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, 2016a).

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, 2017). 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 2014 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 over the last few decades, reflecting the increase in the size and aging of the population. However, in general, the age-adjusted "all cause" death rates have declined yearly since 1980 (except in years of influenza outbreaks in 1983, 1985, 1988, 1993, and 1999) with the most recent available rate of 724.6 deaths per 100,000 people in 2014. Slight increases were observed in one or more demographic groups year to year, such as seen among American Indians/Alaska Natives from 2013 to 2014. Exhibit 1 provides some historical perspective on trends in the age-adjusted death rates between 1940 and 2014, showing that age-adjusted rates were more than twice as high in 1940 as they were in 2014. Also since 1940, age-adjusted rates have decreased by 61 percent for females compared to 57 percent for males. Across all races and ethnicities reported since 1997, the largest decline in "all cause" death rates has occurred among Blacks.

Exhibits 2 and 3 present the leading causes of mortality and YPLL for 2014, respectively. The three leading causes of death in rank order for all races and both sexes were heart disease, cancer (malignant neoplasms), and chronic lower respiratory diseases, accounting for 52 percent of all deaths (Exhibit 2). The rank order of the leading causes of death has remained generally the same since 1999. In 2008, however, some shifts—which remained unchanged from 2009 through 2014—were observed: Chronic lower respiratory diseases replaced stroke as the third leading cause of death, and suicide replaced septicemia as the tenth leading cause of death, accounting for about 1.6 percent of all deaths in the United States in 2014. The YPLL ranking is different for all races and both sexes, with accidents (unintentional injuries), cancer (malignant neoplasms), and heart disease as the first, second, and third leading causes, respectively (Exhibit 3).

During 2014, heart disease was the leading cause of death across the reported racial and ethnic groups, except for Asians or 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 or Pacific Islanders, Blacks, and Hispanics, and ranks seventh among Whites and non-Hispanics behind Alzheimer's Disease (Exhibit 2).

Also in 2014, 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 five causes of YPLL for all reported racial and ethnic groups. Perinatal period ranks in the top five causes of YPLL among Asians or Pacific Islanders, Blacks, non-Hispanics, Hispanics, and Whites, and ranks sixth among American Indians/Alaska Natives (Exhibit 3).

Limitations

- Cause of death rankings denote the most frequently occurring causes of death among those causes 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, 2016a).
- 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, 2016). 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 reports published by CDC's National Center for Health Statistics (NCHS, 2001, 2016b). Data in the NCHS reports are based in part on unpublished work tables, available on the NCHS website at https://www.cdc.gov/nchs/deaths.htm. Leading cause of death and YPLL data were extracted from CDC's Web-Based Injury Statistics Query and Reporting System (WISQARS) (CDC, 2017) (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). 2017. National Center for Injury Prevention and Control. Web-Based Injury Statistics Query and Reporting System (WISQARS) [online]. Leading causes of death and years of potential life lost (YPLL) reports, 1999-2014. Accessed January 2017. https://www.cdc.gov/injury/wisqars/leading_causes_death.html and https://www.cdc.gov/injury/wisqars/years_potential.html.

CDC. 2016. CDC WONDER: Help page for compressed mortality file. Last reviewed December 22, 2016. https://wonder.cdc.gov/wonder/help/cmf.html.

NCHS (National Center for Health Statistics). 2016a. Deaths: Leading causes for 2014. National

Vital Statistics Reports 65(5). https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_05.pdf (PDF) (96 pp, 3.5MB).

NCHS. 2016b. Detailed tables for the National Vital Statistics Report, deaths: Final data for 2014. Tables 1 and 2. National Vital Statistics Reports 65(4). https://www.cdc.gov/nchs/data/nvsr/nvsr65/nvsr65_04.pdf (PDF) (122 pp, 4.4MB).

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 (PDF) (7 pp, 387K).

Exhibit 1. Age-adjusted "all cause" death rates in the U.S. by sex, race, and ethnicity, 1940–2014
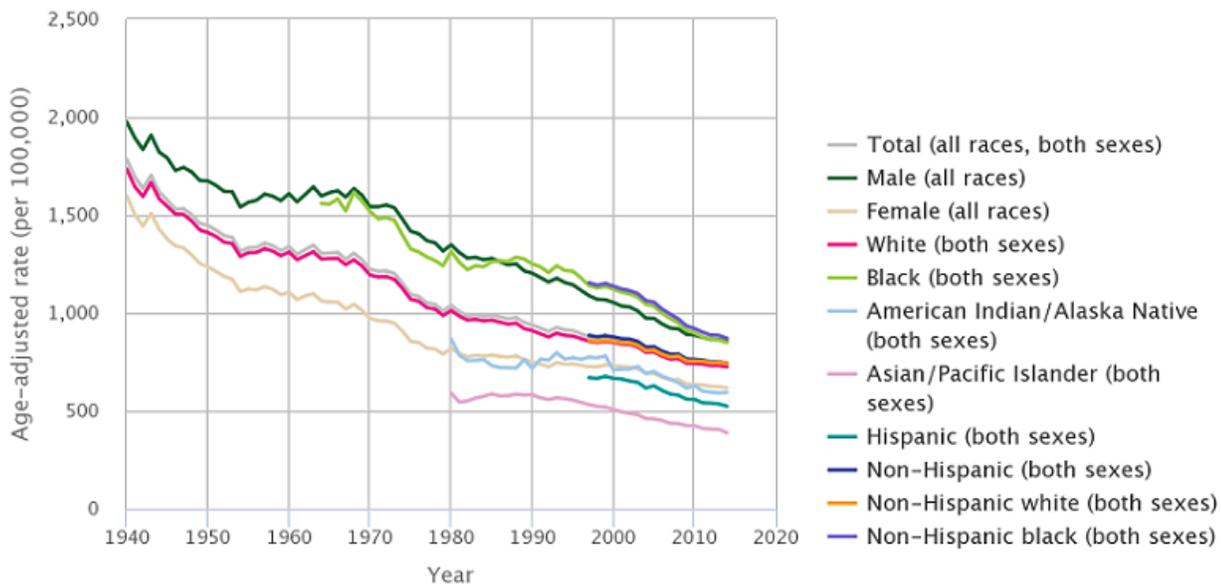
Rates are age-adjusted to the 2000 U.S. standard population.

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.

After 2008, non-Hispanic data are presented as only two groups: non-Hispanic whites and non-Hispanic blacks.

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, 2016b

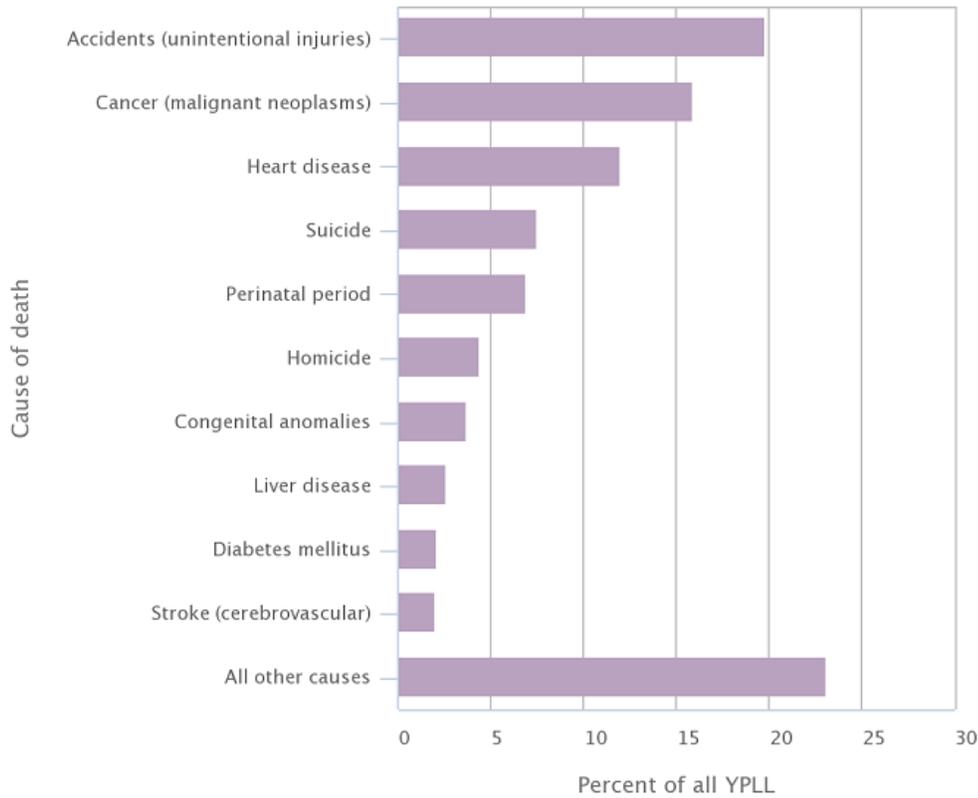**Exhibit 2. Leading causes of death in the U.S. by race and ethnicity, 2014**
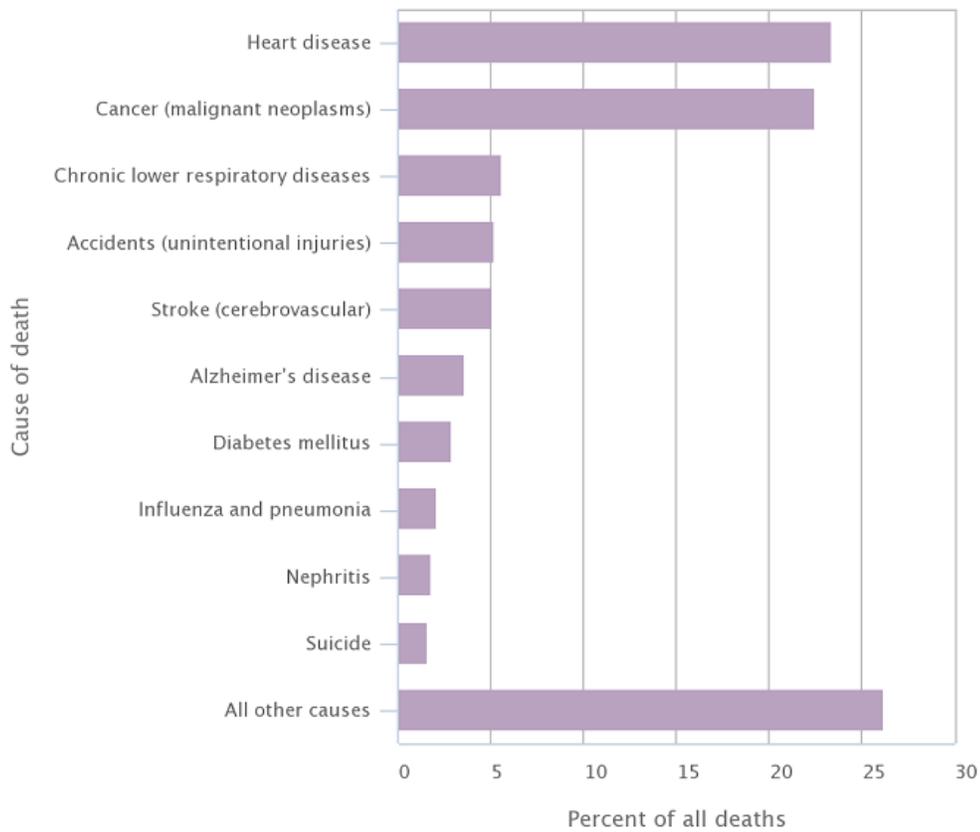
All races

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, 2017

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, 2014

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, 2017

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