

## **Report on the Environment**

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### **General Mortality**

Overall mortality is a key measure of health in a population. Three measures of mortality are “all cause” mortality, cause-specific mortality, and years of potential life lost (YPLL). “All cause” mortality counts the total number of deaths due to any cause within a specified year, whereas cause-specific mortality statistics count the number of deaths due to a particular cause in a specified year. YPLL is defined as the number of years between the age at death and a specified age; that is, the total number years “lost” by persons in the population who die prematurely of a stated cause. Ranking the causes of death can provide a description of the relative burden of cause-specific mortality (NCHS, 2019b).

This indicator is based on mortality data recorded in the National Vital Statistics System, which registers virtually all deaths nationwide from death certificate data. YPLL is calculated by subtracting the age at death from a selected age (e.g., 65, 75, 85), then summing the individual YPLLs across each cause of death (CDC, 2020b). Sixty-five was selected as the age for this indicator to focus on deaths more likely to be attributable to preventable causes and less influenced by increasing age. The temporal coverage of the data is from 1940 to 2017 and data are collected from all 50 states and the District of Columbia.

### **What the Data Show**

An increase in the number of deaths in the U.S. has been observed each decade since 1940 (NCHS, 2019a), reflecting the increase in the size and aging of the population. However, in general, the age-adjusted “all cause” death rates have declined nearly every year since 1980 (NCHS, 2019a) with the most recent available rate of 731.9 deaths per 100,000 people in 2017 (Exhibit 1). Exhibit 1 provides some historical perspective on trends in the age-adjusted death rates for groups with available data between 1940 and 2017, showing that age-adjusted rates were more than twice as high in 1940 as they were in 2017. Since 1940, age-adjusted rates have decreased by 61 percent for females compared to 56 percent for males. Across all races and ethnicities reported since 1997, the largest percent decline in “all cause” death rates has occurred among Asian/Pacific Islanders and blacks.

Exhibit 2 presents the leading causes of mortality for 2017. The three leading causes of death in rank order for all races and both sexes were heart disease, cancer (malignant neoplasms), and accidents (unintentional injuries), accounting for 50 percent of all deaths. The top 10 leading causes of death have remained generally the same from 1999 to 2017, although the rank order has shifted some over time.

During 2017, heart disease was the leading cause of death across all the reported racial and ethnic groups, except for Asians/Pacific Islanders and Hispanics, for whom cancer (malignant neoplasms) was the leading cause of death. Heart disease, cancer (malignant neoplasms), and accidents (unintentional injuries) are in the top five causes of death for all reported racial and ethnic groups. Diabetes continues to rank in the top five causes of death among American Indians/Alaska Natives, Asians/Pacific Islanders, blacks, and Hispanics, and ranks seventh among whites and non-Hispanics.

(all races) behind Alzheimer's Disease.

Exhibit 3 presents the YPLL for 2017. In that year for all races and both sexes, accidents (unintentional injuries), cancer (malignant neoplasms), and heart disease were the first, second, and third leading causes of YPLL, respectively. Also in 2017, cancer (malignant neoplasms) was the first or second leading cause of YPLL across all of the reported racial and ethnic groups except for blacks and American Indians/Alaska Natives. Accidents (unintentional injuries) and heart disease were in the top four causes of YPLL for all reported racial and ethnic groups. Perinatal period ranks in the top five causes of YPLL among Asians/Pacific Islanders, blacks, non-Hispanics, Hispanics, and whites, and ranks seventh among American Indians/Alaska Natives. Suicide is the second leading cause of YPLL for American Indians/Alaska Natives and ranks among the top six causes for all other reported racial and ethnic groups.

## Limitations

- Cause of death rankings denote the most frequently occurring causes of death among those eligible to be ranked. The rankings do not necessarily denote the causes of death of greatest public health importance. Further, rankings of cause-specific mortality could change depending on the defined list of causes that are considered and, more specifically, the types of categories and subcategories that are used for such rankings (NCHS, 2019b).
- Death rates are based on underlying cause of death as entered on a death certificate by a physician, medical examiner, or coroner. Incorrect coding and low rates of autopsies that confirm the cause of death may occur. Additionally, some individuals may have had competing causes of death. When more than one cause or condition is entered by the physician, medical examiner, or coroner, the underlying cause is determined by the sequence of conditions on the certificate, provisions of the ICD (International Classification of Diseases), and associated selection rules and modifications (CDC, 2020a). Consequently, some misclassification of reported mortality might occur as a result of these uncertainties, as well as the underreporting of some causes of death.

## Data Sources

Death rates were obtained from vital statistics data published by CDC's National Center for Health Statistics (NCHS, 2001, 2019a,c). Data in the NCHS reports are based in part on unpublished work tables, available on the NCHS website at <https://www.cdc.gov/nchs/nvss/deaths.htm>. Leading cause of death and YPLL data were extracted from CDC's Web-Based Injury Statistics Query and Reporting System (WISQARS) (CDC, 2020b) (<https://www.cdc.gov/injury/wisqars/>). The underlying data in WISQARS come from CDC/NCHS annual mortality data files.

## References

CDC (Centers for Disease Control and Prevention). 2020a. CDC WONDER: Underlying cause of death database. Last reviewed February 12, 2020. Accessed February 2020. <https://wonder.cdc.gov/ucd-icd10.html>.

CDC. 2020b. National Center for Injury Prevention and Control. Web-Based Injury Statistics Query and Reporting System (WISQARS) [online]. Leading causes of death 2017 report and years of potential life lost (YPLL) 2017 report. Last reviewed February 20, 2020. Accessed February 2020. <https://webappa.cdc.gov/sasweb/ncipc/leadcause.html> and <https://webappa.cdc.gov/sasweb/ncipc/ypll.html>.

NCHS (National Center for Health Statistics). 2019a. Deaths: Final data for 2017. Tables 1 and I-4. National Vital Statistics Reports

68(9). [https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68\\_09-508.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_09-508.pdf) (PDF) (77 pp, 1.8MB).

NCHS. 2019b. Deaths: Leading causes for 2017. National Vital Statistics Reports 68(6).

[https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68\\_06-508.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_06-508.pdf) (PDF) (77 pp, 2.3MB).

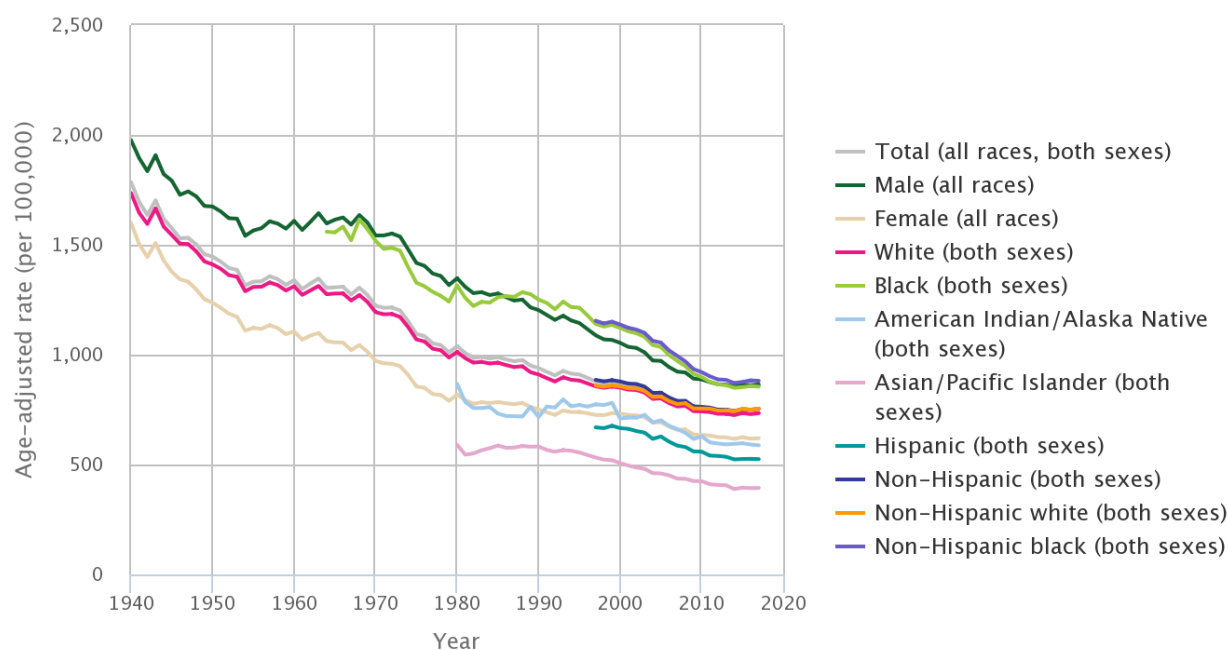
NCHS. 2019c. Health, United States, 2018. Table 5. Accessed February 2020.

<https://www.cdc.gov/nchs/hus/contents2018.htm>.

NCHS. 2001. Age-adjusted death rates: Trend data based on the year 2000 standard population.

National Vital Statistics Reports 49(9). [https://www.cdc.gov/NCHS/data/nvsr/nvsr49/nvsr49\\_09.pdf](https://www.cdc.gov/NCHS/data/nvsr/nvsr49/nvsr49_09.pdf) (PDF) (7 pp, 387K).

**Exhibit 1. Age-adjusted "all cause" death rates in the U.S. by sex, race, and ethnicity, 1940–2017**



Rates are age-adjusted to the 2000 U.S. standard population.

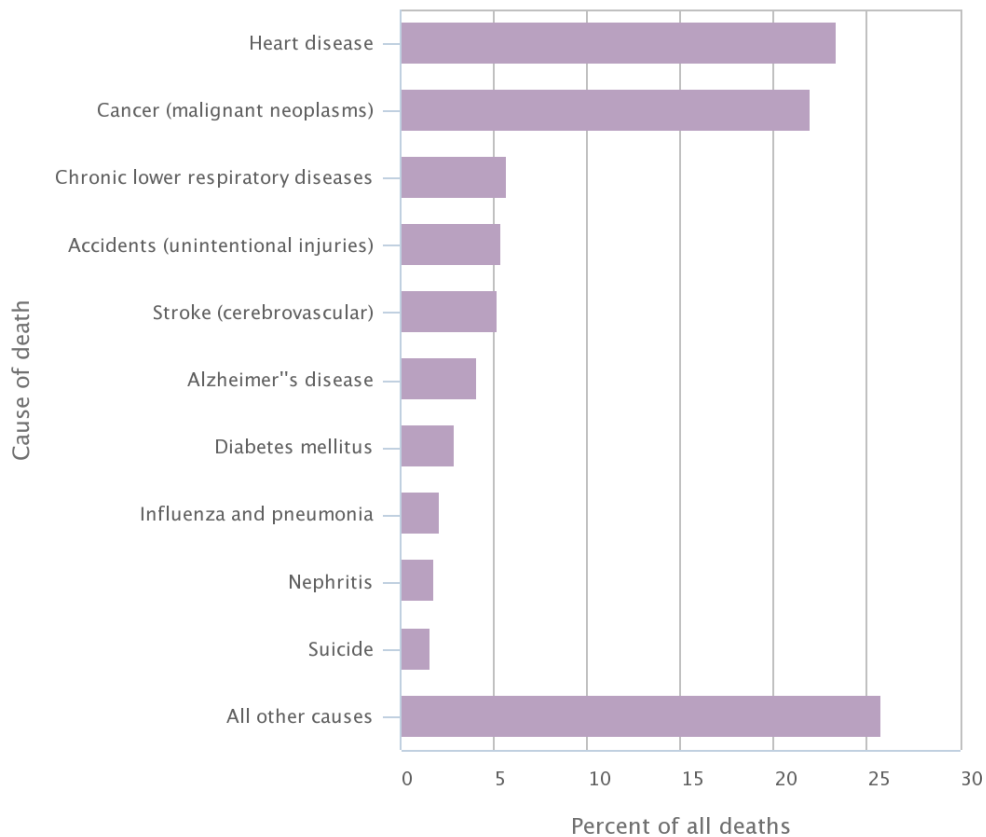
Age-adjusted death rates for American Indian/Alaska Natives, Asians or Pacific Islanders, and Hispanics or Latinos are underestimates resulting from an underreporting on death certificates and undercounts in censuses for these groups.

Death rates are not routinely available for black males and females prior to 1964.

Information on the statistical significance of the trends in this exhibit is not presented here. For more information about uncertainty, variability, and statistical analysis, view the technical documentation for this indicator.

**Data source:** NCHS, 2001, 2019a,c

**Exhibit 2. Leading causes of death in the U.S. by race and ethnicity, 2017**  
**All races**



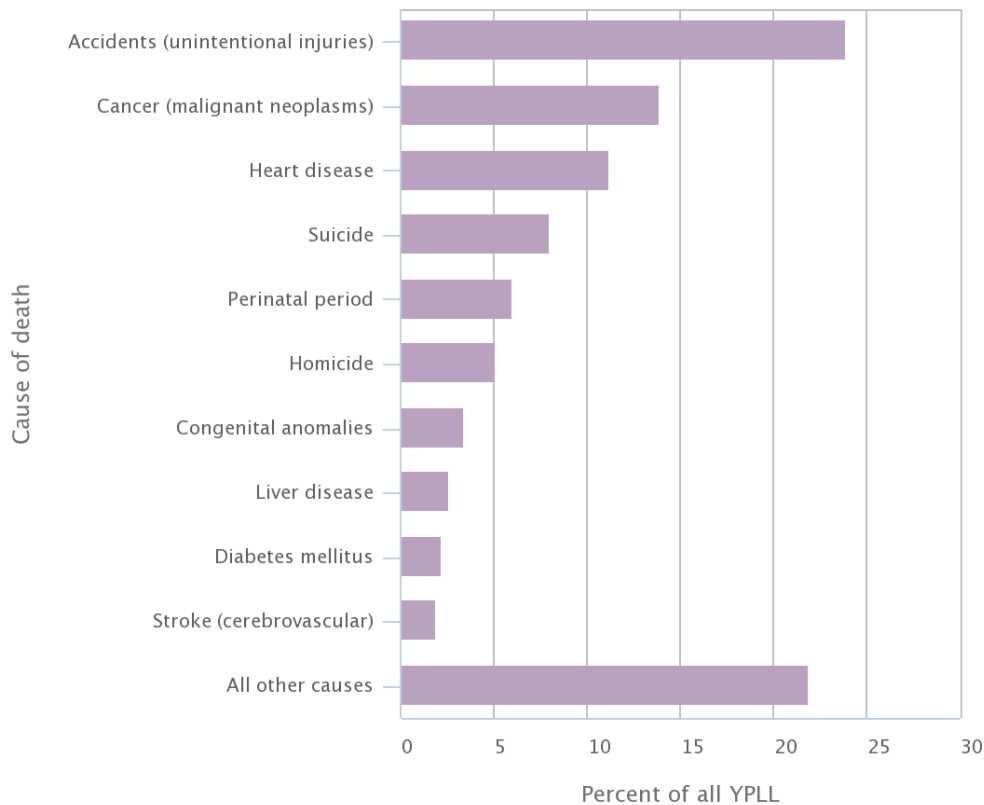
Trend analysis has not been conducted because these data represent a single snapshot in time. For more information about uncertainty, variability, and statistical analysis, view the technical documentation for this indicator.

**Data source:** CDC, 2020b

Visit <https://www.epa.gov/roe> to see the full exhibit.

### Exhibit 3. Years of potential life lost (YPLL) before age 65 in the U.S., by race and ethnicity, 2017

All races



Trend analysis has not been conducted because these data represent a single snapshot in time. For more information about uncertainty, variability, and statistical analysis, view the technical documentation for this indicator.

**Data source:** CDC, 2020b

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