use only in conjunction with the MEC-examined sample and with interview and examination items collected at the MEC.

Final MEC+home examination weight, WTPFHX6

Use only in conjunction with the MEC+home-examined sample and with items collected at both the MEC and home.

Final allergy weight, WTPFALG6

Use only in conjunction with the allergy subsample and with items collected as part of the allergy component of the exam.

Final CNS weight, WTPFCNS6

Use only in conjunction with the CNS subsample and with items collected as part of the CNS component of the exam.

Final morning examination (MEC only) subsample weight, WTPFSD6

Use only in conjunction with the MEC-examined persons assigned to the morning subsample and only with items collected in the MEC exam.

Final afternoon/evening examination (MEC only) subsample weight, WTPFMD6

Use only in conjunction with the MEC-examined persons assigned to the afternoon/evening subsample and only with items collected in the MEC exam.

Final morning examination (MEC+home) subsample weight, WTPFHSD6

Use only in conjunction with the MEC- and home-examined persons assigned to the morning subsample and with items collected during the MEC and home examinations.

Final afternoon/evening examination (MEC+home) weight, WTPFHMD6

Use only in conjunction with the MEC- and home-examined persons assigned to the afternoon/evening subsample and with items collected during the MEC and home examinations.

DATA PREPARATION AND PROCESSING PROCEDURES

Automated data collection procedures for the survey were introduced in NHANES III. In the mobile examination centers, data for the interview and examination components were recorded directly onto a computerized data collection form. With the exception of a few independently automated systems, the system was centrally integrated. This operation allowed for ongoing monitoring of much of the data. Before the introduction of the computer-assisted personal interview (CAPI), the household questionnaire data were reviewed manually by field editors and interviewers. CAPI (1992-1994 only) questionnaires featured built-in edits to prevent entering inconsistencies and out-of-range responses. The multi-level data collection and quality control systems are discussed in detail in the Plan and Operation of the Third National Health and Nutrition Examination Survey, 1988-1994 (NCHS, 1994; U.S. DHHS, 1996). All interview, laboratory, and examination data were sent to NCHS for final processing.

Guidelines were developed that provided standards for naming variables, filling missing values and coding conventional responses, handling missing records, and standardizing two-part quantity/unit questionnaire variables. NCHS staff, assisted by contract staff, developed data editing specifications that checked data sets for valid codes, ranges, and skip pattern consistencies and examined the consistency of values between interrelated variables. Comments, collected in both interviews and examination components, were reviewed and recoded when possible. Responses to "Other" and "Specify" were recoded either to existing code categories or to new categories. The documentation for each data set includes notes for those variables that have been recoded and standardized and for those variables that differ significantly from what appears in the original data collection instrument. While the data have undergone many quality control and editing procedures, there still may be values that appear extreme or illogical. Values that varied considerably from what was expected were examined by analysts who checked for comments or other responses that might help to clarify unusual values. Generally, values were retained unless they could not possibly be true, in which case they were changed to "Blank but applicable." Therefore, the user must review each data set for extreme or inconsistent values and determine the status of each value for analysis.

Several editing conventions were used in the creation of final analytic data sets:

1. Standardized variables were created to replace all two-part quantity/unit questions using standard conversion factors. Standardized variables have the same name as the variable of the two-part question with an "S" suffix. For instance, MAPF18S (Months received WIC benefits) in the MEC Adult Questionnaire was created from the two-part response option to question F18, "How long did you receive benefits from the WIC program?," using the conversion factor 12 months per year.

2. Recoded variables were created by combining responses from two or more like variables, or by collapsing responses to create a summary variable for the purpose of confidentiality. Recoded variables have the original variable name with an R suffix. For example, place of birth

variable (HFA6X) in the Family Questionnaire was collapsed to a three level response category (U.S., Mexico, Other) and renamed HFA6XR. Generally, only the recoded variable has been included in the data file.

3. Fill values, a series of one or more digits, were used to represent certain specific conditions or responses. Below is a list of the fill values that were employed. Some of the fill values pertain only to questionnaire data, although 8-fill and blank-fill values are found in all data sets. Other fill values, not included in this list, are used to represent component-specific conditions.

   6-fills = Varies/varied. (Questionnaires only)

   7-fills = Fewer than the smallest number that could be reported within the question structure (e.g., fewer than one cigarette per day). (Questionnaires only)

   8-fills = Blank but applicable/cannot be determined. This means that a respondent was eligible to receive the question, test, or component but did not because of refusal, lack of time, lack of staff, loss of data, broken vial, language barrier, unreliability, or other similar reasons.

   9-fills = Don't know. This fill was used only when a respondent did not know the response to a question and said, "I don't know." (Questionnaires only)

   Blank fills = Inapplicable. If a respondent was not eligible for a questionnaire, test, or component because of age, gender, or specific reason, the variable was blank-filled. In the questionnaire, if a respondent was not asked a question because of a skip-pattern, variables corresponding to the question were blank-filled. For examination or laboratory components, if a person was excluded by a defined protocol (e.g., screening exclusion questions) and these criteria are included in the data set, then the corresponding variables were blank-filled for that person. For home examinees, variables for examination components and blood tests not performed as part of the home examination protocol were blank-filled.

4. For variables describing discrete data, codes of zero (0) were used to mean "none," "never," or the equivalent. Value labels for which "0" is used include: "has not had," "never regularly," "still taking," or "never stopped using." Unless otherwise labeled, for variables containing continuous data, "zero" means "zero.

5. Where there are logical skip patterns in the flow of the questionnaire or examination component, the skip was indicated by placing the variable label of the skip destination in parentheses as part of the value label of the response generating the skip. For example, in the Physical Function Evaluation, the variable PFPWC (in wheelchair) has a value label, "2 No (PFPSCOOT)" that means that the next item for persons not in a wheelchair would be represented by the variable, PFPSCOOT.

Variable Nomenclature

A unique name was assigned to every NHANES III variable using a standard convention. By following this naming convention, the origin of each variable is clear, and there is no chance of overlaying similar variables across multiple components. Variables range in length from three to eight characters. The first two variable characters represent the topic (e.g., analyte, questionnaire instrument, examination component) and are listed below alphabetically by topic. For questionnaires administered in the household, the remainder of the variable name following the first two characters indicates the question section and number. For example, data for the response to the Household Adult Questionnaire question B1 are contained in the variable HAB1. For most laboratory and examination variables, as well as some other variables, a "P" in the third position refers to "primary" and the remainder of the variable name is a brief description of the item. For instance, in the Laboratory Data File, information on the length of time the person fasted before the first blood draw is contained in the variable PHPFAST. The variable PHPFAST was derived as follows: characters 1-2 (PH) refer to "phlebotomy," character 3 (P) refers to "primary," characters 4-8 (FAST) refer to an abbreviation for "fasting."

CODE	TOPIC
AT	Alanine aminotransferase (from biochemistry profile)
AM	Albumin (from biochemistry profile)
AP	Alkaline phosphatase (from biochemistry profile)
AL	Allergy skin test
AC	Alpha carotene
AN	Anisocytosis
TM	Antimicrosomal antibodies
TA	Antithyroglobulin antibodies
AA	Apolipoprotein (AI)
AB	Apolipoprotein (B)
AS	Aspartate aminotransferase (from biochemistry profile)
LA	Atypical lymphocyte
AU	Audiometry
BA	Band
BO	Basophil
BS	Basophilic stippling
BC	Beta carotene
BX	Beta cryptoxanthin
BL	Blast
BU	Blood urea nitrogen (BUN) (from biochemistry profile)
BM	Body measurements
BD	Bone densitometry
C1	C-peptide (first venipuncture)
C2	C-peptide (second venipuncture)
CR	C-reactive protein
UD	Cadmium
CN	Central nervous system function evaluation
CL	Chloride (from biochemistry profile)
CO	Cotinine
CE	Creatinine (serum)(from biochemistry profile)
UR	Creatinine (urine)

CODE	TOPIC
DM	Demographic
DE	Dental examination
MQ	Diagnostic interview schedule
DR	Dietary recall (total nutrient intakes)
EO	Eosinophil
EP	Erythrocyte protoporphyrin
FR	Ferritin
FB	Fibrinogen
RB	Folate (RBC)
FO	Folate (serum)
FH	Follicle stimulating hormone (FSH)
FP	Fundus photography
GG	Gamma glutamyl transferase (GGT) (from biochemistry profile)
GU	Gallbladder ultrasonography
GB	Globulin (from biochemistry profile)
G1	Glucose (first venipuncture)
G2	Glucose (second venipuncture)
SG	Glucose (from biochemistry profile)
GH	Glycated hemoglobin
GR	Granulocyte
C3	HCO3 (Bicarbonate)(from biochemistry profile)
HD	HDL cholesterol
HP	Helicobacter pylori antibody
HT	Hematocrit
HG	Hemoglobin
AH	Hepatitis A antibody (HAV)
HB	Hepatitis B core antibody (anti-HBc)
SS	Hepatitis B surface antibody (anti-HBs)
SA	Hepatitis B surface antigen (HBsAg)
HC	Hepatitis C antibody (HCV)
DH	Hepatitis D antibody (HDV)
H1	Herpes 1 antibody
H2	Herpes 2 antibody
HX	Home examination (general)
HO	Homocysteine
HF	Household family questionnaire
HA	Household adult questionnaire
HQ	Household questionnaire variables (composite)
HS	Household screener questionnaire
HY	Household youth questionnaire
HZ	Hypochromia
I1	Insulin (first venipuncture)
I2	Insulin (second venipuncture)
UI	Iodine (urine)
FE	Iron
SF	Iron (from biochemistry profile)
LD	Lactate dehydrogenase (from biochemistry profile)
L1	Latex antibody
LC	LDL cholesterol (calculated)
PB	Lead
LP	Lipoprotein (a)
LH	Luteinizing hormone

CODE	TOPIC
LU	Lutein/zeaxanthin
LY	Lycopene
LM	Lymphocyte
MR	Macrocyte
MC	Mean cell hemoglobin (MCH)
MH	Mean cell hemoglobin concentration (MCHC)
MV	Mean cell volume (MCV)
PV	Mean platelet volume
MA	MEC adult questionnaire
MX	MEC examination (general)
FF	Dietary food frequency (ages 12-16 years)
MP	MEC proxy questionnaire
MY	MEC youth questionnaire
ME	Metamyelocyte
MI	Microcyte
MO	Monocyte
MN	Mononuclear cell
ML	Myelocyte
IC	Normalized calcium (derived from ionized calcium)
OS	Osmolality (from biochemistry profile)
PH	Phlebotomy data collected in MEC (e.g., questions)
PS	Phosphorus (from biochemistry profile)
PF	Physical function evaluation
PE	Physician's examination
PL	Platelet
DW	Platelet distribution width
PK	Poikilocytosis
PO	Polychromatophilia
SK	Potassium (from biochemistry profile)
PR	Promyelocyte
RC	Red blood cell count (RBC)
RW	Red cell distribution width (RDW)
RE	Retinyl esters
RF	Rheumatoid factor antibody
RU	Rubella antibody
WT	Sample weights
SE	Selenium
SI	Sickle cell
NA	Sodium (from biochemistry profile)
SH	Spherocyte
SP	Spirometry
SD	Survey design
TT	Target cell
TE	Tetanus
TH	Thyroid Stimulating Hormone (TSH)
T4	Thyroxine
TB	Total bilirubin (from biochemistry profile)
CA	Total calcium
SC	Total calcium (from biochemistry profile)
TC	Total cholesterol
CH	Total cholesterol (from biochemistry profile)
TI	Total iron binding capacity (TIBC)
TP	Total protein (from biochemistry profile)
TX	Toxic granulation

CODE	TOPIC
TO	Toxoplasmosis antibody
PX	Transferrin saturation
TG	Triglycerides
TR	Triglycerides (from biochemistry profile)
TY	Tympanometry
UA	Uric acid (from biochemistry profile)
UB	Urinary albumin
VU	Vacuolated cells
VR	Varicella antibody
VA	Vitamin A
VB	Vitamin B12
VC	Vitamin C
VD	Vitamin D
VE	Vitamin E
WC	White blood cell count (WBC)
WW	WISC/WRAT cognitive test

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TOTAL NUTRIENT INTAKES

Introduction

This release of the NHANES III Total Nutrient Intake File for the Second Exam Sample corresponds to the Series 11, No. 2A versions of the NHANES III Total Nutrient Intake File for the first or primary exam. Analysts are referred to the description of the Second Exam Sample section of this documentation for more information on this subsample.

NHANES III Dietary Interview Methodology

Dietary interviews were administered to all examinees by a trained dietary interviewer in the mobile examination center (MEC). The nutrient intakes reported in this file include nutrients from foods and beverages reported in the 24-hour dietary recall. The nutrient intakes do not include nutrients obtained from other sources (i.e., nutritional supplements, antacids, medications, salt and seasonings added to prepared foods at the table, and plain unbottled drinking water). Questionnaire data on food sufficiency, intake of plain drinking water and salt use are included in this file as well.

Respondents reported all foods and beverages consumed except plain drinking water (i.e., not bottled) for the previous 24-hour time period (midnight to midnight). An automated, microcomputer-based dietary interview and coding system known as the NHANES III Dietary Data Collection (DDC) System was used to collect all NHANES III dietary recall data. The DDC system was developed for use in the survey by the University of Minnesota's Nutrition Coordinating Center (NCC). Total nutrient intakes are reported in this file for respondents whose dietary recalls were coded complete and reliable (DRRSTAT=1).

The dietary interviews were conducted in English and Spanish by bilingual dietary interviewers in a private room to ensure confidentiality. Proxy respondents were permitted for infants and children aged two months through five years and for other respondents who were unable to report on their own. Children aged six to 11 years were permitted to report their own intake if the interviewer deemed it acceptable and appropriate, but many interviewers for respondents in this age category were completed by proxy or with the child and a proxy. The dietary interviewers contacted other information sources such as care providers and schools to obtain complete dietary intake data for respondents.

The primary source of food composition data for NHANES III is the U.S. Department of Agriculture (USDA) Survey Nutrient Database; two nutrient files were provided by USDA for use in NHANES III (USDA 1993, 1995). Each USDA file contained food composition values that were appropriate for the time period during which the NHANES III data were collected. Additionally, food composition data for a small number of herbs and spices were obtained from NCC (NCC, 1996).

The NHANES III dietary recall data files were also coded to the NCC foods database. The files were produced using the NCC version of the NHANES III code generator processing program. The output from the program produces a file with food gram weights and NCC food codes. These coded food records were merged with the NCC nutrient composition database (NCC, 1996). The NHANES III

file variables that are based on NCC database information have an 'NCR' prefix identifier in the Total Nutrients file.

The DDC system foods database was designed specifically to handle time-related changes in food descriptions, food amounts, and recipes; updated information was applied retrospectively to data collected in the early part of NHANES III. As was mentioned earlier, two USDA food nutrient composition databases were used to assign nutrient values to the USDA database versions of the NHANES III dietary recalls (USDA 1993; USDA, 1995). The NCC foods database that was used to code the NHANES III data had a multi-version design (NCC, 1996); when appropriate, some database updates were made retroactively to data reported during earlier years of the survey. The goals of database maintenance for the USDA and NCC databases were the same: to incorporate changes that occurred in the nutrient values of foods due to food product reformulations and recipe changes, and foods analysis; to incorporate new information about food amounts; and to update the databases with new food products that were added to the market while the survey was in operation. The U.S. marketplace underwent tremendous growth and change as new food product lines were introduced and new food components were added to the food supply (e.g., fat substitutes and artificial sweeteners). The impact of these and other changes in the food supply may require additional analysis for appropriate data interpretation.

Dietary recall interviews were edited by the interviewers to ensure that they were as complete as possible. NCHS completed all final editing and determinations regarding the completeness and reliability of the dietary recalls. Analysts should note that the data reported are self-reported data. Extreme values were verified.

Information on dietary supplements and antacids was reported separately during the Household Adult and Household Youth Questionnaires. Nutrient intakes from dietary supplement products are not included in the total nutrient intake data reported in this file. Release 2A of the Adult and Youth Household Questionnaire Data Files provides detailed information about dietary supplements.

A number of quality-control monitoring techniques were employed during the survey. For example, the techniques for monitoring the Dietary Interview component included observations of actual dietary interviews and reviews of audiotaped interviews by NCHS and contractor staff. In addition, the dietary interviewers worked in two-person teams; there was one team in each MEC. The dietary interviewers performed 10-percent cross-check reviews of their partners' work using printed recall reports. Finally, newsletters, field memoranda, telephone calls, and staff retraining sessions were other methods used to maintain quality control during the survey. Refer to the NHANES III Dietary Interviewer's Training Manual for the dietary interview protocol (U.S. DHHS, 1996b).

NHANES III Examination Data File Index

Description	Variable Name	Positions
Respondent identification number	SEQN	1-5
SECOND EXAM DATA		
GENERAL INFORMATION		
Recall Status Code	DRRSTAT	6
Recall day	DRRRDAY	7-8
Respondent,24hr dietary recall interview	DRRRESP	9
Language, 24-hr dietary recall interview	DRRLANG	10
Interviewer ID	DRRIID	11-12
Compare food consumed yesterday to usual	DRRQ1	13
How much plain water drink in 24 hrs -oz	DRRQ2A	14-16
Type of salt you usually add at table	DRRQ3	17
How often do you add salt at the table	DRRQ4	18
#days had no food/money for food,past mo	DRRQ5	19-20
Because not enough money or other reason	DRRQ6	21
Skip meals because no food/money,past mo	DRRQ7	22
# days skip meals, no food/money,past mo	DRRQ8	23-24
Skip any meals yesterday, no food/money	DRRQ9	25
Any days not eat, no food/money, past mo	DRRQ10	26
# days didn't eat at all in past month	DRRQ11	27-28
Are you person who preps meals at home	DRRQ12	29
SECOND EXAM DATA		
USDA DATABASE NUTRIENT QUANTITIES		
Total grams of foods and beve. consumed	DRRGW	30-34
Water (gm)	DRRNWATE	35-39
Calories (kcal)	DRRNKCAL	40-44
Protein (gm)	DRRNPROT	45-50
Total fats (gm)	DRRNTFAT	51-56
Total saturated fatty acids (gm)	DRRNSFAT	57-61
Total monounsaturated fatty acids (gm)	DRRNMFAT	62-66
Total polyunsaturated fatty acids (gm)	DRRNPFAT	67-71
Cholesterol (mg)	DRRNCHOL	72-75

NHANES III Examination Data File Index

Description	Variable Name	Positions
Total carbohydrates (gm)	DRRNCARB	76-81
Dietary fiber (gm)	DRRNFIBE	82-86
Alcohol (gm)	DRRNALCO	87-90
Total vitamin A (IU)	DRRNVAIU	91-96
Total vitamin A (RE)	DRRNVARE	97-101
Total carotenes (RE)	DRRNCARO	102-106
Total alpha-tocopherol equivalents (mg)	DRRNVE	107-112
Vitamin C (mg)	DRRNVC	113-116
Thiamin (mg)	DRRNVB1	117-121
Riboflavin (mg)	DRRNVB2	122-126
Niacin (mg)	DRRNNIAC	127-131
Vitamin B6 (mg)	DRRNVB6	132-136
Folic acid (mcg)	DRRNFOLA	137-141
Vitamin B12 (mcg)	DRRNVB12	142-147
Calcium (mg)	DRRNCALC	148-152
Phosphorous (mg)	DRRNPHOS	153-157
Magnesium (mg)	DRRNMAGN	158-161
Iron (mg)	DRRNIRON	162-166
Zinc (mg)	DRRNZINC	167-172
Copper (mg)	DRRNCOPP	173-176
Sodium (mg)	DRRNSODI	177-181
Potassium (mg)	DRRNPOTA	182-186
Pct kcal from total fat (%kcal)	DRRNKF	187-191
Pct kcal from saturated fat (%kcal)	DRRNKSF	192-195
Pct kcal from monosaturated fat (%kcal)	DRRNKMF	196-199
Pct kcal from polysaturated fat (%kcal)	DRRNKPF	200-203
Pct kcal from protein (%kcal)	DRRNKP	204-208
Pct kcal from carbohydrate (%kcal)	DRRNKC	209-213
Pct kcal from alcohol (%kcal)	DRRNKA	214-218

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Total grams of foods and beve. consumed	NCRGW	219-223
Water (gm)	NCRNWATE	224-228
Calories (kcal)	NCRNKCAL	229-233
Protein (gm)	NCRNPROT	234-239
Total fats (gm)	NCRNTFAT	240-245

NHANES III Examination Data File Index

Description	Variable Name	Positions
Total saturated fatty acids (gm)	NCRNSFAT	246-250
Total monounsaturated fatty acids (gm)	NCRNMFAT	251-255
Total polyunsaturated fatty acids (gm)	NCRNPFAT	256-260
Cholesterol (mg)	NCRNCHOL	261-264
Total carbohydrates (gm)	NCRNCARB	265-270
Dietary fiber (gm)	NCRNFIBE	271-275
Alcohol (gm)	NCRNALCO	276-279
Total vitamin A (IU)	NCRNVAIU	280-285
Retinol (mcg)	NCRNRETI	286-290
Beta-carotene (mcg)	NCRNBCAR	291-296
Total alpha-tocopherol equivalents (mg)	NCRNVE	297-301
Vitamin C (mg)	NCRNVC	302-305
Thiamin (mg)	NCRNVB1	306-310
Riboflavin (mg)	NCRNVB2	311-315
Niacin (mg)	NCRNNIAC	316-320
Vitamin B6 (mg)	NCRNVB6	321-325
Folic acid (mcg)	NCRNFOLA	326-330
Vitamin B12 (mcg)	NCRNVB12	331-336
Calcium (mg)	NCRNCALC	337-341
Phosphorous (mg)	NCRNPHOS	342-346
Magnesium (mg)	NCRNMAGN	347-350
Iron (mg)	NCRNIRON	351-355
Zinc (mg)	NCRNZINC	356-361
Copper (mg)	NCRNCOPP	362-365
Sodium (mg)	NCRNSODI	366-370
Potassium (mg)	NCRNPOTA	371-375
Crude Fiber (gm)	NCRNCFIB	376-379
Ash (gm)	NCRNASH	380-384
Caffeine (mg)	NCRNCAFE	385-388
Selenium (mcg)	NCRNSELE	389-394
Pantothenic acid (mg)	NCRNPACI	395-399
Alpha-tocopherol (mg)	NCRNATOC	400-404
Beta-tocopherol (mg)	NCRNBTOC	405-408
Gamma-tocopherol (mg)	NCRNGTOC	409-413
Delta-tocopherol (mg)	NCRNDTOC	414-418
Vitamin D (mcg)	NCRNVD	419-423
SFA 4:0 (gm)	NCRNS040	424-427
SFA 6:0 (gm)	NCRNS060	428-430
SFA 8:0 (gm)	NCRNS080	431-434

NHANES III Examination Data File Index

Description	Variable Name	Positions

SFA 10:0 (gm)	NCRNS100	435-438
SFA 12:0 (gm)	NCRNS120	439-443
SFA 14:0 (gm)	NCRNS140	444-447
SFA 16:0 (gm)	NCRNS160	448-452
SFA 17:0 (gm)	NCRNS170	453-455
SFA 18:0 (gm)	NCRNS180	456-460
SFA 20:0 (gm)	NCRNS200	461-463
SFA 22:0 (gm)	NCRNS220	464-466
MFA 14:1 (gm)	NCRNM141	467-469
MFA 16:1 (gm)	NCRNM161	470-473
Oleic acid (MFA 18:1) (gm)	NCRNM181	474-478
MFA 20:1 (gm)	NCRNM201	479-482
MFA 22:1 (gm)	NCRNM221	483-486
Linoleic acid (PFA 18:2) (gm)	NCRNP182	487-491
Linolenic acid (PFA 18:3) (gm)	NCRNP183	492-495
PFA 18:4 (gm)	NCRNP184	496-498
PFA 20:4 (gm)	NCRNP204	499-501
PFA 20:5 (gm)	NCRNP205	502-504
PFA 22:5 (gm)	NCRNP225	505-507
PFA 22:6 (gm)	NCRNP226	508-511
Glucose (gm)	NCRNGLUC	512-516
Fructose (gm)	NCRNFRUC	517-521
Galactose (gm)	NCRNGALA	522-525
Sucrose (gm)	NCRNSUCR	526-531
Lactose (gm)	NCRNLACT	532-536
Maltose (gm)	NCRNMALT	537-541
Water insoluble dietary fiber (gm)	NCRNIFIB	542-546
Water soluble dietary fiber (gm)	NCRNSFIB	547-550
Pectin (gm)	NCRNPECT	551-554
Starch (gm)	NCRNSTAR	555-560
Aspartame (mg)	NCRNASPR	561-567
Tryptophan (gm)	NCRNTRYP	568-571
Threonine (gm)	NCRNTHRE	572-575
Isoleucine (gm)	NCRNISOL	576-579
Leucine (gm)	NCRNLEUC	580-583
Lysine(gm)	NCRNLYSI	584-587
Methionine (gm)	NCRNMETH	588-591
Cystine (gm)	NCRNCYST	592-595
Phenylalanine (gm)	NCRNPHAL	596-599

NHANES III Examination Data File Index

Description	Variable Name	Positions
Tyrosine (gm)	NCRNTYRO	600-603
Valine (gm)	NCRNVALI	604-607
Arginine (gm)	NCRNARGI	608-611
Histidine (gm)	NCRNHIST	612-615
Alanine (gm)	NCRNALAN	616-619
Aspartic Acid (gm)	NCRNASPA	620-624
Glutamic Acid (gm)	NCRNGLUT	625-629
Glycine (gm)	NCRNGLYC	630-633
Proline (gm)	NCRNPROL	634-637
Serine (gm)	NCRNSERI	638-641
Saccharin (mg)	NCRNSACC	642-647
Animal Protein (gm)	NCRNAPRO	648-652
Vegetable Protein (gm)	NCRNVPRO	653-657
Oxalic Acid (mg)	NCRNOXAA	658-664
Phytic Acid (mg)	NCRNPHYA	665-671
Pct kcal from total fat (%kcal)	NCRNKF	672-676
Pct kcal from saturated fat (%kcal)	NCRNKSF	677-680
Pct kcal from monosaturated fat (%kcal)	NCRNKMF	681-684
Pct kcal from polysaturated fat (%kcal)	NCRNKPF	685-688
Pct kcal from protein (%kcal)	NCRNKP	689-693
Pct kcal from carbohydrate (%kcal)	NCRNKC	694-698
Pct kcal from alcohol (%kcal)	NCRNKA	699-703

NHANES III Examination Data File

		DATASET=EXAMDSE	
N=2603		DOCUMENTATION DATE=06/18/99	
Positions SAS name	Counts	Item description and code	Notes
1-5 SEQN	2603	Respondent identification number 00009-53616	

NHANES III Examination Data File

SECOND EXAM DATA

GENERAL INFORMATION

Positions SAS name	Counts	Item description and code		Notes
6		Recall status code		See note
DRRSTAT	1673	1	Reliable and complete	
	5	2	Reliable, but incomplete	
	10	3	Unreliable	
	12	4	Interview lost due to computer malfunction or file transfer problem	
	159	8	Blank but applicable	
	744	Blank		
7-8		Recall day		See note
DRRRDAY	337	01		
	35	02		
	85	03		
	538	04		
	511	05		
	102	06		
	80	07		
	171	88	Blank but applicable	
	744	Blank		
9		Respondent for the 24-hour dietary recall interview		See note
DRRRESP	1596	1	Examinee, i.e. self reported	
	52	2	Proxy	
	40	3	Examinee and Proxy	
	171	8	Blank but applicable	
	744	Blank		

SECOND EXAM DATA

GENERAL INFORMATION

Positions SAS name	Counts	Item description and code		Notes
10		Language of 24-hour dietary recall interview		See note
DRRLANG	1536	1	English	
	146	2	Spanish	
	5	3	English and Spanish	
	1	4	Other language	
	171	8	Blank but applicable	
	744	Blank		
11-12		Interviewer number		
DRRIID	428	01		
	26	02		
	457	03		
	394	04		
	21	05		
	12	06		
	131	07		
	222	08		
	5	10		
	163	88	Blank but applicable	
	744	Blank		
13		How does the amount of food consumed yesterday compare with (your/his/her) usual consumption for that day of the week? Was it...		See note
DRRQ1	41	1	Much more than usual	
	1471	2	Usual	
	150	3	Much less than usual	
	189	8	Blank but applicable	
	8	9	Don't know	
	744	Blank		

SECOND EXAM DATA

GENERAL INFORMATION

Positions SAS name	Counts	Item description and code		Notes
14-16 DRRQ2A		How much plain drinking water do you usually drink in a 24-hour period? Include only plain tap or spring water. (fl oz)		See note
	106	000	None/never	
	1558	002-450		
	176	888	Blank but applicable	
	19	999	Don't know	
	744	Blank		
17 DRRQ3		What type of salt do you usually add to your food at the table?		See note
	687	0	None/never	
	873	2	Ordinary salt	
	71	3	Lite salt	
	29	4	Salt substitute	
	176	8	Blank but applicable	
	23	9	Don't know	
	744	Blank		
18 DRRQ4		How often do you add salt at the table?		
	314	1	Rarely	
	369	2	Occasionally	
	308	3	Very often	
	176	8	Blank but applicable	
	5	9	Don't know	
	1431	Blank		

NHANES III Examination Data File

SECOND EXAM DATA

GENERAL INFORMATION

Positions SAS name	Counts	Item description and code		Notes
19-20 DRRQ5		Thinking about the past month, how many days did you have no food or money to buy food?		See note
	1599	00	None/never	
	77	01-29		
	1	66	Greater than zero number of days, not further specified	
	176	88	Blank but applicable	
	6	99	Don't know (DRRQ7)	
	744	Blank		
21 DRRQ6		Is that because there wasn't enough money to buy food or another reason?		See note
	63	1	Not enough money	
	14	2	Another reason (DRRQ12)	
	177	8	Blank but applicable	
	2349	Blank		
22 DRRQ7		During the past month, did (you/___) skip any meals because there wasn't enough food or money to buy food?		See note
	59	1	Yes	
	1608	2	No (DRRQ12)	
	176	8	Blank but applicable	
	2	9	Don't know (DRRQ9)	
	758	Blank		

NHANES III Examination Data File

SECOND EXAM DATA

GENERAL INFORMATION

Positions SAS name	Counts	Item description and code		Notes
23-24 DRRQ8		How many days in the past month did (you/___) skip any meals because there wasn't enough food or money to buy food?		See note
	7	01		
	13	02		
	14	03		
	6	04		
	2	05		
	2	06		
	4	07		
	2	10		
	1	12		
	1	15		
	3	30		
	176	88	Blank but applicable	
	4	99	Don't know	
	2368	Blank		
25 DRRQ9		Did (you/___) skip any meals yesterday because there wasn't enough food or money to buy food?		See note
	5	1	Yes	
	56	2	No	
	176	8	Blank but applicable	
	2366	Blank		
26 DRRQ10		During the past month, were there any days when (you/__) did not eat at all because there wasn't enough food or money to buy food?		See note
	19	1	Yes	
	42	2	No (DRRQ12)	
	176	8	Blank but applicable	
	2366	Blank		

SECOND EXAM DATA

GENERAL INFORMATION

Positions SAS name	Counts	Item description and code		Notes
27-28 DRRQ11		In the past month, how many days were there when (you/___) didn't eat at all?		See note
	6	01		
	5	02		
	5	03		
	1	06		
	1	07		
	1	10		
	176	88	Blank but applicable	
	2408	Blank		
29 DRRQ12		Are you the person who usually prepares the meals at home?		
	819	1	Yes	
	750	2	No	
	103	3	Shared preparation	
	9	4	Food not prepared at home	
	177	8	Blank but applicable	
	1	9	Don't know	
	744	Blank		

NHANES III Examination Data File

SECOND EXAM DATA

USDA DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
30-34 DRRGW		USDA database total grams of foods and beverages consumed	See note
	1673	00166-08813	
	186	88888 Blank but applicable	
	744	Blank	
35-39 DRRNWATE		USDA database water (gm)	See note
	1673	00072-07897	
	186	88888 Blank but applicable	
	744	Blank	
40-44 DRRNKCAL		USDA database food energy (kcal)	
	1673	00026-07435	
	186	88888 Blank but applicable	
	744	Blank	
45-50 DRRNPROT		USDA database protein (gm)	
	1673	0001.5-0508.7	
	186	888888 Blank but applicable	
	744	Blank	
51-56 DRRNTFAT		USDA database total fat (gm)	
	1673	0000.1-000429	
	186	888888 Blank but applicable	
	744	Blank	
57-61 DRRNSFAT		USDA database total saturated fatty acids (gm)	
	1673	00000-143.3	
	186	88888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

USDA DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
62-66 DRRNMFAT		USDA database total monounsaturated fatty acids (gm)	
	1673	00000-186.2	
	186	88888 Blank but applicable	
	744	Blank	
67-71 DRRNPFAT		USDA database total polyunsaturated fatty acids (gm)	
	1673	00000-00089	
	186	88888 Blank but applicable	
	744	Blank	
72-75 DRRNCHOL		USDA database cholesterol (mg)	
	1673	0000-2461	
	186	8888 Blank but applicable	
	744	Blank	
76-81 DRRNCARB		USDA database carbohydrate (gm)	
	1673	0003.5-0874.8	
	186	888888 Blank but applicable	
	744	Blank	
82-86 DRRNFIBE		USDA database total dietary fiber (gm)	
	1673	000.7-099.7	
	186	88888 Blank but applicable	
	744	Blank	
87-90 DRRNALCO		USDA database alcohol (gm)	
	1673	0000-0181	
	186	8888 Blank but applicable	
	744	Blank	

SECOND EXAM DATA

USDA DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
91-96		USDA database vitamin A (IU)	
DRRNVAIU	1673	000000-085804	
	186	888888 Blank but applicable	
	744	Blank	
97-101		USDA database vitamin A (RE)	
DRRNVARE	1673	00000-25084	
	186	88888 Blank but applicable	
	744	Blank	
		102-106 USDA database carotenes (RE)	
DRRNCARO	1673	00000-07113	
	186	88888 Blank but applicable	
	744	Blank	
107-112		USDA database vitamin E (alpha	
DRRNVE		tocopherol equivalents)	
	1673	000000-0122.5	
	186	888888 Blank but applicable	
	744	Blank	
113-116		USDA database ascorbic acid (mg)	
DRRNVC	1673	0000-1077	
	186	8888 Blank but applicable	
	744	Blank	
117-121		USDA database thiamin (mg)	
DRRNVB1	1673	00.07-07.91	
	186	88888 Blank but applicable	
	744	Blank	
122-126		USDA database riboflavin (mg)	
DRRNVB2	1673	00.12-07.68	
	186	88888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

USDA DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
127-131		USDA database niacin (mg)	
DRRNNIAC	1673	000.2-096.8	
	186	88888 Blank but applicable	
	744	Blank	
132-136		USDA database vitamin B6 (mg)	
DRRNVB6	1673	00.04-008.8	
	186	88888 Blank but applicable	
	744	Blank	
137-141		USDA database folacin (micrograms)	
DRRNFOLA	1673	00010-01642	
	186	88888 Blank but applicable	
	744	Blank	
142-147		USDA database vitamin B12 (micrograms)	
DRRNVB12	1673	000000-160.01	
	186	888888 Blank but applicable	
	744	Blank	
148-152		USDA database calcium (mg)	
DRRNCALC	1673	00009-03557	
	186	88888 Blank but applicable	
	744	Blank	
153-157		USDA database phosphorus (mg)	
DRRNPHOS	1673	00055-04514	
	186	88888 Blank but applicable	
	744	Blank	
158-161		USDA database magnesium (mg)	
DRRNMAGN	1673	0014-0922	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

USDA DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
162-166		USDA database iron (mg)	
DRRNIRON	1673	000.7-093.3	
	186	88888 Blank but applicable	
	744	Blank	
167-172		USDA database zinc (mg)	
DRRNZINC	1673	0000.4-0113.7	
	186	888888 Blank but applicable	
	744	Blank	
173-176		USDA database copper (mg)	
DRRNCOPP	1673	00.1-08.1	
	186	8888 Blank but applicable	
	744	Blank	
177-181		USDA database sodium (mg)	
DRRNSODI	1673	00041-16143	
	186	88888 Blank but applicable	
	744	Blank	
182-186		USDA database potassium (mg)	
DRRNPOTA	1673	00179-10493	
	186	88888 Blank but applicable	
	744	Blank	
187-191		USDA database percent of kilocalories from total fat	See note
DRRNKF	1673	00000-062.8	
	186	88888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

USDA DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
192-195 DRRNKSF		USDA database percent of kilocalories from saturated fat	See note
	1673	0000-27.5	
	186	8888 Blank but applicable	
	744	Blank	
196-199 DRRNKMF		USDA database percent of kilocalories from monounsaturated fat	See note
	1673	0000-28.8	
	186	8888 Blank but applicable	
	744	Blank	
200-203 DRRNKPF		USDA database percent of kilocalories from polyunsaturated fat	See note
	1673	0000-23.5	
	186	8888 Blank but applicable	
	744	Blank	
204-208 DRRNKP		USDA database percent of kilocalories from protein	See note
	1673	000.2-041.1	
	186	88888 Blank but applicable	
	744	Blank	
209-213 DRRNKC		USDA database percent of kilocalories from carbohydrate	See note
	1673	005.6-100.6	
	186	88888 Blank but applicable	
	744	Blank	
214-218 DRRNKA		USDA database percent of kilocalories from alcohol	See note
	1673	00000-061.5	
	186	88888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
219-223 NCRGW		NCC database total grams of foods and beverages consumed	
	1673	00166-08813	
	186	88888 Blank but applicable	
	744	Blank	
224-228 NCRNWATE		NCC database water (gm)	
	1673	00074-07935	
	186	88888 Blank but applicable	
	744	Blank	
229-233 NCRNKCAL		NCC database food energy (kcal)	
	1673	00025-07421	
	186	88888 Blank but applicable	
	744	Blank	
234-239 NCRNPROT		NCC database protein (gm)	
	1673	0001.3-0452.1	
	186	888888 Blank but applicable	
	744	Blank	
240-245 NCRNTFAT		NCC database total fat (gm)	
	1673	0000.1-0424.2	
	186	888888 Blank but applicable	
	744	Blank	
246-250 NCRNSFAT		NCC database total saturated fatty acids (gm)	
	1673	000.1-150.6	
	186	88888 Blank but applicable	
	744	Blank	

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
251-255 NCRNMFAT		NCC database total monounsaturated fatty acids (gm)	
	1673	00000-183.6	
	186	88888 Blank but applicable	
	744	Blank	
256-260 NCRNPFAT		NCC database total polyunsaturated fatty acids (gm)	
	1673	00000-109.1	
	186	88888 Blank but applicable	
	744	Blank	
261-264 NCRNCHOL		NCC database cholesterol (mg)	
	1673	0000-2454	
	186	8888 Blank but applicable	
	744	Blank	
265-270 NCRNCARB		NCC database carbohydrate (gm)	
	1673	0003.1-0864.1	
	186	888888 Blank but applicable	
	744	Blank	
271-275 NCRNFIBE		NCC database total dietary fiber (gm)	
	1673	000.9-104.9	
	186	88888 Blank but applicable	
	744	Blank	
276-279 NCRNALCO		NCC database alcohol (gm)	
	1673	0000-0181	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
280-285		NCC database vitamin A (IU)	
NCRNVAIU	1673	000000-079723	
	186	888888 Blank but applicable	
	744	Blank	
286-290		NCC database retinol (mcg)	
NCRNRETI	1673	00000-20359	
	186	88888 Blank but applicable	
	744	Blank	
291-296		NCC database beta-carotene (mcg)	
NCRNBCAR	1673	000000-040578	
	186	888888 Blank but applicable	
	744	Blank	
297-301		NCC database vitamin E (alpha tocopherol	
NCRNVE		equivalents)	
	1673	00000-123.8	
	186	88888 Blank but applicable	
	744	Blank	
302-305		NCC database ascorbic acid (mg)	
NCRNVC	1673	0000-1130	
	186	8888 Blank but applicable	
	744	Blank	
306-310		NCC database thiamin (mg)	
NCRNVB1	1673	00.06-06.82	
	186	88888 Blank but applicable	
	744	Blank	
311-315		NCC database riboflavin (mg)	
NCRNVB2	1673	00.03-09.73	
	186	88888 Blank but applicable	
	744	Blank	

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
316-320		NCC database niacin (mg)	
NCRNNIAC	1673	000.2-105.6	
	186	88888 Blank but applicable	
	744	Blank	
321-325		NCC database vitamin B6 (mg)	
NCRNVB6	1673	00.04-08.42	
	186	88888 Blank but applicable	
	744	Blank	
326-330		NCC database folacin (micrograms)	
NCRNFOLA	1673	00010-01633	
	186	88888 Blank but applicable	
	744	Blank	
331-336		NCC database vitamin B12 (micrograms)	
NCRNVB12	1673	000000-0273.8	
	186	888888 Blank but applicable	
	744	Blank	
337-341		NCC database calcium (mg)	
NCRNCALC	1673	00014-04304	
	186	88888 Blank but applicable	
	744	Blank	
342-346		NCC database phosphorus (mg)	
NCRNPHOS	1673	00037-04650	
	186	88888 Blank but applicable	
	744	Blank	
347-350		NCC database magnesium (mg)	
NCRNMAGN	1673	0014-1019	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
351-355		NCC database iron (mg)	
NCRNIRON	1673	000.5-113.9	
	186	88888 Blank but applicable	
	744	Blank	
356-361		NCC database zinc (mg)	
NCRNZINC	1673	0000.5-0081.9	
	186	888888 Blank but applicable	
	744	Blank	
362-365		NCC database copper (mg)	
NCRNCOPP	1673	00.1-0011	
	186	8888 Blank but applicable	
	744	Blank	
366-370		NCC database sodium (mg)	
NCRNSODI	1673	00034-15853	
	186	88888 Blank but applicable	
	744	Blank	
371-375		NCC database potassium (mg)	
NCRNPOTA	1673	00085-10346	
	186	88888 Blank but applicable	
	744	Blank	
376-379		NCC database crude Fiber (gm)	
NCRNCFIB	1673	0000-33.4	
	186	8888 Blank but applicable	
	744	Blank	
380-384		NCC database ash (gm)	
380-385		NCRNASH 1673 001.1-061.8	
	186	88888 Blank but applicable	
	744	Blank	

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
385-388		NCC database caffeine (mg)	
NCRNCAFE	1673	0000-3579	
	186	8888 Blank but applicable	
	744	Blank	
389-394		NCC database selenium (mcg)	
NCRNSELE	1673	0000.9-0739.3	
	186	888888 Blank but applicable	
	744	Blank	
395-399		NCC database pantothenic acid (mg)	
NCRNPACI	1673	000.1-031.3	
	186	88888 Blank but applicable	
	744	Blank	
400-404		NCC database alpha-tocopherol (mg)	
NCRNATOC	1673	00000-121.6	
	186	88888 Blank but applicable	
	744	Blank	
405-408		NCC database beta-tocopherol (mg)	
NCRNBTOC	1673	0000-04.8	
	186	8888 Blank but applicable	
	744	Blank	
409-413		NCC database gamma-tocopherol (mg)	
NCRNGTOC	1673	00000-144.3	
	186	88888 Blank but applicable	
	744	Blank	
414-418		NCC database delta-tocopherol (mg)	
NCRNDTOC	1673	00000-045.6	
	186	88888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
419-423		NCC database vitamin D (mcg)	
NCRNVD	1673	00000-062.3	
	186	88888 Blank but applicable	
	744	Blank	
424-427		NCC database SFA 4:0 (gm)	See note
NCRNS040	1673	0000-05.2	
	186	8888 Blank but applicable	
	744	Blank	
428-430		NCC database SFA 6:0 (gm)	See note
NCRNS060	1673	000-2.7	
	186	888 Blank but applicable	
	744	Blank	
431-434		NCC database SFA 8:0 (gm)	See note
NCRNS080	1673	0000-04.4	
	186	8888 Blank but applicable	
	744	Blank	
435-438		NCC database SFA 10:0 (gm)	See note
NCRNS100	1673	0000-04.1	
	186	8888 Blank but applicable	
	744	Blank	
439-443		NCC database SFA 12:0 (gm)	See note
NCRNS120	1673	00000-026.8	
	186	88888 Blank but applicable	
	744	Blank	
444-447		NCC database SFA 14:0 (gm)	See note
NCRNS140	1673	0000-18.2	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
448-452		NCC database SFA 16:0 (gm)	See note
NCRNS160	1673	00000-090.6	
	186	88888 Blank but applicable	
	744	Blank	
453-455		NCC database SFA 17:0 (gm)	See note
NCRNS170	1673	000-0.1	
	186	888 Blank but applicable	
	744	Blank	
456-460		NCC database SFA 18:0 (gm)	See note
NCRNS180	1673	00000-044.5	
	186	88888 Blank but applicable	
	744	Blank	
461-463		NCC database SFA 20:0 (gm)	See note
NCRNS200	1673	000-0.8	
	186	888 Blank but applicable	
	744	Blank	
464-466		NCC database SFA 22:0 (gm)	See note
NCRNS220	1673	000-1.4	
	186	888 Blank but applicable	
	744	Blank	
467-469		NCC database MFA 14:1 (gm)	See note
NCRNM141	1673	000-1.5	
	186	888 Blank but applicable	
	744	Blank	
470-473		NCC database MFA 16:1 (gm)	See note
NCRNM161	1673	0000-16.3	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
474-478		NCC database oleic acid (MFA 18:1) (gm)	See note
NCRNM181	1673	00000-164.4	
	186	88888 Blank but applicable	
	744	Blank	
479-482		NCC database MFA 20:1 (gm)	See note
NCRNM201	1673	0000-02.2	
	186	8888 Blank but applicable	
	744	Blank	
483-486		NCC database MFA 22:1 (gm)	See note
NCRNM221	1673	0000-04.1	
	186	8888 Blank but applicable	
	744	Blank	
487-491		NCC database linoleic acid	See note
NCRNP182		(PFA 18:2) (gm)	
	1673	00000-102.8	
	186	88888 Blank but applicable	
	744	Blank	
492-495		NCC database linolenic acid	See note
NCRNP183		(PFA 18:3) (gm)	
	1673	0000-08.1	
	186	8888 Blank but applicable	
	744	Blank	
496-498		NCC database PFA 18:4 (gm)	See note
NCRNP184	1673	000-0.4	
	186	888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
499-501		NCC database PFA 20:4 (gm)	See note
NCRNP204	1673	000-4.2	
	186	888 Blank but applicable	
	744	Blank	
502-504		NCC database PFA 20:5 (gm)	See note
NCRNP205	1673	000-002	
	186	888 Blank but applicable	
	744	Blank	
505-507		NCC database PFA 22:5 (gm)	See note
NCRNP225	1673	000-1.4	
	186	888 Blank but applicable	
	744	Blank	
508-511		NCC database PFA 22:6 (gm)	See note
NCRNP226	1673	0000-06.5	
	186	8888 Blank but applicable	
	744	Blank	
512-516		NCC database glucose (gm)	
NCRNGLUC	1673	000.2-268.7	
	186	88888 Blank but applicable	
	744	Blank	
517-521		NCC database fructose (gm)	
NCRNFRUC	1673	000.1-324.7	
	186	88888 Blank but applicable	
	744	Blank	
522-525		NCC database galactose (gm)	
NCRNGALA	1673	0000-03.9	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
526-531		NCC database sucrose (gm)	
NCRNSUCR	1673	000000-0585.6	
	186	888888 Blank but applicable	
	744	Blank	
532-536		NCC database lactose (gm)	
NCRNLACT	1673	00000-00096	
	186	88888 Blank but applicable	
	744	Blank	
537-541		NCC database maltose (gm)	
NCRNMALT	1673	00000-038.9	
	186	88888 Blank but applicable	
	744	Blank	
542-546		NCC database water insoluble	
NCRNIFIB		dietary fiber (gm)	
	1673	000.5-079.2	
	186	88888 Blank but applicable	
	744	Blank	
547-550		NCC database water soluble	
NCRNSFIB		dietary fiber (gm)	
	1673	00.2-25.1	
	186	8888 Blank but applicable	
	744	Blank	
551-554		NCC database pectin (gm)	
NCRNPECT	1673	0000-10.5	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name | Counts | Item description and code | Notes

555-560		NCC database starch (gm)
NCRNSTAR	1673	0000.3-0390.6
	186	888888 Blank but applicable
	744	Blank
561-567		NCC database aspartame (mg)
NCRNASPR	1673	0000000-01338.2
	186	8888888 Blank but applicable
	744	Blank
568-571		NCC database tryptophan (gm)
NCRNTRYP	1673	0000-05.1
	186	8888 Blank but applicable
	744	Blank
572-575		NCC database threonine (gm)
NCRNTHRE	1673	0000-19.1
	186	8888 Blank but applicable
	744	Blank
576-579		NCC database isoleucine (gm)
NCRNISOL	1673	0000-21.8
	186	8888 Blank but applicable
	744	Blank
580-583		NCC database leucine (gm)
NCRNLEUC	1673	0000-35.2
	186	8888 Blank but applicable
	744	Blank
584-587		NCC database lysine(gm)
NCRNLYSI	1673	0000-0037
	186	8888 Blank but applicable
	744	Blank

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
588-591		NCC database methionine (gm)	
NCRNMETH	1673	0000-11.7	
	186	8888 Blank but applicable	
	744	Blank	
592-595		NCC database cystine (gm)	
NCRNCYST	1673	0000-06.2	
	186	8888 Blank but applicable	
	744	Blank	
596-599		NCC database phenylalanine (gm)	
NCRNPHAL	1673	0000-17.9	
	186	8888 Blank but applicable	
	744	Blank	
600-603		NCC database tyrosine (gm)	
NCRNTYRO	1673	0000-15.2	
	186	8888 Blank but applicable	
	744	Blank	
604-607		NCC database valine (gm)	
NCRNVALI	1673	0000-22.6	
	186	8888 Blank but applicable	
	744	Blank	
608-611		NCC database arginine (gm)	
NCRNARGI	1673	0000-28.4	
	186	8888 Blank but applicable	
	744	Blank	
612-615		NCC database histidine (gm)	
NCRNHIST	1673	0000-14.8	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
616-619		NCC database alanine (gm)	
NCRNALAN	1673	0000-26.4	
	186	8888 Blank but applicable	
	744	Blank	
	745		
620-624		NCC database aspartic Acid (gm)	
NCRNASPA	1673	00000-041.4	
	186	88888 Blank but applicable	
	744	Blank	
625-629		NCC database glutamic Acid (gm)	
NCRNGLUT	1673	00000-070.8	
	186	88888 Blank but applicable	
	744	Blank	
630-633		NCC database glycine (gm)	
NCRNGLYC	1673	0000-25.7	
	186	8888 Blank but applicable	
	744	Blank	
634-637		NCC database proline (gm)	
NCRNPROL	1673	0000-21.7	
	186	8888 Blank but applicable	
	744	Blank	
638-641		NCC database serine (gm)	
NCRNSERI	1673	0000-18.1	
	186	8888 Blank but applicable	
	744	Blank	
642-647		NCC database saccharin (mg)	
NCRNSACC	1673	000000-0528.8	
	186	888888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
648-652		NCC database animal Protein (gm)	
NCRNAPRO	1673	00000-441.3	
	186	88888 Blank but applicable	
	744	Blank	
653-657		NCC database vegetable Protein (mg)	
NCRNVPRO	1673	00000-104.3	
	186	88888 Blank but applicable	
	744	Blank	
658-664		NCC database oxalic Acid (mg)	
NCRNOXAA	1673	00002.7-02603.7	
	186	8888888 Blank but applicable	
	744	Blank	
665-671		NCC database phytic Acid (mg)	
NCRNPHYA	1673	0000000-04491.6	
	186	8888888 Blank but applicable	
	744	Blank	
672-676		NCC database percent of kilocalories from total fat	See note
NCRNKF	1673	000.1-063.2	
	186	88888 Blank but applicable	
	744	Blank	
677-680		NCC database percent of kilocalories from saturated fat	See note
NCRNKSF	1673	00.1-27.5	
	186	8888 Blank but applicable	
	744	Blank	

NHANES III Examination Data File

SECOND EXAM DATA

NCC DATABASE NUTRIENT QUANTITIES

Positions SAS name	Counts	Item description and code	Notes
681-684 NCRNKMF		NCC database percent of kilocalories from monounsaturated fat	See note
	1673	0000-28.4	
	186	8888 Blank but applicable	
	744	Blank	
685-688 NCRNKPF		NCC database percent of kilocalories from polyunsaturated fat	See note
	1673	0000-23.3	
	186	8888 Blank but applicable	
	744	Blank	
689-693 NCRNKP		NCC database percent of kilocalories from protein	See note
	1673	000.3-041.3	
	186	88888 Blank but applicable	
	744	Blank	
694-698 NCRNKC		NCC database percent of kilocalories from carbohydrate	See note
	1673	005.6-101.1	
	186	88888 Blank but applicable	
	744	Blank	
699-703 NCRNKA		NCC database percent of kilocalories from alcohol	See note
	1673	00000-059.3	
	186	88888 Blank but applicable	
	744	Blank	

NOTES

DRRGW: Total grams of foods and beverages consumed

This is the total gram weight of all foods and beverages, excluding plain drinking water consumed during a 24-hour time period.

DRRLANG: Language of interview

This is the language that was used primarily during the 24-hour recall. The English/Spanish combination was selected if a significant portion of the interview was conducted in each language. The "Other language" selection refers to interviews that were conducted in a language other than English or Spanish; interpreters were used to complete interviews in other languages.

DRRNKA: Percent of kilocalories from alcohol

DRRNKA=((DRRNALCO*7 kcal/gm alcohol)/DRRNKCAL)*100

DRRNKC: Percentage of kilocalories from carbohydrate

DRRNKC=((DRRNCARB*4 kcal/gm carbohydrate)/DRRNKCAL)*100

The grams of total carbohydrates include sugars and complex carbohydrates. The carbohydrate values for foods are not derived by direct chemical analysis. The total carbohydrate figure is the difference between 100 and the sum of the protein, fat, ash, and water. This approach may overestimate the carbohydrate content of the food and the resulting percentage of food energy from carbohydrate.

DRRNKF: Percentage of kilocalories from total fat

DRRNKF=((DRRNTFAT*9kcal/gm fat)/DRRNKCAL)*100

DRRNKMF: Percentage of kilocalories from monounsaturated fat

DRRNKMF=((DRRNMFAT*9kcal/gm fat)/DRRNKCAL)*100

DRRNKP: Percentage of kilocalories from protein

DRRNKP=((DRRNPROT*4 kcal/gm protein)/DRRNKCAL)*100

DRRNKPF: Percentage of kilocalories from polyunsaturated fat

DRRNKPF=((DRRNPFAT*9kcal/gm fat)/DRRNKCAL)*100

DRRNKSF: Percentage of kilocalories from saturated fat

DRRNKSF=((DRRNSFAT*9kcal/gm fat)/DRRNKCAL)*100

DRRNWATE: Grams of water

This is the amount of water contained in foods and beverages reported as part of the 24-hour dietary recall. Plain drinking water and spring water usually were excluded from the dietary recall unless beverages were diluted with plain water or water was a component of a combination food that was reported by components such as a homemade fruit and water drink.

DRRQ1: Usual amount of food consumed

This question targets the total amount of food and beverages reported, not the types of foods or the amount of a particular food. The question targets major, not minor, changes in food consumption that occurred on the 24-hour recall for that day of the week.

DRRQ2A: Quantity of plain drinking water

The quantity of plain drinking water was reported either in total fluid ounces per day or by specifying the number of glasses of water and the volume per glass using standardized measurement aids. All responses were converted to fluid ounces. If the respondent answered "none," meaning that no plain drinking water is usually consumed, the amount of water was reported to be 000 fluid ounces; other quantities of plain drinking water were recorded as xxx fluid ounces. The volume of plain drinking water is in addition to water found in foods and beverages; water from foods and beverages is included in the file variable named DRRNWATE.

DRRQ3: Salt added to food at the table

Ordinary salt includes sea salt, flavored salts such as garlic, onion, and celery salt, and seasoning salts. Lite salt is labeled as such and has a reduced sodium content. Salt substitutes do not contain sodium.

DRRQ5-DRRQ11: Food sufficiency questions

Similar questions about food sufficiency also were asked of a family respondent in the Family Questionnaire found in the Household Adult Data File (see HFF4-8). The food sufficiency questions from the dietary recall (DRRQ5 - DRRQ11) should be analyzed independently from the food sufficiency questions in the Family Questionnaire (HFF4-8). The appropriate sample weight should be chosen based on the specific analysis.

DRRRDAY: Recall day

DRRRDAY corresponds to the day of the week for the 24-hour period (midnight to midnight) in which the examinee consumed the foods and beverages listed in the 24-hour recall. This is the day before their MEC examination.

DRRRESP: Respondent for the 24-hour dietary recall interview

If the examinee was under 12 years of age, the first choice for a respondent was the person who was primarily responsible for preparing meals for the child. In the case of children six to eleven years old, the child and a proxy often participated in the interview. Interviews completed with the examinee and a proxy respondent were coded as "Examinee and proxy."

1 Examinee: The examinee completed the interview without assistance from persons other than translators if the interview was conducted in a language other than English or Spanish.

2 Proxy: Someone else answered on behalf of the examinee. This includes parents, guardians, siblings over 11 years old, care providers, and persons responsible for planning or preparing foods eaten by the examinee.

3 Examinee and Proxy: The examinee and one or more proxies contributed information for the dietary interview.

DRRSTAT: Status of interview

1 Reliable and complete: The information provided by the respondent was deemed to be reliable and complete.

2 Reliable but incomplete: The information provided by the respondent was reliable but incomplete.

3 Unreliable: The information provided by the respondent was deemed to be unreliable. Total energy and nutrient intakes are coded "Blank but applicable."

4 Interview lost due to computer malfunction or data file transfer problem: The dietary interview was completed, but the file was lost subsequently due to a computer malfunction or file transfer problem. Total nutrient intakes are coded "Blank but applicable."

5 Breast-feeding infant or child: The foods reported during the dietary recall interview included human milk and the volume of milk consumed was not quantified. The number of minutes per feeding session was recorded, but it was not possible to calculate total nutrient intakes for infants and children who were breast-fed. Total nutrient intakes are coded "Blank but applicable." The foods consumed by nursing infants and children are reported in the

individual foods file.

8 Blank but applicable: The examinee should have a dietary recall interview but either was not interviewed or refused the dietary interview component. Some examinees do not have 24-hour dietary recall data because the proxy did not know what the examinee ate the day before. In some instances, the proxy was able to answer the post-recall questions pertaining to drinking water consumption, salt use, and food sufficiency.

Blank Home examinees were not eligible for the Dietary Interview component.

NCRNKA: Percent of kilocalories from alcohol

NCRNKA=((NCRNALCO*7 kcal/gm alcohol)/NCRNKCAL)*100

NCRNKC: Percentage of kilocalories from carbohydrate

NCRNKC=((NCRNCARB*4 kcal/gm carbohydrate)/NCRNKCAL)*100

The grams of total carbohydrates include sugars and complex carbohydrates. The carbohydrate values for foods are not derived by direct chemical analysis. The total carbohydrate figure is the difference between 100 and the sum of the protein, fat, ash, and water. This approach may overestimate the carbohydrate content of the food and the resulting percentage of food energy from carbohydrate.

NCRNKF: Percentage of kilocalories from total fat

NCRNKF=((NCRNTFAT*9kcal/gm fat)/NCRNKCAL)*100

NCRNKMF: Percentage of kilocalories from monounsaturated fat

NCRNKMF=((NCRNMFAT*9kcal/gm fat)/NCRNKCAL)*100

NCRNKP: Percentage of kilocalories from protein

NCRNKP=((NCRNPROT*4 kcal/gm protein)/NCRNKCAL)*100

NCRNKPF: Percentage of kilocalories from polyunsaturated fat

NCRNKPF=((NCRNPFAT*9kcal/gm fat)/NCRNKCAL)*100

NCRNKSF: Percentage of kilocalories from saturated fat

NCRNKSF=((NCRNSFAT*9kcal/gm fat)/NCRNKCAL)*100

NCRNS040-NCRNS220: Saturated fatty acids (SFA)

Saturated fatty acids are reported for fatty acids with carbon chain lengths ranging from 4 to 22 carbon atoms.

NCRNM141-NCRNM221: Monounsaturated fatty acids (MFA)

Monounsaturated fatty acids are reported for fatty acids a single double bond and carbon chain lengths ranging from 14 to 22 carbon atoms.

NCRNP182-NCRNP226: Polyunsaturated fatty acids (PFA)

Polyunsaturated fatty acids having carbon chain lengths ranging from 18 to 22 carbon atoms in length; the number of double bonds in the PFA acids reported ranges from 2 to 6.

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