

Review of National Survey Data on Eye Health Vision & Eye Health Surveillance System

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DISCLAIMER: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of NORC at the University of Chicago or the Centers for Disease Control and Prevention.

Introduction

The Vision and Eye Health Surveillance System (VEHSS)

The Centers for Disease Control and Prevention (CDC) issued a cooperative agreement with NORC at the University of Chicago (NORC) to establish a vision and eye health surveillance system (VEHSS) for the nation. The VEHSS initiative aims to combine and analyze multiple existing data sources to address knowledge gaps in vision and eye health surveillance. To achieve this, the project team must identify and prioritize available sources of secondary information, define common outcome indicators, analyze and report outcomes from individual data sources, and resolve methods to harmonize or integrate multiple data sources to produce integrated national and state estimates of condition prevalence and service utilization. As an initial step, the VEHSS team reviewed national surveys for potential inclusion in the surveillance system.

This report provides a high-level overview of the vision and eye-health related questions included in sixteen national surveys. The included surveys are as follows (in alphabetical order):

1. American Community Survey
2. Behavioral Risk Factors Surveillance System
3. Health and Retirement Study
4. Longitudinal Supplement on Aging
5. Medicare Current Beneficiary Survey
6. Medical Expenditure Panel Survey
7. National Ambulatory Medical Care Survey
8. National Health Interview Survey
9. National Health and Nutrition Examination Survey
10. National Hospital Ambulatory Medical Care Survey
11. National Nursing Home Survey
12. National Social Life, Health, and Aging Project
13. National Survey of Child and Adolescent Well-Being
14. National Survey of Children's Health
15. National Survey of Children with Special Health Care Needs
16. Survey on Income and Program Participation

This report begins with tables presenting an overview of select aspects of the survey methodology and types of vision-related data collected. Table 1 reflects each survey's overall methodology; depending on individual questionnaire administration as well as question skip patterns, some elements (e.g., sample size and response rate) may vary between modules or questions within each survey. The tables are followed by descriptions of each survey and the vision-related questions each contains between 1999 and 2015. The text describing each survey has been modified directly from the sources noted; a link to the original source is provided under the 'Source' heading for each survey.

Our review indicates that in the US, no standardized set of vision health self-report survey questions exists in the United States. While many surveys ask similar questions about similar domains (i.e., visual functioning, eye disease, healthcare utilization, etc.), question wording both between surveys and between years vary within the same survey. In addition to question wording changes over the multi-year course of a survey, vision-related questions may be added or discontinued. Additionally, our review shows a lack of examination data (see Appendix A); the underreporting by interviewed individuals of un-diagnosed (i.e., unknown) eye disorders or vision loss; and sample restriction (e.g., exclusion of nursing homes).

Table 1. Overview of national survey methodology

| | ACS | BRFSS | HRS | LSOA | MCBS | MEPS | NAMCS | NHIS | NHANES | NHAMCS | NNHS | NSHAP | NSCAW | NSCH | NSC-SHCN | SIPP |
|--|----------------|------------------|-------|-------------|--------|----------|------------------|--------|---------------------------------|---------------------------|-------|-------|-----------------------|---------------------|---------------------|--------|
| <i>Nationally Representative</i> | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| <i>State-Level Data</i> | . | . | | | | | | . | | | | | | . | . | |
| <i>Age</i> | All | 18+ | 50+ | 70+ | 65+ | All | All | All | All* | All | 18+ | 50+ | Birth-14 | < 18 | < 18 | All |
| <i>Continued vision data collection expected</i> | . | .^ | . | | . | . | . | . | . | . | | . | . | . | . | . |
| <i>Mode</i> P = Phone I = In-Person M = Multi-Mode Phys. = Physician | M | P | P | M | I | I + Phys | Phys. | I | I | Phys. | I | M | I | P | P | M |
| <i>Rspndnt.</i> H = Household Ind. = Individual C = Caregiver | H | Ind. | H | Ind. | Ind. | H | Ind. | H | Ind. | Ind. | H | Ind. | C | C | C | H |
| <i>Sample Size**</i> | Over 3 million | 506,000 | 9,600 | 9,500 | 40,000 | 35,100 | 76,300 | 87,500 | 14,300/ 9,800 (int./exam) | 31-32,000 (respondent) | 8,200 | 3,400 | 5,900 | 95,700 | 40,200 | 34,900 |
| <i>Response Rate **</i> | 97 | 25-60 (state) | 89 | 69 | 84-95 | 53 | 32-59 (state) | 80 | 71/69 (int./exam) | 67-85 (respondent) | 93 | 74 | 80/94 (respondent) | 38/16/23 (frame) | 44/15/26 (frame) | 65 |
| <i>Primary Agency</i> | Census | CDC | NIA | CDC/ NIA | CMS | AHRQ | CDC | CDC | CDC | CDC | CDC | NIA | OPRE | MCHB | MCHB | Census |

^ Vision Module data is only available for a subsample of participants age 40 or older *More detailed health examination data is only available for respondents age 25-74.

**Sample size and response rate are rounded and reported for the overall survey for the most recent year that data is available.

Table 2. Overview of National Survey Vision-related Questions

| | ACS | BRFSS | HRS | LSoA | MCBS | MEPS | NAMCS | NHIS | NHANES | NHAMCS | NNHS | NSHAP | NSCAW | NSCH | NSC-SHCN | SIPP |
|-----------------------------|-----|-------|-----|------|------|------|-------|------|--------|--------|------|-------|-------|------|----------|------|
| Visual Functioning | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| <i>Impairment-ACS</i> | • | • | | • | | • | | • | | | • | | | | • | • |
| <i>Impairment -Other</i> | | | • | | • | • | | | • | | • | • | • | • | • | |
| <i>Blind</i> | | | | • | • | • | • | • | • | • | | • | • | • | | |
| <i>Myopia</i> | | • | • | | • | • | | • | • | | | | | | | • |
| <i>Hyperopia</i> | | • | • | | | • | | • | • | | | | | | | |
| <i>Peripheral Vision</i> | | | | | | | | • | • | | | | | | | |
| <i>Light</i> | | | | | | | | • | • | | | | | | | |
| <i>Aids</i> | | | | • | • | • | | • | | | • | • | • | | • | |
| <i>Length of Problem</i> | | | | | | | | • | • | | | | • | • | | |
| <i>Life Impact</i> | | | | | • | | | • | • | | • | • | | | | • |
| Eye Disease | | • | • | • | • | • | • | • | • | • | | | | | | |
| <i>Cataracts</i> | | • | • | • | • | | • | • | • | • | | | | | | |
| <i>Glaucoma</i> | | • | • | | • | | • | • | • | • | | | | | | |
| <i>Macular Degeneration</i> | | • | | | • | | • | • | • | • | | | | | | |
| <i>Diabetic Retinopathy</i> | | • | | | • | • | • | • | • | • | | | | | | |
| Examination Data | | | • | | | | | | • | | | • | | | | |
| <i>Visual Acuity</i> | | | • | | | | | | • | | | • | | | | |
| <i>Contrast Sensitivity</i> | | | • | | | | | | • | | | | | | | |
| Cost and Utilization | • | • | • | • | • | • | • | • | • | • | | | | • | | |
| <i>Insurance</i> | | • | | | • | | • | | | • | | | | | | |
| <i>Utilization</i> | | • | • | • | • | • | • | • | • | • | | | | • | | |
| <i>Costs</i> | | | | | • | • | | | | | | | | | | |
| <i>Income</i> | • | • | • | | | • | | • | • | | | | | | | |

American Community Survey

Purpose and Scope:

The American Community Survey (ACS) is an annual U.S. nationwide survey that collects and produces information on demographic, social, economic, and housing characteristics. The ACS provides a consistent and cohesive collection of population, social, housing, and economic characteristics that are comparable across all U.S. geographies.

Sample Design:

The Census Bureau selects a random sample of addresses to be included in the ACS. Each address has about a 1-in-480 chance of being selected in a month, and no address should be selected more than once every 5 years. The 2011 ACS sampled approximately 3.3 million housing unit addresses - this corresponds to an increase in the targeted annual sample size of 3.54 million addresses that began with the June 2011 ACS sample. This increase in the targeted annual sample size has continued, resulting in a 2013 ACS sample of approximately 3.54 million housing unit addresses. The participation rate in 2014 was 96.7% for people living in housing units and 95.9% for people living in group quarters in 2014.

Data Collection Procedures:

The Census Bureau informs people living at an address that they have been selected to participate in the ACS. Shortly thereafter (for most U.S. addresses), instructions for completing the survey online are mailed. In Puerto Rico and some hard to reach areas in the U.S., only a paper questionnaire is mailed. Households are asked to complete the survey online or to mail the completed paper questionnaire back to the Census Bureau's National Processing Center. If the Census Bureau does not receive a completed survey within a few weeks, it will mail an additional paper survey questionnaire.

The telephone follow-up operation is conducted approximately 6 weeks after the survey instructions are mailed. The Census Bureau will attempt to obtain telephone numbers and conduct telephone interviews for all addresses that have not responded online, by mail, or by telephone. Following the telephone operation, a sample is taken from the addresses that have not responded online, by mail, or by telephone, and from those addresses with post office box mail delivery. These addresses are visited by Census Bureau field representatives who will conduct the interview in person. A sample of people living in group quarters facilities, such as college dormitories, nursing homes, and prisons, are also interviewed in person to ensure coverage of everyone in the country.

Notable Features:

The 2008 ACS separated the sensory disability question into one question on blindness and vision impairment and another question on deafness or hearing impairment, as demonstrated in the table below.

Source:

https://www.census.gov/content/dam/Census/programs-surveys/acs/about/ACS_Information_Guide.pdf

Vision and Eye Health Variables from the American Community Survey

Table 3. American Community Survey

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|--|-----------------------------------|
| DIFFSENS | 1999 | 2007 | Does this person have any of the following long-lasting conditions: Blindness, deafness, or a severe vision or hearing impairment? | 1 Yes 2 No 0 Not applicable |
| DIFFEYE | 2008 | 2015 | Is this person blind or does he/she have serious difficulty seeing even when wearing glasses? | 1 Yes 2 No 0 Not applicable |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

Behavioral Risk Factors Surveillance System

Purpose and Scope:

The Behavioral Risk Factor Surveillance System (BRFSS) is the nation's premier system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. Established in 1984 with 15 states, BRFSS now collects data in all 50 states as well as the District of Columbia and three U.S. territories. BRFSS completes more than 400,000 adult interviews each year, making it the largest continuously conducted health survey system in the world. The survey is administered by the Division of Population Health in CDC's Public Health Surveillance Branch; National Center for Chronic Disease Prevention and Health Promotion.

Sample Design:

Home telephone numbers are obtained through random-digit dialing. The inclusion of data from cellular telephone interviews in the BRFSS public release data set has been standard protocol since 2011. Adults 18 years or older are asked to take part in the survey. The number of interviews within each state will vary based on funding and the size of regions, such as health districts, within each state.

Data Collection Procedures:

Currently, data are collected monthly. With technical and methodological assistance from the CDC, state health departments use in-house interviewers or contract with telephone call centers or universities to administer the BRFSS surveys continuously through the year. The states use a standardized core questionnaire, optional modules, and state-added questions. In 2014, 50 states, the District of Columbia, Guam, and Puerto Rico collected samples of interviews conducted both by landline telephone and cellular telephone.

Notable Features:

The need for prevalence estimates at the local level has led to Selected Metropolitan/Micropolitan Area Risk Trends (SMART) BRFSS. With SMART BRFSS, data from the 1997–2000 BRFSS surveys are used to calculate estimates for selected U.S. urban areas with at least 250 completed interviews. This has yielded estimates for nearly 200 metropolitan areas for the 1997–1999 combined data. Sharp increases in sample size since 2000 have allowed for more city- and county-level estimates, increasing from 100 metropolitan/micropolitan statistical areas (MMSAs) in 2002 to 194 MMSAs in 2010.

Source:

<http://www.cdc.gov/brfss/about/index.htm>

Vision and Eye Health Variables from the Behavioral Risk Factor Surveillance System

Table 4. Behavioral Risk Factor Surveillance System

| Variable Name | First Available* | Latest Available | Question | Response Options |
|--|------------------|------------------|--|---|
| <i>Core Component</i> | | | | |
| CHCVISON | 2011 | 2011 | Has a doctor, nurse or other health professional ever said that you have vision impairment in one or both eyes, even when wearing glasses? | 1 Yes 2 No 3 Respondent is blind 7 Don't know / Not sure 9 Refused |
| CHCVISN1 | 2012 | 2012 | Do you have any trouble seeing, even when wearing glasses or contact lenses? | 1 Yes 2 No 3 Not applicable (blind) 7 Don't know / Not sure 9 Refused |
| BLIND | 2013 | 2016 | Are you blind or do you have serious difficulty seeing, even when wearing glasses? | 1 Yes 2 No 3 Not applicable (blind) 7 Don't know / Not sure 9 Refused |
| <i>Visual Impairment and Access to Eye Care Module</i> | | | | |
| VIMACDEG, VIMACDG2, VIMACDG3 | 2005 | 2012 | Have you EVER been told by an eye doctor or other health care professional that you had (age-related; 2006-2012) macular degeneration? | 1 Yes 2 No 7 Don't know / Not sure 9 Refused |
| VIGLUCMA, VIGLUMA2, VIGLUMA3 | 2005 | 2012 | Have you EVER been told by an eye doctor or other health care professional that you had glaucoma? | 1 Yes 2 No 7 Don't know / Not sure 9 Refused |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---|------------------|------------------|---|---|
| VICATRCT, VICTRCT2, VICTRCT3, VICTRCT4 | 2005 | 2012 | Have you been told by an eye doctor or other health care professional that you NOW have cataracts? | 1 Yes 2 Yes, but had them removed No, I had them removed (2012) 3 No 7 Don't know / Not sure 8 Not applicable (blind)(2006) 9 Refused |
| VIINSUR, VIINSUR2, VIINSUR3 | 2005 | 2012 | Do you have any kind of health insurance coverage for eye care? | 1 Yes 2 No 7 Don't know / Not sure 9 Refused |
| EYEEEXAM, VIEYEEXM, VIEYEXM2, VIEYEXM3 | 1999 | 2012 | When was the last time you had eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light. | 1 Within the past month (< 1 month ago) 2 Within the past year (1 month but < 12 months ago) 3 Within the past 2 years (1 year but < 2 years ago) 4 2 or more years ago 5 Never (2005-2012) 7 Don't know / Not sure 8 Never 9 Refused |
| VINOCARE, VINOCRE2 | 2005 | 2012 | What is the main reason you have not visited an eye care professional in the past 12 months? | 1 Cost/insurance 2 Do not have/know an eye doctor 3 Cannot get to the office/clinic (too far away, no transportation) 4 Could not get an appointment 5 No reason to go 6 Have not thought of it 7 Other 8 Not applicable (Blind) 77 Don't know / Not sure 99 Refused |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|------------------------------------|------------------|------------------|--|---|
| VIPRFVST, VIPRFVS2, VIPRFVS3 | 2005 | 2012 | When was the last time you visited ANY eye care professional? When was the last time you had your eyes examined by any doctor or eye care provider? (2006-2012) | 1 Within the past month (< 1 month ago) 2 Within the past year (1+ month but < 12 months ago) 3 Within the past 2 years (1+ years but < 2 years ago) 4 2 or more years ago 5 Never 7 Don't know / Not sure 9 Refused |
| VISNREAD | 1999 | 1999 | How much of the time does your vision limit you in reading print in a newspaper, magazine, recipe, menu, or numbers on the telephone? | 1 All of the Time 2 Most of the Time 3 Some of the Time 4 A Little Bit of the Time 5 None of the Time 7 Don't know / Not sure 9 Refused |
| VIREADIF, VIREDIF2, VIREDIF3 | 2005 | 2005 | How much difficulty, if any, do you have reading print in newspaper, magazine, recipe, menu, or numbers? Would you say: | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Unable to do for other reasons 7 Don't know / Not sure 8 Not applicable (blind) (2006-2012) 9 Refused |
| VISNDIST | 1999 | 1999 | How much of the time does your vision limit you in recognizing people or objects across the street? | 1 All of the Time 2 Most of the Time 3 Some of the Time 4 A Little Bit of the Time 5 None of the Time 7 Don't know / Not sure 9 Refused |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|------------------------------------|------------------|------------------|--|---|
| VIDIFCLT, VIDFCLT2, VIDFCLT3 | 2005 | 2005 | How much difficulty, if any, do you have in recognizing a friend across the street? Would you say: | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Unable to do for other reasons 7 Don't know / Not sure 8 Not applicable (blind) (2006-2012) 9 Refused |
| VISIONTV | 1999 | 1999 | How much of the time does your vision limit you in watching television? | 1 All of the Time 2 Most of the Time 3 Some of the Time 4 A Little Bit of the Time 5 None of the Time 7 Don't know / Not sure 9 Refused |
| VITELDIF | 2005 | 2005 | How much difficulty, if any, do you have watching television? Would you say: | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Unable to do for other reasons 7 Don't know / Not sure 8 Not applicable (blind) 9 Refused |
| BLIND | 2013 | 2014 | Are you blind or do you have serious difficulty seeing, even when wearing glasses? | 1 Yes 2 No 7 Don't know / Not sure 9 Refused |
| <i>Diabetes Module</i> | | | | |
| DIABEYE | 2000 | 2014 | Has a doctor ever told you that diabetes has affected your eyes or that you had retinopathy? | 1 Yes 2 No 7 Don't know / Not sure 9 Refused |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report. In instances where a question has been asked over multiple years, but with more than one variable name, all known variable names are listed; change in wording across years is noted when possible.

Health and Retirement Study

Purpose and Scope:

The University of Michigan Health and Retirement Study (HRS) is a longitudinal panel study that surveys a representative sample of approximately 20,000 Americans over the age of 50 every two years.

Supported by the National Institute on Aging and the Social Security Administration, the HRS explores the changes in labor force participation and the health transitions that individuals undergo toward the end of their work lives and in the years that follow.

Since its launch in 1992, the study has collected information about income, work, assets, pension plans, health insurance, disability, physical health and functioning, cognitive functioning, and health care expenditures.

Sample Design:

The HRS sample is selected using a multi-stage area probability sample design. Starting in 1998 the target population was defined as those born in 1947 or before, and thus approximately includes those age 51 and older. Since new cohorts were not added in 2000 or 2002, the target populations were approximately 53 and older in 2000, and 55 and older in 2002. In 2004, a supplementary sample was added to make the total sample representative of those born in 1953 or before, and thus, once again, approximately including those age 51 and older. The mid-baby boom cohort (born 1954-1959) was added in the 2010 wave, and the late baby boom cohort (born 1960-1965) was added in the 2016 wave.

Two of the five samples interviewed to date by HRS, and a majority of a third sample, came from a screening of 69,337 housing units conducted in 1992. That sample of housing units was generated using a multi-stage, clustered area probability frame. Of those housing units, 14% (9,419) were determined to be non-sample (unoccupied, or non-households). In all but 214 of the 59,918 identified households, the eligibility of the household members for inclusion in the HRS, the Asset and Health Dynamics among the Oldest Old (AHEAD) study, or The War Baby (WB) samples was determined, for a screening response rate of 99.6%.

Interviews are sought at each wave not only with the sample of cohort-eligible individuals but also with their current spouse or partner. Those spouses and partners may be of any age.

In addition to the nationally-representative, multi-stage area probability sample (the core sample), the HRS design includes three oversamples. The oversamples are introduced as supplements to the core national sample and are designed to increase the numbers of Black and Hispanic HRS respondents as well as the number of HRS respondents who are residents of the state of Florida.

Data Collection Procedures:

Most of the interviews are done by telephone, although exceptions are made when respondents have health limitations that would make an hour- plus session on the telephone difficult or impossible or when the household had no telephone. The HRS collects information about chronic illness, functional ability, depression, and self-assessed health status, and examines health-related behaviors such as smoking, alcohol use, and exercise. Health care utilization data is also gathered.

Notable Features:

Beginning in 2006, the HRS expanded in an effort to match biological factors with health and social data, including examination data on participants' visual acuity and visual contrast.

Source:

<http://hrsonline.isr.umich.edu/>

http://hrsonline.isr.umich.edu/sitedocs/databook/HRS_Text_WEB_intro.pdf

Vision and Eye Health Variables from the Health and Retirement Study

Table 5. Health and Retirement Study

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|--|---|
| LCO95 | 2000 | 2014 | Is your eyesight excellent, very good, good, fair, or poor using glasses or corrective lens as usual? | 1 Excellent 2 Very Good 3 Good 4 Fair 5 Poor 7 Legally Blind 8 Don't Know; Not Ascertained 9 Refused |
| LCO96 | 2000 | 2014 | How good is your eyesight for seeing things at a distance, like recognizing a friend across the street, using glasses or corrective lens as usual? | 1 Excellent 2 Very Good 3 Good 4 Fair 5 Poor 7 Legally Blind 8 Don't Know; Not Ascertained 9 Refused |
| LCO97 | 2000 | 2014 | How good is your eyesight for seeing things up close, like reading ordinary newspaper print, using glasses or corrective lens as usual? | 1 Excellent 2 Very Good 3 Good 4 Fair 5 Poor 7 Legally Blind 8 Don't Know; Not Ascertained 9 Refused |
| LCO98 | 2001 | 2014 | Have you ever had cataract surgery? IF REINTERVIEW Have you had cataract surgery since we last talked to you (in R's LAST IW MONTH, YEAR)? | 1 Yes 5 No 8 Don't Know; Not Ascertained 9 Refused |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|---|--|
| LCO99 | 2001 | 2014 | Have you had cataract surgery on both eyes or just one? | 1 One Eye 2 Both Eyes 8 Don't Know; Not Ascertained 9 Refused |
| LCO100 | 2001 | 2014 | Did the cataract surgery (on either eye) include implanting a lens? | 1 Yes 5 No 8 Don't Know; Not Ascertained 9 Refused |
| LCO101 | 2002 | 2014 | Has a doctor ever treated you for glaucoma? | 1 Yes 5 No 8 Don't Know; Not Ascertained 9 Refused |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

Longitudinal Supplement on Aging II

Purpose and Scope:

The Second Longitudinal Study of Aging (LSOA II) was a collaborative effort of the National Center for Health Statistics (NCHS) and the National Institute on Aging (NIA). The Second Supplement on Aging (SOA II), conducted in conjunction with the 1994 National Health Interview Survey (NHIS), served as the baseline for the study.

Sample Design:

The LSOA II is a prospective study with a nationally representative sample comprised of 9,447 civilian noninstitutionalized persons 70 years of age and over at the time of their SOA II interview. The LSOA II followed this cohort of older persons through two follow-up interviews conducted in 1997-98 and 1999-2000. Baseline geographic indicators include the four major census regions (Northeast, Midwest, South, and West), type of primary sampling unit (based on 1970 census), and SMSA/Non-SMSA residence status.

Data Collection Procedures:

While the baseline interview was administered face-to-face, in the home, by U.S. Census Bureau interviewers, follow-up interviews were administered using Computer Assisted Telephone Interviews (CATI). The LSOA II data files contain either information from sample persons who were living at the time of the follow-up interview (Survivor data files) or information collected from a proxy on behalf of sample persons who were deceased at the time of the follow-up interview (Decedent data files).

Notable Features:

The LSOA II data, when used in conjunction with data from the original LSOA, enables researchers to determine whether the prevalence and incidence of functioning, pathology, and impairments in the elderly population have changed over 10 years, and whether the change is due to differences in cohort characteristics or to technological and medical advancements.

Source:

<http://www.cdc.gov/nchs/lsoa/lsoa2.htm>

Vision and Eye Health Variables from the Longitudinal Supplement on Aging II

Table 6. Longitudinal Supplement on Aging II

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-------------------------------|------------------|------------------|---|--|
| <i>Survivor Questionnaire</i> | | | | |
| H-5p/-- | 1999 | 2000 | Ever had the following surgeries/test: CATARACT SURGERY | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| H-5p/-- | 1999 | 2000 | Ever had the following surgeries/test: CATARACT SURGERY IN ONE OR BOTH EYES | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| H-8a/-- | 1999 | 2000 | Had (surgery / test) since last interview: CATARACT SURGERY | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|---|--|
| H-9d/-- | 1999 | 2000 | As a result of cataract surgery: VISION IMPROVE/SAME/WORSE | 1 Improved 2 Stayed the same 3 Got worse 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know Blank Didn't ever have cataract surgery or RF/DK to ever had cataract surgery |
| E-1/23 | 1999 | 2000 | Do you now have the following eye conditions: CATARACTS | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| E-1a/-- | 1999 | 2000 | Do you now have the following eye conditions: CATARACTS IN ONE OR BOTH EYES | 1 One 2 Both 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know Blank Doesn't have cataract(s) or RF/DK to "Cataracts in one or both eyes" |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|--|--|
| E-1b/23c | 1999 | 2000 | Do you now have the following eye conditions: GLAUCOMA | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| E-1c/-- | 1999 | 2000 | Do you now have the following eye conditions: BLINDNESS (CATI) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| E-1c/-- | 1999 | 2000 | Do you now have the following eye conditions: BLINDNESS IN ONE OR BOTH EYES (CATI) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| E-2/-- | 1999 | 2000 | Do you now have the following eye conditions: USE EYEGLASSES OR CONTACTS (CATI) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|---|--|
| E-3/23f | 1999 | 2000 | Do you now have the following eye conditions: USE EYEGLASSES OR CONTACTS (CATI) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| E-4/-- | 1999 | 2000 | Vision better or worse compared to last interview (CATI) | 1 Better 2 Worse 3 About the same 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know Blank. Blind in both eyes |
| --/23a | 1999 | 2000 | Do you now have the following eye conditions: CATARACTS IN ONE EYE (SAQ) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| --/23b | 1999 | 2000 | Do you now have the following eye conditions: CATARACTS IN BOTH EYES (SAQ) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|---|--|
| --/23d | 1999 | 2000 | Do you now have the following eye conditions: BLINDNESS IN ONE EYE (SAQ) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |
| --/23e | 1999 | 2000 | Do you now have the following eye conditions: BLINDNESS IN BOTH EYES (SAQ) | 1 Yes 2 No 93 Question excluded from SAQ 94 Partial break off 95 Missing because of CATI error 96 Missing (SAQ) 97 Refused 98 Ineligible; Proxy Decedent 99 Don't Know |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

Medicare Current Beneficiary Survey

Purpose and Scope:

For more than 20 years, the Medicare Current Beneficiary Survey (MCBS) has been a leading source of information and analysis on the direct impact of the Medicare program on beneficiaries. The survey generates data on total cost and out-of-pocket spending for services provided to beneficiaries, access to services, quality of care, and satisfaction with a program covering 55 million older Americans and individuals under age 65 with disabilities. The MCBS also facilitates analysis of the experiences of specific sub-groups of beneficiaries, the settings in which beneficiaries receive care, dynamics within Medicare managed care plans, and trends in cost and utilization.

Sample Design:

The MCBS is a longitudinal rotating panel survey of a nationally representative sample of aged and disabled Medicare beneficiaries in the U.S. and Puerto Rico. In the MCBS rotating panel design four panels are active in data collection at any given round. Each panel ultimately produces three full years of Cost and Use event data.

Data Collection Procedures:

Each sampled Medicare beneficiary is part of an annual panel that is interviewed three times per year for four consecutive years. Interviews are administered by computer-assisted personal interviewing and facilitated by a national team of field interviewers. Medicare claims are linked to survey-reported events. The resulting files provide complete expenditure and source of payment data on all health care services, including those not covered by Medicare. Participant data can be linked across years, providing up to three calendar years of longitudinal data.

Source:

<https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/index.html?redirect=/MCBS>

Vision and Eye Health Variables from the Medicare Current Beneficiary Survey

Table 7. Medicare Current Beneficiary Survey

| Variable Name | First Available* | Latest Available | Question | Response Options |
|--|------------------|------------------|---|--|
| <i>Health Status Functioning Questionnaire</i> | | | | |
| ECTROUB | 2007 | 2014 | Which statement best describes [your/(SP's)] vision (while wearing glasses or contact lenses)? | 1 No trouble seeing 2 A little trouble seeing 3 A lot of trouble seeing 4 No usable vision -8 Don't know -9 Refused |
| EDOCEXAM | 2007 | 2014 | [Have you/Has (SP)] had an eye examination by an eye doctor since (LAST HF MONTH YEAR)? INCLUDE OPHTHALMOLOGISTS AND OPTOMETRISTS. | 1 Yes 2 No -8 Don't know -9 Refused |
| EDOCLAST | 2007 | 2014 | How long has it been since [your/(SP's)] last eye examination by an eye doctor? | 1 Never had eye exam by eye doctor 2 1 years to less than 2 years 3 2 years to less than 5 years 4 5 years or more -8 Don't know -9 Refused |
| ECCATOP | 2007 | 2014 | [Have you/Has (SP)] ever had an operation for cataracts? | 1 Yes 2 No -8 Don't know -9 Refused |
| ECLEGBLI | 2010 | 2014 | [Have you/Has (SP)] been told that (you are/he is/she is) legally blind? [EXPLAIN IF NECESSARY: Informally, a person is legally blind when, even with corrective lenses, they cannot see well enough to drive.] | 1 Yes 2 No -8 Don't know -9 Refused |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|--|------------------|------------------|--|--|
| EMACULAR | 2010 | 2014 | I am going to read a list of eye conditions. Please tell me if [you have/(SP) has] ever been told by a doctor that (you/he/she) had any of these conditions. [Have you/Has (SP)] ever been told by a doctor that (you/he/she) had...Macular degeneration or age-related macular degeneration, also called AMD? | 1 Yes 2 No -8 Don't know -9 Refused |
| ECATARAC | 2010 | 2014 | I am going to read a list of eye conditions. Please tell me if [you have/(SP) has] ever been told by a doctor that (you/he/she) had any of these conditions. [Have you/Has (SP)] ever been told by a doctor that (you/he/she) had...Cataracts? | 1 Yes 2 No -8 Don't know -9 Refused |
| ERETINOP | 2010 | 2014 | I am going to read a list of eye conditions. Please tell me if [you have/(SP) has] ever been told by a doctor that (you/he/she) had any of these conditions. [Have you/Has (SP)] ever been told by a doctor that (you/he/she) had...Diabetic retinopathy? | 1 Yes 2 No -8 Don't know -9 Refused |
| EGLAUCOM | 2010 | 2014 | I am going to read a list of eye conditions. Please tell me if [you have/(SP) has] ever been told by a doctor that (you/he/she) had any of these conditions. [Have you/Has (SP)] ever been told by a doctor that (you/he/she) had...Glaucoma? | 1 Yes 2 No -8 Don't know -9 Refused |
| ELASRSUR | 2010 | 2014 | Laser surgery to the back of the eye, or retina, is a commonly used treatment for diabetic retinopathy and macular degeneration. [Have you/Has (SP)] ever had laser surgery to the back of either eye for one of these conditions? | 1 Yes 2 No -8 Don't know -9 Refused |
| <i>Medical Provider Utilization, Charge Questions Statement Series, Charge Questions No Statement Series, and Charge Payment Summary</i> | | | | |
| Various | 1999 | 2014 | Health care utilization and cost associated with visits to an optometrist or ophthalmologist. | Requires Analyses |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

Medical Expenditure Panel Survey

Purpose and Scope:

The Medical Expenditure Panel Survey (MEPS), which began in 1996, is a set of large-scale surveys of families and individuals, their medical providers (doctors, hospitals, pharmacies, etc.), and employers across the United States. MEPS collects data on the specific health services that Americans use, how frequently they use them, the cost of these services, how they are paid for, and data on the cost, scope, and breadth of health insurance held by and available to U.S. workers. MEPS currently has two major components, the Household Component and the Insurance Component.

Sample Design:

The Household Component (HC) collects data from a sample of families and individuals in selected U.S. communities, drawn from a nationally representative subsample of households that participated in the prior year's National Health Interview Survey (conducted by the National Center for Health Statistics).

MEPS also includes a Medical Provider Component (MPC), which covers hospitals, physicians, home health care providers, and pharmacies identified by MEPS-HC respondents. Its purpose is to supplement and/or replace information received from the MEPS-HC respondents.

Data Collection Procedures:

During the household interviews, MEPS collects detailed information for each person in the household on the following: demographic characteristics, health conditions, health status, use of medical services, charges and source of payments, access to care, satisfaction with care, health insurance coverage, income, and employment.

The panel design of the survey, which features several rounds of interviewing covering two full calendar years, makes it possible to determine how changes in respondents' health status, income, employment, eligibility for public and private insurance coverage, use of services, and payment for care are related.

Source:

<http://meps.ahrq.gov/mepsweb/>

Vision and Eye Health Variables from the Medical Expenditure Panel Survey

Table 8. Medical Expenditure Panel Survey

| Variable Name | First Available* | Latest Available | Question | Response Options |
|------------------------------------|------------------|------------------|--|---|
| <i>Health Status Questionnaire</i> | | | | |
| WRGLAS42 | 1999 | 2011 | Does anyone in the family wear eyeglasses or contact lenses? | 1 Yes 2 No -1 Inapplicable -7 Refused -8 Don't Know -9 Not Ascertained |
| BLIND42 | 1999 | 2011 | Is (PERSON) blind? | 1 Yes 2 No -1 Inapplicable -8 Don't Know |
| READNW42 | 1999 | 2011 | {With glasses or contacts, can/Can} (PERSON) see well enough to read ordinary newspaper print, even if (PERSON) cannot read? | 1 Yes 2 No -1 Inapplicable -8 Don't Know -9 Not Ascertained |
| RECPEP42 | 1999 | 2011 | {With glasses or contacts, can/Can} (PERSON) see well enough to recognize familiar people if they are two or three feet away | 1 Yes 2 No -1 Inapplicable -8 Don't Know -9 Not Ascertained |
| SEEDIF42 | 1999 | 2011 | Does anyone in the family have any difficulty seeing {[with glasses or contacts, if they use them]}? | 1 Yes 2 No -1 Inapplicable -7 Refused -8 Don't Know -9 Not Ascertained |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-----------------------------|------------------|------------------|---|---|
| VISION42 | 1999 | 2011 | Vision Impairment (SUMMARY) | 1 No difficulty seeing (SEEDIF42 was “No” (2)) 2 Some difficulty seeing, can read newsprint (SEEDIF42 was “Yes” (1) and BLIND42 was “No” (2) and READNW42 was “Yes” (1)) 3 Some difficulty seeing, cannot read newsprint, can recognize familiar people (SEEDIF42 was “Yes” (1) and BLIND42 was “No” (2) and READNW42 was “No” (2) and RECPEP42 was “Yes” (1)) 4 Some difficulty seeing, cannot read newsprint, cannot recognize familiar people but is not blind (SEEDIF42 was “Yes” (1) and BLIND42 was “No” (2) and READNW42 was “No” (2) and RECPEP42 was “No” (2)) 5 Blind (SEEDIF42 was “Yes” (1) and BLIND42 was “Yes” (1)) -1 All component variables are “Inapplicable” (SEEDIF42 was -1 and BLIND42 was -1 and READNW42 was -1 and RECPEP42 was -1) -9 One or more component variables was “Refused” (-7), “Don’t know” (-8), or “Not ascertained” (-9) |
| <i>Diabetes Care Survey</i> | | | | |
| DSEBXX53 | 2000 | 2013 | Which of the following year(s) did you have an eye exam in which your pupils were dilated? This would have made you temporarily sensitive to bright light. [BEFORE current year]. | 1 Yes 2 No -1 Inapplicable -8 Don't Know -9 Not Ascertained |
| DSEYXX53 | 2000 | 2013 | Which of the following year(s) did you have an eye exam in which your pupils were dilated? This would have made you temporarily sensitive to bright light. [IN current year] | 1 Yes 2 No -1 Inapplicable -8 Don't Know -9 Not Ascertained |
| DSEYPR53 | 2000 | 2013 | Has your diabetes caused problems with your eyes that needed to be treated by an ophthalmologist? | 1 Yes 2 No -1 Inapplicable -8 Don't Know -9 Not Ascertained |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-----------------------------------|------------------|------------------|---------------------------------------|------------------|
| <i>Medical Provider Component</i> | | | | |
| AMEEXPXX | 1999 | 2013 | TOTL AMBULTRY (OB+OP) OPTOMETRIST EXP | |
| AMEMCDXX | 1999 | 2013 | OPTMTRIST AMB VSTS -MEDICAID AMT | |
| AMEMCRXX | 1999 | 2013 | OPTMTRIST AMB VSTS -MEDICARE AMT | |
| AMEOFDXX | 1999 | 2013 | OPTMTRIST AMB VSTS-OTHER FED AMT | |
| AMEOPRXX | 1999 | 2013 | OPTMTRIST AMB VSTS - OTH PRIVATE AMT | |
| AMEOPUXX | 1999 | 2013 | OPTMTRIST AMB VSTS - OTH PUBLIC AMT | |
| AMEOSRXX | 1999 | 2013 | OPTOM AMB VSTS - OTH UNCLAS SRCE AMT | |
| AMEOTHXX | 1999 | 2013 | OPTMTRIST AMB VSTS -OTH COMBINED AMT | |
| AMEPRVXX | 1999 | 2013 | OPTMTRIST AMB VSTS -PRIVATE INS AMT | |
| AMEPTRXX | 1999 | 2013 | OPTMTRIST AMB VSTS -PRV & TRI AMT | |
| AMESLFXX | 1999 | 2013 | OPTMTRIST AMB VSTS -SELF/FAMILY AMT | |
| AMESTLXX | 1999 | 2013 | OPTMTRIST AMB VSTS-OTH ST/LOCAL AMT | |
| AMETCHXX | 1999 | 2013 | OPTOMETRIST AMBULATORY VISIT CHARGES | |
| AMETRIX | 1999 | 2013 | OPTMTRIST AMB VSTS-TRICARE AMT | |
| AMEVAXX | 1999 | 2013 | OPTMTRIST AMB VSTS-VA AMT | |
| AMEWCPXX | 1999 | 2013 | OPTMTRIST AMB VSTS-WORKERS COMP AMT | |
| AMOPTOXX | 1999 | 2013 | # AMB OPTOMETRIST VSTS (OB+OP) | |
| OBEXPXX | 1999 | 2013 | TOTAL OFF-BASED OPOTMETRIST EXP | |
| OBEMCDXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -MEDICAID AMT | |
| OBEMCRXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -MEDICARE AMT | |
| OBEOFDXX | 1999 | 2013 | OPTOMETRIST OFF VSTS-OTH FEDERAL AMT | |
| OBEOPRXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -OTH PRIVATE MT | |
| OBEOPUXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -OTH PUBLIC AM | |
| OBEOSRXX | 1999 | 2013 | OPTOM OF VSTS - OTH UNCLASS SRCE AMT | |
| OBEOHXX | 1999 | 2013 | OPTOMETRIST OFF VSTS-OTH COMBINED AMT | |
| OBEPVXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -PRIVATE INS AMT | |
| OBEPTRXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -PRV & TRI AMT | |
| OBESLFXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -SELF/FAMILY AMT | |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|--|------------------|
| OBESTLXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -OTH ST/LOCL AMT | |
| OBETCHXX | 1999 | 2013 | OFFICE-BASED OPTOMTRIST VISIT CHARGES | |
| OBETRIXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -TRICARE AMT | |
| OBEVAXX | 1999 | 2013 | OPTOMETRIST OFF VSTS -VA AMT | |
| OBEWCPXX | 1999 | 2013 | OPTOMETRIST OFF VSTS-WORKERS COMP AMT | |
| OBOPTOXX | 1999 | 2013 | # OFF-BASED OPTOMETRIST VISITS | |
| VIEXPXX | 1999 | 2013 | TOTAL GLASSES/CONTACT LENS EXP | |
| VISMCDXX | 1999 | 2013 | GLASSES/CNTCT LENSES-MEDICAID AMT | |
| VISMCRXX | 1999 | 2013 | GLASSES/CNTCT LENSES-MEDICARE AMT | |
| VISOFDXX | 1999 | 2013 | GLASSES/CNTCT LENSES-OTHR FED AMT | |
| VISOPRXX | 1999 | 2013 | GLASSES/CNTCT LENSES-OTH PRIVATE AMT | |
| VISOPUXX | 1999 | 2013 | GLASSES/CNTCT LENSES-OTH PUBLIC AMT | |
| VISOSRXX | 1999 | 2013 | GLASSES/CNTCT LENSE-OT UNCLAS SRCE AMT | |
| VISOTHXX | 1999 | 2013 | GLASSES/CNTCT LENSES-OTH COMBINED AMT | |
| VISPRVXX | 1999 | 2013 | GLASSES/CNTCT LENSES-PRIV INS AMT | |
| VISPTRXX | 1999 | 2013 | GLASSES/CNTCT LENSES -PRV & TRI AMT | |
| VISSLFXX | 1999 | 2013 | GLASSES/CNTCT LENSES -SELF/FAM AMT | |
| VISSTLXX | 1999 | 2013 | GLASSES/CNTCT LENSES-OTH ST/LOCL AMT | |
| VISTCHXX | 1999 | 2013 | GLASSES/CONTACT LENSES CHARGES | |
| VISTRXX | 1999 | 2013 | GLASSES/LENSES-TRICARE AMT | |
| VISVAXX | 1999 | 2013 | GLASSES/CNTCT LENSES-VA AMT | |
| VISWCPXX | 1999 | 2013 | GLASSES/CNTCT LENSES-WORKERS COMP AMT | |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

NOTE: Any instance of 'XX' indicates where the two-digit year is entered. For example, a VISWCPXX collected in 2008 would be called VISWCP08; the same variable collected in 2009 would be called VISWCP09; and so on.

National Ambulatory Medical Care Survey

Purpose and Scope:

The National Ambulatory Medical Care Survey (NAMCS) is a national survey designed to meet the need for objective, reliable information about the provision and use of ambulatory medical care services in the United States. The survey was conducted annually from 1973 to 1981, in 1985, and annually since 1989. Data are obtained on patients' symptoms, physicians' diagnoses, and medications ordered or provided. The survey also provides statistics on the demographic characteristics of patients and services provided, including information on diagnostic procedures, patient management, and planned future treatment. Corresponding information is collected from a sister-survey, The National Hospital Ambulatory Medical Care Survey (NHAMCS; described below), which is designed to collect data on the utilization and provision of ambulatory care services in hospital emergency and outpatient departments and in ambulatory surgery centers.

Sample Design:

The basic sampling unit for the NAMCS is the physician-patient encounter or visit. Only visits to the offices of non-federally employed physicians classified by the American Medical Association or the American Osteopathic Association as "office-based, patient care" are included in the physician universe. Types of contacts not included are those made by telephone, those made outside the physician's office (for example, house calls), visits made in hospital settings (unless the physician has a private office in a hospital and that office meets the NAMCS definition of "office"), visits made in institutional settings by patients for whom the institution has primary responsibility over time (e.g., nursing homes), and visits to doctors' offices that are made for administrative purposes only (e.g., to leave a specimen, pay a bill, or pick up insurance forms).

The NAMCS utilizes a multistage probability design that uses probability samples of primary sampling units (PSUs), physician practices within PSUs, and patient visits within practices. The second stage consists of a probability sample of practicing physicians selected from the master files maintained by the American Medical Association and the American Osteopathic Association. Within each PSU, all eligible physicians were stratified into 15 groups; general and family practice, osteopathy, internal medicine, pediatrics, general surgery, obstetrics and gynecology, orthopedic surgery, cardiovascular diseases, dermatology, urology, psychiatry, neurology, ophthalmology, otolaryngology, and a residual category of all other specialties. The final stage is the selection of patient visits within the annual practices of sample physicians. This involves two steps. First, the total physician sample is divided into 52 random subsamples of approximately equal size, and each subsample is randomly assigned to 1 of the 52 weeks in the survey year. Second, a systematic random sample of visits is selected by the physician during the reporting week. The sampling rate varies for this final step from a 100 percent sample for very small practices, to a 20 percent sample for very large practices. Practice size is determined in a pre-survey interview.

Data Collection Procedures:

The U.S. Bureau of the Census acts as the field data collection agent for the NAMCS. The data collection for NAMCS is expected to be carried out by the physician or the physician's staff, but it is often performed by Census field representatives. Specially trained interviewers visit the physicians prior to their participation in the survey in order to provide them with survey materials and instruct them on how to complete the forms.

Source:

http://www.cdc.gov/nchs/ahcd/about_ahcd.htm

Vision and Eye Health Variables from the National Ambulatory Medical Care Survey

Table 9. National Ambulatory Medical Care Survey

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|---|--|
| <i>NAMCS</i> | | | | |
| RFVX | 1999-2000 | 2015 | Patient's reason for visit (up to three) | Symptoms Referable to the Eyes and Ears 1300-1399 Diseases of the Eye 2400-2449 |
| DIAGX | 1999-2000 | 2015 | Physician's diagnoses (up to three) | ICD-9-CM |
| PAYTYPEX | 1999-2000 | 2015 | Primary expected source of payment for this visit | 1 Private insurance 2 Medicare 3 Medicaid 4 Worker's Compensation 5 Self-pay 6 No charge 7 Other 8 Unknown 9 Blank |
| RETINAL | 2009-2010 | 2015 | Retinal/eye exam and ability to add other service | 1 Yes 0 No |
| UK | 1999-2000 | 2004 | Ambulatory surgical procedures | ICD-9-CM procedure codes |
| PROCX | 2014 | 2015 | Current Procedural Terminology Codes (up to 18) | CPT or HCPCS code |
| SPECRCATX | 1999-2000 | 2015 | Physician's Specialty | 13 Ophthalmology |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

National Health Interview Survey

Purpose and Scope:

The main objective of the National Health Interview Survey (NHIS) is to monitor the health of the U.S. population through the collection and analysis of data on a broad range of health topics. Since 1960, the survey has been conducted by National Center for Health Statistics (NCHS). NHIS data are used widely by the Department of Health and Human Services (DHHS) and the public health research community to monitor trends in illness and disability and to track progress toward achieving national health objectives.

Sample Design:

The National Health Interview Survey is a cross-sectional household interview survey. Sampling and interviewing are continuous throughout each year. The sampling plan follows a multistage area probability design that permits the representative sampling of households and non-institutional group quarters (e.g., college dormitories). The sampling plan is redesigned after every decennial census. The current sampling plan was implemented in 2006. It has many similarities to the previous sampling plan, which was in place from 1995 to 2005. The first stage of the current sampling plan consists of a sample of 428 primary sampling units (PSU's) drawn from approximately 1,900 geographically defined PSU's that cover the 50 States and the District of Columbia.

The current NHIS sample design continues the oversampling of both Black persons and Hispanic persons that was a new feature of the previous sample design. A new feature of the current sample design is that Asian persons are also oversampled.

As with the previous sample design, the NHIS sample is drawn from each state and the District of Columbia. Although the NHIS sample is too small to provide state level data with acceptable precision for each state, selected estimates for most states may be obtained by combining data years. The total NHIS sample is subdivided into four separate panels, or sub-designs, such that each panel is a representative sample of the U.S. population.

For 2006-2010, the households and non-institutional group quarters selected for interview each week in the NHIS were a probability sample representative of the target population. Beginning in 2011, the minimum time length for a probability sample changed from a week to a month. With four sample panels and no sample cuts or augmentations, the expected NHIS sample size (completed interviews) is approximately 35,000 households containing about 87,500 persons.

Data Collection Procedures:

Data are collected through a personal household interview conducted by interviewers employed and trained by the U.S. Census Bureau according to procedures specified by the NCHS. The revised NHIS questionnaire fielded since 1997 uses a computer assisted personal interviewing (CAPI) mode.

Notable Features:

A strength of this survey lies in the ability to display vision and eye health characteristics by many demographic and socioeconomic characteristics.

Source:

http://www.cdc.gov/nchs/nhis/about_nhis.htm

Vision and Eye Health Variables from the National Health Interview Survey

Table 10. National Health Interview Survey Self-Reported

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-----------------------|------------------|------------------|---|---|
| <i>Adult</i> | | | | |
| AHCAFYR4, AHCAFY_4 | 1999 | 2015 | DURING THE PAST 12 MONTHS, was there any time when you NEEDED any of the following, but didn't get it because you couldn't afford it...Eyeglasses? | 1 Yes 2 No 7 Refused 8 Not ascertained (1999-2003) 9 Don't know |
| AHCSYR2, AHCSY1_2 | 1999 | 2015 | DURING THE PAST 12 MONTHS, that is since {12 month ref. date}, have you seen or talked to any of the following health care providers about your own health? An optometrist, optician, or eye doctor (someone who prescribes eyeglasses) | 1 Yes 2 No 7 Refused 8 Not ascertained (1999-2003) 9 Don't know |
| ABLIND | 1999 | 2015 | Are you blind or unable to see at all? | 1 Yes 2 No 7 Refused 9 Don't know |
| AVISION | 1999 | 2015 | Do you have any trouble seeing, even when wearing glasses or contact lenses? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| AFLHCA1, AFLHCA | 1999 | 2015 | What condition or health problem causes you to have difficulty with {names of up to 3 specified activities/these activities}? Vision problem causes difficulty w/activity | 1 Mentioned 2 Not mentioned 6 No condition at all 7 Refused 8 Not ascertained 9 Don't know 01 Vision/problem seeing (2004-2015) |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|------------------------------|------------------|------------------|---|--|
| AVISEXAM | 2002 | 2008 | When was the last time you had an eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light. | 1 Less than 1 month 2 01 to 12 months 3 13 to 24 months 4 More than two years 5 Never 7 Refused 8 Not ascertained 9 Don't know |
| CRD, AVDFCRD, AVDF_CRD | 1999 | 1999 | Even when wearing glasses or contact lenses, because of your eyesight, how difficult is it for you...to find something on a crowded shelf? | 0 Not at all difficult 1 Only a little difficult 2 Somewhat difficult 3 Very difficult 4 Can't do at all (because of eyesight; 2008) 6 Do not do this activity (for other reasons; 2008) 7 Refused 8 Not ascertained (2008) 9 Don't know |
| PER, AVDFPER, AVDF_PER | 1999 | 1999 | Even when wearing glasses or contact lenses, because of your eyesight, how difficult is it for you...to notice objects off to the side while you are walking along? | 0 Not at all difficult 1 Only a little difficult 2 Somewhat difficult 3 Very difficult 4 Can't do at all (because of eyesight; 2008) 6 Do not do this activity (for other reasons; 2008) 7 Refused 8 Not ascertained (2008) 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|------------------------------|------------------|------------------|--|--|
| DRV, AVDFDRV, AVDF_DRV | 1999 | 1999 | Even when wearing glasses or contact lenses, because of your eyesight, how difficult is it for you...to drive during daytime in familiar places? | 0 Not at all difficult 1 Only a little difficult 2 Somewhat difficult 3 Very difficult 4 Can't do at all (because of eyesight; 2008) 6 Do not do this activity (for other reasons; 2008) 7 Refused 8 Not ascertained (2008) 9 Don't know |
| NIT, AVDFNIT, AVDF_NIT | 1999 | 1999 | Even when wearing glasses or contact lenses, because of your eyesight, how difficult is it for you...to go down steps, stairs or curbs in dim light or at night? | 0 Not at all difficult 1 Only a little difficult 2 Somewhat difficult 3 Very difficult 4 Can't do at all (because of eyesight; 2008) 6 Do not do this activity (for other reasons; 2008) 7 Refused 8 Not ascertained (2008) 9 Don't know |
| VIMGLASS | 2008 | 2008 | Do you currently wear eyeglasses or contact lenses? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIMREAD | 2008 | 2008 | Do you wear eyeglasses or contact lenses to read books or newspapers, write, or do other things that require you to see well up close, such as cooking, sewing or fixing things? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIMDRIVE | 2008 | 2008 | Do you wear eyeglasses or contact lenses to drive, read road and street signs, watch TV, or see things in the distance? | 1 Yes 2 No 7 Refused 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|------------------|------------------|------------------|--|--|
| AVISREH | 2002 | 2002 | Do you use any vision rehabilitation services, such as job training, counseling, or training in daily living skills and mobility? | 1 Yes 2 No 7 Refused 8 Not ascertained (2002) 9 Don't know |
| AVISDEV | 2002 | 2002 | Do you use any adaptive devices such as telescopic or other prescriptive lenses, magnifiers, large print or talking materials, CCTV, white cane, or guide dog? | 1 Yes 2 No 7 Refused 8 Not ascertained (2002) 9 Don't know |
| NWS, AVDF_NWS | 1999 | 1999 | Even when wearing glasses or contact lenses, because of your eyesight, how difficult is it for you...to read ordinary print in newspapers? | 0 Not at all difficult 1 Only a little difficult 2 Somewhat difficult 3 Very difficult 4 Can't do at all because of eyesight 6 Do not do this activity for other reasons 7 Refused 9 Don't know |
| CLS, AVDF_CLS | 1999 | 1999 | Even when wearing glasses or contact lenses, because of your eyesight, how difficult is it for you...to do work or hobbies that require you to see well up close such as cooking, sewing, fixing things around the house, or using hand tools? | 0 Not at all difficult 1 Only a little difficult 2 Somewhat difficult 3 Very difficult 4 Can't do at all because of eyesight 6 Do not do this activity for other reasons 7 Refused 9 Don't know |
| VIM_DREV | 2008 | 2008 | Have you EVER been told by a doctor or other health professional that you had diabetic retinopathy? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIMLS_DR | 2008 | 2008 | Have you lost any vision because of diabetic retinopathy? | 1 Yes 2 No 7 Refused 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-----------------------|------------------|------------------|---|---|
| VIM_CAEV | 2008 | 2008 | Have you EVER been told by a doctor or other health professional that you had cataracts? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| VIMLS_CA | 2008 | 2008 | Have you lost any vision because of cataracts? | 1 Yes 2 No 7 Refused 9 Don't know |
| AVISCAT, VIM_CAEV | 1999 | 1999 | Have you EVER been told by a doctor or other health professional that you had....cataracts? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| VIMCSURG | 2008 | 2008 | Have you ever had cataract surgery? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIMLS_GL | 2008 | 2008 | Have you lost any vision because of glaucoma? | 1 Yes 2 No 7 Refused 9 Don't know |
| AVISGLAU, VIM_GLEV | 1999 | 2008 | Have you EVER been told by a doctor or other health professional that you had....glaucoma? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| VIMLS_MD | 2008 | 2008 | Have you lost any vision because of macular degeneration? | 1 Yes 2 No 7 Refused 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---|------------------|------------------|--|--|
| AVISMACD, VIM_MDEV | 1999 | 1999 | Have you EVER been told by a doctor or other health professional that you had....macular degeneration? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| AHCL01N, ALHCLN1, ALHCLY1, ALANTR1, ALTIME1, ALDURA1, ALDURB1 | 2000 | 2015 | How long have you had a vision problem or problem seeing? | 01-94 01-94 95 95+ 96 Since birth 97 Refused 99 Don't know (variation in variable across years) |
| AHCL01T, ALHCLT1, ALUNIT1 | 2000 | 2015 | Enter time period for time with vision problem or problem seeing. | 1 Day(s) 2 Week(s) 3 Month(s) 4 Year(s) 6 Since Birth 7 Refused 9 Don't know (variation in variable across years) |
| DIBEYCKL | 1999 | 2003 | When was the last time you had an eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light. | 1 Less than 1 month 2 1 to 12 months 3 13 to 24 months 4 More than 2 years 5 Never 7 Refused 8 Not ascertained 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-----------------------------------|------------------|------------------|--|---|
| <i>Functioning and Disability</i> | | | | |
| VIS_SS | 2011 | 2015 | Do you have difficulty seeing, even when wearing glasses? | 1 No difficulty 2 Some difficulty 3 A lot of difficulty 4 Cannot do at all/unable to do 7 Refused 9 Don't know |
| VIS_0 | 2012 | 2015 | Do you wear glasses? | 1 Yes 2 No 7 Refused 9 Don't know |
| <i>Family</i> | | | | |
| P2DFSEE | 2009 | 2015 | [fill 1: Are you/Is ALIAS] blind or [fill 2: do you/does ALIAS] have serious difficulty seeing even when wearing glasses? | 1 Yes 2 No 7 Refused 9 Don't know |
| F1DFSEE | 2009 | 2009 | [fill 1: Please answer this question for family members age 1 or older./] [fill 2: Are you/Is anyone] blind or [fill 3: do you/does anyone] have serious difficulty seeing even when wearing glasses? | 1 Yes 2 No 7 Refused 9 Don't know |
| P1DFSEE | 2009 | 2009 | Who is it? (Anyone else? * Repeat if necessary: Is anyone else blind or does anyone else have serious difficulty seeing even when wearing glasses?) | 1 Yes 2 No 7 Refused 9 Don't know |
| <i>Child</i> | | | | |
| CHCAFYR4, CHCAFYR1_4 | 1999 | 2015 | DURING THE PAST 12 MONTHS, was there any time when [fill: alias] NEEDED any of the following, but didn't get it because you couldn't afford it...Eyeglasses? | 1 Yes 2 No 7 Refused 8 Not ascertained (1999-2003) 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|------------------------|------------------|------------------|--|---|
| CHCSYR11, CHCSYR1_2 | 1999 | 2015 | During the past 12 months, that is since {12-month ref. date}, has anyone in the family seen or talked to any of the following health care providers about {S.C. name}'s health? ... An optometrist, optician, or eye doctor (someone who prescribes eyeglasses) | 1 Yes 2 No 7 Refused 8 Not ascertained (1999-2003) 9 Don't know |
| CHCSYR, CHCSYR_2 | 1999 | 2015 | During the past 12 months, that is since {12-month ref. date}, have you seen or talked to any of the following health care providers about {S.C. name}'s health?... An optometrist, optician, or eye doctor (someone who prescribes eyeglasses) | 1 Yes 2 No 7 Refused 8 Not ascertained (1999-2003) 9 Don't know |
| LAHCC1 | 2001 | 2015 | What conditions or health problems cause {person} limitations? [Vision or seeing problem] | 1 Mentioned 2 Not mentioned 6 No condition at all 7 Refused 8 Not ascertained 9 Don't know |
| CVISREAD | 2008 | 2008 | Does [fill: SC name] wear eyeglasses or contact lenses to read books, write, play hand-held games, or do other things that require [fill: her/him] to see well up close? | 1 Yes 2 No 7 Refused 9 Don't know |
| CVISDIST | 2008 | 2008 | Does [fill: SC name] wear eyeglasses or contact lenses to read road and street signs, see the blackboard, play sports, watch TV, or see things in the distance? | 1 Yes 2 No 7 Refused 9 Don't know |
| CVISGLAS | 2008 | 2008 | Does [fill: SC name] wear eyeglasses or contact lenses? | 1 Yes 2 No 7 Refused 9 Don't know |
| CVISLT | 2008 | 2008 | When was [fill: his/her] vision last tested? | 1 In the last 12 months 2 In the last 13-24 months 3 Over 24 months 7 Refused 8 Not ascertained 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|---|---|
| CVISTST | 2002 | 2008 | Has [fill: SC name] EVER had [fill: his/her] vision tested by a doctor or other health professional? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| CBLIND | 1999 | 2015 | Is [fill: S.C. name] blind or unable to see at all? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| CVISION | 1999 | 2015 | Does [fill1: S.C. name] have any trouble seeing [fill2: , even when wearing glasses or contact lenses]? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |
| CVISRD | 2002 | 2002 | Can [fill1: S.C. name] read the board from the back of the classroom? | 1 Yes 2 No 7 Refused 8 Not ascertained 9 Don't know |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report. In instances where a question has been asked over multiple years, but with more than one variable name, all known variable names are listed; change in wording across years is noted when possible.

National Health and Nutrition Examination Survey

Purpose and Scope:

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 and physical examinations. NHANES is a major program of the National Center for Health Statistics (NCHS). NCHS is part of the Centers for Disease Control and Prevention (CDC) and has the responsibility for producing vital and health statistics for the Nation. In 1999, the survey became a continuous program that has a changing focus on a variety of health and nutrition measurements to meet emerging needs.

Sample Design:

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. The sample for the survey is selected to represent the U.S. population of all ages. To produce reliable statistics, NHANES over-samples persons 60 and older, African Americans, and Hispanics.

Data Collection Procedures:

The NHANES interview includes demographic, socioeconomic, dietary, and health-related questions. The examination component consists of medical, dental, and physiological measurements, as well as laboratory tests administered by highly trained medical personnel.

All participants visit the physician. Dietary interviews and body measurements are included for everyone. All but the very young have a blood sample taken and will have a dental screening. In general, the older the individual, the more extensive the examination.

Health interviews are conducted in respondents' homes. Health measurements are performed in specially-designed and equipped mobile centers, which travel to locations throughout the country. The study team consists of a physician, medical and health technicians, and dietary and health interviewers. Many of the study staff are bilingual (English/Spanish).

Notable Features:

Because NHANES is now an ongoing program, the information collected contributes to annual estimates in topic areas included in the survey, including eye health. For small population groups and less prevalent conditions and diseases, data must be accumulated over several years to provide adequate estimates.

Source:

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

Vision and Eye Health Variables from the National Health and Nutrition Examination Survey

Table 11. National Health and Nutrition Examination Survey

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------------|------------------|------------------|--|--|
| <i>Vision</i> | | | | |
| VIQ030, VIQ031 | 1999 | 2008 | Next I have general questions about {your/SP's} vision. At the present time, would you say {your/SP's} eyesight, with glasses or contact lenses if {you/s/he} wear them, is . . . | 1 Excellent 2 Good 3 Fair 4 Poor 5 Very Poor 7 Refused 9 Don't know |
| VIQ040, VIQ041 | 1999 | 2008 | How much of the time {do you/does SP} worry about {your/his/her} eyesight? Would you say . . . | 0 None of the time 1 A little of the time 2 Some of the time 3 Most of the time 4 All of the time 7 Refused 9 Don't know |
| VIQ050A, VIQ051A | 1999 | 2008 | The next questions are about how much difficulty, if any, {you have/SP has} doing certain activities, such as reading ordinary newsprint or going down steps. If {you/s/he} usually wear{s} glasses or contact lenses to do these activities, please rate {you r/his/her} ability to do them while wearing {your/his/her} glasses or contacts. How much difficulty {do you/does SP} have . . . reading ordinary print in newspapers? | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Does not do this for other reasons 77 Refused 99 Don't know |
| VIQ050B, VIQ051B | 1999 | 2008 | How much difficulty {do you/does SP} have . . . doing work or hobbies that require {you/him/her} to see well up close such as cooking, sewing, fixing things around the house, or using hand tools? | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Does not do this for other reasons 77 Refused 99 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------------|------------------|------------------|---|---|
| VIQ050C, VIQ051C | 1999 | 2008 | How much difficulty {do you/does SP} have . . . going down steps, stairs, or curbs in dim light or at night? | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Does not do this for other reasons 77 Refused 99 Don't know |
| VIQ050D, VIQ051D | 1999 | 2008 | How much difficulty {do you/does SP} have . . . noticing objects off to the side while {you are/s/he is} walking? | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Does not do this for other reasons 77 Refused 99 Don't know |
| VIQ050E, VIQ051E | 1999 | 2008 | How much difficulty {do you/does SP} have . . . finding something on a crowded shelf? | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Does not do this for other reasons 77 Refused 99 Don't know |
| VIQ055, VIQ056 | 1999 | 2008 | How much difficulty {do you/does SP} you have driving during the daytime in familiar places? | 1 No difficulty 2 A little difficulty 3 Moderate difficulty 4 Extreme difficulty 5 Unable to do because of eyesight 6 Does not do this for other reasons 7 Never drove 77 Refused 99 Don't know |
| VIQ060, VIQ061 | 1999 | 2008 | How limited {are you/is SP} in how long {you/s/he} can work or do other daily activities such as housework, child care, school, or community activities because of {your/his/her} vision? Would you say {you are/s/he is} limited . . . | 0 None of the time 1 A little of the time 2 Some of the time 3 Most of the time 4 All of the time 7 Refused 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-------------------|------------------|------------------|---|--|
| VIQ070, VIQ071 | 1999 | 2008 | {Have you/Has SP} ever had a cataract operation? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIQ080, VIQ081 | 1999 | 2008 | Was the operation in {your/SPs} right eye, left eye, or both eyes? | 1 Right eye 2 Left eye 3 Both 7 Refused 9 Don't know |
| VIQ010 | 2003 | 2008 | Next, I have general questions about (your/SP's) vision. With both eyes open, can (you/he/she) see light? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIQ017 | 2005 | 2008 | {Are you/Is SP} blind in both eyes? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIQ090 | 2005 | 2008 | {Have you/Has SP} ever been told by an eye doctor that {you have/s/he has} glaucoma (gla-co-ma), sometimes called high pressure in {your/his/her} eyes? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIQ100 | 2005 | 2008 | Was the glaucoma in {your/his/her} right eye, left eye, or both eyes? | 1 Right eye 2 Left eye 3 Both 7 Refused 9 Don't know |
| VIQ310 | 2005 | 2008 | {Have you/Has SP} ever been told by an eye doctor that {you have/s/he has} age-related macular (mac-u-lar) degeneration? | 1 Yes 2 No 7 Refused 9 Don't know |
| VIQ320 | 2005 | 2008 | Was the age-related macular (mac-u-lar) degeneration in {your/his/her} right eye, left eye, or both eyes? | 1 Right eye 2 Left eye 3 Both 7 Refused 9 Don't know |

| Variable Name | First Available* | Latest Available | Question | Response Options |
|-----------------------------------|------------------|------------------|---|---|
| <i>Physical Functioning</i> | | | | |
| PFD069P, PFD069pQ, PFD069pG | 1999 | 2008 | How long (have/has) (you/SP) had vision problems (# of days)? | 60 to 26280 66666 Since Birth 77777 Refused 99999 Don't know |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report. In instances where a question has been asked over multiple years, but with more than one variable name, all known variable names are listed; change in wording across years is noted when possible.

National Hospital Ambulatory Medical Care Survey

Purpose and Scope:

The National Hospital Ambulatory Medical Care Survey (NHAMCS) is designed to collect data on the utilization and provision of ambulatory care services in hospital emergency and outpatient departments and in ambulatory surgery centers. Hospital-based ambulatory surgery centers were first added to this study in 2009, and freestanding ambulatory surgery centers were added in 2010. The NHAMCS is the companion survey to the National Ambulatory Medical Care Survey (described above).

Sample Design:

For the survey's hospital component, findings are based on a national sample of visits to emergency and outpatient departments and to ambulatory surgery facilities in noninstitutional general and short-stay hospitals located in the 50 States and the District of Columbia. The sample excludes Federal, military, and Veterans Administration hospitals. A four-stage probability sampling design is used. The first stage consists of a sample of geographically defined areas, and the second stage is of hospitals within these areas. In the third stage, clinics within outpatient departments are selected. All emergency service areas and in-scope ambulatory surgery locations are included. In the final stage, patient visits to these settings are sampled.

For the freestanding ambulatory surgery component of the NHAMCS, findings are based on a national sample of visits to these ambulatory surgery centers. Centers are located in the 50 States and the District of Columbia, are regulated by states, certified by the Centers for Medicare and Medicaid Services, or whose primary business is ambulatory surgery. A two-stage list sample design is used that includes samples of facilities and of patient visits to these facilities.

Data Collection Procedures:

Specially trained interviewers visit facilities prior to their participation in the survey. They explain survey procedures, verify eligibility, develop a sampling plan, and train staff in data collection procedures. The survey instrument is the Patient Record form, which is provided in three versions -- one for the emergency department, one for the outpatient department, and one for the ambulatory surgery facilities. Staff are instructed to complete Patient Record forms for a systematic random sample of patient visits during a randomly assigned 4-week reporting period. Data are obtained on patients' demographic characteristics, expected source(s) of payment, patients' complaints, diagnoses, diagnostic/screening services, procedures, medication therapy, disposition, types of providers seen, causes of injury (emergency department and ambulatory surgery center only), and certain characteristics of the facility, such as, geographic region and metropolitan status.

Source:

http://www.cdc.gov/nchs/ahcd/about_ahcd.htm

Vision and Eye Health Variables from the National Hospital Ambulatory Medical Care Survey

Table 12. National Hospital Ambulatory Medical Care Survey

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---|------------------|------------------|--|--|
| <i>Emergency Department</i> | | | | |
| RFVX | 1999-2000 | 2015 | Patient’s reason for visit (up to five) | Symptoms Referable to the Eyes and Ears 1300-1399 Diseases of the Eye 2400-2449 |
| DIAGX | 1999-2000 | 2015 | Diagnoses (three to five) | ICD-9-CM |
| PAYTYPEX | 1999-2000 | 2015 | Primary expected source of payment for this visit | 1 Private insurance 2 Medicare 3 Medicaid 4 Worker’s Compensation 5 Self-pay 6 No charge 7 Other 8 Unknown 9 Blank |
| <i>Outpatient Department and Ambulatory Surgery</i> | | | | |
| PAYTYPEX | 1999-2000 | 2015 | Primary expected source of payment for this visit | 1 Private insurance 2 Medicare 3 Medicaid 4 Worker’s Compensation 5 Self-pay 6 No charge 7 Other 8 Unknown 9 Blank |
| RFVX | 1999-2000 | 2015 | Patient’s reason for visit (three to five) | Symptoms Referable to the Eyes and Ears 1300-1399 Diseases of the Eye 2400-2449 |
| DIAGX | 1999-2000 | 2015 | Diagnoses (three to five) | ICD-9-CM |
| RETINAL | 1999-2000 | 2015 | Retinal/eye exam and ability to add other service | 1 Yes 0 No |
| PROCX | 1999-2000 | 2015 | Current Procedural Terminology or HCPCS Codes (up to 18) | CPT or HCPCS code |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

National Nursing Home Survey

Purpose and Scope:

The National Nursing Home Survey (NNHS) is a series of nationally representative sample surveys of United States nursing homes, their services, their staff, and their residents. The NNHS was first conducted in 1973-1974 and repeated in 1977, 1985, 1995, 1997, 1999, and 2004. Although each of these surveys emphasized different topics, they all provided some common basic information about nursing homes, their residents, and their staff.

Sample Design:

The sampling was a stratified two-stage probability design. The first stage was the selection of facilities and the second stage was the selection of residents. The primary sampling strata of facilities were defined by sampling bed size category and metropolitan area status. Within primary strata, facility substrata were defined based on the following factors: certification status, hospital-based and nonhospital-based; ownership; geographic region; state, county, and zip code. Nursing homes were then selected within substrata using systematic sampling with probability proportional to their bed size.

The second-stage sampling of current residents was carried out by the interviewers at the time of their visits to the facilities. The sample frame for current residents was the total number of residents on the register of the facility as of midnight of the day prior to the day of the survey. Residents who were physically absent from the facility due to overnight leave or a hospital visit, but had a bed maintained for them at the facility, were included in the sample frame. A sample of up to twelve current residents per facility was selected.

Data Collection Procedures:

All nursing homes that participated in the NNHS had at least three beds and were either certified (by Medicare or Medicaid) or had a state license to operate as a nursing home. The 2004 survey was administered using a computer-assisted personal interviewing (CAPI) system. For recipients, data were obtained on demographic characteristics, health status and medications taken, services received, and sources of payment.

Notable Features:

The 2004 NNHS was reintroduced into the field after a five-year break, during which time the survey was redesigned and expanded to collect many new data items; however, data on resident vision was no longer collected.

Source:

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

Vision and Eye Health Variables from the National Nursing Home Survey

Table 13. National Nursing Home Survey

| Variable Name | First Available* | Latest Available | Question | Response Options |
|--|------------------|------------------|---|--|
| <i>Current Resident Questionnaire</i> | | | | |
| CR10_01 | 1999 | 1999 | Which of these aids does (he/she) currently use?: <i>Eyeglasses</i> | 01 Aid used 02 Aid not used |
| CR11A | 1999 | 1999 | Does (he/she) have any difficulty in seeing (when wearing glasses)? | 01 Yes 02 No |
| CR11B | 1999 | 1999 | Is (his/her) sight (when wearing glasses) partially, severely, or completely impaired as defined on this card? | 01 Partially Impaired 02 Severely Impaired 03 Completely Lost, Blind |
| <i>Discharged Resident Questionnaire</i> | | | | |
| DR10_01 | 1999 | 1999 | (At the time of discharge/immediately prior to discharge), which of these aids did (he/she) use?: <i>Eyeglasses</i> | 01 Aid used 02 Aid not used |
| DR11A | 1999 | 1999 | (At the time of discharge/immediately prior to discharge), did (he/she) have any difficulty in seeing (when wearing glasses)? | 01 Yes 02 No |
| DR11B | 1999 | 1999 | Was (his/her) sight (when wearing glasses) partially, severely, or completely impaired as defined on this card? | 01 Partially Impaired 02 Severely Impaired 03 Completely Lost, Blind |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

National Social Life, Health, and Aging Project

Purpose and Scope:

The National Social Life, Health, and Aging Project (NSHAP) is a longitudinal, population-based study of health and social factors, which aims to understand the well-being of older, community-dwelling Americans by examining the interactions among physical health and illness, medication use, cognitive function, emotional health, sensory function, health behaviors, social connectedness, sexuality, and relationship quality. NSHAP provides policy makers, health providers, and individuals with useful information and insights into these factors.

Sample Design:

The NSHAP sample is built on the foundation of the national household screening carried out by the Health and Retirement Study (HRS) in 2004. NSHAP Wave 1 used a national area probability sample of community residing adults born between 1920 and 1947 (aged 57 to 85 at the time of the Wave 1 interview), which included an oversampling of African-Americans and Hispanics. Through a collaborative agreement, HRS identified households for the NSHAP eligible population. A sample of 4,400 people was selected from the screened households. NSHAP made one selection per household. Ninety-two percent of the persons selected for the NSHAP interview were eligible.

For Wave 2 in 2010 and 2011, NSHAP returned to Wave 1 Respondents and eligible non-interviewed respondents from Wave 1 (Wave 1 Non-Interviewed Respondents). NSHAP also extended the Wave 2 sample to include the cohabiting spouses and romantic partners of Wave 1 Respondents and Wave 1 Non-Interviewed Respondents. Partners were considered to be eligible to participate in NSHAP if they resided in the household with the Wave 1 Respondent/Wave 1 Non-Interviewed Respondent at the time of the Wave 2 interview and were at least 18 years of age.

For Wave 3 in 2015 and 2016, in addition to the Wave 2 respondents being re-interviewed, NSHAP approached Wave 1 respondents who decided not to participate in Wave 2. In addition, a new cohort of community residing adults born between 1948 and 1965 was identified from a national household screening conducted by NORC.

Data Collection Procedures:

In 2005 and 2006, NORC and Principal Investigators at the University of Chicago conducted the first wave of NSHAP. They completed more than 3,000 interviews with a nationally representative sample of adults born between 1920 and 1947 (aged 57 to 85 at the time of Wave 1 interview). In 2010 and 2011, nearly 3,400 interviews were completed for Wave 2 with these Wave 1 Respondents, Wave 1 Non-Interviewed Respondents, and their spouses or cohabiting romantic partners. In 2015 and 2016, more than 4,700 interviews were completed for Wave 3. For all waves, data collection included/will include three

measurements: in-home interviews, biometrics, and leave-behind respondent-administered questionnaires. The face-to-face interviews and biometric collection take place in respondents' homes.

Source:

<http://www.norc.org/Research/Projects/Pages/national-social-life-health-and-aging-project.aspx>

Vision and Eye Health Variables from the National Social Life, Health, and Aging Project

Table 14. National Social Life, Health, and Aging Project

| Variable Name | First Available | Latest Available | Question | Response Options |
|----------------------------|-----------------|------------------|---|--|
| <i>In-Person Interview</i> | | | | |
| EYESIGHT | 2005/2006 | 2010/2011 | With your glasses or contact lenses if you wear them, is your eyesight excellent, very good, good, fair, or poor? | 4 Excellent 3 Very Good 2 Good 1 Fair Poor .b don't know .f missing |
| RFHLTH2R | 2010/2011 | 2010/2011 | Please rate the respondent's functional health and behavior during the interview on the following scales: | 1 Practically Blind 2 3 4 5 Normal Vision .b don't know .f missing |

National Survey of Child and Adolescent Well-Being

Purpose and Scope:

The National Survey of Child and Adolescent Well-Being (NSCAW) is a nationally representative, longitudinal survey of children and families who have been the subjects of investigation by Child Protective Services. There have been two cohorts of children enrolled in the survey, which provides data drawn from first-hand reports from children, parents, other caregivers, and reports from caseworkers, teachers, and data from administrative records. NSCAW examines child and family well-being outcomes in detail and seeks to relate those outcomes to experience with the child welfare system and to family characteristics, community environment, and other factors.

Sample Design:

The NSCAW cohort includes 6,231 children, ages birth to 14 (at the time of sampling), who had contact with the child welfare system within a fifteen-month period which began in October, 1999. These children were selected from two groups: 5,504 interviewed from those entering the system during the reference period (October 1999 - December 2000), and 727 from among children who had been in out-of-home placement for about 12 months at the time of sampling. These 6,231 children were selected from 92 Primary Sampling Units (PSUs) in 97 counties nationwide. The sample of investigated/ assessed cases includes both cases that receive on-going services and cases that are not receiving services, either because they were not substantiated or because it was determined that services were not required. This sample design required oversampling of infants (to ensure that there would be enough cases going through to permanency planning), sexual abuse cases (to ensure that there would be enough cases to have the statistical power to analyze this kind of abuse alone), and cases receiving ongoing services after investigation (to ensure adequate power to understand the process of services). The age of children at investigation was capped at 14 years of age to increase the likelihood that youth could be located—a task made more difficult when youth emancipate. This approach allows for generation of national estimates for the full population of children and families entering the system, with power to consider key sub-groups of the child welfare population. In response to the mandate in the legislation authorizing the survey, the sample was designed to also calculate state-level estimates for the eight states with the largest numbers of CPS cases.

Data Collection Procedures:

The study collected child- and family-level data from children in the child welfare system, their biological parents, caregivers, teachers, and caseworkers, as well as from administrative records. Face-to-face or telephone interviews were conducted at baseline and at the 18-month follow-up with children, parents and non-parent caregivers.

Source:

<http://www.acf.hhs.gov/programs/opre/research/project/national-survey-of-child-and-adolescent-well-being-nscaw>

http://www.acf.hhs.gov/sites/default/files/opre/nscaw_measures.pdf

http://www.ndacan.cornell.edu/datasets/pdfs_user_guides/IntroNSCAWave1.pdf

Vision and Eye Health Variables from the National Survey of Child and Adolescent Well-Being

Table 15. National Survey of Child and Adolescent Well-Being

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|--|------------------|
| Caregiver | | | | |
| P_HS1h30a | 2009 | 2012 | Is (name) blind, nearly blind, or does he/she have difficulty seeing? | 1 Yes 2 No |
| P_HS1h31a | 2009 | 2012 | Do regular eye glasses or contact lenses completely correct the problem? | 1 Yes 2 No |
| P_HS1h32a | 2009 | 2012 | Has this condition been going on or is it expected to go on for at least one year? | 1 Yes 2 No |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

National Survey of Children's Health

Purpose and Scope:

The National Survey of Children's Health (NSCH) touches on multiple, intersecting aspects of children's lives. The survey includes physical and mental health status, access to quality health care, as well as information on the child's family, neighborhood and social context.

Sample Design:

A random-digit-dialed sample of households with children less than 18 years of age was selected from each of the 50 states and the District of Columbia. One child was randomly selected from all children in each identified household to be the subject of the survey. The respondent was a parent or guardian who knew about the child's health and health care.

The goal of the NSCH was to obtain state-specific sample sizes that were sufficiently large to permit reasonably precise estimates of the health characteristics of children in each state. To achieve these goals, state samples were designed to obtain a minimum of 1,700 completed interviews based on the CDC's National Immunization Survey (NIS) sampling frame. The number of children to be selected in each NIS estimation area was determined by allocating the total of 1,700 children in the state to each NIS estimation area within the state in proportion to the total estimated number of households with children in the NIS estimation area.

Data Collection Procedures:

The National Survey of Children's Health was conducted by telephone in English and Spanish for the first time in 2003-2004. A second survey was fielded in 2007-2008 and a third in 2011.

Notable Features:

The NSCH was designed to produce national and state-specific estimates of the health and wellbeing of all children, their families, and communities. These were the first State and Local Area Integrated Telephone Survey (SLAITS) studies to take full advantage of the NIS sampling frame to produce estimates for each of the 50 states and the District of Columbia (DC). The NSCH questionnaire was designed to immediately follow a completed NIS interview in households with an NIS-eligible child or the NIS screener in households without an NIS-eligible child.

Source:

<https://childhealthdata.org/learn/NSCH>

ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/slaits/nsch07/2_Methodology_Report/NSCH_Design_and_Operations_052109.pdf

Vision and Eye Health Variables from the National Survey of Children’s Health

Table 16. National Survey of Children’s Health

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|--|---|
| Caregiver | | | | |
| K2Q44A | 2007 | 2011/2012 | Has a doctor or other health care provider ever told you that [CHILD] had vision problems that cannot be corrected with glasses or contact lenses? | 1 Yes 2 No |
| K2Q44A_1 | 2011/2012 | 2011/2012 | Earlier you told me that [S.C.] has been diagnosed with vision problems. How old was [S.C.] when you were first told by a doctor or other health care provider that [he/she] had vision problems that cannot be corrected with standard glasses or contact lenses? | Record age in years or months |
| K2Q44B | 2007 | 2011/2012 | Does [CHILD] currently have vision problems? | 1 Yes 2 No |
| K2Q44C | 2007 | 2011/2012 | Would you describe [his/her] vision problems as mild, moderate, or severe? | 1 Mild 2 Moderate 3 Severe |
| S2Q20 | 2003 | 2003 | Has a doctor or health professional ever told you that (child's name) has hearing problems or vision problems that cannot be corrected with glasses or contact lenses? | 1 Yes 2 No |
| K4Q31 | 2011/2012 | 2011/2012 | IF AGE < 5 YEARS, READ: Has [S.C.] ever had [his/her] vision tested with pictures, shapes, or letters? IF AGE 5+ YEARS, READ: During the past 2 years, that is, since [FILL INTDATE – 48 MONTHS], has [S.C.] had [his/her] vision tested with pictures, shapes, or letters? | 1 Yes 2 No |
| K4Q32 | 2011/2012 | 2011/2012 | What kind of place or places did [S.C.] have [his/her] vision tested? Was it an eye doctor’s office, a general doctor’s office, clinic, school, or some other place? [Mark all that apply] | 1 Eye doctor or eye specialist (ophthalmologist, optometrist) office 2 Pediatrician or other general doctor’s office 3 Clinic of health center 4 School 5 Other |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

National Survey of Children with Special Health Care Needs

Purpose and Scope:

The National Survey of Children with Special Health Care Needs was designed to produce national and state-specific estimates of the prevalence of children with special health care needs (CSHCN), describe the types of services that they need and use, assess aspects of the system of care for CSHCN, and evaluate the impact of their needs on their families. The survey provides a broad range of information about the health and functional status of children with special health care needs and is collected in a manner that allows for national estimates and comparisons between states.

Sample Design:

Telephone numbers are called at random to identify households with one or more children under 18 years old. Each child in the household is screened for special health care needs using the CSHCN Screener. In each household, one child was randomly selected to be the subject of the interview. The survey results are weighted to represent the population of non-institutionalized children with special health care needs 0-17 nationally and in each of the 50 states plus the District of Columbia.

Data Collection Procedures:

The sampling and data collection for the NS-CSHCN were conducted using SLAITS (State and Local Area Integrated Telephone Survey). It is a national survey that was conducted by telephone in English and Spanish for the first time in 2001; a second time in 2005-2006; and for a third in 2009-2010.

Notable Features:

The National Survey of Children's Health (NSCH) also complement the National Survey of Children with Special Health Care Needs (NS-CSHCN) by providing data on the health of the general U.S. child population. Results in the NSCH can be stratified by CSHCN status to compare children with special health care needs to those without special needs.

Source:

<http://www.childhealthdata.org/learn/NS-CSHCN>

Vision and Eye Health Variables from the National Survey of Children with Special Health Care Needs

Table 17. National Survey of Children with Special Health Care Needs

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---------------|------------------|------------------|--|---|
| Caregiver | | | | |
| S3Q01 | 2005/2006 | 2005/2006 | Without glasses or contact lenses, would you say [CHILD'S NAME] experiences any difficulty seeing? | 1 Yes 2 No |
| S3Q01A | 2005/2006 | 2005/2006 | Does [CHILD'S NAME] wear glasses or contact lenses? | 1 Yes 2 No |
| S3Q01B | 2005/2006 | 2005/2006 | Does [CHILD'S NAME] have any difficulty seeing even when wearing glasses or contact lenses? | 1 Yes 2 No |
| C3Q21 | 2009/2010 | 2009/2010 | Would you say [he/she] experiences a lot, a little, or no difficulty seeing even when wearing glasses or contact lenses? | 1 A lot of difficulty 2 A little difficulty 3 No difficulty |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

US Census Survey on Income and Program Participation

Purpose and Scope:

The Survey of Income and Program Participation (SIPP) is a household-based survey designed as a continuous series of national panels. Each panel features a nationally representative sample interviewed over a multi-year period lasting approximately four years. SIPP is a source of data for a variety of topics and provides for the integration of information for separate topics to form a single, unified database. SIPP data provide the most extensive information available on how the nation's economic well-being changes over time, which has been SIPP's defining characteristic since its inception in 1983.

Sample Design:

The SIPP survey design is a continuous series of national panels, with sample size ranging from approximately 14,000 to 52,000 interviewed households. The duration of each panel ranges from 2 ½ to 4 years. The SIPP sample is a multistage-stratified sample of the U.S. civilian non-institutionalized population.

Data Collection Procedures:

The SIPP content through the end of the 2008 Panel centered on a "core" of labor force, program participation, and income questions designed to measure the economic situation of people in the U.S. These core questions expanded the data currently available on the distribution of cash and noncash income and repeated during each wave of interviewing. The survey used a 4-month recall period, with approximately the same number of interviews being conducted in each month or "wave" of the 4-month period. Interviews for all SIPP panels are conducted by personal visit and by decentralized telephone. All household members age 15 years and older are interviewed by self-response, if possible; proxy response is permitted when household members are not available for interviewing.

The survey was also designed to provide a broader context for analysis by adding questions on a variety of topics not covered in the core section. These questions were labeled "topical modules" and assigned to particular interviewing waves of the survey. Topics covered by the modules include personal history, child care, wealth, program eligibility, child support, school enrollment, taxes, annual income, and relevant to this report, utilization and cost of health care and disability.

Notable Features:

Only the 2008 panel wave 6 and wave 10 contained questions on vision.

Source:

<http://www.census.gov/programs-surveys/sipp/about.html>

Vision and Eye Health Variables from the US Census Survey on Income and Program Participation

Table 18. US Census Survey on Income and Program Participation

| Variable Name | First Available* | Latest Available | Question | Response Options |
|---|------------------|------------------|--|------------------------------------|
| <i>Adult Functional Limitations Care Topical Module</i> | | | | |
| ADQ4 | 2008-wave 6 | n/a | [fill C_DODOES] [fill TEMPNAME] have difficulty seeing the words and letters in ordinary newspaper print even when wearing glasses or contact lenses if [fill HESHE] usually wear(s) them? | 1 Yes 2 No 3 Person is blind |
| ADQ5 | 2008-wave 6 | n/a | [fill C_AREIS] [fill TEMPNAME] able to see the words and letters in ordinary newspaper print at all? | 1 Yes 2 No |
| <i>Child Functional Limitations Topical Module</i> | | | | |
| CDQ9 | 2008-wave 6 | n/a | Does [fill CDNAME] have difficulty seeing the words and letters in ordinary newspaper print, even when wearing glasses or contact lenses if [fill HESHEG] usually wears them? | 1 Yes 2 No 3 Person is blind |
| CDQ10 | 2008-wave 6 | n/a | Is [fill CDNAME] able to see the words and letters in ordinary newspaper print at all? | 1 Yes 2 No |
| <i>Medical Expenses and Utilization of Health Care Topical Module Care Topical Module</i> | | | | |
| DISAB2 | 2008-wave 10 | n/a | [fill C_AREIS] [fill HESHE] blind or [fill DODOES] [fill HESHE] have serious difficulty seeing even when wearing glasses? | 1 Yes 2 No |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

Appendix A: Examination Variables

In addition to the self-reported data described above, a number of the surveys collect(ed) data through examinations by either a qualified professional or a trained research interviewer. These surveys include:

1. [The Health and Retirement Study](#)
2. [The National Health and Nutrition Examination Survey](#)
3. [The National Health, Social Life, and Aging Project](#)

Details regarding the data are provided below.

Table 19. Health and Retirement Study Examination Variables

| Variable Name | First Available* | Latest Available | Exam |
|------------------------|------------------|------------------|---|
| DBVCCONSENSE | 2006 | 2009 | VISUAL CONTRAST - SUBTRACT LOG CONTRAST SENSITIVITY |
| DBVISN2 (ABVISN2-2001) | 2001 | 2009 | VISUAL ACUITY - 20/(NORMAL EYE SEES AT 20 FT) |
| DBVACP | 2006 | 2009 | WHETHER VISUAL ACUITY TEST COMPLETED |
| DBVCCP | 2006 | 2009 | WHETHER VISUAL CONTRAST SENSITIVITY COMPLETED |
| DBVATOTCOR | 2006 | 2009 | VISUAL ACUITY - TOTAL NUMBER CORRECT |
| DBVCFINLET | 2006 | 2009 | VISUAL CONTRAST - FINAL VALUE OF CORRECT LETTER |
| DBVCNM | 2006 | 2009 | VISUAL CONTRAST - NUMBER MISSED |
| DBVCNM04 | 2006 | 2009 | VISUAL CONTRAST - NUMBER MISSED MULT BY 0.04 |
| DBVCCORRECT | 2006 | 2009 | VISUAL CONTRAST - WHETHER VISION CORRECTION USED |
| DBVCEYEDIST | 2006 | 2009 | VISUAL CONTRAST - DISTANCE FROM EYES TO CHART |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

Table 20. National Health and Nutrition Examination Survey Examination Variable

| Variable Name | First Available* | Latest Available | Exam |
|---|------------------|------------------|--|
| OPDSRL4 , OPDDRL4 , OPDURL4 | 2005 | 2008 | Four levels retinopathy severity, left eye; right eye; worse eye |
| OPDSAGA , OPDDAGA , OPDUAGA | 2005 | 2008 | Any geographic atrophy, left eye; right eye; worse eye |
| OPDSOTRX , OPDDOTRX , OPDUOTRX | 2005 | 2008 | Any other treatment, left eye; right eye; worse eye |
| OPDSARMA , OPDDARMA , OPDUARMA | 2005 | 2008 | Any retinopathy, left eye; right eye; worse eye |
| OPDSASD , OPDDASD , OPDUASD | 2005 | 2008 | Any soft drusen, left eye; right eye; worse eye |
| OPXSCOMP , OPXDCOMP | 2005 | 2008 | Are field 1 & field 2 present, left eye; right eye; worse eye |
| OPDSARM , OPDDARM , OPDUARM | 2005 | 2008 | ARM, 3 severity levels, left eye; right eye; worse eye |
| OPDSASHY , OPDDASHY , OPDUASHY | 2005 | 2008 | Asteroid Hyalosis, left eye; right eye; worse eye |
| OPDSCHRA , OPDDCHRA , OPDUCHRA | 2005 | 2008 | Chorioretinal abnormality left eye; right eye; worse eye |
| OPDSCHN , OPDDCHN , OPDUCHN | 2005 | 2008 | Choroidal nevus, left eye; right eye; worse eye |
| OPX1OD02 , OPX2OD02 , OPX1OS02 , OPX2OS02 | 2005 | 2008 | CT result left and right eye; Test 1 and Test2 |
| OPXSHEME , OPXDHEME | 2005 | 2008 | Disc Heme, left eye; right eye |
| OPDSD125 , OPDDD125 , OPDUD125 | 2005 | 2008 | Drusen>=125 microns, left eye; right eye; worse eye |
| OPDSD500 , OPDDD500 , OPDUD500 | 2005 | 2008 | Drusen>=500 microns, left eye; right eye; worse eye |
| OPASCST2 | 2005 | 2008 | Exam status |
| OPDSEXC , OPDDEXC | 2005 | 2008 | Excavation, left eye; right eye |
| OPDSAREX , OPDDAREX | 2005 | 2008 | Excluded for ARM, left eye; right eye |
| OPDSEXU , OPDDEXU , OPDUEXU | 2005 | 2008 | Exudative ARM, left eye; right eye; worse eye |
| OPASCST1 , OPASCCT1 | 2005 | 2008 | FDT Exam Status; FDT Exam Status Comment |
| OPXSF1FO , OPXDF1FO | 2005 | 2008 | Field 1 Focus, left eye; right eye |
| OPXSF1 , OPXDF1 | 2005 | 2008 | Field 1 Present, left eye; right eye |
| OPXSF2FO , OPXDF2FO | 2005 | 2008 | Field 2 Focus, left eye; right eye |
| OPXSF2 , OPXDF2 | 2005 | 2008 | Field 2 Present, left eye; right eye |
| OPDOSFDT , OPDODFDT | 2005 | 2008 | Final FDT left eye status; right eye status |
| OPDSFAN , OPDDFAN , OPDUFAN | 2005 | 2008 | Focal arteriolar narrowing, left eye; right eye; worse eye |
| OPDSFOC , OPDDFOC , OPDUFOC | 2005 | 2008 | Focal photocoag. scars for ME, left eye; right eye; worse eye |
| OPDSGA , OPDDGA , OPDUGA | 2005 | 2008 | Geographic atrophy, left eye; right eye; worse eye |

| Variable Name | First Available* | Latest Available | Exam |
|---|------------------|------------------|---|
| OPXSGLAU , OPXDGLAU | 2005 | 2008 | Glaucoma, left eye; Glaucoma, right eye |
| OPXSGRBL , OPXDGRBL | 2005 | 2008 | Gradability of images, left eye; right eye |
| OPDSHD , OPDDHD , OPDUHD | 2005 | 2008 | Hard distinct drusen, left eye; right eye; worse eye |
| OPDSPOHS , OPDDPOHS , OPDUPOHS | 2005 | 2008 | Histoplasmosis syndrome, left eye; right eye; worse eye |
| OPDSHOLL , OPDDHOLL , OPDUHOLL | 2005 | 2008 | Hollenhorst plaque, left eye; right eye; worse eye |
| OPDSIRP , OPDDIRP , OPDUIRP | 2005 | 2008 | Increased retinal pigment, left eye; right eye; worse eye |
| OPDSIRMA , OPDDIRMA , OPDUIRMA | 2005 | 2008 | IRMA, left eye; right eye; worse eye |
| OPDSLARM , OPDDLARM , OPDULARM | 2005 | 2008 | Late ARM, left eye; right eye; worse eye |
| VIDLVA , VIDLOVA | 2005 | 2008 | Left visual acuity, presenting; w/ obj. refraction |
| OPDSMEC , OPDDMEC , OPDUMEC | 2005 | 2008 | Macular edema in center, left eye; right eye; worse eye |
| OPDSME , OPDDME , OPDUME | 2005 | 2008 | Macular edema, left eye; right eye; worse eye |
| OPDSMACH , OPDDMACH , OPDUMACH | 2005 | 2008 | Macular hole, left eye; right eye; worse eye |
| OPDSHMA , OPDDHMA , OPDUHMA | 2005 | 2008 | MAS, HEM, left eye; right eye; worse eye |
| OPX1OS05 , OPX2OS05 , OPX1OD09 , OPX2OD09 , OPX1OS03 , OPX2OS03 , OPX1OD07 , OPX2OD07 , OPX1OS15 , OPX1OD11 , OPX2OS15 , OPX2OD11 , OPX1OS17 , OPX2OS17 , OPX1OD13 , OPX2OD13 , OPX1OS06 , OPX2OS06 , OPX1OD10 , OPX2OD10 , OPX1OS04 , OPX2OS04 , OPX1OD08 , OPX2OD08 , OPX1OS16 , OPX2OS16 , OPX1OD12 , OPX2OD12 , OPX1OS18 , OPX2OS18 , OPX1OD14 , OPX2OD14 , OPX1OS01 , OPX2OS01 , OPX1OD20 , OPX2OD20 | 2005 | 2008 | NI-N7 results left and right eye, Test 1 and Test 2 |
| OPX1OSTN , OPX2OSTN , OPX1ODTN , OPX2ODTN | 2005 | 2008 | No fixation per Tech left and right eye, Test 1 and Test 2 |
| OPDSNOT , OPDDNOT | 2005 | 2008 | Notch, left eye; right eye |
| OPX1OS00 , OPX2OS00 , OPX1OD19 , OPX2OD19 | 2005 | 2008 | NS result left and right eye, Test 1 and Test 2v |
| OPDSOTHC , OPDDOTHC , OPDUOTHC | 2005 | 2008 | Other ocular conditions, left eye; right eye; worse eye |
| OPDSPPS , OPDDPPS , OPDUPPS | 2005 | 2008 | Panret. photocoagulation scar, left eye; right eye; worse eye |
| OPDSPPA , OPDDPPA , OPDUPPA | 2005 | 2008 | Peripapillary atrophy, left eye; right eye; worse eye |
| OPXSPHAR , OPXDPHAR | 2005 | 2008 | Photo Prob - Arc, left eye; right eye |
| OPXSPHDD , OPXDPHDD | 2005 | 2008 | Photo Prob - Dust/Dirt, left eye; right eye |
| OPXSPHFD , OPXDPHFD | 2005 | 2008 | Photo Prob - Field Definition, left eye; right eye |
| OPXSPHHZ , OPXDPHHZ | 2005 | 2008 | Photo Prob - Haze, left eye; right eye |

| Variable Name | First Available* | Latest Available | Exam |
|---|------------------|------------------|---|
| OPXSPHIL , OPXDPHIL | 2005 | 2008 | Photo Prob - Illumination, left eye; right eye |
| OPXSPHLA , OPXDPHLA | 2005 | 2008 | Photo Prob - Lashes, left eye; right eye |
| OPXSPHOT , OPXDPHOT | 2005 | 2008 | Photo Prob - Other, left eye; right eye |
| OPXSPHRC , OPXDPHRC | 2005 | 2008 | Photo Prob - Red Channel, left eye; right eye |
| OPXSPHPR , OPXDPHPR | 2005 | 2008 | Photo Problems, left eye; right eye |
| OPDSPHVH , OPDDPHVH , OPDUPHVH | 2005 | 2008 | Pre - ret./ vitreous hemorrhage, left eye; right eye; worse eye |
| OPXSPMM , OPXDPM | 2005 | 2008 | Pupil Size, left eye; right eye |
| OPXSQUAL , OPXDQUAL | 2005 | 2008 | Quality, left eye; right eye |
| OPDSREA , OPDDREA | 2005 | 2008 | Reason for ARM exclusion, left eye; right eye |
| OPASCCT2 | 2005 | 2008 | Reason for not done/partial |
| SEQN | 2005 | 2008 | Respondent sequence number |
| OPX1OSBS , OPX2OSBS , OPX1ODBS , OPX2ODBS | 2005 | 2008 | Response to BS stimulus left and right eye, Test 1 and Test 2 |
| OPX1OSFP , OPX2OSFP , OPX1ODFP , OPX2ODFP | 2005 | 2008 | Response to FP stimulus left and right eye, Test 1 and Test 2 |
| OPDSPIGA , OPDDPIGA , OPDUPIGA | 2005 | 2008 | Ret. & pigmentary abnormal, left eye; right eye; worse eye |
| OPDSCVO , OPDDCVO , OPDUCVO | 2005 | 2008 | Ret. central vein occlusion, left eye; right eye; worse eye |
| OPDSBCO , OPDDBCO , OPDUBCO | 2005 | 2008 | Retinal artery occlusion, left eye; right eye; worse eye |
| OPDSAVN , OPDDAVN , OPDUAVN | 2005 | 2008 | Retinal AV nicking, left eye; right eye; worse eye |
| OPDSHEM , OPDDHEM , OPDUHEM | 2005 | 2008 | Retinal blot hemorrhages, left eye; right eye; worse eye |
| OPDSBVO , OPDDBVO , OPDUBVO | 2005 | 2008 | Retinal branch vein occlusion, left eye; right eye; worse eye |
| OPDSRDET , OPDDRDET , OPDURDET | 2005 | 2008 | Retinal detachment, left eye; right eye; worse eye |
| OPDSRFP , OPDDRFP , OPDURFP | 2005 | 2008 | Retinal fibrous proliferation, left eye; right eye; worse eye |
| OPDSHE , OPDDHE , OPDUHE | 2005 | 2008 | Retinal hard exudate, left eye; right eye; worse eye |
| OPDSMA , OPDDMA , OPDUMA | 2005 | 2008 | Retinal microaneurysms, left eye; right eye; worse eye |
| OPDSNVE , OPDDNVE , OPDUNVE | 2005 | 2008 | Retinal new vessels elsewhere, left eye; right eye; worse eye |
| OPDSNVO , OPDDNVO , OPDUNVO | 2005 | 2008 | Retinal new vessels on disc, left eye; right eye; worse eye |
| OPDSSE , OPDDSE , OPDUSE | 2005 | 2008 | Retinal soft exudate, left eye; right eye; worse eye |
| OPDSVB , OPDDVB , OPDUVB | 2005 | 2008 | Retinal venous beading, left eye; right eye; worse eye |
| OPDSRET , OPDDRET , OPDURET | 2005 | 2008 | Retinopathy level, left eye; right eye; worse eye |

| Variable Name | First Available* | Latest Available | Exam |
|---|------------------|------------------|---|
| VIDRVA , VIDROVA , VIXKRCG , VIXKRG1 , VIXKRG2 , VIXKRD , VIXKRD1 , VIXKRD2 , VIXKRDM , VIXKRM1 , VIXKRM2 , VIXKRMM , OPDSRPE , OPDDRPE , OPDURPE , OPDSPED , OPDDPED , OPDUPED , OPXSSIZE , OPXDSIZE , OPDSSDD , OPDSSDD , OPDUSDD , OPDSSID | 2005 | 2008 | Right and left keratometry: radius flat curve (mm); power flat curve (D); axis flat curve (deg); radius steep curve(mm); power steep curve (D); axis steep curve (deg); radius, average (mm); power, average (D); cylinder; axis (deg); flat curve (mm); power flat curve (D); axis flat curve (deg); radius steep curve(mm); power steep curve (D); axis steep curve (deg); radius, average (mm); power, average (D); cylinder; axis (deg) |
| VIDRVA , VIDROVA | 2005 | 2008 | Right and left visual acuity, presenting; w/ obj. refraction |
| OPDSRPE , OPDDRPE , OPDURPE | 2005 | 2008 | RPE depigmentation, left eye; right eye; worse eye |
| OPDSPED , OPDDPED , OPDUPED | 2005 | 2008 | RPE/sensory ret. detachment, left eye; right eye; worse eye |
| OPXSSIZE , OPXDSIZE | 2005 | 2008 | Size, left eye; right eye |
| OPDSSDD , OPDSSDD , OPDUSDD | 2005 | 2008 | Soft distinct drusen, left eye; right eye; worse eye |
| OPDSSID , OPDSSID , OPDUSID | 2005 | 2008 | Soft indistinct drusen, left eye; right eye; worse eye |
| VIQ110 | 2005 | 2008 | SP has severe eye infection? |
| VIQ130 | 2005 | 2008 | SP wearing eye patch |
| OPDSSFS , OPDSSFS , OPDUSFS | 2005 | 2008 | Subretinal fibrous scar, left eye; right eye; worse eye |
| OPDSSUBH , OPDSSUBH , OPDUSUBH | 2005 | 2008 | Subretinal hemorrhage, left eye; right eye; worse eye |
| OPDSSNV , OPDSSNV , OPDUSNV | 2005 | 2008 | Subretinal new vessels, left eye; right eye; worse eye |
| OPDSSWR , OPDSSWR , OPDUSWR | 2005 | 2008 | SW, cellophane changes, left eye; right eye; worse eye |
| OPDSSWRT , OPDSSWRT , OPDUSWRT | 2005 | 2008 | SW, traction changes, left eye; right eye; worse eye |
| OPX1OS10 , OPX2OS10 , OPX1OD06 , OPX2OD06 , OPX1OS08 , OPX2OS08 , OPX1OD04 , OPX2OD04 , OPX1OS12 , OPX1OD16 , OPX2OS12 , OPX2OD16 , OPX1OS14 , OPX2OS14 , OPX1OD18 , OPX2OD18 , OPX1OS09 , OPX2OS09 , OPX1OD05 , OPX2OD05 , OPX1OS07 , OPX2OS07 , OPX1OD03 , OPX2OD03 , OPX1OS11 , OPX2OS11 , OPX1OD15 , OPX2OD15 , OPX1OS13 , OPX2OS13 , OPX1OD17 , OPX2OD17 | 2005 | 2008 | T1-T8 results left and right eye, Test 1 and Test2 |
| OPDSTIL , OPDSTIL | 2005 | 2008 | Tilted, left eye; Tilted, right eye |
| OPDSARMX , OPDARMX , OPDUARMX | 2005 | 2008 | Treatment for ARM, left eye; right eye; worse eye |
| OPXSRCDR , OPXDRCDR | 2005 | 2008 | Vertical CDR, re - read images, left eye; right eye |
| OPDSVCDR , OPDVCDCR | 2005 | 2008 | Vertical cup disc ratio, left eye; right eye |
| VIQ141 | 2005 | 2008 | If VIQ130 = "Yes" record which eye(s) is/are affected. |
| VIQ250 | 2005 | 2008 | Did the examiner capture the prescription of the examinee's lens? |

| Variable Name | First Available* | Latest Available | Exam |
|--|------------------|------------------|---|
| VIQ220 | 2005 | 2008 | Do you wear glasses or contact lenses for distance vision, such as when you watch television? |
| VIQ150 | 2005 | 2008 | Do you wear glasses or contact lenses for reading or near work? |
| VIQ121 | 2005 | 2008 | if VIQ110 = "Yes" record which eye(s) is/are affected. |
| VIQ160 | 2005 | 2008 | If VIQ150= "Yes", record if the examinee brought their near work glasses, or a combination of glasses and/or contacts to the testing facility |
| VIQ170 | 2005 | 2008 | If VIQ160= "Yes", record whether the examinee wore glasses, contacts, or a combination of glasses and/or contacts for test of near vision |
| VIQ211 | 2005 | 2008 | if VIQ200 = "Yes", record which eye(s) was/were operated on for cataracts. |
| VIQ240 | 2005 | 2008 | If VIQ230 = "Yes", record the type of correction (glasses, contacts, or a combination of glasses and contacts) the SP has with them. |
| VIXORCM, VIXORSM, VIXPLA, VIXPLC, VIXPLS, VIXPRA, VIXPRC, VIXPRS | 2005 | 2008 | Objective refraction: right sphere, median; cylinder, median; right axis, median; right confidence level reading; left sphere, median; cylinder, median; left axis, median; left confidence level reading |
| VIXPLA, VIXPLC, VIXPLS, VIXPRA, VIXPRC, VIXPRS | 2005 | 2008 | Prescription: right sphere; right cylinder; right axis; left sphere; left cylinder; left axis |
| VIXOCMT | 2005 | 2008 | Visual Acuity Comments |

*Only surveys conducted between 1999 and 2015 were considered for inclusion in this report.

Table 21. National Social Life, Health, and Aging Project

| Variable Name | First Available | Latest Available | Exam |
|---------------|-----------------|------------------|--|
| DVDISTCE | 2005/2006 | 2005/2006 | RECORD DISTANCE |
| DVLINE | 2005/2006 | 2005/2006 | RECORD SMALLEST LINE READ CORRECTLY BY R |
| GLASSES | 2005/2006 | 2005/2006 | DID THE RESPONDENT WEAR GLASSES OR CONTACTS TO READ THE CHART? |