



National Health and Nutrition Examination Survey 1999–2016 Survey Content Brochure



National Center for Health Statistics
National Health and Nutrition Examination Survey



The Survey Content Brochure is a summary of the available 1999–2016 NHANES data.

The National Health and Nutrition Examination Survey (NHANES) is a program of studies designed to assess the health and nutritional status of adults and children in the United States. The survey is unique in that it combines interviews with physical and laboratory examinations.

The NHANES program began in the early 1960s and has been conducted as a series of surveys focusing on different population groups or health topics. The historical surveys are referred to as NHANES I, NHANES II, and NHANES III.

In 1999, the survey became a continuous program that has adaptable components on a variety of health and nutrition measurements to meet emerging needs. The survey examines a nationally representative sample of about 5,000 persons each year. These persons are located in counties across the country, 15 of which are visited each year.

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**Table 1. Questionnaire topic areas of the National Health and Nutrition Examination Survey, 1999–2016 (Continued)**

| Component | Sample description | Component or lab test conducted on original sample description | | | Change from original sample description | | Component or lab test not conducted | | | | |
|-------------------------------------|------------------------------|--|-----------|-----------|---|-----------|-------------------------------------|-----------|-----------|-----------|--------|
| | | 1999–2000 | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2011–2012 | 2013–2014 | 2015–2016 | |
| Pesticide exposure (PUQ) | 8 years and over | | | | | | | | | | |
| Physical activity (PAQ) | 12–15 years | | | | | | | | | | |
| Prostate conditions (KIQ) | Males 20 years and over | | | | | | | | | | |
| Reproductive health (RHQ) | Females 12 years and over | | | | | | | | | | |
| Smoking and tobacco use (SMQ)—Adult | 20 years and over | | | | | | | | | | Note K |
| Urology (KIQ) | 20 years and over | | | | | | | | | | |
| Volatile toxicants (VTQ) | 1/3 sample 12 years and over | | | | | | | | | | |
| Weight history (WHQ) | 8–15 years | | | | | | | | | | |

*Upcoming survey cycle.

¹Except where noted otherwise.

²In 2001–2010, adult and child person-level food security data was collected after the dietary recall.

Note A: Moved to MEC questionnaire and expanded.

Note B: Aged 20–59 years.

Note C: Asked in family questionnaire.

Note D: Aged 16 years and over.

Note E: Aged 18 years and over.

Note F: Aged 30 years and over from 2009–2010 and 1 year and over from 2011–2014.

Note G: Aged 5 years and over.

Note H: Aged 40 years and over.

Note I: Started in 2012.

Note J: Aged 6 years and over.

Note K: Aged 12 years and over.

Note L: Found in SP questionnaire.

Note M: Found in MEC interview.

Note N: Aged 12–17 years.

Note O: Aged 12–69 years.

Note P: Found in SP questionnaire KIQ component.

Note Q: Moved to CAPI.

Note R: Aged 14–69 years.

Note S: Added questions related to the enhanced fluorosis examination.

Note T: Aged 3 years and over.

Note U: Added questions related to anxiety and depression.

Table 2. Post-examination follow-up questionnaire components of the National Health and Nutrition Examination Survey, 1999–2016



| Component | Sample description | Component or lab test conducted on original sample description | | | Change from original sample description | | | Component or lab test not conducted | | | |
|---|--|--|-----------|-----------|---|-----------|-----------|-------------------------------------|-----------|-----------|--|
| | | 1999–2000 | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2011–2012 | 2013–2014 | 2015–2016 | |
| Flexible consumer behavior survey module (FCBS) phone follow-up (CBQ) | 1 year and over | | | | | | | | | | |
| Food frequency | 2 years and over | | | | Note A | | | | | | |
| Hepatitis C follow-up (HCQ) | SPs with Hep C | | | | | | | | | | |
| Prostate-specific antigen (PSA) follow-up | Men 40 years and over with high results ¹ | | | | | Note B | | | | | |

*Upcoming survey cycle.

¹Except where noted otherwise.

Note A: Data collected by mail.

Note B: Conducted with men aged 40–70 years.

Table 4. Laboratory components of the National Health and Nutrition Examination Survey, 1999–2016

| Component | Sample description | 1999–2000 | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2011–2012 | 2013–2014 | 2015–2016 |
|--------------------------------------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|
| Acrylamide | 3 years and over ¹ | | | | | | Note A | | | Note A |
| Albumin ² | 6 years and over | | | | | | | | | Note LL |
| Albumin (home urine) ² | | | | | | | Note B | | | |
| Aldehydes | 1/3 sample (12 years and over) and all adult smokers | | | | | | | | | |
| Apolipoprotein (B) | 1/2 sample 12 years and over | | | | | | | | | Note C |
| Aromatic amines ² | 1/3 sample (6 years and over) and all adult smokers | | | | | | | | | Note NN |
| Arsenic ² | 1/3 sample 6 years and over | | | | | | | | Note MM | Note MM, NN |
| Bone alkaline phosphatase | 8 years and over ¹ | | | Note D | | | | | | |
| BV/trichomonas | Females 14–49 years | | | | | | | | | |
| Cadmium | 1 year and over | | | | | | | | | Note JJ |
| Caffeine exposure ² | 1/3 sample (6 years and over) | | | | | | | | | |
| CD4/CD8 | 18–49 years, HIV+, and controls | | | | | | | | | |
| Celiac disease (tTG-EMA) | 6 years and over | | | | | | | | | |
| Chemistry panel | 12 years and over | | | | | | | | | |
| Chlamydia ² | 14–39 years | | | | | | | | | |
| Cholesterol (total) | 3 years and over ¹ | | | | | | | | | Note A |
| High density lipoprotein (HDL) | 3 years and over ¹ | | | | | | | | | Note A |
| Low density lipoprotein (LDL) | Subsample 3 years and over ¹ | | | | | | | | | Note E |
| Chromium/Cobalt | 40 years and over | | | | | | | | | |
| Complete blood count | 1 year and over | | | | | | | | | |
| Cotinine | 3 years and over | | | | | | | | | |
| C-reactive protein (CRP) | 3 years and over ¹ | | | Note F | | | Note G | | | Note F |
| Creatine phosphokinase | 12 years and over | | | | | | | Note H | | |
| Creatinine ² | 6 years and over | | | | | | | | | Note LL |
| Creatinine (home urine) ² | 6 years and over | | | | | | | Note B | | |

See footnotes at end of table.

Table 4. Laboratory components of the National Health and Nutrition Examination Survey, 1999–2016 (continued)

| Component | Sample description | 1999–2000 | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2011–2012 | 2013–2014 | 2015–2016 |
|--|---|-----------|-----------|-----------|-----------|-----------|-----------|---|--|------------------|
| Heterocyclic aromatic amines ² (Tobacco Markers) | 1/3 sample (6 years and over) and all adult smokers | | | | | | | | ■ Component or lab test conducted on original sample description | |
| HLA-B27 (inflammatory arthritis) | 20–69 years | | | | | | | ■ Change from original sample description | ■ Note N | |
| Homocysteine | 3 years and over ¹ | | | | ■ Note O | | | | | |
| Human immunodeficiency virus (HIV) antibody | 18–49 years | | | | | | | | | ■ Note P |
| Human papillomavirus (HPV) (oral rinse) | 14–69 years | | | | | | | | | |
| Human papillomavirus (HPV) (serum) | 14–59 years | | | ■ Note Q | | | | | | |
| Human papillomavirus (HPV) (swab) | Females 14–59 years | | | ■ Note Q | | | | | | |
| Human papillomavirus (HPV) (male) | 14–59 years | | | | | | | | | |
| Hydroxylated polychlorinated biphenyls | 1/3 sample 12 years and over | | | | ■ Note S | | | | | |
| Immunoglobulin E-allergens | 1 year and over | | | | | ■ Note T | | | | |
| Insulin/C-peptide | Subsample 12 years and over | | | | | | | | | ■ Note R, Note C |
| Iodine ² | 1/3 sample 6 years and over ¹ | ■ Note S | | | | | ■ Note S | | | ■ Note NN |
| Iron | 1 year and over | | | | | | | | | |
| Latex | 12–59 years | | ■ Note I | | | | | | | |
| Lead | 1 year and over | | | | | | | | | ■ Note JJ |
| Lead dust | Households with 1–5 years | | | | | | | | | |
| Lp(a) (Lipoprotein(a)) | Subsample 12 years and over | | | | | ■ Note U | | | | |
| Manganese ² | 1/3 sample 6 years and over | | | | | | | | | |
| Measles/varicella/rubella | 6–49 years | | | | ■ Note V | | | | | |
| Mercury | 1–5 years, females 16–49 years ¹ | | | | | | | | | ■ Note F |
| Mercury (hair) | 1–5 years, females 16–49 years | | ■ Note I | | | | | | | |
| Mercury ² | Females 16–49 years ¹ | | | | | | ■ Note W | | | ■ Note NN |

See footnotes at end of table.

Table 4. Laboratory components of the National Health and Nutrition Examination Survey, 1999–2016 (continued)

| Component | Sample description | Component or lab test conducted on original sample description | | | Change from original sample description | | | Component or lab test not conducted | | | |
|--|---|--|-----------|-----------|---|-----------|-----------|-------------------------------------|-----------|-----------|----------------|
| | | 1999–2000 | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2011–2012 | 2013–2014 | 2015–2016 | |
| Metals ² | 1/3 sample 6 years and over | | | | | | | | | | Note MM, NN |
| Methicillin resistant staphylococcus aureus (MRSA) | 1 year and over | | | | | | | | | | |
| Methylmalonic acid | 3 years and over ¹ | | | | | | | | | | Note O |
| NAL ² | 6 years and over | | | | | | | | | | Note W, MM, NN |
| Nicotine analogs ² | 1/3 sample (6 years and over) and all adult smokers | | | | | | | | | | Note NN |
| Nondioxin-like polychlorinated biphenyls | 1/3 sample 12 years and over | | | | Note II | | | | | | Note II |
| N-teleopeptide ² (NTX) | 8 years and over | | | | | | | | | | |
| Oral glucose tolerance (OGTT) | Subsample 12 years and over | | | | | | | | | | Note C |
| Organophosphate insecticides ² | 1/3 sample 6 years and over ¹ | Note L | | | | | | | | | Note NN |
| Osmolality ² | 6 years and over | | | | | | | | | | |
| Parathyroid hormone | 6 years and over | | | | | | | | | | |
| Perchlorate/thiocyanate/nitrates ² | 6 years and over ¹ | | | | | | | | | | Note MM, NN |
| Perchlorate (water) | 1/2 sample 12 years and over | | | | | | | | | | |
| Pesticides ² | 1/3 sample 6 years and over | | | | | | | | | | Note NN |
| • Organochlorine ² | 1/3 sample 12 years and over | | | | | | | | | | |
| • Other ² | 1/3 sample 6 years and over ¹ | Note L | | | | | | | | | |
| • Pyrethroid ² | 1/3 sample 6 years and over ¹ | | | | | | | | | | |
| Phthalates ² | 1/3 sample 6 years and over | | | | | | | | | | Note NN |
| Phytoestrogens ² | 1/3 sample 6 years and over | | | | | | | | | | |

See footnotes at end of table.

Table 4. Laboratory components of the National Health and Nutrition Examination Survey, 1999–2016 (continued)

| Component | Sample description | Component or lab test conducted on original sample description | | | | | | | | | | Change from original sample description | Component or lab test not conducted |
|---|---|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|---|-------------------------------------|
| | | 1999–2000 | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2011–2012 | 2013–2014 | 2015–2016 | | | |
| Polyaromatic hydrocarbons ² (PAH) | 1/3 sample 6 years and over | | | | | | | | | | Note MM | Note MM, NN | |
| Polybrominated diphenyl ethers | 1/3 sample 12 years and over | | | | | | | | | | Note II | | |
| Polychlorinated and polybrominated dibenz-p-dioxins, dibenz-furans, coplanar and mono-ortho-substituted biphenyls | 1/3 sample 12 years and over | | | | | | | | | | Note II | | |
| Polyfluorinated compounds | 1/3 sample 12 years and over ¹ | Note Z | | | | | | | | | | | |
| Polyunsaturated fatty acids | 3–11 years, a.m. SPs 12 years and over | | | | | Note AA | | | | | | | |
| Prostate specific antigen (PSA) | Males 40 years and over | | | | | | | | | | | | |
| Selenium/copper/zinc | 3–11 years ¹ | | Note BB | | Note CC | | | | | | Note DD | | |
| Sex hormone binding globulin | 6 years and over | | | | | | | | | | | | |
| Stored sera | 6 years and over | | | | | Note EE | | | | | | | |
| Stored urine | 6 years and over | | | | | | | | | | | Note NN | |
| Syphilis | 18–49 years | | | | | | | | | | | | |
| Testosterone | 6 years and over | | | | | | | | | | | | |
| Thyroid function testing | 1/3 sample 12 years and over ¹ | | | | | | Note FF | | | | | | |
| Tobacco-specific nitrosamines ² | 1/3 sample (6 years and over) and all adult smokers | | | | | | | | | | | Note NN | |
| Total iron binding capacity (TIBC)/transferrin saturation | 1 year and over ¹ | | | | Note T | | | | | | | | |
| Toxaphenes | 1/3 sample 12 years and over | | | | | | | | | | | | |
| Toxoplasma | 6–49 years | Note Z | | | | | | | | | | | |
| Trans fatty acids | 3–11 years, a.m. SPs 12 years and over | | | | | | | | | | | | |
| Transferrin receptor | 1–5 years, females 12–49 years | | | | | | | | | | | | |

See footnotes at end of table.

Table 4. Laboratory components of the National Health and Nutrition Examination Survey, 1999–2016 (continued)

| Component | Sample description | 1999–2000 | 2001–2002 | 2003–2004 | 2005–2006 | 2007–2008 | 2009–2010 | 2011–2012 | 2013–2014 | 2015–2016 |
|---|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Trichomonas | 14–59 years | | | | | | | | | |
| Triglycerides | Subsample 3 years and over ¹ | | | | | | | | | |
| Tuberculosis | 6 years and over | | | | | | | | | |
| Urine flow rate calculation ² | 6 years and over | | | | | | | | | |
| Vitamin A/E/carotenoids | 3 years and over ¹ | | | | | Note A | | | | |
| Vitamin B6 | 1 year and over | | | | | | | | | |
| Vitamin B12 | 3 years and over ¹ | | | | | Note F | | | | |
| Vitamin C | 6 years and over | | | | | | | | | |
| Vitamin D | 6 years and over ¹ | | | | | | | | | |
| Volatile nitrosamines ² | 1/3 sample (6 years and over) and all adult smokers | | | | | | | | | |
| Volatile organic compounds (VOCs) | Subsample 20–59 years ¹ | | | | | | | | | |
| Volatile organic compounds (VOC) exposure monitor | Subsample 20–59 years | | Note I | | | | | | | |
| Volatile organic compounds (VOC) (urine) | Subsample (6 years and over) and all adult smokers | | | | | | | | | Note NN |
| Volatile organic compounds (VOC) (water) | Subsample 20–59 years ¹ | | | | | | | | | |
| White blood cells/deoxyribonucleic acid (WBC/DNA) | 20 years and over | | | | | | | | | |

^{*}Upcoming survey cycle.¹Except where noted otherwise.²Urine sample.

Note A: Aged 6 years and over. Beginning in 2013, Acrylamide test was conducted on one-third sample 6 years and over.

Note B: Second specimen is collected in home.

Note C: Morning SPs only.

Note D: Aged 8–49 years.

Note E: Aged 12 years and over; morning SPs only.

Note F: Aged 1 year and over.

Note G: In 2007–2008, for ages 20 and over; for ages 3 years and over in 2009–2010.

Note H: Data collection started in 2010.

Note I: Data collection ended in 2001.

Note J: Aged 3–5 years and females aged 12–49 years.

Note K: Aged 1–5 years and females aged 12–49 years.

Table 4. Laboratory components of the National Health and Nutrition Examination Survey, 1999–2016 (continued)

Note L: In 1999, subsample was one-fourth of those aged 12–59 years; in 1999–2002, subsample was one-half of those aged 6–11 years.
Note M: Started hepatitis E in 2009.
Note N: Conducted in 2009 only.
Note O: Aged 20 years and over.
Note P: Aged 18–59 years.
Note Q: Data collection began in 2002.
Note R: Insulin only.
Note S: Data collection began in 2000 and was a full sample in 2007–2008 only.
Note T: Age range changed to 3–5 years and females aged 12–59 years.
Note U: Conducted in 2005 only.
Note V: Mumps added.
Note W: Conducted on a one-third sample of SPs aged 6 years and over.
Note X: Analyzed retrospectively from surplus sera, 2001–2004; in 2005–2012, subsample was one-third of those aged 6 years and over.
Note Y: In 2001–2002, subsample was one-half of those aged 6–11 years.
Note Z: Analyzed retrospectively from surplus sera, 1999–2000.
Note AA: Analyzed retrospectively from surplus sera, 2003–2006.
Note BB: Selenium ended in 2001.
Note CC: In 2003–2004, selenium was conducted on SPs aged 40 years and over.
Note DD: Copper and zinc added. conducted on one-third sample on SPs aged 6 years and over.
Note EE: Reduced number of vials.
Note FF: In 2007–2008, full sample.
Note GG: Vitamin D began in 2000; in 2003–2012, vitamin D was conducted on SPs aged 1 year and over.
Note HH: Conducted on a one-half sample of SPs aged 12 years and over.
Note II: The individual serum samples were assigned by age, race and ethnicity, and gender groups; then the serum was pooled and tested by each group.
Note JJ: All SPs aged 1–11 years; one-half sample aged 12 years and over.
Note KK: Aged 40 years and over.
Note LL: Aged 3 years and over.
Note MM: Smokers aged 20 years and over added.
Note NN: Ages 3–5 added.
Note OO: Remove polybrominated dioxins and polybrominated furans.

Appendix. Acronyms and abbreviations used in the National Health and Nutrition Examination Survey

| | |
|------------|---|
| ACASI | Audio computer-assisted self-interview |
| ADHD | Attention deficit hyperactivity disorder |
| BV | Bacterial vaginosis |
| CAPI | Computer-assisted personal interview |
| CBQ | Consumer behavior questionnaire |
| CD4/CD8 | T lymphocyte helper cells |
| CDISC | National Institute of Mental Health's Computerized Diagnostic Interview Schedule for Children |
| CIDI | World Health Organization's Composite International Diagnostic Interview |
| CRP | C-reactive protein |
| CV fitness | Cardiovascular fitness |
| FCBS | Flexible Consumer Behavior Survey module |
| FSH/LH | Follicle stimulating hormone/luteinizing hormone |
| HBs | Hepatitis B surface antibody |
| HDL | High density lipoprotein |
| HIV | Human immunodeficiency virus |
| HLA-B27 | Human leukocyte antigen B27 |
| HPV | Human papillomavirus |
| LDL | Low density lipoprotein |
| Lp(a) | Lipoprotein (a) |
| MEC | Mobile examination center |
| MRSA | Methicillin resistant staphylococcus aureus |
| NTX | N-telopeptides of bone type I collagen |
| OGTT | Oral glucose tolerance test |
| PAH | Polyaromatic hydrocarbons |
| PSA | Prostate specific antigen |
| PTH | Parathyroid hormone |
| RBC | Red blood cell |
| SP | Survey participant |
| TH | Thyroxin |
| TIBC | Total iron binding capacity |
| TSH | Thyroid stimulating hormone |
| TTG-EMA | Anti-transglutaminase (tTG) and anti-endomysium (EMA) antibodies |
| VOC | Volatile organic compounds |
| WBC/DNA | White blood cells/deoxyribonucleic acid |

NHANES Data Tutorials

NHANES data tutorials provide relevant background data; tips and explanations for SAS and SUDAAN programs; downloadable sample program code; and analytic guidance. Tutorials are organized and integrated into modules and tasks to facilitate this learning process.

Continuous NHANES Tutorial

Everything you want and need to know about analyzing continuous (1999 and later) NHANES data is now available in a web-based product. The Continuous NHANES Tutorial is designed to help users navigate through the data set. Users can browse through different modules to gain insight into NHANES data.

Historical NHANES Tutorials

These tutorials will familiarise users with NHANES I, NHANES II, and NHANES III data, guide users through preparing an analytic data set, and explain distinctions of each survey design. New users of NHANES data should complete the continuous NHANES tutorial before using these tutorials.

Special -topic Tutorials

■ NHANES Dietary Tutorial

This tutorial guides users through the steps of conducting an analytical project from beginning to end, with examples of many common analytic procedures.

■ NHANES Environmental Chemical Data Tutorial

This tutorial will familiarize users with Continuous NHANES environmental chemical data, guide users through preparing an environmental chemical analytic data set, and explain the critical issues for the analysis of environmental chemical data. Users already familiar with Continuous NHANES data and interested in using NHANES environmental chemical data should use this tutorial. New users of NHANES data should complete the Continuous NHANES tutorial before beginning this tutorial.

■ NHANES Physical Activity and Cardiovascular Fitness Data Tutorial

This tutorial simulates a real life experience of how to conduct an analytical project from beginning to end, with a step-by-step logical flow through typical analytic procedures.

■ NHANES-CMS (Centers for Medicare and Medicaid Services) Linked Data Tutorial

This tutorial walks you through the steps for conducting an analytic project using the continuous NHANES-CMS linked data, with examples of common analytic applications and procedures.

Visit the NHANES tutorial website: <http://www.cdc.gov/nchs/tutorials/>

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