

# Health, United States, 2017

With Special Feature on Mortality



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics

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# Preface

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*Health, United States, 2017* is the 41st report on the health status of the country, and is submitted by the Secretary of the U.S. Department of Health and Human Services to the President and the Congress of the United States in compliance with Section 308 of the Public Health Service Act. This report was compiled by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS).

The *Health, United States* series presents an annual overview of national trends in health statistics. The report contains a Chartbook that presents trends and current information on selected measures of morbidity, mortality, health care utilization and access, health risk factors, prevention, health insurance, and personal health care expenditures. The Chartbook includes a Special Feature section, which examines a topic of public health interest and policy relevance.

In addition to the Chartbook, *Health, United States, 2017* provides 114 Trend Tables organized around four subject areas: health status and determinants, health care utilization, health care resources, and health care expenditures. The Trend Tables, along with the other components of *Health, United States, 2017*, are available for download on the *Health, United States* website at: <https://www.cdc.gov/nchs/hus/index.htm>.

## The 2017 Edition

*Health, United States, 2017* contains a summary At a Glance table that displays recent data on selected indicators of health and their determinants, cross-referenced to tables in the report. This is followed by a Highlights section, which focuses on both trends during the past decade and current data on topics of public health interest, illustrating the breadth of material included in *Health, United States*. The remaining major sections are a Chartbook, detailed Trend Tables, two Appendixes, and an Index. These sections of the 2017 report are described in detail below.

## Chartbook

The 2017 Chartbook contains 30 figures on health status and determinants, health care utilization, health care resources, and health care expenditures (Figures 1–19), as well as 11 figures focusing on mortality (Figures 20–30). The Special Feature on Mortality examines when, why, and where individuals are dying in the United States. Data on life expectancy at birth are presented by sex, followed by data on death rates by age group. Leading causes of death for each age group are explored to describe mortality trends from infancy to old age. The Special Feature also

examines three causes of death that have contributed to life expectancy losses in recent years: drug overdoses, suicides, and chronic liver disease. Finally, changes over time in estimates of place of death are presented.

## Trend Tables

This edition includes 114 detailed Trend Tables that highlight major trends in health statistics in the four areas: health status and determinants, health care utilization, health care resources, and health care expenditures. These include an expanded table on mortality from drug overdoses (Table 27) and a table with a new measure of functional limitation (Table 42). An important criterion used in selecting trend tables is the availability of comparable national data over a period of several years. The Trend Tables for *Health, United States, 2017* are available for download at: <https://www.cdc.gov/nchs/hus/contents2017.htm>.

## Appendixes

Appendix I. Data Sources describes each data source used in *Health, United States, 2017*, as well as provides references for further information about the sources. Data sources are listed alphabetically within two broad categories: Government Sources and Private and Global Sources.

Appendix II. Definitions and Methods includes selected terms used in *Health, United States, 2017*. It also contains information on the statistical methodologies used in the report.

The Appendixes for *Health, United States, 2017* are available for download at: <https://www.cdc.gov/nchs/hus/appendix.htm>.

## Index and Search Features

The Index to the Trend Tables and Chartbook figures is a useful tool for locating data by topic. The Data Finder, a companion search tool is available on the *Health, United States* website to help users narrow down the list of tables and charts by health topic and populations of interest. Topics include areas such as drug overdose, injury, and functional limitation. Populations include groups such as children and adolescents, American Indian or Alaska Native persons, and those living in specific geographic regions. See the *Health, United States, 2017* Data Finder at: <https://www.cdc.gov/nchs/hus/contents2017.htm>.



## Data Considerations

### Racial and Ethnic Data

Many tables in *Health, United States* present data according to race and Hispanic origin, consistent with a department-wide emphasis on ensuring that health data on racial and ethnic minority populations are presented whenever possible. Trend data on race and ethnicity are presented in the greatest detail possible after taking into account the quality of the data, the amount of missing data, and the number of observations. These issues significantly affect the availability of reportable data for certain populations, such as the Native Hawaiian or Other Pacific Islander populations and the American Indian or Alaska Native populations. Standards for the classification of federal data on race and ethnicity are described in Appendix II. (See [Appendix II, Race](#).)

### Education and Income Data

Many Trend Tables in *Health, United States* present data according to socioeconomic status, using education and family income as proxy measures. Education and income data are generally obtained directly from survey respondents and are not usually available from records-based data collection systems. (See [Appendix II, Education; Family income; Poverty](#).)

### Statistical Significance

All statements in the text describing differences, or lack thereof, in estimates indicate that statistical testing was performed. Differences between two point estimates were determined to be statistically significant at the 0.05 level using two-sided significance tests (z-tests) without correction for multiple comparisons. Data tables include point estimates and standard errors for users who would like to perform statistical tests. In the text, the standard terminology used when a difference between two point estimates was tested is, “Between (estimate 1) and (estimate 2).” For example, the statement “Between 2015 and 2016” indicates that the difference between the point estimate for 2015 and that for 2016 was tested for statistical significance.

Data trends can be analyzed in many ways. The approaches used in *Health, United States, 2017* to analyze trends in health measures depend on the data source, the unit of analysis, and the number of data points. (For a description of the trend testing technique, see the [Technical Notes](#) that follow the Chartbook.) The statement “During 2006–2016” indicates that a statistical test of trend was conducted, which included estimates for all 11 years in the time period. Because statistically significant differences or trends are partly a function of sample size (i.e., the larger the sample, the smaller the change that can be detected), statistically

significant differences or trends do not necessarily have public health significance (1).

Terms such as “similar,” “stable,” and “no difference” indicate that the statistics being compared were not significantly different. Lack of comment regarding the difference between statistics does not necessarily suggest that the difference was tested and found to not be significant.

National estimates generally have relatively small standard errors, but estimates for certain population subgroups may be based on small numbers and have relatively large standard errors. Although the number of births and deaths from the Vital Statistics System represent complete counts (except for births in those states where data are based on a 50% sample for selected years) and are not subject to sampling error, the counts are subject to random variation, which means that the number of events that actually occur in a given year may be considered as one of a large series of possible results that could have arisen under the same circumstances. When the number of events is small and the probability of such an event is small, considerable caution must be observed in interpreting the conditions described by the estimates. Estimates that are unreliable because of large standard errors or small numbers of events are noted with an asterisk. The criteria used to designate or suppress unreliable estimates are indicated in the table footnotes.

For NCHS surveys, point estimates and their corresponding variances were calculated using the SUDAAN software package (2), which takes into consideration the complex survey design. Starting with *Health, United States, 2017*, the reliability of survey percentage estimates was assessed using a new method (3). Standard errors are available for selected tables in the spreadsheet version on the *Health, United States* website at: <https://www.cdc.gov/nchs/hus/contents2017.htm>. (See [Appendix II, Data presentation standards; Relative standard error \[RSE\]](#).)

### Accessing *Health, United States*

*Health, United States, 2017* can be accessed in its entirety at: <https://www.cdc.gov/nchs/hus/index.htm>. The website is a user-friendly resource for *Health, United States* and related products. The Chartbook figures are provided as PowerPoint slides, and the Trend Tables and Chartbook data tables are provided as spreadsheet and PDF files. Many spreadsheet files include additional years of data not shown in the PDF files, along with standard errors, where available. Visitors to the website can join the *Health, United States* e-mail list ([https://www.cdc.gov/nchs/hus/hus\\_electronic\\_mailing.htm](https://www.cdc.gov/nchs/hus/hus_electronic_mailing.htm)) to receive announcements about release dates and notices of updates. Previous editions of *Health, United States* and its Chartbooks can also be accessed from the website.

Printed copies of *Health, United States* can be purchased from the U.S. Government Printing Office at: <https://bookstore.gpo.gov>.



## Questions?

If you have questions about *Health, United States* or related data products, please contact:

Office of Information Services  
Information Dissemination Staff  
National Center for Health Statistics  
Centers for Disease Control and Prevention  
3311 Toledo Road  
Hyattsville, MD 20782–2064  
Phone: 1–800–CDC–INFO (1–800–232–4636)  
TTY: 1–888–232–6348  
Internet: <https://www.cdc.gov/nchs>  
Online request form: <https://www.cdc.gov/cdc-info/requestform.html>

For e-mail updates on NCHS publication releases, subscribe online at: <https://www.cdc.gov/nchs/govdelivery.htm>.

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	Value (year)			Health, United States, 2017 Table No.
<b>Life Expectancy and Mortality</b>				
Life expectancy, in years				Table 15
At birth	76.8 (2000)	78.7 (2015)	78.6 (2016)	
Infant deaths per 1,000 live births				Table 11
All infants	6.91 (2000)	5.9 (2015)	5.87 (2016)	
Deaths per 100,000 population, <sup>1</sup> age-adjusted				Table 17
All causes	869.0 (2000)	733.1 (2015)	728.8 (2016)	
Heart disease	257.6 (2000)	168.5 (2015)	165.5 (2016)	
Cancer	199.6 (2000)	158.5 (2015)	155.8 (2016)	
Chronic lower respiratory diseases	44.2 (2000)	41.6 (2015)	40.6 (2016)	
Unintentional injuries	34.9 (2000)	43.2 (2015)	47.4 (2016)	
Stroke	60.9 (2000)	37.6 (2015)	37.3 (2016)	
Alzheimer's disease	18.1 (2000)	29.4 (2015)	30.3 (2016)	
Diabetes	25.0 (2000)	21.3 (2015)	21.0 (2016)	
Influenza and pneumonia	23.7 (2000)	15.2 (2015)	13.5 (2016)	
Nephritis, nephrotic syndrome and nephrosis	13.5 (2000)	13.4 (2015)	13.1 (2016)	
Suicide	10.4 (2000)	13.3 (2015)	13.5 (2016)	
<b>Morbidity and Risk Factors</b>				
Fair or poor health, percent				Table 45
All ages	8.9 (2000)	10.1 (2015)	9.9 (2016)	
65 years and over	26.9 (2000)	21.8 (2015)	21.6 (2016)	
Heart disease (ever told), percent				Table 38
18 years and over	11.3 (2000–2001)	11.5 (2013–2014)	11.6 (2015–2016)	
65 years and over	30.9 (2000–2001)	29.4 (2013–2014)	28.9 (2015–2016)	
Cancer (ever told), percent				Table 38
18 years and over	5.0 (2000–2001)	6.4 (2013–2014)	6.9 (2015–2016)	
65 years and over	15.2 (2000–2001)	18.2 (2013–2014)	19.2 (2015–2016)	
Diabetes, <sup>3</sup> percent				Table 40
20 years and over	9.8 (1999–2002)	12.0 (2007–2010)	12.6 (2011–2014)	
Hypertension, <sup>2</sup> percent				Table 54
20 years and over	30.2 (1999–2002)	32.2 (2009–2012)	33.4 (2013–2016)	
Hypercholesterolemia, <sup>4</sup> percent				Table 55
20 years and over	25.0 (1999–2002)	29.5 (2009–2012)	29.4 (2013–2016)	
Obesity, percent				Tables 58 and 59
Obesity, <sup>5</sup> 20 years and over	30.5 (1999–2002)	35.5 (2009–2012)	38.9 (2013–2016)	
Obesity (BMI at or above sex- and age-specific 95th percentile):				
2–5 years	10.3 (1999–2002)	10.2 (2009–2012)	11.6 (2013–2016)	
6–11 years	15.9 (1999–2002)	17.9 (2009–2012)	17.9 (2013–2016)	
12–19 years	16.0 (1999–2002)	19.4 (2009–2012)	20.6 (2013–2016)	
Cigarette smoking, percent				Table 47
18 years and over	23.2 (2000)	15.1 (2015)	15.5 (2016)	
Aerobic activity and muscle strengthening, <sup>6</sup> met both guidelines, percent				Table 57
18 years and over	15.1 (2000)	20.9 (2015)	21.9 (2016)	

<sup>1</sup> Causes are ordered by the number of deaths in 2016.

<sup>2</sup> Having measured high blood pressure (systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg) and/or respondent report of taking antihypertensive medication.

<sup>3</sup> Includes physician-diagnosed and undiagnosed diabetes (fasting plasma glucose of at least 126 mg/dL or a hemoglobin A1c of at least 6.5%).

<sup>4</sup> Having high serum total cholesterol of 240 mg/dL or greater and/or respondent report of taking cholesterol-lowering medication.

<sup>5</sup> Obesity is a body mass index (BMI) greater than or equal to 30.0 for adults. Height and weight are measured rather than self-reported.

# Health, United States, 2017: At a Glance

Health, United States,  
2017  
Table No.

Value (year)

Health Care Utilization			
No health care visit in past 12 months, percent			Table 65
Under 18 years	12.3 (2000)	7.9 (2015)	8.3 (2016)
18–44 years	23.4 (2000)	23.3 (2015)	22.0 (2016)
45–64 years	14.9 (2000)	13.7 (2015)	12.8 (2016)
65 years and over	7.4 (2000)	5.5 (2015)	6.4 (2016)
Emergency room visit in past 12 months, percent			Tables 73 and 74
Under 18 years	20.3 (2000)	16.9 (2015)	17.5 (2016)
18–44 years	20.5 (2000)	18.6 (2015)	18.8 (2016)
45–64 years	17.6 (2000)	17.4 (2015)	18.1 (2016)
65 years and over	23.7 (2000)	21.8 (2015)	23.3 (2016)
Dental visit in past year, percent			Table 78
2–17 years	74.1 (2000)	84.7 (2015)	84.6 (2016)
18–64 years	65.1 (2000)	64.0 (2015)	64.4 (2016)
65 years and over	56.6 (2000)	62.7 (2015)	64.3 (2016)
Prescription drug in past 30 days, percent			Table 79
Under 18 years	23.8 (1999–2002)	24.0 (2007–2010)	21.5 (2011–2014)
18–44 years	35.9 (1999–2002)	38.7 (2007–2010)	37.1 (2011–2014)
45–64 years	64.1 (1999–2002)	66.2 (2007–2010)	69.0 (2011–2014)
65 years and over	84.7 (1999–2002)	89.7 (2007–2010)	90.6 (2011–2014)
Hospitalization in past year, percent			Table 81
18–44 years	7.0 (2000)	5.8 (2015)	5.6 (2016)
45–64 years	8.4 (2000)	7.7 (2015)	7.6 (2016)
65 years and over	18.2 (2000)	15.2 (2015)	15.3 (2016)
Health Insurance and Access to Care			
Uninsured, percent			Table 105
Under 65 years	17.0 (2000)	10.6 (2015)	10.3 (2016)
Under 18 years	12.6 (2000)	4.5 (2015)	5.2 (2016)
18–44 years	22.4 (2000)	15.9 (2015)	14.8 (2016)
45–64 years	12.6 (2000)	9.0 (2015)	8.8 (2016)
Delay or nonreceipt of needed medical care in past 12 months due to cost, percent			Table 63
Under 18 years	4.6 (2000)	2.7 (2015)	2.4 (2016)
18–44 years	9.5 (2000)	9.5 (2015)	9.2 (2016)
45–64 years	8.8 (2000)	10.3 (2015)	10.5 (2016)
65 years and over	4.5 (2000)	4.1 (2015)	3.8 (2016)
Health Care Resources			
Community hospital beds per 1,000 population <sup>7</sup>			Table 90
United States	2.9 (2000)	2.5 (2014)	2.4 (2015)
Highest state	6.0 (ND) (2000)	5.4 (DC) (2014)	5.3 (DC) (2015)
Lowest state	1.9 (NM,NV,OR,UT,WA) (2000)	1.7 (OR,WA) (2014)	1.7 (OR,WA) (2015)
Health Care Expenditures			
Personal health care expenditures, in dollars			Table 95
Total, in trillions	\$1.2 (2000)	\$2.7 (2015)	\$2.8 (2016)
Per capita	\$4,119 (2000)	\$8,479 (2015)	\$8,788 (2016)

<sup>6</sup> Federal guidelines recommend at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic physical activity a week, or an equivalent combination of moderate- and vigorous-intensity activity and muscle-strengthening activities at least twice a week.

<sup>7</sup> Copyright 2017. Used with permission of Health Forum LLC, an affiliate of the American Hospital Association.

NOTES: Estimates in this table are taken from the PDF or spreadsheet version of the cited tables, available from the *Health, United States, 2017* website: <https://www.cdc.gov/nchs/hus/contents2017.htm>.

# Highlights

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This Highlights section includes this year's Special Feature on Mortality, as well as data from the four subject areas of *Health, United States*—health status and determinants, utilization of health resources, health care resources, and health care expenditures and payers. The Highlights section generally presents trends for the recent 10-year period or examines information for the most recent data year for topics of public health interest. Each highlight includes a reference to the detailed trend table or figure where definitions of terms and additional data can be obtained, available from the *Health, United States, 2017* website: <https://www.cdc.gov/nchs/hus/contents2017.htm>.

## Special Feature on Mortality

Between 2006 and 2016, life expectancy at birth in the U.S. for the total population increased 0.8 years—from 77.8 years to 78.6 years. Despite an overall increase over this 10-year period, life expectancy at birth decreased in recent years for the first time since 1993. Between 2014 and 2015, life expectancy at birth decreased 0.2 years. Between 2015 and 2016, life expectancy at birth decreased another 0.1 years (Table 15 and Figure 20).

In 2016, life expectancy at birth was 76.1 years for males and 81.1 years for females—a difference of 5.0 years (Table 15 and Figure 20).

Between 2006 and 2016, life expectancy at birth increased more for the non-Hispanic black population than for the non-Hispanic white population, thereby narrowing the gap in life expectancy between these two racial groups. In 2006, life expectancy at birth for the non-Hispanic white population was 5.1 years longer than for the non-Hispanic black population; by 2016, the difference had narrowed to 3.7 years (Table 15 and Figure 1).

In 2016, life expectancy at birth was highest for Hispanic persons at 81.8 years, compared to 78.5 years for non-Hispanic white persons and 74.8 years for non-Hispanic black persons (Table 15).

In 2016, the top 10 leading causes of death were heart disease, cancer, unintentional injuries, chronic lower respiratory diseases, stroke, Alzheimer's disease, diabetes, influenza and pneumonia, kidney disease, and suicide (Table 19 and Figure 2).

Between 2006 and 2016, the age-adjusted death rate decreased 8%, from 791.8 to 728.8 deaths per 100,000 resident population (Table 17).

Between 2005 and 2015, the infant mortality rate decreased 14%, from 6.86 to 5.90 deaths per 1,000 live births; however, differences by race and ethnicity remained. In 2015, the

infant mortality rate was 2.8 times as high among infants of non-Hispanic black mothers (11.25 deaths per 1,000 live births) as among infants of non-Hispanic Asian or Pacific Islander mothers (4.08 deaths per 1,000 live births) (Figure 22).

The death rate for unintentional injury among children aged 1–14 years—the leading cause of death for this age group—decreased an average of 6.8% per year from 2006–2010 and remained stable from 2010–2016. The death rates for other leading causes of death in 2016—cancer, congenital malformations, homicide, and heart disease—declined during 2006–2016, while the suicide rate doubled (Figure 23).

Among persons aged 15–24 years, the leading causes of death in 2016 were unintentional injury, suicide, homicide, cancer, heart disease, and congenital malformations. Death rates for unintentional injuries and homicide declined during 2006–2013 and 2006–2014, respectively; homicide rates increased, while unintentional injury death rates were stable through 2016. Suicide rates increased during 2006–2016. Death rates for the remaining leading causes of death declined during 2006–2016 (Table 20 and Figure 23).

Unintentional injury, cancer, suicide, heart disease, homicide, and chronic liver disease were the leading causes of death for persons aged 25–44 in 2016. During 2006–2016, the suicide rate increased by an average of 1.7% per year. Chronic liver disease death rates increased by an average of 5.3% per year during 2012–2016 after an initial period of no change. The homicide and unintentional injuries death rates also increased sharply at the end of the period (Table 20 and Figure 24).

Cancer and heart disease were the top two causes of death among persons aged 45–64 in 2016, followed by unintentional injuries, chronic lower respiratory disease (CLRD), chronic liver disease and cirrhosis, diabetes, and stroke. Between 2006 and 2016, the death rates for unintentional injuries, CLRD, chronic liver disease and cirrhosis, and diabetes increased, while death rates for cancer, heart disease, and stroke declined (Table 20 and Figure 24).

Heart disease and cancer were the top two causes of death among persons aged 65 and over in 2016. During 2006–2016, the death rate for heart disease decreased by an average of 3.5% per year during 2006–2012, and then by an average of 1.6% per year during 2012–2016. The death rate for cancer decreased by an average 1.6% per year during 2006–2010, and then by an average of 2.2% per year during 2010–2016 (Table 20 and Figure 25).

The death rate for stroke—the fourth leading cause of death

among adults aged 65 and over in 2016—decreased from 314.8 in 2006 to 247.0 in 2016 (Figure 25).

The death rate for Alzheimer’s disease—the fifth leading cause of death among persons aged 65 and over in 2016—remained stable from 2006–2013, and then increased by an average of 6.9% per year during 2013–2016, from 187.4 to 233.3 deaths per 100,000; the risk of dying from Alzheimer’s disease increased significantly with age (Figure 25).

During 2006–2016, heart disease and cancer (malignant neoplasms) were the top two causes of death. The age-adjusted heart disease death rate declined 19%, from 205.5 to 165.5 deaths per 100,000 resident population, over this period. The age-adjusted cancer death rate declined 14%, from 181.8 to 155.8 deaths per 100,000 resident population (Table 17).

In 2016, there were 63,632 deaths from drug overdoses—two-thirds (66.4%) of which involved an opioid. Between 2006 and 2016, the age-adjusted death rate for drug overdose increased from 11.5 to 19.8 deaths per 100,000 (Table 27 and Figure 26).

Drug overdose death rates were higher among males than females, and the trend varied by sex and age. The recent increases in drug overdose death rates were especially pronounced among men aged 25–34 and women aged 15–24—for whom drug overdose death rates increased by an average of 26.7% per year and 19.4% per year, respectively, during 2014–2016 (Figure 26).

In 2016, age-adjusted drug overdose death rates varied by state, ranging from a low of 6.4 deaths per 100,000 population in Nebraska to a high of 52.0 deaths per 100,000 in West Virginia (Figure 27).

Between 2006 and 2016, the age-adjusted suicide death rate increased 23%, from 11.0 to 13.5 deaths per 100,000 resident population. In 2016, suicide rates differed by sex and age. Men aged 75 and over had the highest suicide rate among males (39.2 deaths per 100,000), while women aged 45–64 had the highest suicide rate among females (9.9 deaths per 100,000) (Table 30 and Figure 28).

During 2006–2016, death rates for chronic liver disease and cirrhosis were higher among men than among women. In 2016, among men, those aged 55–64 had the highest chronic liver disease and cirrhosis death rate (45.9 deaths per 100,000), while among women, those aged 75 and over had the highest death rate (23.8 deaths per 100,000) (Figure 29).

## Health Status and Determinants

### Fertility and Natality

Between 2006 and 2016, the birth rate among teenagers

aged 15–19 years fell nearly 50%, from 41.1 to 20.3 live births per 1,000 females—a record low for the U.S. (Table 3).

In 2016, 8.17% of infants were low birthweight (weighing less than 2,500 grams [5.5 pounds] at birth). Low birthweight was more common among infants of non-Hispanic black mothers (13.53%) and infants of Puerto Rican mothers (9.50%) than among infants of mothers in other racial and ethnic groups (Table 5).

In 2016, the percentage of live singleton births that were born preterm (less than 37 weeks gestation) ranged from 7.1% among non-Hispanic white mothers to 11.5% among non-Hispanic black mothers. The percentage of live singleton births born at less than 32 weeks ranged from 0.9% among non-Hispanic white and non-Hispanic Asian or Pacific Islander mothers to 2.6% among non-Hispanic black mothers (Figure 4).

## Health Risk Factors for the Noninstitutionalized Population

### Children

In 2013–2016, the prevalence of obesity among boys aged 2–19 years ranged from 11.9% for non-Hispanic Asian or Pacific Islander boys to 24.3% among Hispanic boys. Among girls aged 2–19 years, the prevalence of obesity ranged from 7.4% among non-Hispanic Asian or Pacific Islander girls to 22.9% among Hispanic girls and 23.0% among non-Hispanic black girls (Figure 7).

Between 2011 and 2016, the percentage of high school students who smoked cigarettes in the past 30 days declined from 15.8% to 8.0%, while use of electronic cigarettes increased more than seven-fold, from 1.5% to 11.3% (Figure 5).

### Adults

In 2016, 21.9% of adults aged 18 and over met the 2008 federal physical activity guidelines for both aerobic activity and muscle strengthening (Table 57).

In 2013–2016, the prevalence of overweight among adults aged 20 years was 71.1%, including 38.9% with obesity (Table 58).

In 2016, 15.7% of adults aged 18 and over were current cigarette smokers, a decline from 20.8% in 2006 (age-adjusted percentages). In 2016, 16.4% of adults aged 18–44, 18.0% of adults 45–64, and 8.8% of adults 65 and over were current smokers (Table 47 and Figure 5).

## Measures of Health and Disease Prevalence for the Noninstitutionalized Population



The prevalence of current asthma in children under age 18 years declined from 9.3% in 2006 to 8.3% in 2016. The prevalence of current asthma in non-Hispanic black children was higher than for Hispanic and non-Hispanic white children during the entire 2006–2016 period (Figure 8).

Between 1997–1999 and 2014–2016, the percentage of children and adolescents aged 5–17 years diagnosed with attention-deficit/hyperactivity disorder (ADHD) increased from 6.5% to 10.6% (Table 35).

Between 2006 and 2016, the incidence rates of tuberculosis, hepatitis A, hepatitis B, and meningococcal disease decreased, while the incidence rates of hepatitis C nearly quadrupled, from 0.26 to 0.97 new cases per 100,000 population, and the incidence rates for all stages of syphilis more than doubled, from 12.34 to 27.25 new cases per 100,000 population. Despite overall decline in acute hepatitis A cases between 2006 and 2016, there was a 44% increase in the number of new cases between 2015 and 2016 (Table 33).

In 2016, the percentage of adults who reported their health as fair or poor ranged from 3.9% of those aged 18–24 to 25.7% of those aged 75 and over (Table 45).

In 2016, the percentage of adults reporting functional limitation at the “A lot of difficulty or cannot do at all” level was higher among adults aged 65 and over (18.2%) than among adults 18–64 (6.2%) (Table 42).

During 1999–2000 through 2015–2016, the prevalence of hypertension (systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg and/or taking antihypertensive medication) among persons aged 20–44 was generally higher for men than women, while among persons aged 65 and over, the prevalence of hypertension was generally higher for women than men (Figure 10).

In 2015–2016, men aged 20–44 (32.5%) were nearly two times as likely as women aged 20–44 to be unaware of their hypertension (17.0%) (Figure 10).

During 2006–2016, the prevalence of heart disease increased with age. In 2016, the prevalence of heart disease was higher among men than women for age groups 55–64 and 65 and over, and was not statistically different for adults aged 45–54 (Figure 9).

The prevalence of diabetes increased with age; in 2011–2014, the prevalence of diabetes was 4.0% among adults aged 20–44, 16.6% among adults aged 45–64, and 26.3% among adults aged 65 and over (Table 40).

## Utilization of Health Resources for the Noninstitutionalized Population

### Use of Health Care Services

In 2016, 14.1% of persons had no health care visits in the past 12 months, 48.9% had 1–3 health care visits, 23.8% had 4–9 visits, and 13.3% had 10 or more visits (Table 65).

In 2015, there were 991 million visits to physician offices and 137 million visits to hospital emergency departments, compared to 1,009 million and 130 million visits, respectively, in 2010 (Table 76).

During 2006–2016, adults aged 65 years and over were generally more likely than younger age groups to have had an emergency department (ED) visit in the past 12 months. In 2016, women (21.7%, age-adjusted) were more likely than men (17.0%, age-adjusted) to have had one or more visits to the ED in the past 12 months (Table 74 and Figure 13).

In 2016, 84.6% of children aged 2–17 years, 64.4% of adults aged 18–64, and 64.3% of adults aged 65 and over had visited a dentist in the past year (Table 78).

### Use of Preventive Medical Care Services for the Noninstitutionalized Population

In 2016, 70.7% of children aged 19–35 months had completed the combined 7-vaccine series of childhood vaccinations (includes diphtheria, tetanus, pertussis, poliovirus, and measles, among others). In 2016, combined 7-vaccine series coverage among children aged 19–35 months varied by state, ranging from 58.1% in Oregon to 85.3% in Massachusetts (Table 66 and Figure 12).

Between 2008 and 2016, receipt of the full series of human papillomavirus (HPV) vaccine for adolescents aged 13–17 years increased among females from 17.9% to 43.0%. Receipt of the full series for males aged 13–17 years increased from 1.3% in 2011 to 31.5% in 2016 (Table 67).

Between 2006 and 2016, the percentage of adults aged 18 and over who had received an influenza vaccination in the past 12 months increased from 27.6% to 42.2%. In 2016, influenza vaccination increased with age, ranging from 31.1% of adults aged 18–44, to 67.5% of adults aged 65 and over (Table 68).

In 2016, 66.9% of adults aged 65 and over had ever received a pneumococcal vaccination, up from 57.1% in 2006 (Table 69).

### Difficulty Accessing Needed Medical Care Due to Cost for the Noninstitutionalized Population

The percentage of adults aged 18–64 who reported delaying or not receiving needed medical care due to cost decreased from 11.7% in 2006 to 9.8% in 2016 (Table 63).

In 2016, adults aged 18–64 with family incomes below 100% or at 100%–199% of the poverty level were more than three times as likely as those at 400% or more of the poverty level

to delay or not receive needed medical care due to cost (Table 63 and Figure 14).

In 2015–2016, children under age 18 years without health insurance were more likely to lack a usual source of care (27.9%) than children who had private coverage (2.6%) or Medicaid (4.6%) (Table 61).

## Health Care Resources

In 2015, 58.8% of physician visits were to specialist physicians and 41.2% were to primary care physicians (Table 77).

In 2015, the U.S. had 4,862 community hospitals and 782,188 community hospital beds. Community hospital occupancy averaged 63.6% in 2015, down from 67.3% in 2005 (Table 89).

Between 2010 and 2015, the number of professionally active physicians increased from 27.2 to 29.2 physicians per 10,000 civilian population. In 2015, the number of active physicians per 10,000 population ranged from 19.6 in Mississippi to 74.6 in the District of Columbia (Table 83).

Between 2006 and 2016, the number of professionally active dentists increased from 57.85 to 60.79 dentists per 100,000 civilian population. In 2016, the number of dentists per 100,000 population ranged from 41.16 in Arkansas to 88.52 in the District of Columbia (Table 86).

Between 2006 and 2016, the U.S. nursing home occupancy rate decreased from 83.5% to 79.7%. In 2016, nursing home occupancy rates were highest—at approximately 90%—in South Dakota, North Dakota, the District of Columbia, and New York. The lowest occupancy rates in 2016 were in Utah (64.2%) and Indiana (63.1%) (Table 92).

## Health Care Expenditures and Payers

### Health Care Expenditures

In 2016, personal health care expenditures in the U.S. totaled \$2.8 trillion—a 4.4% increase from 2015. The per capita personal health care expenditures for the total U.S. population was \$8,788 in 2016—up 3.6% from \$8,479 in 2015 (Table 93).

In 2016, expenditures for hospital care accounted for 38.2%, physician and clinical services accounted for 23.5%, and prescription drugs accounted for 11.6% of personal health care expenditures, amounting to nearly three-quarters of total personal health care expenditures. The remaining expenditures included nursing care facilities and continuing care retirement communities (5.7%), dental (4.4%), home health care (3.3%), and other professional services (3.2%) (Table 94 and Figure 17).

In 2016, prescription drug expenditures totaled \$328.6 billion—up 1.3% from \$324.5 billion in 2015 (Table 94).

### Health Care Payers

In 2016, 35.1% of all personal health care expenditures were paid by private health insurance, 22.1% were paid by Medicare, and 17.8% by Medicaid; consumers paid 12.4% out-of-pocket; and the remaining expenditures were paid by other types of insurance, payers, and programs (Table 95).

In 2016, the Medicare program had 56.8 million enrollees and expenditures totaling \$678.7 billion (preliminary estimates)—up from 55.5 million enrollees and \$647.6 billion in expenditures from the previous year. Expenditures for the Medicare drug program (Part D) were \$100.0 billion in 2016 (preliminary estimates)—up from \$89.8 billion in 2015 (Table 107).

Between 2006 and 2016, the percentage of Medicare enrollees in managed care increased from 16.9% to 32.5%. In 2016, the percentage of Medicare enrollees in managed care varied by state from 1.0% in Alaska to 55.6% in Minnesota (Table 112).

### Health Insurance Coverage for the Noninstitutionalized Population

Between 2006 and 2017 (preliminary estimates), the percentage of children under age 18 years with Medicaid coverage increased from 28.8% to 36.3%, and the percentage of children who were uninsured decreased from 9.5% to 5.0% (Figure 18).

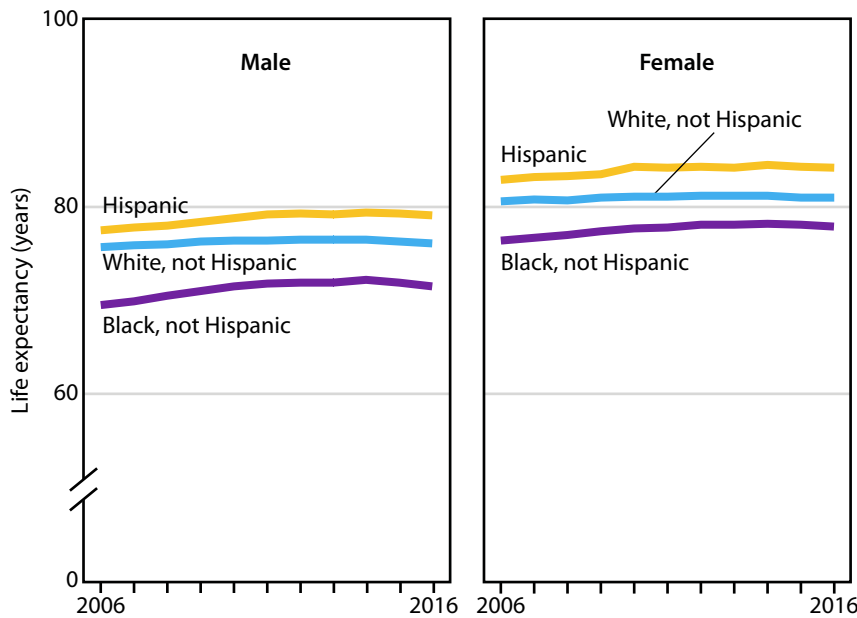
Between 2006 and 2017 (preliminary estimates), the percentage of adults aged 18–64 with Medicaid coverage increased from 7.4% to 13.1%, and the percentage of adults who were uninsured decreased from 20.0% to 12.8% (Figure 19).

In 2016, Massachusetts (3.5%) had the lowest and Texas (22.7%) had the highest percentage of persons uninsured (i.e., without public or private coverage) among those aged 18–64. Among children under age 18 years, Massachusetts (0.9%) had the lowest and Alaska (10.7%) had the highest percentage uninsured (Table 114).

# Mortality

## Life Expectancy at Birth

**Figure 1. Life expectancy at birth, by sex and race and Hispanic origin: United States, 2006–2016**



Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_001](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_001)

Life expectancy (LE) is used to assess the health of a population (1). Between 2006 and 2016, life expectancy at birth in the United States increased from 77.8 to 78.6 years for both sexes, but was higher for females than for males (Table 15). During the period, life expectancy increased from 75.2 to 76.1 years for males and from 80.3 to 81.1 years for females (data table for Figure 1). Racial and ethnic differences in LE persisted during 2006–2016, but continued to narrow. For both sexes in 2016, the difference between the group with the highest (Hispanic) and lowest (non-Hispanic black) LE was 7.0 years, compared to a 7.2-year advantage in 2006 (data table for Figure 1).

During 2006–2016, LE at birth increased by 2.0 years for non-Hispanic black males, 1.6 years for Hispanic males, and 0.4 years for non-Hispanic white males. During the same period, LE at birth increased 1.5 years for non-Hispanic black females, 1.3 years for Hispanic females, and 0.4 years for non-Hispanic white females.

NOTES: Life expectancy data by Hispanic origin were available starting in 2006 and were adjusted to account for racial and ethnic misclassification. Life expectancy estimates for 2016 are based on preliminary Medicare data. See data table for Figure 1.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

# Mortality

## Selected Causes of Death

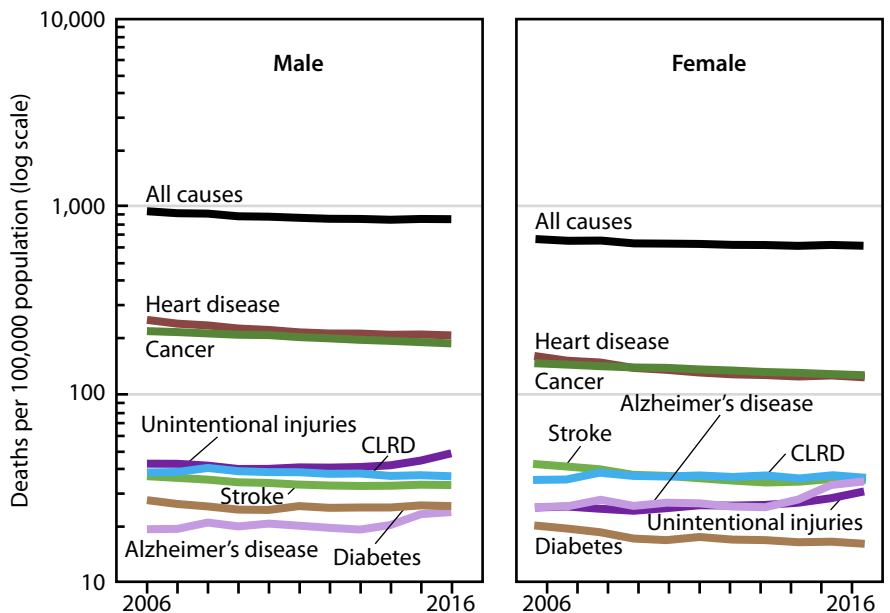
Between 2006 and 2016, age-adjusted death rates among males declined 18% for heart disease, 17% for stroke, 16% for cancer, 7% for CLRD, and 6% for diabetes, and increased 16% for unintentional injuries and 25% for Alzheimer's disease.

Among females, age-adjusted death rates declined 22% for heart disease, 17% for both stroke and diabetes, and 13% for cancer, and increased 31% for Alzheimer's disease and 19% for unintentional injuries, while remaining stable for CLRD.

In 2016, age-adjusted death rates were higher among males than among females for heart disease, cancer, CLRD, diabetes, stroke, and unintentional injuries, and were lower among males than females for Alzheimer's disease.

NOTES: Stroke is cerebrovascular disease. CLRD is chronic lower respiratory diseases. See data table for Figure 2.  
SOURCE: NCHS, Health, United States, 2017, Table 17. Data from the National Vital Statistics System (NVSS), Mortality.

**Figure 2. Age-adjusted death rates for selected causes of death for all ages, by sex: United States, 2006–2016**

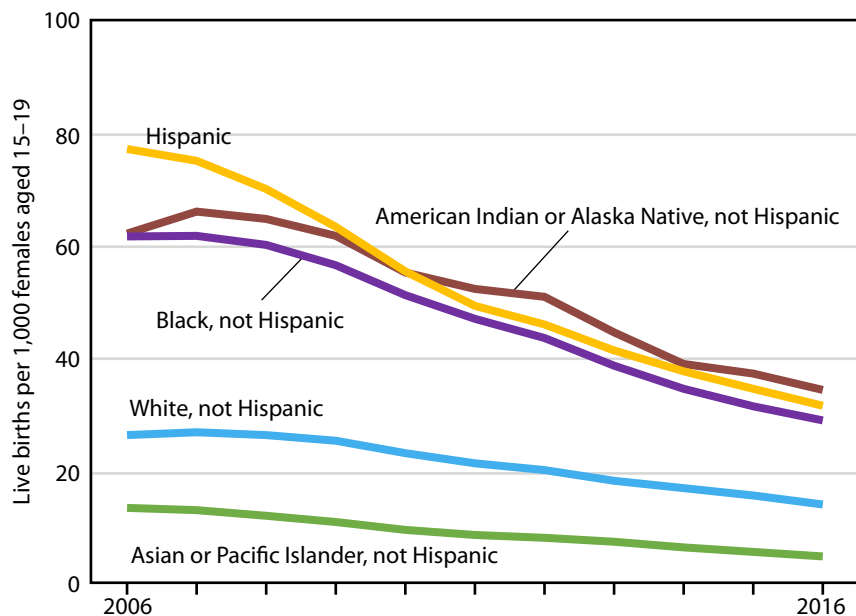


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# Natality

## Teenage Childbearing

**Figure 3. Teen childbearing among females aged 15–19 years, by race and Hispanic origin: United States, 2006–2016**



Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_003](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_003)

Teen childbearing often limits the mother’s educational and occupational opportunities, and babies born to teen mothers are more likely to also become teen parents (2, 3). Birth rates among non-Hispanic white teens aged 15–19 years were stable during 2006–2009, and then declined during 2009–2016. Among non-Hispanic black and non-Hispanic American Indian or Alaska Native teens, birth rates did not change significantly during 2006–2008, but declined during 2008–2016. Among non-Hispanic Asian or Pacific Islander and Hispanic teens, birth rates declined throughout the entire period.

Despite declines in teen birth rates among all groups, racial and ethnic differences persisted during 2006–2016. During the period, non-Hispanic American Indian or Alaska Native, Hispanic, and non-Hispanic black teens had higher birth rates compared with non-Hispanic white and non-Hispanic Asian or Pacific Islander teens. In addition, non-Hispanic white teens had higher birth rates than non-Hispanic Asian or Pacific Islander teens during 2006–2016.

NOTES: Estimates are based on single-race categories; multiple-race data were bridged to single-race categories as needed. See data table for Figure 3.  
SOURCE: NCHS, National Vital Statistics System (NVSS), Natality.

# Natality

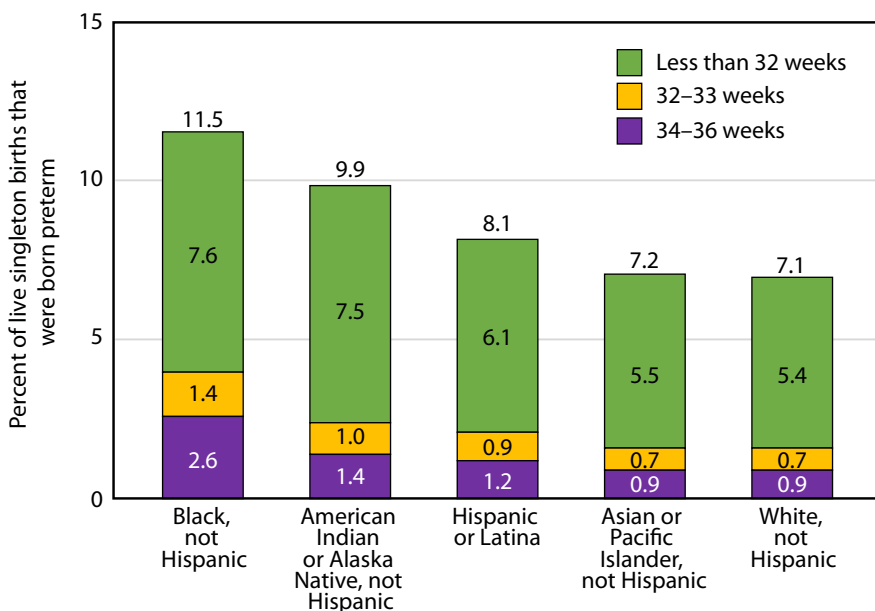
## Preterm Singleton Births

Preterm birth, defined as birth before 37 weeks of gestation, is a leading cause of infant mortality (Figure 23), with the risk of infant death decreasing as gestational age increases (4, 5). Infants born preterm have an increased risk of health complications due to impaired respiration, difficulty feeding, poor temperature regulation, and high risk of infection (6).

In 2016, 8.0% of singleton births occurred before 37 weeks of gestation: 5.9% at 34–36 weeks, 0.9% at 32–33 weeks, and 1.2% before 32 weeks (data table for Figure 4). In 2016, non-Hispanic black and non-Hispanic American Indian or Alaska Native women had the highest percentage of preterm singleton births at each of the three gestational age groups compared with non-Hispanic white, non-Hispanic Asian or Pacific Islander, and Hispanic women.

NOTES: Preterm births are based on the obstetric estimate of gestational age and are for all singleton births. Singleton births refer to single births, in contrast with multiple or higher order births. Estimates may not sum to total percentage due to rounding. See data table for Figure 4.  
SOURCE: NCHS, National Vital Statistics System (NVSS), Natality.

**Figure 4. Preterm singleton births, by gestational age and race and Hispanic origin of mother: United States, 2016**



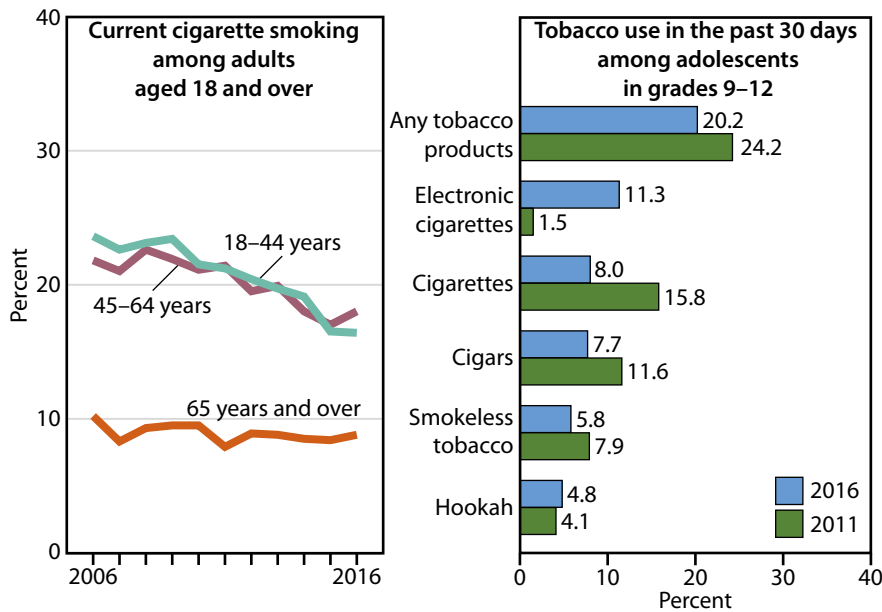
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# Health Risk Factors

## Use of Tobacco Products

**Figure 5. Cigarette smoking among adults aged 18 and over, by age, and tobacco use among adolescents in grades 9–12, by type of product: United States, 2006–2016**



Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_005](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_005)

Cigarette smoking is associated with an increased risk of heart disease, stroke, cancer, and chronic lung diseases (7). During 2006–2009, there was no clear trend in the percentage of adults aged 18–44 who smoked cigarettes; during 2009–2016, the percentage declined by an average of 0.9 percentage points per year to 16.4% in 2016. During 2006–2016, smoking declined annually to 18.0% in 2016 among adults aged 45–64. During 2006–2016, smoking declined annually among adults 65 and over to 8.8% in 2016.

Among adolescents, the use of tobacco products can cause lasting harm to the developing brain, as well as lead to sustained tobacco use in adulthood (7). Between 2011 and 2016, the percentage of high school students who smoked cigarettes in the past 30 days declined from 15.8% to 8.0%, while use of electronic cigarettes increased more than seven-fold, from 1.5% to 11.3%.

NOTES: Current cigarette smoking by adults is defined as having smoked 100 or more cigarettes in their lifetime and smoking now, every day or some days. Use of tobacco products by students in grades 9–12 is defined as having used the product on one or more days during the past 30 days. Data on bidis and pipe tobacco can be found in the data table. See data table for Figure 5.

SOURCE: NCHS, National Health Interview Survey (NHIS) and CDC, National Youth Tobacco Survey (NYTS).

# Health Risk Factors

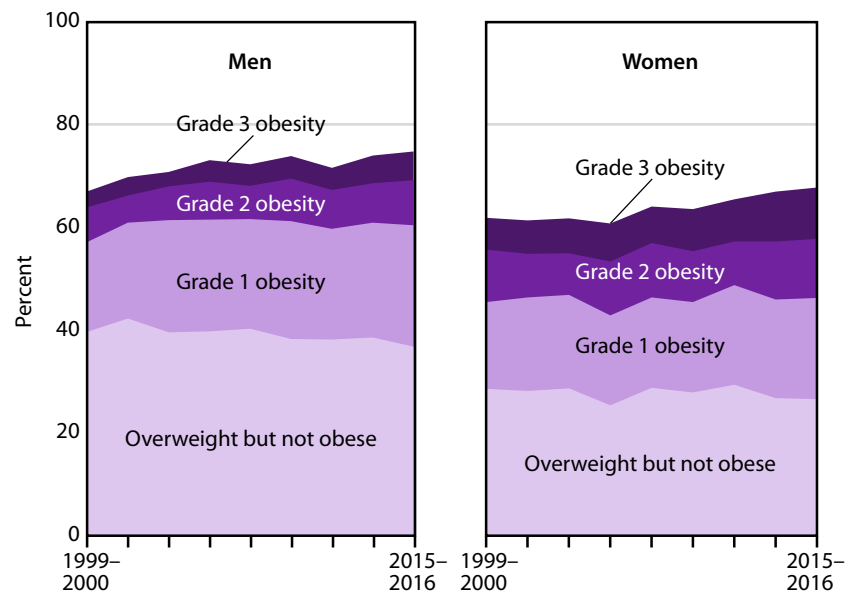
## Adults with Overweight and Obesity

Obesity is associated with a number of health conditions, including hypertension, high cholesterol levels, and type 2 diabetes (8–11). In addition, Grade 2 or higher obesity significantly increases the risk of death (12). In 2015–2016, the overall prevalence of overweight and obesity among adults aged 20 and over was 75.0% among men and 67.8% among women. During 1999–2000 through 2015–2016, the age-adjusted prevalence of Grade 1, Grade 2, and Grade 3 obesity among men and women increased. During this period, the age-adjusted prevalence of overweight but not obese decreased among men and was stable for women. In 2015–2016, the prevalence of overweight but not obese was higher among men (36.9%) than women (26.6%), whereas the prevalence of obesity (all grades) was similar for women and men (41.2% compared with 38.1%). In 2015–2016, the prevalence of Grade 3 obesity was almost twice as high among women as men (10.0% compared with 5.6%).

NOTES: Estimates are age-adjusted. BMI is body mass index. Overweight but not obese ( $25.0 \leq \text{BMI} \leq 29.9$ ), Grade 1 obesity ( $30.0 \leq \text{BMI} \leq 34.9$ ), Grade 2 obesity ( $35.0 \leq \text{BMI} \leq 39.9$ ), and Grade 3 obesity ( $\text{BMI} \geq 40.0$ ). See Table 58 and the data table for Figure 6.

SOURCE: NCHS, National Health and Nutrition Examination Survey (NHANES).

**Figure 6. Overweight and obesity among adults aged 20 and over, by sex and grade of obesity: United States, 1999–2000 through 2015–2016**

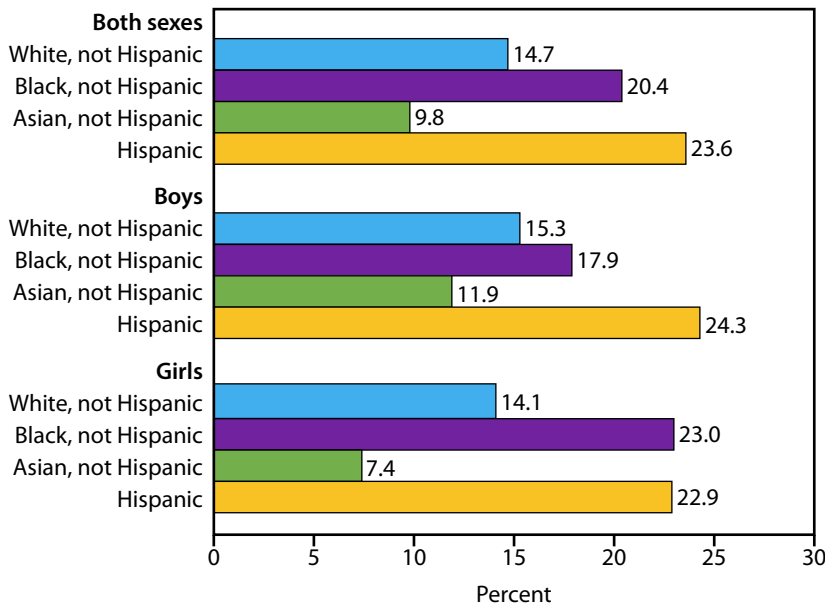


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# Health Risk Factors

## Obesity Among Children and Adolescents Aged 2–19 Years

**Figure 7. Obesity among children and adolescents aged 2–19 years, by sex and race and Hispanic origin: United States, 2013–2016**



Children with obesity are at higher risk of having other chronic health conditions, such as asthma, sleep apnea, joint problems, and type 2 diabetes, as well as excess body weight in adulthood (8, 13–16). From 2003–2006 through 2013–2016, the prevalence of obesity among children and adolescents aged 2–19 years remained stable, with 17.8% having obesity in 2013–2016 (Table 59). In 2013–2016, non-Hispanic Asian girls had the lowest prevalence of obesity among girls. The prevalence of obesity among non-Hispanic white girls was approximately twice the prevalence of non-Hispanic Asian girls, and the prevalence among both non-Hispanic black and Hispanic girls was approximately three times that of non-Hispanic Asian girls. In 2013–2016, Hispanic boys had the highest prevalence of obesity among boys; the prevalence among Hispanic boys was approximately twice the prevalence among non-Hispanic Asian boys.

NOTES: Obesity in youth is defined as body mass index (BMI) at or above the sex- and age-specific 95th percentile of the 2000 CDC Growth Charts. See data table for Figure 7.  
SOURCE: NCHS, *Health, United States, 2017*, Table 59. Data from the National Health and Nutrition Examination Survey (NHANES).

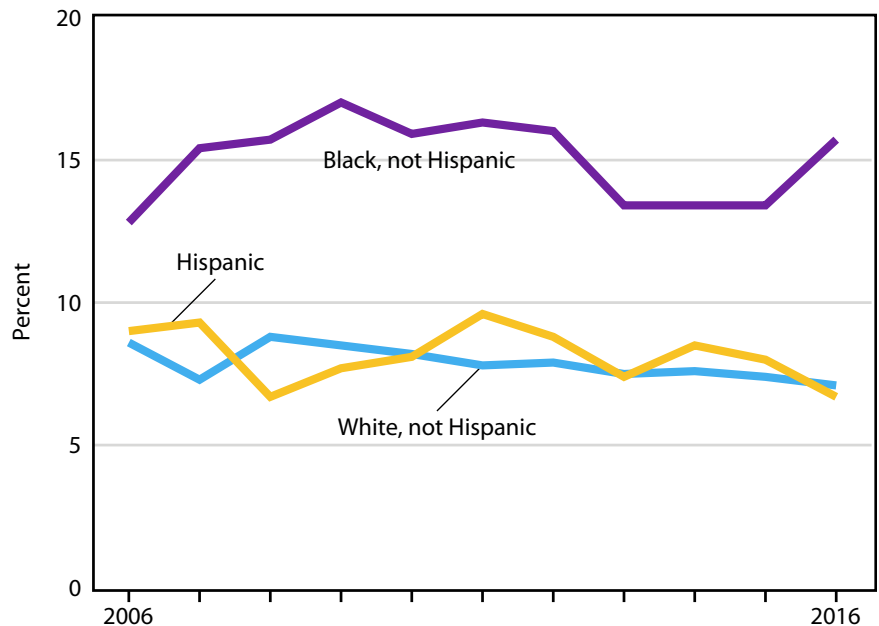
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# Morbidity

## Current Asthma Among Children Under Age 18 Years

Children with asthma experience higher rates of ER visits, hospitalizations, and school days missed than children without asthma (17, 18). While there is no cure for asthma, symptoms can be prevented with evidence-based management strategies, like medication use and avoiding exposure to known triggers. If asthma attacks occur, prompt use of relief medication can prevent more severe outcomes (19, 20). Current asthma prevalence among children under age 18 years decreased during 2006–2016, from 9.3% to 8.3% (data table for Figure 8), as non-Hispanic white children experienced a decrease of 0.1 percentage points per year, while current asthma in Hispanic children remained stable. The prevalence of current asthma in non-Hispanic black children increased 1.7 percentage points per year during 2006–2008, and then decreased 0.3 percentage points per year during 2008–2016. In 2016, the percentage of current asthma in non-Hispanic black children (15.7%) was more than twice the percentage of current asthma in Hispanic (6.7%) and non-Hispanic white (7.1%) children.

**Figure 8. Current asthma among children under age 18 years, by race and Hispanic origin: United States, 2006–2016**



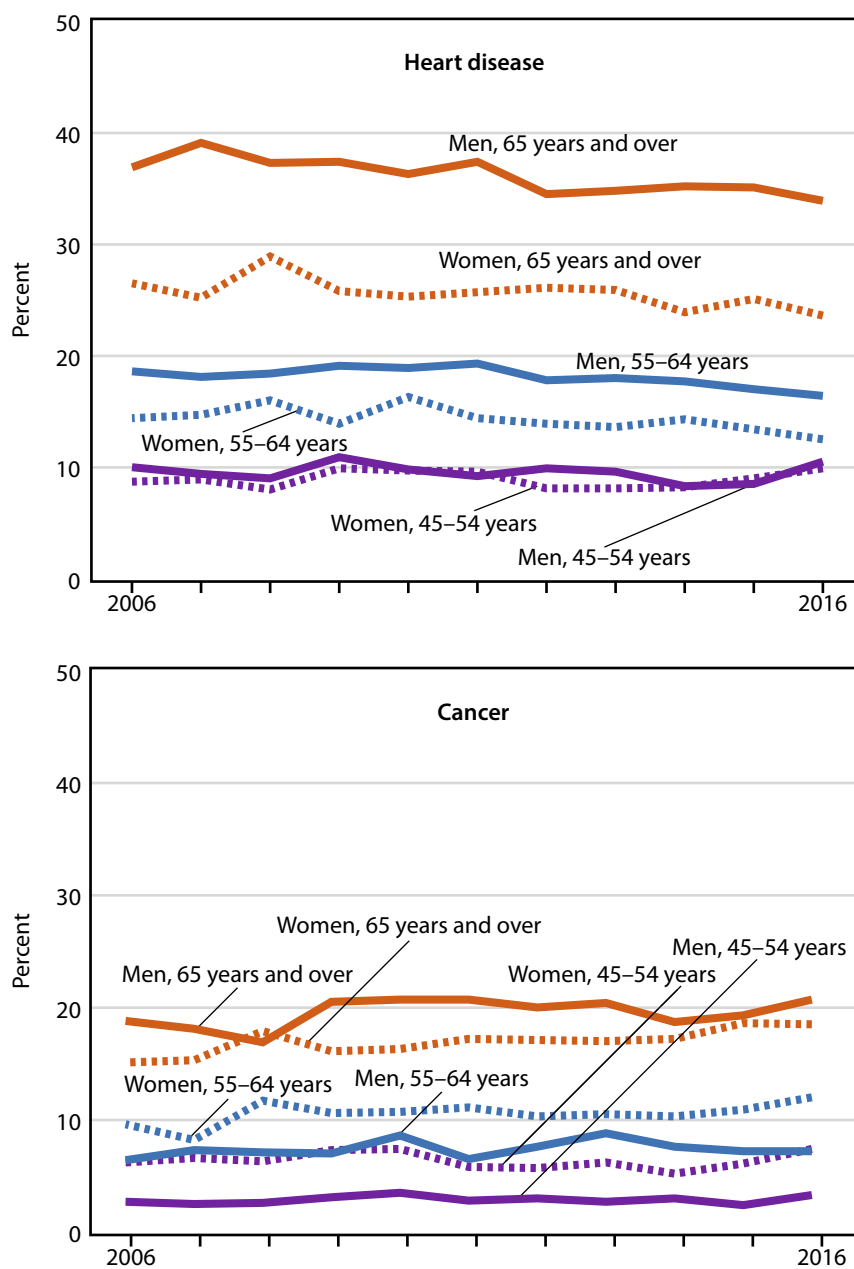
NOTE: See data table for Figure 8.  
SOURCE: NCHS, National Health Interview Survey (NHIS).

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# Morbidity

## Heart Disease and Cancer

Figure 9. Heart disease and cancer among adults aged 45 and over, by sex and age: United States, 2006–2016



Heart disease and cancer are the top two leading causes of death in the United States. In 2016, these conditions accounted for 45% of deaths (23% for heart disease and 22% for cancer) (Table 19).

During 2006–2016, the prevalence of heart disease increased with age. The prevalence remained stable among men and women aged 45–54, and declined among men and women aged 55–64 and 65 and over. In 2016, among those aged 45–54, the prevalence was similar for men (10.5%) and women (9.9%). Among those aged 55–64, the prevalence was higher among men (16.4%) than women (12.5%). Among those aged 65 and over, about one-third of men (33.9%) and one-quarter of women (23.6%) reported a history of heart disease.

The age-adjusted death rate from cancer has continued a long-term decline through 2016 (Table 24). During 2006–2016, the percentage of adults with a history of cancer increased with age. The percentage of adults with a history of cancer was stable among men aged 45–54, 55–64, and 65 and over. Among women, the percentage with a history of cancer was stable for those aged 45–54, and increased for those aged 55–64 and 65 and over.

In 2016, the percentage of adults with a history of cancer was higher among women than men aged 45–54 (3.3% for men and 7.4% for women) and 55–64 (7.2% for men and 12.0% for women). Among adults aged 65 and over, the percentage of men and women with a history of cancer was similar (20.7% for men and 18.5% for women).

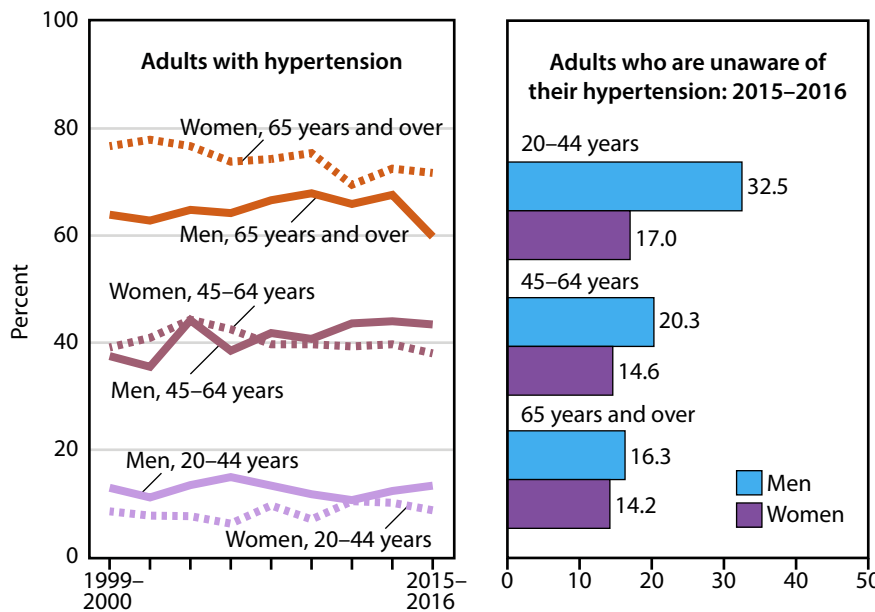
NOTES: Heart disease is based on self-reported responses to questions about whether respondents had ever been told by a doctor or other health professional that they had coronary heart disease, angina (angina pectoris), a heart attack (myocardial infarction), or any other kind of heart disease or heart condition. Cancer is based on self-reported responses to a question about whether respondents had ever been told by a doctor or other health professional that they had cancer or a malignancy of any kind. Excludes squamous cell and basal cell carcinoma. See data table for Figure 9.

SOURCE: NCHS, National Health Interview Survey (NHIS).

# Morbidity

## Hypertension

**Figure 10. Hypertension among adults aged 20 and over, by sex, age, and awareness of hypertension: United States, 1999–2000 through 2015–2016**



Hypertension is a risk factor for cardiovascular disease, stroke, and other health conditions (21, 22). It is defined as having measured high blood pressure (systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg) and/or taking antihypertensive medication. Adults who are unaware of their hypertension may experience damaging effects of their untreated, elevated blood pressure (23, 24). The prevalence of hypertension among adults increased with age. From 1999–2000 to 2015–2016, the prevalence was stable for all age groups, except for men aged 45–64, which increased 16%, and women aged 65 and over, which decreased 7%. In 2015–2016, hypertension was more prevalent among women than men aged 65 and over, and more prevalent among men than women aged 45–64. In 2015–2016, men aged 20–44 with hypertension were more likely to be unaware of their hypertension than older men. Men were more likely to be unaware of their hypertension than women, although the difference by sex was not statistically significant for those aged 45–64 and 65 and over.

NOTE: See data table for Figure 10.  
SOURCE: NCHS, National Health and Nutrition Examination Survey (NHANES).

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_010](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_010)

# Functioning

## Functional Limitation

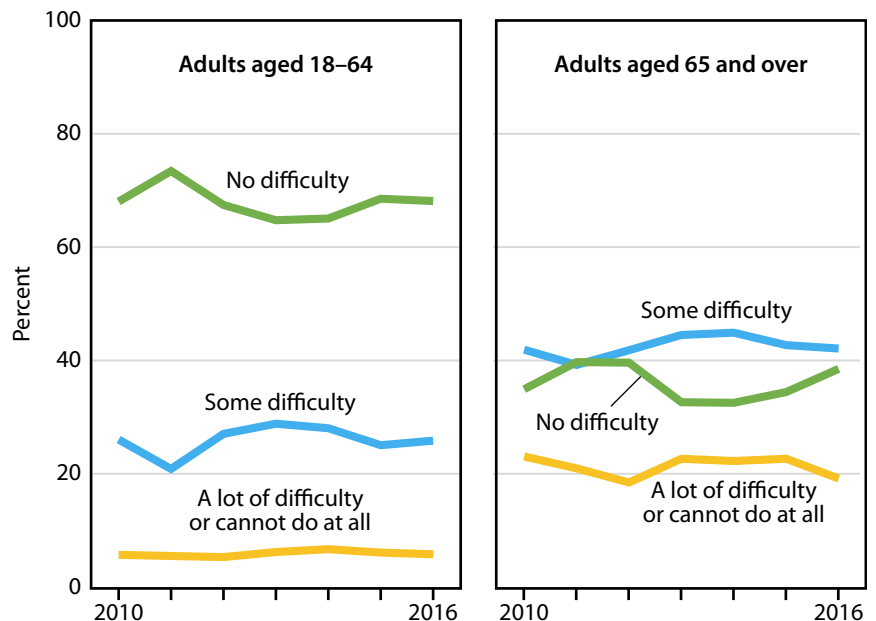
Limitations in functioning may be a result of physical or mental impairments (25). Those with functional limitations may experience lower levels of educational attainment, employment, and participation in other daily activities (26). Functional limitation was defined as adults reporting “A lot of difficulty” or “Cannot do at all/unable to do” on at least one of six functioning domains: seeing, hearing, mobility, communication, cognition, and self-care.

During 2010–2016, the age-adjusted percentage of adults 18–64 who reported a lot of functional limitation showed no clear trend, fluctuating between 5.3% and 6.7%. The age-adjusted percentage of adults aged 65 and over who reported a lot of functional limitation also showed no clear trend during the period, fluctuating between 18.5% and 23.1%.

NOTES: Functional limitation is defined by the reported level of difficulty in six domains of functioning: seeing (even if wearing glasses), hearing (even if wearing hearing aids), mobility (walking or climbing stairs), communication (understanding or being understood by others), cognition (remembering or concentrating), and self-care (such as washing all over or dressing). Estimates are age-adjusted. See data table for Figure 11.

SOURCE: NCHS, Health, United States 2017, Table 42. Data from the National Health Interview Survey (NHIS).

**Figure 11. Functional limitation among adults aged 18 and over, by age and level of difficulty: United States, 2010–2016**



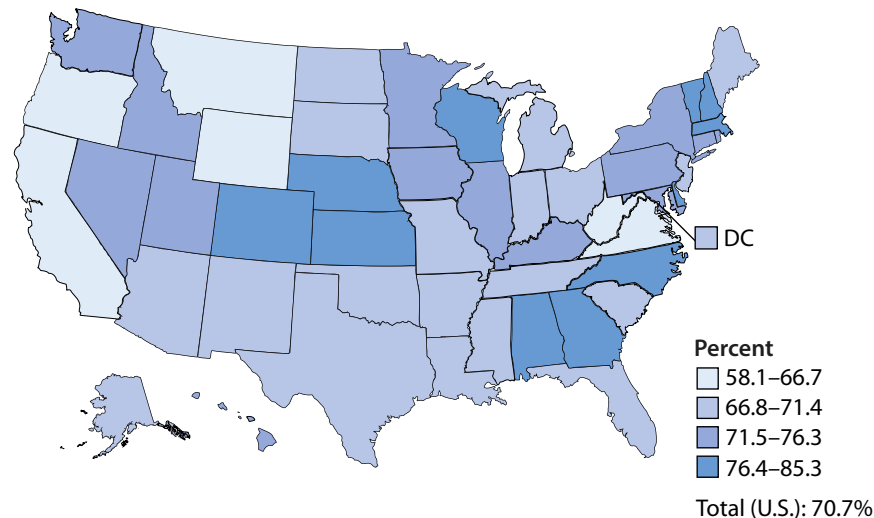
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# Prevention

## Vaccination Coverage Among Children Aged 19–35 Months

**Figure 12. Vaccination coverage for combined 7-vaccine series among children aged 19–35 months, by state: United States, 2016**



Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_012](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_012)

The reduction in morbidity and mortality associated with vaccine-preventable diseases is estimated to prevent 42,000 deaths and 20 million cases of disease for each birth cohort (27).

In 2016, 70.7% of U.S. children aged 19–35 months received the recommended series of vaccinations against once common childhood diseases such as tetanus, pertussis, and polio.

Three of the states with the lowest vaccination coverage in 2016 for the combined series were Oregon (58.1%), Wyoming (62.8%), and Montana (63.6%). Three of the states with the highest vaccination coverage in 2016 for the combined series were Massachusetts (85.3%), Nebraska (80.6%), and Wisconsin (79.4%).

NOTES: Data for the map are displayed by a modified Jenks classification for the 50 U.S. states and D.C., which creates categories that minimize within-group variation and maximize between-group variation. See data table for Figure 12. SOURCE: National Center for Immunization and Respiratory Diseases (NCIRD), National Immunization Survey-Child (NIS-Child).

# Utilization

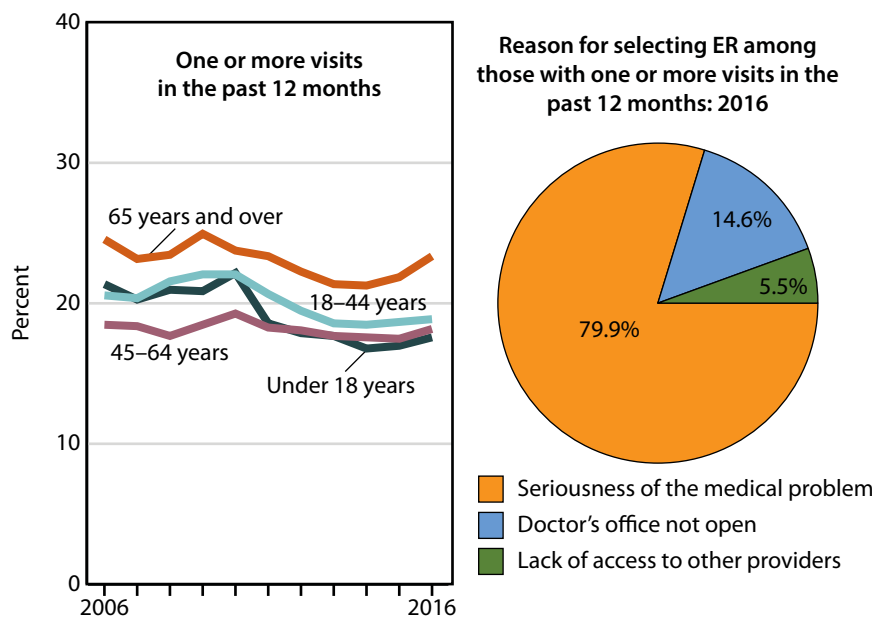
## Emergency Department Use

Emergency departments (EDs) are critical in the U.S. health care system, providing emergency and after-hours care (28–30). During 2006–2016, the percentage of children aged under 18 who had visited the ED within the past 12 months declined. The percentage of adults aged 18–44 and 65 and over with an ED visit in the past 12 months also declined, while the trend in adults aged 45–64 was stable. During 2006–2016, adults aged 65 and over were more likely than younger age groups to have had an ED visit in the past 12 months, except in 2010, when the difference was not statistically significant.

In 2016, the seriousness of the medical problem was the most common reason (79.9%) given for going to the emergency room (ER), rather than another site of care. Other reasons given were that the doctor’s office was not open (14.6%), or a lack of access to other providers (5.5%).

NOTES: Reason for choosing the ER was determined based on responses to a series of questions used to define the categories shown in the figure: seriousness of medical problem, doctor’s office not open, and lack of access to other providers. See data table for Figure 13. SOURCE: NCHS, National Health Interview Survey (NHIS).

**Figure 13. Emergency department visits in the past 12 months, by age and reason for selecting emergency room (ER): United States, 2006–2016**

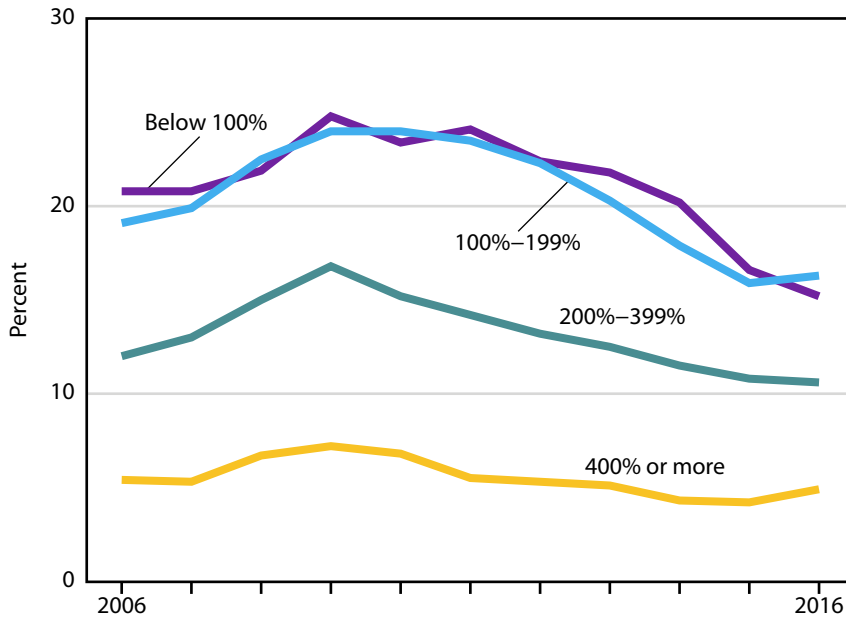


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# Utilization

## Delay or Nonreceipt of Needed Medical Care

**Figure 14. Delay or nonreceipt of needed medical care in the past 12 months due to cost among adults aged 18–64, by percent of poverty level: United States, 2006–2016**



Failure to obtain needed health care could lead to delays in diagnosis or treatment and poorer health outcomes (31). During 2006–2016, the percentage of adults aged 18–64 who delayed or did not receive needed care due to cost increased initially, and then declined for adults with family incomes at each percent of the poverty level.

During 2006–2016, adults with family incomes below 100% or at 100%–199% of the poverty level (15.2% and 16.3%, respectively, in 2016) were more likely than those with family incomes at or above 400% of the poverty level (4.9% in 2016) to delay or not receive needed medical care. In 2016, adults with family incomes below 100% or at 100%–199% of the poverty level were more than three times as likely as those with family incomes at or above 400% of the poverty level to delay or not receive needed medical care due to cost.

NOTE: See data table for Figure 14.  
SOURCE: Health, United States, 2017, Table 63. Data from the National Health Interview Survey (NHIS).

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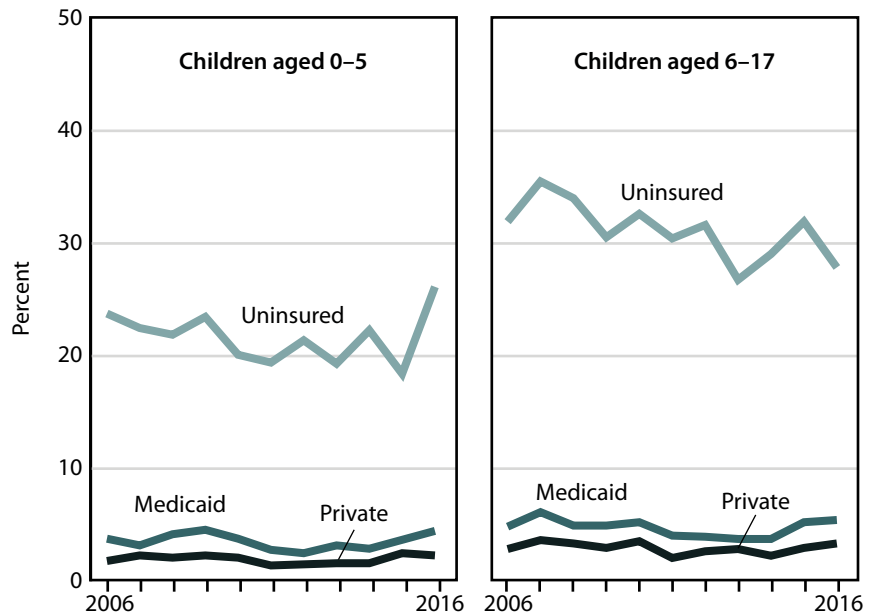
# Utilization

## No Usual Source of Care

Children benefit from having a usual source of care (USOC) for preventive services and the treatment of acute and chronic conditions (32, 33). During 2006–2016, among children who were uninsured, the percentage without a USOC showed no clear trend for those aged 0–5 years, and declined 0.5 percentage points per year for those aged 6–17 years. Among children with private health insurance, the percentage without a USOC was stable throughout the period for those aged 0–5 years and 6–17 years. Among children with Medicaid, the percentage without a USOC declined during 2006–2014, and then increased during 2014–2016.

In 2016, among those aged 0–5 years, uninsured children were 14 times as likely as those with private coverage and 6 times as likely as those with Medicaid to lack a USOC. Among those aged 6–17 years, uninsured children were nine times as likely as those with private coverage and five times as likely as those with Medicaid to lack a USOC.

**Figure 15. No usual source of care among children under age 18 years, by type of health insurance coverage: United States, 2006–2016**



NOTES: Health insurance categories are mutually exclusive and refer to status at the time of interview. See data table for Figure 15.

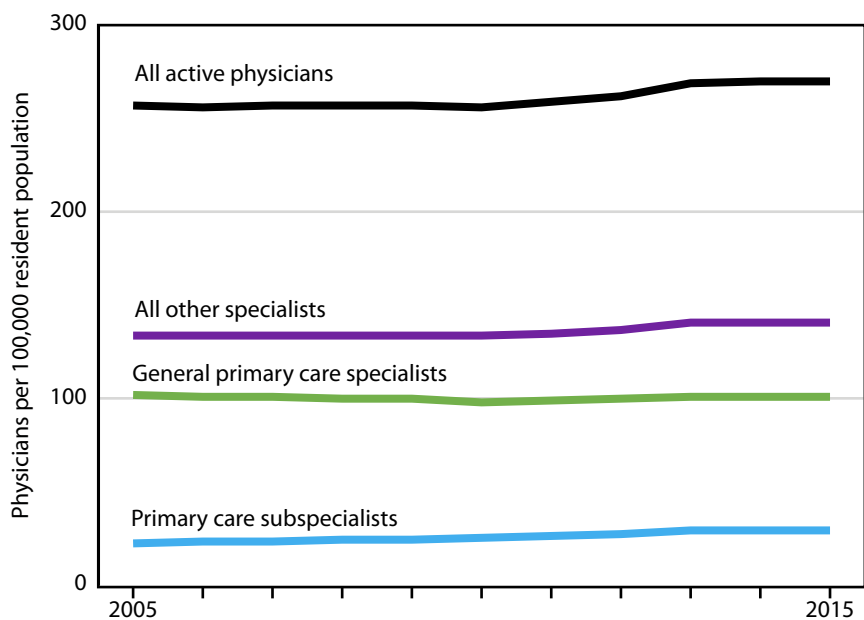
SOURCE: NCHS, National Health Interview Survey (NHIS).

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_015](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_015)

# Health Care Resources

## Physicians

**Figure 16. Physicians, by self-designated specialty: United States and outlying U.S. areas, 2005–2015**



Ensuring an adequate physician workforce depends on the number, training, specialty, and location of physicians relative to the population's needs (34, 35).

In 2015, of the 870,900 active physicians, general primary care specialists comprised 37%, primary care subspecialists comprised 11%, and all other specialists comprised the remaining 52%. Between 2005 and 2015, the rate of all active physicians increased 5%, from 258 to 271 per 100,000 resident population. Of these, the rate of general primary care specialists remained relatively stable, around 101 per 100,000 resident population, while the rate of primary care subspecialists increased 33% from 22 to 29 per 100,000 resident population; the rate of all other specialists increased 5% from 134 to 141 per 100,000 resident population (Table 85).

NOTES: Specialty is self-designated. General primary care specialists were formerly referred to as generalists. The total U.S. resident population was used to calculate all rates. See Appendix II, Physician; Physician specialty. See data table for Figure 16.

SOURCE: American Medical Association (AMA). Copyrights 2007–2017: Used with permission of the AMA.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_016](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_016)

# Personal Health Care Expenditures

## Source of Funds and Type of Expenditure

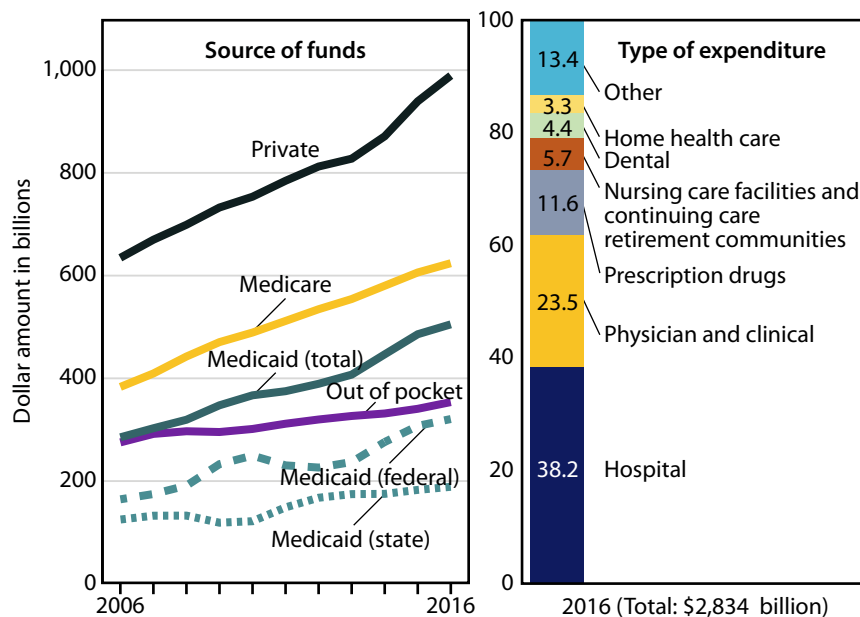
Between 2006 and 2016, total personal health care (PHC) expenditures grew from \$1.8 trillion to \$2.8 trillion. The average annual growth in PHC expenditures was 7.0% for Medicaid (federal), 5.0% for Medicare, 4.3% for Medicaid (state), 4.6% for private health insurance, and 2.6% for out-of-pocket spending. In 2016, private health insurance (\$993.8 billion) was the largest category of PHC spending, followed by Medicare (\$625.3 billion) and total Medicaid (\$505.2 billion).

Spending for hospital care was the largest portion of PHC spending in 2016, at 38.2%, followed by physician and clinical services (23.5%), prescription drugs (11.6%), nursing care facilities and continuing care retirement communities (5.7%), dental care (4.4%), and home health care (3.3%).

NOTES: Personal health care expenditures are outlays for goods and services relating directly to patient care. Personal health care expenditures are in current dollars and are not adjusted for inflation. See data table for Figure 17.

SOURCE: Centers for Medicare & Medicaid Services, National Health Expenditure Accounts (NHEA).

**Figure 17. Personal health care expenditures, by source of funds and type of expenditure: United States, 2006–2016**



Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_017](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_017)

# Health Insurance

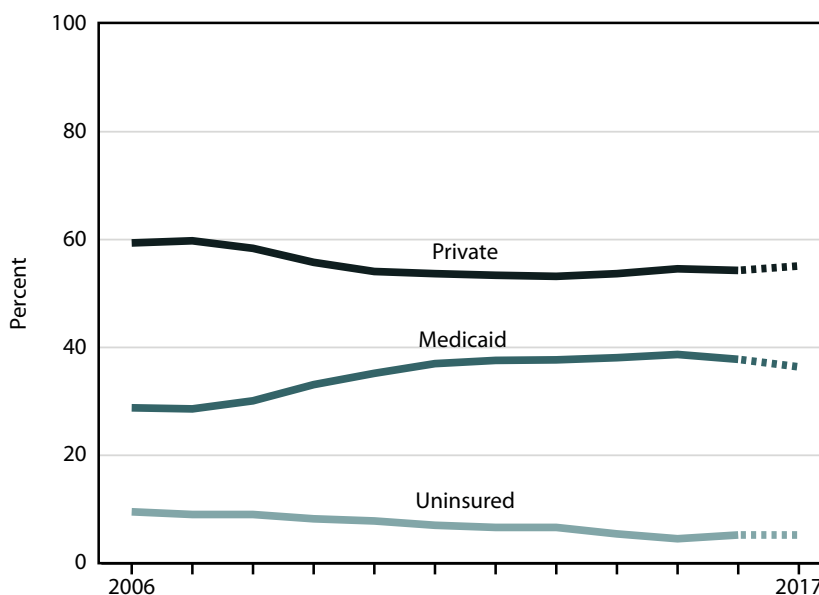
## Coverage Among Children Under Age 18 years

Children with health insurance are more likely to have a usual source of care and a recent health care visit than those who are uninsured (36) (Figure 15 and Table 64). The percentage of children under age 18 years who were uninsured decreased throughout 2006–2016. In 2017, 5.0% of children were uninsured (37).

The percentage with private coverage declined during 2006–2011, and then remained stable through 2016. In 2017, 55.0% of children had private coverage. The percentage of children with Medicaid increased during 2006–2011, and then remained stable during 2011–2016. In 2017, 36.3% of children had Medicaid (38).

NOTES: Estimates for 2017 are preliminary and are shown with a dashed line (37). Health insurance categories are mutually exclusive. See data table for Figure 18.  
SOURCE: NCHS, National Health Interview Survey (NHIS).

Figure 18. Health insurance coverage among children under age 18 years, by type of coverage: United States, 2006–2017 (preliminary data)

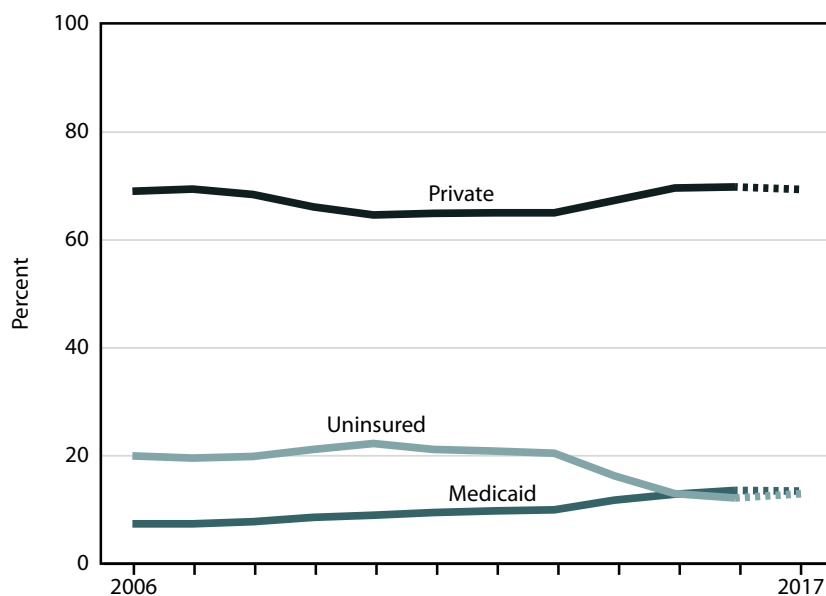


Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_018](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_018)

# Health Insurance

## Coverage Among Adults Aged 18–64

Figure 19. Health insurance coverage among adults aged 18–64, by type of coverage: United States, 2006–2017 (preliminary data)



Adults who are uninsured are more likely to delay or not receive needed medical care due to cost than those with health insurance (39) (Table 63). The percentage of adults who were uninsured increased during 2006–2012, and then declined during 2012–2016. In 2017, 12.8% of adults were uninsured (37).

The percentage of adults with private coverage declined during 2006–2012, and then increased during 2012–2016. In 2017, 69.3% of adults had private coverage. The percentage of adults with Medicaid increased throughout 2006–2016. In 2017, 13.1% of adults had Medicaid (38).

NOTES: Estimates for 2017 are preliminary and are shown with a dashed line (37). Health insurance categories are mutually exclusive. See data table for Figure 19.  
SOURCE: NCHS, National Health Interview Survey (NHIS).

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_019](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_019)



# Special Feature on Mortality

*This year's Chartbook includes 10 charts on our Special Feature: Mortality.*

Measures of mortality—numbers and death rates, together with life expectancy—have long been used to describe the burden of illness and the health of a population. Researchers often use mortality statistics to compare the health status of populations within and between nations. They also use mortality statistics to understand the effect of health risk factors and the performance of health care systems. Policymakers similarly rely on mortality statistics to identify public health priorities, informing how health care resources are allocated and how health care dollars are spent (40). Looking more specifically at the causes of death among demographic groups provides a foundation for developing and evaluating more targeted public health practices (40, 41).

Four key measures of mortality used in this Chartbook are: the numbers of deaths, death rates (age-specific and age-adjusted), infant mortality rates, and life expectancy at birth (Appendix II). Age-specific and age-adjusted death rates are useful for comparing the risk of death between populations at one point in time or within a population over time. Age adjustment eliminates differences in observed rates that result from different age distributions within populations (42). Life expectancy at birth is the average number of years a newborn can expect to live if current age-specific death rates continue into the future. Even though year-to-year changes in life expectancy are often small, they may reflect notable increases or decreases in age-specific death rates and death rates for specific causes of death (43, 44).

## Trends in Mortality

There have been marked reductions in U.S. mortality and increases in life expectancy at birth since the beginning of the 20th century. Between 1900 and 2016, the age-adjusted death rate dropped 60% from 1,860.1 to 728.8 deaths per 100,000 population, while life expectancy at birth in the U.S. rose from 47.3 to 78.6 years—an increase more than 30 years (Tables 15, 17, and 21). The rate of decrease in mortality fluctuated during this period, influenced by changes in the death rates for the leading causes of death. Some of the largest decreases in the age-adjusted death rate were observed during the first half of the 20th century, when improvements in sanitation and hygiene, the introduction of antibiotics, and the implementation of vaccination programs led to dramatic decreases in death rates for infectious diseases, which were among the leading causes of death (41, 45). Beginning from the middle of the 20th century, the rate of decrease in the age-adjusted death rate slowed as the trend became more heavily influenced by the death rates for chronic diseases, such as heart

disease and cancer. Between 1955 and 1968, for instance, the overall, age-adjusted death rate decreased at a slower rate than in years prior as these chronic diseases accounted for a growing proportion of deaths in the U.S. (42, 46). Subsequent efforts to prevent, diagnose, and treat chronic diseases lowered heart disease and cancer death rates, leading to continued decreases in age-adjusted death rates from 1968 into the 21st century (47).

Between 2000 and 2016, the overall age-adjusted death rate for the U.S. population decreased 16%—from 869.0 to 728.8 deaths per 100,000—while life expectancy at birth increased from 76.8 to 78.6 years. Despite the overall increase in life expectancy over this time frame, life expectancy at birth decreased from 2014 to 2015, for the first time since 1993, and then again from 2015 to 2016.

Between 2000 and 2016, death rates for 7 of the 12 leading causes of death decreased, while death rates for 5 of the 12—unintentional injuries, Alzheimer's disease, suicide, chronic liver disease, and septicemia—increased. Increased death rates for unintentional drug overdoses in particular—a subset of unintentional injuries—contributed to the negative change in life expectancy observed in recent years. Most unintentional drug overdoses were attributable to opioids (43, 48, 49). The explanation for increased death rates for these causes are complex and multifactorial (50–53).

The impact of these rising causes of death differs by age. Even though the death rates for Alzheimer's disease have increased among persons aged 65 years and over, the overall death rates for older Americans have continued their long-term decline through 2016—driven by continued decreases in death rates from heart disease and cancer (Table 21 and Figure 25) (46, 47, 52). In contrast, death rates for adults under age 65 have recently increased (43, 50–52). Increases in death rates, especially for persons aged 25–64, may portend changes to the age and sex structure of the population, family composition, reproductive rates, and labor force participation (44).

## Special Feature on Mortality

*This year's Health, United States Special Feature focuses on selected trends in mortality for the period 2006–2016. The first significant decreases in life expectancy at birth since 1993 were observed in recent years (Figure 20). In response to these decreases in life expectancy, the Special Feature was designed to examine contributing causes of death, such as drug overdose, suicide, and chronic liver disease.*

The Special Feature begins with an examination of life expectancy at birth by sex. This figure is followed by trends

in death rates by age group (Figure 21), and then trends in the leading causes of death by age group, ranging from infancy to old age (Figures 22–25). For persons aged 65 and over, there is a particular focus on Alzheimer’s disease (Figure 25).

The Special Feature then explores the three increasing causes of death that have contributed to life expectancy losses in recent years: drug overdose, suicide, and chronic liver disease (43) (Figures 26–29). Deaths from drug overdose are explored in two ways. The first presents drug overdose death rates by age and sex, illustrating large increases in the past 10 years; the second presents age-adjusted drug overdose death rates by state, which highlights geographic areas that may be of interest to public health practitioners and policymakers (Figures 26 and 27). Suicide and chronic liver disease death rates are each presented by age and sex, highlighting at-risk populations (Figures 28 and 29). The Special Feature ends with a look at place of death, which illustrates how place of death has changed over time (Figure 30) (54, 55). Knowing more about when, why, and where individuals are dying can help researchers and policymakers target resources to improve the well-being of the nation.

## Life Expectancy at Birth

Life expectancy at birth is the age a newborn is expected to live given current age-specific death rates. It summarizes mortality trends across all age groups in a given year (56). In the United States, life expectancy at birth increased 0.8 years between 2006 and 2016, from 77.8 to 78.6 years. Life expectancy at birth increased 0.9 years for males and 0.8 years for females between 2006 and 2016.

Still, life expectancy at birth remained higher for females than for males throughout the decade. In 2016, the life expectancy at birth for females was 81.1 years, while the life expectancy at birth for males was 76.1 years—a difference of 5.0 years. Differences in life expectancy by sex decreased in the earlier years of the decade, but increased between 2015 and 2016.

Despite an overall increase in life expectancy between 2006 and 2016, life expectancy at birth declined in recent years for the first time since 1993 (57). Between 2014 and 2015, life expectancy at birth decreased 0.2 years—a 0.2-year decrease for both males and females. Between 2015 and 2016, life expectancy at birth decreased another 0.1 years—a 0.2-year decrease for males and no change for females. Increases in the unintentional drug overdose death rate—particularly among persons aged 25–54—had the greatest negative effect on the change in life expectancy during 2006–2016. Other increasing causes of death that contributed to this decrease in life expectancy included Alzheimer’s disease, suicide, chronic liver disease, and septicemia (48).

**Figure 20. Life expectancy at birth, by sex: United States, 2006–2016**



NOTES: Life expectancy estimates for 2016 are based on preliminary Medicare data. For more information, see [Appendix II, Life expectancy](#). See [data table for Figure 20](#).

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_020](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_020)

## Mortality by Age Group

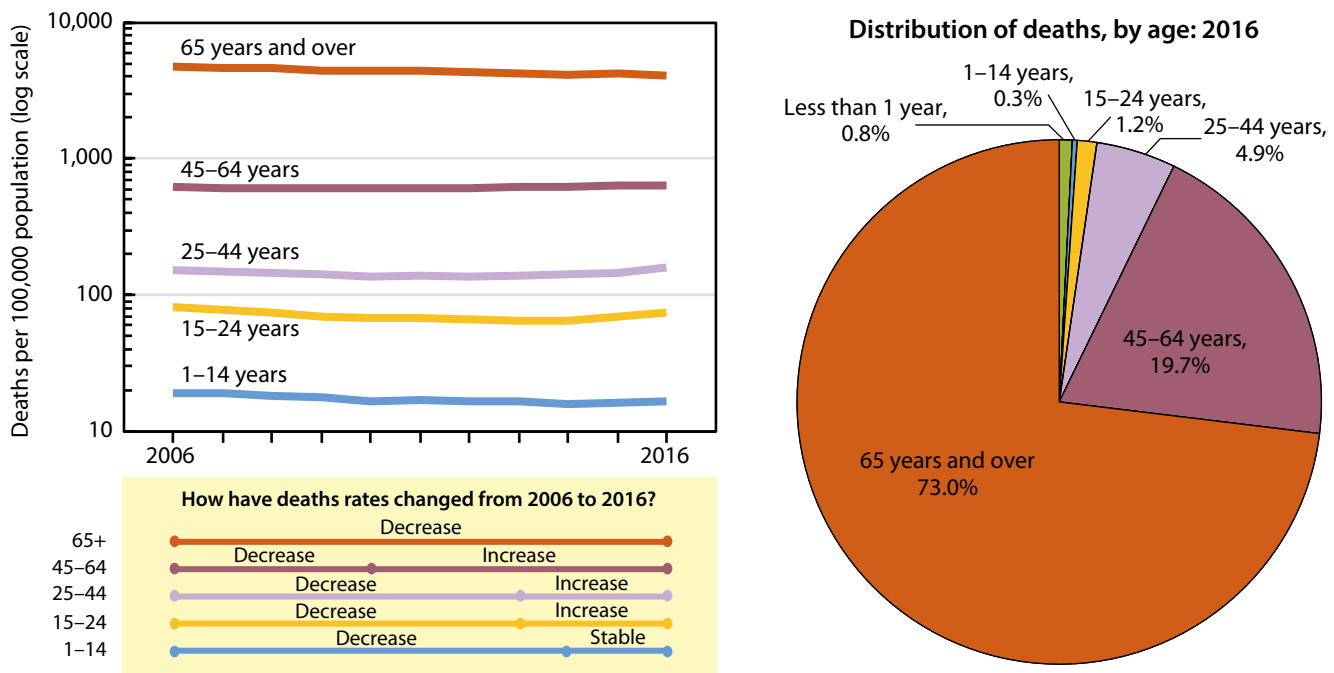
In 2016, there were 2.7 million deaths in the United States (58). Persons aged 65 and over accounted for the majority of those deaths (73.0%), whereas persons aged 45–64 and persons aged 25–44 accounted for 19.7% and 4.9% of deaths, respectively. Altogether, infants, children, and young adults under age 25 accounted for the remaining 2.4% of deaths.

During 2006–2016, trends in death rates for all causes differed by age group. For age groups below age 65, death rates decreased during the beginning of the decade and then either increased or remained stable later in the decade. Among children aged 1–14, the death rate declined by an average of 2.4% per year during 2006–2014, and then remained stable during 2014–2016. Among persons aged 15–24 and 25–44, the death rates declined during 2006–2013,

and then increased during 2013–2016 by an average of 5.6% and 5.4% per year, respectively. Among persons aged 45–64, death rates declined by an average of 0.5% per year from 2006–2010, and then increased by an average of 0.9% per year from 2010–2016. For persons aged 65 and over, the death rate decreased by an average of 1.5% per year.

Increased death rates for unintentional injuries (mostly attributable to drug overdose deaths), suicide, and chronic liver disease and cirrhosis contributed to the recent increases in death rates among adults aged 15–64 (52). This impact was especially prominent as the death rate for heart disease leveled off and the death rate for cancer continued to decrease during the second half of 2006–2016.

Figure 21. Death rates for all causes of death, by age: United States, 2006–2016



NOTES: Deaths of persons with age “Not Stated” are not included in the pie chart. Deaths of persons with age “Not Stated” accounted for less than 0.1% of all deaths. See data table for Figure 21.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_021](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_021)

## Infant Mortality

Infant mortality—the death of a baby before his or her first birthday—is a fundamental indicator of maternal health, community health status, and the availability and use of appropriate health care for infants and pregnant women (59–62). During 2005–2015, the overall infant mortality rate in the United States—the ratio of infant deaths to live births—decreased 14%, from 6.86 infant deaths per 1,000 live births in 2005 to 5.90 per 1,000 live births in 2015.

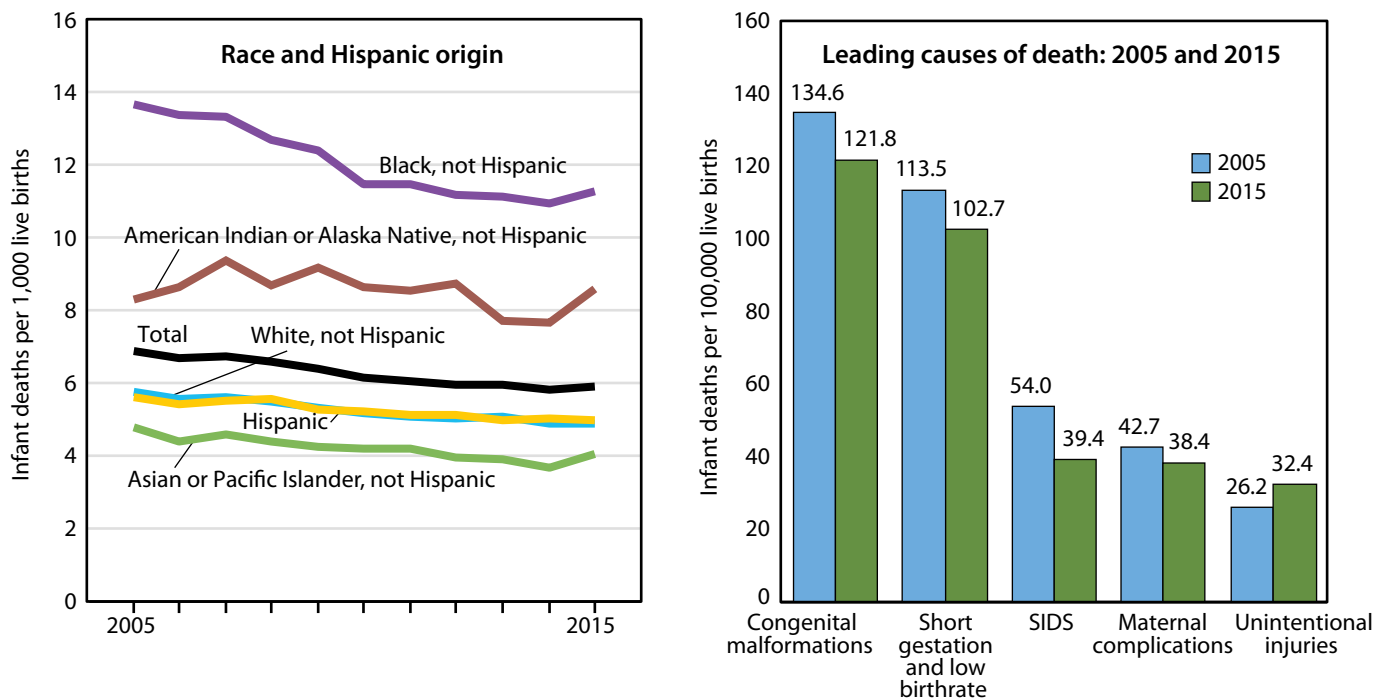
Infant mortality rates declined 15% among non-Hispanic white, 14% among non-Hispanic Asian or Pacific Islander, and 12% among Hispanic infants during 2005–2015. Among non-Hispanic black mothers, infant mortality rates declined 17% over the entire time period due to declining rates from 2005–2012, followed by stable rates through 2015. Infant mortality rates among non-Hispanic American Indian or Alaska Native mothers did not change significantly during 2005–2015.

Despite decreased infant mortality rates across most racial and ethnic groups, disparities persisted. During 2005–2015, infants of non-Hispanic black mothers consistently had the highest infant mortality rates, whereas infants of non-

Hispanic Asian or Pacific Islander mothers consistently had the lowest infant mortality rates. In 2015, the infant mortality rate was 2.8 times as high among infants of non-Hispanic black mothers as among infants of non-Hispanic Asian or Pacific Islander mothers (11.25 compared with 4.08 per 1,000 live births).

The leading causes of infant deaths in 2005 and 2015 were congenital malformations, short gestation and low birthweight, sudden infant death syndrome (SIDS), maternal complications, and unintentional injuries. The infant mortality rate from unintentional injuries increased 24% between 2005 and 2015. The death rate from SIDS was stable from 2005–2008, and then declined 27% through 2015. The decline in SIDS and increase in unintentional injuries is partly due to diagnostic shifts and improved death scene investigations (63). The rates for the three other leading causes of infant death—congenital malformations, short gestation and low birthweight, and maternal complications—each declined 10% between 2005 and 2015. In 2015, these five leading causes of infant deaths accounted for 57% of infant deaths.

**Figure 22. Infant mortality rates, by race and Hispanic origin of mother and leading causes of death: United States, 2005–2015**



NOTES: Congenital malformations is congenital malformations, deformations, and chromosomal abnormalities. SIDS is sudden infant death syndrome. Unintentional injuries is accidents. See data table for Figure 22.

SOURCE: NCHS, National Vital Statistics System (NVSS), Linked Birth/Infant Death data set.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_022](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_022)



# Deaths Among Children Aged 1–14 Years and Persons Aged 15–24 Years

Leading causes of death differ by age group. Identifying the leading causes of death by age group can help focus public health priorities. The four leading causes of death for children aged 1–14—unintentional injuries, cancer, congenital malformations, homicide—remained the same during 2006–2016; however, the fifth leading cause of death changed from heart disease to suicide. During 2006–2016, suicide rates for children aged 1–14 increased by an average of 9.0% per year, reaching 0.8 deaths per 100,000 in 2016. The majority of suicide deaths in this age group were among those aged 10–14, and those under age 10 may not be correctly classified (64). During this time, heart disease death rates decreased by an average of 2.3% per year, falling to 0.5 deaths per 100,000 in 2016. Suicide was the only leading cause of death to increase throughout the period for this age group.

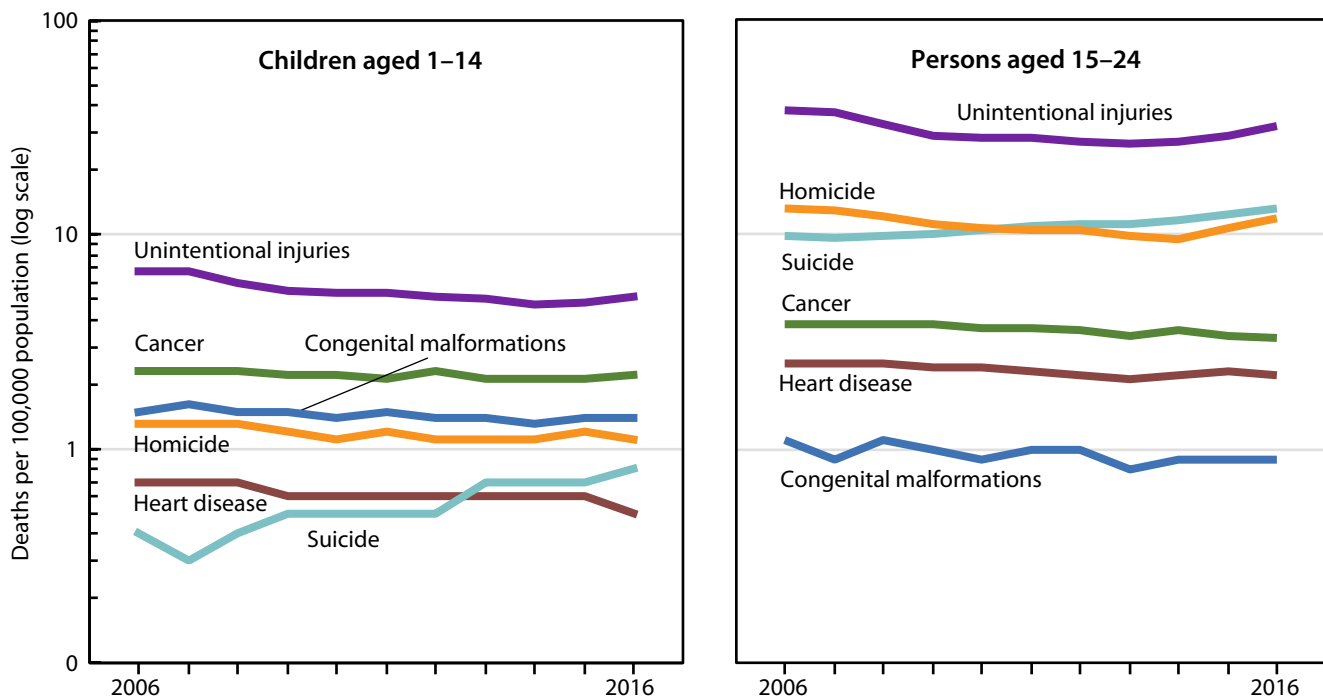
While death rates for cancer, homicide, and congenital malformations decreased steadily during 2006–2016, death rates for unintentional injuries—the leading cause of death among children aged 1–14—decreased by an average of 6.8% per year during 2006–2010, then remained stable

during 2010–2016. In 2016, unintentional injuries accounted for 30.3% of the deaths in this age group (Table 20).

Unintentional injuries was also the leading cause of death among persons aged 15–24 throughout 2006–2016, accounting for 42.7% of deaths in 2016 (Table 20). The death rate for unintentional injuries declined by an average of 5.5% per year during 2006–2013, and was stable during 2013–2016. Cancer, heart disease, and congenital malformations remained the fourth, fifth, and sixth leading causes of death, respectively. The death rates for these three leading causes of death decreased steadily during the decade.

Suicide replaced homicide as the second leading cause, and homicide dropped to third leading cause. During 2006–2014, homicide rates among persons aged 15–24 decreased by an average of 4.1% per year, while suicide rates increased by an average of 2.5% per year. From 2014–2016, the suicide rates increased even faster, at an average of 7.0% per year, while the homicide rate also increased by an average of 13.1% per year.

**Figure 23. Death rates among children aged 1–14 years and persons aged 15–24 years, by leading causes of death: United States, 2006–2016**



NOTES: Unintentional injuries is accidents. Congenital malformations is congenital malformations, deformations, and chromosomal abnormalities. The majority of suicide deaths in children aged 1–14 years were among those aged 10–14 years. See data table for Figure 23.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_023](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_023)

## Deaths Among Persons Aged 25–44 and Persons Aged 45–64

During 2006–2016, unintentional injuries, cancer, and homicide remained the first, second, and fifth leading causes of death for persons aged 25–44. Meanwhile, suicide replaced heart disease as the third leading cause of death, as heart disease fell to fourth, and chronic liver disease replaced human immunodeficiency virus (HIV) as the sixth leading cause of death.

Suicide rates for persons aged 25–44 increased steadily during 2006–2016, by an average of 1.7% per year, while heart disease death rates decreased by an average of 2.9% per year from 2006–2010 and then remained stable from 2010–2016. In 2016, the suicide rate was 16.9 deaths per 100,000—higher than the heart disease death rate of 16.4 deaths per 100,000.

The death rate for chronic liver disease among persons aged 25–44 surpassed the death rate for HIV during the decade, as the death rate for HIV continued to decrease following the introduction of antiretroviral therapy in 1996 (65). Meanwhile, chronic liver disease death rates increased by an average of 5.3% per year during 2012–2016 after an initial period of no change.

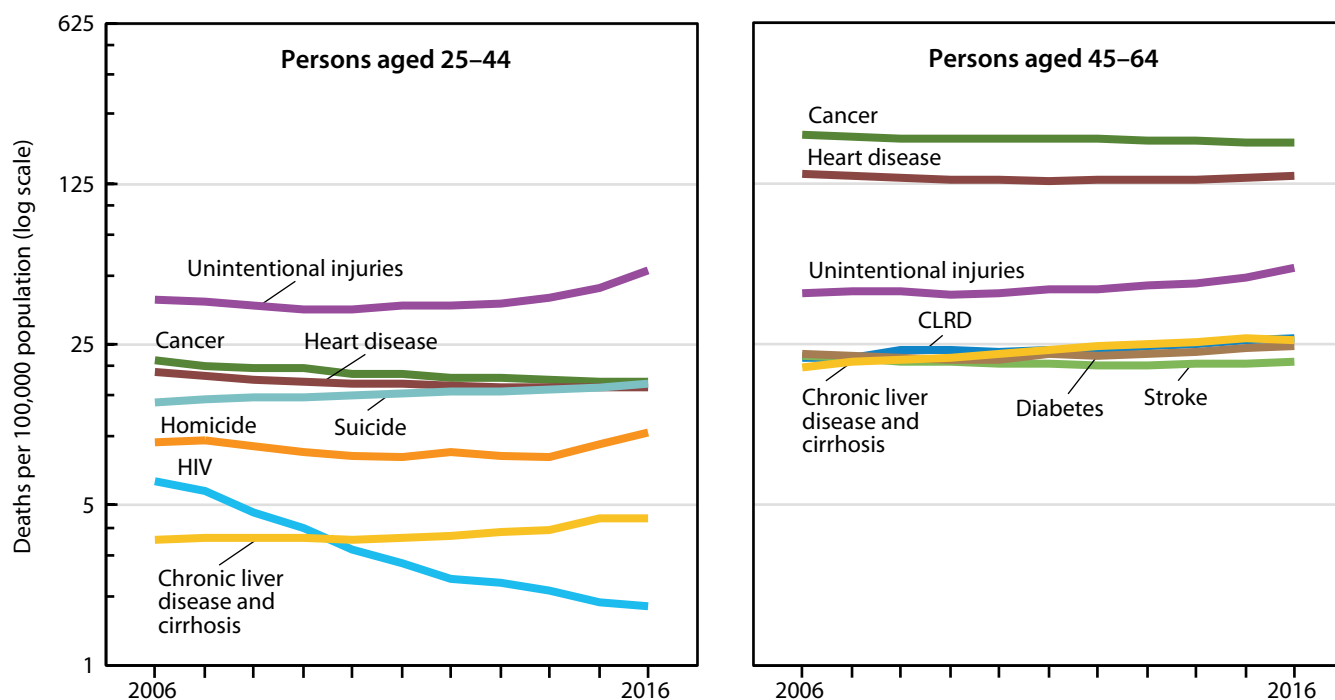
The death rate for cancer among persons aged 25–44 decreased during 2006–2016. The death rate for homicide decreased by an average of 2.0% per year from 2006–2014,

and then increased by an average of 14.1% per year from 2014–2016. The death rate for unintentional injuries among persons aged 25–44—the leading cause of death for this age group—remained stable during 2006–2013, and then increased by an average of 12.4% per year during 2013–2016.

Among persons aged 45–64, cancer, heart disease, and unintentional injuries were the three leading causes of death during 2006–2016. The death rate for cancer decreased by an average of 0.6% per year during the decade, while the death rate for heart disease first decreased by an average of 1.4% per year during 2006–2011, and then increased by an average of 1.0% per year during 2011–2016. The death rate for unintentional injuries remained stable during 2006–2013, but increased by an average of 6.5% per year during 2013–2016.

Diabetes and stroke—the fourth and fifth leading causes of death for this age group in 2006—were replaced by CLRD and chronic liver disease and cirrhosis, respectively, by 2016. The CLRD death rate increased steadily (by an average of 1.8% per year) throughout the decade, while the chronic liver disease death rate increased by an average of 3.3% per year during 2006–2014, and then remained stable from 2014–2016. The diabetes death rate did not change significantly during the early part of the decade, but then increased from 2009–2016, while the stroke death rate decreased from 2006–2010, and then remained stable from 2010–2016.

**Figure 24. Death rates among persons aged 25–44 and 45–64, by leading causes of death: United States, 2006–2016**



NOTES: Unintentional injuries is accidents. HIV is human immunodeficiency virus. Stroke is cerebrovascular disease. CLRD is chronic lower respiratory disease. See data table for Figure 24.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_024](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_024)

# Deaths Among Persons Aged 65 and Over

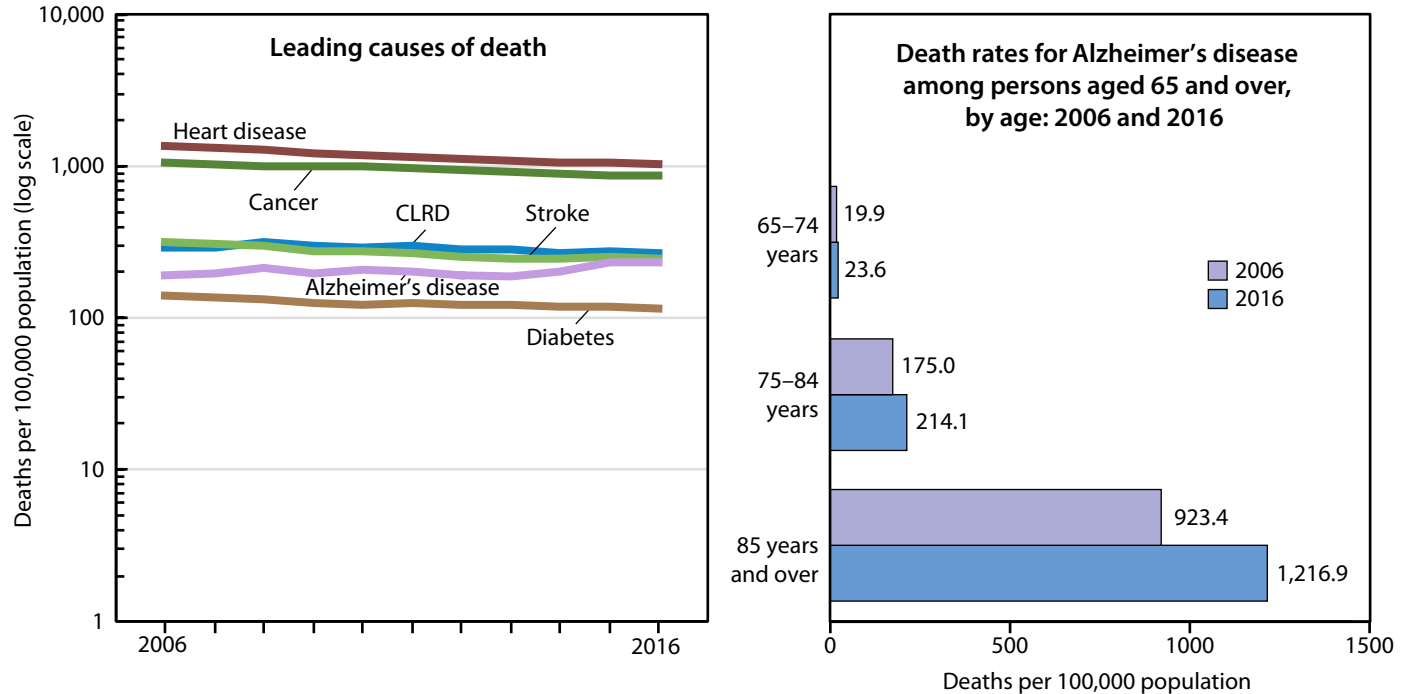
Among persons aged 65 and over, heart disease and cancer remained the top two leading causes of death during the decade, accounting for 46.4% of all deaths in this age group in 2016 (Table 20). Stroke—the third leading cause in 2006—dropped to fourth in 2016, while CLRD became the third leading cause of death among persons aged 65 and over. Alzheimer’s disease and diabetes remained the fifth and sixth leading causes of death, respectively, throughout 2006 and 2016.

The death rates for nearly all of the leading causes of death among persons aged 65 and over decreased between 2006 and 2016, although the rate of change was not always uniform. The decrease in the heart disease death rate slowed in recent years (from an average of 3.5% per year during

2006–2012 to an average of 1.6% per year during 2012–2016), while the decrease in the cancer death rate grew larger (from an average of 1.6% per year during 2006–2010 to an average of 2.2% per year during 2010–2016).

The death rate for Alzheimer’s disease was the exception, increasing 21.0% between 2006 and 2016 (from 192.8 deaths per 100,000 to 233.3). During 2013–2016, the Alzheimer’s disease death rate increased by an average of 6.9% per year after an initial period of no significant change. The risk of dying from Alzheimer’s disease increased significantly with age (66). In 2016, the population aged 85 and over was more than 50 times as likely to die from Alzheimer’s disease as those aged 65–74 years and more than five times as likely to die from Alzheimer’s disease as those aged 75–84 years.

**Figure 25. Death rates among persons aged 65 and over, by leading causes of death and for Alzheimer's disease: United States, 2006–2016**



NOTES: Stroke is cerebrovascular disease. CLRD is chronic lower respiratory disease. See data table for Figure 25.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_025](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_025)

# Drug Overdose Deaths

Drug overdose deaths are a serious public health concern in the U.S. In 2016, there were 63,632 deaths from drug overdoses; 66.4% of these deaths involved an opioid (67). This likely underestimates deaths involving opioids, as 16% of drug overdose deaths did not specify the specific drug involved (67, 68). Opioids include natural and semisynthetic opioids (such as oxycodone and morphine), heroin, methadone, and synthetic opioids other than methadone (including fentanyl and tramadol). Recently, an increasing number of drug overdose deaths have been attributed to heroin and fentanyl, which is 50 to 100 times more potent than morphine (69–72).

Between 2006 and 2016, the age-adjusted death rate for drug overdoses increased from 11.5 to 19.8 deaths per 100,000 (Table 27). The average rate of increase accelerated during the decade, from 2.8% per year during 2006–2014 to 17.7% per year during 2014–2016.

Drug overdose death rates were higher among males than females, and differences among age groups varied by sex (70). Among males aged 15 and over, drug overdose death rates ranged from 7.6 deaths per 100,000 (men aged 65 and over) to 48.9 (men aged 25–34) in 2016. For all male age groups, drug overdose death rates increased more rapidly in recent years after a period of either stability or increase. The change in the trends was especially pronounced for men

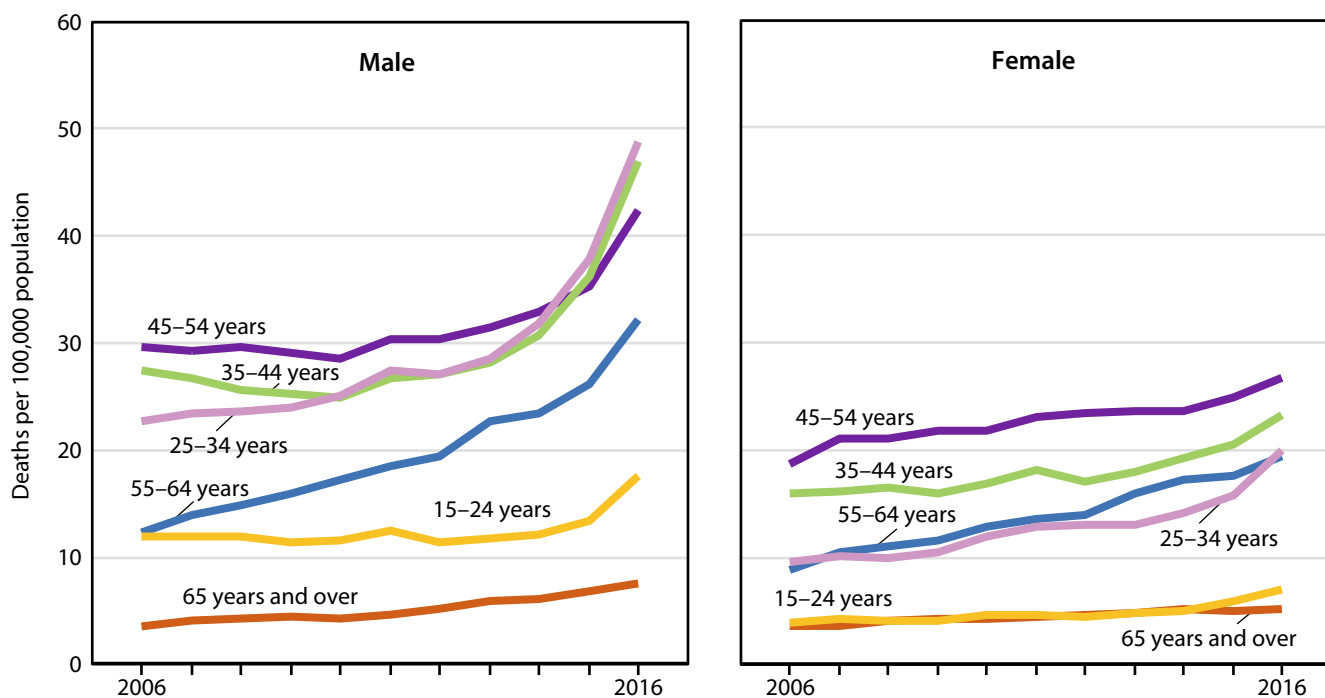
aged 25–34, for whom drug overdose death rates increased by an average of 26.7% per year during 2014–2016.

Among females aged 15 and over, drug overdose death rates ranged from 5.1 deaths per 100,000 (women aged 65 and over) to 26.7 (women aged 45–54) in 2016. Rates increased steadily among women aged 45–54, 55–64, and 65 and over during 2006–2016, while rates among women aged 15–24, 25–34, and 35–44 increased steadily and then more rapidly in recent years. The rate of increase was most rapid among women aged 15–24 and 25–34, for whom drug overdose death rates increased by an average of 19.4% per year and 18.0% per year, respectively, during 2014–2016.

Age-adjusted drug overdose death rates varied widely by state. In 2006, drug overdose death rates ranged from a low of 5.1 deaths per 100,000 in South Dakota to a high of 21.8 in New Mexico, while in 2016, drug overdose death rates ranged from a low of 6.4 deaths per 100,000 population in Nebraska to a high of 52.0 in West Virginia. In 2016, the highest death rates were observed in West Virginia, Ohio (39.1), New Hampshire (39.0), D.C. (38.8), and Pennsylvania (37.9).

Between 2006 and 2016, drug overdose death rates remained stable in six states (Kansas, Mississippi, Montana, Nebraska, Oregon, and Washington), and increased in 43 states and D.C. For some, such as Delaware and New Hampshire, the drug overdose death rate more than tripled.

**Figure 26. Drug overdose death rates among persons aged 15 years and over, by sex and age: United States, 2006–2016**



NOTES: Drug overdose deaths are identified using *International Classification of Diseases, 10th Revision (ICD-10)* underlying cause of death codes X40–X44 (unintentional drug poisoning), X60–X64 (suicide by drug poisoning), X85 (homicide by drug poisoning), and *Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_026](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_026)*

Y10–Y14 (drug poisoning of undetermined intent). See data table for Figure 26. SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.





# Suicide

Following a nearly consistent period of decline, the age-adjusted suicide rate in the U.S. has increased since 1999—steadily from 1999–2006, and then more rapidly from 2006–2016 (73, 74). In 2016, suicide was among the top five leading causes of death for persons aged 1–14, 15–24, and 25–44, and was the 8th leading cause of death among those aged 45–64 (Table 20).

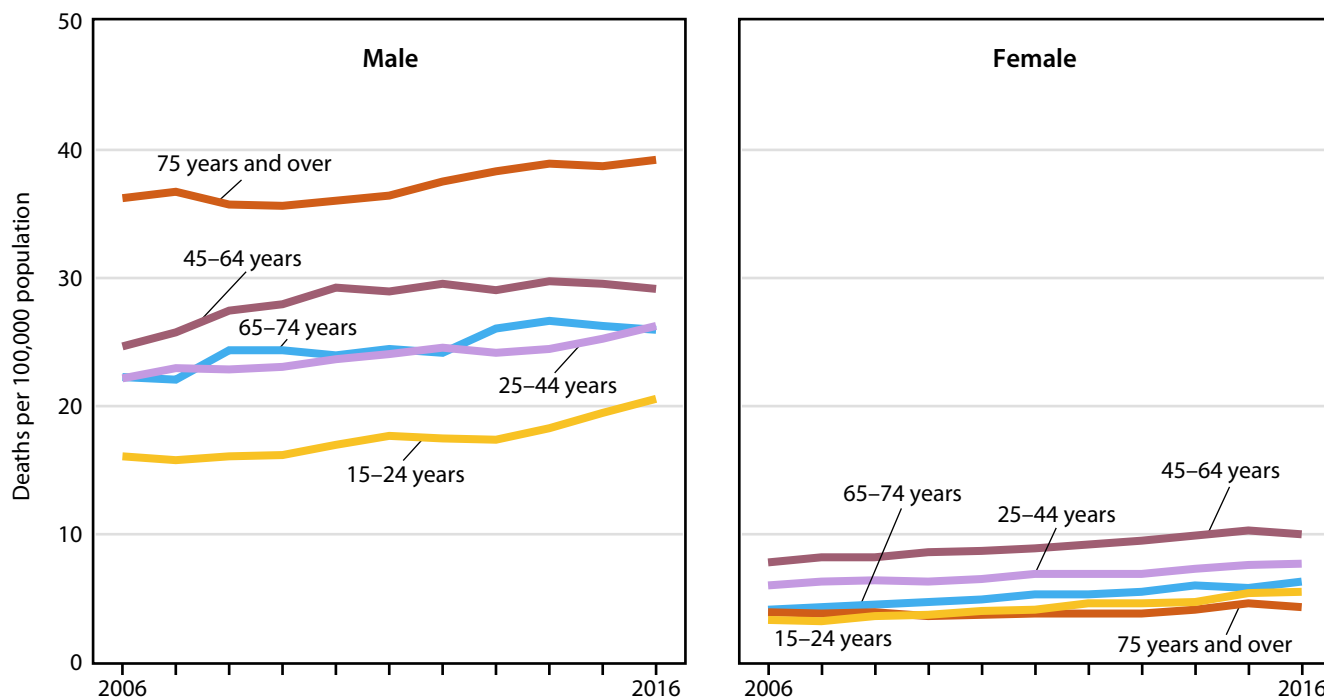
Suicide rates differed by sex and age. During 2006–2016, suicide rates were higher among males than among females for all age groups; in 2016, the ratio of male-to-female suicide rates ranged from 2.9 for those aged 45–64 to 9.3 for those aged 75 and over. Firearms were the most common suicide mechanism among males, whereas poisoning was the most common suicide mechanism among females (74). In 2016, men aged 75 and over had the highest suicide rate among males (39.2 per 100,000), whereas women aged 45–64 had the highest suicide rate (9.9 per 100,000) among females.

Among males, the age-adjusted suicide rate increased during 2006–2016, with different patterns by age group (data table

for Figure 28). Among males aged 25–44 and 65–74, suicide rates increased steadily by an average of 1.4% per year and 1.7% per year, respectively. Among males aged 15–24, suicide rates increased by average of 1.8% per year during 2006–2014, and then remained stable from 2014–2016. The suicide rate for males aged 45–64 increased by an average of 4.2% per year during 2006–2010, and then remained stable during 2010–2016. Among males aged 75 and over, suicide rates were stable during 2006–2009, and then increased by an average of 1.5% per year during 2009–2016.

Among females, the age-adjusted suicide rate increased by an average of 3.1% during 2006–2016. This increasing trend was also observed among females aged 15–24, 25–44, 45–64, and 65–74 (data table for Figure 28), and the average annual percent increases were 5.8%, 2.5%, 2.8%, and 4.3%, respectively. Among females aged 75 and over, the suicide rate remained stable during the decade.

**Figure 28. Suicide rates among persons aged 15 years and over, by sex and age: United States, 2006–2016**



NOTE: Suicide deaths are identified using *International Classification of Diseases, 10th Revision (ICD-10)* underlying cause of death codes U03, X60–X84, and Y87.0. See data table for Figure 28.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_028](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_028)

## Chronic Liver Disease and Cirrhosis Deaths

Chronic liver disease may be caused by both biological and behavioral factors, including hepatitis C or hepatitis B infection and excessive alcohol consumption. Long-lasting injury or scarring of the liver can lead to cirrhosis, in which the liver slowly deteriorates and is unable to function normally (75). Cirrhosis accounts for the majority of chronic liver disease deaths.

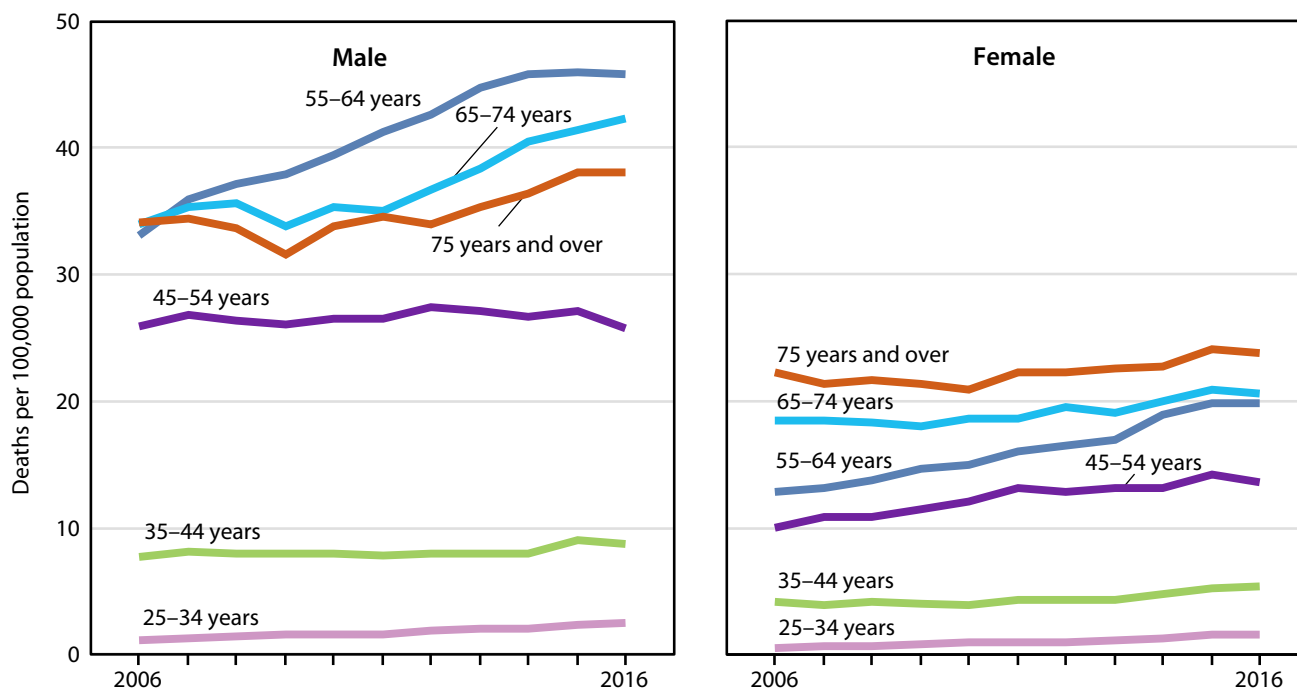
In 2016, death rates for chronic liver disease and cirrhosis among women increased with age. Among the age groups shown, death rates ranged from 1.6 deaths per 100,000 among women aged 25–34 to 23.8 deaths per 100,000 among women aged 75 and over. Among men, death rates for chronic liver disease and cirrhosis did not follow a clear pattern by age. Death rates among the age groups shown ranged from 2.5 deaths per 100,000 among men aged 25–34 to 45.9 deaths per 100,000 among men aged 55–64. During 2006–2016, death rates for chronic liver disease and cirrhosis were higher among men than among women for all age groups.

Among men, death rates for chronic liver disease and cirrhosis increased during part or all of 2006–2016 for each age group shown, except for men aged 45–54; among this

age group, the death rate remained stable during 2006–2016. Death rates for men aged 25–34 increased at the fastest rate, by an average of 7.9% per year during 2006–2016; death rates for men aged 35–44 increased by an average of 1.0% per year. Among the other age groups, the death rate for chronic liver disease and cirrhosis either increased and then remained stable in recent years (men aged 55–64) or increased after an initial period of no significant change (men aged 65–74 and men aged 75 and over).

The overall age-adjusted death rate for women increased at a faster rate than for men during 2006–2016 (by an average of 2.9% per year compared with an average of 1.8% per year) (data table for Figure 29). Among women, death rates for chronic liver disease and cirrhosis increased during part or all of 2006–2016 for each age group shown. Death rates for females aged 25–34 increased at the fastest rate, by an average of 11.4% per year during 2006–2016. Death rates for women aged 55–64 also increased throughout the decade. Among the other age groups, the death rate for chronic liver disease and cirrhosis either increased and then remained stable in recent years (women aged 45–54) or increased after an initial period of no change (women aged 35–44, women aged 65–74, and women aged 75 and over).

**Figure 29. Chronic liver disease and cirrhosis death rates among persons aged 25 and over, by sex and age: United States, 2006–2016**



NOTES: Rates for 15–24 for most years are unreliable due to small size. Chronic liver disease and cirrhosis death rates are identified using *International Classification of Diseases, 10th Revision* (ICD–10) underlying cause of death codes K70, K73–K74. See data table for Figure 29.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_029](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_029)

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

## Place of Death

When surveyed, most Americans express a preference to die in their homes, yet most die in institutional settings (55). Factors that affect the place of death include individual preferences, cultural beliefs, access to care, age, cause of death, social support, and race and ethnicity (55, 76–78). Health insurance coverage and services used around the time of death, such as hospice care services, nursing home care, or hospital inpatient care, are also related to the place of death.

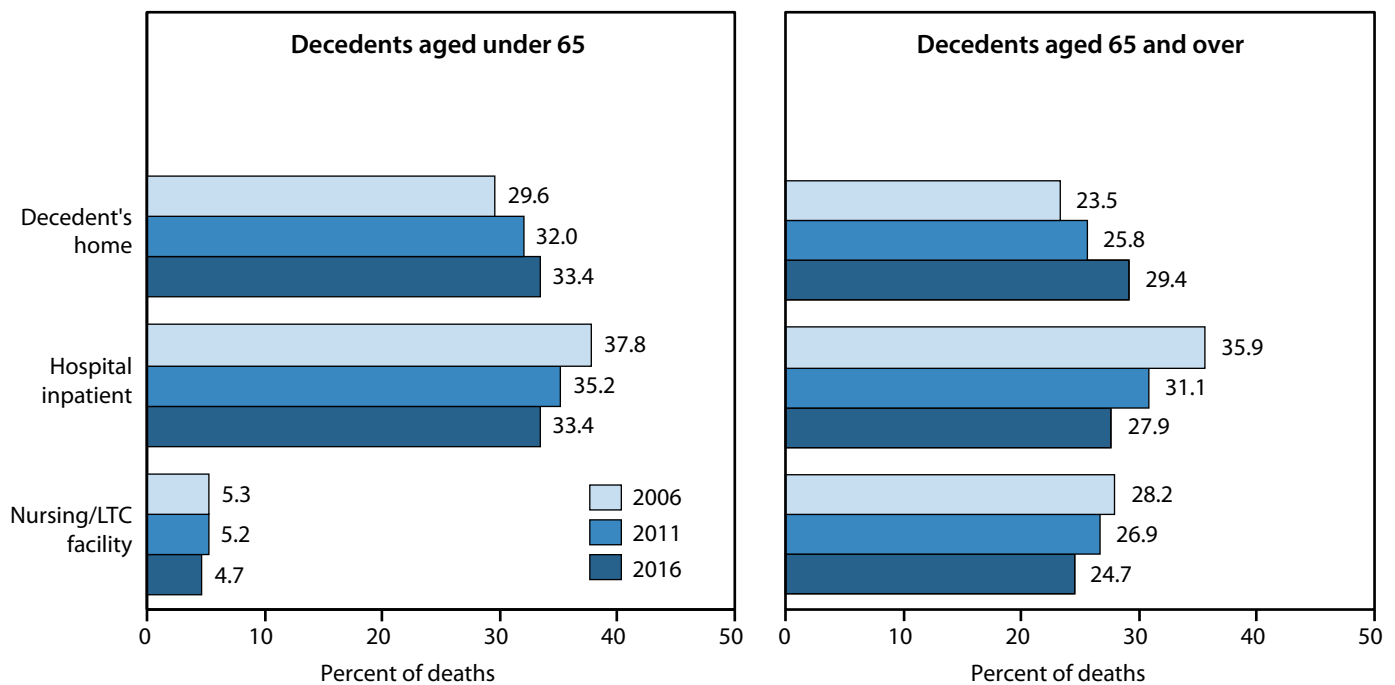
The place of death indicates where the person was at the moment of death, but not necessarily the type, location, or intensity of care received just before death (79).

Between 2006 and 2016, the percentage of deaths occurring at home increased from 25.2% to 30.5%, while the percentage of deaths occurring in hospital inpatient settings declined from 36.4% to 29.4% (data table for Figure 30). Another 19.3% of all decedents died in nursing homes

or other long-term care facilities in 2016, down from 21.9% in 2006. The percentage of all decedents who died while in hospice care facilities was 7.7% in 2016, up from 2.0% in 2006 (data table for Figure 30).

Age is a significant factor related to where Americans die (77). Older persons may have had greater opportunity to plan for their deaths, including where they will die. In 2016, home and hospital were the most common places of death for both decedents under 65 and those aged 65 and over. However, 24.7% of decedents aged 65 and over died in nursing homes or other long-term care facilities, compared with 4.7% of decedents under age 65. Decedents under age 65 were more likely to die in other places, such as hospital emergency or outpatient departments, dead on arrival at the hospital, or other locations (22.8%) than decedents aged 65 or over (9.5%).

Figure 30. Place of death, by age: United States, 2006, 2011, and 2016



NOTES: LTC is long-term care facility. Deaths in a licensed hospice facility and all other places of death are not included. See data table for Figure 30.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality.

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_030](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_030)

# Chartbook Data Tables

Data table for Figure 1. Life expectancy at birth, by sex, race, and Hispanic origin: United States, 2006–2016

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_001](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_001)

Year	Race and Hispanic origin			
	All races	Hispanic or Latino <sup>1</sup>	Not Hispanic or Latino	
			White	Black or African American
Both sexes				
Life expectancy at birth, in years				
2006 . . . . .	77.8	80.3	78.2	73.1
2007 . . . . .	78.1	80.7	78.4	73.5
2008 . . . . .	78.2	80.8	78.4	73.9
2009 . . . . .	78.5	81.1	78.7	74.4
2010 . . . . .	78.7	81.7	78.8	74.7
2011 . . . . .	78.7	81.8	78.7	75.0
2012 . . . . .	78.8	81.9	78.9	75.1
2013 . . . . .	78.8	81.9	78.8	75.1
2014 <sup>2</sup> . . . . .	78.9	82.1	78.8	75.3
2015 <sup>2</sup> . . . . .	78.7	81.9	78.7	75.1
2016 <sup>2</sup> . . . . .	78.6	81.8	78.5	74.8
Male				
2006 . . . . .	75.2	77.5	75.7	69.5
2007 . . . . .	75.5	77.8	75.9	69.9
2008 . . . . .	75.6	78.0	76.0	70.5
2009 . . . . .	76.0	78.4	76.3	71.0
2010 . . . . .	76.2	78.8	76.4	71.5
2011 . . . . .	76.3	79.2	76.4	71.8
2012 . . . . .	76.4	79.3	76.5	71.9
2013 . . . . .	76.4	79.2	76.5	71.9
2014 <sup>2</sup> . . . . .	76.5	79.4	76.5	72.2
2015 <sup>2</sup> . . . . .	76.3	79.3	76.3	71.9
2016 <sup>2</sup> . . . . .	76.1	79.1	76.1	71.5
Female				
2006 . . . . .	80.3	82.9	80.6	76.4
2007 . . . . .	80.6	83.2	80.8	76.7
2008 . . . . .	80.6	83.3	80.7	77.0
2009 . . . . .	80.9	83.5	81.0	77.4
2010 . . . . .	81.0	84.3	81.1	77.7
2011 . . . . .	81.1	84.2	81.1	77.8
2012 . . . . .	81.2	84.3	81.2	78.1
2013 . . . . .	81.2	84.2	81.2	78.1
2014 <sup>2</sup> . . . . .	81.3	84.5	81.2	78.2
2015 <sup>2</sup> . . . . .	81.1	84.3	81.0	78.1
2016 <sup>2</sup> . . . . .	81.1	84.2	81.0	77.9

<sup>1</sup>Persons of Hispanic origin may be of any race. See [Appendix II](#), Hispanic origin. Life expectancies for the Hispanic population are adjusted for underreporting of Hispanic ethnicity on the death certificate, but are not adjusted to account for the potential effects of return migration. To address the effects of age misstatement at the oldest ages, the probability of death for Hispanic persons age 80 and over is estimated as a function of non-Hispanic white mortality with the use of the Brass relational logit model. See [Appendix II](#), Race, for a discussion of sources of bias in death rates by race and Hispanic origin.

<sup>2</sup>Life expectancy estimates for 2014 and 2015 were revised using updated Medicare data; therefore, these values may differ from previous editions of *Health, United States*. Life expectancy estimates for 2016 are based on preliminary Medicare data.

NOTES: Populations for computing life expectancy for 2006–2009 were based on intercensal population estimates of the U.S. resident population. Populations for computing life expectancy for 2010 were based on 2010 census counts. Life expectancy for 2011 and beyond was computed using 2010-based postcensal estimates. See [Appendix I](#), Population Census and Population Estimates. In 2008, the life table methodology was revised. See [Appendix II](#), Life expectancy. Life expectancy is not currently available for persons of other racial and ethnic groups. Also see [Table 15](#). Life expectancy for 2006–2012 was calculated using data from Medicare to supplement vital statistics and census data. Starting with *Health, United States, 2016*, life expectancy estimates for 2010–2012, except as noted in [Table 15](#), were revised to take into account updated race and Hispanic origin classification ratios. See Arias E, Heron M, Hakes JK. The validity of race and Hispanic-origin reporting on death certificates in the United States: An update. NCHS. Vital Health Stat 2(172). 2016. Available from: [http://www.cdc.gov/nchs/data/series/sr\\_02/sr02\\_172.pdf](http://www.cdc.gov/nchs/data/series/sr_02/sr02_172.pdf).

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 2. Age-adjusted death rates for selected causes of death for all ages, by sex: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_002](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_002)

Sex and year	Cause of death <sup>1</sup>							
	All causes	Heart disease	Cancer	Unintentional injuries <sup>2</sup>	CLRD <sup>3</sup>	Stroke <sup>4</sup>	Diabetes <sup>5</sup>	Alzheimer's disease
Age-adjusted deaths per 100,000 population <sup>6</sup>								
Male								
2006 . . . . .	943.5	254.9	221.7	56.0	48.4	45.2	27.7	19.4
2007 . . . . .	922.9	243.7	218.8	55.9	48.8	43.7	26.6	19.5
2008 . . . . .	918.8	238.5	214.9	54.3	52.3	42.2	25.9	21.3
2009 . . . . .	890.9	229.4	210.9	51.4	49.5	39.9	25.0	20.2
2010 . . . . .	887.1	225.1	209.9	51.5	48.7	39.3	24.9	21.0
2011 . . . . .	875.3	218.1	204.0	52.8	48.6	37.9	26.0	20.4
2012 . . . . .	865.1	214.7	200.3	52.6	47.2	37.1	25.5	19.8
2013 . . . . .	863.6	214.5	196.0	53.1	47.5	36.7	25.6	19.3
2014 . . . . .	855.1	210.9	192.9	54.6	45.4	36.9	25.6	20.6
2015 . . . . .	863.2	211.8	189.2	58.7	46.0	37.8	26.2	23.7
2016 . . . . .	861.0	209.1	185.4	65.0	45.1	37.5	26.0	24.3
Female								
2006 . . . . .	672.2	167.2	154.7	25.8	36.4	43.9	20.4	25.9
2007 . . . . .	658.1	159.0	152.3	26.1	36.6	42.7	19.8	26.2
2008 . . . . .	659.9	155.9	149.6	25.4	39.8	41.4	19.1	28.2
2009 . . . . .	636.8	146.6	147.4	24.8	38.3	38.8	17.9	26.3
2010 . . . . .	634.9	143.3	146.7	25.6	38.0	38.3	17.6	27.3
2011 . . . . .	632.4	138.7	144.0	26.5	38.5	37.2	18.2	27.1
2012 . . . . .	624.7	135.5	142.1	26.4	37.8	36.1	17.7	26.1
2013 . . . . .	623.5	134.3	139.5	26.6	38.5	35.2	17.6	25.9
2014 . . . . .	616.7	131.8	138.1	27.3	37.1	35.6	17.2	28.3
2015 . . . . .	624.2	133.6	135.9	28.7	38.6	36.9	17.3	32.8
2016 . . . . .	617.5	130.4	134.0	30.8	37.4	36.5	16.9	33.9
Standard error								
Male								
2006 . . . . .	0.88	0.46	0.42	0.20	0.20	0.20	0.15	0.13
2007 . . . . .	0.86	0.45	0.41	0.20	0.20	0.19	0.14	0.13
2008 . . . . .	0.84	0.43	0.40	0.20	0.20	0.18	0.14	0.14
2009 . . . . .	0.82	0.42	0.39	0.19	0.20	0.18	0.14	0.13
2010 . . . . .	0.81	0.41	0.39	0.19	0.19	0.17	0.13	0.13
2011 . . . . .	0.79	0.40	0.38	0.19	0.19	0.17	0.14	0.13
2012 . . . . .	0.78	0.39	0.37	0.19	0.18	0.16	0.13	0.12
2013 . . . . .	0.77	0.38	0.36	0.19	0.18	0.16	0.13	0.12
2014 . . . . .	0.75	0.38	0.35	0.19	0.18	0.16	0.13	0.12
2015 . . . . .	0.75	0.37	0.34	0.20	0.17	0.16	0.13	0.13
2016 . . . . .	0.74	0.37	0.34	0.21	0.17	0.16	0.13	0.13
Female								
2006 . . . . .	0.61	0.30	0.30	0.13	0.14	0.15	0.11	0.11
2007 . . . . .	0.60	0.29	0.30	0.13	0.14	0.15	0.11	0.11
2008 . . . . .	0.60	0.29	0.29	0.12	0.15	0.15	0.10	0.12
2009 . . . . .	0.59	0.27	0.29	0.12	0.14	0.14	0.10	0.11
2010 . . . . .	0.58	0.27	0.28	0.12	0.14	0.14	0.10	0.11
2011 . . . . .	0.57	0.26	0.28	0.12	0.14	0.14	0.10	0.11
2012 . . . . .	0.57	0.26	0.27	0.12	0.14	0.13	0.10	0.11
2013 . . . . .	0.56	0.25	0.27	0.12	0.14	0.13	0.09	0.11
2014 . . . . .	0.55	0.25	0.27	0.13	0.14	0.13	0.09	0.11
2015 . . . . .	0.55	0.25	0.26	0.13	0.14	0.13	0.09	0.12
2016 . . . . .	0.55	0.24	0.26	0.13	0.13	0.13	0.09	0.12

<sup>1</sup> Underlying causes of death are based on the *International Classification of Diseases, 10th Revision (ICD-10)*.

<sup>2</sup> Unintentional injuries is accidents.

<sup>3</sup> CLRD is chronic lower respiratory disease. Starting with 1999 data, the rules for selecting CLRD and Pneumonia as the underlying cause of death changed, resulting in an increase in the number of deaths for CLRD and a decrease in the number of deaths for pneumonia. Therefore, trend data for these two causes of death should be interpreted with caution. For more information, see Comparability of cause of death between ICD-9 and ICD-10 in [Appendix II](#), Table V.

<sup>4</sup> Stroke is cerebrovascular disease.

<sup>5</sup> Starting with 2011 data, the rules for selecting Renal failure as the underlying cause of death were changed, resulting in an increase in the number of deaths for Diabetes mellitus. Therefore, trend data for diabetes should be interpreted with caution. For more information, see Technical Notes in Deaths: Final data for 2011, available from: [https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63\\_03.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_03.pdf).

<sup>6</sup> Estimates are age-adjusted to the year 2000 standard population with unrounded population numbers. See [Appendix II](#), Age adjustment.

NOTES: See [Appendix II](#), Cause of death; Cause-of-death ranking; Table IV.

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).



**Data table for Figure 3. Teen childbearing among females aged 15–19 years, by race and Hispanic origin: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_003](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_003)

Year	Total	Race and Hispanic origin of mother				
		Hispanic or Latina	Not Hispanic or Latina			
			White only	Black or African American only	Asian or Pacific Islander only	American Indian or Alaska Native only
Live births per 1,000 females aged 15–19 years						
2006 . . . . .	41.1	77.4	26.7	61.9	13.8	62.4
2007 . . . . .	41.5	75.3	27.2	62.0	13.4	66.3
2008 . . . . .	40.2	70.3	26.7	60.4	12.4	65.0
2009 . . . . .	37.9	63.6	25.7	56.8	11.3	62.0
2010 . . . . .	34.2	55.7	23.5	51.5	9.9	55.5
2011 . . . . .	31.3	49.6	21.7	47.3	9.0	52.6
2012 . . . . .	29.4	46.3	20.5	43.9	8.5	51.2
2013 . . . . .	26.5	41.7	18.6	39.0	7.8	44.9
2014 . . . . .	24.2	38.0	17.3	34.9	6.8	39.3
2015 . . . . .	22.3	34.9	16.0	31.8	6.0	37.6
2016 . . . . .	20.3	31.9	14.4	29.3	5.2	34.7
Standard error						
2006 . . . . .	0.06	0.20	0.06	0.19	0.17	0.73
2007 . . . . .	0.06	0.20	0.07	0.19	0.16	0.75
2008 . . . . .	0.06	0.18	0.06	0.19	0.16	0.74
2009 . . . . .	0.06	0.17	0.06	0.18	0.15	0.73
2010 . . . . .	0.06	0.16	0.06	0.17	0.14	0.70
2011 . . . . .	0.05	0.15	0.06	0.17	0.13	0.69
2012 . . . . .	0.05	0.14	0.06	0.16	0.13	0.69
2013 . . . . .	0.05	0.14	0.06	0.16	0.12	0.65
2014 . . . . .	0.05	0.13	0.05	0.15	0.11	0.61
2015 . . . . .	0.05	0.12	0.05	0.14	0.10	0.60
2016 . . . . .	0.04	0.12	0.05	0.14	0.09	0.58

NOTES: The 1977 Office of Management and Budget (OMB) Standards for Data on Race and Ethnicity were used to classify persons into one of the following four racial groups: White, Black, American Indian or Alaskan Native, or Asian or Pacific Islander. The revised OMB Standards issued in 1997 permitted the option of selecting more than one race. Multiple-race data were reported by 6 states in 2003, 9 states in 2004, 19 states in 2005, 23 states in 2006, 27 states in 2007, 30 states in 2008, 32 states and the District of Columbia (DC) in 2009, 38 states and DC, 40 states and DC, 41 states and DC in 2012, 44 states and DC 2013, and 49 states and DC in 2014 and 2015. The multiple-race data for these states were bridged to the single-race categories of the 1977 OMB Standards for comparability with other states. Note that data on race and Hispanic origin are collected and reported separately. Persons of Hispanic origin may be of any race. See [Appendix II](#), Hispanic origin; Race. Also see [Table 3](#).

SOURCE: NCHS, National Vital Statistics System, Natality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 4. Preterm singleton births, by gestational age and race and Hispanic origin of mother: United States, 2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_004](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_004)

Preterm births by gestational age, in weeks <sup>2</sup>	Total <sup>3</sup>	Race and Hispanic origin of mother <sup>1</sup>				
		Not Hispanic or Latina				
		Hispanic or Latina	White only	Black or African American only	Asian or Pacific Islander only	American Indian or Alaska Native only
Percent of live singleton births that were preterm						
Less than 37 . . . . .	8.0	8.1	7.1	11.5	7.2	9.9
34–36 . . . . .	5.9	6.1	5.4	7.6	5.5	7.5
32–33 . . . . .	0.9	0.9	0.7	1.4	0.7	1.0
Less than 32. . . . .	1.2	1.2	0.9	2.6	0.9	1.4
Standard error						
Less than 37 . . . . .	0.01	0.03	0.02	0.04	0.05	0.16
34–36 . . . . .	0.01	0.03	0.02	0.04	0.04	0.14
32–33 . . . . .	0.00	0.01	0.01	0.02	0.02	0.05
Less than 32. . . . .	0.01	0.01	0.01	0.02	0.02	0.06

0.00 Quantity more than zero but less than 0.005

<sup>1</sup> Persons of Hispanic origin may be of any race. Starting with 2003 data, some states reported multiple-race data. The multiple-race data for these states were bridged to the single-race categories of the 1977 Office of Management and Budget standards, for comparability with other states. See [Appendix II](#), Hispanic origin; Race.

<sup>2</sup> Preterm births are based on the obstetric estimate of gestational age and are for all singleton births. Singleton births refer to single births, in contrast with multiple or higher order births. Estimates for the percentage of live singleton births that occurred less than 37 weeks of gestation may not sum to total percentage due to rounding. For more information on the obstetric estimates, see: Martin JA, Osterman MJK, Kirmeyer SE, Gregory ECW. Measuring gestational age in vital statistics data: Transitioning to the obstetric estimate. National vital statistics reports; vol 64 no 5. Hyattsville, MD: NCHS. 2015. Available from: [https://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64\\_05.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_05.pdf).

<sup>3</sup> Includes all preterm births not shown separately.

SOURCE: NCHS, National Vital Statistics System, Natality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 5. Cigarette smoking among adults aged 18 and over, by age, and tobacco use among adolescents in grades 9–12, by age and type of product: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_005](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_005)

**Current cigarette smoking among adults aged 18 and over, by age: 2006–2016**

Year	18–44 years		45–64 years		65 years and over	
	Percent	SE	Percent	SE	Percent	SE
2006 . . . . .	23.6	0.5	21.8	0.6	10.2	0.5
2007 . . . . .	22.6	0.6	21.0	0.6	8.3	0.5
2008 . . . . .	23.1	0.6	22.6	0.6	9.3	0.5
2009 . . . . .	23.4	0.5	21.9	0.6	9.5	0.5
2010 . . . . .	21.5	0.5	21.1	0.5	9.5	0.5
2011 . . . . .	21.2	0.5	21.4	0.5	7.9	0.4
2012 . . . . .	20.4	0.5	19.5	0.5	8.9	0.4
2013 . . . . .	19.7	0.5	19.9	0.5	8.8	0.4
2014 . . . . .	19.1	0.5	18.0	0.5	8.5	0.4
2015 . . . . .	16.5	0.5	17.0	0.5	8.4	0.4
2016 . . . . .	16.4	0.5	18.0	0.5	8.8	0.4

**Tobacco use in past 30 days among students in grades 9–12, by type of product: 2011–2016**

Year	Any tobacco products	Cigarettes	Cigars	Percent				
				Electronic cigarettes	Hookah	Smokeless tobacco	Pipe tobacco	Bidis
2011 . . . . .	24.2	15.8	11.6	1.5	4.1	7.9	4.0	2.0
2012 . . . . .	23.3	14.0	12.6	2.8	5.4	7.3	4.5	0.9
2013 . . . . .	22.9	12.7	11.9	4.5	5.2	6.2	4.1	0.6
2014 . . . . .	24.6	9.2	8.2	13.4	9.4	6.3	1.5	0.9
2015 . . . . .	25.3	9.3	8.6	16.0	7.2	6.0	1.0	0.6
2016 . . . . .	20.2	8.0	7.7	11.3	4.8	5.8	1.4	0.5
Standard error								
2011 . . . . .	1.2	1.1	0.6	0.2	0.4	0.8	0.3	0.2
2012 . . . . .	0.9	0.8	0.6	0.3	0.4	0.6	0.3	0.1
2013 . . . . .	0.9	0.7	0.6	0.4	0.4	0.7	0.3	0.1
2014 . . . . .	1.0	0.6	0.5	1.2	0.6	0.6	0.2	0.1
2015 . . . . .	1.1	0.8	0.5	1.0	0.5	0.7	0.2	0.1
2016 . . . . .	1.0	0.7	0.6	0.8	0.4	0.6	0.1	0.1

SE is standard error.

NOTES: Current cigarette smoking by adults is defined as having smoked 100 or more cigarettes in their lifetime and smoking now, every day or some days. Tobacco use by students in grades 9–12 is defined as having used the product one or more times in the past 30 days. Electronic cigarettes are cigarette shaped devices containing nicotine and other chemicals, which is vaporized and inhaled to simulate smoking. Bidis are small, thin, hand-rolled cigarettes imported to the United States. See [Appendix II](#), Cigarette smoking. Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey, and CDC, National Youth Tobacco Survey. See [Appendix I](#), National Health Interview Survey (NHIS) and National Youth Tobacco Survey (NYTS).

**Data table for Figure 6. Overweight and obesity among adults aged 20 and over, by sex and grade of obesity: United States, 1999–2000 through 2015–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_006](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_006)

Sex and grade of obesity	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men, 20 years and over					Percent				
Overweight but not obese . . . . .	39.8	42.4	39.7	39.9	40.4	38.4	38.3	38.7	36.9
Obesity (all grades) . . . . .	27.4	27.6	31.3	33.4	32.1	35.6	33.5	35.5	38.1
Grade 1 obesity . . . . .	17.5	18.7	21.9	21.8	21.4	23.0	21.6	22.4	23.7
Grade 2 obesity . . . . .	6.8	5.3	6.6	7.4	6.5	8.3	7.6	7.7	8.8
Grade 3 obesity . . . . .	3.1	3.6	2.8	4.2	4.2	4.4	4.3	5.4	5.6
Women, 20 years and over									
Overweight but not obese . . . . .	28.6	28.2	28.7	25.4	28.8	27.9	29.4	26.8	26.6
Obesity (all grades) . . . . .	33.3	33.1	33.2	35.4	35.3	35.7	36.1	40.1	41.2
Grade 1 obesity . . . . .	16.9	18.2	18.2	17.5	17.6	17.6	19.4	19.2	19.7
Grade 2 obesity . . . . .	10.2	8.5	8.1	10.5	10.6	9.9	8.5	11.3	11.5
Grade 3 obesity . . . . .	6.2	6.5	6.8	7.4	7.1	8.2	8.2	9.7	10.0
Men, 20 years and over					Standard error				
Overweight but not obese . . . . .	1.3	1.3	1.5	1.3	1.4	1.1	1.5	1.1	1.5
Obesity (all grades) . . . . .	1.5	1.0	1.4	2.0	1.4	1.8	1.4	1.0	2.3
Grade 1 obesity . . . . .	0.9	0.7	1.1	1.3	0.9	1.2	1.1	1.2	1.7
Grade 2 obesity . . . . .	0.8	0.7	0.6	0.9	0.5	0.9	0.7	0.4	0.7
Grade 3 obesity . . . . .	0.6	0.6	0.4	0.5	0.4	0.3	0.9	0.7	0.7
Women, 20 years and over									
Overweight but not obese . . . . .	1.6	1.7	1.2	1.3	1.2	1.3	1.6	0.8	1.0
Obesity (all grades) . . . . .	1.7	1.6	1.7	1.5	1.1	0.9	1.6	1.3	1.5
Grade 1 obesity . . . . .	1.0	1.4	1.3	0.7	0.8	0.8	1.2	0.7	1.0
Grade 2 obesity . . . . .	0.7	0.7	0.7	0.8	0.7	0.6	0.6	0.6	0.8
Grade 3 obesity . . . . .	0.7	0.7	0.9	0.8	0.5	0.5	0.7	0.9	0.6

NOTES: BMI is body mass index. Overweight but not obese ( $25.0 \leq \text{BMI} \leq 29.9$ ), Obesity ( $\text{BMI} \geq 30.0$ ), Grade 1 obesity ( $30.0 \leq \text{BMI} \leq 34.9$ ), Grade 2 obesity ( $35.0 \leq \text{BMI} \leq 39.9$ ), and Grade 3 obesity ( $\text{BMI} \geq 40.0$ ). BMI is based on measured weight and height. Estimates exclude pregnant females. Age of the participant (in years) is at the time of screening. In *Health, United States*, the NHANES variable, Body Mass Index, is rounded to one decimal place and is used to assign persons to BMI categories. Estimates are age-adjusted to the year 2000 standard population using five age groups: 20–34 years, 35–44 years, 45–54 years, 55–64 years, and 65 years and over. Age-adjusted estimates in this table may differ from other age-adjusted estimates based on the same data and presented elsewhere if different age groups are used in the adjustment procedure. See [Appendix II](#), Age adjustment; Body mass index (BMI). Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health and Nutrition Examination Survey. See [Appendix I](#), National Health and Nutrition Examination Survey (NHANES).

**Data table for Figure 7. Obesity among children and adolescents aged 2–19 years, by sex and race and Hispanic origin: United States, 2013–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_007](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_007)

<i>Sex and race and Hispanic origin</i>	<i>Percent</i>	<i>Standard error</i>
Total . . . . .	17.8	0.8
White, not Hispanic . . . . .	14.7	1.0
Black, not Hispanic . . . . .	20.4	1.7
Asian, not Hispanic . . . . .	9.8	1.2
Hispanic. . . . .	23.6	1.2
Boys . . . . .	18.1	1.1
White, not Hispanic . . . . .	15.3	1.3
Black, not Hispanic . . . . .	17.9	1.7
Asian, not Hispanic . . . . .	11.9	1.9
Hispanic. . . . .	24.3	1.8
Girls . . . . .	17.5	1.0
White, not Hispanic . . . . .	14.1	1.5
Black, not Hispanic . . . . .	23.0	2.3
Asian, not Hispanic . . . . .	7.4	1.2
Hispanic. . . . .	22.9	1.4

NOTES: Obesity in youth is defined as body mass index (BMI) at or above the sex- and age-specific 95th percentile of the 2000 CDC Growth Charts. Kuczmarski RJ, Ogden CL, Guo SS, Grummer-Strawn LM, Flegal KM, Mei Z, et al. 2000 CDC Growth Charts for the United States: Methods and development. *Vital Health Stat* 11(246). 2002. Available at: [https://www.cdc.gov/nchs/data/series/sr\\_11/sr11\\_246.pdf](https://www.cdc.gov/nchs/data/series/sr_11/sr11_246.pdf). BMI equals weight in kilograms divided by height in meters squared. See [Appendix II](#), Body mass index (BMI). In *Health, United States*, the NHANES variable, Body Mass Index, is used to assign persons to BMI categories. Age is at the time of examination. Height is measured without shoes. Data on both age and height were collected during a standardized physical examination conducted in mobile examination centers. Estimates exclude pregnant females. Crude rates, not age-adjusted rates, are shown. See *Health, United States, 2013*, Table 70, for earlier data years. Standard errors for selected years are available in the spreadsheet version of this table. Data for additional years are available. See the Excel spreadsheet on the *Health, United States* website at: <https://www.cdc.gov/nchs/hus.htm>.

SOURCE: NCHS, National Health and Nutrition Examination Survey. See [Appendix I](#), National Health and Nutrition Examination Survey (NHANES).



**Data table for Figure 8. Current asthma among children under age 18 years, by race and Hispanic origin: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_008](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_008)

Year	Race and Hispanic origin							
	Total <sup>1</sup>		Hispanic		Not Hispanic or Latino			
	Percent	SE	Percent	SE	White only		Black only	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE
2006	9.3	0.4	9.0	0.8	8.6	0.5	12.8	0.9
2007	9.1	0.4	9.3	0.7	7.3	0.5	15.4	1.1
2008	9.4	0.4	6.7	0.6	8.8	0.5	15.7	1.2
2009	9.6	0.4	7.7	0.6	8.5	0.5	17.0	1.3
2010	9.4	0.3	8.1	0.6	8.2	0.5	15.9	1.0
2011	9.5	0.3	9.6	0.6	7.8	0.4	16.3	1.1
2012	9.3	0.3	8.8	0.6	7.9	0.4	16.0	1.0
2013	8.3	0.3	7.4	0.5	7.5	0.5	13.4	0.9
2014	8.6	0.3	8.5	0.6	7.6	0.5	13.4	1.0
2015	8.4	0.3	8.0	0.5	7.4	0.5	13.4	1.0
2016	8.3	0.3	6.7	0.6	7.1	0.4	15.7	1.3

SE is standard error.

<sup>1</sup> Includes all other races not shown separately.

NOTES: Based on parent or knowledgeable adult responding yes to both questions, "Has a doctor or other health professional ever told you that your child had asthma?" and "Does your child still have asthma?" Adults of Hispanic origin may be of any race. Race-specific estimates are tabulated according to the 1997 *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity*. The single-race categories plus multiple-race category shown in the table conform to the 1997 Standards. Starting with 2003 data, race responses of other race and unspecified multiple race were treated as missing, and then race was imputed if these were the only race responses. Almost all persons with a race response of other race were of Hispanic origin. See [Appendix II](#), Hispanic origin; Race. Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See [Appendix I](#), National Health Interview Survey (NHIS).

**Data table for Figure 9. Heart disease and cancer among adults aged 18 and over, by sex and age: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_009](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_009)

**Heart disease,<sup>1</sup> by sex and age: 2006–2016**

Sex and year	18–44 years		45–54 years		55–64 years		65 years and over	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE
<b>Male</b>								
2006	3.0	0.3	10.0	0.8	18.6	1.2	36.9	1.4
2007	3.5	0.3	9.4	0.8	18.1	1.2	39.1	1.4
2008	4.2	0.4	9.0	0.8	18.4	1.2	37.3	1.3
2009	4.5	0.4	10.9	0.9	19.1	1.1	37.4	1.3
2010	4.1	0.3	9.8	0.7	18.9	1.1	36.3	1.2
2011	3.3	0.2	9.2	0.6	19.3	1.0	37.4	1.1
2012	3.8	0.3	9.9	0.8	17.8	1.0	34.5	1.1
2013	3.7	0.3	9.6	0.8	18.0	0.9	34.8	1.1
2014	4.2	0.3	8.3	0.7	17.7	1.0	35.2	1.1
2015	4.3	0.4	8.5	0.7	17.0	1.0	35.1	1.1
2016	3.3	0.3	10.5	0.8	16.4	0.9	33.9	1.0
<b>Female</b>								
2006	4.3	0.3	8.7	0.7	14.4	1.0	26.5	1.0
2007	4.8	0.3	8.9	0.7	14.7	1.0	25.2	1.0
2008	5.0	0.3	8.0	0.7	16.0	1.0	28.9	1.0
2009	4.3	0.3	9.9	0.8	13.9	0.9	25.8	1.0
2010	4.8	0.3	9.7	0.7	16.3	0.9	25.3	0.9
2011	3.8	0.3	9.6	0.6	14.4	0.8	25.7	0.8
2012	3.7	0.2	8.1	0.6	13.9	0.8	26.1	0.9
2013	3.8	0.3	8.1	0.6	13.6	0.7	25.9	0.9
2014	4.4	0.3	8.2	0.6	14.3	0.9	23.9	0.8
2015	4.4	0.3	9.0	0.7	13.4	0.9	25.1	0.9
2016	4.3	0.3	9.9	0.7	12.5	0.8	23.6	0.8

**Cancer,<sup>2</sup> by sex and age: 2006–2016**

Sex and year	18–44 years		45–54 years		55–64 years		65 years and over	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE
<b>Male</b>								
2006	0.8	0.1	2.7	0.4	6.4	0.8	18.8	1.1
2007	0.9	0.2	2.5	0.4	7.3	0.8	18.1	1.1
2008	0.8	0.2	2.6	0.4	7.1	0.8	16.9	1.0
2009	0.7	0.1	3.1	0.4	7.0	0.7	20.5	1.0
2010	1.0	0.1	3.5	0.5	8.6	0.8	20.7	1.0
2011	0.8	0.1	2.8	0.4	6.5	0.6	20.7	0.9
2012	0.9	0.1	3.0	0.4	7.6	0.6	20.0	0.9
2013	0.5	0.1	2.7	0.4	8.8	0.7	20.4	1.0
2014	0.9	0.1	3.0	0.5	7.6	0.6	18.7	0.9
2015	0.9	0.2	2.4	0.4	7.2	0.7	19.3	0.9
2016	1.0	0.1	3.3	0.5	7.2	0.6	20.7	0.9
<b>Female</b>								
2006	3.0	0.3	6.2	0.6	9.6	0.7	15.1	0.9
2007	2.2	0.2	6.6	0.6	8.2	0.7	15.3	0.8
2008	2.8	0.3	6.3	0.6	11.7	0.9	17.9	0.9
2009	2.2	0.2	7.3	0.7	10.6	0.8	16.1	0.8
2010	2.6	0.2	7.4	0.6	10.7	0.7	16.3	0.7
2011	2.3	0.2	5.8	0.5	11.1	0.7	17.2	0.7
2012	2.3	0.2	5.7	0.5	10.3	0.7	17.1	0.7
2013	2.4	0.2	6.2	0.6	10.5	0.7	17.0	0.7
2014	2.4	0.2	5.2	0.5	10.3	0.7	17.2	0.7
2015	2.1	0.2	6.1	0.6	10.9	0.8	18.6	0.8
2016	2.3	0.2	7.4	0.6	12.0	0.8	18.5	0.7

SE is standard error.

<sup>1</sup> Heart disease is based on self-reported responses to questions about whether respondents had ever been told by a doctor or other health professional that they had coronary heart disease, angina (angina pectoris), a heart attack (myocardial infarction), or any other kind of heart disease or heart condition.

<sup>2</sup> Cancer is based on self-reported responses to a question about whether respondents had ever been told by a doctor or other health professional that they had cancer or a malignancy of any kind. Excludes squamous cell and basal cell carcinomas.

NOTE: Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See [Appendix I](#), National Health Interview Survey (NHIS).

**Data table for Figure 10. Hypertension among adults aged 20 and over, by sex, age, and awareness of hypertension: United States, 1999–2000 through 2015–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_010](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_010)

**Adults with hypertension,<sup>1</sup> by sex and age: 1999–2000 through 2015–2016**

Sex and age	1999–2000	2001–2002	2003–2004	2005–2006	2007–2008	2009–2010	2011–2012	2013–2014	2015–2016
Men									
Percent									
20–44 years . . . . .	12.9	11.1	13.4	14.9	13.3	11.7	10.6	12.3	13.3
45–64 years . . . . .	37.5	35.5	44.2	38.5	41.8	40.7	43.6	44.0	43.4
65 years and over. . . . .	63.9	62.8	64.8	64.2	66.6	67.9	65.9	67.6	59.8
Women									
20–44 years . . . . .	8.5	7.7	7.6	6.2	9.6	7.0	10.4	10.1	8.7
45–64 years . . . . .	39.1	40.9	44.3	42.5	39.7	39.7	39.3	39.7	38.0
65 years and over. . . . .	76.7	77.9	76.7	73.8	74.3	75.4	69.5	72.5	71.7
Men									
Standard error									
20–44 years . . . . .	2.4	0.8	1.4	1.8	1.0	0.9	1.3	1.2	1.6
45–64 years . . . . .	3.0	2.8	3.4	2.5	1.9	2.5	2.7	1.6	2.9
65 years and over. . . . .	3.6	2.6	3.0	1.9	3.1	3.3	3.0	1.8	3.3
Women									
20–44 years . . . . .	1.0	1.2	0.9	0.8	1.0	0.7	1.1	1.0	1.3
45–64 years . . . . .	2.3	2.7	2.9	2.6	2.9	2.5	2.0	2.7	1.6
65 years and over. . . . .	1.7	1.8	2.1	2.6	2.6	1.7	2.2	2.1	2.7

**Adults who are unaware of their hypertension,<sup>2</sup> by sex and age: 2015–2016**

Sex and age	Percent	Standard error
Men		
20–44 years . . . . .	32.5	4.9
45–64 years . . . . .	20.3	2.2
65 years and over. . . . .	16.3	2.9
Women		
20–44 years . . . . .	17.0	3.5
45–64 years . . . . .	14.6	2.9
65 years and over. . . . .	14.2	1.6

<sup>1</sup> Hypertension is defined as having measured high blood pressure and/or taking antihypertensive medication. High blood pressure is defined as having measured systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg. Estimates exclude pregnant females. Those with high blood pressure may also be taking antihypertensive medication for high blood pressure. Those taking antihypertensive medication may not have measured high blood pressure but are still classified as having hypertension.

<sup>2</sup> Unaware of hypertension is defined as a negative response to the question, “Have you ever been told by a doctor or health professional that you had hypertension, also called high blood pressure?” among adults with hypertension.

NOTES: Data are for the civilian noninstitutionalized population. In 2017, a revised set of practice guidelines for defining high blood pressure was released but has not been widely adopted. Therefore, the high blood pressure cutoffs used to define hypertension and uncontrolled high blood pressure in *Health, United States* continue to use the original definition of having measured systolic pressure of at least 140 mm Hg or diastolic pressure of at least 90 mm Hg. For more information, including a comparison of high blood pressure estimates based on the current and revised definitions, see [Appendix II, Hypertension; Table VI](#). Also see [Table 54](#).

SOURCE: NCHS, National Health and Nutrition Examination Survey. See [Appendix I, National Health and Nutrition Examination Survey \(NHANES\)](#).

**Data table for Figure 11. Functional limitation among adults aged 18 and over, by age and level of difficulty: United States, 2010–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_011](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_011)

Level of difficulty among adults aged 18–64						
Year	No difficulty		Some difficulty		A lot of difficulty or cannot do at all	
	Percent	SE	Percent	SE	Percent	SE
2010	68.2	0.8	26.1	0.8	5.7	0.4
2011	73.6	0.5	20.9	0.4	5.5	0.2
2012	67.6	0.8	27.1	0.7	5.3	0.4
2013	64.9	0.6	28.9	0.5	6.2	0.3
2014	65.2	0.6	28.1	0.6	6.7	0.3
2015	68.7	0.6	25.1	0.6	6.1	0.3
2016	68.3	0.7	25.9	0.6	5.8	0.3

Level of difficulty among adults aged 65 and over						
Year	No difficulty		Some difficulty		A lot of difficulty or cannot do at all	
	Percent	SE	Percent	SE	Percent	SE
2010	35.0	1.6	42.0	1.7	23.1	1.4
2011	39.8	1.0	39.3	1.0	21.0	0.9
2012	39.7	1.5	41.9	1.4	18.5	1.1
2013	32.7	0.9	44.6	1.1	22.7	0.9
2014	32.6	1.0	45.0	1.0	22.3	0.9
2015	34.5	1.0	42.8	1.1	22.7	1.0
2016	38.6	1.0	42.2	1.0	19.2	0.7

SE is standard error.

NOTES: Functional limitation is defined by the reported level of difficulty in six functioning domains: seeing (even if wearing glasses), hearing (even if wearing hearing aids), mobility (walking or climbing stairs), communication (understanding or being understood by others), cognition (remembering or concentrating), and self-care (such as washing all over or dressing). Respondents with answers to one or more of the six questions were included in one of three mutually exclusive categories. Those responding "A lot of difficulty" or "Cannot do at all/unable to do" to at least one question were classified in the "A lot of difficulty/cannot do at all" category. Of the remaining, those responding "Some difficulty" to at least one question were classified in the "Some difficulty" category, and those responding "No difficulty" to at least one question were classified in the "No difficulty" category. Those responding "Don't know" or "Refused" to all six questions were excluded. During 2010–2016, 1%–8% of respondents were missing data and excluded. Estimates are age-adjusted to the year 2000 standard population using five age groups: 18–44 years, 45–54 years, and 55–64 years for the 18–64 estimates and 65–74 years and 75 years and over for the 65 years and over estimates. See [Appendix II](#), Age adjustment; Functional limitation; [Table 42](#). Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See [Appendix I](#), National Health Interview Survey (NHIS).

**Data table for Figure 12. Vaccination coverage for combined 7-vaccine series among children aged 19–35 months, by state: United States, 2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_012](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_012)

State	Percent
United States . . . . .	70.7
Alabama . . . . .	77.3
Alaska . . . . .	68.8
Arizona . . . . .	69.9
Arkansas . . . . .	67.8
California . . . . .	65.3
Colorado . . . . .	76.4
Connecticut . . . . .	75.7
Delaware . . . . .	78.1
District of Columbia . . . . .	68.2
Florida . . . . .	67.1
Georgia . . . . .	77.3
Hawaii . . . . .	75.1
Idaho . . . . .	73.9
Illinois . . . . .	71.5
Indiana . . . . .	68.8
Iowa . . . . .	73.5
Kansas . . . . .	76.4
Kentucky . . . . .	74.5
Louisiana . . . . .	66.8
Maine . . . . .	70.6
Maryland . . . . .	74.4
Massachusetts . . . . .	85.3
Michigan . . . . .	70.2
Minnesota . . . . .	73.8
Mississippi . . . . .	70.4
Missouri . . . . .	66.9
Montana . . . . .	63.6
Nebraska . . . . .	80.6
Nevada . . . . .	71.9
New Hampshire . . . . .	78.0
New Jersey . . . . .	70.2
New Mexico . . . . .	68.5
New York . . . . .	72.3
North Carolina . . . . .	77.8
North Dakota . . . . .	68.2
Ohio . . . . .	68.0
Oklahoma . . . . .	67.0
Oregon . . . . .	58.1
Pennsylvania . . . . .	73.7
Rhode Island . . . . .	75.5
South Carolina . . . . .	69.7
South Dakota . . . . .	70.4
Tennessee . . . . .	67.4
Texas . . . . .	69.5
Utah . . . . .	72.2
Vermont . . . . .	76.8
Virginia . . . . .	65.9
Washington . . . . .	75.7
West Virginia . . . . .	64.7
Wisconsin . . . . .	79.4
Wyoming . . . . .	62.8

NOTES: The combined 7-vaccine series consists of 4 or more doses of either the diphtheria, tetanus toxoids, and pertussis vaccine (DTP), the diphtheria and tetanus toxoids vaccine (DT), or the diphtheria, tetanus toxoids, and acellular pertussis vaccine (DTaP); 3 or more doses of any poliovirus vaccine; 1 or more doses of a measles-containing vaccine (MCV); 3 or more doses or 4 or more doses of *Haemophilus influenzae* type b vaccine (Hib) depending on Hib vaccine product type (full series Hib); 3 or more doses of hepatitis B vaccine; 1 or more doses of varicella vaccine; and 4 or more doses of pneumococcal conjugate vaccine (PCV). Data from U.S. territories were not included in the national estimates. Data for the map are displayed by a modified Jenks classification for the 50 U.S. states and D.C., which creates categories that minimize within-group variation and maximize between-group variation. Data are for the civilian noninstitutionalized population.

SOURCE: National Center for Immunization and Respiratory Diseases, National Immunization Survey-Child. See [Appendix I](#), National Immunization Survey (NIS). CDC/NCIRD 2016 childhood combined 7-vaccine series coverage report. Available from: <https://www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/data-reports/7-series/reports/2016.html>.

**Data table for Figure 13. Emergency department visits in the past 12 months, by age and reason for selecting emergency room (ER): United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_013](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_013)

**One or more emergency department visits, by age: 2006–2016**

<i>Sex and year</i>	<i>Under 18 years</i>		<i>18–44 years</i>		<i>45–64 years</i>		<i>65 years and over</i>	
	<i>Percent</i>	<i>SE</i>	<i>Percent</i>	<i>SE</i>	<i>Percent</i>	<i>SE</i>	<i>Percent</i>	<i>SE</i>
Male								
2006	21.3	0.6	20.5	0.5	18.4	0.6	24.5	0.8
2007	20.2	0.5	20.3	0.5	18.3	0.5	23.1	0.7
2008	20.9	0.6	21.5	0.5	17.6	0.5	23.4	0.7
2009	20.8	0.5	22.0	0.5	18.4	0.5	24.9	0.8
2010	22.1	0.5	22.0	0.5	19.2	0.5	23.7	0.7
2011	18.5	0.4	20.6	0.4	18.2	0.5	23.3	0.6
2012	17.8	0.4	19.4	0.4	18.0	0.5	22.2	0.6
2013	17.6	0.4	18.5	0.4	17.6	0.5	21.3	0.6
2014	16.7	0.5	18.4	0.4	17.5	0.5	21.2	0.6
2015	16.9	0.5	18.6	0.5	17.4	0.5	21.8	0.6
2016	17.5	0.5	18.8	0.5	18.1	0.5	23.3	0.6

**Reason for selecting emergency department: 2016**

<i>Reasons</i>	<i>Percent</i>	<i>SE</i>
Seriousness of medical problem	79.9	0.6
Doctor's office or clinic was not open	14.6	0.5
Lack of access to other providers	5.5	0.4

SE is standard error.

NOTES: Reasons related to seriousness were based on a positive response to at least one of the following reasons: health provider advised to go, problem was too serious for the doctor's offices or clinic, only a hospital could help, or arrived by ambulance or other emergency vehicle. The reason doctor's office or clinic was not open was selected, and any other reasons related to seriousness were not selected. Reasons related to access were based on a positive response to at least one of the following: didn't have another place to go, emergency room is the closest provider; or get most of care at the emergency room. Groups are mutually exclusive from those that selected to seriousness or doctor's office or clinic was not open. Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See [Appendix I](#), National Health Interview Survey (NHIS).



**Data table for Figure 14. Delay or nonreceipt of needed medical care in the past 12 months due to cost among adults aged 18–64, by percent of poverty level: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_014](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_014)

Year	Percent of poverty level							
	Below 100%		100%–199%		200%–399%		400% or more	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE
2006	20.8	0.8	19.1	0.7	12.0	0.4	5.4	0.3
2007	20.8	0.8	19.9	0.6	13.0	0.4	5.3	0.2
2008	21.9	0.8	22.5	0.7	15.0	0.5	6.7	0.3
2009	24.8	0.8	24.0	0.6	16.8	0.5	7.2	0.3
2010	23.4	0.7	24.0	0.6	15.2	0.4	6.8	0.2
2011	24.1	0.7	23.5	0.6	14.2	0.4	5.5	0.2
2012	22.4	0.6	22.3	0.5	13.2	0.3	5.3	0.2
2013	21.8	0.6	20.3	0.6	12.5	0.3	5.1	0.2
2014	20.2	0.6	17.9	0.5	11.5	0.4	4.3	0.2
2015	16.6	0.6	15.9	0.5	10.8	0.4	4.2	0.2
2016	15.2	0.6	16.3	0.5	10.6	0.4	4.9	0.2

SE is standard error.

NOTES: Delay or nonreceipt of needed medical care was based on responses to the questions, "During the past 12 months was there any time when person needed medical care but did not get it because person couldn't afford it?" and "During the past 12 months has medical care been delayed because of worry about the cost?" Percent of poverty level is based on family income and family size and composition using U.S. Census Bureau poverty thresholds. Missing family income data were imputed for 1997 and beyond. See [Appendix II](#), Family income; Poverty; Table VII. Also see [Table 63](#). Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See [Appendix I](#), National Health Interview Survey (NHIS).

**Data table for Figure 15. No usual source of care among children under age 18 years, by type of health insurance coverage: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_015](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_015)

Year	Children aged 0–5 years					
	Private		Medicaid		Uninsured	
	Percent	SE	Percent	SE	Percent	SE
2006	1.3	0.3	3.3	0.6	23.5	3.3
2007	1.8	0.5	2.7	0.6	22.2	3.6
2008	1.6	0.4	3.7	0.7	21.6	3.6
2009	1.8	0.6	4.1	0.8	23.2	3.3
2010	1.6	0.3	3.3	0.5	19.8	3.2
2011	0.9	0.3	2.3	0.4	19.1	3.4
2012	1.0	0.2	2.0	0.4	21.1	3.7
2013	1.1	0.2	2.7	0.5	19.0	3.5
2014	1.1	0.3	2.4	0.4	22.0	4.7
2015	2.0	0.4	3.2	0.6	18.1	4.0
2016	1.8	0.4	4.0	0.6	25.9	4.9

Year	Children aged 6–17 years					
	Private		Medicaid		Uninsured	
	Percent	SE	Percent	SE	Percent	SE
2006	2.6	0.3	4.6	0.6	31.9	2.3
2007	3.4	0.4	5.9	0.8	35.5	2.3
2008	3.1	0.4	4.7	0.7	34.0	2.3
2009	2.7	0.3	4.7	0.8	30.5	2.2
2010	3.3	0.4	5.0	0.5	32.6	2.1
2011	1.8	0.2	3.8	0.5	30.4	2.0
2012	2.4	0.3	3.7	0.4	31.6	2.2
2013	2.6	0.3	3.5	0.4	26.7	2.0
2014	2.0	0.2	3.5	0.5	29.0	2.8
2015	2.7	0.3	5.0	0.6	31.9	2.9
2016	3.1	0.3	5.2	0.6	27.8	3.1

SE is standard error.

NOTES: Health insurance categories are mutually exclusive and refer to status at the time of interview. Children with both Medicaid and private coverage are classified as having private coverage. The Medicaid coverage category includes state-sponsored health plans, including the Children's Health Insurance Program (CHIP). Children not covered by private insurance, Medicaid, CHIP, public assistance, state-sponsored or other government-sponsored health plans, Medicare, or military plans are considered to have no health insurance coverage. Children with only Indian Health Service coverage are considered to have no health insurance coverage. Emergency departments are excluded as a usual source of care. See [Appendix II](#), Health insurance coverage; Usual source of care; [Table 61](#). Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See [Appendix I](#), National Health Interview Survey (NHIS).

**Data table for Figure 16. Physicians, by self-designated specialty: United States and outlying U.S. areas, 2005–2015**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_016](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_016)

Characteristic	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Physicians per 100,000 resident population										
Active physicians . . . . .	258	257	258	258	258	257	260	263	270	271	271
General primary care specialists . . . . .	102	101	101	100	100	98	99	100	101	101	101
Primary care subspecialists . . . . .	22	23	23	24	24	25	26	27	29	29	29
All other specialist physicians . . . . .	134	134	134	134	134	134	135	137	141	141	141

NOTES: Physicians classified as active are engaged in patient care or other professional activity for a minimum of 20 hours per week. Physicians who are inactive, have unknown address, or unspecified primary specialty are excluded. Specialty is self-designated by physician. General primary care specialists (formerly referred to as generalists) include those in general fields of family medicine, internal medicine, obstetrics and gynecology, and pediatrics. Primary care subspecialists include those in the primary care subspecialties of family medicine, obstetrics and gynecology, and pediatrics. All other specialist physicians include all other specialties. The total U.S. resident population was used to calculate all rates. See [Appendix II](#), Physician; Physician specialty.

SOURCE: American Medical Association (AMA). Copyrights 2007–2017: Used with permission of the AMA.

**Data table for Figure 17. Personal health care expenditures, by source of funds and type of expenditure: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_017](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_017)

**Personal health care expenditures, by source of funds: 2006–2016**

Characteristic	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2006–2016 APC <sup>1</sup>
	Amount in billions (dollars)											
Personal health care expenditures . . . . .	1,804.3	1,918.4	2,010.7	2,114.6	2,196.0	2,274.0	2,366.9	2,436.7	2,560.2	2,715.5	2,834.0	4.6
Source of funds:												
Private health insurance . . . . .	635.9	671.4	700.8	734.7	755.9	787.2	815.2	830.6	874.6	943.3	993.8	4.6
Medicare . . . . .	382.3	408.7	442.0	470.3	489.1	511.9	534.9	554.9	581.0	607.1	625.3	5.0
Medicaid, total . . . . .	283.3	301.1	317.8	346.2	365.8	373.9	388.4	406.4	446.3	485.8	505.2	6.0
Medicaid (federal) . . . . .	161.5	171.9	188.3	230.6	247.3	228.2	223.9	234.7	274.1	305.8	319.2	7.0
Medicaid (state and local) . . . . .	121.8	129.3	129.5	115.6	118.5	145.7	164.6	171.7	172.2	180.0	186.1	4.3
Out of pocket . . . . .	273.3	290.0	295.2	293.7	299.7	310.0	318.3	325.2	330.1	339.3	352.5	2.6
All other sources of funds <sup>2</sup> . . . . .	229.6	247.2	254.8	269.6	285.6	291.0	310.1	319.6	328.3	340.0	357.2	4.5

**Personal health care expenditures, by type of expenditure: 2006 and 2016**

Type of expenditure	2006	2016
	Percent distribution	
All types of expenditures . . . . .	100.0	100.0
Hospital . . . . .	36.1	38.2
Physician and clinical . . . . .	24.1	23.5
Prescription drugs . . . . .	12.4	11.6
Dental . . . . .	5.1	4.4
Nursing care facilities and continuing care retirement communities . . . . .	6.4	5.7
Home health care . . . . .	2.9	3.3
All other types of expenditures <sup>3</sup> . . . . .	13.0	13.4

<sup>1</sup> APC is average annual percent change.

<sup>2</sup> All other sources of funds include the Children's Health Insurance Program (CHIP) including Medicaid CHIP expansions; other health insurance programs including Department of Defense and Department of Veterans Affairs; and other third party payers and programs including worksite health care, other private revenues, Indian Health Service, workers' compensation, general assistance, maternal and child health, vocational rehabilitation, other federal programs, Substance Abuse and Mental Health Services Administration, other state and local programs, and school health.

<sup>3</sup> All other types of expenditures include other professional services; other health, residential, and personal care; and durable and other nondurable medical products.

NOTES: Personal health care expenditures are outlays for goods and services relating directly to patient care. Personal health care expenditures are in current dollars and are not adjusted for inflation. Numbers may not add to totals because of rounding. See [Appendix II](#), Health expenditures, national; [Table 95](#).

SOURCE: Centers for Medicare & Medicaid Services, National Health Expenditure Accounts. See [Appendix I](#), National Health Expenditure Accounts (NHEA).

**Data table for Figure 18. Health insurance coverage among children under age 18 years, by type of coverage: United States, 2006–2017 (preliminary data)**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_018](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_018)

Year	Private <sup>1</sup>		Medicaid <sup>2</sup>		Uninsured <sup>3</sup>	
	Percent	SE	Percent	SE	Percent	SE
2006	59.4	0.7	28.8	0.7	9.5	0.3
2007	59.8	0.7	28.6	0.6	9.0	0.4
2008	58.4	0.7	30.1	0.7	9.0	0.4
2009	55.8	0.8	33.1	0.7	8.2	0.4
2010	54.1	0.7	35.2	0.6	7.8	0.3
2011	53.7	0.7	37.0	0.7	7.0	0.3
2012	53.4	0.6	37.6	0.6	6.6	0.3
2013	53.2	0.7	37.7	0.6	6.6	0.3
2014	53.7	0.6	38.1	0.6	5.4	0.2
2015	54.6	0.7	38.7	0.7	4.5	0.2
2016	54.3	0.7	37.8	0.7	5.2	0.3
2017 <sup>4</sup>	55.0	0.7	36.3	0.7	5.0	0.4

SE is standard error.

<sup>1</sup>The private coverage category includes plans obtained through an employer, purchased directly, or purchased through the Health Insurance Marketplace or a state-based exchange. The category excludes plans that paid for only one type of specialized service, such as accidents or dental care. Private health insurance includes managed care such as health maintenance organizations (HMOs).

<sup>2</sup>The Medicaid coverage category includes children who had Medicaid or other state-sponsored health plans, including the Children's Health Insurance Program (CHIP).

<sup>3</sup>Children not covered by private insurance, Medicaid, CHIP, state-sponsored or other government-sponsored health plans (starting in 1997), Medicare, or military plans are considered to have no health insurance coverage. Children with only Indian Health Service coverage are considered to have no health insurance coverage.

<sup>4</sup>Preliminary data based on the National Health Interview Survey's Early Release program. Estimates based on the preliminary 12-month file may differ from estimates based on the final annual file and have larger standard errors associated with them than standard errors based on a final annual file. Available from: Cohen RA, Zammiti EP, Martinez ME. Health insurance coverage: Early release of estimates from the National Health Interview Survey, 2017. National Center for Health Statistics. May 2018. Available from: <https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur201805.pdf> and National Health Interview Survey, 2017 preliminary file. For more information, visit: <https://www.cdc.gov/nchs/nhis.htm>.

NOTES: Health insurance categories are mutually exclusive. Health status coverage is at the time of interview. Also see Tables 102, 103, 104, and 105. Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See Appendix I, National Health Interview Survey (NHIS).

**Data table for Figure 19. Health insurance coverage among adults aged 18–64, by type of coverage: United States, 2006–2017 (preliminary data)**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_019](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_019)

Year	Private <sup>1</sup>		Medicaid <sup>2</sup>		Uninsured <sup>3</sup>	
	Percent	SE	Percent	SE	Percent	SE
2006	69.1	0.4	7.4	0.2	20.0	0.3
2007	69.5	0.4	7.4	0.2	19.6	0.3
2008	68.5	0.4	7.8	0.2	19.9	0.3
2009	66.2	0.4	8.6	0.2	21.2	0.3
2010	64.7	0.4	9.0	0.2	22.3	0.3
2011	65.0	0.4	9.5	0.2	21.2	0.3
2012	65.1	0.4	9.8	0.2	20.9	0.3
2013	65.1	0.4	10.0	0.2	20.5	0.3
2014	67.4	0.4	11.8	0.2	16.3	0.3
2015	69.7	0.4	12.9	0.3	13.0	0.2
2016	69.9	0.4	13.6	0.3	12.2	0.3
2017 <sup>4</sup>	69.3	0.4	13.1	0.3	12.8	0.3

SE is standard error.

<sup>1</sup>The private coverage category includes plans obtained through an employer, purchased directly, or purchased through the Health Insurance Marketplace or a state-based exchange. The category excludes plans that paid for only one type of specialized service, such as accidents or dental care. Private health insurance includes managed care such as health maintenance organizations (HMOs).

<sup>2</sup>The Medicaid coverage category includes adults who had Medicaid or other state-sponsored health plans.

<sup>3</sup>Adults not covered by private insurance, Medicaid, state-sponsored or other government-sponsored health plans (starting in 1997), Medicare, or military plans are considered to have no health insurance coverage. Adults with only Indian Health Service coverage are considered to have no health insurance coverage.

<sup>4</sup>Preliminary data based on the National Health Interview Survey's Early Release program. Estimates based on the preliminary 12-month file may differ from estimates based on the final annual file and have larger standard errors associated with them than standard errors based on a final annual file. Available from: Cohen RA, Zammiti EP, Martinez ME. Health insurance coverage: Early release of estimates from the National Health Interview Survey, 2017. National Center for Health Statistics. May 2018. Available from: <https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur201805.pdf> and National Health Interview Survey, 2017 preliminary file. For more information, visit: <https://www.cdc.gov/nchs/nhis.htm>.

NOTES: Health insurance categories are mutually exclusive. Health status coverage is at the time of interview. Also see Tables 102, 103, 104, and 105. Data are for the civilian noninstitutionalized population.

SOURCE: NCHS, National Health Interview Survey. See Appendix I, National Health Interview Survey (NHIS).



**Data table for Figure 20. Life expectancy at birth, by sex: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_020](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_020)

<i>Year</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>
Life expectancy at birth, in years			
2006 . . . . .	77.8	75.2	80.3
2007 . . . . .	78.1	75.5	80.6
2008 . . . . .	78.2	75.6	80.6
2009 . . . . .	78.5	76.0	80.9
2010 . . . . .	78.7	76.2	81.0
2011 . . . . .	78.7	76.3	81.1
2012 . . . . .	78.8	76.4	81.2
2013 . . . . .	78.8	76.4	81.2
2014 . . . . .	78.9	76.5	81.3
2015 . . . . .	78.7	76.3	81.1
2016 . . . . .	78.6	76.1	81.1

NOTES: Life expectancy estimates for 2016 are based on preliminary Medicare data and will be revised when updated Medicare data become available. Life expectancy estimates shown may differ from previously published estimates in annual final mortality and life table reports due to revisions in methodology. See [Appendix II](#), Life expectancy; [Table 15](#).

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 21. Death rates for all causes of death, by age: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_021](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_021)

**Death rates for all causes of death, by age: 2006–2016**

Year	All ages		Age group				
	Total (age-adjusted) <sup>1</sup>	Total (crude)	1–14 years	15–24 years	25–44 years	45–64 years	65 years and over
Deaths per 100,000 population							
2006	791.8	813.1	19.1	81.4	152.5	620.1	4,734.2
2007	775.3	804.6	19.2	78.8	148.1	612.2	4,641.2
2008	774.9	812.9	18.3	74.2	144.0	614.0	4,641.4
2009	749.6	794.5	17.7	69.8	142.5	611.5	4,446.8
2010	747.0	799.5	16.8	67.7	136.7	606.2	4,465.8
2011	741.3	807.3	16.9	67.7	137.9	611.9	4,425.3
2012	732.8	810.2	16.5	66.4	137.3	614.4	4,306.6
2013	731.9	821.5	16.5	64.8	138.1	620.9	4,260.6
2014	724.6	823.7	15.9	65.5	140.6	628.1	4,156.9
2015	733.1	844.0	16.4	69.5	147.1	633.2	4,171.4
2016	728.8	849.3	16.7	74.9	159.0	640.9	4,068.4
Standard error							
2006	0.51	0.52	0.18	0.44	0.43	0.91	3.57
2007	0.50	0.52	0.18	0.43	0.42	0.89	3.50
2008	0.50	0.52	0.18	0.41	0.42	0.88	3.46
2009	0.48	0.51	0.18	0.40	0.42	0.87	3.35
2010	0.48	0.51	0.17	0.39	0.41	0.86	3.33
2011	0.47	0.51	0.17	0.39	0.41	0.86	3.27
2012	0.46	0.51	0.17	0.39	0.41	0.86	3.16
2013	0.46	0.51	0.17	0.38	0.41	0.86	3.09
2014	0.45	0.51	0.17	0.39	0.41	0.87	3.00
2015	0.45	0.51	0.17	0.40	0.42	0.87	2.96
2016	0.45	0.51	0.17	0.41	0.43	0.87	2.87

**Distribution of deaths, by age: 2016**

Age	Number	Percent
Total <sup>2</sup>	2,744,248	100.0
Under 1 years	23,161	0.8
1–14 years	9,548	0.3
15–24 years	32,575	1.2
25–44 years	135,408	4.9
45–64 years	539,961	19.7
65 years and over	2,003,458	73.0

<sup>1</sup> Estimates are age-adjusted to the year 2000 standard population with unrounded population numbers. See [Appendix II](#), Age adjustment.

<sup>2</sup> Deaths of persons with age "Not Stated" are included in Total counts but are not distributed among age groups. Deaths of persons with age "Not Stated" are less than 0.1% of all deaths.

NOTES: Death rates for those under 1 year were included in the overall death rates. However, because infant mortality (the number of deaths per live births in the same year) is the preferred measure for deaths among infants, death rates for this age group are not presented separately here. For more information on the population used for rates, see [Appendix I](#), Population Census and Population Estimates.

SOURCE: NCHS, National Vital Statistics System (NVSS), Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 22 (page 1 of 2). Infant mortality rates, by race and Hispanic origin of mother and leading causes of death: United States, 2005–2015**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_022](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_022)

**Infant mortality rates, by race and Hispanic origin: 2005–2015**

Year	Race and Hispanic origin of mother					
	All mothers	Hispanic or Latina	White	Not Hispanic or Latina		
				Black or African American	Asian or Pacific Islander	American Indian or Alaska Native
Infant deaths per 1,000 live births						
2005	6.86	5.62	5.76	13.63	4.77	8.31
2006	6.68	5.41	5.58	13.35	4.40	8.65
2007	6.75	5.51	5.63	13.31	4.60	9.37
2008	6.61	5.59	5.53	12.67	4.39	8.67
2009	6.39	5.29	5.33	12.40	4.27	9.17
2010	6.14	5.25	5.18	11.46	4.18	8.64
2011	6.07	5.15	5.07	11.45	4.18	8.52
2012	5.98	5.11	5.04	11.19	3.96	8.73
2013	5.96	5.00	5.06	11.11	3.90	7.72
2014	5.82	5.01	4.89	10.93	3.68	7.66
2015	5.90	4.96	4.90	11.25	4.08	8.58
Standard error						
2005	0.04	0.08	0.05	0.15	0.15	0.46
2006	0.04	0.07	0.05	0.15	0.14	0.45
2007	0.04	0.07	0.05	0.15	0.14	0.47
2008	0.04	0.07	0.05	0.14	0.14	0.45
2009	0.04	0.07	0.05	0.14	0.13	0.47
2010	0.04	0.07	0.05	0.14	0.13	0.47
2011	0.04	0.08	0.05	0.14	0.13	0.47
2012	0.04	0.08	0.05	0.14	0.12	0.48
2013	0.04	0.07	0.05	0.14	0.12	0.45
2014	0.04	0.07	0.05	0.14	0.12	0.45
2015	0.04	0.07	0.05	0.14	0.12	0.48

See footnotes at end of table.

**Data table for Figure 22 (page 2 of 2). Infant mortality rates, by race and Hispanic origin of mother and leading causes of death: United States, 2005–2015**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_022](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_022)

**Infant mortality rates, by leading causes of death: 2005–2015**

Year	Leading causes of death				
	Congenital malformations	Short gestation and low birthweight	Sudden infant death syndrome	Maternal complications	Unintentional injuries
Infant deaths per 1,000 live births					
2005	134.6	113.5	54.0	42.7	26.2
2006	137.2	113.5	54.6	39.3	26.8
2007	134.9	112.7	57.0	41.1	29.7
2008	133.7	112.0	55.3	41.8	30.9
2009	129.7	109.6	54.0	39.1	28.4
2010	127.9	103.8	51.5	39.1	27.7
2011	126.9	104.1	48.2	40.4	29.5
2012	125.7	106.6	42.4	38.4	29.4
2013	121.5	107.1	39.7	40.6	29.3
2014	119.2	104.6	38.6	39.6	29.2
2015	121.8	102.7	39.4	38.4	42.4
Standard error					
2005	1.80	1.66	1.14	1.02	0.80
2006	1.79	1.63	1.13	0.96	0.79
2007	1.77	1.62	1.15	0.98	0.83
2008	1.78	1.62	1.14	0.99	0.85
2009	1.77	1.63	1.14	0.97	0.83
2010	1.79	1.61	1.13	0.99	0.83
2011	1.79	1.62	1.10	1.01	0.86
2012	1.78	1.64	1.04	0.99	0.86
2013	1.76	1.65	1.00	1.02	0.86
2014	1.73	1.62	0.98	1.00	0.86
2015	1.75	1.61	1.00	0.98	0.90

NOTES: Infants are defined as under 1 year of age. Rates are based on the number of deaths from the mortality file and the number of births from the natality file. Infant mortality rates by race and Hispanic origin are from the Linked Birth/Infant Death data set, in which the most recent data year available is 2015. Persons of Hispanic origin may be of any race. Starting with 2003 data, some states reported multiple-race data. The multiple-race data for these states were bridged to the single-race categories of the 1977 Office of Management and Budget standards, for comparability with other states. Deaths are identified using *International Classification of Diseases, 10th Revision* (ICD-10). The codes were: Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99); Disorders related to short gestation and low birth weight, not elsewhere classified (P07); Sudden infant death syndrome (R95); Newborn affected by maternal complications of pregnancy (P01); Accidents (unintentional injuries) (V01–X59). Age-adjusted rates are calculated using the year 2000 standard population with unrounded population numbers. See [Appendix II](#), Cause of death; Table IV; Hispanic origin; Race.

SOURCE: NCHS, National Vital Statistics System (NVSS), Linked Birth/Infant Death Data Set. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 23. Death rates among children aged 1–14 years and persons aged 15–24 years, by leading causes of death: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_023](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_023)

**Leading causes of death for children aged 1–14 years: 2006–2016**

Year	Cause of death <sup>1</sup>					
	Heart disease	Cancer	Unintentional injuries <sup>2</sup>	Congenital malformations <sup>3</sup>	Homicide	Suicide <sup>4</sup>
Deaths per 100,000 population						
2006	0.7	2.3	6.8	1.5	1.3	0.4
2007	0.7	2.3	6.7	1.6	1.3	0.3
2008	0.7	2.3	5.9	1.5	1.3	0.4
2009	0.6	2.2	5.5	1.5	1.2	0.5
2010	0.6	2.2	5.3	1.4	1.1	0.5
2011	0.6	2.1	5.3	1.5	1.2	0.5
2012	0.6	2.3	5.1	1.4	1.1	0.5
2013	0.6	2.1	5.0	1.4	1.1	0.7
2014	0.6	2.1	4.7	1.3	1.1	0.7
2015	0.6	2.1	4.8	1.4	1.2	0.7
2016	0.5	2.2	5.1	1.4	1.1	0.8
Standard error						
2006	0.04	0.06	0.11	0.05	0.05	0.03
2007	0.04	0.06	0.11	0.05	0.05	0.02
2008	0.04	0.06	0.10	0.05	0.05	0.03
2009	0.03	0.06	0.10	0.05	0.05	0.03
2010	0.03	0.06	0.10	0.05	0.04	0.03
2011	0.03	0.06	0.10	0.05	0.05	0.03
2012	0.03	0.06	0.09	0.05	0.04	0.03
2013	0.03	0.06	0.09	0.05	0.04	0.03
2014	0.03	0.06	0.09	0.05	0.04	0.04
2015	0.03	0.06	0.09	0.05	0.05	0.04
2016	0.03	0.06	0.09	0.05	0.04	0.04

**Leading causes of death for persons aged 15–24 years: 2006–2016**

Year	Cause of death <sup>1</sup>					
	Heart disease	Cancer	Unintentional injuries <sup>2</sup>	Congenital malformations <sup>3</sup>	Homicide	Suicide
Deaths per 100,000 population						
2006	2.5	3.8	37.9	1.1	13.3	9.8
2007	2.5	3.8	36.8	0.9	12.9	9.6
2008	2.5	3.8	32.5	1.1	12.2	9.9
2009	2.4	3.8	28.6	1.0	11.2	10.0
2010	2.4	3.7	28.3	0.9	10.7	10.5
2011	2.3	3.7	28.2	1.0	10.4	11.0
2012	2.2	3.6	27.1	1.0	10.5	11.1
2013	2.1	3.4	26.4	0.8	9.8	11.1
2014	2.2	3.6	26.8	0.9	9.5	11.6
2015	2.3	3.4	28.5	0.9	10.8	12.5
2016	2.2	3.3	31.9	0.9	11.9	13.2
Standard error						
2006	0.08	0.09	0.30	0.05	0.18	0.15
2007	0.08	0.09	0.29	0.05	0.17	0.15
2008	0.08	0.09	0.27	0.05	0.17	0.15
2009	0.07	0.09	0.26	0.05	0.16	0.15
2010	0.07	0.09	0.25	0.05	0.16	0.16
2011	0.07	0.09	0.25	0.05	0.15	0.16
2012	0.07	0.09	0.25	0.05	0.15	0.16
2013	0.07	0.09	0.25	0.04	0.15	0.16
2014	0.07	0.09	0.25	0.04	0.15	0.16
2015	0.07	0.09	0.26	0.04	0.16	0.17
2016	0.07	0.09	0.27	0.05	0.17	0.17

<sup>1</sup> Underlying causes of death are based on the *International Classification of Diseases, 10th Revision (ICD-10)*.

<sup>2</sup> Unintentional injuries is accidents.

<sup>3</sup> Congenital malformations is congenital malformations, deformations and chromosomal abnormalities.

<sup>4</sup> The majority of suicide deaths in children aged 1–14 years were among those aged 10–14 years.

NOTES: The leading causes of death in 2006 and 2016 are presented. See [Appendix II](#), Cause of death; Cause-of-death ranking; Table IV.

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 24 (page 1 of 2). Death rates among persons aged 25–44 and 45–64, by leading causes of death: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_024](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_024)

**Leading causes of death for persons aged 25–44 years: 2006–2016**

Year	Cause of death <sup>1</sup>						
	Heart disease	Cancer	Unintentional injuries <sup>2</sup>	HIV <sup>3</sup>	Homicide	Suicide	Chronic liver disease and cirrhosis
Deaths per 100,000 population							
2006 . . . . .	18.9	21.3	39.3	6.3	9.4	14.0	3.5
2007 . . . . .	18.3	20.3	38.7	5.7	9.5	14.5	3.6
2008 . . . . .	17.7	19.7	37.2	4.6	9.1	14.6	3.6
2009 . . . . .	17.3	19.7	35.5	4.0	8.5	14.6	3.6
2010 . . . . .	16.8	18.8	35.8	3.2	8.2	15.0	3.5
2011 . . . . .	16.9	18.5	37.3	2.8	8.1	15.4	3.6
2012 . . . . .	16.6	18.1	37.3	2.4	8.5	15.7	3.7
2013 . . . . .	16.3	18.0	37.9	2.3	8.2	15.5	3.8
2014 . . . . .	16.3	17.7	39.7	2.1	8.1	15.8	3.9
2015 . . . . .	16.4	17.2	44.4	1.9	9.2	16.4	4.4
2016 . . . . .	16.4	17.3	52.8	1.8	10.3	16.9	4.4
Standard error							
2006 . . . . .	0.15	0.16	0.22	0.09	0.11	0.13	0.06
2007 . . . . .	0.15	0.16	0.22	0.08	0.11	0.13	0.07
2008 . . . . .	0.15	0.15	0.21	0.07	0.11	0.13	0.07
2009 . . . . .	0.15	0.15	0.21	0.07	0.10	0.13	0.07
2010 . . . . .	0.14	0.15	0.21	0.06	0.10	0.14	0.07
2011 . . . . .	0.14	0.15	0.21	0.06	0.10	0.14	0.07
2012 . . . . .	0.14	0.15	0.21	0.05	0.10	0.14	0.07
2013 . . . . .	0.14	0.15	0.21	0.05	0.10	0.14	0.07
2014 . . . . .	0.14	0.15	0.22	0.05	0.10	0.14	0.07
2015 . . . . .	0.14	0.14	0.23	0.05	0.10	0.14	0.07
2016 . . . . .	0.14	0.14	0.25	0.05	0.11	0.14	0.07

See footnotes at end of table.



**Data table for Figure 24 (page 2 of 2). Death rates among persons aged 25–44 and 45–64, by leading causes of death: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_024](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_024)

**Leading causes of death for persons aged 45–64 years: 2006–2016**

Year	Cause of death <sup>1</sup>						
	Heart disease	Cancer	Stroke <sup>4</sup>	CLRD <sup>5</sup>	Diabetes <sup>6</sup>	Unintentional injuries <sup>2</sup>	Chronic liver disease and cirrhosis
Deaths per 100,000 population							
2006	137.7	201.8	22.4	21.7	22.8	41.4	19.8
2007	133.6	199.0	21.9	22.0	22.1	42.2	21.0
2008	133.1	196.5	21.1	23.4	21.6	42.1	21.3
2009	129.8	196.1	20.8	23.5	21.3	41.0	21.8
2010	128.6	196.0	20.4	22.9	21.2	41.3	22.6
2011	127.9	195.1	20.4	23.8	22.6	43.4	23.7
2012	128.5	194.5	20.2	23.8	22.1	43.7	24.3
2013	129.7	192.0	20.2	24.7	22.8	45.0	25.0
2014	130.8	191.7	20.4	25.0	23.2	46.2	25.6
2015	132.2	189.3	20.7	25.9	24.2	48.8	26.4
2016	133.7	187.1	21.0	26.3	24.4	53.7	25.9
Standard error							
2006	0.43	0.52	0.17	0.17	0.17	0.23	0.16
2007	0.42	0.51	0.17	0.17	0.17	0.23	0.17
2008	0.41	0.50	0.16	0.17	0.17	0.23	0.16
2009	0.40	0.49	0.16	0.17	0.16	0.23	0.16
2010	0.40	0.49	0.16	0.17	0.16	0.23	0.17
2011	0.39	0.49	0.16	0.17	0.17	0.23	0.17
2012	0.39	0.48	0.16	0.17	0.16	0.23	0.17
2013	0.40	0.48	0.16	0.17	0.17	0.23	0.17
2014	0.40	0.48	0.16	0.17	0.17	0.24	0.18
2015	0.40	0.47	0.16	0.18	0.17	0.24	0.18
2016	0.40	0.47	0.16	0.18	0.17	0.25	0.18

<sup>1</sup> Underlying causes of death are based on the *International Classification of Diseases, 10th Revision (ICD-10)*.

<sup>2</sup> Unintentional injuries is accidents.

<sup>3</sup> HIV is human immunodeficiency virus.

<sup>4</sup> Stroke is cerebrovascular disease.

<sup>5</sup> CLRD is chronic lower respiratory disease.

<sup>6</sup> Starting with 2011 data, the rules for selecting Renal failure as the underlying cause of death were changed, resulting in an increase in the number of deaths for Diabetes mellitus. Therefore, trend data for diabetes should be interpreted with caution. For more information, see Technical Notes in Deaths: Final data for 2011, available from: [https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63\\_03.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_03.pdf).

NOTES: The leading causes of death in 2006 and 2016 are presented. See [Appendix II](#), Cause of death; Cause-of-death ranking; Table IV.

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 25. Death rates among persons aged 65 and over, by leading causes of death and for Alzheimer's disease: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_025](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_025)

**Leading causes of death: 2006–2016**

Year	Cause of death <sup>1</sup>					
	Heart disease	Cancer	Stroke <sup>2</sup>	CLRD <sup>3</sup>	Alzheimer's disease	Diabetes <sup>4</sup>
Deaths per 100,000 population						
2006 . . . . .	1,373.8	1,042.7	314.8	287.5	192.8	140.9
2007 . . . . .	1,311.5	1,030.3	306.6	289.6	195.1	136.2
2008 . . . . .	1,278.4	1,010.2	295.3	312.6	210.4	131.2
2009 . . . . .	1,209.3	986.9	275.7	295.5	197.3	123.5
2010 . . . . .	1,185.4	985.1	273.1	293.1	205.2	122.2
2011 . . . . .	1,147.7	959.3	264.1	294.4	203.0	126.6
2012 . . . . .	1,107.5	935.2	252.9	283.6	191.7	122.6
2013 . . . . .	1,092.0	911.7	245.2	284.5	187.4	120.2
2014 . . . . .	1,059.0	895.0	245.0	269.6	200.3	117.1
2015 . . . . .	1,061.8	878.1	251.6	276.0	229.3	117.5
2016 . . . . .	1,029.8	858.8	247.0	266.0	233.3	114.6
Standard error						
2006 . . . . .	1.92	1.68	0.92	0.88	0.72	0.62
2007 . . . . .	1.86	1.65	0.90	0.88	0.72	0.60
2008 . . . . .	1.82	1.61	0.87	0.90	0.74	0.58
2009 . . . . .	1.75	1.58	0.83	0.86	0.71	0.56
2010 . . . . .	1.72	1.56	0.82	0.85	0.71	0.55
2011 . . . . .	1.67	1.52	0.80	0.84	0.70	0.55
2012 . . . . .	1.60	1.47	0.77	0.81	0.67	0.53
2013 . . . . .	1.56	1.43	0.74	0.80	0.65	0.52
2014 . . . . .	1.51	1.39	0.73	0.76	0.66	0.50
2015 . . . . .	1.49	1.36	0.73	0.76	0.69	0.50
2016 . . . . .	1.45	1.32	0.71	0.73	0.69	0.48

**Death rates for Alzheimer's disease among persons aged 65 and over, by age: 2006 and 2016**

Year	Age group		
	65–74 years	75–84 years	85 years and over
Deaths per 100,000 population			
2006 . . . . .	19.9	175.0	923.4
2016 . . . . .	23.6	214.1	1,216.9
Standard error			
2006 . . . . .	0.32	1.16	4.36
2016 . . . . .	0.29	1.23	4.37

<sup>1</sup> Underlying causes of death are based on the *International Classification of Diseases, 10th Revision (ICD–10)*.

<sup>2</sup> Stroke is cerebrovascular disease.

<sup>3</sup> CLRD is chronic lower respiratory disease.

<sup>4</sup> Starting with 2011 data, the rules for selecting Renal failure as the underlying cause of death were changed, resulting in an increase in the number of deaths for Diabetes mellitus. Therefore, trend data for diabetes should be interpreted with caution. For more information, see Technical Notes in Deaths: Final data for 2011, available from: [https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63\\_03.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_03.pdf).

NOTES: The leading causes of death in 2006 and 2016 are presented. See [Appendix II](#), Cause of death; Cause-of-death ranking; Table IV.

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 26. Drug overdose death rates, by sex and age: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_026](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_026)

Sex and year	All ages		Age group					
	Total (age-adjusted) <sup>1</sup>	Total (crude)	15–24 years	25–34 years	35–44 years	45–54 years	55–64 years	65 years and over
<b>Male</b>			<b>Deaths per 100,000 population</b>					
2006	14.8	14.9	12.0	22.7	27.5	29.7	12.3	3.5
2007	14.9	15.1	12.0	23.4	26.7	29.2	14.0	4.0
2008	14.9	15.0	11.9	23.6	25.6	29.6	14.8	4.2
2009	14.8	15.0	11.3	24.0	25.2	29.1	16.0	4.4
2010	15.0	15.2	11.6	25.0	24.9	28.5	17.3	4.3
2011	16.1	16.3	12.4	27.5	26.8	30.4	18.5	4.7
2012	16.1	16.3	11.4	27.0	27.1	30.4	19.4	5.2
2013	17.0	17.2	11.7	28.6	28.1	31.5	22.7	5.9
2014	18.3	18.4	12.1	31.9	30.8	32.9	23.5	6.0
2015	20.8	20.8	13.3	37.9	36.3	35.3	26.2	6.8
2016	26.2	26.1	17.5	48.9	46.9	42.5	32.2	7.6
<b>Female</b>								
2006	8.2	8.3	3.9	9.5	15.9	18.6	8.8	3.6
2007	8.8	9.0	4.2	10.1	16.1	21.0	10.5	3.6
2008	8.9	9.0	4.0	9.9	16.5	21.0	11.1	4.0
2009	9.1	9.2	4.1	10.4	16.0	21.8	11.6	4.3
2010	9.6	9.8	4.6	11.9	16.8	21.8	12.9	4.3
2011	10.2	10.3	4.6	12.8	18.2	23.1	13.5	4.5
2012	10.2	10.3	4.4	13.1	17.1	23.4	14.0	4.6
2013	10.6	10.7	4.8	13.0	18.0	23.6	15.9	4.8
2014	11.1	11.3	5.0	14.1	19.2	23.7	17.2	5.2
2015	11.8	11.9	5.9	15.7	20.5	24.9	17.6	5.0
2016	13.4	13.5	7.0	19.9	23.3	26.7	19.5	5.1
<b>Male</b>			<b>Standard error</b>					
2006	0.10	0.10	0.23	0.34	0.36	0.37	0.28	0.15
2007	0.10	0.10	0.23	0.34	0.35	0.37	0.30	0.16
2008	0.10	0.10	0.23	0.34	0.35	0.37	0.30	0.16
2009	0.10	0.10	0.22	0.34	0.35	0.36	0.31	0.16
2010	0.10	0.10	0.23	0.35	0.35	0.36	0.31	0.16
2011	0.10	0.10	0.23	0.36	0.36	0.37	0.32	0.16
2012	0.10	0.10	0.23	0.36	0.37	0.37	0.32	0.17
2013	0.11	0.11	0.23	0.36	0.37	0.38	0.35	0.17
2014	0.11	0.11	0.23	0.38	0.39	0.39	0.35	0.17
2015	0.12	0.11	0.24	0.41	0.42	0.41	0.36	0.18
2016	0.13	0.13	0.28	0.47	0.48	0.45	0.40	0.19
<b>Female</b>								
2006	0.07	0.07	0.14	0.22	0.27	0.29	0.23	0.13
2007	0.08	0.08	0.14	0.23	0.27	0.31	0.25	0.13
2008	0.08	0.08	0.14	0.22	0.28	0.31	0.25	0.13
2009	0.08	0.08	0.14	0.23	0.28	0.31	0.25	0.14
2010	0.08	0.08	0.15	0.24	0.29	0.31	0.26	0.14
2011	0.08	0.08	0.15	0.25	0.30	0.32	0.26	0.14
2012	0.08	0.08	0.14	0.25	0.29	0.32	0.27	0.14
2013	0.08	0.08	0.15	0.25	0.30	0.33	0.28	0.14
2014	0.08	0.08	0.15	0.26	0.31	0.33	0.29	0.14
2015	0.09	0.09	0.17	0.27	0.32	0.34	0.29	0.14
2016	0.09	0.09	0.18	0.30	0.34	0.35	0.30	0.14

<sup>1</sup> Estimates are age-adjusted to the year 2000 standard population with unrounded population numbers. See [Appendix II](#), Age adjustment.

NOTES: Drug overdose deaths are identified using *International Classification of Diseases, 10th Revision* (ICD-10) underlying cause of death codes X40–X44 (unintentional drug poisoning), X60–X64 (suicide by drug poisoning), X85 (homicide by drug poisoning), and Y10–Y14 (drug poisoning of undetermined intent). See [Appendix II](#), Cause of death; Table IV. Additional estimates for persons under 15 years are available in [Table 27](#).

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 27. Age-adjusted drug overdose death rates among all persons, by state:  
United States, 2006 and 2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_027](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_027)

State	2006		2016		2006–2016
	Deaths per 100,000 population	SE	Deaths per 100,000 population	SE	Percent change
United States . . . . .	11.5	0.06	19.8	0.08	†72.2
Alabama . . . . .	8.7	0.44	16.2	0.60	†86.2
Alaska . . . . .	11.1	1.30	16.8	1.52	†51.4
Arizona . . . . .	14.9	0.51	20.3	0.56	†36.2
Arkansas . . . . .	10.5	0.62	14.0	0.71	†33.3
California . . . . .	9.6	0.16	11.2	0.17	†16.7
Colorado . . . . .	12.8	0.51	16.6	0.55	†29.7
Connecticut . . . . .	11.5	0.58	27.4	0.91	†138.3
Delaware . . . . .	9.4	1.06	30.8	1.88	†227.7
District of Columbia . . . . .	17.8	1.79	38.8	2.41	†118.0
Florida . . . . .	14.4	0.29	23.7	0.35	†64.6
Georgia . . . . .	8.9	0.31	13.3	0.36	†49.4
Hawaii . . . . .	6.4	0.70	12.8	0.95	†100.0
Idaho . . . . .	9.3	0.83	15.2	1.00	†63.4
Illinois . . . . .	10.9	0.29	18.9	0.39	†73.4
Indiana . . . . .	11.8	0.44	24.0	0.62	†103.4
Iowa . . . . .	6.6	0.48	10.6	0.61	†60.6
Kansas . . . . .	9.5	0.60	11.1	0.64	†16.8
Kentucky . . . . .	17.4	0.65	33.5	0.91	†92.5
Louisiana . . . . .	16.5	0.63	21.8	0.71	†32.1
Maine . . . . .	12.0	0.97	28.7	1.58	†139.2
Maryland . . . . .	13.2	0.48	33.2	0.75	†151.5
Massachusetts . . . . .	14.7	0.47	33.0	0.72	†124.5
Michigan . . . . .	11.7	0.34	24.4	0.52	†108.5
Minnesota . . . . .	5.9	0.34	12.5	0.49	†111.9
Mississippi . . . . .	12.1	0.66	12.1	0.66	0.0
Missouri . . . . .	13.0	0.48	23.6	0.65	†81.5
Montana . . . . .	10.2	1.06	11.7	1.11	†14.7
Nebraska . . . . .	5.4	0.57	6.4	0.60	†18.5
Nevada . . . . .	18.0	0.84	21.7	0.86	†20.6
New Hampshire . . . . .	11.2	0.93	39.0	1.83	†248.2
New Jersey . . . . .	9.7	0.33	23.2	0.52	†139.2
New Mexico . . . . .	21.8	1.08	25.2	1.16	†15.6
New York . . . . .	8.6	0.21	18.0	0.31	†109.3
North Carolina . . . . .	11.8	0.37	19.7	0.45	†66.9
North Dakota . . . . .	*	*	10.6	1.24	---
Ohio . . . . .	13.2	0.34	39.1	0.61	†196.2
Oklahoma . . . . .	16.2	0.69	21.5	0.77	†32.7
Oregon . . . . .	12.9	0.59	11.9	0.54	−7.8
Pennsylvania . . . . .	13.5	0.34	37.9	0.57	†180.7
Rhode Island . . . . .	16.4	1.25	30.8	1.75	†87.8
South Carolina . . . . .	12.7	0.54	18.1	0.63	†42.5
South Dakota . . . . .	5.1	0.84	8.4	1.04	†64.7
Tennessee . . . . .	16.0	0.51	24.5	0.62	†53.1
Texas . . . . .	9.5	0.20	10.1	0.19	†6.3
Utah . . . . .	19.1	0.92	22.4	0.90	†17.3
Vermont . . . . .	12.2	1.44	22.2	2.05	†82.0
Virginia . . . . .	8.0	0.32	16.7	0.45	†108.8
Washington . . . . .	13.6	0.46	14.5	0.45	†6.6
West Virginia . . . . .	20.4	1.08	52.0	1.79	†154.9
Wisconsin . . . . .	10.6	0.44	19.3	0.60	†82.1
Wyoming . . . . .	10.6	1.45	17.6	1.82	†66.0

SE is standard error.

† Percent change statistically significant at the 0.05 level.

\* Rates based on fewer than 20 deaths are considered unreliable and are not shown.

--- Data not available.

NOTES: Estimates are age-adjusted to the year 2000 standard population with unrounded population numbers. Drug overdose deaths are identified using *International Classification of Diseases, 10th Revision* (ICD-10) underlying cause of death codes X40–X44 (unintentional drug poisoning), X60–X64 (suicide by drug poisoning), X85 (homicide by drug poisoning), and Y10–Y14 (drug poisoning of undetermined intent). See [Appendix II](#), Age adjustment; Cause of death; Table IV.

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

## Data table for Figure 28. Suicide rates, by sex and age: United States, 2006–2016

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_028](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_028)

Sex and year	All ages		Age group				
	Total (age-adjusted) <sup>1</sup>	Total (crude)	15–24 years	25–44 years	45–64 years	65–74 years	75 years and over
Male							
Deaths per 100,000 population							
2006	18.1	17.9	16.0	22.1	24.6	22.2	36.2
2007	18.5	18.4	15.7	22.9	25.7	22.0	36.7
2008	19.0	19.0	16.0	22.8	27.4	24.3	35.7
2009	19.2	19.3	16.1	23.0	27.9	24.3	35.6
2010	19.8	19.9	16.9	23.6	29.2	23.9	36.0
2011	20.0	20.2	17.6	24.0	28.9	24.4	36.4
2012	20.4	20.6	17.4	24.5	29.5	24.1	37.5
2013	20.3	20.6	17.3	24.1	29.0	26.0	38.3
2014	20.7	21.1	18.2	24.4	29.7	26.6	38.9
2015	21.1	21.5	19.4	25.2	29.5	26.2	38.7
2016	21.4	21.8	20.5	26.2	29.1	25.9	39.2
Female							
2006	4.5	4.6	3.2	5.9	7.7	4.0	3.8
2007	4.6	4.8	3.1	6.2	8.1	4.2	3.7
2008	4.8	4.9	3.5	6.3	8.1	4.4	3.8
2009	4.9	5.0	3.6	6.2	8.5	4.6	3.5
2010	5.0	5.2	3.9	6.4	8.6	4.8	3.6
2011	5.2	5.4	4.0	6.8	8.8	5.2	3.7
2012	5.4	5.5	4.5	6.8	9.1	5.2	3.7
2013	5.5	5.7	4.5	6.8	9.4	5.4	3.7
2014	5.8	6.0	4.6	7.2	9.8	5.9	4.0
2015	6.0	6.2	5.3	7.5	10.2	5.7	4.5
2016	6.0	6.2	5.4	7.6	9.9	6.2	4.2
Male							
Standard error							
2006	0.11	0.11	0.27	0.23	0.26	0.50	0.73
2007	0.11	0.11	0.27	0.24	0.26	0.49	0.73
2008	0.11	0.11	0.27	0.24	0.27	0.51	0.71
2009	0.11	0.11	0.27	0.24	0.27	0.50	0.70
2010	0.12	0.11	0.28	0.24	0.27	0.49	0.70
2011	0.12	0.11	0.28	0.24	0.27	0.48	0.70
2012	0.12	0.12	0.28	0.24	0.27	0.46	0.70
2013	0.11	0.12	0.28	0.24	0.27	0.47	0.70
2014	0.12	0.12	0.28	0.24	0.27	0.46	0.70
2015	0.12	0.12	0.29	0.24	0.27	0.45	0.69
2016	0.12	0.12	0.30	0.25	0.27	0.44	0.68
Female							
2006	0.05	0.06	0.12	0.12	0.14	0.20	0.19
2007	0.05	0.06	0.12	0.12	0.14	0.20	0.18
2008	0.06	0.06	0.13	0.12	0.14	0.20	0.18
2009	0.06	0.06	0.13	0.12	0.14	0.20	0.18
2010	0.06	0.06	0.14	0.12	0.14	0.20	0.18
2011	0.06	0.06	0.14	0.13	0.14	0.21	0.18
2012	0.06	0.06	0.14	0.13	0.15	0.20	0.18
2013	0.06	0.06	0.15	0.13	0.15	0.20	0.18
2014	0.06	0.06	0.15	0.13	0.15	0.20	0.18
2015	0.06	0.06	0.16	0.13	0.15	0.20	0.19
2016	0.06	0.06	0.16	0.13	0.15	0.20	0.18

<sup>1</sup> Estimates are age-adjusted to the year 2000 standard population with unrounded population numbers. See [Appendix II](#), Age adjustment.

NOTES: Deaths are identified using *International Classification of Diseases, 10th Revision* (ICD-10) codes U03, X60–X84, and Y87.0. See [Appendix II](#), Cause of death; Table IV. Additional estimates for persons under 15 years are available in [Table 30](#).

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

**Data table for Figure 29. Chronic liver disease and cirrhosis death rates, by sex and age: United States, 2006–2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_029](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_029)

Sex and year	All ages		Age group						
	Total (age-adjusted) <sup>1</sup>	Total (crude)	15–24 years	25–34 years	35–44 years	45–54 years	55–64 years	65–74 years	75 years and over
			Deaths per 100,000 population						
Male									
2006	12.1	12.2	*	1.1	7.7	25.9	33.1	34.0	34.1
2007	12.7	12.9	*	1.3	8.1	26.8	35.9	35.4	34.5
2008	12.7	13.1	*	1.4	8.0	26.4	37.1	35.6	33.7
2009	12.5	13.1	0.1	1.5	8.0	26.1	37.9	33.8	31.6
2010	12.9	13.7	*	1.5	7.9	26.6	39.5	35.3	33.8
2011	13.1	14.1	0.1	1.5	7.8	26.6	41.3	35.1	34.6
2012	13.4	14.6	0.1	1.8	7.9	27.4	42.7	36.7	34.0
2013	13.8	15.2	0.1	2.0	8.0	27.2	44.8	38.4	35.3
2014	14.1	15.7	*	2.0	8.0	26.7	45.9	40.5	36.4
2015	14.5	16.2	*	2.3	9.0	27.1	46.0	41.5	38.1
2016	14.3	16.2	0.1	2.5	8.7	25.7	45.9	42.3	38.1
Female									
2006	5.8	6.4	*	0.5	4.1	10.0	12.8	18.4	22.2
2007	5.9	6.5	*	0.6	3.9	10.9	13.2	18.4	21.4
2008	6.0	6.7	*	0.7	4.1	10.8	13.7	18.3	21.6
2009	6.1	6.9	*	0.8	4.0	11.5	14.6	18.0	21.4
2010	6.2	7.1	*	0.9	3.9	12.0	14.9	18.6	20.9
2011	6.6	7.6	*	1.0	4.3	13.2	16.0	18.6	22.2
2012	6.7	7.8	*	1.0	4.3	12.9	16.5	19.6	22.2
2013	6.8	7.9	*	1.1	4.3	13.2	17.0	19.0	22.6
2014	7.1	8.4	*	1.3	4.7	13.2	18.9	20.0	22.7
2015	7.6	9.0	*	1.5	5.2	14.2	19.9	20.9	24.1
2016	7.5	9.0	0.1	1.6	5.4	13.6	19.9	20.6	23.8
			Standard error						
Male									
2006	0.09	0.09	*	0.07	0.19	0.35	0.46	0.62	0.70
2007	0.09	0.09	*	0.08	0.19	0.35	0.47	0.62	0.70
2008	0.09	0.09	*	0.08	0.20	0.35	0.47	0.61	0.69
2009	0.09	0.09	0.02	0.09	0.20	0.34	0.47	0.59	0.66
2010	0.09	0.10	*	0.08	0.20	0.35	0.47	0.59	0.68
2011	0.09	0.10	0.02	0.08	0.20	0.35	0.47	0.58	0.68
2012	0.09	0.10	0.02	0.09	0.20	0.35	0.48	0.57	0.67
2013	0.09	0.10	0.02	0.10	0.20	0.35	0.49	0.57	0.67
2014	0.09	0.10	*	0.10	0.20	0.35	0.49	0.57	0.67
2015	0.09	0.10	*	0.10	0.21	0.36	0.48	0.57	0.68
2016	0.09	0.10	0.02	0.11	0.21	0.35	0.48	0.56	0.67
Female									
2006	0.06	0.06	*	0.05	0.14	0.21	0.28	0.42	0.45
2007	0.06	0.07	*	0.06	0.14	0.22	0.28	0.42	0.44
2008	0.06	0.07	*	0.06	0.14	0.22	0.28	0.41	0.44
2009	0.06	0.07	*	0.06	0.14	0.22	0.28	0.40	0.44
2010	0.06	0.07	*	0.07	0.14	0.23	0.28	0.40	0.43
2011	0.06	0.07	*	0.07	0.15	0.24	0.29	0.39	0.44
2012	0.06	0.07	*	0.07	0.14	0.24	0.29	0.39	0.44
2013	0.06	0.07	*	0.07	0.15	0.24	0.29	0.38	0.44
2014	0.06	0.07	*	0.08	0.15	0.24	0.30	0.38	0.44
2015	0.06	0.07	*	0.08	0.16	0.25	0.31	0.38	0.45
2016	0.06	0.07	0.02	0.09	0.16	0.25	0.30	0.37	0.44

\* Rates based on fewer than 20 deaths are considered unreliable and are not shown.

<sup>1</sup> Estimates are age-adjusted to the year 2000 standard population with unrounded population numbers. See [Appendix II](#), Age adjustment.

NOTES: Deaths are identified using *International Classification of Diseases, 10th Revision* (ICD-10) codes K70, K73–K74. See [Appendix II](#), Cause of death; Table IV. Estimates for younger ages are not presented because many rates were unreliable.

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).



**Data table for Figure 30. Place of death, by age: United States, 2006, 2011, and 2016**

Excel and PowerPoint: [https://www.cdc.gov/nchs/hus/contents2017.htm#Figure\\_030](https://www.cdc.gov/nchs/hus/contents2017.htm#Figure_030)

Characteristic	Place of death									
	Home		Hospital inpatient		Nursing home or long-term care facility		Hospice facility		All other places	
	Percent	SE	Percent	SE	Percent	SE	Percent	SE	Percent	SE
Decedents, all ages:										
2006 . . . . .	25.2	0.03	36.4	0.04	21.9	0.03	2.0	0.01	14.5	0.02
2011 . . . . .	27.5	0.03	32.2	0.04	21.0	0.03	5.3	0.01	14.0	0.02
2016 . . . . .	30.5	0.03	29.4	0.03	19.3	0.03	7.7	0.02	13.1	0.02
Decedents under 65:										
2006 . . . . .	29.6	0.07	37.8	0.08	5.3	0.03	1.6	0.02	25.8	0.06
2011 . . . . .	32.0	0.07	35.2	0.07	5.2	0.03	4.0	0.02	23.6	0.06
2016 . . . . .	33.4	0.07	33.4	0.07	4.7	0.03	5.7	0.03	22.8	0.06
Decedents 65 and over:										
2006 . . . . .	23.5	0.04	35.9	0.05	28.2	0.04	2.2	0.01	10.2	0.02
2011 . . . . .	25.8	0.04	31.1	0.04	26.9	0.04	5.8	0.02	10.4	0.02
2016 . . . . .	29.4	0.04	27.9	0.04	24.7	0.04	8.5	0.02	9.5	0.02

SE is standard error.

NOTES: Persons were classified based on where death was pronounced and on the physical location of death, not the services they were receiving at the time of death. A decedent's home includes independent living units including private homes, apartments, bungalows, and cottages. The nursing home or long-term care facility category includes deaths that happened at a facility that provides patient care (such as, a nursing home, skilled nursing facility, a long-term care facility, convalescent care facility, intermediate care facility, or residential care facility). Hospice facility refers to a licensed institution providing hospice, not to hospice care furnished in other settings, such as a patient's home. The all other places category includes dead on arrival at hospital, emergency room or outpatient facility, other, and unknown. Place of death data were collected using two different versions of the death certificate. The U.S. Standard Certificate of Death (which is used as a model by the states) was revised in 2003. The 2003 Certificate added "Hospice facility" as a check box item for place of death and "Long-term care facility" was added to the "Nursing home" check box. "Long-term care facility" and "Hospice facility" reflect changes in terminology and place of care.

SOURCE: NCHS, National Vital Statistics System, Mortality. See [Appendix I](#), National Vital Statistics System (NVSS).

### Data Sources

Data for the *Health, United States, 2017*, Chartbook come from many surveys and data systems and cover a broad range of years, depending on the data source. Detailed descriptions of the data sources included in the Chartbook are provided in [Appendix I. Data Sources](#). Additional information clarifying and qualifying the data is included in the table notes and in [Appendix II. Definitions and Methods](#).

### Data Presentation

Many measures in the Chartbook are shown for people in specific age groups because of the strong effect of age on most health outcomes. In some cases, age-adjusted rates and age-adjusted percentages are computed to eliminate differences in observed rates that result from age differences in population composition (see [Appendix II, Age adjustment](#)). Age-adjusted rates and age-adjusted percentages are noted as such in the text; rates and percentages without this notation are crude rates and percentages. For some charts, data years are combined to increase the sample size and the statistical reliability of the estimates. Some charts present time trends; others focus on differences in estimates among population subgroups for the most recent time period available. Trend analyses generally cover 10 years, ending with the most recent time point available. Trends are generally shown on a linear scale to emphasize absolute differences over time. However, some trends for death rates are shown on a logarithmic (log) scale so that rates that differ substantially by age and cause of death can be shown on the same chart. Some charts present geographic differences in health measures by state, and group states into clusters based on the state estimates for specific health measures.

Point estimates and standard errors for Chartbook figures are available either in the Trend Table and Excel spreadsheet specified in the note below the chart, or in the Chartbook data tables section. Chartbook data tables may include additional data that were not graphed because of space considerations.

Data in state maps are categorized using the Jenks natural breaks classification method. The Jenks method clusters data into groups that minimize the within-group variance and maximize the between-group variance (80). The Jenks method does not take standard errors into account. The upper value of each of the first three categories is one-tenth below the first value in the next category.

### Statistical Reliability of Estimates

Overall estimates generally have relatively small sampling errors and high precision, but estimates for certain population subgroups may be based on small numbers (e.g., small denominators) and have relatively large sampling errors or low precision (81). Numbers of deaths obtained from the National Vital Statistics System (NVSS) represent complete counts; therefore, they are not subject to sampling error. They are, however, subject to random variation, which means that the number of events that actually occur in a given year may be considered as one of a large series of possible results that could have arisen under the same circumstances. When the number of events and the probability of such an event are small, considerable caution must be observed in interpreting the conditions described by the charts. Estimates that are unreliable because of large sampling errors, low precision, small denominators, or small numbers of events have been noted with an asterisk. The criteria used to designate or suppress statistically unreliable estimates are indicated in the notes of the applicable tables or charts.

For NCHS surveys, point estimates and their corresponding sampling variances were calculated using the SUDAAN software package, which takes into consideration the complex survey design (82). Standard errors for other surveys or data sets were computed using the methodology recommended by the programs providing the data, or were provided directly by those programs. Starting with *Health, United States, 2017* data updates, the reliability of survey percentage estimates was assessed using a new method, based on the Clopper-Pearson confidence interval, to determine if the estimate is unreliable and should be suppressed. This new approach has been applied to 2015–2016 and 2013–2016 estimates for the National Health and Nutrition Examination Survey (NHANES), 2016 estimates for the National Health Interview Survey (NHIS), and 2014–2015 estimates for the National Ambulatory Medical Care Survey (NAMCS). The reliability of estimates for prior data years was evaluated based on relative standard errors. The reliability of estimates from prior *Health, United States* data was evaluated based on relative standard error. For more information, see [Appendix II, Data presentation standards](#); Relative standard error (RSE).

### Statistical Testing

Data trends can be analyzed in many ways. The approaches used in this Chartbook to analyze trends in health measures depend on the data source, unit of analysis, and the number of data points (83). Trend analyses of data from NVSS are

based on aggregated point estimates and their standard errors. In general, trend analyses of data from surveys including NHIS and NHANES are based on record-level data. If data from at least seven time points were available, then one objective of the trend analysis was to identify time points when changes in trend occurred.

For trend analyses of data on birth, infant mortality, and death rates from NVSS (Figures 1–4, 21–31), increases or decreases in the estimates during the entire time period shown are assessed by the weighted least squares regression method in the National Cancer Institute’s Joinpoint software version 4.4.0.0 (with an overall p-value of 0.05, Grid search, and either permutation model selection for 10 or more time points or BIC criterion model selection for fewer than 10 time points). Joinpoint software identifies the number and location of joinpoints when changes in trend have occurred (84). The maximum number of joinpoints searched for was limited to 1 because there were no more than 11 time points in any analysis, and as few as 3 observed time points were allowed in beginning and ending line segments. For more information on Joinpoint, see: <http://surveillance.cancer.gov/joinpoint>. Trend analyses using weighted least squares regression were carried out on the log scale for birth, infant mortality, and death rates so that results provide estimates of annual percent change.

Trends in survey data, including NHANES and NHIS (Figures 5–20), usually were assessed using polynomial regression (SUDAAN PROC REGRESS). Linear, quadratic, and cubic trends were tested in separate regression models covering the entire period shown. Quadratic trends were tested with both linear and quadratic terms in the model, and cubic trends were tested with linear, quadratic, and cubic terms in the model. If a quadratic trend was statistically significant and the analysis included at least seven time points, Joinpoint software was used to find an inflection point in the linear trend. If a cubic trend was statistically significant and the analysis included at least 11 time points, Joinpoint software was used to search for up to two inflection points with as few as two observed time points allowed in the beginning, middle, and ending line segments. Difference in slopes between the two segments on either side of the inflection point was assessed using piecewise linear regression (SUDAAN PROC REGRESS). For trend analyses based on three to six time points, if a quadratic trend was statistically significant, pairwise differences between percentages were tested using two-sided significance tests (z-tests) to obtain additional information regarding changes in the trend. Trend analyses of age-adjusted survey estimates are assessed by the weighted least squares regression method in the National Cancer Institute’s Joinpoint software version 4.4.0.0.

For other charts, either the difference between two points was assessed for statistical significance using z-tests or the statistical testing methods recommended by the data systems were used. For analyses that show two time points, the differences between the two points were assessed for

statistical significance at the 0.05 level using z-tests without correction for multiple comparisons. For data sources with no standard errors, generally relative differences greater than 10% are discussed in the text. Chartbook data tables include point estimates and standard errors, when available, for users who would like to perform additional statistical tests.

Terms such as “similar,” “no difference,” “stable,” and “no clear trend” indicate that the statistics being compared were not significantly different or that the slope of the trend line was not significantly different from zero. Unless otherwise noted in the text, differences that are described are statistically significant at the 0.05 level. However, lack of comment regarding the difference between statistics does not necessarily suggest that the difference was tested and found to be not significant. Because statistically significant differences or trends are partly a function of sample size (the larger the sample, the smaller the change that can be detected), that does not necessarily convey they have public health significance (85). Moreover, a small sample size may result in statically non-significant results despite the existence of meaningful differences (86).

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The online Data Finder can be found at <https://www.cdc.gov/nchs/hus/contents2017.htm>