

Drug Overdose Deaths in the United States, 1999–2020

Holly Hedegaard, M.D., Arialdi M. Miniño, M.P.H., Merianne Rose Spencer, M.P.H., and Margaret Warner, Ph.D.

Key findings

Data from the National Vital Statistics System

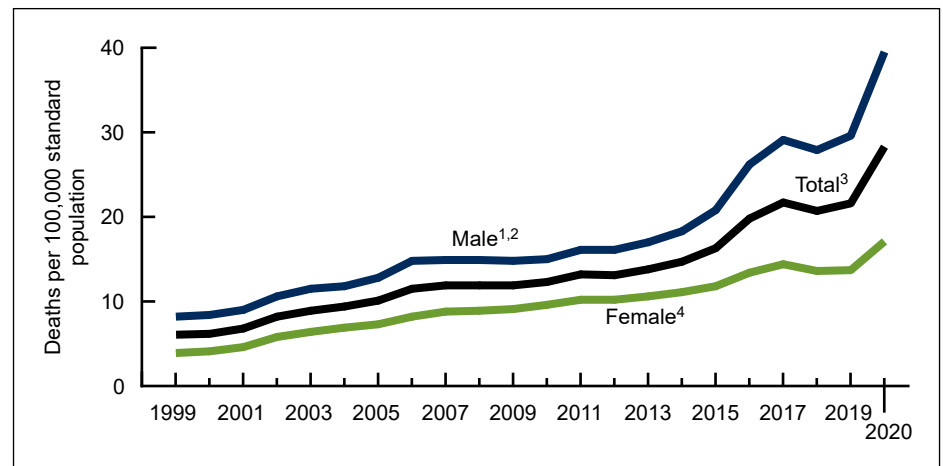
- The age-adjusted rate of drug overdose deaths increased 31% from 2019 (21.6 per 100,000 standard population) to 2020 (28.3).
- Among adults aged 35–44, the age group with the highest rates, drug overdose deaths increased 33% from 2019 (40.5) to 2020 (53.9).
- Rates increased from 2019 to 2020 for all race and Hispanic-origin groups.
- The rate of drug overdose deaths involving synthetic opioids other than methadone (such as fentanyl) increased 56%, from 11.4 in 2019 to 17.8 in 2020.
- From 2019 to 2020, the rate of drug overdose deaths involving cocaine increased 22%, from 4.9 to 6.0, and the rate of drug overdose deaths involving psychostimulants with abuse potential (such as methamphetamine) increased 50%, from 5.0 to 7.5.

Deaths from drug overdose continue to contribute to overall mortality and the lowering of life expectancy in the United States (1–4). This report uses the most recent data from the National Vital Statistics System (NVSS) to update statistics on deaths from drug overdose in the United States, showing rates by demographic group and by specific types of drugs involved (such as opioids or stimulants), with a focus on changes from 2019 to 2020.

In 2020, the age-adjusted rate of drug overdose deaths in the United States was 31% higher than the rate in 2019.

- In 2020, 91,799 drug overdose deaths occurred in the United States for an age-adjusted rate of 28.3 per 100,000 standard population (Figure 1). The rate in 2020 (28.3) was 31% higher than the rate in 2019 (21.6).

Figure 1. Age-adjusted drug overdose death rates, by sex: United States, 1999–2020



¹Rates for males were significantly higher than for females for all years, $p < 0.05$.

²Significant increasing trend from 1999 to 2006, stable trend from 2006 to 2012, and increasing trend from 2012 through 2020, $p < 0.05$.

³Significant increasing trend from 1999 to 2006, stable trend from 2006 to 2013, and increasing trend from 2013 through 2020, $p < 0.05$.

⁴Significant increasing trend from 1999 through 2020, with different rates of change over time, $p < 0.05$.

NOTES: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision (ICD-10)* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. The number of drug overdose deaths in 2020 was 91,799. Access data table for Figure 1 at: <https://www.cdc.gov/nchs/data/databriefs/db428-tables.pdf#1>.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.



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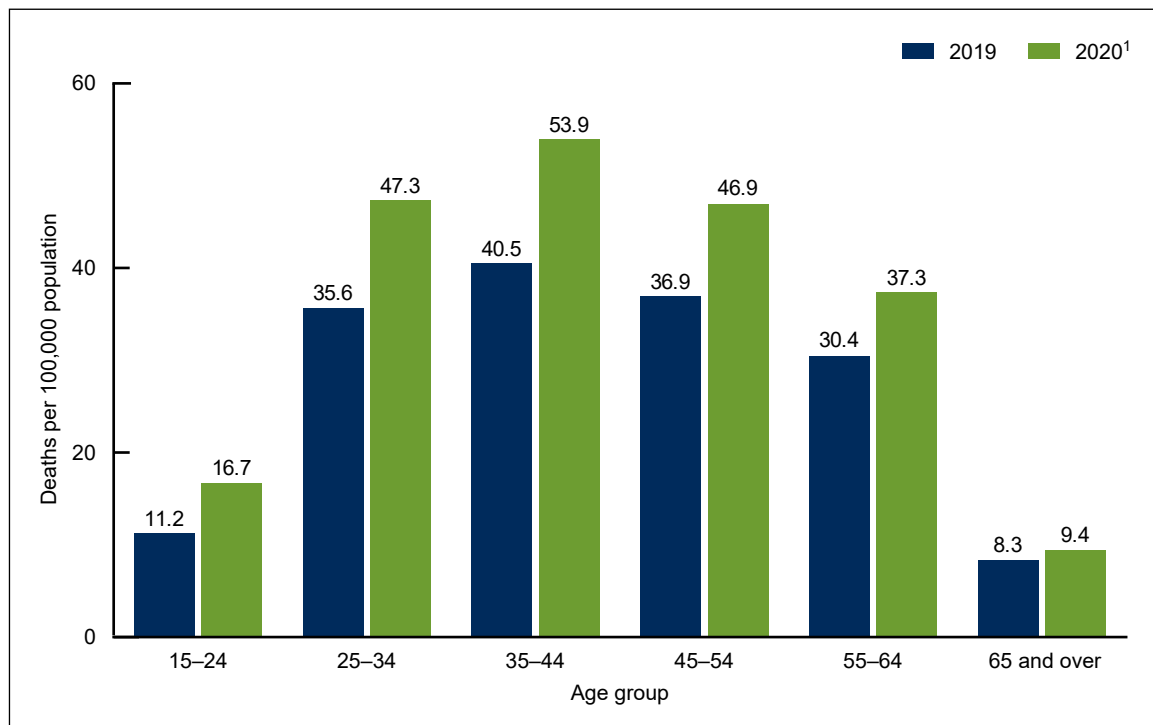


- Overall, the age-adjusted rate of drug overdose deaths increased from 1999 to 2006, remained stable from 2006 to 2013, and generally increased from 2013 through 2020, except for a change in pattern between 2017 and 2019. The rate in 2018 (20.7) was significantly lower than the rate in 2017 (21.7), while the rate in 2019 (21.6) was significantly higher than the rate in 2018 and similar to the rate in 2017.
- From 2019 to 2020, the age-adjusted rate of drug overdose deaths for males increased from 29.6 to 39.5 and the rate for females increased from 13.7 to 17.1.
- For each year from 1999 through 2020, the rate for males was higher than for females.

Drug overdose death rates were higher in 2020 than in 2019 for all groups aged 15 and over.

- Among people aged 15 and over, the rate of drug overdose deaths increased from 2019 to 2020 for all groups (Figure 2).
- In both 2019 and 2020, rates were highest for people aged 35–44 (40.5 and 53.9 per 100,000, respectively) and lowest for people aged 65 and over (8.3 and 9.4).
- Rates increased 33% among people aged 35–44 (from 40.5 to 53.9) and 25–34 (from 35.6 to 47.3), and 27% among people aged 45–54 (from 36.9 to 46.9) between 2019 and 2020. Although people aged 15–24 experienced the largest percentage increase in drug overdose

Figure 2. Drug overdose death rates among those aged 15 and over, by selected age group: United States, 2019 and 2020



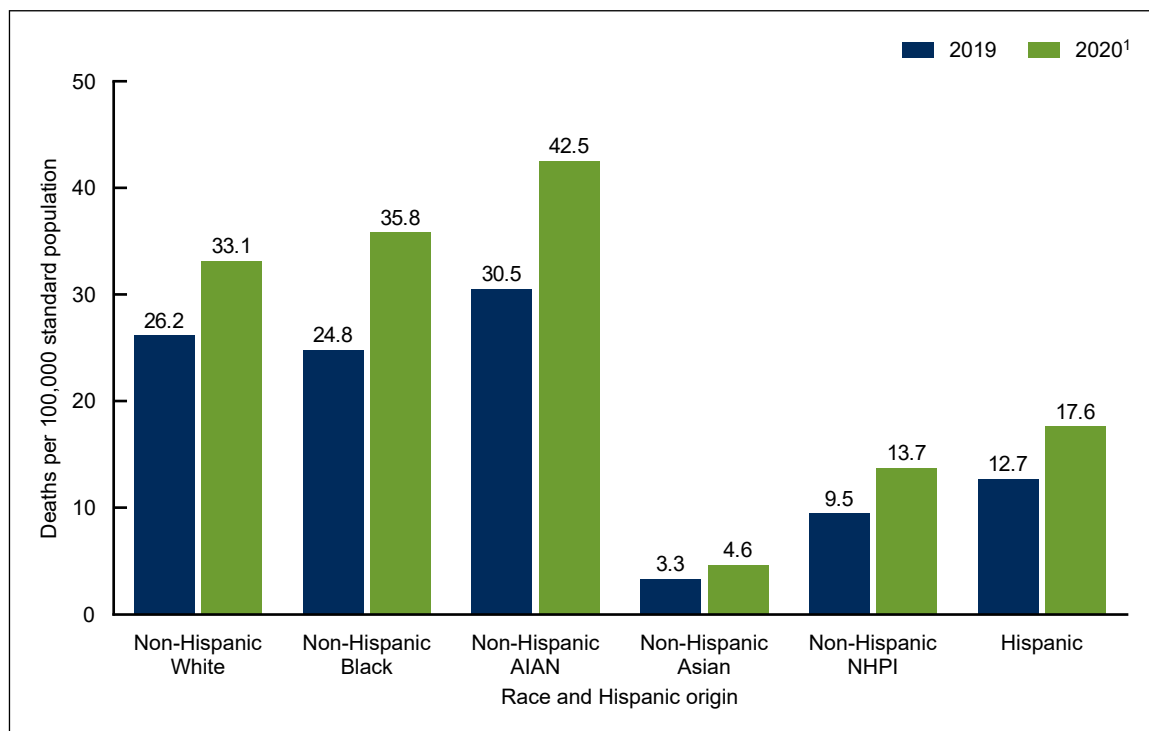
¹Rates in 2020 were significantly higher than in 2019 for all age groups, $p < 0.05$.
 NOTES: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision (ICD–10)* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Access data table for Figure 2 at: <https://www.cdc.gov/nchs/data/databriefs/db428-tables.pdf#2>.
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

death rates between 2019 and 2020 (49%), they had the second lowest rates in 2019 (11.2) and 2020 (16.7).

Drug overdose death rates were higher in 2020 than in 2019 for all race and Hispanic-origin groups.

- From 2019 to 2020, the rate of drug overdose deaths increased for all race and Hispanic-origin groups (Figure 3).
- In both 2019 and 2020, rates were highest for non-Hispanic American Indian or Alaska Native (AIAN) people (30.5 and 42.5 per 100,000, respectively) and lowest for non-Hispanic Asian people (3.3 and 4.6).
- Among all race and Hispanic-origin groups, the largest percentage increases (44%) in drug overdose death rates from 2019 to 2020 were seen in non-Hispanic Black (from 24.8 to 35.8) and non-Hispanic Native Hawaiian or Other Pacific Islander (NHOPI) (from 9.5 to 13.7) people.

Figure 3. Age-adjusted drug overdose death rates, by race and Hispanic origin: United states, 2019 and 2020

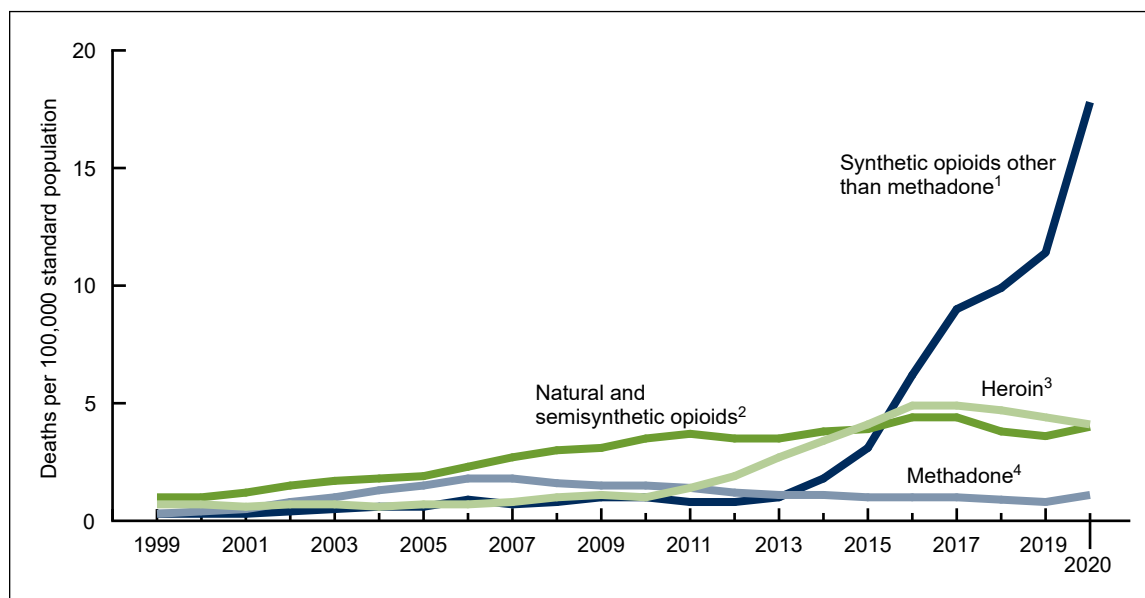


¹Rates in 2020 were significantly higher than in 2019 for all race and Hispanic-origin groups, $p < 0.05$.
 NOTES: AIAN is American Indian or Alaska Native. NHPI is Native Hawaiian or Other Pacific Islander. Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision (ICD-10)* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Access data table for Figure 3 at: <https://www.cdc.gov/nchs/data/databriefs/db428-tables.pdf#3>.
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Since 2016, rates of drug overdose deaths involving opioids have been highest for deaths involving synthetic opioids other than methadone.

- The age-adjusted rate of drug overdose deaths involving synthetic opioids other than methadone, which include such drugs as fentanyl, fentanyl analogs, and tramadol, increased from 1999 through 2020, with different rates of change over time (Figure 4). From 2019 to 2020, the rate increased 56%, from 11.4 to 17.8 per 100,000.
- The age-adjusted rate of drug overdose deaths involving heroin was stable from 1999 to 2005, increased from 2005 to 2016, and decreased from 2016 through 2020. The rate in 2020 (4.1) was lower than in 2019 (4.4).
- The age-adjusted rate of drug overdose deaths involving natural and semisynthetic opioids, which include such drugs as oxycodone and hydrocodone, increased from 1999 to 2010 but did not change significantly from 2010 through 2020. Compared with 2017 (4.4), rates decreased in 2018 (3.8) and 2019 (3.6) but increased in 2020 (4.0).
- The rate of drug overdose deaths involving methadone increased from 0.3 in 1999 to 1.8 in 2006 and 2007, decreased through 2017 (1.0), and increased in 2020 (1.1).

Figure 4. Age-adjusted rates of drug overdose deaths involving opioids, by type of opioid: United States, 1999–2020



¹Significant increasing trend from 1999 through 2020, with different rates of change over time, $p < 0.05$.

²Significant increasing trend from 1999 to 2010, and stable trend from 2010 through 2020, $p < 0.05$.

³Significant increasing trend from 2005 to 2016, with different rates of change over time, and significant decreasing trend from 2016 through 2020, $p < 0.05$.

⁴Significant increasing trend from 1999 to 2006, with different rates of change over time, significant decreasing trend from 2006 through 2017, and stable trend from 2017 through 2020, $p < 0.05$.

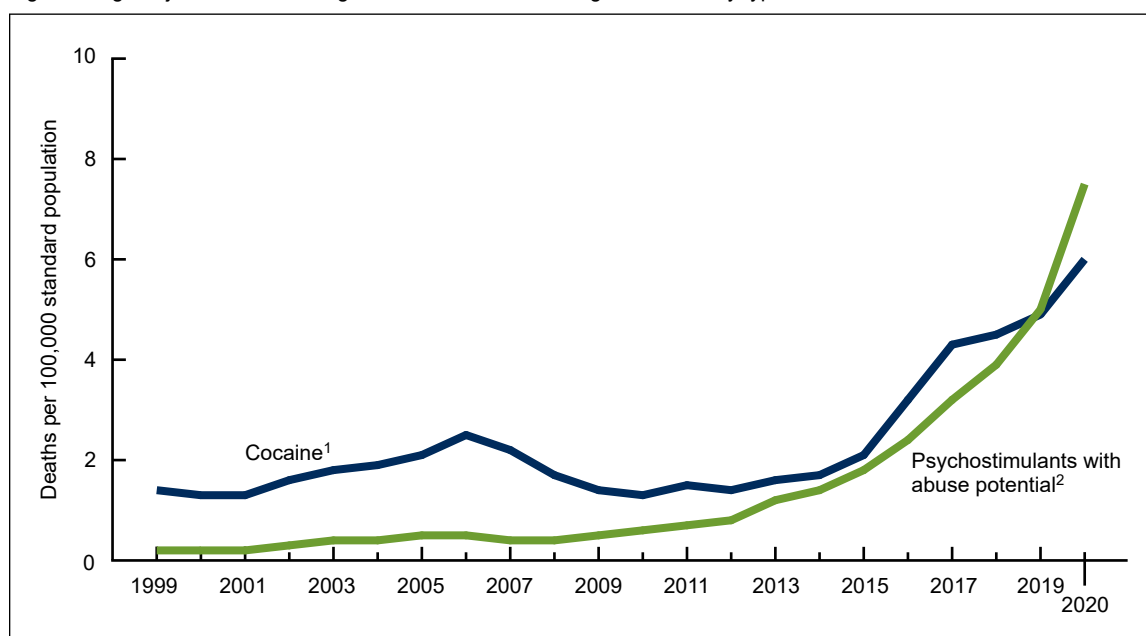
NOTES: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision (ICD-10)* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Drug overdose deaths involving selected drug categories are identified by specific multiple-cause-of-death codes: any opioid, T40.0–T40.4 and T40.6; heroin, T40.1; natural and semisynthetic opioids, T40.2; methadone, T40.3; and synthetic opioids other than methadone, T40.4. Deaths involving more than one opioid category (such as a death involving both methadone and a natural or semisynthetic opioid) are counted in both categories. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75%–79% from 1999 through 2013 and increasing from 81% in 2014 to 94% in 2020. Access data table for Figure 4 at: <https://www.cdc.gov/nchs/data/databriefs/db428-tables.pdf#4>.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

The rise in the age-adjusted rates of drug overdose deaths involving cocaine and psychostimulants with abuse potential that began in 2012 continued through 2020.

- The age-adjusted rate of drug overdose deaths involving cocaine increased from 1.4 per 100,000 in 1999 to 2.5 in 2006, decreased to 1.4 in 2012, and increased with different rates of change over time to 6.0 in 2020 (Figure 5). The rate in 2020 (6.0) was 22% higher than the rate in 2019 (4.9).
- The age-adjusted rate of drug overdose deaths involving psychostimulants with abuse potential, which include such drugs as methamphetamine, amphetamine, and methylphenidate, increased from 0.2 in 1999 to 0.4 in 2004, remained fairly stable through 2008, and increased from 2008 through 2020 (7.5), with different rates of change over time. The rate in 2020 was 50% higher than the rate in 2019 (5.0).

Figure 5. Age-adjusted rates of drug overdose deaths involving stimulants, by type of stimulant: United States, 1999–2020



¹Significant increasing trend from 1999 to 2006, decreasing trend from 2006 to 2012, and increasing trend from 2012 through 2020, with different rates of change over time, $p < 0.05$.

²Significant increasing trend from 1999 to 2004, stable trend from 2004 to 2008, and increasing trend from 2008 through 2020, with different rates of change over time, $p < 0.05$.

NOTES: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision (ICD-10)* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Drug overdose deaths involving selected drug categories are identified by specific multiple-cause-of-death codes: cocaine, T40.5; and psychostimulants with abuse potential, T43.6. Deaths may involve more than one drug. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75%–79% from 1999 through 2013 and increasing from 81% in 2014 to 94% in 2020. Access data table for Figure 5 at: <https://www.cdc.gov/nchs/data/databriefs/db428-tables.pdf#5>.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Summary

From 2019 to 2020, the rate of drug overdose deaths increased for all sex, age, and race and Hispanic-origin groups. Overall, the age-adjusted rate increased 31.0%, from 21.6 per 100,000 in 2019 to 28.3 in 2020. From 2019 to 2020, the rate for males increased from 29.6 to 39.5, and the rate for females increased from 13.7 to 17.1. In both 2019 and 2020, adults aged 35–44 had the highest age-adjusted rate among people aged 15 and over. Although the greatest percentage

increase in rates from 2019 to 2020 occurred among young people aged 15–24, rates also increased approximately 33% for adults aged 25–34 and 35–44. In both 2019 and 2020, rates were highest for non-Hispanic AIAN people. However, the greatest percentage increase in rates from 2019 to 2020 occurred among non-Hispanic Black and non-Hispanic NHOPI people.

The rate of drug overdose deaths involving different types of opioids and stimulants also increased from 2019 to 2020. The greatest percentage increases in rates occurred for drug overdose deaths involving synthetic opioids other than methadone (from 11.4 to 17.8) and psychostimulants with abuse potential (from 5.0 to 7.5). Increases were also seen in rates of drug overdose deaths involving natural and semisynthetic opioids, methadone, and cocaine. Of the drugs examined, only drug overdose deaths involving heroin had a lower rate in 2020 (4.1) than in 2019 (4.4).

Definitions

Drug poisoning (overdose) deaths: Includes deaths resulting from unintentional or intentional overdose of a drug, being given the wrong drug, taking a drug in error, or taking a drug inadvertently.

Natural and semisynthetic opioids: Includes such drugs as morphine, codeine, hydrocodone, and oxycodone.

Synthetic opioids other than methadone: Includes such drugs as fentanyl, fentanyl analogs, and tramadol.

Psychostimulants with abuse potential: Includes such drugs as methamphetamine, amphetamine, and methylphenidate.

Data source and methods

Estimates are based on the NVSS multiple-cause-of-death mortality files (5). Drug poisoning (overdose) deaths were defined as having an *International Classification of Diseases, 10th Revision* (ICD–10) underlying cause-of-death code of X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), or Y10–Y14 (undetermined intent). Of the drug overdose deaths in 2020, 91.0% were unintentional, 4.7% were suicides, 4.1% were of undetermined intent, and less than 1% were homicides. The type of drug(s) involved are indicated by ICD–10 multiple-cause-of-death codes: heroin, T40.1; natural and semisynthetic opioids, T40.2; methadone, T40.3; synthetic opioids other than methadone, T40.4; cocaine, T40.5; and psychostimulants with abuse potential, T43.6.

Race and Hispanic origin were categorized based on the Office of Management and Budget 1997 standards for federal statistical and administrative reporting (6). All of the race categories are “single race,” meaning that only one race was reported on the death certificate. Data shown for the Hispanic population include people of any race. Death rates for non-Hispanic Asian, non-Hispanic AIAN, and Hispanic people may be affected by misclassification of race and Hispanic origin on death certificates. This misclassification could result in underreporting of deaths for these groups by about 3% for non-Hispanic Asian and Hispanic people, and by an estimated 33% for non-Hispanic AIAN people (7).

Age-adjusted death rates were calculated using the direct method and adjusted to the 2000 standard population (8). Any differences between rates presented in this report are statistically significant (p values less than 0.05.) Trends in age-adjusted death rates were evaluated using the Joinpoint Regression Program (Version 4.8.0.1) (9). Joinpoint software fitted weighted least-squares regression models to the rates on the log transform scale. Analyses were set to allow a maximum of three joinpoints across the period, a minimum of three observed time points from any given joinpoint to either end of the data, and a minimum of four observed time points between any two joinpoints. The permutation tests for model (number of joinpoints) significance were set at an overall alpha level of 0.05 (10). Pairwise comparisons of rates (for example, age-adjusted rates for males compared with females and year-to-year comparisons) were conducted using a z test with an alpha level of 0.05 (8).

Several factors related to death investigation and reporting may affect measurement of death rates involving specific drugs. At autopsy, the substances tested for and the circumstances under which the toxicology tests are performed vary by jurisdiction. This variability is more likely to affect substance-specific death rates than the overall drug overdose death rate. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75%–79% from 1999 through 2013 and increasing from 81% in 2014 to 94% in 2020. Additionally, drug overdose deaths may involve multiple drugs; therefore, a death might be included in more than one category when describing the rate of drug overdose deaths involving specific drugs. For example, a death that involved both fentanyl and cocaine would be included in both the rate of drug overdose deaths involving synthetic opioids other than methadone and the rate of drug overdose deaths involving cocaine.

About the authors

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Keywords: opioid • fentanyl • heroin • cocaine • methamphetamine • National Vital Statistics System

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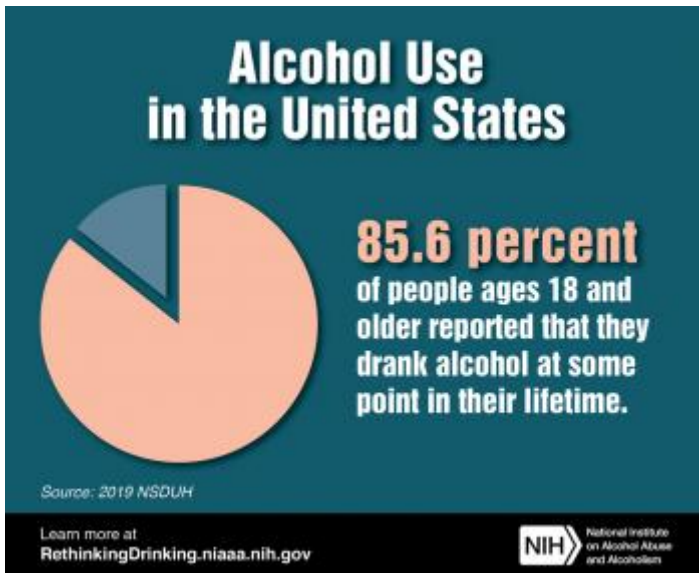
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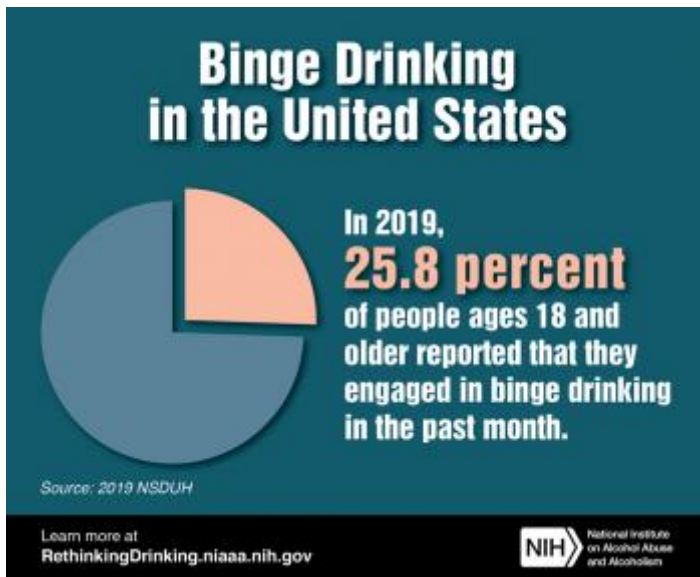


Alcohol Facts and Statistics

Alcohol Use in the United States

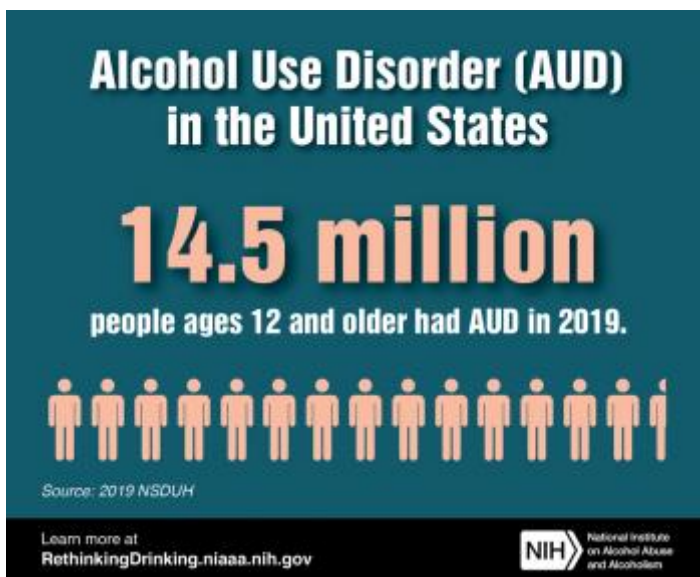


- **Prevalence of Drinking:** According to the 2019 National Survey on Drug Use and Health (NSDUH), 85.6 percent of people ages 18 and older reported that they drank alcohol at some point in their lifetime,¹ 69.5 percent reported that they drank in the past year,² and 54.9 percent (59.1 percent of men in this age group and 51.0 percent of women in this age group³) reported that they drank in the past month.³
- **Prevalence of Binge Drinking and Heavy Alcohol Use:** In 2019, 25.8 percent of people ages 18 and older (29.7 percent of men in this age group and 22.2 percent of women in this age group⁴) reported that they engaged in binge drinking in the past month,⁴ and 6.3 percent (8.3 percent of men in this age group and 4.5 percent of women in this age group⁵) reported that they engaged in heavy alcohol use in the past month.⁵ (See glossary for definitions of binge drinking and heavy alcohol use.)



- **Emerging Trend—High-Intensity Drinking:** High-intensity drinking is defined as consuming alcohol at levels that are two or more times the gender-specific binge drinking thresholds (See glossary for additional details about the definition of high-intensity drinking). Compared with people who did not binge drink, people who drank alcohol at twice the gender-specific binge drinking thresholds were 70 times more likely to have an alcohol-related emergency department (ED) visit, and those who consumed alcohol at 3 times the gender-specific binge thresholds were 93 times more likely to have an alcohol-related ED visit.⁶

Alcohol Use Disorder (AUD) in the United States



- **People Ages 12 and Older:** According to the 2019 NSDUH, 14.5 million (nearly 15 million) people ages 12 and older⁷ (5.3 percent of this age group⁸) had AUD. This

number includes 9.0 million men⁷ (6.8 percent of men in this age group⁸) and 5.5 million women⁷ (3.9 percent of women in this age group⁸)

- **Youth Ages 12 to 17:** According to the 2019 NSDUH, an estimated 414,000 adolescents ages 12 to 17⁷ (1.7 percent of this age group⁸) had AUD. This number includes 163,000 males⁷ (1.3 percent of males in this age group⁸) and 251,000 females⁷ (2.1 percent of females in this age group⁸).

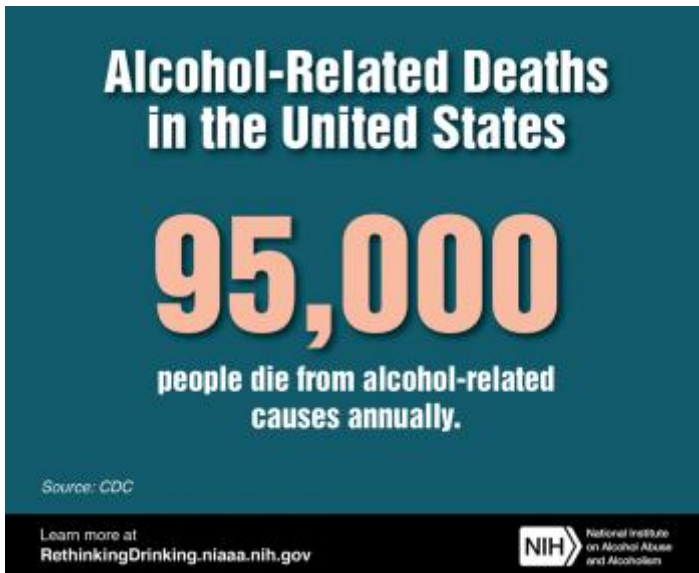
Treatment of AUD in the United States



- According to the 2019 NSDUH, about 7.2 percent of people ages 12 and older who had AUD in the past year received any treatment in the past year. This includes about 6.9 percent of males and 7.8 percent of females with past-year AUD in this age group.⁹ According to the 2019 NSDUH, about 6.4 percent of adolescents ages 12 to 17 who had AUD in the past year received any treatment in the past year. This includes about 6.4 percent of males and 6.4 percent of females with past-year AUD in this age group.⁹
- According to the 2019 NSDUH, about 7.3 percent of adults ages 18 and older who had AUD in the past year received any treatment in the past year. This includes about 6.9 percent of males and 7.9 percent of females with past-year AUD in this age group.⁹
- Less than 4 percent of people with AUD were prescribed a medication approved by the U.S. Food and Drug Administration (FDA) to treat their disorder.¹⁰

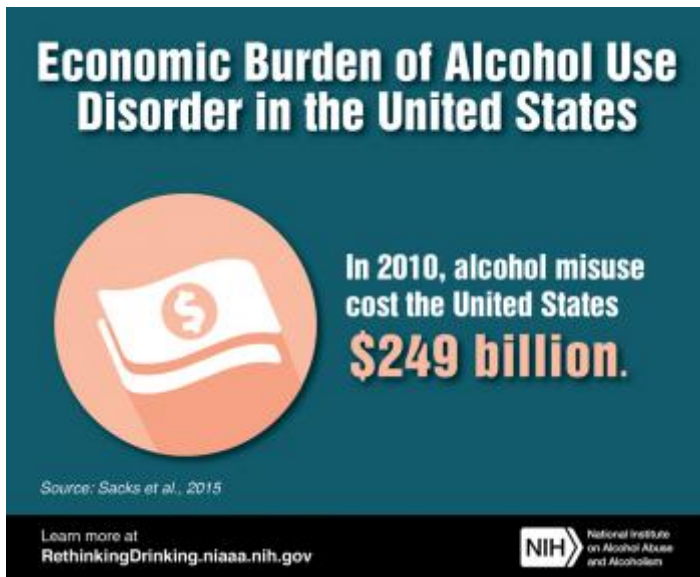
- People with AUD were more likely to seek care from a primary care physician for an alcohol-related medical problem, rather than specifically for drinking too much alcohol.^{11,12}

Alcohol-Related Emergencies and Deaths in the United States



- The rate of all alcohol-related ED visits increased 47 percent between 2006 and 2014, which translates to an average annual increase of 210,000 alcohol-related ED visits.¹³
- Alcohol contributes to about 18.5 percent of ED visits and 22.1 percent of overdose deaths related to prescription opioids.¹⁴
- An estimated 95,000 people (approximately 68,000 men and 27,000 women) die from alcohol-related causes annually,¹⁵ making alcohol the third-leading preventable cause of death in the United States. The first is tobacco, and the second is poor diet and physical inactivity.¹⁶
- Between 2011 and 2015, the leading causes of alcohol-attributable deaths due to chronic conditions in the United States were alcohol-associated liver disease, heart disease and stroke, unspecified liver cirrhosis, upper aerodigestive tract cancers, liver cancer, supraventricular cardiac dysrhythmia, AUD, breast cancer, and hypertension.¹⁵
- In 2019, alcohol-impaired driving fatalities accounted for 10,142 deaths (28.0 percent of overall driving fatalities).¹⁷

Economic Burden in the United States



- In 2010, alcohol misuse cost the United States \$249.0 billion.¹⁸
- Three-quarters of the total cost of alcohol misuse is related to binge drinking.¹⁸

Global Burden

- In 2016, 3 million deaths, or 5.3 percent of all global deaths (7.7 percent for men and 2.6 percent for women), were attributable to alcohol consumption.¹⁹
- Globally, alcohol misuse was the seventh-leading risk factor for premature death and disability in 2016.²⁰
- According to a 2014 World Health Organization (WHO) report, among people ages 15 to 49, alcohol misuse was the first-leading risk factor for premature death and disability.²⁰
- In 2016, approximately 14 percent of total deaths among people ages 20 to 39 are alcohol attributable.²¹
- In 2016, 5.3 percent of the burden of disease and injury worldwide (134 million disability-adjusted life-years [DALYs]) was attributable to alcohol consumption.¹⁹
- In 2018, WHO reported that alcohol contributed to more than 200 diseases and injury-related health conditions, ranging from liver diseases, road injuries, and

violence, to cancers, cardiovascular diseases, suicides, tuberculosis, and HIV/AIDS.²²

- In 2016, of all deaths attributable to alcohol consumption worldwide, 28.7 percent were due to injuries, 21.3 percent were due to digestive diseases (primarily cirrhosis of the liver and pancreatitis), 19 percent were due to cardiovascular diseases, 12.9 percent were due to infectious diseases (including tuberculosis, pneumonia, and HIV/AIDS), and 12.6 percent were due to cancers (most prominently those of the upper aerodigestive tract.)²¹

Consequences for Families in the United States



- Approximately 10.5 percent (7.5 million) of U.S. children ages 17 and younger live with a parent with AUD, according to a 2017 report.²³

Underage Drinking in the United States

- **Prevalence of Underage Alcohol Use**
 - **Prevalence of Drinking:** According to the 2019 NSDUH, 39.7 percent of 12- to 20-year-olds reported that they have had at least 1 drink in their lives.²⁵ About 7.0 million people ages 12 to 20²⁴ (18.5 percent of this age group²⁵) reported drinking alcohol in the past month (17.2 percent of males and 19.9 percent of females²⁵).
 - **Prevalence of Binge Drinking:** According to the 2019 NSDUH, approximately 4.2 million people ages 12 to 20²⁴ reported binge drinking in the past month.

This represents 11.1 percent of people in this age group (10.4 percent of males ages 12 to 20 and 11.8 percent of females ages 12 to 20²⁵).

- **Prevalence of Heavy Alcohol Use:** According to the 2019 NSDUH, approximately 825,000 people ages 12 to 20²⁴ reported heavy alcohol use in the past month. This represents 2.2 percent of this age group²⁵ (2.1 percent of males ages 12 to 20 and 2.3 percent of females ages 12 to 20²⁵).

- **Trend in Underage Alcohol Use**

- NSDUH findings have demonstrated a decline in underage drinking. From 2002 to 2019, the prevalence of past-30-day alcohol use decreased 41.1 percent for 16- to 17-year-olds, 54.7 percent for 14- to 15-year-olds, and 61.9 percent for 12- to 13-year-olds.²⁶

- **Consequences of Underage Alcohol Use**

- Research indicates that alcohol use during the teenage years can interfere with normal adolescent brain development and increase the risk of developing AUD. In addition, underage drinking contributes to a range of acute consequences, such as injuries, sexual assaults, alcohol overdoses, and deaths—including those from motor vehicle crashes.²⁷
- Alcohol is a factor in the deaths of thousands of people younger than age 21 in the United States each year. This includes:
 - 1,092 from motor vehicle crashes²⁸
 - 1,000 from homicides²⁹
 - 208 from alcohol overdose, falls, burns, and drowning²⁹
 - 596 from suicides²⁹

Alcohol and Young Adults Ages 18 to 22

- **Prevalence of Alcohol Use**

- **Prevalence of Drinking:** According to the 2019 NSDUH, 47.1 percent of adults ages 18 to 22 drank alcohol in the past month. Within this age group, 52.5

percent of full-time college students ages 18 to 22 and 44.0 percent of other persons of the same age drank alcohol in the past month.³⁰

- ***Prevalence of Binge Drinking:*** According to the 2019 NSDUH, 29.6 percent of adults ages 18 to 22 reported binge drinking in the past month. Within this age group, 33.0 percent of full-time college students ages 18 to 22 and 27.7 percent of other persons of the same age reported binge drinking in the past month.³⁰
- ***Prevalence of Heavy Alcohol Use:*** According to the 2019 NSDUH, 7.0 percent of adults ages 18 to 22 and 8.2 percent of full-time college students ages 18 to 22 and 6.4 percent of other persons of the same age reported heavy alcohol use in the past month.³⁰
- **Consequences of Alcohol Use**
 - Alcohol is a factor in the deaths of thousands of people ages 18 to 22 every year in the United States. The most recent NIAAA statistics estimate that this includes 1,519 college students ages 18 to 24 who die from alcohol-related unintentional injuries, including motor vehicle crashes.³¹
 - According to the 2019 NSDUH, 8.1 percent of adults ages 18 to 22 met the criteria for past-year AUD. Within this age group, 8.7 percent of full-time college students ages 18 to 22 and 7.7 percent of other persons the same age met the criteria for AUD.³²
 - Although estimating the number of alcohol-related sexual assaults is exceptionally challenging—since sexual assault is typically underreported—researchers have confirmed a long-standing finding that 1 in 5 college women experience sexual assault during their time in college.³³ A majority of sexual assaults in college involve alcohol or other substances.^{34,35} Research continues in order to better understand the relationships between alcohol and sexual assault among college students. Additional national survey data are needed to better estimate the number of alcohol-related assaults.

Alcohol and Pregnancy in the United States

- According to the 2019 NSDUH, 9.5 percent of pregnant women ages 15 to 44 in the United States used alcohol in the past month.³⁶

- The prevalence of fetal alcohol syndrome in the United States was estimated by the Institute of Medicine in 1996 to be between 0.5 and 3.0 cases per 1,000.³⁷
- An NIAAA-supported study of more than 6,000 first graders across four U.S. communities estimated that as many as 1–5 percent of first-grade children have fetal alcohol spectrum disorders (FASD).³⁸

Alcohol and the Human Body

- In 2019, of the 85,688 liver disease deaths among individuals ages 12 and older, 43.1 percent involved alcohol. Among males, 53,486 liver disease deaths occurred, and 45.6 percent involved alcohol. Among females, 32,202 liver disease deaths occurred, and 39.0 percent involved alcohol.³⁹
- Among all cirrhosis deaths in 2015, 49.5 percent were alcohol related. The proportion of alcohol-related cirrhosis deaths was highest (76.8 percent) among persons ages 25 to 34, followed by persons ages 35 to 44, at 72.7 percent.⁴⁰
- From 2010 to 2016, alcohol-related liver disease was the primary cause of almost 1 in 3 liver transplants in the United States, replacing hepatitis C virus infection as the leading cause of liver transplantation due to chronic liver disease.^{41,42}
- Research has shown that people who misuse alcohol have a greater risk of liver disease,⁴³ heart disease, depression, stroke, and stomach bleeding, as well as cancers of the oral cavity, esophagus, larynx, pharynx,^{44,45} liver, colon, and rectum.⁴⁶ These individuals may also have problems managing conditions such as diabetes, high blood pressure, pain, and sleep disorders. They may increase their likelihood of unsafe sexual behavior.
- Alcohol consumption is associated with increased risk of drowning⁴⁷ and injuries from violence,^{48,49} falls,⁴⁹ and motor vehicle crashes.^{49,50} Alcohol consumption is also associated with an increased risk of female breast cancer,^{46,51} oropharyngeal cancer,^{46,51} esophageal cancer (especially in individuals who inherit a deficiency in an enzyme involved in alcohol metabolism),^{41,46,52} and harmful medication interactions.^{53,54,55,56} Alcohol consumption has been linked to risk for FASD in the offspring of women who consume alcohol during pregnancy.⁵⁷

Alcohol-impaired driving fatality: A fatality in a crash involving a driver or motorcycle rider (operator) with a blood alcohol concentration (BAC) of 0.08 g/dL or more (*A BAC of 0.08 percent corresponds to 0.08 grams per deciliter, or 0.08 grams per 100 milliliters).

Alcohol misuse: Drinking in a manner, situation, amount, or frequency that could cause harm to users or to those around them. For individuals younger than the legal drinking age of 21, or for pregnant females, any alcohol use constitutes alcohol misuse.

Alcohol use disorder: A chronic brain disorder marked by compulsive drinking, loss of control over alcohol use, and negative emotions when not drinking. AUD can be mild, moderate, or severe. Recovery is possible regardless of severity. The DSM-IV, published by the American Psychiatric Association, described two distinct disorders—alcohol abuse and alcohol dependence—with specific criteria for each. The fifth edition, DSM-5, integrates the two DSM-IV disorders into a single disorder called AUD, with mild, moderate, and severe subclassifications.

Any treatment: Treatment received at any location, such as a hospital (inpatient), rehabilitation facility (inpatient or outpatient), mental health center, ED, private doctor's office, self-help group, or prison/jail.

Binge drinking:

- The National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines binge drinking as a pattern of drinking that brings BAC levels to 0.08 g/dL or higher. This typically occurs after a woman consumes 4 or more drinks or a man consumes 5 or more drinks—in about 2 hours.⁵⁸
- The Substance Abuse and Mental Health Services Administration (SAMHSA), which conducts the annual NSDUH, defines binge drinking as consuming 5 or more alcoholic drinks for males or 4 or more alcoholic drinks for females on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past month.⁵⁹
- The Monitoring the Future (MTF) survey defines binge drinking as having 5 or more drinks in a row in the past 2 weeks.⁶⁰

Disability-adjusted life-years: A measure of years of life lost or lived in less than full health.

Heavy alcohol use (or heavy drinking):

- NIAAA defines heavy drinking as follows:
 - For men, consuming more than 4 drinks on any day or more than 14 drinks per week
 - For women, consuming more than 3 drinks on any day or more than 7 drinks per week
- SAMHSA defines heavy alcohol use as binge drinking on 5 or more days in the past month.

High-intensity drinking:

- Consumption of 2 or more times the gender-specific thresholds for binge drinking, which is to say 10 or more standard drinks (or alcoholic drink-equivalents) for males and 8 or more for females. High-intensity drinking is consistent with drinking at binge levels II and III. The levels correspond to one to two times (I), two to three times (II), and three or more times (III) the standard gender-specific binge thresholds.⁶
- The MTF survey defines high-intensity drinking as consuming 10 or more or 15 or more drinks in a row in the past two weeks.⁶⁰

Patterns of drinking associated with AUD: Binge drinking and heavy alcohol use can increase an individual's risk of AUD. According to the *Dietary Guidelines for Americans, 2020–2025*, adults of legal drinking age can choose not to drink or to drink in moderation by limiting intake to 2 drinks or less in a day for men and 1 drink or less in a day for women, when alcohol is consumed. Drinking less is better for health than drinking more. [Some individuals should avoid alcohol completely.](#)

Underage drinking: Alcohol use by anyone under the age of 21. In the United States, the legal drinking age is 21.

For more information, please visit:

<https://www.niaaa.nih.gov>

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<https://www.samhsa.gov/data/sites/default/files/reports/rpt29394/NSDUHD....>

Accessed December 8, 2020.

⁹ Population prevalence estimates (%) are weighted by the person-level analysis weight and derived from the data set, defining “any treatment” as treatment or counseling designed to help reduce or stop alcohol use, including detoxification and any other treatment for medical problems associated with alcohol use, as well as defining AUD as alcohol abuse or alcohol dependence according to the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). SAMHSA, Center for Behavioral Health Statistics and Quality. 2019 National Survey on Drug Use and Health (NSDUH-2019-DS0001). Public data set.

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Alcohol Use in Past Month among Females Aged 15 to 44, by Pregnancy Status: Percentages, 2018 and 2019.

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Provisional Numbers and Rates of Suicide by Month and Demographic Characteristics: United States, 2020

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Abstract

Objectives—This report presents provisional numbers of deaths due to suicide by demographic characteristics (sex and race and Hispanic origin) and by month for 2020 and compares them with final numbers for 2019. Both age-adjusted and age-specific suicide rates are presented by sex and race and Hispanic origin and compared with final 2019 rates.

Methods—Data are based on 99% of all 2020 death records received and processed by the National Center for Health Statistics as of May 19, 2021. Comparisons are made with final 2019 data. Deaths due to suicide were identified using *International Classification of Diseases, 10th Revision* underlying cause-of-death codes U03, X60–X84, and Y87.0.

Results—The provisional number of suicides in 2020 (45,855) was 3% lower than in 2019 (47,511). The provisional age-adjusted suicide rate was also 3% lower in 2020 (13.5 per 100,000) than in 2019 (13.9). The monthly number of suicides was lower in 2020 than in 2019 in March through October and December. The largest percentage difference between monthly numbers for 2019 and 2020 occurred in April, where the provisional number in 2020 (3,468) was 14% lower than in 2019 (4,029). The age-adjusted suicide rate was 2% lower in 2020 than in 2019 for males (21.9 compared with 22.4) and 8% lower for females (5.5 compared with 6.0). Females in all race and Hispanic-origin groups experienced declines in suicide rates between 2019 and 2020, although only the 10% decline

for non-Hispanic white females was significant. Rates declined for non-Hispanic white and non-Hispanic Asian males but increased for non-Hispanic black, non-Hispanic American Indian or Alaska Native, and Hispanic males.

Keywords: cause of death • intentional self-harm • COVID-19 • National Vital Statistics System

Introduction

Suicide is a complex, multifaceted public health issue with societal, environmental, interpersonal, biological, and psychological components (1). In the United States, suicide increased 35% from 1999 to 2018 before declining by 2% in 2019 (2). General increases during this period were experienced for both males and females, for all age groups between 10 and 74, and for persons in nearly all race and Hispanic-origin groups (2,3). The COVID-19 pandemic increased many of the risk factors associated with suicidal behavior (adverse mental health conditions, substance misuse, and job or financial stress) (4,5), with young adults and black and Hispanic persons affected more than other demographic groups. Thus, there was concern that deaths due to suicide in 2020 might increase as well. This report presents provisional numbers and rates of suicide for 2020 and compares them with 2019 final numbers and rates by month and for demographic groups.

Data Source and Methods

Data and methods

Data for 2020 are based on death certificate data received and processed by the National Center for Health Statistics (NCHS) as of May 19, 2021. Populations for computing the rates are based on July 1, 2020 postcensal population estimates based on the 2010 decennial census. As most suicides require death investigation, provisional suicide rates are typically computed using death data after a 6-month lag following the date of death, longer than the 3-month lag used to compute rates for most other causes of death (6). For this report, 2020 data for all months had at least a 6-month lag, with the exception of December, which had approximately a 5.5-month lag. In particular, the method of the suicide plays a role in the timing of the reporting, with those involving drug poisoning typically lagging behind other methods (7). As suicides involving drug poisoning comprise a larger proportion of female than male suicides, the completeness of provisional suicide counts for females typically lags behind that of males. Completeness and timeliness of provisional death data can vary by other factors as well, such as month of the year and age of the decedent (8). Mortality data used in this report include more than 99% of the expected deaths that occurred in 2020. However, some death records that have been received with a pending cause of death (0.2% of all death records), may eventually be classified as suicides. Suicides were identified using *International Classification of Diseases*,

10th Revision (9) codes U03, X60–X84, and Y87.0.

Rates and significance testing

Age-adjusted death rates are calculated as the number of deaths per 100,000 U.S. 2000 standard population and include all ages. Age-specific suicide rates begin with the 10–14 age group as it is difficult to determine suicidal intent in children under age 10 and, thus, very few deaths are classified as suicides for persons under age 10 (12 in 2019 and 21 in 2020). Pairwise comparisons between rates for 2020 and 2019 use the *z* test statistic at the 0.05 level of significance. Comparisons made in the text among rates, unless otherwise specified, are statistically significant. See the Technical Notes for more information.

Results

Suicides by month

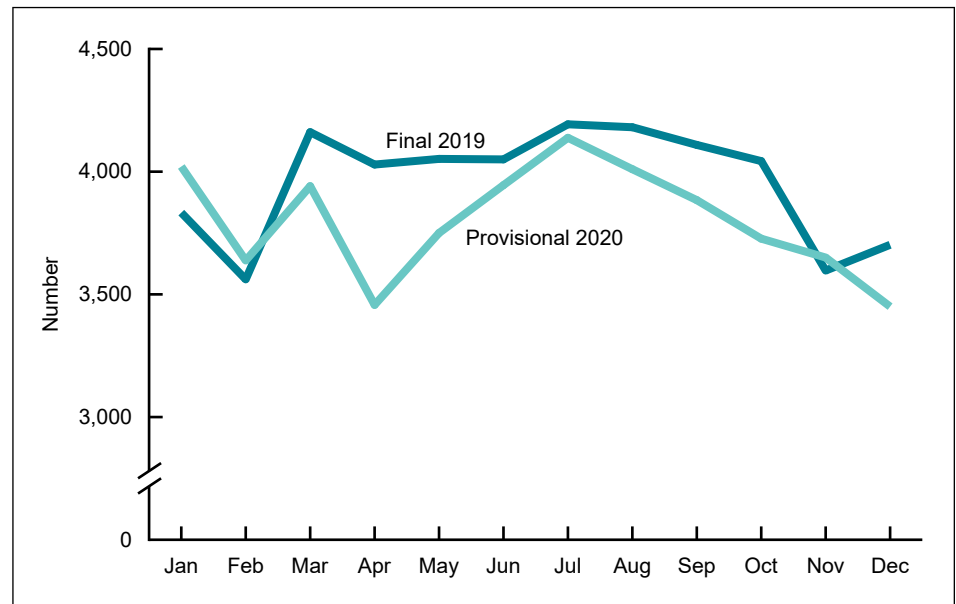
Total

Provisional suicide counts in 2020 numbered 45,855, which was 3% less than in 2019 (47,511) (Table 1). By month, the provisional number of suicides was higher in 2020 than in 2019 in January, February, and November, and lower for all other months (Figure 1). The largest percentage difference in monthly numbers occurred in April where the number in 2020 (3,468) was 14% lower than in 2019 (4,029). July had the highest number of suicides in 2020 (4,156). By quarter, the number of suicides in Quarter 2 (April–June) 2020 (11,193) was 8% lower than in 2019 (12,131), the largest percentage difference by quarter between years.

By sex

The number of suicides for males in 2020 (36,508) was 2% lower than in 2019 (37,256) (Table 1). By month, the number for males was higher in 2020 than in 2019 in January and February and lower from March through June and in September, October, and December. The largest percentage difference in suicides

Figure 1. Number of suicides, by month: United States, final 2019 and provisional 2020



NOTE: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0. SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

occurred in April, with 12% fewer suicides in 2020 (2,768) than in 2019 (3,140). April had the lowest monthly suicide number for males in 2020 (2,768), whereas July had the highest (3,354).

The decline for females in the number of suicides from 2019 to 2020 was 9%, from 10,255 to 9,347 (Table 1). The number of suicides per month among females was lower in 2020 compared with 2019 for all months except November. The largest percentage difference in suicide numbers was in April, with the number of suicides 21% lower in 2020 (700) than in 2019 (889). March, May, August, and December had percentage declines of at least 14%. December had the lowest number of suicides for females in 2020 (695), whereas October had the most (838).

Age-adjusted rates by demographic characteristics

The age-adjusted suicide rate in 2020 (13.5 per 100,000 standard population) was 3% lower than in 2019 (13.9) (Table 2, Figure 2). Although rates for persons aged 10–14, 15–24, and 25–34 increased between 2019 and 2020, only the 5% increase for those aged 25–34 (from 17.5 to 18.3) was significant.

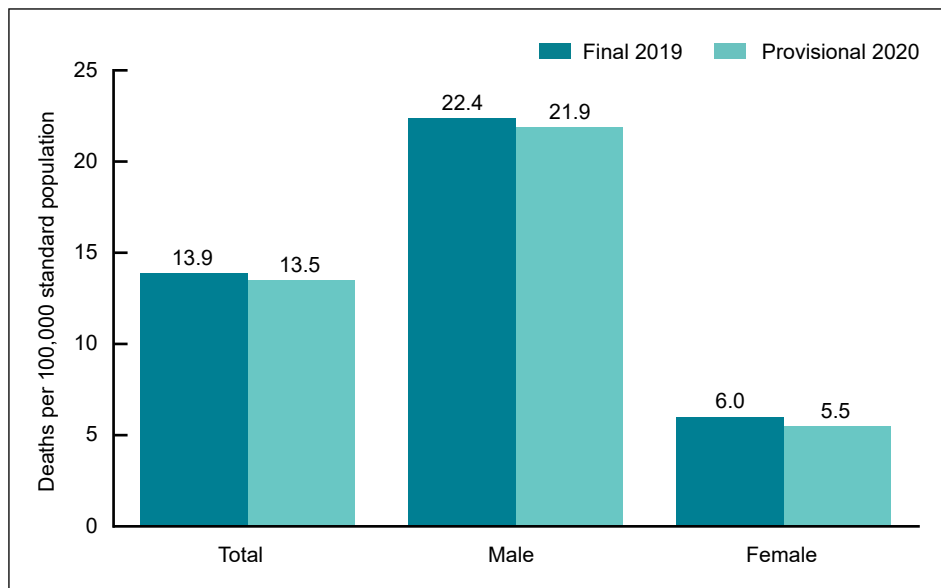
Persons aged 35–44, 45–54, 55–64, and 65–74 had significant declines, with the largest percentage declines for those aged 45–54 (from 19.6 to 17.9) and 55–64 (from 19.4 to 16.8). The 1% decline for persons aged 75 and over was not significant.

By sex and age

For males, the age-adjusted suicide rate dropped 2%, from 22.4 per 100,000 in 2019 to 21.9 in 2020. Rates for males in age groups 10–14 and 25–34 increased by 13% and 5%, respectively, although only the 5% increase for those aged 25–34 (from 28.0 to 29.3) was significant. Rates for males aged 45–54, 55–64, and 65–74 declined (Figure 3). Although essentially unchanged from 2019, the rate for males aged 75 and over was the highest of all age groups at 40.2 in 2020.

For females, the age-adjusted suicide rate declined 8% between 2019 and 2020, from 6.0 to 5.5. Although the rate for females aged 15–24 was 4% higher in 2020 (5.7) than in 2019 (5.5), this did not reach statistical significance. No significant increases were seen between 2019 and 2020 for any age group. Females aged 35–44, 45–54, 55–64, and 75 and over all had declines in rates of at least 10% from 2019 to 2020 (Figure 3).

Figure 2. Age-adjusted suicide rates, by sex: United States, final 2019 and provisional 2020



NOTES: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0. Difference in rates between 2019 and 2020 for all groups was significant ($p < 0.05$).

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

The 19% declines for females aged 45–54 (from 10.4 to 8.4) and 55–64 (from 8.9 to 7.2) were the greatest of any female age groups. The suicide rate for females aged 45–54 was the highest of all age groups in both 2019 and 2020.

By sex and race and ethnicity

In 2020, the highest suicide rates were for non-Hispanic American Indian or Alaska Native (AIAN) persons (23.6 per 100,000) followed by non-Hispanic white persons (16.8) (Table 2). The lowest rate was for non-Hispanic Asian persons (6.4). Rates for non-Hispanic black and Hispanic persons were similar (7.7 and 7.5, respectively). These same general patterns by race and ethnicity were present for males. For females, the pattern in suicide rates was similar to males, except that non-Hispanic black and Hispanic females had the lowest rates (2.8 each). Numbers of suicides for non-Hispanic Asian, non-Hispanic AIAN, and Hispanic persons may be affected by misclassification of race and Hispanic origin on death certificates; see Technical Notes.

The age-adjusted suicide rate for non-Hispanic white males declined 3% between 2019 (28.0) and 2020 (27.1)

(Figure 4). In contrast, the age-adjusted suicide rate for Hispanic males increased 5%, from 11.6 in 2019 to 12.2 in 2020. Although the age-adjusted rate for non-Hispanic Asian men was lower in 2020 than in 2019, this change was not significant. Similarly, the increase in the rates for non-Hispanic black and non-Hispanic AIAN men were not significant.

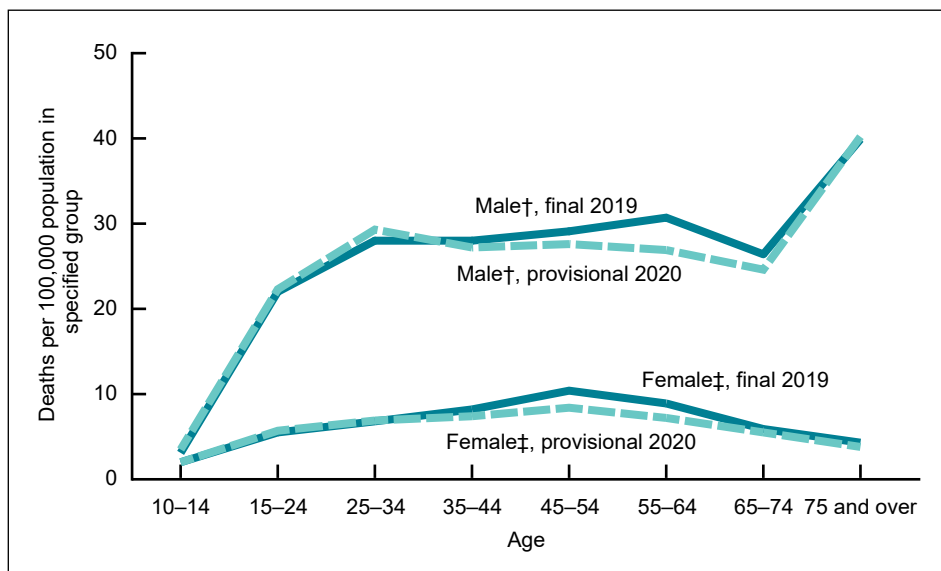
For females, the age-adjusted suicide rate for non-Hispanic white females declined 10% between 2019 (7.7) and 2020 (6.9), the largest decline for females (Figure 5). The rate for Hispanic females declined 7% (from 3.0 to 2.8) but was not significant. Age-adjusted rates were generally lower in 2020 than in 2019 for non-Hispanic black, non-Hispanic Asian, and non-Hispanic AIAN females, but the changes were not significant.

See Table in Technical Notes for age-specific suicide rates by race and ethnicity and sex.

Discussion

Provisional data for 2020 show that despite the increase in some risk factors associated with suicidal behavior during 2020 (4,5), the number of suicides in the United States appeared to decline in 2020 by 3% compared with 2019. Numbers of annual suicides had increased steadily from 2003 through 2018, followed by a 2% decline between 2018 and 2019 (2,10). The provisional 2020 number (45,855) is 5% below the 2018 peak (48,344) (2). These findings are consistent with a 21-country study (including data from five U.S. states) that found no increase in suicides during

Figure 3. Suicide rates, by age and sex: United States, final 2019 and provisional 2020



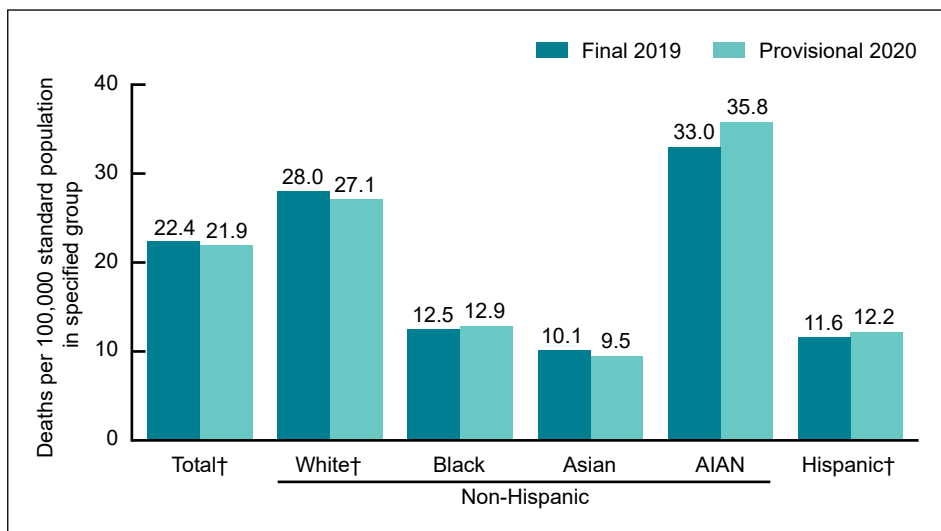
† Difference in rates between 2019 and 2020 was significant for age groups 25–34, 45–54, 55–64, and 65–74 ($p < 0.05$).

‡ Difference in rates between 2019 and 2020 was significant for age groups 35–44, 45–54, 55–64, and 75 and over ($p < 0.05$).

NOTE: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Figure 4. Age-adjusted suicide rates for males, by race and ethnicity: United States, final 2019 and provisional 2020



† Difference in rates between 2019 and 2020 was statistically significant ($p < 0.05$).
 NOTES: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0. AIAN is American Indian or Alaska Native. Death rates for non-Hispanic AIAN and Hispanic persons may be underestimated and should be interpreted with caution; see Technical Notes.
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

the first part of 2020 for any of the countries, although data for the complete year were not available at the time (11). Using a modeling approach, an NCHS nowcasting methods study found overall patterns similar to those presented in this report through the end of 2020 (12). That study also showed that suicide numbers were lower in 2020 than in 2019 for March through October and December, with the greatest percentage difference between years in April. Thus, in 2020, the typical seasonal pattern in suicides was altered, as April had the lowest monthly number whereas usually the lowest number occurs in a month in the late fall or winter (12).

The overall age-adjusted suicide rate declined 3%, with the decline for females (8%) greater than males (2%). Rates for persons aged 10–34 were higher in 2020 than in 2019, whereas rates for persons aged 35 and over were lower. The increases for those aged 25–34 and the declines for those aged 35–74 were significant. The changes in suicide rates by age between 2019 and 2020 were generally similar for both males and females, although only males had a significant increase at ages 25–34.

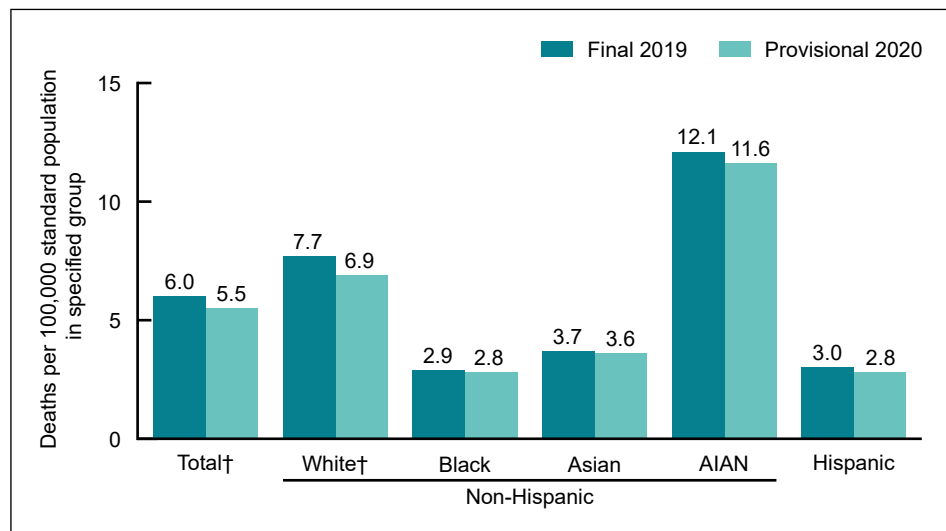
All race and ethnicity groups for women had declines in age-adjusted

suicide rates from 2019 to 2020, although only the 10% decline for non-Hispanic white women was statistically significant. For males, age-adjusted rates were higher in 2020 than in 2019 for non-Hispanic black, non-Hispanic AIAN, and Hispanic males and lower for non-Hispanic white and non-Hispanic Asian males. However, only the 3% decline in the age-adjusted rate for non-Hispanic

white males and the 5% increase for Hispanic males were statistically significant.

A limitation of this analysis is that the numbers of suicides for non-Hispanic Asian, non-Hispanic AIAN, and Hispanic persons may be affected by misclassification of race and Hispanic origin on death certificates. This misclassification would tend to result in underreporting of deaths for these groups, as race and Hispanic origin may be misclassified for about 3% of non-Hispanic Asian and Hispanic decedents, and 33% of non-Hispanic AIAN decedents; see Technical Notes. For example, a mortality profile for 2019 for non-Hispanic AIAN persons that adjusts for the misclassification of race and ethnicity on death certificates found an estimated suicide rate of 29.3 for non-Hispanic AIAN persons, 30% higher than the rate of 22.5 in this report (13). However, as long as the degree of misclassification is relatively consistent from 2019 through 2020, it would not impact the estimated changes over time. In addition, numbers of suicides are relatively small for some race and ethnicity groups. Thus, the changes in age-adjusted rates between 2019 and 2020 often were underpowered to detect

Figure 5. Age-adjusted suicide rates for females, by race and ethnicity: United States, final 2019 and provisional 2020



† Difference in rates between 2019 and 2020 was statistically significant ($p < 0.05$).
 NOTES: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0. AIAN is American Indian or Alaska Native. Death rates for non-Hispanic AIAN and Hispanic persons may be underestimated and should be interpreted with caution; see Technical Notes.
 SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

statistical significance for these groups. This does not mean that the findings are not important and relevant, but rather that they simply did not reach the threshold for statistical significance (alpha less than 0.05 or 95% confidence that the changes were not due to random variation alone). Accordingly, assessment of changes between 2019 and 2020 should take into account the number of deaths and indications of statistical significance presented in the Technical Notes [Table](#) and [Table 2](#) and [Figures 2–5](#).

As the numbers and rates presented in this report are provisional, they are subject to change. Reporting of suicides in particular can be delayed due to investigations regarding the cause and circumstances surrounding the death. Suicides for females are more likely to be incomplete in this report than suicides for males, as their deaths more frequently involve drug poisonings (7). Nonetheless, this analysis is based on more than 99% of expected death records and the lag from the event to the reporting is more than 6 months for all months except December. Based on previous patterns between provisional and final data, the findings in this report are expected to be consistent with final 2020 data.

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List of Detailed Tables

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Table 1. Suicide numbers, by month and sex: United States, final 2019 and provisional 2020

Quarter and month	Total			Male			Female		
	Final 2019	Provisional 2020	Percent change between 2019 and 2020	Final 2019	Provisional 2020	Percent change between 2019 and 2020	Final 2019	Provisional 2020	Percent change between 2019 and 2020
Total	47,511	45,855	-3	37,256	36,508	-2	10,255	9,347	-9
Quarter 1	11,555	11,642	1	9,026	9,288	3	2,529	2,354	-7
January	3,833	4,038	5	2,984	3,208	8	849	830	-2
February	3,561	3,655	3	2,786	2,907	4	775	748	-3
March	4,161	3,949	-5	3,256	3,173	-3	905	776	-14
Quarter 2	12,131	11,193	-8	9,495	8,920	-6	2,636	2,273	-14
April	4,029	3,468	-14	3,140	2,768	-12	889	700	-21
May	4,052	3,758	-7	3,156	2,991	-5	896	767	-14
June	4,050	3,967	-2	3,199	3,161	-1	851	806	-5
Quarter 3	12,483	12,083	-3	9,820	9,697	-1	2,663	2,386	-10
July	4,193	4,156	-1	3,338	3,354	0	855	802	-6
August	4,181	4,027	-4	3,233	3,249	0	948	778	-18
September	4,109	3,900	-5	3,249	3,094	-5	860	806	-6
Quarter 4	11,342	10,937	-4	8,915	8,603	-3	2,427	2,334	-4
October	4,043	3,759	-7	3,189	2,921	-8	854	838	-2
November	3,597	3,669	2	2,844	2,868	1	753	801	6
December	3,702	3,509	-5	2,882	2,814	-2	820	695	-15

NOTES: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0. Provisional 2020 data are based on death records received and processed by the National Center for Health Statistics as of May 19, 2021.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

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Table 2. Suicide numbers and rates, by age, race and ethnicity, and sex: United States, final 2019 and provisional 2020

[Rates are per 100,000 population estimated as of July 1 in 2019 and 2020]

Age, race and ethnicity, and sex	Final 2019	Provisional 2020	Percent change between 2019 and 2020	Final 2019	Provisional 2020	Percent change between 2019 and 2020
	Number			Rate		
Total ^{1,2}	47,511	45,855	-3	13.9	13.5	†-3
Age:						
10–14	534	577	8	2.6	2.8	8
15–24	5,958	6,050	2	13.9	14.2	2
25–34	8,070	8,440	5	17.5	18.3	†5
35–44	7,531	7,289	-3	18.1	17.3	†-4
45–54	4,031	7,228	-10	19.6	17.9	†-9
55–64	8,253	7,124	-14	19.4	16.8	†-13
65–74	4,870	4,714	-3	15.5	14.5	†-6
75 and over	4,307	4,412	2	19.1	19.0	-1
Race and ethnicity:						
Non-Hispanic						
White ²	37,428	35,351	-6	17.7	16.8	†-5
Black ²	3,115	3,255	4	7.5	7.7	3
Asian ^{2,3}	1,342	1,303	-3	6.7	6.4	-4
American Indian or Alaska Native ^{2,3}	546	582	7	22.5	23.6	5
Hispanic ^{2,3}	4,331	4,570	6	7.3	7.5	3
Male ^{1,2}	37,256	36,508	-2	22.4	21.9	†-2
Age:						
10–14	331	374	13	3.1	3.5	13
15–24	4,805	4,854	1	22.0	22.3	1
25–34	6,533	6,874	5	28.0	29.3	†5
35–44	5,815	5,717	-2	28.0	27.2	-3
45–54	5,856	5,501	-6	29.1	27.6	†-5
55–64	6,290	5,527	-12	30.7	26.9	†-12
65–74	3,882	3,748	-3	26.4	24.6	†-7
75 and over	3,738	3,899	4	39.9	40.2	1
Race and ethnicity:						
Non-Hispanic						
White ²	29,382	28,212	-4	28.0	27.1	†-3
Black ²	2,491	2,645	6	12.5	12.9	3
Asian ^{2,3}	950	916	-4	10.1	9.5	-6
American Indian or Alaska Native ^{2,3}	401	439	9	33.0	35.8	8
Hispanic ^{2,3}	3,445	3,704	8	11.6	12.2	†5
Female ^{1,2}	10,255	9,347	-9	6.0	5.5	†-8
Age:						
10–14	203	203	0	2.0	2.0	0
15–24	1,154	1,196	4	5.5	5.7	4
25–34	1,526	1,566	3	6.8	6.9	1
35–44	1,710	1,572	-8	8.2	7.4	†-10
45–54	2,156	1,727	-20	10.4	8.4	†-19
55–64	1,948	1,597	-18	8.9	7.2	†-19
65–74	985	966	-2	5.9	5.6	-5
75 and over	568	513	-10	4.3	3.8	†-12
Race and ethnicity:						
Non-Hispanic						
White ²	8,046	7,139	-11	7.7	6.9	†-10
Black ²	624	610	-2	2.9	2.8	-3
Asian ^{2,3}	392	387	-1	3.7	3.6	-3
American Indian or Alaska Native ^{2,3}	145	143	-1	12.1	11.6	-4
Hispanic ^{2,3}	886	866	-2	3.0	2.8	-7

† Percent change in rates between 2019 and 2020 was statistically significant ($p < 0.05$).

¹Includes deaths to persons under age 10 as well as age not stated; includes persons in race and ethnicity groups not shown and persons of multiple races.

²Rate adjusted to a standard 2000 population; see Data Source and Methods and Technical Notes.

³Rate may be underestimated and should be interpreted with caution; see Technical Notes.

NOTES: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0. Provisional 2020 data are based on death records received and processed by the National Center for Health Statistics as of May 19, 2021.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

Technical Notes

Race and ethnicity data

The race and ethnicity categories presented in this report are based on the 1997 Office of Management and Budget standards as presented on the 2003 revision of the U.S. Standard Certificate of Death (14). Information on race and ethnicity are from death certificates and are supplied by an informant, usually the next of kin. Race and Hispanic origin are two distinct attributes and are reported separately on death certificates. Therefore, the data shown in this report by Hispanic origin and race are based on a combination of the two attributes for the non-Hispanic population. Data shown for the Hispanic population include persons of any race. All of the race categories are single race, meaning that only one race was reported on the death certificate. Death rates for non-Hispanic Asian, non-Hispanic American Indian or Alaska Native (AIAN), and Hispanic persons are impacted by inconsistencies in reporting race and Hispanic origin on the death certificate compared with censuses and surveys. A validity study has shown underreporting on death certificates of non-Hispanic Asian and Hispanic decedents by 3% and of non-Hispanic AIAN decedents by 33% (15).

Census population data

The population data used to estimate the death rates shown in this report are July 1, 2020, monthly postcensal population estimates based on the 2010 decennial census and are available from the U.S. Census website at: <https://www.census.gov/data/tables/time-series/demo/popest/2010s-national-detail.html>.

Cause-of-death classification

Cause of death was classified in accordance with World Health Organization (WHO) regulations, which specify that member countries classify and code causes of death according to the current revision of the *International Classification of Diseases* (ICD).

ICD provides the basic guidance used in virtually all countries to code and classify causes of death. Effective with deaths occurring in 1999, the United States began using the 10th revision of this classification (ICD–10) (9).

In this report, cause-of-death statistics are based solely on the underlying cause of death. The underlying cause is defined by WHO as “the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury.” The underlying cause is selected from the conditions entered by the medical certifier in the cause-of-death section of the death certificate. When more than one cause or condition is entered by the medical certifier, the underlying cause is determined by the sequence of conditions on the certificate, provisions of ICD, and associated selection rules and modifications. Suicides are identified by ICD–10 underlying cause-of-death codes U03, X60–X84, and Y87.0.

Computing rates

Rates for all ages combined in this report are age-adjusted based on a standard 2000 population per 100,000 estimated U.S. population. Age-specific rates are per 100,000 population in the specified age group. Comparisons made in the text among rates, unless otherwise specified, are statistically significant at the 0.05 level of significance. Lack of comment in this report about any two rates does not mean that the difference was tested and found not to be significant at this level.

Random variation

The mortality data presented in this report are not subject to sampling error. Provisional mortality data may be affected by random variation—that is, the number of deaths that actually occurred may be considered as one of a large series of possible results that could have arisen under the same circumstances.

When the number of deaths is large, a normal approximation may be used in calculating confidence intervals and statistical tests. How large, in terms of number of deaths, is to some extent subjective. In general, for age-specific death rates, the normal approximation performs well when the number of deaths is 100 or greater. More information on statistical testing is published elsewhere (16).

Availability of mortality data

Mortality data used in this report are available in electronic products as described on the National Center for Health Statistics mortality website at: <https://www.cdc.gov/nchs/deaths.htm>. Provisional mortality data are located at: <https://www.cdc.gov/nchs/nvss/vsrr.htm>.

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Table. Suicide numbers and rates, by race and ethnicity, sex, and age: United States, final 2019 and provisional 2020

[Rates are per 100,000 population estimated as of July 1 in 2019 and 2020]

Race and ethnicity, sex, and age	Final 2019	Provisional 2020	Percent change between 2019 and 2020	Final 2019	Provisional 2020	Percent change between 2019 and 2020
	Number			Rate		
Non-Hispanic white ^{1,2}	37,428	35,351	-6	17.7	16.8	†-5
10–14	335	318	-5	3.2	3.1	-3
15–24	3,644	3,587	-2	16.1	16.0	-1
25–34	5,465	5,539	1	21.7	22.1	2
35–44	5,763	5,511	-4	24.5	23.2	†-5
45–54	6,584	5,911	-10	26.2	24.1	†-8
55–64	7,234	6,202	-14	24.5	21.2	-13
65–74	4,404	4,206	-4	18.7	17.3	†-7
75 and over	3,997	4,072	2	22.7	22.6	0
Male ^{1,2}	29,382	28,212	-4	28.0	27.1	†-3
10–14	209	219	5	3.9	4.1	5
15–24	2,970	2,931	-1	25.6	25.5	0
25–34	4,439	4,524	2	34.7	35.5	2
35–44	4,431	4,303	-3	37.4	36.0	-4
45–54	4,806	4,468	-7	38.3	36.5	†-5
55–64	5,531	4,803	-13	38.4	33.6	†-13
65–74	3,515	3,336	-5	31.4	29.0	†-8
75 and over	3,479	3,624	4	46.9	47.5	1
Female ^{1,2}	8,046	7,139	-11	7.7	6.9	†-10
10–14	124	99	-20	2.4	2.0	-17
15–24	674	656	-3	6.1	6.0	-2
25–34	1,026	1,015	-1	8.3	8.3	0
35–44	1,332	1,208	-9	11.4	10.2	†-11
45–54	1,778	1,443	-19	14.1	11.8	†-16
55–64	1,703	1,399	-18	11.3	9.4	†-17
65–74	889	870	-2	7.2	6.8	-6
75 and over	518	448	-14	5.1	4.3	†-16
Non-Hispanic black ^{1,2}	3,115	3,255	4	7.5	7.7	3
10–14	66	82	24	2.3	2.9	26
15–24	683	779	14	11.5	13.2	†15
25–34	860	963	12	13.2	14.6	†11
35–44	568	547	-4	10.7	10.1	-6
45–54	424	373	-12	8.3	7.4	-11
55–64	293	281	-4	5.9	5.6	-5
65–74	138	145	5	4.5	4.5	0
75 and over	79	76	-4	4.2	3.9	-7
Male ^{1,2}	2,491	2,645	6	12.5	12.9	3
10–14	43	53	23	3.0	3.7	23
15–24	553	636	15	18.3	21.3	†16
25–34	709	803	13	21.8	24.4	†12
35–44	448	439	-2	17.7	17.1	-3
45–54	324	297	-8	13.6	12.6	-7
55–64	232	225	-3	10.2	9.8	-4
65–74	110	122	11	8.3	8.7	5
75 and over	69	66	-4	10.1	9.2	-9
Female ^{1,2}	624	610	-2	2.9	2.8	-3
10–14	23	29	26	1.6	2.1	31
15–24	130	143	10	4.4	4.9	11
25–34	151	160	6	4.6	4.8	4
35–44	120	108	-10	4.3	3.8	-12
45–54	100	76	-24	3.7	2.8	-24
55–64	61	56	-8	2.3	2.1	-9
65–74	28	23	-18	1.6	1.2	-25
75 and over	10	10	0	*	*	‡

See footnotes at end of table.

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Table. Suicide numbers and rates, by race and ethnicity, sex, and age: United States, final 2019 and provisional 2020—Con.

[Rates are per 100,000 population estimated as of July 1 in 2019 and 2020]

Race and ethnicity, sex, and age	Final 2019	Provisional 2020	Percent change between 2019 and 2020	Final 2019	Provisional 2020	Percent change between 2019 and 2020
	Number			Rate		
Non-Hispanic Asian ¹⁻³	1,342	1,303	-3	6.7	6.4	-4
10-14	11	15	36	*	*	‡
15-24	252	239	-5	10.7	10.0	-7
25-34	286	268	-6	8.8	8.2	-7
35-44	203	198	-2	6.7	6.4	-4
45-54	205	202	-1	7.8	7.5	-4
55-64	181	164	-9	8.5	7.6	-11
65-74	106	112	6	7.1	7.1	0
75 and over	97	105	8	9.7	9.9	2
Male ¹⁻³	950	916	-4	10.1	9.5	-6
10-14	6	11	‡	*	*	‡
15-24	194	165	-15	16.3	13.8	-15
25-34	213	204	-4	13.4	12.7	-5
35-44	145	146	1	10.1	10.0	-1
45-54	135	140	4	11.1	11.2	1
55-64	125	106	-15	13.0	10.8	-17
65-74	65	76	17	9.9	11.0	11
75 and over	66	68	3	15.7	15.2	-3
Female ¹⁻³	392	387	-1	3.7	3.6	-3
10-14	5	4	‡	*	*	‡
15-24	58	74	28	4.9	6.2	27
25-34	73	64	-12	4.4	3.9	-11
35-44	58	52	-10	3.6	3.2	-11
45-54	70	62	-11	5.0	4.3	-14
55-64	56	58	4	4.8	4.9	2
65-74	41	36	-12	4.9	4.1	-16
75 and over	31	37	19	5.3	6.0	13
Non-Hispanic American Indian or Alaska Native ¹⁻³	546	582	7	22.5	23.6	5
10-14	16	19	‡	*	*	‡
15-24	144	156	8	40.1	43.7	9
25-34	171	191	12	45.5	49.6	9
35-44	95	95	0	31.5	31.1	-1
45-54	63	61	-3	21.9	21.6	-1
55-64	33	40	21	11.1	13.3	20
65-74	15	14	‡	*	*	‡
75 and over	9	8	‡	*	*	‡
Male ¹⁻³	401	439	9	33.0	35.9	9
10-14	13	12	-8	*	*	‡
15-24	100	117	17	54.8	64.6	18
25-34	134	139	4	70.2	72.1	3
35-44	67	70	4	44.9	46.2	3
45-54	39	49	26	27.9	35.6	28
55-64	26	32	23	18.5	22.7	23
65-74	13	11	-15	*	*	‡
75 and over	9	8	‡	*	*	‡
Female ¹⁻³	145	143	-1	12.1	11.6	-4
10-14	3	7	‡	*	*	‡
15-24	44	39	-11	24.9	22.2	-11
25-34	37	49	32	20.0	26.3	32
35-44	28	25	-11	18.4	16.2	-12
45-54	24	12	‡	16.2	*	‡
55-64	7	8	‡	*	*	‡
65-74	2	3	‡	*	*	‡
75 and over	0	0	‡	*	*	‡

See footnotes at end of table.

Vital Statistics Surveillance Report

Table. Suicide numbers and rates, by race and ethnicity, sex, and age: United States, final 2019 and provisional 2020—Con.

[Rates are per 100,000 population estimated as of July 1 in 2019 and 2020]

Race and ethnicity, sex, and age	Final 2019	Provisional 2020	Percent change between 2019 and 2020	Final 2019	Provisional 2020	Percent change between 2019 and 2020
	Number			Rate		
Hispanic ¹⁻³	4,331	4,570	6	7.3	7.5	3
10-14	92	120	30	1.7	2.2	†29
15-24	1,054	1,091	4	10.7	10.9	2
25-34	1,090	1,269	16	11.4	13.2	†16
35-44	774	808	4	8.9	9.2	3
45-54	623	579	-7	8.7	8.0	-8
55-64	419	361	-14	8.3	6.8	†-18
65-74	169	202	20	6.0	6.7	12
75 and over	105	134	28	5.8	7.0	21
Male ¹⁻³	3,445	3,704	8	11.6	12.2	†5
10-14	53	65	23	2.0	2.4	20
15-24	841	867	3	16.6	16.9	2
25-34	888	1,038	17	17.8	20.7	†16
35-44	629	659	5	14.1	14.6	4
45-54	467	474	1	13.0	12.9	-1
55-64	316	300	-5	12.8	11.6	-9
65-74	149	177	19	11.5	12.9	12
75 and over	99	119	20	13.5	15.3	13
Female ¹⁻³	886	866	-2	3.0	2.8	-7
10-14	39	55	41	1.5	2.1	40
15-24	213	224	5	4.4	4.6	5
25-34	202	231	14	4.4	5.0	14
35-44	145	149	3	3.5	3.5	0
45-54	156	105	-33	4.4	2.9	†-34
55-64	103	61	-41	4.0	2.3	†-43
65-74	20	25	25	1.3	1.5	15
75 and over	6	15	†	*	*	†

† Percent change in rates between 2019 and 2020 was statistically significant ($p < 0.05$).

* Rate does not meet National Center for Health Statistics standards of reliability and precision; numerator based on fewer than 20 deaths.

‡ Percent change was not computed because the number of suicides in 2019 or 2020 was fewer than 20 deaths.

¹Includes deaths to persons under age 10 as well as age not stated.

²Rate adjusted to a standard 2000 population; see Data Source and Methods and Technical Notes.

³Rate may be underestimated and should be interpreted with caution; see Technical Notes.

NOTES: Suicides are identified with *International Classification of Diseases, 10th Revision* codes U03, X60–X84, and Y87.0. Provisional 2020 data are based on death records received and processed by the National Center for Health Statistics as of May 19, 2021.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality.

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