



RESEARCH



U.S. FIRE DEATH RATES BY STATE

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Key Findings

1. Fire death rates vary considerably by state, with 2012-2016 average death rates per million population ranging from a low of 3.9 to a high of 24.4. The U.S. average was 9.7 deaths per million population.
2. Nine of the eleven states with the highest overall fire death rates in 2012-2016 were in the South. (Two states were tied for the tenth position). Seven of the top 10 states for home fire deaths were also in the South.
3. Higher state fire death rates are correlated with larger percentages of population who:
 - Have incomes below the poverty line;
 - Are adults without a high school diploma or equivalent;
 - Are current smokers;
 - Live in rural areas; and
 - Are either African American or Black, or are Native American or Alaskan Native.

Trends

1. All but three states had fewer fire deaths in 2012-2016 than in 1981-1985. All states had lower *fire death rates* in 2012 -2016 than in 1981-1985.
2. Only one state showed an increase in *home* fire deaths from 1981-1985 to 2012-2016. As with overall fire deaths, the *home fire death rate* per million population was lower in the later period in all 50 states.



U.S. FIRE DEATH RATES BY STATE

Fire death rates vary considerably by state. Information about demographic factors associated with higher fire death rates and about how each state compares with other states is helpful in developing appropriate prevention programs. Risk factors should be considered when developing these programs and materials. Users can also compare the progress made in reducing deaths and death rates with the country as a whole. Home fire death data has been added to this report for the first time.

This analysis uses death certificate data collected by the National Center for Health Statistics (NCHS) and accessible at the Centers for Disease Control and Prevention's (CDC's) [Web-based Injury Statistics Query and Reporting System \(WISQARS™\) Fatal Injury Reports](#) to provide total and home average fire or flame deaths and average fire or flame death rates per year for 1981-1985 through 2012-2016. Demographic data were obtained from the American Community Survey, U.S. Census Bureau, and the Behavioral Risk Factor Surveillance System.

State level trends

Nearly every state shows a trend toward fewer fire deaths and lower fire death rates per million population in 2012-2016 than in 1981-1985. Only three states, Arizona, Nevada, and New Mexico, showed an increase in fire deaths from 1981-1985 to 2012-2016. The fire death rate per million population was lower in 2012-2016 than in 1981-1985 in all 50 states.

While 24 states showed an increase in fire deaths from 2007-2011 to 2012-2016, only 20 showed an increase in the fire death rate per million population. Some fluctuation is normal, particularly in states with smaller populations.

Only Nevada showed an increase in *home* fire deaths from 1981-1985 to 2012-2016. As with overall fire deaths, the home fire death¹ *rate* per million population was lower in the later period in all 50 states. From 2007-2011 to 2012-2016, 12 states had an increase in average home fire deaths, but only 10 showed an increase in home fire death *rates*. Deaths from intentional fires or from fires of undetermined intent were not captured in this category.

Nine of the eleven states with the highest overall fire death rates in 2012-2016 were in the South. (Two states were tied for the tenth position). The exceptions were Alaska and Missouri. Seven of the top 10 states for home fire deaths were also in the South. The exceptions again included Alaska and Missouri. South Dakota was the third exception

¹ WISQARS uses the term "residential fire death" to capture unintentional fire deaths (X00-X09) and place of accident = home. Accessed at https://www.cdc.gov/injury/wisqars/fatal_help/definitions_fatal.html on February 27, 2018

Demographic factors associated with higher fire death rates

Higher fire death rates are correlated with several socioeconomic or behavioral characteristics of the states.

Race and ethnicity are correlates of other factors that may have a greater impact on risk. African-Americans and Native Americans have been found in multiple studies to have higher fire death rates than the population overall. In this analysis, states with higher percentages of these populations tended to have higher fire death rates. In their analysis of 1988-1992 fire death rates from counties with populations of 250,000 or more, Hannon and Shai found that "...Areas with a high proportion of African Americans and a low median family income tend to have exceptionally high fire death rates, and racial composition appears unrelated to variation in the fire death rate among areas with very high levels of income."²

Poverty (defined as percentage of population below the poverty line), *lack of education* (defined as percentage of population age 25 or older without a high school diploma or the equivalent), *smoking* (defined as percentage of adults who are current smokers), and *rural* (defined as percentage of population living in communities of less than 2,500 population in 2010), all are correlated with higher fire death rates. All of these findings are consistent with findings in other studies of socioeconomic and demographic factors related to measures of fire loss.

These risk factors are also correlated with each other and so tend to explain some of the same variations in state fire death rates. A state that ranks high in one or more of these risk factors could be expected to rank higher in state fire death rate and a state that ranks low in risk factors could be expected to have a lower state fire death rate. For example, Mississippi, West Virginia, Arkansas, and Alabama are all among the highest ten states on at least three of the major risk factors and were in the top five highest average state fire death rates. Hawaii and Utah were in the lowest ten states on at least three of the major risk factors and had the lowest fire death rates.

Information about and comparisons of specific states with each other or the whole US are available at:

<https://www.nfpa.org/News-and-Research/Fire-statistics-and-reports/Fire-statistics/Fires-in-the-US/Overall-fire-problem/Fire-deaths-by-state>

It should also be emphasized that fire death rates are not an inevitable consequence of any factor. Effective programs – such as universal public fire and life safety education, wider use of home fire protection systems, and strong consensus codes with strong enforcement – can reduce fire death rates over time in any state.

NFPA Research, Data and Analytics Division

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² Lance Hannon and Donna Shai. "The Truly Disadvantaged and the Structural Covariates of Fire Death Rates," *The Social Science Journal*, 40 (2003) 134.