



National Health and Nutrition Examination Surveys

Updates to the Dietary Supplements Data

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Centers for Disease Control and Prevention
National Center for Health Statistics

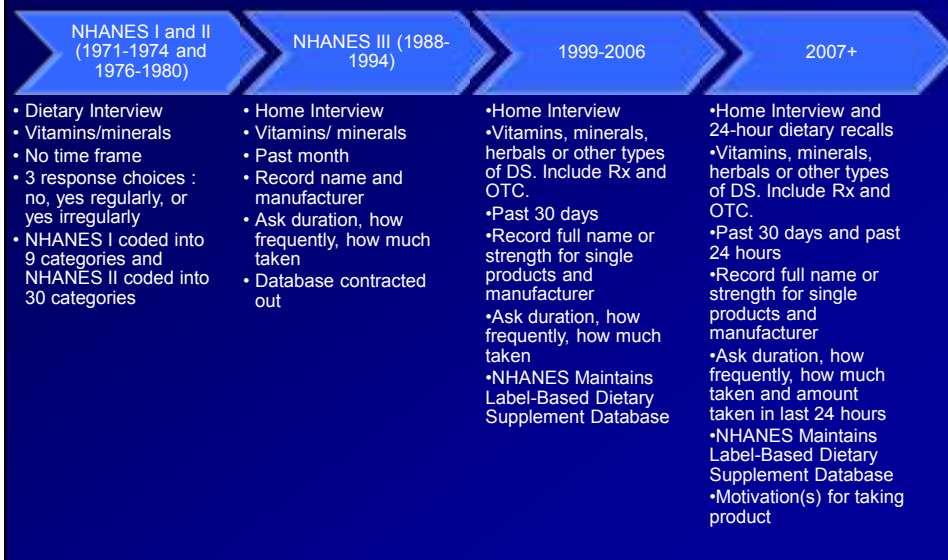
Objectives and Goals of NHANES

- *Objective:* to assess the health and nutritional status of adults and children in the United States
- *Goals:* to collect data in order to provide U.S. population-based estimates of:
 - Health conditions
 - Awareness, treatment and control of selected diseases
 - Environmental exposures
 - Nutrition status and diet behaviors

Sample

- Civilian, non-institutionalized household population in the US
- All ages
- 5,000 individuals each year
- Oversample:
 - Non-Hispanic blacks
 - Hispanics
 - Older persons aged 60+
 - Low income whites
 - Asians – new for 2011-14

Dietary Supplements: Expansion Through the Surveys



NCHS Dietary Supplement Database

- 10,000+ products currently in database
- Content of the database is determined by what NHANES participants have reported
- Many types of products including:
 - Single vitamins/Minerals
 - Multivitamins/Multimineral
 - Botanicals
 - Amino Acids
 - Fish oils
 - Antacids containing calcium and/or magnesium



Information entered:

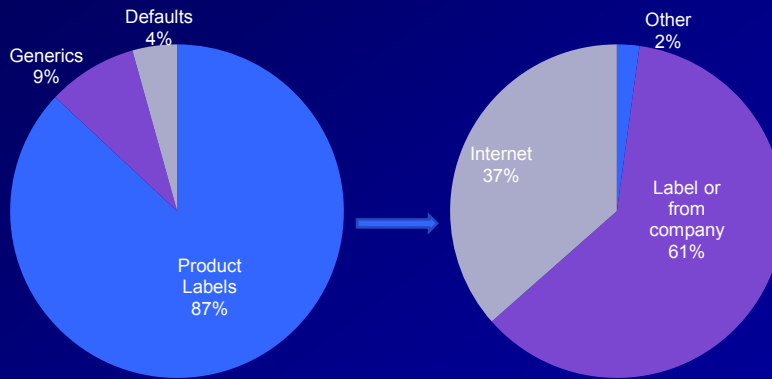
Product name from the front label (e.g. Swanson Premium Brand Cranberry)
 All ingredients from the Supplement Facts Panel and serving size information

Information not collected:

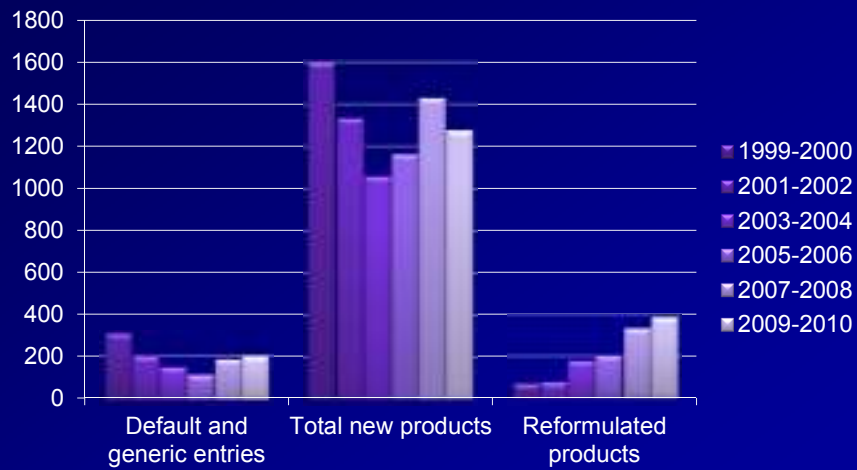
Health claims
 Warnings
 Label statements (e.g. no peanuts)
 Directions
 Other ingredients (outside of the Supplement Facts Panel)
 Label net contents

What's in the Database?

Types of Entries in Database Source of the labels



What is Added to the Database?



WHAT'S NEW

Dietary Supplement 2009-2010 Public Data Release

- NHANES Dietary Supplement Database Files (3 Files)
 - Additional products reported in 2009-10 appended
- Dietary Interviews: Dietary Supplement Files (4 files)

File	Day 1 (Mobile Exam Center)	Day 2 (Phone)
Individual Dietary Supplements File		<ul style="list-style-type: none">• Name and ID number of the supplement• Amount of dietary supplement consumed based on label serving size• Amounts of 33 nutrients from each dietary supplement and antacid
Total Dietary Supplements File		<ul style="list-style-type: none">• Whether a dietary supplement or an antacid was reported in the past 24 hours• Total number of supplements and antacids reported• Daily aggregates of 33 nutrients from all supplements and antacids

30-Day Dietary Supplement Use 2007-2008 and 2009-2010 Data

- Individual Dietary Supplements File
 - Name and ID number of the supplement
 - Motivation(s) for using the supplement
 - Amount of dietary supplement consumed based on label serving size
 - Amounts of 33 nutrients from each dietary supplement and antacid, as calculated using the NHANES Dietary Supplement Database

- Total Dietary Supplements File
 - Whether a dietary supplement or an antacid was reported in the past 30 days
 - Total number of supplements and antacids reported
 - Mean daily intake of 33 nutrients from all supplements and antacids

National Youth Fitness Survey (NYFS) 2012

Trailer and Dietary Interview



Dietary Supplement Collection in NYFS

- ~26% of youth, aged 3 to 15 years, took one or more dietary supplements (NHANES: 1999-2008).
- We will have dietary supplement information on an additional 1500 youth.
- Home Interview: 30-day dietary supplement frequency questionnaire
- Mobile Center: (1) 24-hour recall interview (includes questions on dietary supplement use)

NHANES dietary webpages

http://www.cdc.gov/nchs/nhanes/nhanes2007-2008/diet07_08.htm



Innovative Web-based Dietary Tutorial for the NCHS Data User Community



- Developed by The National Cancer Institute (NCI), National Center for Health Statistics (NCHS), and U.S. Department of Agriculture (USDA) developed this tutorial
- Best practices guide for analyzing NHANES data
- Offers SAS, SUDAAN and Stata analysis tracks
- Accredited for continuing education
- Has reduced new user learning curve
- Recently, ADVANCED dietary tutorial was added

Collaborators

- **ODS/NIH:** Johanna Dwyer, Leila Saldanha, Regan Bailey
- **USDA:** Karen Andrews, Joanne Holden, Janet Roseland
- **CFSAN/FDA:** Constance Hardy
- **CDC/NHANES:** Melissa Dimeler, Vicki Burt, Veronika Litvak, Jayanth Iyengar, Shannon Corcoran

NHANES Website:

<http://www.cdc.gov/nchs/nhanes.htm>



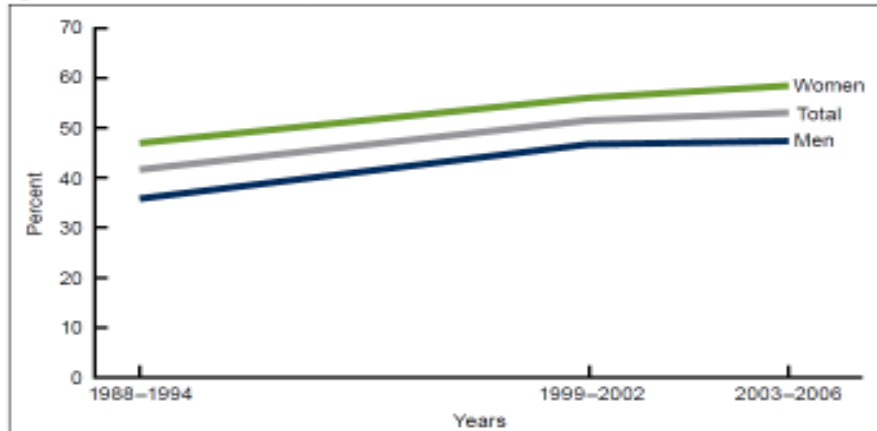
Dietary Tutorial

<http://www.cdc.gov/nchs/tutorials/Dietary/index.htm>

ADDITIONAL SLIDES

Dietary supplement use in the United States has increased since the National Health and Nutrition Examination Survey (NHANES) III (1988–1994).

Figure 1. Trends in the percentage of persons using dietary supplements, by gender for adults aged 20 and over: United States, 1988–2006



NOTES: Significant linear trend from 1988–1994 through 2003–2006. Statistically significant difference for men compared with women for all time periods, $p < 0.05$ for comparison between genders within survey periods. Age adjusted by direct method to the year 2000 projected U.S. population.
SOURCE: CDC/NCHS, National Health and Nutrition Examination Surveys.

Dietary Supplement (DS) Collection, 2007+

	30-Day Frequency Questionnaire	24 Hour Dietary Recall
Target Group	All ages	All ages
Objective	Collect information on DS* use in the past 30 days	Collect information on DS* use in the past 24 hours
Protocol	Home interview, in-person, interviewer-administered	1 st Recall in-person, interviewer-administered in the Mobile Examination Center (MEC) 2 nd Recall collected by telephone, interviewer-administered 3 to 10 days after 1 st recall.
Years included in continuous survey	1999-present	2007-present
Product Information collected	Participants are asked to show the interviewer all product containers. Complete name from the front of the product label are recorded (e.g. brand, product types, strengths) Manufacturer information is recorded	Product names imported from Household Interview. Additional supplements not reported during the frequency questionnaire are collected (container not usually available)
Additional data collected on each product reported	Duration of use, frequency of use in the past 30 days, amount taken when used, reason for taking product†	Amount taken in the past 24 hours

*NHANES collects information on non-prescription antacids because many contain calcium and/or magnesium. The collection protocol is similar to the DS protocol.
† Question added in 2007.

30-Day Dietary Supplement Use

Individual Dietary Supplements File (30 Days)

Respondent sequence number	Supplement ID number	Supplement name	Days Supplement taken, past 30 days	Reported serving size/label serving size	Folic acid (mcg)	Folate, DFE (mcg)	Vitamin D (D2 + D3) (mcg)	Calcium (mg)	To improve my overall health	For bone health
49344	1000031302	FLINTSTONES COMPLETE CHILDREN'S MULTIVITAMIN / MULTIMINERAL NEW! IMPROVED FORMULA WITH CHOLINE	12	1	400	680	10	100	1	
49339	1000115601	KROGER COMPLETE SENIOR MULTIVITAMIN MULTIMINERAL FOR MATURE ADULTS WITH LYCOPENE	30	1	400	680	10	200	1	
49339	1000531200	NATURE MADE TRIPLE FLEX TRIPLE STRENGTH 1,500 MG GLUCOSAMINE 1,200 MG CHONDROITIN 250 MG MSM	30	1				25		1
49339	1888012000	VITAMIN D 1000 IU	30	1						1
49339	1888012300	VITAMIN E 400 IU	30	2						1
49338	1000135001	NATURE'S SUNSHINE MEGACHEL	30	0.5	66.5	113.05	2.7	66.5	1	
49338	1000631600	SCHIFF MOVE FREE ADVANCED 2 PER DAY	30	1						1

Total Dietary Supplements File (30 days)

Respondent Sequence number	Any Dietary Supplements taken?	Total # of Dietary Supplements Taken	Folic Acid (mcg)	Folate, DFE (mcg)	Vitamin D (D2 + D3) (mcg)	Calcium (mg)
49344	1	1	160	272	4	40
49343	2	0				
49342	2	0				
49341	2	0				
49340	2	0				
49339	1	4	400	680	35	200
49338	1	2	66.5	113.1	2.7	66.5
49337	2	0				
49336	2	0				
49335	2	0				

30-Day Dietary Supplement Use

- File name has changed
- File includes additional variables
- Includes only participants who took a DS

- Label amount based on amount taken for each product
- 33 Nutrient variables

Individual Dietary Supplements File (30 Days)

Respondent sequence number	Supplement ID number	Supplement name	Days Supplement taken, past 30 days	Reported serving size / label serving size	Folic acid (mcg)	Folate, DFE (mcg)	Vitamin D (D2 + D3) (mcg)	Calcium (mg)	To improve my overall health	For bone health
49344	1000031302	FLINTSTONES COMPLETE CHILDREN'S MULTIVITAMIN / MULTIMINERAL NEW! IMPROVED FORMULA WITH CHOLINE	12	1	400	680	10	100	1	
49339	1000115601	KROGER COMPLETE SENIOR MULTIVITAMIN MULTIMINERAL FOR MATURE ADULTS WITH LYCOPENE	30	1	400	680	10	200		
49339	1000531200	NATURE MADE TRIPLE FLEX TRIPLE STRENGTH 1,500 MG GLUCOSAMINE 1,200 MG CHONDROITIN 250 MG MSM	30	1						1
49339	1888012800	VITAMIN D 1000 IU	30	1			25			
49339	1888013300	VITAMIN E 400 IU	30	2						
49338	1000135801	NATURE'S SUNSHINE MEGA-CHEL SCHIFF MOVE FREE ADVANCED 2 PER DAY	30	0.5	66.5	113.05	2.7	66.5		
49338	1000631600	CENTRUM SILVER MULTIVITAMIN / MULTIMINERAL FOR ADULTS 50+ FROM A TO ZINC NOW WITH LYCOPENE	30	1	400	680	10	200		1
49333	1000029102	CENTRUM SILVER MULTIVITAMIN / MULTIMINERAL FOR ADULTS 50+ FROM A TO ZINC NOW WITH LYCOPENE	30	1	400	680	10	200		
49333	1888082801	DEFAULT VITAMIN E	30	1						
49329	1000042301	TUMS REGULAR STRENGTH ANTACID / CALCIUM	1	2				800		
49329	1000048703	GNC WOMEN'S ULTRA MEGA CALCIUM, 80 MG B-VITAMIN COMPLEX WITH LUTEN AND ALPHA-LIPOIC ACID	30	0.5	200	340				

- Reported Serving Size ÷ Label Serving Size

- Motivation(s) for each DS reported indicated (36 categories)

30-Day Dietary Supplement Use

- File name has changed
- File includes additional variables
- Includes all participants

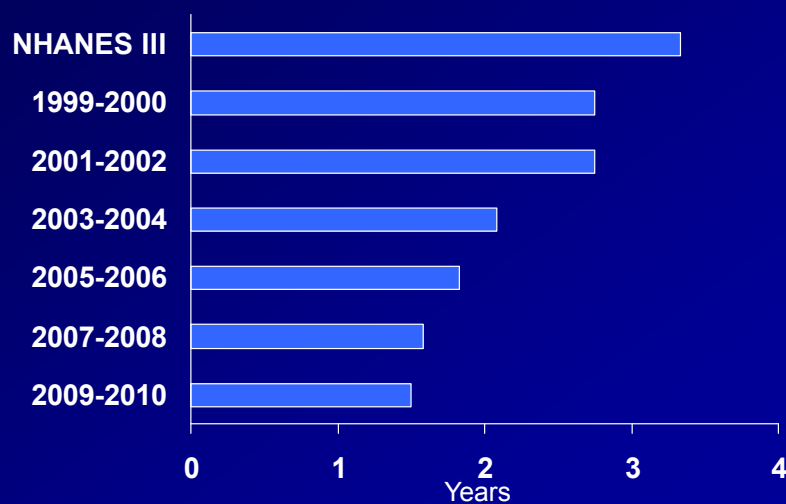
Total Dietary Supplements File (30 days)

Respondent Sequence number	Any Dietary Supplements taken?	Total # of Dietary Supplements Taken	Folic Acid (mcg)	Folate, DFE (mcg)	Vitamin D (D2 + D3) (mcg)	Calcium (mg)
49344	1	1	160	272	4	40
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49340	2	0
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49337	2	0
49336	2	0
49335	2	0

Mean daily intake for 33 nutrients estimated
 amount taken * label concentration * # of days taken in past 30 days
 30 days

Energy and Macronutrients	Vitamins, Minerals, and Other Components
Food energy (kcal)	Lycopene (µg)
Protein (g)	Lutein + zeaxanthin (µg)
Carbohydrate (g)	Vitamin D (D2 + D3) (µg)
Fat, total (g)	Vitamin K as phylloquinone (µg)
Sugars, total (g)	Vitamin C (mg)
Dietary fiber, total (g)	Thiamin (mg)
Saturated fatty acids, total (g)	Riboflavin (mg)
Monounsaturated fatty acids, total (g)	Niacin (mg)
Polyunsaturated fatty acids, total (g)	Vitamin B-6 (mg)
Cholesterol (mg)	Folic acid (µg)
	Dietary folate equivalents (µg)
	Choline, total (mg)
	Vitamin B-12 (µg)
	Calcium (mg)
	Iron (mg)
	Magnesium (mg)
	Phosphorus (mg)
	Potassium (mg)
	Sodium (mg)
	Zinc (mg)
	Copper (mg)
	Selenium (µg)
	Caffeine (mg)

How long does it take to release the NHANES Dietary Supplements Files?



NHANES Dietary Supplement Database 1999+

- Internal database; developed in-house
- Labels obtained from manufacturers/distributors/internet/PDR
- Database included more information from labels than previous survey
- Reformulation tracking system built in to database
- Single nutrients – entered as GENERICS!

Dietary Supplement Database

The screenshot displays the 'Product Information' tab of the 'DHES United Mineral and Product Supplement Database' software. The interface includes a menu bar (File, Reports, Utility, Window, Help) and several tabs: Product Information, Ingredient Information, Manufacturer/ Distributor Information, and Contact Person. A 'States:' dropdown menu is set to 'Browse'. The main form contains the following fields and values:

Product Code:	1-900-0289-04	Generic Product:	<input type="checkbox"/>	Entry Checked:	<input checked="" type="checkbox"/>
Date of receipt/Issue:	06/03/2010	Product Last Verified Date:	0000/0000		
Product Name:	CENTRUM MULTIVITAMIN / MULTIMINERAL COMPLETE FROM A TO ZINC				
Source of Product Info:	PRODUCT LABEL, CARTON, PACKAGING OR INSERT				
Product Status:	REFORMULATED (PRODUCT NAME MAY HAVE CHANGED AS)				
Changes Since last Version:	NAME CHANGED; LESS VIT. C, FOLIC ACID, P, B6, CU, B; REMOVED LUTEN, LYCOPENE				
Product Type:	STANDARD FORMULATION				
Serving Size Quantity:	1.00	Product Form:	TABLET		
Serving Size Unit:	TABLET				
Suggested Daily Quantity:	1.00	To:			
Alternative Serving Size Form:					
Label Classification:	NM				

At the bottom of the form, there are buttons for 'Create New Version', 'Edit', 'Save', and 'Close'.

Future

- A move to do it all!
- Label database
- Analytic database
- Scanners for labels for better collection

NHANES Dietary Supplement Database

DHES Unified Mineral and Product Supplement Database

File Reports Utility Window Help

Product Information | Ingredient Information | Manufacturer/ Distributor Information | Contact Person

Status:
Browse

Product Code:	1-000-0289-04	Generic Product:	<input type="checkbox"/>	Entry Checked:	<input checked="" type="checkbox"/>
Date of receipt/Issue:	06/03/2010	Product Last Verified Date:	00/00/0000		
Product Name:	CENTRUM MULTIVITAMIN / MULTIMINERAL COMPLETE FROM A TO ZINC				
Source of Product Info:	PRODUCT LABEL, CARTON, PACKAGING OR INSERT				
Product Status:	REFORMULATED (PRODUCT NAME MAY HAVE CHANGED AI				
Changes Since last Version:	NAME CHANGED; LESS VIT. C, FOLIC ACID, R, Mg, CU, B; REMOVED LUTEIN, LYCOPENE				
Product Type:	STANDARD FORMULATION				
Serving Size Quantity:	1.00	Product Form:	TABLET		
Serving Size Unit:	TABLET				
Suggested Daily Quantity:	5.00	To:			
Alternative Serving Size Form:					
Label Classification:	VM				

Create New Version Edit Save Close