

Mortality in the United States, 2016

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Key findings

Data from the National Vital Statistics System

- Life expectancy for the U.S. population in 2016 was 78.6 years, a decrease of 0.1 year from 2015.
- The age-adjusted death rate decreased by 0.6% from 733.1 deaths per 100,000 standard population in 2015 to 728.8 in 2016.
- Age-specific death rates between 2015 and 2016 increased for younger age groups and decreased for older age groups.
- The 10 leading causes of death in 2016 remained the same as in 2015, although unintentional injuries became the third leading cause, while chronic lower respiratory diseases became the fourth.
- The infant mortality rate of 587.0 infant deaths per 100,000 live births in 2016 was not significantly different from the 2015 rate.
- The 10 leading causes of infant death in 2016 remained the same as in 2015.

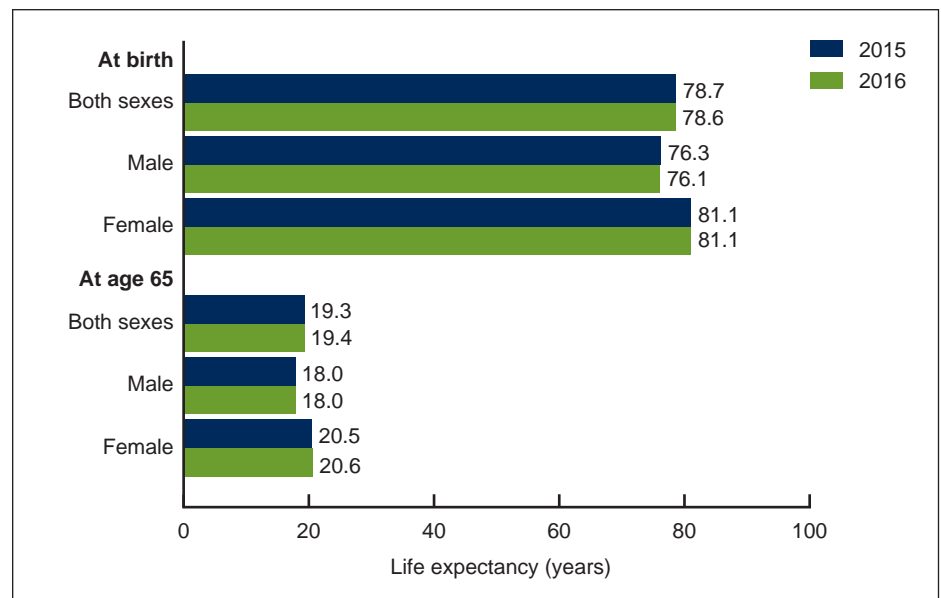
This report presents final 2016 U.S. mortality data on deaths and death rates by demographic and medical characteristics. These data provide information on mortality patterns among U.S. residents by variables such as sex, race and ethnicity, and cause of death. Life expectancy estimates, age-specific death rates, age-adjusted death rates by race and ethnicity and sex, 10 leading causes of death, and 10 leading causes of infant death were analyzed by comparing 2016 and 2015 final data (1).

Keywords: life expectancy • leading cause • National Vital Statistics System

How long can we expect to live?

In 2016, life expectancy at birth was 78.6 years for the total U.S. population—a decrease of 0.1 year from 78.7 in 2015 (Figure 1). For males, life expectancy changed from 76.3 in 2015 to 76.1 in 2016—a decrease of 0.2 year. For females, life expectancy remained the same at 81.1.

Figure 1. Life expectancy at selected ages, by sex: United States, 2015 and 2016



NOTES: Life expectancies for 2015 were revised using updated Medicare data; therefore, figures may differ from those previously published. Access data table for Figure 1 at: https://www.cdc.gov/nchs/data/databriefs/db293_table.pdf#1.
SOURCE: NCHS, National Vital Statistics System, Mortality.



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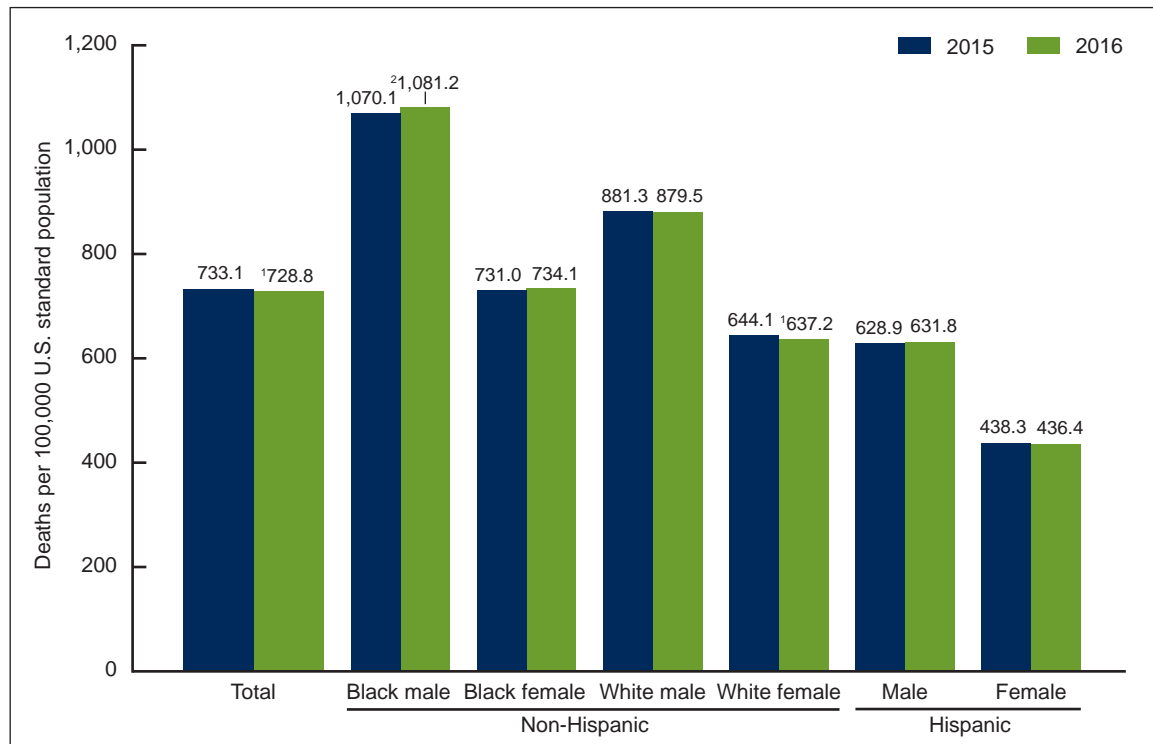
Life expectancy for females was consistently higher than it was for males. In 2016, the difference in life expectancy between females and males increased 0.2 year from 4.8 years in 2015 to 5.0 years in 2016.

In 2016, life expectancy at age 65 for the total population was 19.4 years, an increase of 0.1 year from 2015. Life expectancy at age 65 increased 0.1 year to 20.6 years for females and was unchanged at 18.0 years for males. The difference in life expectancy at age 65 between females and males increased 0.1 year to 2.6 years in 2016 from 2.5 years in 2015.

What are the age-adjusted death rates for race–ethnicity–sex groups?

The age-adjusted death rate for the total population decreased 0.6% from 733.1 per 100,000 standard population in 2015 to 728.8 in 2016 (Figure 2). Age-adjusted death rates increased in 2016 from 2015 for non-Hispanic black males (1.0%). Age-adjusted death rates decreased for non-Hispanic white females (1.1%). Rates did not change significantly for non-Hispanic black females, non-Hispanic white males, Hispanic males, and Hispanic females from 2015 to 2016.

Figure 2. Age-adjusted death rates for selected populations: United States, 2015 and 2016



¹Statistically significant decrease in age-adjusted death rate from 2015 to 2016 ($p < 0.05$).

²Statistically significant increase in age-adjusted death rate from 2015 to 2016 ($p < 0.05$).

NOTE: Access data table for Figure 2 at: https://www.cdc.gov/nchs/data/databriefs/db293_table.pdf#2.

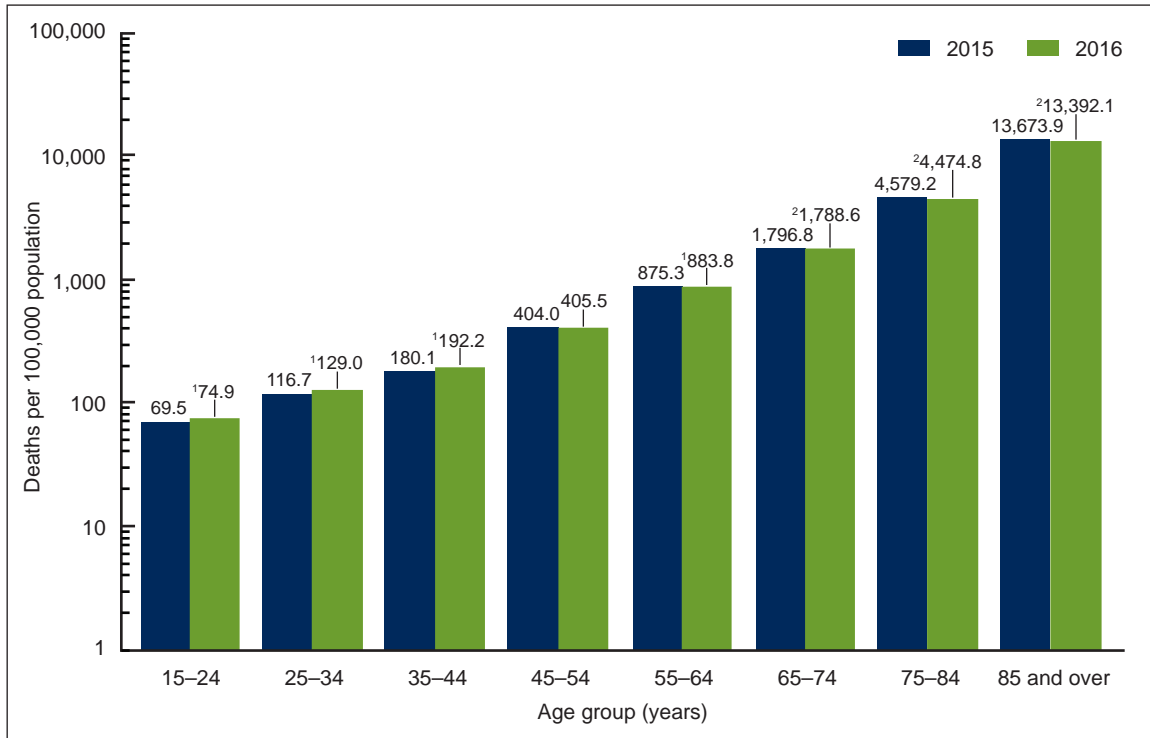
SOURCE: NCHS, National Vital Statistics System, Mortality.

What are the age-specific death rates for the total population?

Death rates increased significantly between 2015 and 2016 for age groups 15–24 (7.8%), 25–34 (10.5%), 35–44 (6.7%), and 55–64 (1.0%) (Figure 3).

Death rates decreased significantly for age groups 65–74 (0.5%), 75–84 (2.3%), and 85 and over (2.1%).

Figure 3. Death rates for the total population, by age group: United States, 2015 and 2016



¹Statistically significant increase in age-specific death rate from 2015 to 2016 ($p < 0.05$).

²Statistically significant decrease in age-specific death rate from 2015 to 2016 ($p < 0.05$).

NOTES: Rates are plotted on a logarithmic scale. Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db293_table.pdf#3.

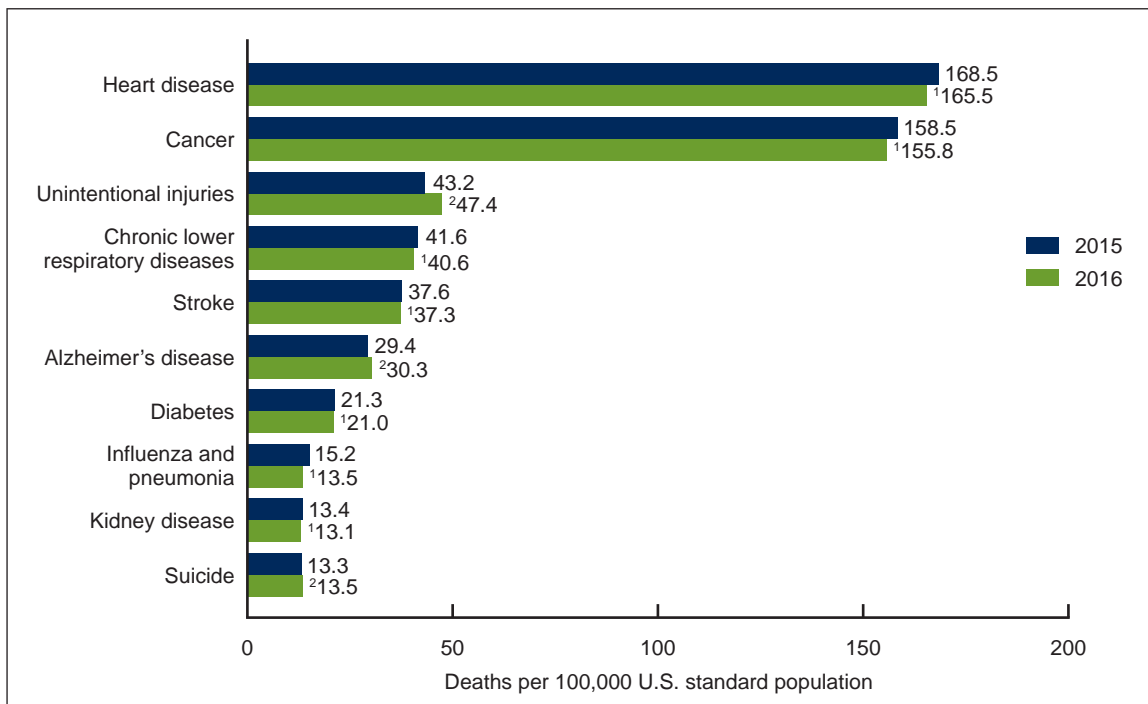
SOURCE: NCHS, National Vital Statistics System, Mortality.

What are the leading causes of death?

In 2016, the 10 leading causes of death (heart disease, cancer, unintentional injuries, chronic lower respiratory diseases, stroke, Alzheimer's disease, diabetes, influenza and pneumonia, kidney disease, and suicide) remained the same as in 2015, although two causes exchanged ranks. Unintentional injuries, the fourth leading cause in 2015, became the third leading cause in 2016, while chronic lower respiratory diseases, the third leading cause in 2015, became the fourth leading cause in 2016 (Figure 4) (1). The 10 leading causes accounted for 74.1% of all deaths in the United States in 2016.

From 2015 to 2016, age-adjusted death rates decreased for 7 of 10 leading causes of death and increased for 3. The rate decreased 1.8% for heart disease, 1.7% for cancer, 2.4% for chronic lower respiratory diseases, 0.8% for stroke, 1.4% for diabetes, 11.2% for influenza and pneumonia, and 2.2% for kidney disease. The rate increased 9.7% for unintentional injuries, 3.1% for Alzheimer's disease, and 1.5% for suicide.

Figure 4. Age-adjusted death rates for the 10 leading causes of death in 2016: United States, 2015 and 2016



¹Statistically significant decrease in age-adjusted death rate from 2015 to 2016 ($p < 0.05$).

²Statistically significant increase in age-adjusted death rate from 2015 to 2016 ($p < 0.05$).

NOTES: A total of 2,744,248 resident deaths were registered in the United States in 2016. The 10 leading causes accounted for 74.1% of all deaths in the United States in 2016. Rankings for 2015 data are not shown. Causes of death are ranked according to number of deaths. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db293_table.pdf#4.

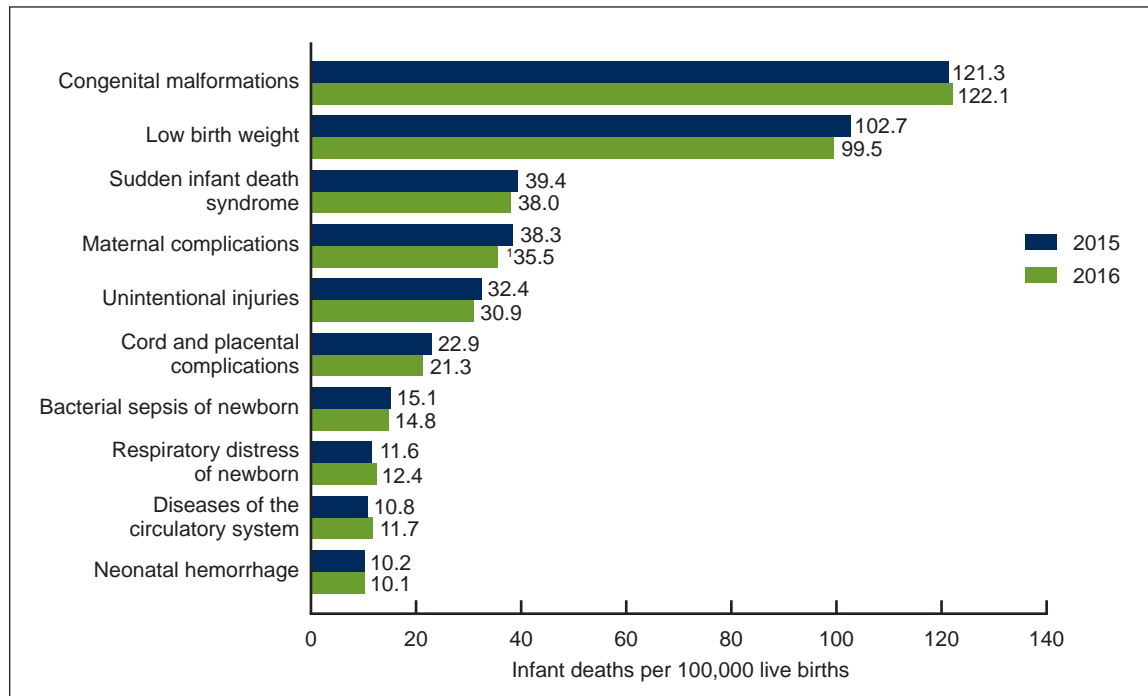
SOURCE: NCHS, National Vital Statistics System, Mortality.

What are the leading causes of infant death?

The infant mortality rate (IMR)—the ratio of infant deaths to live births in a given year—is generally regarded as a good indicator of the overall health of a population. The IMR changed from 589.5 infant deaths per 100,000 live births in 2015 to 587.0 in 2016, but this change was not statistically significant.

The 10 leading causes of infant death in 2016 accounted for 67.5% of all infant deaths in the United States. The leading causes remained the same as in 2015 (Figure 5). The IMR for maternal complications decreased 7.3% from 38.3 infant deaths per 100,000 live births in 2015 to 35.5 in 2016. Mortality rates for other leading causes of infant death did not change significantly.

Figure 5. Infant mortality rates for the 10 leading causes of infant death in 2016: United States, 2015 and 2016



*Statistically significant decrease in mortality rate from 2015 to 2016 ($p < 0.05$).

NOTES: A total of 23,161 deaths occurred in children under age 1 year in the United States in 2016, with an infant mortality rate of 587.0 infant deaths per 100,000 live births. The 10 leading causes of infant death in 2016 accounted for 67.5% of all infant deaths in the United States. A total of 23,455 infant deaths occurred in 2015, with an infant mortality rate of 589.5 infant deaths per 100,000 live births. Rankings for 2015 data are not shown. Causes of death are ranked according to number of deaths. Access data table for Figure 5 at: https://www.cdc.gov/nchs/data/databriefs/db293_table.pdf#5.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Summary

In 2016, a total of 2,744,248 resident deaths were registered in the United States—31,618 more deaths than in 2015. From 2015 to 2016, the age-adjusted death rate for the total population decreased 0.6%, but life expectancy at birth decreased 0.1 year. Age-specific death rates between 2015 and 2016 increased for younger age groups and decreased for older age groups. The age-adjusted death rate decreased for non-Hispanic white females and increased for non-Hispanic black males.

The 10 leading causes of death in 2016 remained the same as in 2015, although two causes exchanged ranks. Unintentional injuries, the fourth leading cause in 2015, became the third leading cause in 2016, while chronic lower respiratory diseases, the third leading cause in 2015, became the fourth leading cause in 2016. Age-adjusted death rates decreased for seven leading causes and increased for three. Life expectancy at birth decreased 0.1 year from 78.7 years in 2015 to 78.6 in 2016, largely because of increases in mortality from unintentional injuries, suicide, and Alzheimer's disease, with unintentional injuries making the largest contribution. This is the second year in a row life expectancy has declined (1). Changes in death rates at younger ages have a larger impact on life expectancy than changes at older ages. The increases in death rates at the younger ages from 2015 to 2016 resulted in the decrease in life expectancy observed during that period.

In 2016, a total of 23,161 deaths occurred in children under age 1 year, which was 294 fewer infant deaths than in 2015. The leading causes of infant death were the same in 2016 and 2015. The only significant change among the 10 leading causes of infant death was a 7.3% decrease in the IMR for maternal complications.

Definitions

Cause of death: Based on medical information—including injury diagnoses and external causes of injury—entered on death certificates filed in the United States. This information is classified and coded in accordance with the *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD–10)* (2).

Death rates: For 2016, based on population estimates for July 1, 2016, that are consistent with the April 1, 2010, census. These population estimates (as well as population figures for the 2010 census) are available on the National Center for Health Statistics' (NCHS) website (3). Age-adjusted death rates are useful when comparing different populations because they remove the potential bias that can occur when the populations being compared have different age structures. NCHS uses the direct method of standardization; see Technical Notes of “Deaths: Final Data for 2015” (1) for more information.

Infant mortality rate (IMR): Computed by dividing the number of infant deaths in a calendar year by the number of live births registered for that same time period. IMR is the most widely used index for measuring the risk of dying during the first year of life.

Leading causes of death: Ranked according to the number of deaths assigned to rankable causes (4).

Life expectancy: The expected average number of years of life remaining at a given age. It is denoted by e_x , which means the average number of subsequent years of life for someone now aged x . Life expectancy estimates for 2016 are based on a methodology first implemented with 2008 final mortality data (5). Life expectancies for 2015 were revised using updated Medicare data; therefore, figures may differ from those previously published (6). Life expectancies for 2016 may change slightly when updated Medicare data become available.

Data source and methods

The data shown in this report reflect information collected by NCHS for 2015 and 2016 from death certificates filed in all 50 states and the District of Columbia and compiled into national data known as the National Vital Statistics System. Death rates shown in this report are calculated based on postcensal population estimates as of July 1, 2015, and July 1, 2016, which are consistent with the April 1, 2010, census. Differences between death rates were evaluated using a two-tailed z test.

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Data table for Figure 1. Life expectancy at selected ages, by sex: United States, 2015 and 2016

Year	At birth			At age 65		
	Both sexes	Male	Female	Both sexes	Male	Female
2015	78.7	76.3	81.1	19.3	18.0	20.5
2016	78.6	76.1	81.1	19.4	18.0	20.6

NOTE: Life expectancies for 2015 were revised using updated Medicare data; therefore, figures may differ from those previously published.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Data Brief 293: Mortality in the United States, 2016

Data table for Figure 2. Age-adjusted death rates for selected populations: United States, 2015 and 2016

Race and ethnicity and sex	2015		2016	
	Number	Age-adjusted death rate ¹	Number	Age-adjusted death rate ¹
Total	2,712,630	733.1	2,744,248	728.8
Non-Hispanic black male	161,850	1,070.1	168,750	1,081.2
Non-Hispanic black female	153,404	731.0	158,060	734.1
Non-Hispanic white male	1,063,705	881.3	1,077,362	879.5
Non-Hispanic white female	1,059,926	644.1	1,056,101	637.2
Hispanic male	98,170	628.9	103,532	631.8
Hispanic female	81,287	438.3	84,722	436.4

¹Deaths per 100,000 U.S. standard population.

SOURCE: NCHS, National Vital Statistics System, Mortality.

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Data table for Figure 3. Death rates for the total population, by age group: United States, 2015 and 2016

Age group (years)	2015		2016	
	Number	Age-specific death rate ¹	Number	Age-specific death rate ¹
15–24	30,494	69.5	32,575	74.9
25–34	51,517	116.7	57,616	129.0
35–44	73,088	180.1	77,792	192.2
45–54	174,494	404.0	173,516	405.5
55–64	357,785	875.3	366,445	883.8
65–74	495,016	1,796.8	512,080	1,788.6
75–84	637,566	4,579.2	636,916	4,474.8
85 and over	859,701	13,673.9	854,462	13,392.1

¹Deaths per 100,000 U.S. population.

SOURCE: NCHS, National Vital Statistics System, Mortality.

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Data table for Figure 4. Number of deaths, percentage of total deaths, and age-adjusted death rates for the 10 leading causes of death in 2016: United States, 2015 and 2016

Rank ¹	Cause of death [based on <i>International Classification of Diseases, Tenth Revision (ICD-10)</i>]	2015			2016		
		Number	Percent of total deaths	Age-adjusted death rate ²	Number	Percent of total deaths	Age-adjusted death rate ²
...	All causes	2,712,630	100.0	733.1	2,744,248	100.0	728.8
1	Diseases of heart. (I00–I09,I11,I13,I20–I51)	633,842	23.4	168.5	635,260	23.1	165.5
2	Malignant neoplasms (cancer) (C00–C97)	595,930	22.0	158.5	598,038	21.8	155.8
3	Accidents (unintentional injuries) (V01–X59,Y85–Y86)	146,571	5.4	43.2	161,374	5.9	47.4
4	Chronic lower respiratory diseases (J40–J47)	155,041	5.7	41.6	154,596	5.6	40.6
5	Cerebrovascular diseases (stroke) (I60–I69)	140,323	5.2	37.6	142,142	5.2	37.3
6	Alzheimer's disease (G30)	110,561	4.1	29.4	116,103	4.2	30.3
7	Diabetes mellitus (E10–E14)	79,535	2.9	21.3	80,058	2.9	21.0
8	Influenza and pneumonia (J09–J18)	57,062	2.1	15.2	51,537	1.9	13.5
9	Nephritis, nephrotic syndrome and nephrosis (kidney disease) (N00–N07,N17–N19,N25–N27)	49,959	1.8	13.4	50,046	1.8	13.1
10	Intentional self-harm (suicide) (*U03,X60–X84,Y87.0)	44,193	1.6	13.3	44,965	1.6	13.5
...	All other causes (residual)	699,613	25.8	...	710,129	25.9	...

... Category not applicable.

¹ Code not included in ICD-10.¹Based on number of deaths.²Deaths per 100,000 U.S. standard population.

SOURCE: NCHS, National Vital Statistics System, Mortality.

Data Brief 293: Mortality in the United States, 2016

Data table for Figure 5. Number of infant deaths, percentage of total infant deaths, and infant mortality rates for the 10 leading causes of infant death in 2016: United States, 2015 and 2016

Rank ¹	Cause of death [based on <i>International Classification of Diseases, Tenth Revision (ICD-10)</i>]	2015			2016		
		Number	Percent of total deaths	Rate ²	Number	Percent of total deaths	Rate ²
...	All causes	23,455	100.0	589.5	23,161	100.0	587.0
1	Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	4,825	20.6	121.3	4,816	20.8	122.1
2	Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	4,084	17.4	102.7	3,927	17.0	99.5
3	Sudden infant death syndrome (R95)	1,568	6.7	39.4	1,500	6.5	38.0
4	Newborn affected by maternal complications of pregnancy (P01)	1,522	6.5	38.3	1,402	6.1	35.5
5	Accidents (unintentional injuries). (V01-X59)	1,291	5.5	32.4	1,219	5.3	30.9
6	Newborn affected by complications of placenta, cord and membranes (P02)	910	3.9	22.9	841	3.6	21.3
7	Bacterial sepsis of newborn. (P36)	599	2.6	15.1	583	2.5	14.8
8	Respiratory distress of newborn (P22)	462	2.0	11.6	488	2.1	12.4
9	Diseases of the circulatory system (I00-I99)	428	1.8	10.8	460	2.0	11.7
10	Neonatal hemorrhage (P50-P52,P54)	406	1.7	10.2	398	1.7	10.1
...	All other causes. (residual)	7,360	31.4	...	7,527	32.5	...

... Category not applicable.

¹Based on number of deaths.²Deaths per 100,000 live births.

SOURCE: NCHS, National Vital Statistics System, Mortality.