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# Suicide Rates on the Rise: National Trends and Demographics in Suicide Deaths from 2000 to 2018

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**COMPANION BRIEF**

To read SHADAC's analysis of how suicide rates vary across states and how their trends compare to the U.S. trend of increasing suicide rates, as well as differences across the states in rates of suicide by firearm and non-firearm methods, visit: www.shadac.org/2020SuicideBriefs

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## INTRODUCTION

When the U.S. Centers for Disease Control and Prevention (CDC) announced in 2016 that life expectancy in the United States had dropped, the finding made national headlines.[1,2] Prior to that, U.S. life expectancy hadn't dropped in decades—not since 1993.[3] Similar findings of further declines in life expectancy announced in 2017 and 2018 showed this decline wasn't a fluke, as data continued to reveal that Americans were leading increasingly shorter lives.[4,5] Although death records show there are multiple causes of death contributing to decreased life expectancy (e.g., increased death rates from lung and Alzheimer's disease), two factors have consistently played a role in the trend: suicide and unintentional injuries, including accidental drug overdoses.[6,7,8]

Around the same time the CDC was documenting declines in U.S. life expectancy, researchers from Princeton University began to study death rates and found that the U.S. was unique among industrialized countries. While death rates were declining in other wealthy nations—such as Canada, Japan, and Germany—death rates have been increasing among certain American populations, particularly non-Hispanic whites with lower incomes and lower levels of education.[9,10] Those same researchers found three main causes of death that accounted for the increased death rates—suicide, drug overdoses, and alcohol-related liver disease—which they called "deaths of despair." They and other researchers have posited that increased deaths of despair may be a response to decades of economic and social changes, leaving many Americans feeling their life situations have not met their expectations and without strong social institutions to help them navigate through the turbulence.[11]

While recent increases in deaths from drug overdoses, especially opioids, have received substantial attention, the toll of other deaths of despair is less widely known.[12,13]

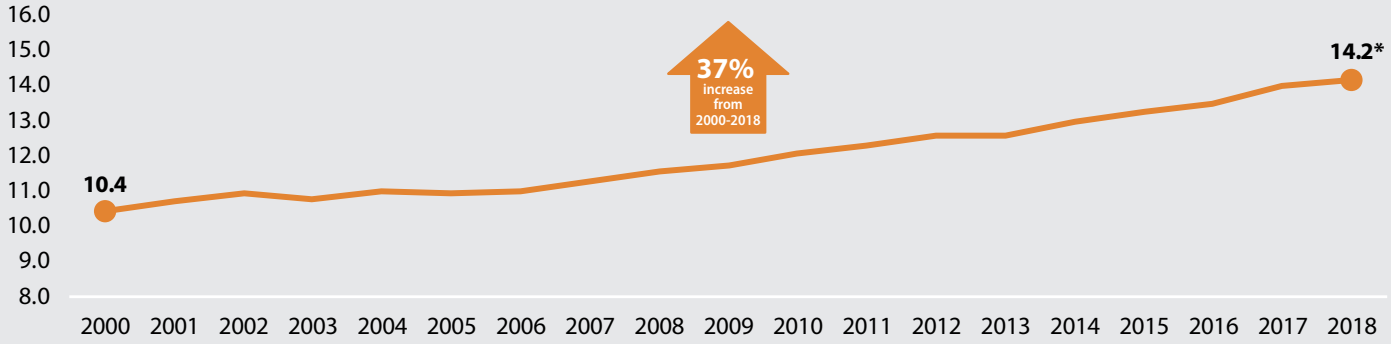
***Since 2000, suicide deaths have killed over 700,000 people—more than the number killed by opioids during the same time period.***

This issue brief examines the trend of increasing suicide death rates in the United States from 2000 to 2018. Using vital statistics data, it also looks at differences in suicide deaths by demographic groups of age, sex, race/ethnicity and urbanization, as well as by firearm and non-firearm methods of suicide.

## Suicide death rates over time

Over nearly two decades, suicide deaths in the U.S. have increased significantly. From 2000 to 2018, the U.S. suicide death rate increased from 10.4 to 14.2 per 100,000 people, an increase of 37 percent—representing an additional 3.8 deaths per 100,000 people per year (Figure 1).

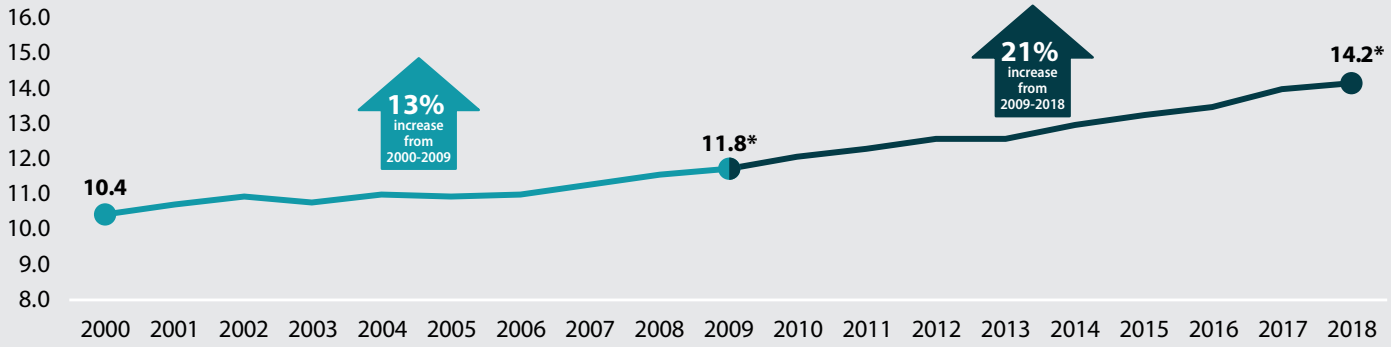
**Figure 1. United States Suicide Death Rate per 100,000 People, 2000-2018**




* Statistically significant increase at 95% level.
Source: SHADAC analysis of vital statistics data from the CDC WONDER system.

However, the increase in suicide deaths has not followed a consistent trend; instead, the growth in suicide rates has accelerated more recently. During the first half of the time period we examined, from 2000 to 2009, suicide death rates grew from 10.4 to 11.8 deaths per 100,000 people—an increase of 13 percent, or 1.3 additional deaths per 100,000 people (Figure 2). However, from 2009 to 2018, suicide death rates grew from 11.8 to 14.2 deaths per 100,000 people—an increase of 2.5 additional deaths per 100,000 people (a 21 percent increase).

**Figure 2. Increases in United States Suicide Death Rates per 100,000 People, 2000-2009 and 2009-2018**




* Statistically significant increase at 95% level.
Source: SHADAC analysis of vital statistics data from the CDC WONDER system.

Additionally, there were more statistically significant annual increases in suicide death rates from 2009 to 2018 (in 8 of 9 years) compared to 2000 to 2009 (in 5 of 9 years).[14] The later time period also saw larger increases in suicide death rates. From 2000 to 2009, the largest statistically significant annual increase in suicide death rates was 0.3 deaths per 100,000 people, which happened between 2000-2001, 2006-2007, and 2007-2008; however, from 2009 to 2018, there were statistically significant annual increases in suicide rates of 0.4 deaths per 100,000 people (from 2009-2010 and 2013-2014) and an increase of 0.5 deaths per 100,000 people (from 2016-2017).

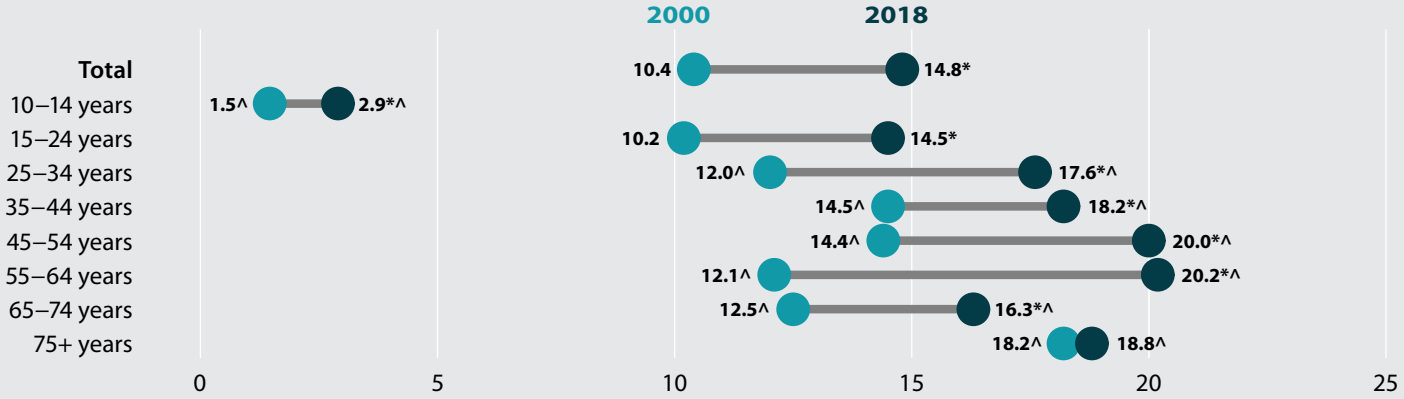
While suicide rates for the total U.S. population have increased overall since 2000, the rate of increase has varied substantially throughout the country—geographically, demographically, and by method of death. The following sections of this issue brief will examine differences in national-level suicide rates by age, sex, race and ethnicity, and urbanization. It also will examine differences in suicide rates by method of death, and how the growth in suicide rates has changed over time. A companion to this brief also examines trends and variation in suicide rates at the state level.

## Suicide death rates by age

Since 2000, suicide death rates have increased significantly across nearly all age groups in the U.S.[15,16] However, the rates themselves—and the amount they have increased—have varied widely by age group.

In 2018, children (age 10-14) had the lowest suicide rate (2.9 per 100,000), which was the only rate we examined that was significantly lower than the overall rate of 14.8 per 100,000 (Figure 3).[17] With the exception of adolescents and young adults (age 15-24), whose rate was statistically equivalent to the overall rate, all other age groups had suicide rates significantly higher than the overall rate. Adults age 55-64 had the highest rate (20.2 per 100,000), and all other age groups had rates ranging from 16.3 to 20.0 deaths per 100,000 people.

**Figure 3. United States Suicide Death Rates per 100,000 People by Age, 2000 and 2018**



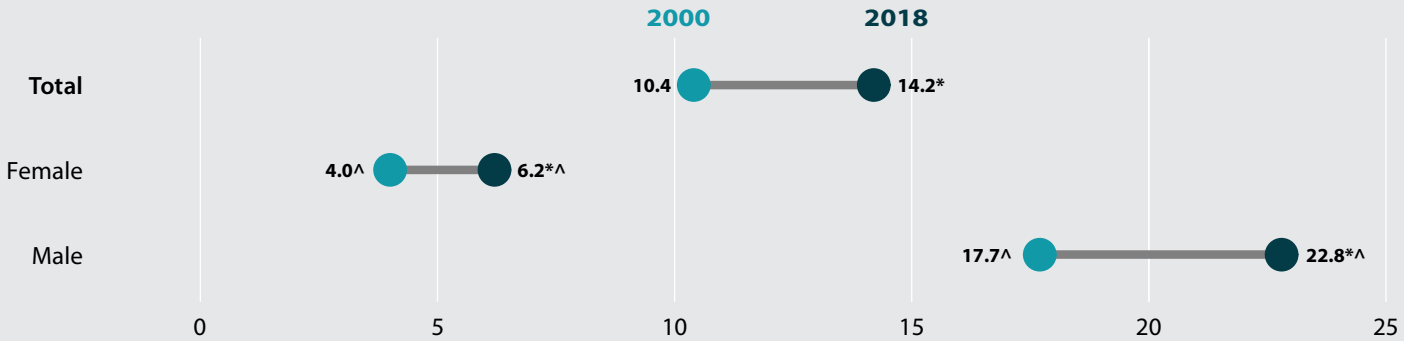

* Statistically significant difference from 2000 rate at 95% level.
^ Statistically significant difference from total rate at 95% level.
Source: SHADAC analysis of vital statistics data from the CDC WONDER system.

Examining trends in suicide rates from 2000 to 2018 across age groups suggests that suicide patterns have been changing by age. While adults age 75+ had the highest suicide rate in 2000, their rate did not increase significantly between 2000 and 2018. Meanwhile, children (age 10-14) had the lowest suicide rate in 2000, but between then and 2018 they experienced the largest increase in suicide rates (95 percent), which was a statistically significant change. All other age groups also experienced significant increases, ranging from a 67 percent increase among the 55-64 age group to a 25 percent increase among those age 35-44.

## Suicide death rates by sex

Suicide death rates have increased significantly for both males and females since 2000, but examining rates by sex also suggests that suicide patterns have been changing. In 2000, males had a suicide rate of 17.7 per 100,000, which was more than four times the rate of females (4.0 per 100,000) (Figure 4). By 2018, however, the difference between male and female suicide rates narrowed slightly, with males' suicide rate (22.8 per 100,000) measuring less than four times the rate of females (6.2 per 100,000). This shift stems from the fact that although suicide rates increased significantly for both males and females from 2000 to 2018, growth in suicide rates was larger for females (56 percent) than males (28 percent).

**Figure 4. United States Suicide Death Rates per 100,000 People by Sex, 2000 and 2018**



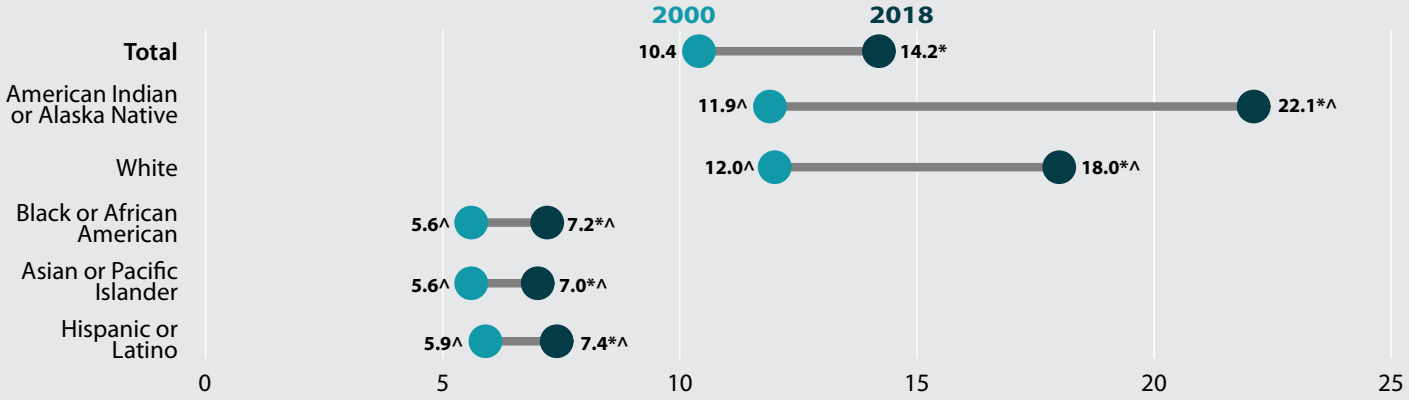

* Statistically significant difference from 2000 rate at 95% level.
^ Statistically significant difference from total rate at 95% level.
Source: SHADAC analysis of vital statistics data from the CDC WONDER system.

## Suicide death rates by race and ethnicity

Contrary to findings for age and sex, examining changes in suicide death rates by race and ethnicity show that pre-existing patterns are onlu growing more dramatic, rather than changing altogether. Rates of death from suicide have increased significantly across all races and ethnicities from 2000 to 2018. However, suicide death rates are substantially higher among American Indians and Alaska Natives and Whites, and those groups' suicide rates also increased more rapidly than others.

In 2018, American Indians and Alaska Natives had the highest suicide death rate at 22.1 per 100,000 people, significantly higher than the total population rate of 14.2 per 100,000 (Figure 5). Whites had the second-highest suicide rate (18.0 per 100,000), which was also significantly higher than the overall rate. Asians or Pacific Islanders, Blacks, and Hispanics each had similar rates (7.0, 7.2, and 7.4 per 100,000, respectively) in 2018, which all were significantly lower than the total population rate.

**Figure 5. United States Suicide Death Rates per 100,000 People by Race/Ethnicity, 2000 and 2018**




* Statistically significant difference from 2000 rate at 95% level.
^ Statistically significant difference from total rate at 95% level.
Source: SHADAC analysis of vital statistics data from the CDC WONDER system.

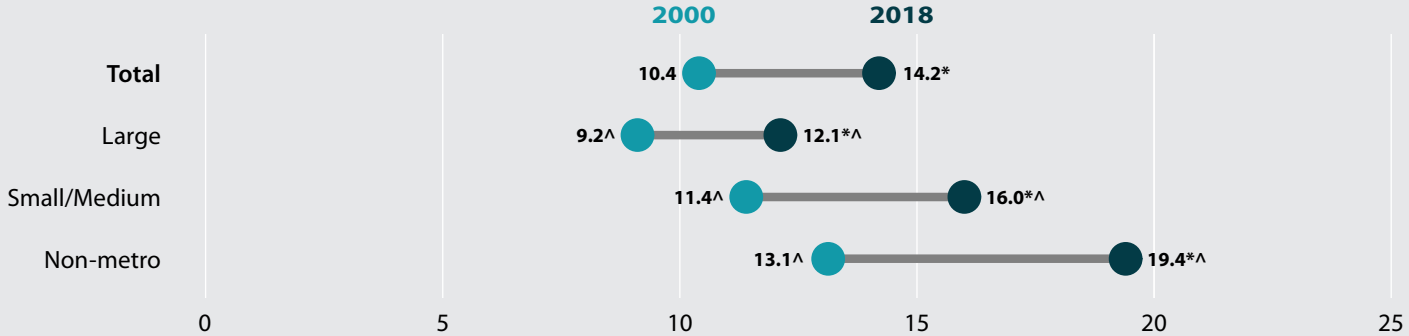
In addition to having relatively low rates of suicide, Asians or Pacific Islanders, Blacks, and Hispanics also experienced relatively low growth in suicide rates from 2000 to 2018 (27 percent, 28 percent, and 26 percent, respectively). Whites experienced larger growth in suicide death rates (50 percent), and American Indians and Alaska Natives experienced the largest growth in suicide death rates since 2000 (86 percent)—representing an additional 10.2 deaths per 100,000 people in 2018.

## Suicide death rates by urbanization

Since 2000, suicide death rates have varied by level of urbanization, with the lowest rates in large metropolitan areas and the highest rates in non-metropolitan areas (i.e., rural areas). Although suicide rates have significantly increased across all levels of urbanization—non-metro, small/medium metro, and large metro—the gap has widened over time because suicide rates among people in non-metro areas have grown more than among people in metro areas.

In 2018, the suicide rate for people in large metro areas was 12.1 per 100,000, which was significantly lower than overall U.S. rate of 14.2 per 100,000 (Figure 6). People in non-metro and small/medium metros, however, had rates that were significantly higher than the overall U.S. rate (19.4 and 16.0 per 100,000, respectively).

**Figure 6. United States Suicide Death Rates per 100,000 People by Urbanization, 2000 and 2018**




* Statistically significant difference from 2000 rate at 95% level.
^ Statistically significant difference from total rate at 95% level.
Source: SHADAC analysis of vital statistics data from the CDC WONDER system.

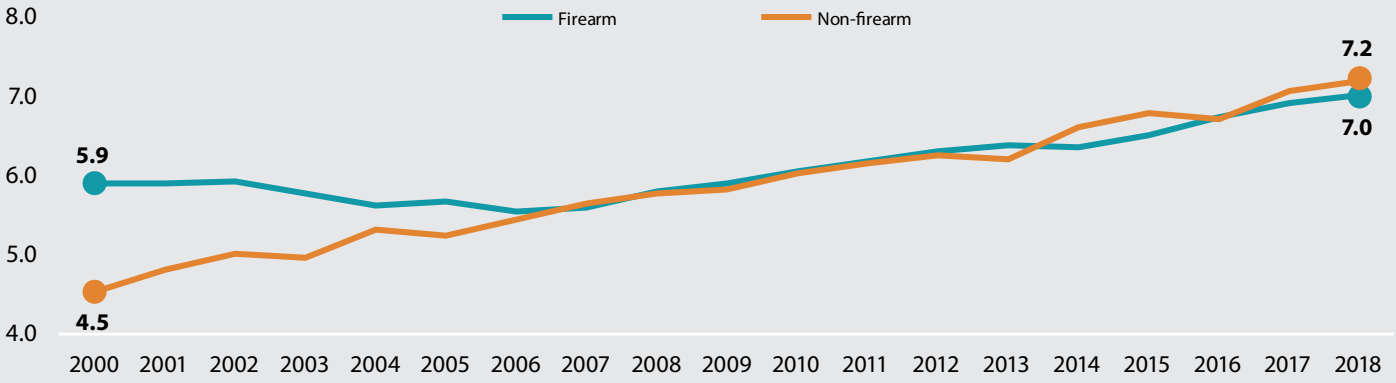
In addition to having a lower suicide rate, growth in suicide rates among people in large metros occurred at a slower pace (32 percent) than the U.S. overall (37 percent). By contrast, suicide rates in non-metro and small/medium metros grew more rapidly (48 percent and 40 percent, respectively). For non-metro populations, that equates to an additional 6.3 suicide deaths per 100,000 people in 2018 as compared to 2000.

## Suicide deaths by method

In addition to demographic characteristics, we also analyzed trends in suicide death rates by cause of death, examining suicide deaths from firearms versus all other non-firearm causes combined (e.g., suffocation, poisoning), As these two categories each account for roughly half of suicide deaths.[18,19]

Since 2000, the U.S. has experienced statistically significant increases in suicide death rates from both firearm and non-firearm methods, but death rates from non-firearm methods have increased more rapidly. In 2000, suicide death rates from firearms were significantly higher than rates from non-firearm methods (5.9 versus 4.5 deaths per 100,000 people) (Figure 7). By 2018, suicide death rates from firearms increased 19 percent, to 7.0 deaths per 100,000 people, while rates from non-firearm methods increased 59 percent, to 7.2 deaths per 100,000 people. Although the difference was small, suicide death rates from non-firearm methods were significantly higher than from firearms—an opposite pattern from earlier years.

**Figure 7. United States Suicide Death Rates per 100,000 People by Firearm and Non-firearm Methods, 2000 - 2018**




* Statistically significant increase at 95% level.
Source: SHADAC analysis of vital statistics data from the CDC WONDER system.

# CONCLUSIONS

Since 2000, the U.S. has seen suicide death rates increase by 37 percent, from 10.4 to 14.2 per 100,000 in 2018. That increase in suicide rates represents almost 110,000 more lives lost than if the U.S. suicide rate had remained steady. Our analysis found that while practically no demographic group has been spared by the increase in U.S. suicide rates, some segments of the population have been more particularly affected than others.

Among age groups, children and working-age adults are of particular concern. Although children (age 10-14) have the lowest suicide death rates, they have experienced the largest increase in suicide death rates since 2000. Suicide among working-age adults—particularly those age 25-64—is also concerning because those ages began with already relatively high death rates and have experienced some of the largest increases in suicide rates.

By sex, there are causes for concern among both males and females. Historically, males have had much higher rates of suicide deaths than females, and male suicide rates have continued to climb over the past two decades. However, the gap between male and female suicide rates has been narrowing, as females have recorded larger increases in suicide death rates since 2000.

Although all racial/ethnic groups experienced increases in suicide rates, the rates among American Indians and Alaska Natives and among Whites are especially concerning. These groups began with relatively high rates of suicide deaths in 2000, and that pattern has persisted and intensified, with those groups also experiencing the largest increases in suicide rates since 2000.

By urbanization, our analysis found that people in rural areas historically have had the highest suicide rates, and that problem has been compounded by larger growth in suicide rates in rural areas compared with large metro areas. Suicide rates among people in small/medium metros have experienced similar trends, with suicide rates and growth in suicide rates that are almost as severe as in rural areas.

A final issue of particular concern is that the rise in suicide rates appears to be accelerating. During the latter half of the time period we examined, from 2009 to 2018, the increase in suicide death rates was almost double that from 2000 to 2009.

Considering the nearly two-decade trend of growth and evidence that this trend may be accelerating, it is unlikely that suicide rates will spontaneously stop or reverse in the near term. To help develop and guide efforts to reduce suicides and evaluate whether those efforts are succeeding, it will be important to continue monitoring U.S. suicide rates, as well as to leverage other data to improve our understanding of the underlying causes that are driving the increased prevalence of suicide deaths.

## Suggested Citation

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14 While we do not present data from 1999, we did conduct statistical testing of the difference between the suicide death rate in 1999 (10.5 deaths per 100,000) and the rate in 2000 (10.4 deaths per 100,000). There was no statistical difference between the two rates.

15 Consistent with CDC methodology, we excluded children younger than 10 from our analysis due to difficulty in determining suicidal intent in young children.

16 Stone, D., Simon, T., Fowler, K., Kegler, S., Yuan, K., Holland, K., Ivey-Stephenson, A., & Crosby, A. (2018, June 8). *Vital Signs: Trends in State Suicide Rates—United States, 1999-2016 and Circumstances Contributing to Suicide—27 States, 2015* [Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report—Vol. 67,No. 22]. Available at: https://www.cdc.gov/mmwr/volumes/67/wr/pdfs/mm6722a1-H.pdf

17 When analyzing suicide rates by age groups, the rates cannot be age-adjusted as in other sections of this report. Because of that, we use an overall U.S. suicide rate that is not age-adjusted in this section, so that rate varies slightly from the rate presented in other sections.

The high rate of suicide among people ages 75+ is driven primarily by males, who have much higher rates than females (39.9 versus 4.0 per 100,000 people in 2018). Apart from that notable difference, however, the age distribution for suicide rates look generally similar among males and females, with the lowest rate among children (age 10-14) and the highest rate (aside from 75+) among adults age 45-64.

18 Although we do not examine method of suicide by different demographic groups (e.g., age, sex, race/ethnicity, urbanization), other research has found it can vary. For example, a CDC study found that rates of suicide by firearm are higher for males than females.

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