2018 ANNUAL SURVEILLANCE REPORT OF DRUG-RELATED RISKS AND OUTCOMES

UNITED STATES

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

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Disclaimer

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EXECUTIVE SUMMARY

The Current Drug Overdose Epidemic in the United States

Between 1999 and 2016, more than 630,000 people died from a drug overdose in the United States. The current epidemic of drug overdoses began in the 1990s with overdose deaths involving prescription opioids, driven by dramatic increases in prescribing of opioids for chronic pain. In 2010, rapid increases in overdose deaths involving heroin marked the second wave of opioid overdose deaths. The third wave began in 2013, when overdose deaths involving synthetic opioids, particularly those involving illicitly manufactured fentanyl, began to increase significantly. In addition to deaths, nonfatal overdoses from both prescription and illicit drugs are responsible for increasing emergency department visits and hospital admissions.

This is the second annual surveillance report summarizing the latest information at the national level for prescribing patterns, drug use, and nonfatal and fatal overdose related to the current drug overdose epidemic in the United States. This report is intended to serve as a resource for persons charged with addressing this ongoing national crisis.

This report presents information on four types of outcomes from four different data sources:

1. Opioid prescribing, 2006–2017, from IQVIA™
2. Drug use, misuse, substance use disorder, and treatment, 2016, from the National Survey on Drug Use and Health (NSDUH), a product of the Substance Abuse and Mental Health Services Administration
3. Nonfatal overdose hospitalizations and emergency department (ED) visits, 2015, from the Healthcare Cost and Utilization Project (HCUP), a product of the Agency for Healthcare Research and Quality's (AHRQ) Annual Surveillance Report of Drug-Related Risks and Outcomes
4. Drug overdose mortality, 1999–2016, from the National Vital Statistics System (NVSS) Mortality Component, maintained by the National Center for Health Statistics, CDC

Opioid Prescribing

Healthcare providers wrote 72.4 opioid prescriptions per 100 persons in 2006. This rate increased annually by 3.0% from 2006 to 2010, decreased 1.6% annually from 2010 to 2014, and continued to decrease annually by 8.2% until 2017, reaching a rate of 58.5 prescriptions per 100 persons. This represents an overall relative reduction of 19.2% from 2006 to 2017. In 2017, 17.4% of the U.S. population received one or more opioid prescriptions, with the average person receiving 3.4 prescriptions.

Between 2006 and 2017, the annual prescribing rate for high dosage opioid prescriptions (≥ 90 morphine milligram equivalents [MME]/day) decreased from 11.5 to 5.0 prescriptions per 100 persons, an overall relative reduction of 56.5%. The proportion of opioid prescriptions that were high dosage declined from 15.9% in 2006 to 8.5% in 2017.

Drug Use, Misuse, and Substance Use Disorder, and Treatment

In 2016, an estimated 48.5 million persons in the U.S., or 18.0% of persons aged 12 years and older, reported use of illicit drugs or misuse of prescription drugs in the past year. This estimate includes use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, and methamphetamines, and the misuse of prescription drugs. Reported prevalence of illicit drug use in the past year by drug type was: 13.9% for marijuana, 0.4% for heroin, 1.9% for cocaine, and 0.5% for methamphetamine. Reported prevalence of prescription drug misuse by drug type was: 4.3% for prescription pain relievers, 2.1% for prescription stimulants, 2.2% for prescription tranquilizers, and 0.6% for prescription sedatives. Reported prevalence of opioid misuse (heroin use or prescription pain reliever misuse) in the past year was 4.4%.

An estimated 2.2 million persons in the U.S. in 2016 reported that they had received any treatment in the past year to reduce or stop illicit drug use, including prescription drug misuse, or for medical problems associated with illicit drug use.

Nonfatal Overdose Hospitalizations and Emergency Department (ED) Visits

An estimated 316,900 hospitalizations for nonfatal drug poisonings occurred in 2015, with an age-adjusted rate of 96.2 hospitalizations per 100,000. Age-adjusted rates of hospitalizations per 100,000 by drug type were: 23.2 for all opioids, 5.3 for heroin, 1.7 for methadone, 16.7 for other opioids, 5.8 for cocaine, and 4.7 for methamphetamines.

An estimated 547,543 ED visits occurred for all drug-related poisonings in the U.S. in 2015, with an age adjusted rate of 174.6 visits per 100,000. Age-adjusted rates of ED visits per 100,000 by drug type were: 44.0 for all opioids, 25.9 for heroin, 1.1 for methadone, 17.3 for other opioids, 3.0 for cocaine, and 5.2 for methamphetamines.

Drug Overdose Mortality

A record number of drug overdose deaths occurred in 2016: 63,632, a rate of 19.8 per 100,000 persons. Although deaths might have involved more than one drug, prescription and/or illicit opioids were involved in 66.4% (42,249) of these drug overdose fatalities. Among opioid-involved deaths, the most commonly involved drugs were synthetic opioids other than methadone (a category that is primarily illicitly manufactured fentanyl, based on epidemiologic evidence) (19,413 deaths), followed by prescription opioids (17,087 deaths), and heroin (15,469 deaths). Prescription opioids included deaths involving natural and semi-synthetic opioids (14,487 deaths) and methadone (3,373 deaths). Cocaine was involved in 10,375 deaths.

The rapid increase in deaths involving heroin that began in 2010 continued through 2016. Rates for drug overdose deaths involving synthetic opioids other than methadone also continued to increase through 2016, with the rates increasing by 87% annually from 2013 to 2016. Mortality rates from cocaine and psychostimulants with abuse potential (e.g., methamphetamine) also increased; from 2014 to 2016, rates increased on average 37% per year for cocaine and 26% per year for psychostimulants from 2008 to 2016.

Limitations

This report has some limitations. Because four distinct data sources were used, terminology and definitions are not always standardized throughout the report. Further, the most recent year of available data varied across the data sources. Collectively, these factors limit comparability of information across data sources. In addition, this report does not address polysubstance use (i.e., the consumption of more than one drug over a defined period, simultaneously or at different times, for either therapeutic or recreational purposes). For a detailed description of the data sources, definitions, and caveats, please refer to the technical notes.

Conclusions

The data from these four sources suggest the following conclusions:

- Opioid prescribing and high-dose prescribing continued to decrease through 2017. Overall, data suggest that some prescribing practices continued to improve in 2017, and sustained efforts are needed to help providers adopt and maintain safe prescribing behaviors.
- A low percentage of those needing treatment for substance abuse are able to access it. In addition to expanding treatment options and access, additional measures are needed to prevent illicit drug use and prescription drug misuse in a dynamic drug landscape.
- Drug overdose deaths in 2016 reached a new record high.
- Heroin, synthetic opioids other than methadone (mostly illicitly manufactured fentanyl), cocaine, and psychostimulants with abuse potential were driving increases in overdose deaths in 2016.

NOTABLE REPORT CHANGES FROM 2017 TO 2018

Opioid Prescribing

No significant changes.

Drug Use, Misuse, Substance Use Disorder, and Treatment

A category for opioids (heroin or prescription pain relievers) was added to tables when available. Data on marijuana use also were added to tables on illicit drug use and past year initiation of illicit drug use. Despite being legalized in the states of some respondents, marijuana was classified as an illicit substance in NSDUH because it remains an illegal substance (Schedule I drug) under federal law. Additional race/ethnicity groups for American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and Asian were added to race/ethnicity categories. Data presented for small metropolitan county type were stratified based on population size in the 2017 surveillance report (i.e., 250,000 – 1 million population and <250,000 population), but this stratification was not available in the 2016 NSDUH report and is not included in this report.

In addition, data among persons aged 12 years and older on self-reported prevalence of illicit drug treatment in the past year at any location and at specialty facilities have been added to the report.

Nonfatal Overdose Hospitalizations and Emergency Departments (ED) Visits

As with the 2017 surveillance report, information on medically attended, nonfatal overdose hospitalization and ED visit rates were obtained from the Healthcare Cost and Utilization Project (HCUP). However, HCUP data sources transitioned from using *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) diagnosis codes to *International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System* (ICD-10-CM/PCS) on October 1, 2015 (the beginning of fiscal year 2016). ICD-9-CM injury diagnosis codes were used to classify drug-related poisonings (i.e., overdoses) for the first three quarters of 2015 (January 1–September 30, 2015), and ICD-10-CM/PCS codes were used for the fourth quarter of 2015 (October 1–December 31, 2015). To minimize the impact of the transition on the data, all intents, diagnoses (not just principal), and all encounters (initial and subsequent) were included in our drug-related poisoning definitions. These definitions differ from last year's report, and therefore, numbers and rates should not be compared between the two reports.

Drug Overdose Mortality

Additional race/ethnicity groups for non-Hispanic American Indian/Alaska Natives and non-Hispanic Asian/Pacific Islanders were added to the race/ethnicity categories.

The figure presenting age-adjusted rates of drug overdose deaths by drug or drug class and age category (**Figure 2c**) previously had age group on the x-axis and drugs coded by color. Drug or drug class in this report is represented on the x-axis, and age group is represented by color. Prescription opioids is now included as a category in **Figures 2b** and **2c**, while the category for natural and semi-synthetic opioids is no longer included.

RESULTS OF THE 2018 SURVEILLANCE REPORT

Opioid Prescribing

Data on opioid prescribing estimates from IQVIA™ are presented for the following outcomes:

- National estimates of total number and percent of persons who had at least one prescription filled for an opioid by age and gender — United States, 2017 (**Table 1a**)
- Total number and rate of opioid prescriptions (Rx) and morphine milligram equivalents (MME) dispensed per 100 persons annually — United States, 2017 (**Table 1b**)
- Rates of opioid prescriptions dispensed per 100 persons by dosage, type, and state — United States, 2017 (**Table 1c**)
- Trend analyses of opioid prescribing — United States, 2006–2017 (**Table 1d**)
- Annual prescribing rates overall and for high-dosage prescriptions (≥ 90 MME/day) — United States, 2006–2017 (**Figure 1a**)
- Annual prescribing rates by days of supply per prescription — United States, 2006–2017 (**Figure 1b**)
- Average daily morphine milligram equivalents (MME) per prescription — United States, 2006–2017 (**Figure 1c**)
- Average days of supply per prescription — United States, 2006–2017 (**Figure 1d**)

All prescribing rates are presented per 100 persons. For more detailed information, including definitions, please refer to the **table footnotes** and **technical notes**.

Annual estimates of prescribing rates for all opioids, high-dosage opioids (≥ 90 MME), and days of supply per prescription in the United States during 2006–2017 are reported in the Appendix (**Supplemental Table 1**).

Person-Level Opioid Prescribing, United States, 2017 (Table 1a)

- A total of 56,935,332 persons, or 17.4% of the population, filled at least one prescription for an opioid.
- 14.8% of males filled at least one prescription for an opioid in 2017, and 19.9% of females filled at least one prescription for an opioid.
- Person-level prescribing was highest among older age groups, with 26.8% of persons aged ≥ 65 years, 26.3% of persons aged 55–64, and 23.1% of persons aged 45–54 having filled at least one prescription for an opioid.

Opioid Prescribing Rates and Dosages, United States, 2017 (Table 1b)

- A total of 191,146,822 opioid prescriptions were dispensed by retail pharmacies; the total opioid prescribing rate was 58.5 prescriptions per 100 persons.
- The long-acting or extended-release (LA/ER) opioid (i.e., slower-acting medications with a longer duration of pain-relieving action) prescribing rate was 5.3 per 100 persons.
- The prescribing rate for < 30 days of supply per prescription was 33.9; for ≥ 30 days of supply, the rate was 24.6 in 2017.

- The average number of opioid prescriptions per person was 3.4, and the average number of days of supply per prescription was 18.3.
- A total of 166,941,732,435 MME (i.e., the total dosage or amount of opioids prescribed accounting for differences in drug type and strength) were prescribed in 2017.
- The average dosage per prescription was 873.4 MME, and the average daily dosage per prescription was 45.3 MME.

Opioid Prescribing Rates and Dosages by State, 2017 (Table 1c)

- Opioid prescribing rates ranged from 28.5 prescriptions per 100 persons in the District of Columbia to 107.2 in Alabama.
  - States with the highest opioid prescribing rates were Alabama (107.2), Arkansas (105.4), Tennessee (94.4), Mississippi (92.9), and Louisiana (89.5).
  - States with the lowest opioid prescribing rates were the District of Columbia (28.5), Hawaii (37.0), New York (37.8), California (39.5), and Massachusetts (40.1).

- LA/ER opioid prescribing rates ranged from 1.9 prescriptions per 100 persons in the District of Columbia to 11.0 in Delaware.
  - States with the highest LA/ER opioid prescribing rates were Delaware (11.0), Oklahoma (9.0), Tennessee (8.7), Vermont (8.3), Alabama (8.2), and New Hampshire (8.2).
  - States with the lowest LA/ER opioid prescribing rates were the District of Columbia (1.9), Texas (3.3), California (3.5), Illinois (3.5), and Minnesota (4.0).

- High-dosage opioid prescribing rates (≥ 90 MME/day) ranged from 1.4 prescriptions per 100 persons in the District of Columbia to 9.8 in Delaware.
  - States with the highest high-dosage opioid prescribing rates were Delaware (9.8), Utah (8.4), Alaska (8.3), Vermont (8.1), and New Hampshire (8.0).
  - States with the lowest high-dosage opioid prescribing rates were the District of Columbia (1.4), Texas (2.6), Illinois (2.8), North Dakota (2.8), and Minnesota (2.9).

Trends in Opioid Prescribing Rates and Dosages, 2006–2017

All opioids

Between 2006 and 2017, the annual prescribing rate per 100 persons decreased from 72.4 to 58.5 for all opioids, an overall relative reduction of 19.2% (**Supplemental Table 1**). The rate for all opioids initially increased annually by 3.0% (95% confidence limits [CL]: 2.4, 3.6) from 2006 to 2010, decreased 1.6% (95% CL: -2.6, -0.7) annually from 2010 to 2014, and continued to decrease annually by 8.2% (95% CL: -9.1, -7.3) from 2014 to 2017 (**Table 1d** and **Figure 1a**).

High-dosage opioids (≥ 90 MME/day)

Between 2006 and 2017, the annual prescribing rate per 100 persons decreased from 11.5 to 5.0 for high-dosage opioids, an overall relative reduction of 56.5% (**Supplemental Table 1**). The rate was stable between 2006 and 2009 (annual percent change [APC]: 0.0, 95% CL: -2.8, 2.8) and then decreased annually by 9.5% (95% CL: -10.0, -8.9) from 2009 to 2017 (**Table 1d** and **Figure 1a**).

Annual prescribing rates per 100 persons by days of supply per opioid prescription (≥ 30 days and < 30 days)

≥ 30 days of supply

Between 2006 and 2017, the annual prescribing rate per 100 persons increased from 17.6 to 24.6 for prescriptions with ≥ 30 days of supply, an overall relative increase of 39.8% (**Supplemental Table 1**).

The rate increased annually by 10.3% (95% CL: 9.8, 10.9) from 2006 to 2010 and by 1.7% (95% CL: 1.2, 2.2) from 2010 to 2015, and then decreased annually by 7.3% (95% CL: -8.8, -5.8) from 2015 to 2017 (**Table 1d** and **Figure 1b**).

< 30 days of supply

Between 2006 and 2017, the annual prescribing rate per 100 persons decreased from 54.7 to 33.9 for prescriptions with < 30 days of supply, an overall relative reduction of 38.0% (**Supplemental Table 1**). The rate remained stable between 2006 and 2010 (APC: 0.4, 95% CL: -0.2, 1.0), decreased annually by 3.9% (95% CL: -4.8, -2.9) from 2010 to 2014, and further decreased 10.5% (95% CL: -11.4, -9.8) per year from 2014 to 2017 (**Table 1d** and **Figure 1b**).

Average daily dosage (MME/day) per prescription

Between 2006 and 2017, the average daily MME per prescription decreased from 59.7 to 45.3 for all opioids, an overall relative reduction of 24.1% (**Supplemental Table 1**). The rate decreased annually by 1.0% (95% CL: -1.2, -0.8) from 2006 to 2010, by 4.5% (95% CL: -5.1, -3.9) from 2010 to 2013, and by 2.2% (95% CL: -2.4, -2.0) from 2013 to 2017 (**Table 1d** and **Figure 1c**).

Average days of supply per prescription

Between 2006 and 2016, average days of supply per prescription increased from 13.3 to 18.3 days, an overall relative increase of 37.6%. The rate increased annually by 4.1% (95% CL: 3.9, 4.4) from 2006 to 2009, by 2.9% (95% CL: 2.7, 3.2) from 2009 to 2013, and by 2.1% (95% CL: 2.0, 2.3) from 2013 to 2017 (**Table 1d** and **Figure 1d**).

Drug Use, Misuse, Substance Use Disorder, and Treatment

Self-reported data for persons in the United States aged 12 years and older are presented from the 2016 National Survey on Drug Use and Health (NSDUH):

- Self-reported prevalence of illicit drug use and prescription drug misuse in the past month, persons 12+ years old, numbers in thousands — United States, 2016 (**Table 2a**)
- Self-reported prevalence of illicit drug use and prescription drug misuse in the past year, persons 12+ years old, numbers in thousands — United States, 2016 (**Table 2b**)
- Self-reported prevalence of any prescription drug use (including misuse) in the past year, persons 12+ years old, by drug type, numbers in thousands — United States, 2016 (**Table 2c**)
- Self-reported prevalence of past year initiation of illicit drug use and prescription drug misuse, persons 12+ years old, by drug type, numbers in thousands — United States, 2016 (**Table 2d**)
- Self-reported prevalence of substance use disorder in the past year, persons 12+ years old, by drug type, numbers in thousands — United States, 2016 (**Table 2e**)
- Self-reported prevalence of illicit and prescription drug treatment in the past year, persons 12+ years old, by demographic characteristics, numbers in thousands — United States, 2016 (**Table 2f**)

For more detailed information, please refer to the **table footnotes** and the **technical notes**.

Illicit Drug Use and Prescription Drug Misuse

Estimated prevalence of use of illicit drugs includes use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine. Prescription drug misuse includes misuse of prescription psychotherapeutics (i.e., prescription pain relievers, stimulants, sedatives, and tranquilizers).

- During 2016, an estimated 48,501,000 persons, or 18.0% of persons aged 12 and older, reported use of illicit drugs or misuse of prescription drugs in the past year (**Table 2b**).
  - By gender, the prevalence was 20.7% among males and 15.5% among females.
  - By age, prevalence was highest among persons aged 18–25 (37.7%) and persons aged 26–34 (28.0%).
  - By race/ethnicity, prevalence ranged from 9.2% among Asians to 23.6% among American Indians or Alaska Natives.
- By U.S. census region of residence, prevalence ranged from 17.0% in the Midwest to 21.6% in the West (**Table 2b**).
- By county type and urbanization, prevalence ranged from 12.3% of persons in non-metropolitan, completely rural counties to 19.4% of persons in large metropolitan counties (**Table 2b**).

Opioids

For the 2016 NSDUH, a more comprehensive drug category was added for opioids; opioids include heroin and prescription pain relievers (e.g., oxycodone, hydrocodone). Estimates are provided for the prevalence of past year opioid misuse (includes heroin use and prescription pain reliever misuse) and opioid use disorder. Estimates are provided for the prevalence of past year use and misuse, initiation, and substance use disorder for heroin and prescription pain relievers as well. The numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse due to poly-drug use.

- In 2016, an estimated 11,824,000, or 4.4% of persons aged 12 and older, reported opioid misuse in the past year (**Table 2b**).
  - By gender, reported opioid misuse was 4.9% among males and 3.9% among females.
  - By age, reported opioid misuse was highest among persons aged 18–25 (7.3%) and persons aged 26–34 (7.2%).
  - By race/ethnicity, reported opioid misuse ranged from 1.8% among Asians to 4.6% among whites.
- By U.S. census region of residence, reported opioid misuse ranged from 3.9% in the Northeast to 5.1% in the West (**Table 2b**).
- By county type and urbanization, reported opioid misuse ranged from 3.9% in both non-metropolitan, urbanized and non-metropolitan, completely rural counties to 4.5% in large metropolitan counties (**Table 2b**).
- In 2016, an estimated 2,144,000, or 0.8% of persons aged 12 and older, reported an opioid use disorder in the past year (**Table 2e**).

Heroin

- In 2016, an estimated 948,000, or 0.4% of persons aged 12 and older, reported heroin use in the past year (**Table 2b**).
  - By gender, reported heroin use was 0.5% among males and 0.3% among females.
  - By age, reported heroin use was highest among persons aged 18–25 (0.7%) and persons aged 26–34 (0.9%).
  - By race/ethnicity, reported heroin use ranged from 0.1% among Asians to 0.4% among whites.
- By U.S. census region of residence, reported heroin use ranged from 0.3% in the Midwest, South, and West to 0.5% in the Northeast (**Table 2b**).
- By county type and urbanization, reported heroin use ranged from 0.2% in non-metropolitan, urbanized counties to 0.4% in both large metropolitan and non-metropolitan, completely rural counties (**Table 2b**).
- In 2016, an estimated 170,000 persons, or 0.1% of persons aged 12 and older, reported initiation of heroin in the past year (**Table 2d**).
- In 2016, an estimated 626,000 persons, or 0.2% of persons aged 12 and older, reported a substance use disorder in the past year involving heroin (**Table 2e**)

Prescription Pain Relievers (e.g., oxycodone, hydrocodone, etc.)

- In 2016, an estimated 11,517,000, or 4.3% of persons aged 12 and older, reported misuse of prescription pain relievers in the past year (**Table 2b**).
  - By gender, reported misuse of prescription pain relievers was 4.8% among males and 3.8% among females.
  - By age, reported misuse of prescription pain relievers was highest among persons aged 18–25 (7.1%) and persons aged 26–34 (6.9%).
  - By race/ethnicity, reported misuse of prescription pain relievers ranged from 1.8% among Asians to 4.5% among whites.
- By U.S. census region of residence, reported misuse of prescription pain relievers ranged from 3.8% in the Northeast to 5.0% in the West (**Table 2b**).
- By county type and urbanization, reported misuse of prescription pain relievers ranged from 3.6% in non-metropolitan, completely rural counties to 4.4% in large metropolitan counties (**Table 2b**).
- In 2016, an estimated 2,139,000, or 0.8% of persons aged 12 and older, reported initiation of prescription pain reliever misuse in the past year (**Table 2d**).
- In 2016, an estimated 1,753,000, or 0.7% of persons aged 12 and older, reported a substance use disorder in the past year involving misuse of prescription pain relievers (**Table 2e**).

Stimulants

Estimated prevalence for stimulants includes use of cocaine and methamphetamine and misuse of prescription stimulants. Estimates are provided for the prevalence of past year use and misuse, initiation, and substance use disorder for these three types of stimulants.

Cocaine

- In 2016, an estimated 5,071,000, or 1.9% of persons aged 12 and older, reported cocaine use in the past year (**Table 2b**).
  - By gender, reported cocaine use was 2.5% among males and 1.3% among females.
  - By age, reported cocaine use was highest among persons aged 18–25 (5.6%) and persons aged 26–34 (3.8%).
  - By race/ethnicity, reported cocaine use ranged from 0.7% among Asians to 2.0% among both whites and American Indians or Alaskan Natives.
- By U.S. census region of residence, reported cocaine use ranged from 1.4% in the Midwest to 2.6% in the Northeast.
- By county type and urbanization, reported cocaine use ranged from 0.5% in non-metropolitan, completely rural counties to 2.1% in large metropolitan counties (**Table 2b**).
- In 2016, an estimated 1,085,000, or 0.4% of persons aged 12 and older, reported initiation of cocaine use in the past year (**Table 2d**).
- In 2016, an estimated 867,000, or 0.3% of persons aged 12 and older, reported a substance use disorder in the past year involving cocaine (**Table 2e**).

Methamphetamine

- In 2016, an estimated 1,391,000, or 0.5% of persons aged 12 and older, reported methamphetamine use in the past year (**Table 2b**).
  - By gender, reported methamphetamine use was 0.6% among males and 0.4% among females.
  - By age, reported methamphetamine use was highest among persons aged 18–25, 35–39, and 40–44 (0.8% in all), and persons aged 26–34 (0.9%).
  - By race/ethnicity, reported methamphetamine use ranged from 0.1% among Asians to 1.0% among American Indians or Alaskan Natives.
- By U.S. census region of residence, reported methamphetamine use ranged from 0.2% in the Northeast to 0.8% in the West (**Table 2b**).
- By county type and urbanization, reported methamphetamine use ranged from 0.4% in both large metropolitan and non-metropolitan, urbanized counties to 1.1% in non-metropolitan, completely rural counties (**Table 2b**).
- In 2016, an estimated 192,000, or 0.1% of persons aged 12 and older, reported initiation of methamphetamine use in the past year (**Table 2d**).
- In 2016, an estimated 684,000, or 0.3% of persons aged 12 and older, reported a substance use disorder in the past year involving methamphetamines (**Table 2e**).

Prescription Stimulants

- In 2016, an estimated 5,647,000, or 2.1% of persons aged 12 and older, reported misuse of prescription stimulants in the past year (**Table 2b**).
  - By gender, reported misuse of prescription stimulants was 2.3% among males and 1.9% among females.
  - By age, reported misuse of prescription stimulants was highest among persons aged 18–25 (7.5%) and persons aged 26–34 (3.9%).
  - By race/ethnicity, reported misuse of prescription stimulants ranged from 0.8% among both blacks and American Indians or Alaska Natives to 2.5% among whites.
- By U.S. census region of residence, reported misuse of prescription stimulants ranged from 1.8% in the West to 2.4% in both the Northeast and Midwest (**Table 2b**).

- By county type and urbanization, reported misuse of prescription stimulants ranged from 1.0% in both non-metropolitan, completely rural counties and non-metropolitan, less urbanized counties to 2.3% in large metropolitan counties (**Table 2b**).
- In 2016, an estimated 1,374,000, or 0.5% of persons aged 12 and older, reported initiation of prescription stimulant misuse in the past year (**Table 2d**).
- In 2016, an estimated 540,000, or 0.2% of persons aged 12 and older, reported a substance use disorder in the past year involving prescription stimulants (**Table 2e**).

Other Drugs

Estimated prevalence for other drugs includes misuse of prescription tranquilizers and prescription sedatives. Estimates are provided for the prevalence of past year misuse, initiation, and substance use disorder for these two types of drug classes.

Prescription Tranquilizers

- In 2016, an estimated 6,060,000, or 2.2% of persons aged 12 and older, reported misuse of prescription tranquilizers in the past year (**Table 2b**).
  - By gender, reported misuse of prescription tranquilizers was 2.2% among males and 2.3% among females.
  - By age, reported misuse of prescription tranquilizers was highest among persons aged 18–25 (5.3%) and persons aged 26–34 (3.3%).
  - By race/ethnicity, reported misuse of prescription tranquilizers ranged from 0.7% among Asians to 2.6% among whites.
- By U.S. census region of residence, reported misuse of prescription tranquilizers ranged from 2.1% in the West to 2.5% in the Northeast (**Table 2b**).
- By county type and urbanization, reported misuse of prescription tranquilizers ranged from 1.2% in completely rural, non-metropolitan counties to 2.4% in small metropolitan counties (**Table 2b**).
- In 2016, an estimated 1,374,000, or 0.5% of persons aged 12 and older, reported initiation of prescription tranquilizer misuse in the past year (**Table 2d**).
- In 2016, an estimated 618,000, or 0.2% of persons aged 12 and older, reported a substance use disorder in the past year involving prescription tranquilizers (**Table 2e**).

Prescription Sedatives

- In 2016, an estimated 1,531,000, or 0.6% of persons aged 12 and older, reported misuse of prescription sedatives in the past year (**Table 2b**).
  - By gender, reported misuse of prescription sedatives was 0.5% among males and 0.6% among females.
  - By age, reported misuse of prescription sedatives was highest among persons aged 18–25 (0.7%) and persons aged 26–34 (0.9%).
  - By race/ethnicity, reported misuse of prescription sedatives ranged from 0.2% among Asians to 0.7% among whites.
- By U.S. census region of residence, reported misuse of prescription sedatives ranged from 0.3% in the Midwest to 0.8% in the West (**Table 2b**).
- By county type and urbanization, reported misuse of prescription sedatives ranged from 0.4% in both less urbanized, non-metropolitan and non-metropolitan counties overall to 0.6% in large metropolitan counties (**Table 2b**).
- In 2016, an estimated 294,000, or 0.1% of persons aged 12 and older, reported initiation of prescription sedative misuse in the past year (**Table 2d**).
- In 2016, an estimated 205,000, or 0.1% of persons aged 12 and older, reported a substance use disorder in the past year involving prescription sedatives (**Table 2e**).

Illicit and Prescription Drug Treatment (Table 2f)

Illicit and prescription drug treatment refers to treatment received to reduce or stop illicit drug use or prescription drug misuse, or for medical problems associated with illicit drug use or prescription drug misuse.

Any location

- In 2016, 2,181,000 persons, or 0.8% of persons aged 12 and older, reported that they had received illicit or prescription drug treatment in the past year at any location, such as a hospital (inpatient), rehabilitation facility (inpatient or outpatient), mental health center, emergency room, private doctor's office, self-help group, or a prison or jail.
  - By gender, 1.1% of males and 0.6% of females reported illicit or prescription drug treatment in the past year.
  - By age, 1.2% of persons aged 18–25 reported illicit or prescription drug treatment in the past year.

Specialty facility

- In 2016, 1,406,000 persons, or 0.5% of persons aged 12 and older, reported that they had received illicit or prescription drug treatment in the past year at a specialty facility, which includes a hospital (inpatient only), rehabilitation facility (inpatient or outpatient), or mental health center.
  - By gender, 0.7% of males and 0.4% of females reported illicit or prescription drug treatment at a specialty facility in the past year.
  - By age, 0.7% of persons aged 18–25 reported illicit or prescription drug treatment at a specialty facility in the past year.

Nonfatal Overdose Hospitalizations and Emergency Department (ED) Visits

Data on nonfatal, drug-related poisonings (overdoses) regardless of intent for all persons in the U.S. are presented from 2015 survey data from the Healthcare Cost and Utilization Project (HCUP):

- Estimated numbers and age-adjusted rates per 100,000 of drug poisoning-related hospitalizations by selected substances — United States, 2015 (**Table 3a**)
- Estimated numbers and age-adjusted rates per 100,000 of drug poisoning-related emergency department visits by selected substances — United States, 2015 (**Table 3b**)
- Estimated number and percent of drug poisoning-related hospitalizations and emergency department visits by primary payer — United States, 2015 (**Table 3c**)

As poisoning-related hospitalizations and ED visits may involve more than one type of drug, and all diagnosis codes (i.e., not just the primary diagnosis code) were searched for drug-related poisonings, the categories of drugs and drug classes in the tables are not mutually exclusive. All rates are per 100,000 persons and are age-adjusted, except the rates by age group. For more detailed information, including definitions, please refer to the **table footnotes** and the **technical notes**.

Rates of hospitalizations (**Supplemental Table 2a**) and emergency department visits (**Supplemental Table 2b**) due to nonfatal, drug-related overdoses regardless of intent for 2015 that are not age-adjusted are presented in the Appendix.

All Drugs

Hospitalizations

- In 2015, an estimated 316,900 hospitalizations occurred for all drug-related poisonings in the U.S.; the age-adjusted rate was 96.2 hospitalizations per 100,000 (**Table 3a**).
  - By gender, the rate was 86.5 among males and 105.7 among females.
  - By age, rates were highest among persons aged 45–54 (136.9) and persons aged 55–64 (127.5).
- By region, hospitalization rates for all drug-related poisonings ranged from 77.0 in the West to 109.5 in the Midwest (**Table 3a**).
- By urbanization, hospitalization rates for all drug-related poisonings ranged from 87.8 in large fringe metropolitan counties to 108.7 in medium metropolitan counties (**Table 3a**).

Emergency Department (ED) Visits

- In 2015, an estimated 547,543 ED visits occurred for all drug-related poisonings in the U.S.; the age-adjusted rate was 174.6 visits per 100,000 (**Table 3b**).
  - By gender, the rate was 167.2 among males and 182.1 among females.
  - By age, rates were highest among persons aged 15–19 (307.7) and persons aged 20–24 (281.1).
- By region, ED visit rates for all drug-related poisonings ranged from 155.6 in the West to 202.5 in the Northeast (**Table 3b**).
- By urbanization, ED visit rates for all drug-related poisonings ranged from 149.5 in large central metropolitan counties to 211.8 in micropolitan counties (**Table 3b**).

Opioids

All Opioids

Hospitalizations

- In 2015, an estimated 78,840 hospitalizations occurred for opioid-related poisonings in the U.S.; the age-adjusted rate was 23.2 hospitalizations per 100,000 (**Table 3a**).
  - By gender, the rate was 22.8 among males and 23.4 among females.
  - By age, rates were highest among persons aged 45–54 (36.3) and persons aged 55–64 (42.4).
- By region, hospitalization rates for opioid-related poisonings ranged from 18.9 in the West to 26.1 in the Midwest (**Table 3a**).
- By urbanization, hospitalization rates for opioid-related poisonings ranged from 21.1 in noncore counties to 26.4 in medium metropolitan counties (**Table 3a**).

Emergency Department (ED) Visits

- In 2015, an estimated 140,077 ED visits occurred for opioid-related poisonings in the U.S.; the age-adjusted rate was 44.0 visits per 100,000 (**Table 3b**).
  - By gender, the rate was 54.0 among males and 34.0 among females.
  - By age, rates were highest among persons aged 20–24 (99.7) and persons aged 25–34 (111.4).
- By region, ED visit rates for opioid-related poisonings ranged from 27.6 in the West to 77.9 in the Northeast (**Table 3b**).
- By urbanization, ED visit rates for opioid-related poisonings ranged from 33.6 in noncore counties to 54.8 in large fringe metropolitan counties (**Table 3b**).

Heroin

Hospitalizations

- In 2015, an estimated 16,770 hospitalizations occurred for heroin-related poisonings in the U.S.; the age-adjusted rate was 5.3 hospitalizations per 100,000 (**Table 3a**).
  - By gender, the rate was 7.2 among males and 3.3 among females.
  - By age, rates were highest among persons aged 20–24 (12.3) and persons aged 25–34 (13.2).
- By region, hospitalization rates for heroin-related poisonings ranged from 3.1 in the West to 8.4 in the Northeast (**Table 3a**).
- By urbanization, hospitalization rates for heroin-related poisonings ranged from 2.1 in noncore counties to 6.6 in large fringe metropolitan counties (**Table 3a**).

Emergency Department (ED) Visits

- In 2015, an estimated 81,326 ED visits occurred for heroin-related poisonings in the U.S.; the age-adjusted rate was 25.9 visits per 100,000 (**Table 3b**).
  - By gender, the rate was 35.7 among males and 16.1 among females.
  - By age, rates were highest among persons aged 20–24 (73.2) and persons aged 25–34 (81.8).
- By region, ED visit rates for heroin-related poisonings ranged from 10.2 in the West to 58.1 in the Northeast (**Table 3b**).
- By urbanization, ED visit rates for heroin-related poisonings ranged from 10.8 in noncore counties to 38.2 in large fringe metropolitan counties (**Table 3b**).

Methadone

Hospitalizations

- In 2015, an estimated 5,590 hospitalizations occurred for methadone-related poisonings in the U.S.; the age-adjusted rate was 1.7 hospitalizations per 100,000 (**Table 3a**).

  - By gender, the rate was 1.7 among males and 1.6 among females.
  - By age, rates were highest among persons aged 45–54 (2.8) and persons aged 55–64 (3.3).
- By region, hospitalization rates for methadone-related poisonings ranged from 1.5 in the South to 1.9 in the Northeast (**Table 3a**).
- By urbanization, hospitalization rates for methadone-related poisonings ranged from 1.4 in large fringe metropolitan counties to 2.0 in small metropolitan counties (**Table 3a**).

Emergency Department (ED) Visits

- In 2015, an estimated 3,709 ED visits occurred for methadone-related poisonings in the U.S.; the age-adjusted rate was 1.1 visits per 100,000 (**Table 3b**).
  - By gender, the rate was 1.3 among males and 1.0 among females.
  - By age, rates were highest among persons aged 25–34 (2.3) and persons aged 35–44 (1.9).
- By region, ED visit rates for methadone-related poisonings ranged from 0.9 in the South to 1.6 in the Northeast (**Table 3b**).
- By urbanization, ED visit rates for methadone-related poisonings ranged from 0.9 in large fringe metropolitan counties to 1.3 in small metropolitan and noncore counties (**Table 3b**).

Other Opioids (e.g., Unspecified Opioids, Opium)

Hospitalizations

- In 2015, an estimated 58,090 hospitalizations occurred for poisonings by other opioids in the U.S.; the age-adjusted rate was 16.7 hospitalizations per 100,000 (**Table 3a**).
  - By gender, the rate was 14.5 among males and 18.8 among females.
  - By age, rates were highest among persons aged 45–54 (28.2) and persons aged 55–64 (35.7).
- By region, hospitalization rates for poisonings by other opioids ranged from 14.5 in both the Northeast and West to 18.7 in the South (**Table 3a**).
- By urbanization, hospitalization rates for poisonings by other opioids ranged from 14.8 in large central metropolitan counties to 19.7 in medium metropolitan counties (**Table 3a**).

Emergency Department (ED) Visits

- In 2015, an estimated 56,233 ED visits occurred for poisonings by other opioids in the U.S.; the age-adjusted rate was 17.3 visits per 100,000 (**Table 3b**).
  - By gender, the rate was 17.5 among males and 17.1 among females.
  - By age, rates were highest among persons aged 20–24 (26.0) and persons aged 25–34 (28.6).
- By region, ED visit rates for poisonings by other opioids ranged from 16.4 in the West to 18.8 in the Northeast (**Table 3b**).
- By urbanization, ED visit rates for poisonings by other opioids ranged from 14.0 in large central metropolitan counties to 21.7 in noncore counties (**Table 3b**).

Stimulants

Cocaine

Hospitalizations

- In 2015, an estimated 18,885 hospitalizations occurred for cocaine-related poisonings in the U.S.; the age-adjusted rate was 5.8 hospitalizations per 100,000 (**Table 3a**).
  - By gender, the rate was 7.7 among males and 3.9 among females.
  - By age, rates were highest among persons aged 35–44 (9.2) and persons aged 45–54 (13.2).

- By region, hospitalization rates for cocaine-related poisonings ranged from 2.1 in the West to 9.5 in the Northeast (**Table 3a**).
- By urbanization, hospitalization rates for cocaine-related poisonings ranged from 2.5 in noncore counties to 8.6 in large central metropolitan counties (**Table 3a**).

Emergency Department (ED) Visits

- In 2015, an estimated 9,401 ED visits occurred for cocaine-related poisonings in the U.S.; the age-adjusted rate was 3.0 visits per 100,000 (**Table 3b**).
  - By gender, the rate was 3.9 among males and 2.2 among females.
  - By age, rates were highest among persons aged 20–24 (5.1) and persons aged 25–34 (6.4).
- By region, ED visit rates for cocaine-related poisonings ranged from 1.5 in the West to 3.7 in the Northeast (**Table 3b**).
- By urbanization, ED visit rates for cocaine-related poisonings ranged from 2.4 in both large fringe metropolitan and small metropolitan counties to 3.6 in large central metropolitan counties (**Table 3b**).

Methamphetamine

Hospitalizations

- In 2015, an estimated 14,845 hospitalizations occurred for methamphetamine-related poisonings in the U.S.; the rate was 4.7 hospitalizations per 100,000 (**Table 3a**).
  - By gender, the rate was 5.9 among males and 3.6 among females.
  - By age, rates were highest among persons aged 20–24 (8.0) and persons aged 25–34 (9.8).
- By region, hospitalization rates for methamphetamine-related poisonings ranged from 1.7 in the Northeast to 7.7 in the West (**Table 3a**).
- By urbanization, hospitalization rates for methamphetamine-related poisonings ranged from 3.6 in large fringe metropolitan counties to 6.3 in micropolitan counties (**Table 3a**).

Emergency Department (ED) Visits

- In 2015, an estimated 15,808 ED visits occurred for methamphetamine-related poisonings in the U.S.; the age-adjusted rate was 5.2 visits per 100,000 (**Table 3b**).
  - By gender, the rate was 6.2 among males and 4.2 among females.
  - By age, rates were highest among persons aged 20–24 (11.8) and persons aged 25–34 (10.3).
- By region, ED visit rates for methamphetamine-related poisonings ranged from 2.3 in the Northeast to 6.8 in the West (**Table 3b**).
- By urbanization, ED visit rates for methamphetamine-related poisonings ranged from 3.4 in large fringe metropolitan counties to 8.5 in noncore counties (**Table 3b**).

Primary Source of Payment for Medically Attended, Nonfatal Drug Overdose, 2015 (Table 3c)

- 31.6% of hospitalizations listed Medicaid as the primary source for payment, 30.5% listed Medicare, 23.9% listed private insurance, and 10.4% involved uninsured persons.
- 36.7% of ED visits listed Medicaid as the primary source for payment, 28.5% listed private insurance, 15.2% listed Medicare, and 14.9% involved uninsured persons.

Drug Overdose Mortality

Data on drug overdose deaths for all persons in the U.S. are presented from the National Vital Statistics System:

- Number and age-adjusted rates of drug overdose deaths involving selected drugs by sex, age group, race/ethnicity, census region, urbanization, and intent — United States, 2016 (**Table 4**)
- Age-adjusted rates of drug overdose deaths and drug overdose deaths involving any opioid for all intents and for unintentional intent by year — United States, 1999–2016 (**Figure 2a**)
- Age-adjusted rates of drug overdose deaths by drug or drug class and year — United States, 1999–2016 (**Figure 2b**)
- Rates of drug overdose deaths by drug or drug class and age category — United States, 2016 (**Figure 2c**)
- Age-adjusted rates of drug overdose deaths by state — United States, 2016 (**Figure 2d**)

Rates are calculated per 100,000 persons age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year (excluding those for age group, which are not adjusted and are per 100,000 persons). For more detailed information, including definitions, please refer to **table footnotes** and the **technical notes**.

Data supporting **Figures 2a–2d** are presented in **Supplemental Tables** in the Appendix.

All Drug Overdose Deaths

- In 2016, a total of 63,632 persons in the United States died from drug overdoses; the age-adjusted rate was 19.8 deaths per 100,000 persons.
  - By sex, the rate was 26.2 among males and 13.4 among females.
  - By age, rates were highest among persons aged 25–34 (34.6), persons aged 35–44 (35.0), and persons aged 45–54 (34.5).
  - By race/ethnicity, rates ranged from 3.1 among non-Hispanic Asians/Pacific Islanders to 25.3 among non-Hispanic whites.
  - By region, age-adjusted death rates from drug overdose ranged from 14.1 in the West to 26.6 in the Northeast.
  - By urbanization, age-adjusted death rates from drug overdose ranged from 17.5 in noncore areas to 21.6 in large fringe metropolitan areas.
- In 2016, a total of 54,793 persons in the U.S. died from unintentional drug overdoses; the age-adjusted rate was 17.1. A total of 3,643 persons died of drug overdoses of undetermined intent; the age-adjusted rate was 1.1.

Opioid Overdose Deaths

- In 2016, a total of 42,249 persons in the United States died from drug overdoses involving opioids; the age-adjusted rate was 13.3 per 100,000.
  - By sex, the rate was 18.1 among males and 8.5 among females.
  - By age, rates were highest among persons aged 25–34 (25.9) and persons aged 35–44 (24.1).
  - By race/ethnicity, rates ranged from 1.5 among non-Hispanic Asians/Pacific Islanders to 17.5 among non-Hispanic whites.
  - By region, age-adjusted death rates for drug overdoses involving opioids ranged from 7.6 in the West to 19.3 in the Northeast.
  - By urbanization, age-adjusted death rates for drug overdoses involving opioids ranged from 10.5 in noncore areas to 15.4 in large fringe metropolitan areas.

- In 2016, a total of 37,814 persons in the U.S. died from unintentional drug overdoses involving opioids; the age-adjusted rate was 11.9. A total of 2,544 persons died of drug overdoses of undetermined intent involving opioids; the age-adjusted rate was 0.8.

Prescription Opioid Overdose Deaths

- In 2016, a total of 17,087 persons in the United States died from drug overdoses involving prescription opioids (natural and semi-synthetic opioids [e.g., oxycodone and hydrocodone] and methadone); the age-adjusted rate was 5.2 per 100,000.
  - By sex, the rate was 6.2 among males and 4.3 among females.
  - By age, rates were highest among persons aged 45–54 (10.1) and persons aged 35–44 (9.2).
  - By race/ethnicity, rates ranged from 0.7 among non-Hispanic Asians/Pacific Islanders to 7.0 among non-Hispanic whites.
  - By region, age-adjusted death rates for drug overdoses involving prescription opioids ranged from 4.3 in the West to 5.8 in the South.
  - By urbanization, age-adjusted death rates for drug overdoses involving prescription opioids ranged from 4.7 in large central metropolitan areas to 6.0 in medium metropolitan areas.
- In 2016, a total of 14,432 persons in the U.S. died from unintentional drug overdoses involving prescription opioids; the age-adjusted rate was 4.5. A total of 1,232 persons died of drug overdoses of undetermined intent involving prescription opioids; the age-adjusted rate was 0.4.

Natural and Semi-synthetic Opioid Overdose Deaths

- In 2016, a total of 14,487 persons in the United States died from drug overdoses involving natural and semi-synthetic opioids (e.g., oxycodone, hydrocodone, or morphine); the age-adjusted rate was 4.4 per 100,000.
  - By sex, the rate was 5.2 among males and 3.6 among females.
  - By age, rates were highest among persons aged 45–54 (8.7) and persons aged 35–44 (7.7).
  - By race/ethnicity, rates ranged from 0.6 among non-Hispanic Asians/Pacific Islanders to 6.0 among non-Hispanic whites.
  - By region, age-adjusted death rates for drug overdoses involving natural and semi-synthetic opioids ranged from 3.5 in the West to 5.0 in the South.
  - By urbanization, age-adjusted death rates for drug overdoses involving natural and semi-synthetic opioids ranged from 3.9 in large central metropolitan areas to 5.1 in medium metropolitan areas.
- In 2016, a total of 12,101 persons in the U.S. died from unintentional drug overdoses involving natural and semi-synthetic opioids; the age-adjusted rate was 3.7. A total of 1,046 persons died of drug overdoses of undetermined intent involving natural and semi-synthetic opioids; the age-adjusted rate was 0.3.

Methadone Overdose Deaths

- In 2016, a total of 3,373 persons in the United States died from drug overdoses involving methadone; the age-adjusted rate was 1.0 per 100,000.
  - By sex, the rate was 1.3 among males and 0.8 among females.
  - By age, rates were highest among persons aged 35–44 (2.0) and persons aged 45–54 (1.8).
  - By race/ethnicity, rates ranged from 0.1 among non-Hispanic Asian/Pacific Islanders to 1.4 among both non-Hispanic whites and non-Hispanic American Indians/Alaskan Natives.
  - By region, age-adjusted death rates for drug overdoses involving methadone ranged from 0.9 in the Midwest to 1.3 in the Northeast.
  - By urbanization, age-adjusted death rates for drug overdoses involving methadone ranged from 1.0 in large fringe metropolitan areas, small metropolitan areas, and in micropolitan and noncore areas to 1.1 in both medium metropolitan areas and in large central metropolitan areas.

- In 2016, a total of 2,996 persons in the U.S. died from unintentional drug overdoses involving methadone; the age-adjusted rate was 0.9. A total of 258 persons died of drug overdoses of undetermined intent involving methadone; the age-adjusted rate was 0.1.

Synthetic Opioids Other than Methadone Overdose Deaths

- In 2016, a total of 19,413 persons in the United States died from drug overdoses involving synthetic opioids other than methadone (e.g., prescription and illicit fentanyl, tramadol); the age-adjusted rate was 6.2 per 100,000.
  - By sex, the rate was 8.9 among males and 3.5 among females.
  - By age, rates were highest among persons aged 25–34 (13.6) and persons aged 35–44 (11.9).
  - By race/ethnicity, rates ranged from 0.6 among non-Hispanic Asians/Pacific Islanders to 8.2 among non-Hispanic whites.
  - By region, age-adjusted death rates for drug overdoses involving synthetic opioids other than methadone ranged from 1.2 in the West to 12.0 in the Northeast.
  - By urbanization, age-adjusted death rates for drug overdoses involving synthetic opioids other than methadone ranged from 4.1 in noncore areas to 8.2 in large fringe metropolitan areas.
- In 2016, a total of 17,696 persons in the U.S. died from unintentional drug overdoses involving synthetic opioids other than methadone; the age-adjusted rate was 5.7. A total of 1,259 persons died of drug overdoses of undetermined intent involving synthetic opioids other than methadone; the age-adjusted rate was 0.4.

Heroin Overdose Deaths

- In 2016, a total of 15,469 persons in the United States died from drug overdoses involving heroin; the age-adjusted rate was 4.9 per 100,000.
  - By sex, the rate was 7.5 among males and 2.4 among females.
  - By age, rates were highest among persons aged 25–34 (11.3) and persons aged 35–44 (9.0).
  - By race/ ethnicity, rates ranged from 0.5 among non-Hispanic Asians/Pacific Islanders to 6.3 among non-Hispanic whites.
  - By region, age-adjusted death rates for drug overdoses involving heroin ranged from 2.7 in the West to 7.9 in the Northeast.
  - By urbanization, age-adjusted death rates for drug overdoses involving heroin ranged from 2.6 in noncore areas to 6.1 in large fringe metropolitan areas.
- In 2016, a total of 14,606 persons in the U.S. died from unintentional drug overdoses involving heroin; the age-adjusted rate was 4.6. A total of 745 persons died of drug overdoses of undetermined intent involving heroin; the age-adjusted rate was 0.2.

Selected Stimulant Overdose Deaths

Cocaine Overdose Deaths

- In 2016, a total of 10,375 persons in the United States died from drug overdoses involving cocaine; the age-adjusted rate was 3.2 per 100,000.
  - By sex, the rate was 4.7 among males and 1.8 among females.
  - By age, rates were highest among persons aged 45–54 (6.1) and persons aged 35–44 (6.0).
  - By race/ethnicity, rates ranged from 0.4 among non-Hispanic Asians/Pacific Islanders to 6.1 among non-Hispanic blacks.
  - By region, age-adjusted death rates for drug overdoses involving cocaine ranged from 1.1 in the West to 5.3 in the Northeast.
  - By urbanization, age-adjusted death rates for drug overdoses involving cocaine ranged from 1.3 in noncore areas to 4.2 in large central metropolitan areas.

- In 2016, a total of 9,899 persons in the U.S. died from unintentional drug overdoses involving cocaine; the age-adjusted rate was 3.1. A total of 378 persons died of drug overdoses of undetermined intent involving cocaine; the age-adjusted rate was 0.1.

Psychostimulants with Abuse Potential Overdose Deaths

- In 2016, a total of 7,542 persons in the United States died from drug overdoses involving psychostimulants with abuse potential (e.g., methamphetamine, 3,4-methylenedioxy-methamphetamine [MDMA, Ecstasy]); the age-adjusted rate was 2.4 per 100,000.
  - By sex, the rate was 3.4 among males and 1.4 among females.
  - By age, rates were highest among persons aged 45–54 and those aged 35–44 (4.5 in both).
  - By race/ethnicity, rates ranged from 0.8 among non-Hispanic Asians/Pacific Islanders to 6.9 among non-Hispanic American Indians/Alaska Natives.
  - By region, age-adjusted death rates for drug overdoses involving psychostimulants with abuse potential ranged from 0.8 in the Northeast to 4.4 in the West.
  - By urbanization, age-adjusted death rates for drug overdoses involving psychostimulants with abuse potential ranged from 1.6 in large fringe metropolitan areas to 3.0 in micropolitan areas.
- In 2016, a total of 7,120 persons in the U.S. died from unintentional drug overdoses involving psychostimulants with abuse potential; the age-adjusted rate was 2.2. A total of 246 persons died of drug overdoses of undetermined intent involving psychostimulants with abuse potential; the age-adjusted rate was 0.1.

Mortality Trends

Age-adjusted rates of drug overdose deaths and drug overdose deaths involving any opioid for all intents and for unintentional intent by year — United States, 1999–2016 (**Figure 2a**)

- The age-adjusted rate of drug overdose deaths of all intents increased from 6.1 per 100,000 in 1999 to 19.8 in 2016 ($p<0.05$). Unintentional drug overdose death rates increased from 4.0 per 100,000 in 1999 to 17.1 in 2016 ($p<0.05$).
- The rate of drug overdose deaths involving any opioid of all intents increased from 2.9 per 100,000 in 1999 to 13.3 in 2016 ($p<0.05$). Unintentional drug overdose death rates involving any opioid increased from 2.1 per 100,000 in 1999 to 11.9 per 100,000 in 2016 ($p<0.05$).
- During 1999 to 2016, rate increases for drug overdose deaths of all intents and unintentional drug overdose deaths were the largest from 2014 to 2016. Rate increases for drug overdose deaths involving any opioid of all intents and unintentional drug overdoses involving any opioid were the largest from 2013 to 2016.
  - The rate increased on average by 18% per year for drug overdose deaths of all intents ($p<0.05$), and 20% per year for unintentional drug overdose deaths ($p<0.05$) between 2014 and 2016. The rate increased on average by 19% per year for drug overdose deaths involving any opioid of all intents ($p<0.05$), and 20% for unintentional drug overdoses involving any opioid ($p<0.05$) between 2013 and 2016.

Age-adjusted rates of drug overdose deaths by drug or drug class and year — United States,1999–2016 (**Figure 2b**)

- The age-adjusted rate of drug overdose deaths involving prescription opioids increased from 1.2 per 100,000 persons in 1999 to 5.2 in 2016.
  - Rates of drug overdose deaths involving prescription opioids increased from 3.9 per 100,000 in 2006 to 5.2 in 2016, an average increase of 2% per year ($p<0.05$).

- For drug overdoses involving synthetic opioids other than methadone, the rate increased from 0.3 per 100,000 in 1999 to 6.2 in 2016.
  - Rates for drug overdose deaths involving synthetic opioids other than methadone increased on average 18% per year from 1999 to 2006 ($p<0.05$), and remained stable from 2006 to 2013 ($p=0.47$). Increases were largest from 2013 to 2016 ($p<0.05$), with the rates increasing on average by 87% per year.
- The age-adjusted rate of drug overdose deaths involving heroin increased from 0.7 per 100,000 in 1999 to 4.9 in 2016.
  - Rates for drug overdose deaths involving heroin remained stable from 1999 to 2004 ($p=0.99$) and increased on average 9% per year from 2004 to 2010 ($p<0.05$). Heroin rates increased on average 33% per year from 2010 to 2014 ($p<0.05$), and 19% per year from 2014 to 2016 ($p<0.05$).
- The age-adjusted rate of drug overdose deaths involving cocaine increased from 1.4 per 100,000 in 1999 to 3.2 in 2016.
  - Rates for drug overdose deaths involving cocaine increased on average 10% per year from 1999 to 2006 ($p<0.05$), decreased on average 14% per year from 2006 to 2010, ($p<0.05$), were stable from 2010 to 2014 ($p=0.26$), and then increased on average 37% per year from 2014 to 2016 ($p<0.05$).
- The age-adjusted rate of drug overdose deaths involving psychostimulants with abuse potential increased from 0.2 per 100,000 in 1999 to 2.4 in 2016.
  - Rates for drug overdose deaths involving psychostimulants with abuse potential increased on average 20% per year from 1999 to 2005 ($p<0.05$), remained stable from 2005 to 2008 ($p=0.47$), and increased an average of 26% per year from 2008 to 2016. ($p<0.05$).

Rates of drug overdose deaths by drug or drug class and age category — United States, 2016 (**Figure 2c**)

- Among persons aged 15 to 24, the rate of drug overdose deaths involving heroin was 4.0 per 100,000; the rate involving synthetic opioids other than methadone was 4.5, and the rate involving prescription opioids was 2.6.
- Among persons aged 25 to 34, the rate of drug overdose deaths involving heroin was 11.3 per 100,000; the rate involving synthetic opioids other than methadone was 13.6, and the rate involving prescription opioids was 7.7.
- Among persons aged 35 to 44, the rate of drug overdose deaths involving heroin was 9.0 per 100,000; the rate involving prescription opioids was 9.2, and the rate involving synthetic opioids other than methadone was 11.9.
- Among persons aged 45 to 54, the rate of drug overdose deaths involving prescription opioids was 10.1 per 100,000; the rate involving heroin was 7.0, and the rate involving synthetic opioids other than methadone was 9.0.
- Among persons aged 55 to 64, the rate of drug overdose deaths involving prescription opioids was 8.4 per 100,000; the rate involving heroin was 4.3, and the rate involving synthetic opioids other than methadone was 5.4.
- Rates of drug overdose deaths involving cocaine were 6.1 per 100,000 among persons aged 45 to 54, 6.0 among persons aged 35 to 44, 5.7 among persons aged 25 to 34, 4.2 among persons aged 55 to 64, 1.7 among persons aged 15 to 24, and 0.6 among persons aged 65 and older.
- Rates of deaths involving psychostimulants with abuse potential were 4.5 per 100,000 among persons aged 45 to 54, 4.5 among persons aged 35 to 44, 3.9 among persons aged 25 to 34, 3.0 among persons aged 55 to 64, 1.3 among persons aged 15 to 24, and 0.4 among persons aged 65 and older.

Age-adjusted rates of drug overdose deaths by state — United States, 2016 (**Figure 2d**)

- Rates of drug overdose deaths ranged from 6.4 per 100,000 in Nebraska to 52.0 in West Virginia in 2016.
  - States with the highest drug overdose death rates were West Virginia (52.0 per 100,000), Ohio (39.1), New Hampshire (39.0), Pennsylvania (37.9), and Kentucky (33.5). The District of Columbia had a drug overdose death rate of 38.8 per 100,000.
  - States with the lowest drug overdose death rates were Nebraska (6.4 per 100,000), South Dakota (8.4), Texas (10.1), Iowa (10.6), and North Dakota (10.6).

Limitations

This report has some notable limitations. To describe drug use and outcomes in the U.S. comprehensively, four distinct data sources were used. Although attempted when possible, terminology and definitions were not standardized throughout the entire report. Further, the most recent year of available data varied. Collectively, these factors limit comparability of information across sections. Consumers of the report should carefully review the **technical notes** and **footnotes** to ensure correct interpretation of results, especially when comparing information across sections.

In the mortality section, it should be noted that in approximately 20% of drug overdose deaths from 1999 to 2016, the involved drugs were not specified. Although this lack of specificity varies over time and across states, the drug specificity has improved over time. However, in 2016, 15% of drug overdose deaths still lacked information about which drugs were involved. Finally, the report does not address polysubstance use (i.e., the consumption of more than one drug over a defined period, simultaneously or at different times, for either therapeutic or recreational purposes). Although this topic is important, it is beyond the scope of this report.

CDC's Opioid Overdose Surveillance, Prevention, and Research Efforts

CDC's mission in addressing the opioid epidemic is to prevent opioid-related harms and overdose deaths by:

1. Conducting surveillance and research to improve data quality and track trends;
2. Building state, local, and tribal capacity by scaling up effective public health interventions;
3. Supporting providers, health systems, and payers with tools, recommendations, and guidance to improve patient safety;
4. Partnering with public safety to respond quicker and more effectively; and
5. Empowering consumers to make safe choices.

Conducting surveillance and research, and building state, local, and tribal capacity

CDC plays a vital role in strengthening public health surveillance of opioids at the state and federal levels to inform and enhance prevention activities. Through its Overdose Prevention in States (OPIS) effort, CDC maximizes its expertise and use of scientific data to inform response efforts. CDC funds multiple programs whose activities align with the integration of public health strategies to address the epidemic. Programs include the following:

1. Enhanced State Opioid Overdose Surveillance (ESOOS) – funds 32 states and Washington, D.C. to:
   - **a** Increase the timeliness of nonfatal opioid overdose reporting to serve as an early warning system to detect sharp increases (i.e., potential outbreaks) or decreases (i.e., rapidly identify successful intervention efforts)
   - **b** Increase the timeliness of fatal opioid overdose and associated risk factor reporting
   - **c** Disseminate surveillance findings to key stakeholders working to prevent or respond to opioid overdoses

2. Prevention for States (PfS) – funds 29 states to:
   - **a** Enhance and maximize prescription drug monitoring programs (PDMPs)
   - **b** Implement community or insurer mechanism or health systems interventions
   - **c** Evaluate the impact of prescription opioid-related state policies
   - **d** Implement quick, flexible projects to respond to changing circumstances on the ground

3. Data-Driven Prevention Initiative (DDPI) – funds 13 states and Washington, D.C. to:
   - **a** Improve data collection and analysis around opioid misuse, abuse, and overdose
   - **b** Develop strategies that impact behavior driving prescription opioid abuse
   - **c** Work with communities to develop more comprehensive opioid overdose prevention programs

Supporting providers, health systems, and payers

CDC's *Guideline for Prescribing Opioids for Chronic* Pain,[1] which was released in March 2016, serves as a useful resource to providers treating chronic pain for adult patients in primary care settings outside of end-of-life, palliative, and active cancer care. Its 12 recommendations allow patients and clinicians to determine risks and benefits of opioid therapy and to determine optimal ways to manage pain. These recommendations include consideration of nonopioid options that may be more effective at treating chronic pain, such as physical therapy. Tools and resources, such as the Opioid Guideline App, which contains a morphine milligram equivalent calculator, help disseminate information contained in the guideline and make it easier for physicians to make better informed decisions about prescribing. More information can be found at: **https://www.cdc.gov/drugoverdose/prescribing/resources.html**.

To encourage uptake of the guideline, CDC developed a comprehensive implementation plan. Since health care systems have the potential to improve pain management, including safer use of opioids through guideline-concordant care on a broad scale, CDC developed quality improvement (QI) measures based on the guideline, with stakeholder engagement. These are voluntary QI measures intended to support practice improvement for primary care practices by tracking opioid prescribing and providing feedback to clinicians through a data dashboard. Six large health care systems are part of a 12-month Opioid QI Collaborative to pilot implementation of the QI measures and track their progress. In addition, CDC has developed clinical decision support tools also based on the guideline that health care systems can incorporate into clinical workflow in their electronic health records.

CDC also funds cutting-edge research on ways to prevent opioid use disorder and overdose. For example, research priorities include identifying factors that increase risk for morbidity and mortality, evaluating the impact of state policies and strategies on prescribing behavior and health outcomes, and understanding best practices for dissemination and implementation of evidence-based guidelines and recommendations in practice.

Partnering with public safety

CDC believes this epidemic requires a partnership across sectors. In addition to the critical partnership with states and other federal agencies, CDC has been working side by side with law enforcement agencies, such as the Drug Enforcement Administration (DEA) and the High Intensity Drug Trafficking Areas (HIDTAs). Working quickly and collaboratively, public health and public safety can help equip first responders and community partners with naloxone to prevent deaths from overdoses in these areas and link people with treatment and recovery services.

As a part of this work with public safety, CDC is leading the public health component of the Heroin Response Strategy, a collaboration with the Office of the National Drug Control Policy and 10 HIDTAs. The goals of this partnership are three-fold: to coordinate data sharing across public health and law enforcement, to develop and support the implementation of evidence-based practices, and to strengthen the engagement of local communities. As a part of the Heroin Response Strategy, CDC is supporting 13 community-level projects that will implement and evaluate innovative strategies to build evidence around programs that work. These projects tackle complex issues, such as linking people to treatment with recovery coaches and increasing access to medication-assisted treatment. Our hope is that communities can leverage these strategies to create local, targeted responses.

Empowering consumers

CDC raises awareness about the risks of opioid misuse and abuse in order to empower people to make safe choices. CDC created the Rx Awareness campaign to educate everyone about the dangers and risks of prescription opioids. The Rx Awareness campaign tells the real stories of people whose lives were torn apart by misuse of prescription opioids through videos, radio spots, social media, signs and billboards, and online ads. State and local health departments and community organizations can use the tested campaign materials and resources to launch campaigns, support local prevention activities, and raise awareness about the risks of prescription opioids. More information can be found at: **https://www.cdc.gov/rxawareness/index.html**.

Urgent work remains to end the opioid overdose epidemic in the United States. Additional measures are needed to address a diverse and evolving array of drug types. Improving drug overdose surveillance, empowering and equipping states with the resources and information they need, improving ways that opioids are prescribed through clinical practice guidelines, and forming critical partnerships are at the heart of the CDC's National Center for Injury Prevention and Control's work to combat the overdose epidemic.

TECHNICAL NOTES

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

TECHNICAL NOTES

Data Sources, Definitions, and Analysis

This report uses the most recently available data from four sources. Information on opioid prescribing practices were obtained from the IQVIA™ Transactional Data Warehouse (TDW) and Total Patient Tracker (TPT). Estimated prescribing rates focus on information from 2017, but data are presented on prescribing trends from 2006 to 2017. Substance use and misuse data were obtained from the Substance Abuse and Mental Health Services Administration's (SAMHSA) 2016 National Survey on Drug Use and Health (NSDUH). Information on medically attended non-fatal drug-related poisonings were obtained from the Healthcare Cost and Utilization Project's (HCUP) National Inpatient Sample (NIS) and Nationwide Emergency Department Sample (NEDS) 2015 surveys. Mortality rates were obtained from the National Vital Statistics System's (NVSS) 2016 mortality file, and trends were presented from 1999-2016. Variables for demographic characteristics (age, gender/sex, race and ethnicity, and geographic region) were standardized across data sources to the extent possible.

Opioid Prescribing

Data Source

Data on opioid prescribing were derived from the IQVIA™ Transactional Data Warehouse (TDW) and Total Patient Tracker (TPT). TDW provided estimates of the number of opioid prescriptions dispensed in the United States via retail. TPT provided national estimates of the total number of unique persons who had at least one opioid prescription dispensed during the year examined in the retail outpatient setting from United States retail pharmacies. Prescription coverage is 92% in both data sources. A prescription is an initial or refill dispensed pharmaceutical paid for by commercial third party, Medicaid, Medicare Part D, or cash.

Opioid prescriptions, including codeine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, propoxyphene, tapentadol, tramadol, Butrans® and Belbuca® (buprenorphine), were identified using the National Drug Code. Cough and cold formulations containing opioids were not included. Formulations of buprenorphine, an opioid primarily used for treatment of opioid use disorder, were not included, with the exception of Butrans®, a transdermal buprenorphine formulation, and Belbuca®, an oral buprenorphine formulation, both used for pain management. In addition, methadone dispensed through methadone maintenance treatment programs was not included in IQVIA™ TDW data.

Definitions

- **Days of supply**: Number of days the supply of a dispensed medication will last.

- **Long-acting (LA) or extended-release (ER) opioids**: slower-acting opioids with a longer duration of pain-relieving action, including the following branded and generic drug products:
  - Extended-release, oral dosage forms containing:
    - Hydromorphone
    - Morphine
    - Oxycodone
    - Oxymorphone
    - Tapentadol
  - Extended-release, transdermal delivery systems containing:
    - Fentanyl
    - Buprenorphine
  - Long-acting tablets and solutions used as analgesics containing:
    - Methadone

- **Morphine milligram equivalents (MME)**: For a comparison of opioid doses, a methodology was developed to equate the many different opioids into one standard value. This standard value is based on morphine and its potency, referred to as morphine milligram equivalents (MME). MME helps determine the potency of persons' opioid doses and is useful if converting from one opioid to another. This measure provides the amount of opioids dispensed (i.e., dosage).

- **Morphine milligram equivalent per day (MME/day):**
  - MME/day = strength per unit x (number of units/ days of supply) x MME conversion factor
  - "Number of units" and "days of supply" come from the prescription. "Strength per unit" and "MME conversion factor" can be determined from the National Drug Code.
  - Data files of select controlled substances including opioids with oral MME conversions factors (2017 version) can be found at: https://www.cdc.gov/drugoverdose/resources/data.html.
  - For combination drugs, "strength" refers to the strength of the controlled substance component of the drug per unit specified in unit of measure.
  - Examples:
    - 10 mg oxycodone tables x (120 tablets/ 30 days) x 1.5 = 60 MME/day
    - 25 µg/hr fentanyl patch x (10 patches/ 30 days) x 7.2 = 60 MME/day

- **High-dose prescription**: prescriptions with a dose greater than or equal to 90 MME/day.
  - Examples:
    - 90 mg of hydrocodone (9 tablets of hydrocodone 10 mg+acetaminophen 325 mg)
    - 60 mg of oxycodone (2 tablets of oxycodone extended-release 30 mg)
    - ~20 mg of methadone (4 tablets of methadone 5 mg)

Statistical Analysis

The percent of persons who had at least one prescription filled for an opioid is derived using unique counts from TPT and census population numbers. Annual resident population denominator estimates were obtained from the Population Estimates Program, U.S. Census Bureau. For population data, **2000–2010 Intercensal Estimates of the Resident Population for Counties and States** were used for 2006–2010 rate calculations; **2010–2017 Postcensal Estimates of the Resident Population for Counties and National** were used for 2011–2017. For data stratified by age groups, the patient counts by age group for each gender do not sum to the total for each gender because the totals were calculated separately from TPT to avoid potential double-counting of persons.

Annual opioid prescribing rates were calculated by dividing the total number of opioid prescriptions dispensed in a given year, or state, as appropriate, by the census population. All rates are per 100 persons of all ages.

Temporal trends of national opioid prescribing rates and amounts of opioids prescribed from 2006 to 2017 were evaluated by applying joinpoint regression methodology.[2] This modeling approach simultaneously identified statistically significant trends as well as shifts in trends that occurred within a time series. A maximum of two joinpoints was allowed, and the permutation method was used for model selection. The most parsimonious models were selected to report the estimated annual percent change (APC) for each time segment detected and the average annual percent change (AAPC) for the full study period. The terms "increasing" or "decreasing" were used to describe the trend when APC for each time segment was statistically significantly different from 0 ($p<0.05$); otherwise, the trend was described as "stable." Year categories presented in Table 1d represented year groupings as determined by joinpoint regression.

Drug Use, Misuse, Substance Use Disorder, and Treatment

Data Source

The National Survey on Drug Use and Health (NSDUH) is an annual face-to-face household survey administered by the Substance Abuse and Mental Health Services Administration.[3] NSDUH includes questions about substance use behavior, substance use initiation, substance use disorders, substance use treatment, and mental health. NSDUH collects data from civilian, noninstitutionalized persons aged 12 years and older residing in all 50 states and the District of Columbia. Noninstitutionalized persons include residents living in some group settings (e.g., shelters, boarding houses, college dormitories). NSDUH excludes persons with no fixed address (e.g., homeless and/or transient people not in shelters), active-duty military personnel, and residents of institutional group quarters, such as correctional facilities, nursing homes, mental institutions, and long-term care hospitals.

Sampling and Data Collection

NSDUH collects data using a state-based, multistage area probability sample.[3] Each state is stratified into sampling regions of approximately equal population sizes. Census tracts are selected within sampling regions, census block groups are selected within census tracts, area segments are selected within census block groups, and dwelling units are selected within area segments. A maximum of two residents per dwelling unit, 12 years of age or older, are selected to participate in the interview. Because NSDUH collects information from self-reports of substance use behavior, these data might be subject to social desirability bias, leading to over- or underreporting of certain behaviors. NSDUH employs various methods to minimize these potential biases, such as assuring confidentiality of responses and using computer-assisted self-interviewing to maintain privacy. NSDUH data reflect prevalence estimates for the entire U.S. non-institutionalized population aged 12 and older, accounting for the survey's complex sample design.

Although substantial modifications were made to the prescription drug questions in the 2015 NSDUH,[4] making it incomparable to previous years, no significant changes to questions producing the variables included in this report were made in the 2016 NSDUH. Therefore the 2016 data should be comparable to the 2015 data. The 2016 NSDUH results did include a new drug category of opioids (heroin use or prescription pain reliever misuse) that was not in previous results, resulting in a new column in some of the NSDUH tables in this report.

Definitions

In specific tables in this report, estimates are provided for the combination of illicit drug use and prescription drug misuse. NSDUH defines a broad category of "illicit drug use" as use of illicit drugs: including marijuana, cocaine (including crack), heroin, hallucinogens (including PCP, LSD, Ecstasy, ketamine, DMT, AMT, or Foxy, and *Salvia divinorum*), inhalants, methamphetamine, or prescription psychotherapeutics that were misused, which include pain relievers, tranquilizers, stimulants, and sedatives.

We avoid using the term "illicit drug use" to mean use of illicit drugs and misuse of prescription drugs collectively in this report and prefer to keep misuse of prescription drugs distinct from the use of illicit drugs to maintain consistency with other data sources included.

This report provides NSDUH prevalence estimates of misuse and overall use (including use as directed by a doctor and misuse) for the following prescription drug categories, together referred to by NSDUH as "prescription psychotherapeutics":

- **Prescription pain relievers** included opioids and covered the following drug subcategories: hydrocodone products, oxycodone products, tramadol products, codeine products, morphine products, fentanyl products, buprenorphine products, oxymorphone products, hydromorphone products, methadone, or any other prescription pain reliever;

- **Prescription tranquilizers** included drugs intended to reduce anxiety, specifically benzodiazepines (e.g., alprazolam; lorazepam, clonazepam, or diazepam); or to quell muscle spasms, specifically muscle relaxants (e.g., cyclobenzaprine);

- **Prescription stimulants** included drugs prescribed for treatment of attention-deficit hyperactivity disorder (e.g., dextroamphetamine, methylphenidate) or obesity (e.g., benzphetamine, phentermine);

- **Prescription sedatives** included drugs that are intended to manage sleep disorders, such as zolpidem, eszopicione, zaleplon, benzodiazepine sedatives (e.g., temazepam, triazolam), and barbiturates (e.g., butabarbital, secobarbital).

This report also provides NSDUH prevalence estimates of use for the following illicit substances:

- **Marijuana** was classified as an illicit substance in NSDUH despite being legalized in the states of some respondents since it remains an illegal substance (Schedule I drug) under federal law
- **Opioids** is a new category in this year's report and is a combination of heroin use and prescription pain reliever misuse
- **Heroin**
- **Cocaine** included powder, crack, free base, and coca paste
- **Methamphetamine**

Census regions were defined by the following jurisdictions:

- **Northeast**: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont
- **Midwest**: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
- **South**: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia
- **West**: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming

Patient residence was determined according to categories of 2013 National Center for Health Statistics Urban-Rural Classification Scheme for Counties.[5] Metropolitan and nonmetropolitan categories were subdivided into the following categories.

- **Large metropolitan statistical areas** (MSAs) had a total population of 1 million or more.
- **Small metropolitan areas** had a total population of fewer than 1 million.
- **Nonmetropolitan** counties were classified according to the aggregate size of their urban population. Nonmetropolitan areas include counties in micropolitan statistical areas and counties outside of both metropolitan and micropolitan statistical areas and are classified as follows:
  – "urbanized"
  – "less urbanized"
  – "completely rural"

The OMB defined nonmetropolitan counties according to (a) the size of the population in urbanized areas within the county (i.e., a population of 20,000 or more in urbanized areas, a population of at least 2,500 but fewer than 20,000 in urbanized areas, or a population of fewer than 2,500 in urbanized areas); and (b) whether these counties were adjacent or not adjacent to a metropolitan area. For NSDUH, the terms "urbanized," "less urbanized," and "completely rural" for counties were not based on the relative proportion of the county population in urbanized areas, but rather on the absolute size of the population in urbanized areas. For example, some counties classified as "less urbanized" had over 50 percent of the county population residing in urbanized areas, but this percentage represented fewer than 20,000 persons in the county.

Substance use disorder and treatment were defined in the following manner:

- **Substance use disorder** was defined as meeting criteria for illicit or prescription drug dependence or abuse based on definitions found in the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).[6]
- **Substance use treatment** refers to treatment received in order to reduce or stop illicit or prescription drug use, or for medical problems associated with illicit or prescription drug use. It includes treatment at any of the following locations: a hospital overnight as an inpatient, a residential drug rehabilitation facility where they stayed overnight, a drug rehabilitation facility as an outpatient, a mental health facility as an outpatient, an emergency room, a private doctor's office, a prison or jail, a self-help group, or some other place. Of these locations, emergency rooms, private doctors' offices, prisons or jails, and self-help groups were considered nonspecialty substance use treatment facilities. Reports of treatment in some other place were considered to be treatment in specialty substance use treatment facilities only if respondents specified a location that corresponded to drug rehabilitation facilities (inpatient or outpatient), hospitals (inpatient only), or mental health centers.

Statistical Analysis

No statistical analyses were conducted; instead, estimates were obtained from NSDUH's 2016 published report.[7] Data on heroin use stratified by age, race/ethnicity, U.S. census region, county type, and urbanization were provided by SAMHSA.

Nonfatal Overdose Hospitalizations and Emergency Department (ED) Visits

Data Sources

Information on medically attended, nonfatal overdose rates were obtained from the Healthcare Cost and Utilization Project (HCUP). Drug-related inpatient hospitalizations were obtained from HCUP's 2015 National Inpatient Sample (NIS). The NIS uses a stratified systematic random sampling design to produce nationally representative estimates of hospital discharges in the United States. It is the largest publicly available all-payer database in the U.S and was conducted in 46 states plus the District of Columbia in 2015. The sample included approximately 20% of discharges from U.S. community hospitals, excluding rehabilitation and long-term acute care facilities. The sample was stratified by the following hospital characteristics: U.S. census division, urban or rural location, teaching status, ownership, and bed size.

Discharge data for emergency department (ED) visits were obtained from the Nationwide Emergency Department Sample (NEDS), which is a stratified sample of billing records designed to produce national representative estimates of hospital-based ED visits in the United States. In 2015, data were obtained from 953 hospitals located in 34 states and the District of Columbia, approximating a 20-percent stratified sample of U.S. hospital-based EDs. The sample was drawn from non-Federal, short-term, general, and other specialty hospitals and stratified by the following hospital characteristics: geographic region, trauma center designation, urban or rural location, teaching status, and hospital ownership.

NIS and NEDS transitioned from using *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) diagnosis codes to *International Classification of Diseases, Tenth Revision, Clinical Modification/Procedure Coding System* (ICD-10-CM/PCS) on October 1, 2015 (the beginning of fiscal year 2016).

Definitions

ICD-9-CM diagnosis injury codes were used to classify drug-related poisonings for the first three quarters of 2015 (January 1–September 30, 2015), and ICD-10-CM/PCS codes were used for the fourth quarter of 2015 (October 1–December 31, 2015). All intents, diagnoses (not just principal), and all encounters (initial and subsequent) were included. These definitions differ from last year's report and therefore numbers and rates should not be compared between the two reports.

- **All drug poisoning** included the following codes:
  - ICD-9-CM: Diagnosis code of 960-979 or external cause of injury E850-E858
  - ICD-10-CM/PCS: Contributing cause T36.0X1x–T36.0X4x, T36.1X1x–T36.1X4x, T36.2X1x–T36.2X4x, T36.3X1x–T36.3X4x, T36.4X1x–T36.4X4x, T36.5X1x–T36.5X4x, T36.6X1x–T36.6X4x, T36.7X1x–T36.7X4x, T36.8X1x–T36.8X4x, T36.91Xx–T36.94Xx, T37.0X1x–T37.0X4x, T37.1X1x–T37.1X4x, T37.2X1x–T37.2X4x, T37.3X1x–T37.3X4x, T37.4X1x–T37.4X4x, T37.5X1x–T37.5X4x, T37.8X1x–T37.8X4x, T37.91Xx–T37.94Xx, T38.0X1x–T38.0X4x, T38.1X1x–T38.1X4x, T38.2X1x–T38.2X4x, T38.3X1x–T38.3X4x, T38.4X1x–T38.4X4x, T38.5X1x–T38.5X4x, T38.6X1x–T38.6X4x, T38.7X1x–T38.7X4x, T38.801x–T38.804x, T38.811x–T38.814x, T38.891x–T38.894x, T38.901x–T38.904x, T38.991x–T38.994x, T39.011x–T39.014x, T39.091x–T39.094x, T39.1X1x–T39.1X4x, T39.2X1x–T39.2X4x, T39.311x–T39.314x, T39.391x–T39.394x, T39.4X1x–T39.4X4x, T39.8X1x–T39.8X4x, T39.91Xx–T39.94Xx, T40.0X1x–T40.0X4x, T40.1X1x–T40.1X4x, T40.2X1x–T40.2X4x, T40.3X1x–T40.3X4x, T40.4X1x–T40.4X4x, T40.5X1x–T40.5X4x, T40.601x–T40.604x, T40.691x–T40.694x, T40.7X1x–T40.7X4x, T40.8X1x–T40.8X4x, T40.901x–T40.904x, T40.991x–T40.994x, T41.0X1x–T41.0X4x, T41.1X1x–T41.1X4x, T41.201x–T41.204x, T41.291x–T41.294x, T41.3X1x–T41.3X4x, T41.41Xx–T41.44Xx, T41.5X1x–T41.5X4x, T42.0X1x–T42.0X4x, T42.1X1x–T42.1X4x, T42.2X1x–T42.2X4x, T42.3X1x–T42.3X4x, T42.4X1x–T42.4X4x, T42.5X1x–T42.5X4x, T42.6X1x–T42.6X4x, T42.7X1x–T42.7X4x, T42.4X8x–T42.8X4x, T43.011x–T43.014x, T43.021x–T43.024x, T43.1X1x–T43.1X4x, T43.201x–T43.204x, T43.211x–T43.214x, T43.221x–T43.224x, T43.291x–T43.294x, T43.3X1x–T43.3X4x, T43.4X1x–T43.4X4x, T43.501x–T43.504x,

T43.591x–T43.594x, T43.601x–T43.604x, T43.611x–T43.614x, T43.621x–T43.624x, T43.631x– T43.634x, T43.691x–T43.694x, T43.8X1x–T43.8X4x, T43.91Xx–T43.94Xx, T44.0X1x–T44.0X4x, T44.1X1x–T44.1X4x, T44.2X1x–T44.2X4x, T44.3X1x–T44.3X4x, T44.4X1x– T44.4X4x, T44.5X1x–T44.5X4x, T44.6X1x–T44.6X4x, T44.7X1x–T44.7X4x, T44.8X1x– T44.8X4x, T44.901x–T44.904x, T44.991x–T44.994x, T45.0X1x–T45.0X4x, T45.1X1x– T45.1X4x, T45.2X1x–T45.2X4x, T45.3X1x–T45.3X4x, T45.4X1x–T45.4X4x, T45.511x– T45.514x, T45.521x–T45.524x, T45.601x–T45.604x, T45.611x–T45.614x, T45.621x– T45.624x, T45.691x–T45.694x, T45.7X1x–T45.7X4x, T46.8X1x–T46.8X4x, T46.901x– T46.904x, T46.991x–T46.994x, T47.0X1x–T47.0X4x, T47.1X1x–T47.1X4x, T47.2X1x– T47.2X4x, T47.3X1x–T47.3X4x, T47.4X1x–T47.4X4x, T47.5X1x–T47.5X4x, T48.6X1x– T48.6X4x, T48.901x–T48.904x, T49.0X1x–T49.0X4x, T49.1X1x–T49.1X4x, T49.2X1x– T49.2X4x, T49.3X1x–T49.3X4x, T49.4X1x–T49.4X4x, T49.5X1x–T49.5X4x, T49.6X1x– T49.6X4x, T49.7X1x–T49.7X4x, T49.8X1x–T49.8X4x, T49.91Xx–T49.94Xx, T50.0X1x– T50.0X4x, T50.1X1x–T50.1X4x, T50.2X1x–T50.2X4x, T50.3X1x–T50.3X4x, T50.4X1x– T50.4X4x, T50.5X1x–T50.5X4x, T50.6X1x–T50.6X4x, T50.7X1x–T50.7X4x, T50.8X1x– T50.8X4x, T50.A11x–T50.A14x, T50.A21x–T50.A24x, T50.A91x–T50.A94x, T50.B91x– T50.B94x, T50.Z11x–T50.Z14x, T50.Z91x–T50.Z94x, T50.901x–T50.904x, T50.991x–T50.994x

- **Opioid drug poisoning** included:
  - ICD-9-CM: Diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2
  - ICD-10-CM/PCS: Contributing cause T40.0X1x–0X4x, T40.1X1x–1X4x, T40.2X1x–2X4x, T40.3X1x–3X4x, T40.4X1x–T40.4X4x, T40.601x–604x, T40.691x–T40.694x

- **Heroin poisoning** included:
  - ICD-9-CM: Diagnosis code of 965.01 or external cause of injury E850.0
  - ICD-10-CM/PCS: Contributing cause T40.1X1x–1X4x

- **Methadone poisoning** included:
  - ICD-9-CM: Diagnosis code of 965.02 or external cause of injury E850.1
  - ICD-10-CM/PCS: Contributing cause T40.3X1x–3X4x

- **Poisoning by other opioids** included:
  - ICD-9-CM: Diagnosis code of 965.09, 965.00 or external cause of injury E850.2
  - ICD-10-CM/PCS: Contributing cause T40.0X1x–0X4x, T40.2X1x–2X4x, T40.4X1x–T40.4X4x, T40.601x–604x

- **Cocaine poisoning** included:
  - ICD-9-CM: Diagnosis code of 970.81 or external cause of injury E854.3 or E855.2
  - ICD-10-CM/PCS: Contributing cause T40.5X1x–T40.5X4x

- **Methamphetamine poisoning** included:
  - ICD-9-CM: Diagnosis code of 969.72 or external cause of injury E854.2
  - ICD-10-CM/PCS: Contributing cause T43.621x–T43.621x

*where x = A, D, or S

To explore the effect of the ICD-10-CM transition on the data, we conducted sensitivity analyses where we analyzed the rates of poisoning-related hospitalizations and ED visits for the first three quarters of 2015 only when ICD-9-CM codes were being used. Populations for rate calculations were multiplied by ¾ since only ¾ of the year were included in the numerator. We compared these rates to those in the tables presented in the report and found the rates to be comparable. The tables with the rates calculated from the first three quarters are presented in the Appendix (**Supplemental Tables 2c** and **2d**).

As poisoning-related hospitalizations and ED visits may involve more than one type of drug, poisonings presented are not mutually exclusive.

Information about persons' race and ethnicity was not available for ED visits so it was not included in any HCUP analyses.

Census regions are defined under the section on "Drug Use, Misuse, Substance Use Disorder, and Treatment."

Urbanization of patient residence is based on the 2013 National Center for Health Statistics Urban-Rural Classification Scheme for Counties.[5] The categories are defined as follows:

- **Large central metro**: counties in metropolitan statistical areas (MSAs) of 1 million or more population that:
  - Contain the entire population of the largest principal city of the MSA, or
  - Have their entire population contained in the largest principal city of the MSA, or
  - Contain at least 250,000 inhabitants of any principal city of the MSA.
- **Large fringe metro**: counties in MSAs of 1 million or more population that did not qualify as large central metro counties.
- **Medium metro**: counties in MSAs of populations of 250,000 to 999,999.
- **Small metro**: counties in MSAs of populations less than 250,000.
- **Micropolitan**: nonmetropolitan counties in micropolitan statistical areas.
- **Noncore**: nonmetropolitan counties that did not qualify as micropolitan.

Statistical Analysis

Data were weighted to provide national estimates of annual numbers and rates per 100,000 population. Rates were based on U.S. population estimates according to sex, age, U.S. census region, and 2013 urbanization status.[5,8] Age-adjusted rates were standardized to the U.S. census population estimates for 2000 by the direct method. Estimates were considered unreliable and not reported if the relative standard error was >30% or the standard error = 0. All statistical analyses accounted for the complex sampling design and were performed using SAS Version 9.4 (SAS Institute, Cary, North Carolina).

To minimize the possibility of duplicate counting within this section or across other sections of this report, we excluded some records. Hospital transfers and hospital admissions that occurred directly from the ED were excluded because each would be included in the hospitalization data. In-hospital deaths were excluded from the ED visits and hospitalization estimates because these would be included in the mortality section.

Mortality Rates

Data Source

Mortality data were obtained from the Mortality Component of the National Vital Statistics System. Drug overdose deaths were analyzed using the multiple cause of death query system from CDC WONDER.[9] Data are based on information about underlying and multiple causes of death from death certificates filed in the 50 states and the District of Columbia.[10]

Definitions

Drug overdose deaths were identified using the International Classification of Diseases, Tenth Revision (ICD-10) , based on the ICD-10 underlying cause-of-death codes X40–44 (unintentional), X60–64 (suicide), X85 (homicide), or Y10–Y14 (undetermined intent).

Among deaths with drug overdose as the underlying cause, the type of drugs involved in the deaths were indicated by the following ICD-10 multiple cause-of-death codes (i.e., T-codes):

- **Heroin** (T40.1)
- **Natural/semisynthetic opioids** (T40.2), which includes drugs such as hydrocodone and oxycodone
- **Methadone** (T40.3)
- **Synthetic opioids other than methadone** (T40.4), which includes drugs such as fentanyl and tramadol
- **Deaths involving any opioid** (T40.0 (opium), T40.1, T40.2, T40.3, T40.4 and T40.6 (other and unspecified narcotics)), which includes drugs such as those listed above, as well as opioids where the type of opioid was not specified
- **Deaths involving a prescription opioid** (T40.2) natural and semi-synthetic opioids and (T40.3) methadone
- **Cocaine** (T40.5)
- **Psychostimulants with abuse potential** (T43.6), which includes such drugs as methamphetamine, and 3,4-methylenedioxy-methamphetamine (MDMA)

As drug overdose deaths may involve more than one type of drug, some deaths are included in the rates in more than one subcategory. Therefore, categories of drug overdose deaths presented are not mutually exclusive. Additionally, in 2016, approximately 15% of drug overdose deaths do not specify which drugs were involved.

While gender is presented in other tables in this report, sex is presented for these data as they are from death certificates.

Census regions are defined under the section on "Drug Use, Misuse, Substance Use Disorder, and Treatment."

Death rates are calculated by decedent's place of residence, not place of occurrence of the death. Decedent's residence was determined according to categories of the 2013 National Center for Health Statistics Urban-Rural Classification Scheme for Counties.[5] These are defined above in the section for "Nonfatal Overdose Hospitalizations and Emergency Department (ED) Visits."

All records with Hispanic origin not stated were not included in estimates by Hispanic origin, but were included in the overall estimates. Data for Hispanic origin should be interpreted with caution; studies comparing Hispanic origin on death certificates and on census surveys have shown inconsistent reporting on Hispanic ethnicity.[11]

Statistical Analysis

Rates were calculated per 100,000 resident population, age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year. Crude rates were presented for age groups. Significance testing for trends over time was performed with Joinpoint software from the National Cancer Institute.[2] Significance tests used a Monte Carlo Permutation method.[12] The most parsimonious models were selected to report the estimated annual percent change (APC) for each time segment detected that was statistically significantly different from 0 ($p<0.05$); otherwise, the terms" level" or "stable" were used.

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TABLES

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

TABLE 1A **National estimates of total number and percent of persons who had at least one prescription filled for an opioid by age and gender — United States, 2017**

Age group (years)	Gender	Number	Percent[a]
0–14	**Total**	1,030,315	1.7
	Male	543,052	1.7
	Female	487,263	1.6
15–19	**Total**	2,195,874	10.4
	Male	975,802	9.0
	Female	1,220,072	11.8
20–24	**Total**	2,896,334	13.0
	Male	1,092,400	9.6
	Female	1,803,934	16.7
25–34	**Total**	7,859,235	17.3
	Male	2,919,459	12.6
	Female	4,939,776	22.1
35–44	**Total**	8,379,430	20.5
	Male	3,428,239	16.8
	Female	4,951,191	24.2
45–54	**Total**	9,797,523	23.1
	Male	4,239,999	20.2
	Female	5,557,524	25.9
55–64	**Total**	11,073,327	26.3
	Male	5,011,588	24.6
	Female	6,061,739	27.8
≥ 65	**Total**	13,703,295	26.8
	Male	5,695,755	25.1
	Female	8,007,540	28.2
All ages	**Total**	56,778,428	17.4
	Male[b]	23,846,253	14.8
	Female[b]	32,932,175	19.9

Source: IQVIA™ Total Patient Tracker (TPT), 2017 Enhanced.
[a]Percent of persons is derived using unique patient counts from TPT and census population numbers.
[b]Patient numbers by age group for each gender do not sum to the total number for each gender because the total number for each gender was calculated separately from TPT to avoid potential double-counting of persons.

TABLE 1B **Total number and rate of opioid prescriptions (Rx) and morphine milligram equivalents (MME) dispensed per 100 persons annually — United States, 2017**

Opioids prescribed	Number	Rate[a]
Prescriptions (Rx)		
All opioids	191,146,822	58.5
LA/ER opioids[b]	17,442,895	5.3
Days of supply per Rx		
< 30 days	110,759,830	33.9
≥ 30 days	80,386,991	24.6
Average opioid Rx per patient	3.4	
Average days of supply per Rx	18.3	
MME		
Total MME	166,941,732,435	
MME per capita	511.1	
Average MME per Rx	873.4	
Average daily MME per Rx	45.3	
Daily dosage per Rx		
< 50 MME	142,842,185	43.7
≥ 50 but < 90 MME	32,079,439	9.8
≥ 90 MME (high dose)	16,225,198	5.0

Source: IQVIA™ Transactional Data Warehouse.
Abbreviations: MME, morphine milligram equivalents; Rx, prescriptions.
[a] Rate per 100 persons.
[b] LA/ER represents opioids that are long acting (LA) or extended release (ER).

TABLE 1C

Rates[a] of opioid prescriptions dispensed per 100 persons by dosage, type, and state — United States, 2017

	Opioid Type		Daily Dosage Per Rx (MME[b]/Day)				Opioid Type		Daily Dosage Per Rx (MME[b]/Day)		
State	**All**	**LA/ER[c]**	**< 50**	**≥ 50 but < 90**	**≥ 90**		**All**	**LA/ER**	**< 50**	**≥ 50 but < 90**	**≥ 90**
Alabama	107.2	8.2	87.6	12.9	6.8	Montana	61.1	6.5	43.6	11.9	5.6
Alaska	52.0	7.3	30.9	12.8	8.3	Nebraska	56.5	5.4	43.0	9.5	4.0
Arizona	61.2	7.0	41.4	12.2	7.5	Nevada	72.9	7.4	48.9	16.5	7.5
Arkansas	105.4	7.2	83.7	14.7	6.9	New Hampshire	52.7	8.2	33.0	11.7	8.0
California	39.5	3.5	30.1	6.2	3.3	New Jersey	44.2	5.3	29.2	8.8	6.3
Colorado	52.8	5.4	37.3	11.1	4.4	New Mexico	56.4	4.4	41.8	10.2	4.4
Connecticut	48.0	5.4	31.8	10.4	5.8	New York	37.8	4.2	27.3	6.1	4.4
Delaware	68.3	11.0	46.1	12.4	9.8	North Carolina	71.9	7.1	51.2	14.7	6.0
District of Columbia	28.5	1.9	24.1	3.0	1.4	North Dakota	41.5	4.7	31.9	6.8	2.8
Florida	60.9	6.3	43.0	11.5	6.4	Ohio	63.5	5.0	49.6	9.8	4.1
Georgia	70.9	5.3	54.7	10.8	5.4	Oklahoma	88.0	9.0	62.0	18.1	7.9
Hawaii	37.0	4.1	25.9	6.4	4.6	Oregon	66.1	6.8	46.0	14.2	5.9
Idaho	70.3	7.6	47.1	16.3	6.9	Pennsylvania	57.7	6.6	41.3	9.7	6.7
Illinois	51.1	3.5	41.5	6.8	2.8	Rhode Island	51.2	4.7	40.4	6.1	4.6
Indiana	74.2	6.0	57.9	10.9	5.4	South Carolina	79.2	6.3	59.0	14.1	6.2
Iowa	56.4	5.0	44.3	8.2	3.8	South Dakota	49.0	4.9	37.5	7.8	3.7
Kansas	69.7	6.6	48.2	14.7	6.8	Tennessee	94.4	8.7	65.9	20.9	7.6
Kentucky	86.8	5.5	67.6	13.8	5.4	Texas	53.0	3.3	44.5	6.0	2.6
Louisiana	89.5	5.0	71.7	12.8	5.0	Utah	63.8	6.9	41.5	14.0	8.4
Maine	55.7	7.7	39.3	10.7	5.7	Vermont	50.5	8.3	33.8	8.6	8.1
Maryland	51.7	6.8	34.4	11.1	6.3	Virginia	52.9	4.9	39.3	8.7	4.9
Massachusetts	40.1	4.4	29.0	7.3	3.8	Washington	57.2	5.9	39.2	12.9	5.1
Michigan	74.2	6.6	60.7	8.1	5.4	West Virginia	81.2	6.2	65.3	10.0	6.0
Minnesota	41.0	4.0	29.6	8.4	2.9	Wisconsin	52.6	5.9	37.6	10.4	4.6
Mississippi	92.9	5.9	77.2	10.7	4.9	Wyoming	64.8	7.1	44.7	13.4	6.7
Missouri	71.8	6.1	52.9	12.8	6.2						

Source: IQVIA™ Transactional Data Warehouse.
[a] Rate per 100 persons.
[b] MME = morphine milligram equivalents.
[c] LA/ER represents opioids that are long acting (LA) or extended release (ER).

TABLE 1D Trend analyses of opioid prescribing — United States, 2006–2017

	2006	2017		Trend 1		Trend 2		Trend 3	
Opioid prescribing	**Prescribing rate[a]**		**Average APC (95% CL)**	**Years[b]**	**APC (95% CL)**	**Years**	**APC (95% CL)**	**Years**	**APC (95% CL)**
All opioid Rx	72.4	58.5	-1.6 (-2.1, -1.1)	2006–2010	3.0 (2.4, 3.6)[c]	2010–2014	-1.6 (-2.6, -0.7)[c]	2014–2017	-8.2 (-9.1, -7.3)[c]
High-dosage Rx[d]	11.5	5.0	-7.6 (-8.1, -7.2)	2006–2009	0.0 (-2.8, 2.8)	2009–2017	-9.5 (-10.0, -8.9)[c]		
Days of supply ≥ 30	17.6	24.6	3.3 (2.7, 3.9)	2006–2010	10.3 (9.8, 10.9)[c]	2010–2015	1.7 (1.2, 2.2)[c]	2015–2017	-7.3 (-8.8, -5.8)[c]
Days of supply < 30	54.7	33.9	-4.0 (-4.4, -3.5)	2006–2010	0.4 (-0.2, 1.0)	2010–2014	-3.9 (-4.8, -2.9)[c]	2014–2017	-10.5 (-11.4, -9.8)[c]
	Number								
Average daily MME per Rx	59.7	45.3	-2.7 (-2.8, -2.6)	2006–2010	-1.0 (-1.2, -0.8)[c]	2010–2013	-4.5 (-5.1, -3.9)[c]	2013–2017	-2.2 (-2.4, -2.0)[c]
Average days of supply per Rx	13.3	18.3	2.9 (2.8, 3.0)	2006–2009	4.1 (3.9, 4.4)[c]	2009–2013	2.9 (2.7, 3.2)[c]	2013–2017	2.1 (2.0, 2.3)[c]

Source: IQVIA™ Transactional Data Warehouse.
Abbreviations: APC, annual percent change; CL, confidence limits; MME, morphine milligram equivalent; Rx, prescription.
[a] Rate per 100 persons
[b] Year category presented in each trend represents year groupings as determined by joinpoint regression.
[c] Indicates that the annual percent change was significantly different from 0 ($p<0.05$).
[d] High-dose prescriptions were defined as opioid prescriptions resulting in a daily dosage of ≥ 90 MME.

TABLE 2A **Self-reported prevalence of illicit drug use[a] and prescription drug misuse[b] in the past month, persons 12+ years old, numbers in thousands — United States, 2016**

Socio-demographic characteristic	All illicit drug use[a] and prescription drug misuse[b]			Prescription pain relievers			Prescription tranquilizers			Prescription stimulants			Prescription sedatives		
	Number[c]	%[d]	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
All	28,564	10.6	0.18	3,350	1.2	0.06	1,953	0.7	0.04	1,735	0.6	0.04	497	0.2	0.03
Gender															
Male	16,779	12.8	0.27	1,692	1.3	0.09	1,002	0.8	0.07	881	0.7	0.05	214	0.2	0.04
Female	11,786	8.5	0.22	1,658	1.2	0.08	951	0.7	0.05	854	0.6	0.05	283	0.2	0.04
Age (years)															
12–17	1,959	7.9	0.26	239	1.0	0.09	121	0.5	0.07	92	0.4	0.06	23	0.1	0.03
18–25	8,012	23.2	0.43	631	1.8	0.13	536	1.5	0.12	767	2.2	0.17	50	0.1	0.03
≥ 26	18,593	8.9	0.21	2,480	1.2	0.07	1,296	0.6	0.05	876	0.4	0.04	425	0.2	0.03
26–34	6,520	16.8	0.50	729	1.9	0.16	428	1.1	0.12	468	1.2	0.13	84	0.2	0.05
≥ 35	12,073	7.1	0.21	1,752	1.0	0.08	868	0.5	0.06	409	0.2	0.04	341	0.2	0.04
35–39	2,393	11.6	0.56	339	1.6	0.23	171	0.8	0.15	120	0.6	0.12	23	0.1	0.05
40–44	1,636	8.4	0.54	271	1.4	0.22	122	0.6	0.14	66	0.3	0.09	75	0.4	0.13
45–49	1,869	9.2	0.52	247	1.2	0.19	127	0.6	0.14	73	0.4	0.14	15	0.1	0.04
50–54	1,701	7.8	0.71	345	1.6	0.31	169	0.8	0.21	63	0.3	0.14	59	0.3	0.18
55–59	2,039	9.3	0.81	229	1.0	0.26	152	0.7	0.20	78	0.4	0.15	48	0.2	0.10
60–64	1,029	5.4	0.62	145	0.8	0.23	16	0.1	0.07	[f]	[f]	[f]	33	0.2	0.13
≥ 65	1,405	2.9	0.31	176	0.4	0.11	111	0.2	0.11	8	0.0	0.02	88	0.2	0.08
Race/ethnicity[g]															
White	18,488	10.8	0.23	2,357	1.4	0.08	1,468	0.9	0.06	1,361	0.8	0.06	382	0.2	0.04
Black	4,040	12.5	0.48	367	1.1	0.14	199	0.6	0.10	80	0.2	0.06	23	0.1	0.04
Hispanic	4,100	9.2	0.44	503	1.1	0.14	205	0.5	0.08	197	0.4	0.07	40	0.1	0.03
American Indian or Alaska Native	240	15.7	1.89	18	1.2	0.46	6	0.4	0.29	3	0.2	0.11	3	0.2	0.16
Native Hawaiian or other Pacific Islander	117	9.8	2.69	10	0.8	0.43	8	0.7	0.48	2	0.1	0.13	[f]	[f]	[f]
Asian	601	4.1	0.45	11	0.1	0.04	17	0.1	0.07	27	0.2	0.07	16	0.1	0.07

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

CONTINUED

Socio-demographic characteristic	All illicit drug use[a] and prescription drug misuse[b]			Prescription pain relievers			Prescription tranquilizers			Prescription stimulants			Prescription sedatives		
	Number[c]	%d	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
U.S. census region of residence															
Northeast	5,451	11.4	0.42	556	1.2	0.15	410	0.9	0.13	364	0.8	0.09	86	0.2	0.05
Midwest	5,494	9.7	0.31	654	1.2	0.11	408	0.7	0.08	390	0.7	0.08	36	0.1	0.02
South	8,950	8.8	0.27	1,223	1.2	0.09	753	0.7	0.07	604	0.6	0.06	234	0.2	0.05
West	8,670	13.6	0.49	917	1.4	0.15	382	0.6	0.08	377	0.6	0.08	140	0.2	0.07
County type[h]															
Large metropolitan	16,932	11.3	0.26	1,737	1.2	0.08	1,106	0.7	0.06	1,033	0.7	0.06	337	0.2	0.05
Small metropolitan	8,407	10.4	0.33	1,164	1.4	0.11	639	0.8	0.08	564	0.7	0.07	139	0.2	0.03
Non-metropolitan	3,225	8.4	0.36	448	1.2	0.12	208	0.5	0.08	138	0.4	0.06	21	0.1	0.02
Urbanized	1,372	8.9	0.60	184	1.2	0.19	85	0.6	0.13	63	0.4	0.09	3	0.0	0.02
Less Urbanized	1,600	8.3	0.49	235	1.2	0.17	111	0.6	0.13	59	0.3	0.09	11	0.1	0.03
Completely Rural	252	6.8	0.97	28	0.8	0.20	12	0.3	0.18	17	0.4	0.27	7	0.2	0.17

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

TABLE 2A **Self-reported prevalence of illicit drug use[a] and prescription drug misuse[b] in the past month, persons 12+ years old, numbers in thousands — United States, 2016**

CONTINUED

Socio-demographic characteristic	Marijuana			Heroin			Opioids[e] (heroin or prescription pain relievers)			Cocaine			Methamphetamine		
	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
All	23,981	8.9	0.16	475	0.2	0.02	3,649	1.4	0.06	1,874	0.7	0.04	667	0.2	0.03
Gender															
Male	14,696	11.3	0.25	295	0.2	0.04	1,883	1.4	0.09	1,257	1.0	0.08	387	0.3	0.05
Female	9,285	6.7	0.19	179	0.1	0.03	1,766	1.3	0.08	617	0.4	0.05	280	0.2	0.03
Age (years)															
12–17	1,609	6.5	0.24	3	0.0	0.01	241	1.0	0.09	28	0.1	0.03	9	0.0	0.01
18–25	7,184	20.8	0.42	88	0.3	0.05	688	2.0	0.14	552	1.6	0.13	65	0.2	0.04
≥ 26	15,188	7.2	0.19	383	0.2	0.03	2,720	1.3	0.08	1,295	0.6	0.05	594	0.3	0.03
26–34	5,629	14.5	0.46	151	0.4	0.08	828	2.1	0.17	507	1.3	0.15	139	0.4	0.07
≥ 35	9,560	5.6	0.19	231	0.1	0.03	1,892	1.1	0.08	788	0.5	0.05	454	0.3	0.04
35–39	1,994	9.7	0.52	59	0.3	0.09	367	1.8	0.25	116	0.6	0.13	101	0.5	0.11
40–44	1,245	6.4	0.47	47	0.2	0.13	299	1.5	0.25	129	0.7	0.19	78	0.4	0.13
45–49	1,548	7.7	0.48	25	0.1	0.06	264	1.3	0.19	151	0.7	0.17	60	0.3	0.08
50–54	1,267	5.8	0.63	30	0.1	0.08	353	1.6	0.31	104	0.5	0.20	113	0.5	0.20
55–59	1,570	7.2	0.75	70	0.3	0.16	287	1.3	0.30	181	0.8	0.21	86	0.4	0.15
60–64	838	4.4	0.56	[f]	[f]	[f]	146	0.8	0.23	70	0.4	0.14	[f]	[f]	[f]
≥ 65	1,097	2.3	0.27	[f]	[f]	[f]	176	0.4	0.11	38	0.1	0.05	17	0.0	0.03
Race/ethnicity[g]															
White	15,358	9.0	0.20	322	0.2	0.03	2,542	1.5	0.09	1,076	0.6	0.05	536	0.3	0.04
Black	3,577	11.1	0.44	79	0.2	0.09	419	1.3	0.16	315	1.0	0.17	11	0.0	0.02
Hispanic	3,394	7.7	0.40	67	0.2	0.05	561	1.3	0.15	316	0.7	0.11	95	0.2	0.06
American Indian or Alaska Native	209	13.6	1.76	4	0.2	0.18	22	1.4	0.49	20	1.3	0.69	3	0.2	0.17
Native Hawaiian or other Pacific Islander	103	8.6	2.67	2	0.1	0.13	10	0.8	0.43	16	1.3	0.68	3	0.3	0.18
Asian	486	3.3	0.40	[f]	[f]	[f]	11	0.1	0.04	51	0.4	0.13	[f]	[f]	[f]

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

CONTINUED

Socio-demographic characteristic	Marijuana			Heroin			Opioids[e] (heroin or prescription pain relievers)			Cocaine			Methamphetamine		
	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
U.S. census region of residence															
Northeast	4,580	9.6	0.37	108	0.2	0.06	636	1.3	0.15	417	0.9	0.11	56	0.1	0.05
Midwest	4,668	8.2	0.28	105	0.2	0.04	707	1.2	0.12	237	0.4	0.06	112	0.2	0.05
South	7,263	7.2	0.23	150	0.1	0.03	1,309	1.3	0.09	551	0.5	0.06	222	0.2	0.04
West	7,471	11.7	0.45	112	0.2	0.06	997	1.6	0.16	669	1.1	0.12	277	0.4	0.08
County type[h]															
Large metropolitan	14,258	9.5	0.24	302	0.2	0.04	1,941	1.3	0.09	1,144	0.8	0.06	262	0.2	0.04
Small metropolitan	6,926	8.6	0.29	132	0.2	0.03	1,239	1.5	0.11	584	0.7	0.08	268	0.3	0.06
Non-metropolitan	2,797	7.3	0.34	40	0.1	0.03	469	1.2	0.12	147	0.4	0.08	137	0.4	0.07
Urbanized	1,193	7.8	0.58	12	0.1	0.03	189	1.2	0.19	87	0.6	0.16	30	0.2	0.07
Less Urbanized	1,400	7.2	0.47	24	0.1	0.05	249	1.3	0.17	48	0.2	0.09	105	0.5	0.13
Completely Rural	203	5.5	0.80	4	0.1	0.09	32	0.9	0.22	11	0.3	0.15	1	0.0	0.02

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

TABLE 2B

Self-reported prevalence of illicit drug use[a] and prescription drug misuse[b] in the past year, persons 12+ years old, numbers in thousands — United States, 2016

Socio-demographic characteristic	All illicit drug use[a] and prescription drug misuse[b]			Prescription pain relievers			Prescription tranquilizers			Prescription stimulants			Prescription sedatives		
	Number[c]	%[d]	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
All	48,501	18.0	0.23	11,517	4.3	0.11	6,060	2.2	0.08	5,647	2.1	0.07	1,531	0.6	0.04
Gender															
Male	27,032	20.7	0.33	6,226	4.8	0.16	2,870	2.2	0.11	2,985	2.3	0.10	691	0.5	0.06
Female	21,469	15.5	0.29	5,291	3.8	0.14	3,190	2.3	0.10	2,662	1.9	0.09	840	0.6	0.06
Age (years)															
12–17	3,941	15.8	0.35	881	3.5	0.17	434	1.7	0.13	427	1.7	0.14	100	0.4	0.06
18–25	13,034	37.7	0.53	2,454	7.1	0.27	1,844	5.3	0.23	2,578	7.5	0.30	256	0.7	0.09
≥ 26	31,525	15.0	0.26	8,181	3.9	0.13	3,781	1.8	0.09	2,643	1.3	0.07	1,176	0.6	0.05
26–34	10,885	28.0	0.62	2,671	6.9	0.32	1,289	3.3	0.22	1,495	3.9	0.26	337	0.9	0.12
≥ 35	20,640	12.1	0.27	5,510	3.2	0.14	2,493	1.5	0.10	1,148	0.7	0.06	839	0.5	0.06
35–39	3,905	19.0	0.71	1,100	5.3	0.38	443	2.2	0.24	346	1.7	0.22	92	0.4	0.11
40–44	2,904	14.9	0.68	842	4.3	0.37	353	1.8	0.23	222	1.1	0.18	152	0.8	0.16
45–49	3,025	15.0	0.67	756	3.7	0.35	351	1.7	0.23	171	0.8	0.19	66	0.3	0.09
50–54	3,073	14.1	0.94	967	4.4	0.56	505	2.3	0.42	170	0.8	0.23	128	0.6	0.22
55–59	3,291	15.0	0.97	841	3.8	0.49	353	1.6	0.31	110	0.5	0.17	102	0.5	0.16
60–64	1,922	10.0	0.78	427	2.2	0.41	145	0.8	0.22	45	0.2	0.13	95	0.5	0.19
≥ 65	2,521	5.3	0.43	577	1.2	0.20	343	0.7	0.16	83	0.2	0.07	203	0.4	0.12
Race/ethnicity[g]															
White	31,580	18.5	0.28	7,698	4.5	0.13	4,445	2.6	0.10	4,306	2.5	0.10	1,130	0.7	0.06
Black	6,466	20.1	0.58	1,257	3.9	0.29	495	1.5	0.15	245	0.8	0.10	102	0.3	0.09
Hispanic	7,107	16.0	0.55	1,867	4.2	0.28	779	1.8	0.16	694	1.6	0.13	204	0.5	0.08
American Indian or Alaska Native	362	23.6	2.40	60	3.9	0.81	22	1.5	0.48	12	0.8	0.29	5	0.3	0.21
Native Hawaiian or other Pacific Islander	191	16.0	3.06	50	4.2	1.37	9	0.8	0.49	21	1.8	0.82	[f]	[f]	[f]
Asian	1,340	9.2	0.78	269	1.8	0.43	102	0.7	0.16	170	1.2	0.21	25	0.2	0.08

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

CONTINUED

Socio-demographic characteristic	All illicit drug use[a] and prescription drug misuse[b]			Prescription pain relievers			Prescription tranquilizers			Prescription stimulants			Prescription sedatives		
	Number[c]	%d	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
U.S. census region of residence															
Northeast	9,171	19.2	0.56	1,797	3.8	0.24	1,206	2.5	0.20	1,168	2.4	0.18	267	0.6	0.09
Midwest	9,665	17.0	0.40	2,342	4.1	0.20	1,242	2.2	0.14	1,381	2.4	0.16	196	0.3	0.06
South	15,932	15.7	0.34	4,193	4.1	0.17	2,268	2.2	0.12	1,944	1.9	0.11	583	0.6	0.08
West	13,733	21.6	0.58	3,185	5.0	0.26	1,344	2.1	0.16	1,155	1.8	0.14	486	0.8	0.11
County type[h]															
Large metropolitan	29,084	19.4	0.34	6,567	4.4	0.16	3,481	2.3	0.11	3,403	2.3	0.10	931	0.6	0.07
Small metropolitan	13,962	17.3	0.40	3,459	4.3	0.18	1,942	2.4	0.14	1,734	2.1	0.12	443	0.5	0.07
Non-metropolitan	5,454	14.2	0.47	1,491	3.9	0.22	637	1.7	0.15	509	1.3	0.13	157	0.4	0.08
Urbanized	2,363	15.4	0.83	601	3.9	0.32	278	1.8	0.25	281	1.8	0.23	70	0.5	0.12
Less Urbanized	2,637	13.6	0.61	756	3.9	0.33	314	1.6	0.21	192	1.0	0.15	69	0.4	0.11
Completely Rural	455	12.3	1.30	134	3.6	0.64	45	1.2	0.33	37	1.0	0.32	19	0.5	0.25

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

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[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

TABLE 2B **Self-reported prevalence of illicit drug use[a] and prescription drug misuse[b] in the past year, persons 12+ years old, numbers in thousands — United States, 2016**

CONTINUED

Socio-demographic characteristic	Marijuana			Heroin			Opioids[e] (heroin or prescription pain relievers)			Cocaine			Methamphetamine		
	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
All	37,570	13.9	0.2	948	0.4	0.03	11,824	4.4	0.11	5,071	1.9	0.07	1,391	0.5	0.04
Gender															
Male	21,839	16.7	0.30	596	0.5	0.05	6,420	4.9	0.16	3,238	2.5	0.11	782	0.6	0.06
Female	15,731	11.3	0.24	352	0.3	0.03	5,403	3.9	0.14	1,833	1.3	0.08	609	0.4	0.04
Age (years)															
12–17	2,982	12.0	0.31	13	0.1	0.02	891	3.6	0.17	136	0.5	0.07	32	0.1	0.03
18–25	11,401	33.0	0.51	227	0.7	0.08	2,516	7.3	0.27	1,919	5.6	0.26	265	0.8	0.08
≥ 26	23,187	11.0	0.23	708	0.3	0.04	8,417	4.0	0.13	3,017	1.4	0.07	1,095	0.5	0.05
26–34	8,671	22.3	0.53	331	0.9	0.11	2,779	7.2	0.33	1,457	3.8	0.24	361	0.9	0.11
≥ 35	14,515	8.5	0.24	377	0.2	0.04	5,637	3.3	0.14	1,560	0.9	0.07	734	0.4	0.05
35–39	3,031	14.7	0.66	106	0.5	0.12	1,132	5.5	0.39	318	1.5	0.21	160	0.8	0.14
40–44	2,007	10.3	0.58	73	0.4	0.14	865	4.4	0.38	241	1.2	0.23	148	0.8	0.16
45–49	2,252	11.1	0.58	35	0.2	0.07	769	3.8	0.35	275	1.4	0.22	86	0.4	0.09
50–54	1,980	9.1	0.82	35	0.2	0.08	975	4.5	0.56	198	0.9	0.26	156	0.7	0.23
55–59	2,307	10.5	0.89	109	0.5	0.20	880	4.0	0.5	305	1.4	0.29	152	0.7	0.22
60–64	1,351	7.1	0.71	19	0.1	0.07	437	2.3	0.41	130	0.7	0.22	15	0.1	0.06
≥ 65	1,587	3.3	0.32	[f]	[f]	[f]	577	1.2	0.2	92	0.2	0.07	17	0.0	0.03
Race/ethnicity[g]															
White	24,298	14.2	0.25	726	0.4	0.04	7,915	4.6	0.14	3,362	2.0	0.08	1,063	0.6	0.05
Black	5,341	16.6	0.53	96	0.3	0.09	1,295	4.0	0.29	612	1.9	0.23	50	0.2	0.06
Hispanic	5,267	11.9	0.46	99	0.2	0.06	1,915	4.3	0.28	768	1.7	0.16	187	0.4	0.07
American Indian or Alaska Native	298	19.4	2.25	5	0.3	0.18	63	4.1	0.83	31	2.0	0.73	16	1.0	0.38

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

CONTINUED

Socio-demographic characteristic	Marijuana			Heroin			Opioids[e] (heroin or prescription pain relievers)			Cocaine			Methamphetamine		
	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
Native Hawaiian or other Pacific Islander	153	12.8	2.94	2	0.1	0.13	50	4.2	1.37	18	1.5	0.70	7	0.6	0.27
Asian	1,009	6.9	0.69	[f]	[f]	[f]	269	1.8	0.43	101	0.7	0.17	9	0.1	0.04
U.S. census region of residence															
Northeast	7,238	15.1	0.49	246	0.5	0.09	1,883	3.9	0.25	1,251	2.6	0.20	103	0.2	0.06
Midwest	7,412	13.1	0.35	160	0.3	0.05	2,399	4.2	0.20	779	1.4	0.11	245	0.4	0.07
South	11,858	11.7	0.30	328	0.3	0.05	4,294	4.2	0.17	1,488	1.5	0.10	508	0.5	0.06
West	11,062	17.4	0.53	214	0.3	0.08	3,248	5.1	0.27	1,553	2.4	0.17	536	0.8	0.10
County type[h]															
Large metropolitan	22,587	15.0	0.30	566	0.4	0.05	6,781	4.5	0.16	3,218	2.1	0.10	609	0.4	0.05
Small metropolitan	10,693	13.2	0.36	271	0.3	0.05	3,516	4.4	0.18	1,430	1.8	0.12	509	0.6	0.08
Non-metropolitan	4,290	11.2	0.43	111	0.3	0.06	1,527	4.0	0.21	423	1.1	0.11	273	0.7	0.09
Urbanized	1,838	12.0	0.72	31	0.2	0.05	603	3.9	0.32	217	1.4	0.22	69	0.4	0.11
Less Urbanized	2,126	11.0	0.59	67	0.3	0.09	780	4.0	0.33	187	1.0	0.14	164	0.8	0.14
Completely Rural	326	8.8	1.05	14	0.4	0.25	143	3.9	0.68	19	0.5	0.17	41	1.1	0.37

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes heroin use, prescription pain reliever misuse, or both; therefore the numbers for heroin use and prescription pain reliever misuse do not add to those for opioid misuse because of poly-drug use. This category includes misuse of prescription fentanyl but excludes use of illicit fentanyl.

[f] Low precision, no estimate reported.

[g] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[h] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

TABLE 2C **Self-reported prevalence of any prescription drug use (including misuse[a]) in the past year, persons 12+ years old, by drug type, numbers in thousands — United States, 2016**

Socio-demographic characteristic	Prescription pain relievers			Prescription tranquilizers			Prescription stimulants			Prescription sedatives		
	Number[b]	%[c]	SE	Number	%	SE	Number	%	SE	Number	%	SE
All	91,846	34.1	0.29	38,756	14.4	0.22	18,420	6.8	0.14	18,629	6.9	0.17
Gender												
Male	41,422	31.7	0.41	14,329	11.0	0.26	8,626	6.6	0.18	7,023	5.4	0.20
Female	50,424	36.3	0.40	24,427	17.6	0.34	9,795	7.1	0.18	11,607	8.4	0.27
Age (in years)												
12-17	4,732	19.0	0.39	1,108	4.4	0.21	1,799	7.2	0.25	563	2.3	0.14
18-25	10,407	30.1	0.44	3,901	11.3	0.32	4,998	14.5	0.40	1,278	3.7	0.19
≥ 26	76,706	36.5	0.35	33,747	16.1	0.27	11,623	5.5	0.16	16,789	8.0	0.22
Race/ethnicity[d]												
White	62,347	36.5	0.36	29,782	17.4	0.29	13,931	8.2	0.19	14,435	8.5	0.23
Black	11,142	34.6	0.80	3,026	9.4	0.51	1,265	3.9	0.28	1,411	4.4	0.36
Hispanic	12,257	27.6	0.68	4,003	9.0	0.47	2,171	4.9	0.26	1,946	4.4	0.41
American Indian or Alaska Native	600	39.1	3.56	227	14.8	2.39	67	4.4	1.20	107	7.0	1.73
Native Hawaiian or other Pacific Islander	491	41.1	4.88	84	7.0	2.29	58	4.9	1.48	17	1.5	0.69
Asian	3,055	21.0	1.33	875	6.0	0.73	448	3.1	0.39	367	2.5	0.50
U.S. census region of residence												
Northeast	14,204	29.7	0.69	7,322	15.3	0.48	3,206	6.7	0.32	3,203	6.7	0.36
Midwest	19,590	34.5	0.63	7,833	13.8	0.43	4,143	7.3	0.26	3,436	6.1	0.30
South	36,839	36.4	0.44	15,622	15.4	0.36	7,586	7.5	0.24	7,556	7.5	0.30
West	21,213	33.3	0.64	7,979	12.5	0.50	3,485	5.5	0.25	4,434	7.0	0.42
County type[e]												
Large metropolitan	49,208	32.7	0.41	20,794	13.8	0.29	10,343	6.9	0.20	9,785	6.5	0.24
Small metropolitan	28,717	35.6	0.52	12,301	15.2	0.40	5,829	7.2	0.24	6,087	7.5	0.34
Non-metropolitan	13,921	36.3	0.71	5,662	14.8	0.53	2,248	5.9	0.29	2,757	7.2	0.38
Urbanized	5,506	35.9	1.04	2,130	13.9	0.74	920	6.0	0.44	1,051	6.8	0.53
Less Urbanized	7,115	36.8	1.01	2,977	15.4	0.81	1,166	6.0	0.45	1,505	7.8	0.62
Completely Rural	1,301	35.3	2.28	555	15.0	1.83	162	4.4	0.74	201	5.4	0.94

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[b] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[c] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[d] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[e] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

TABLE 2D

Self-reported prevalence of past year initiation of illicit drug use and prescription drug misuse[a], persons 12+ years old, by drug type, numbers in thousands — United States, 2016

Socio-demographic characteristic	Prescription pain relievers			Prescription tranquilizers			Prescription stimulants			Prescription sedatives			Marijuana			Heroin			Cocaine			Methamphetamine		
	No.[b]	%[c]	SE	No.	%	SE	No.	%	SE	No.	%	SE	No.	%	SE	No.	%	SE	No.	%	SE	No.	%	SE
All	2,139	0.8	0.04	1,374	0.5	0.03	1,374	0.5	0.03	294	0.1	0.02	2,582	1.0	0.04	170	0.1	0.01	1,085	0.4	0.03	192	0.1	0.01
Age (years)																								
12–17	423	1.7	0.12	228	0.9	0.09	244	1.0	0.11	55	0.2	0.05	1,197	4.8	0.20	8	0.0	0.01	107	0.4	0.06	16	0.1	0.02
18–25	585	1.7	0.15	617	1.8	0.13	617	1.8	0.14	75	0.2	0.05	1,013	2.9	0.17	82	0.2	0.06	766	2.2	0.16	79	0.2	0.04
≥ 26	1,130	0.5	0.05	530	0.3	0.03	513	0.2	0.03	164	0.1	0.02	372	0.2	0.03	80	0.0	0.01	213	0.1	0.02	97	0.0	0.01

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviations: No., number; SE, standard error.

[a] Misuse of prescription drugs is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication; use in greater amounts, more often, or longer than told to take a drug; or use in any other way not directed by a doctor. Prescription drugs do not include over-the-counter drugs.

[b] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[c] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

TABLE 2E **Self-reported prevalence of substance use disorder[a] in the past year, persons 12+ years old, by drug type, numbers in thousands — United States, 2016**

Socio-demographic characteristic	All illicit drug use[b]			Prescription pain relievers			Prescription tranquilizers			Prescription stimulants			Prescription sedatives		
	Number[c]	%[d]	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
All	7,381	2.7	0.08	1,753	0.7	0.04	618	0.2	0.02	540	0.2	0.02	205	0.1	0.02
Age (years)															
12–17	789	3.2	0.18	152	0.6	0.08	86	0.3	0.06	56	0.2	0.04	32	0.1	0.04
18–25	2,428	7.0	0.27	291	0.8	0.09	188	0.5	0.07	170	0.5	0.07	30	0.1	0.03
≥ 26	4,164	2.0	0.09	1,310	0.6	0.05	343	0.2	0.02	315	0.1	0.02	143	0.1	0.02

Socio-demographic characteristic	Marijuana			Heroin			Opioids[e] (heroin or prescription pain relievers)			Cocaine			Methamphetamine		
	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE	Number	%	SE
All	3,992	1.5	0.10	626	0.2	0.02	2,144	0.8	0.05	867	0.3	0.03	684	0.3	0.02
Age (in years)															
12–17	584	2.3	0.20	1	0.0	0.00	153	0.6	0.08	29	0.1	0.03	10	0.0	0.02
18–25	1,743	5.0	0.20	152	0.4	0.06	392	1.1	0.10	215	0.6	0.08	135	0.4	0.06
≥ 26	1,665	0.8	0.10	473	0.2	0.03	1,599	0.8	0.06	623	0.3	0.04	539	0.3	0.03

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Substance use disorder is defined as meeting criteria for illicit drug dependence or abuse. Dependence or abuse is based on definitions found in the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).

[b] Illicit drug use includes the misuse of prescription psychotherapeutics or the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] This category includes prescription fentanyl but excludes illicit fentanyl.

TABLE 2F

Self-reported prevalence of illicit and prescription drug treatment[a] in the past year, persons 12+ years old, by demographic characteristics, numbers in thousands — United States, 2016

	Any location			Specialty facility[b]		
Socio-demographic characteristic	**Number[c]**	**%[d]**	**SE**	**Number**	**%**	**SE**
All	2,181	0.8	0.05	1,406	0.5	0.04
Gender						
Male	1,391	1.1	0.08	860	0.7	0.06
Female	791	0.6	0.05	546	0.4	0.04
Age (years)						
12–17	121	0.5	0.06	64	0.3	0.05
18–25	418	1.2	0.11	259	0.7	0.08
≥ 26	1,643	0.8	0.06	1,084	0.5	0.05
Race/ethnicity[e]						
White	1,382	0.8	0.05	948	0.6	0.04
Black	318	1.0	0.15	179	0.6	0.12
Hispanic	365	0.8	0.16	229	0.5	0.13
American Indian or Alaska Native	16	1.0	0.31	14	0.9	0.30
Native Hawaiian or other Pacific Islander	3	0.3	0.19	3	0.3	0.19
Asian	27	0.2	0.08	10	0.1	0.04
U.S. census region of residence						
Northeast	417	0.9	0.10	320	0.7	0.09
Midwest	500	0.9	0.09	343	0.6	0.08
South	796	0.8	0.07	486	0.5	0.06
West	468	0.7	0.12	258	0.4	0.09
County type[f]						
Large metropolitan	1,222	0.8	0.07	837	0.6	0.06
Small metropolitan	604	0.7	0.08	340	0.4	0.05
Non-metropolitan	355	0.9	0.11	230	0.6	0.08
Urbanized	139	0.9	0.16	96	0.6	0.13
Less Urbanized	194	1.0	0.16	120	0.6	0.13
Completely Rural	22	0.6	0.22	14	0.4	0.16

Source: Center for Behavioral Health Statistics and Quality. 2017 National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration, Rockville, MD.

Abbreviation: SE, standard error.

[a] Received illicit or prescription drug treatment refers to treatment received in order to reduce or stop illicit drug use or prescription drug use, or for medical problems associated with illicit drug use or prescription drug use. It includes treatment received at any location, such as a hospital (inpatient), rehabilitation facility (inpatient or outpatient), mental health center, emergency room, private doctor's office, self-help group, or prison/jail. Illicit drug use includes the use of marijuana, cocaine (including crack), heroin, hallucinogens, inhalants, or methamphetamine.

[b] A specialty facility includes a hospital (inpatient only), rehabilitation facility (inpatient or outpatient), or mental health center.

[c] Numbers in thousands for individuals using or misusing substances rounded to the nearest thousand.

[d] Percents are rounded to the nearest tenth. Because of the rounding, some percents equal to 0.0 are displayed. These prevalence estimates are rounded down from < 0.05 percent and do not represent an absence of persons displaying a particular characteristic.

[e] All race/ethnicity categories other than "Hispanic" are non-Hispanic. Data on two or more races are not included.

[f] 2013 Rural-Urban Continuum Codes were used for the creation of the county type variables.

TABLE 3A **Estimated numbers[a,b] and age-adjusted rates per 100,000 of drug poisoning-related hospitalizations by selected substances — United States, 2015**

Socio-demographic characteristics	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisonings[i]		
	No.	Rate[j]	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE
All Visits	316,900	96.2	0.66	78,840	23.2	0.23	16,770	5.3	0.11	5,590	1.7	0.05	58,090	16.7	0.18	18,885	5.8	0.14	14,845	4.7	0.10
Gender																					
Male	139,955	86.5	0.73	37,695	22.8	0.31	11,510	7.2	0.17	2,770	1.7	0.07	24,360	14.5	0.23	12,500	7.7	0.21	9,160	5.9	0.15
Female	176,945	105.7	0.85	41,145	23.4	0.29	5,260	3.3	0.11	2,820	1.6	0.07	33,730	18.8	0.26	6,385	3.9	0.13	5,685	3.6	0.12
Age Groups																					
0–14	9,410	15.4	0.83	510	0.8	0.10	[k]	[k]	[k]	65	0.1	0.03	430	0.7	0.09	105	0.2	0.04	365	0.6	0.08
15–19	21,820	103.5	3.16	1,925	9.1	0.51	495	2.3	0.24	85	0.4	0.10	1,395	6.6	0.43	330	1.6	0.20	765	3.6	0.29
20–24	26,385	116.3	2.33	5,485	24.2	0.81	2,785	12.3	0.54	285	1.3	0.17	2,600	11.5	0.53	1,150	5.1	0.35	1,820	8.0	0.46
25–34	50,435	114.6	2.00	12,975	29.5	0.73	5,815	13.2	0.47	990	2.2	0.17	6,615	15.0	0.47	3,395	7.7	0.33	4,310	9.8	0.41
35–44	48,310	119.4	2.06	11,325	28.0	0.72	3,165	7.8	0.36	935	2.3	0.18	7,535	18.6	0.53	3,715	9.2	0.41	3,120	7.7	0.37
45–54	59,010	136.9	2.35	15,630	36.3	0.85	2,545	5.9	0.36	1,210	2.8	0.20	12,135	28.2	0.68	5,680	13.2	0.70	2,695	6.3	0.32
55–64	52,025	127.5	2.04	17,305	42.4	0.93	1,645	4.0	0.28	1,330	3.3	0.21	14,565	35.7	0.82	3,695	9.1	0.58	1,460	3.6	0.24
≥ 65	49,505	103.7	1.49	13,685	28.7	0.68	295	0.6	0.10	690	1.4	0.12	12,815	26.8	0.65	815	1.7	0.16	310	0.6	0.09

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] In-hospital deaths and patients who transferred from another hospital were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] Because the relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

TABLE 3A **Estimated number[ab] and age-adjusted rate per 100,000 population of drug-poisoning related hospitalizations by selected substances — United States, 2014**

CONTINUED

Socio-demographic characteristics	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisonings[i]		
	No.	Rate[j]	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE
U.S. census region of residence																					
Northeast	56,380	96.7	1.56	14,475	24.4	0.59	4,625	8.4	0.33	1,140	1.9	0.14	8,990	14.5	0.40	5,485	9.5	0.48	910	1.7	0.14
Midwest	75,060	109.5	1.69	18,450	26.1	0.57	4,930	7.4	0.31	1,150	1.6	0.13	12,730	17.6	0.42	3,725	5.5	0.28	2,675	4.1	0.22
South	125,375	100.8	1.09	30,605	23.8	0.38	4,800	4.0	0.16	1,860	1.5	0.08	24,525	18.7	0.32	8,045	6.6	0.23	5,390	4.6	0.16
West	60,085	77.0	1.11	15,310	18.9	0.40	2,415	3.1	0.15	1,440	1.8	0.11	11,845	14.5	0.34	1,630	2.1	0.13	5,870	7.7	0.27
2013 urbanization category																					
Large central metropolitan	92,465	90.6	1.42	22,655	21.5	0.45	5,785	5.5	0.21	1,800	1.7	0.10	15,575	14.8	0.34	8,945	8.6	0.36	4,440	4.4	0.17
Large fringe metropolitan	71,590	87.8	1.42	18,900	22.6	0.51	4,965	6.6	0.26	1,195	1.4	0.10	13,145	15.1	0.38	3,760	4.7	0.21	2,760	3.6	0.18
Medium metropolitan	73,790	108.7	2.23	18,490	26.4	0.67	3,575	5.5	0.27	1,235	1.8	0.13	14,080	19.7	0.52	3,600	5.4	0.27	3,255	5.0	0.25
Small metropolitan	32,130	108.6	2.88	7,440	24.2	0.87	985	3.6	0.30	585	2.0	0.19	5,995	19.1	0.75	1,035	3.7	0.30	1,730	6.2	0.45
Micropolitan	27,810	101.7	1.96	6,500	22.8	0.74	840	3.4	0.28	430	1.6	0.19	5,355	18.3	0.66	885	3.5	0.29	1,535	6.3	0.39
Noncore	17,080	89.8	2.05	4,335	21.1	0.83	335	2.1	0.26	305	1.6	0.21	3,720	17.6	0.74	435	2.5	0.29	790	4.9	0.43
Unknown	2,035	[l]	[l]	520	[l]	[l]	285	[l]	[l]	[k]	[k]	[k]	220	[l]	[l]	225	[l]	[l]	335	[l]	[l]

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] In-hospital deaths and patients who transferred from another hospital were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] Because the relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

TABLE 3B

Estimated numbers[a,b] and age-adjusted rates per 100,000 of drug poisoning-related emergency department visits by selected substances — United States, 2015

Socio-demographic characteristics	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisonings[i]		
	No.	Rate[j]	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE
All Visits	547,543	174.6	2.6	140,077	44.0	1.50	81,326	25.9	1.26	3,709	1.1	0.06	56,233	17.3	0.33	9,401	3.0	0.11	15,808	5.2	0.13
Gender																					
Male	262,277	167.2	3.03	85,596	54.0	2.00	56,341	35.7	1.71	1,994	1.3	0.08	28,067	17.5	0.41	6,049	3.9	0.15	9,533	6.2	0.20
Female	285,266	182.1	2.45	54,480	34.0	1.06	24,985	16.1	0.85	1,716	1.0	0.07	28,166	17.1	0.34	3,352	2.2	0.10	6,275	4.2	0.14
Age Groups																					
0–14	82,064	134.5	5.78	2,458	4.0	0.25	[k]	[k]	[k]	66	0.1	0.03	2,381	3.9	0.24	450	0.7	0.09	2,358	3.9	0.26
15–19	64,873	307.7	9.71	5,590	26.5	1.45	2,355	11.2	1.01	62	0.3	0.09	3,202	15.2	0.81	425	2.0	0.23	1,744	8.3	0.52
20–24	63,787	281.1	11.71	22,617	99.7	7.21	16,616	73.2	6.29	238	1.1	0.16	5,904	26.0	1.37	1,148	5.1	0.40	2,678	11.8	0.75
25–34	114,732	260.6	12.51	49,047	111.4	8.71	35,990	81.8	7.45	1,001	2.3	0.27	12,586	28.6	1.55	2,809	6.4	0.45	4,540	10.3	0.56
35–44	73,133	180.7	7.26	24,091	59.5	4.25	14,521	35.9	3.46	776	1.9	0.19	8,989	22.2	1.04	1,921	4.7	0.35	2,579	6.4	0.41
45–54	62,829	145.8	5.14	17,934	41.6	2.52	7,977	18.5	1.84	657	1.5	0.17	9,484	22.0	0.93	1,634	3.8	0.37	1,258	2.9	0.26
55–64	43,698	107.1	3.33	11,615	28.5	1.44	3,359	8.2	0.79	685	1.7	0.24	7,679	18.8	0.81	810	2.0	0.22	475	1.2	0.14
≥ 65	42,427	88.9	2.37	6,725	14.1	0.58	496	1.0	0.15	223	0.5	0.08	6,007	12.6	0.54	203	0.4	0.07	176	0.4	0.06

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Emergency Department Sample (NEDS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] Persons who were hospitalized, died, or transferred to another facility were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] Because the relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

TABLE 3B **Estimated number[ab] and age-adjusted rate per 100,000 population of drug-poisoning related emergency department visits by selected substances — United States, 2014**

CONTINUED

Socio-demographic characteristics	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisonings[i]		
	No.	Ratej	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE
U.S. census region of residence																					
Northeast	109,982	202.5	8.9	42,626	77.9	6.16	31,527	58.1	5.27	909	1.6	0.20	10,534	18.8	1.04	1,998	3.7	0.31	1,195	2.3	0.16
Midwest	130,795	200.3	6.31	36,585	56.0	3.7	23,710	36.8	3.06	710	1.1	0.12	12,452	18.6	0.81	2,312	3.5	0.28	3,774	6.0	0.34
South	189,484	160.3	3.82	39,287	32.8	1.84	18,155	15.4	1.54	1,068	0.9	0.07	20,441	16.7	0.50	3,955	3.4	0.17	5,731	5.0	0.20
West	117,282	155.6	3.36	21,578	27.6	1.09	7,933	10.2	0.74	1,023	1.3	0.14	12,806	16.4	0.51	1,137	1.5	0.13	5,108	6.8	0.34
2013 urbanization category																					
Large central metropolitan	148,440	149.5	4.77	36,213	34.9	2.25	20,888	20.0	1.82	1,306	1.2	0.10	14,327	14.0	0.57	3,651	3.6	0.23	4,721	4.8	0.23
Large fringe metropolitan	123,674	161.8	5.86	41,657	54.8	3.76	28,492	38.2	3.28	728	0.9	0.10	12,777	16.1	0.66	1,760	2.4	0.15	2,537	3.4	0.19
Medium metropolitan	127,119	195.4	6.31	32,220	49.4	3.01	18,565	28.9	2.44	707	1.1	0.10	13,235	19.8	0.79	1,926	3.0	0.23	3,451	5.5	0.31
Small metropolitan	53,540	188.8	8.41	11,408	39.8	3.78	5,528	19.7	2.91	368	1.3	0.19	5,622	19.3	1.16	667	2.4	0.28	1,702	6.3	0.42
Micropolitan	54,629	211.8	4.59	10,668	41.1	2.09	4,824	19.5	1.62	249	1.0	0.14	5,676	21.0	0.88	755	3.0	0.30	1,703	6.9	0.45
Noncore	35,338	202.4	4.25	5,856	33.6	1.41	1,674	10.8	0.89	215	1.3	0.22	4,002	21.7	0.95	471	2.8	0.32	1,344	8.5	0.60
Unknown	4,803	l	l	2,056	l	l	1,355	l	l	k	k	k	593	l	l	k	k	k	k	k	k

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Emergency Department Sample (NEDS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] Persons who were hospitalized, died, or transferred to another facility were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] Because the relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

TABLE 3C **Estimated number[a,b] and percent of drug poisoning-related hospitalization and emergency department visits by primary payer — United States, 2015**

	All drug poisoning[c]				All opioid poisonings[d]				Heroin poisonings[e]				Methadone poisonings[f]			
	Hospitalizations		ED visits		Hospitalizations		ED visits		Hospitalizations		ED visits		Hospitalizations		ED visits	
Total	316,900		547,543		78,840		140,077		16,770		81,326		5,590		3,709	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Payer																
Medicare	96,690	30.5	83,242	15.2	28,490	36.1	17,817	12.7	1,800	10.7	4,584	5.6	1,830	32.7	717	19.3
Medicaid	100,225	31.6	200,689	36.7	24,030	30.5	55,676	39.7	7,825	46.7	36,714	45.1	2,175	38.9	1,799	48.5
Private	75,590	23.9	155,963	28.5	16,030	20.3	29,781	21.3	3,425	20.4	15,181	18.7	895	16.0	516	13.9
Uninsured	33,010	10.4	81,856	14.9	7,750	9.8	29,005	20.7	3,075	18.3	19,801	24.3	465	8.3	509	13.7
Other/unknown	11,385	3.6	25,793	4.7	2,540	3.2	7,798	5.6	645	3.8	5,046	6.2	225	4.0	168	4.5

Abbreviation: No., number.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] In-hospital deaths and patients who transferred from another hospital were excluded from hospitalizations. Persons who were hospitalized, died, or transferred to another facility were excluded from ED visits. Hospitalizations and ED visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

TABLE 3C **Estimated number[a,b] and percent of drug poisoning-related hospitalizations and emergency department visits by primary payer — United States, 2015**

CONTINUED

	Poisoning by other opioids[g]				Cocaine poisonings[h]				Methamphetamine poisonings[i]			
	Hospitalizations		ED visits		Hospitalizations		ED visits		Hospitalizations		ED visits	
Total	58,090		56,233		18,885		9,401		14,845		15,808	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Payer												
Medicare	25,175	43.3	12,607	22.4	3,505	18.6	907	9.6	2,210	14.9	907	5.7
Medicaid	14,750	25.4	17,724	31.5	8,475	44.9	3,637	38.7	6,185	41.7	5,729	36.2
Private	11,975	20.6	14,281	25.4	2,535	13.4	1,875	19.9	2,645	17.8	4,380	27.7
Uninsured	4,475	7.7	8,946	15.9	3,725	19.7	2,413	25.7	3,160	21.3	3,816	24.1
Other/unknown	1,715	3.0	2,675	4.8	645	3.4	569	6.1	645	4.3	976	6.2

Abbreviation: No., number.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] In-hospital deaths and patients who transferred from another hospital were excluded from hospitalizations. Persons who were hospitalized, died, or transferred to another facility were excluded from ED visits. Hospitalizations and ED visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

TABLE 4

Number and age-adjusted rates[a] of drug overdose deaths[b] involving selected drugs by sex, age group, race/ethnicity, census region, urbanization, and intent — United States, 2016

	Drug overdose deaths involving:														
	Drug overdose deaths, overall			Any opioid[c]			Natural and semi-synthetic opioids[d]			Methadone[e]			Synthetic opioids other than methadone[f]		
Socio-demographic characteristic	Number	Rate	SE	Number	Rate	SE	Number	Rate	SE	Number	Rate	SE	Number	Rate	SE
All	63,632	19.8	0.080	42,249	13.3	0.066	14,487	4.4	0.038	3,373	1.0	0.018	19,413	6.2	0.045
Sex															
Male	41,558	26.2	0.131	28,498	18.1	0.109	8,417	5.2	0.058	2,011	1.3	0.029	13,835	8.9	0.077
Female	22,074	13.4	0.093	13,751	8.5	0.074	6,070	3.6	0.048	1,362	0.8	0.023	5,578	3.5	0.048
Age group (years)															
0–14	142	0.2	0.020	83	0.1	0.015	44	0.1	0.011	18	[k]		18	[k]	
15–19	873	4.1	0.140	586	2.8	0.115	184	0.9	0.064	42	0.2	0.031	255	1.2	0.076
20–24	4,503	20.1	0.300	3,441	15.4	0.262	814	3.6	0.127	142	0.6	0.053	1,703	7.6	0.184
25–34	15,443	34.6	0.278	11,552	25.9	0.241	2,826	6.3	0.119	752	1.7	0.061	6,094	13.6	0.18
35–44	14,183	35.0	0.294	9,747	24.1	0.244	3,102	7.7	0.138	806	2.0	0.070	4,825	11.9	0.17
45–54	14,771	34.5	0.284	9,074	21.2	0.223	3,713	8.7	0.142	780	1.8	0.065	3,872	9.0	0.15
55–64	10,632	25.6	0.249	6,321	15.2	0.192	2,969	7.2	0.131	717	1.7	0.065	2,238	5.4	0.11
≥ 65	3,075	6.2	0.113	1,441	2.9	0.077	834	1.7	0.059	116	0.2	0.022	405	0.8	0.04
Race/ethnicity[l]															
White, non-Hispanic	49,457	25.3	0.117	33,450	17.5	0.098	12,079	6.0	0.056	2,706	1.4	0.027	15,143	8.2	0.068
Black, non-Hispanic	7,220	17.1	0.204	4,374	10.3	0.159	1,163	2.8	0.082	301	0.7	0.040	2,391	5.6	0.117

Source: National Vital Statistics System, Mortality File

Abbreviation: SE, standard error.

[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year. Rates are suppressed when based on <20 deaths. Rates for age groups are crude rates (deaths per 100,000 population).

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Because deaths might involve more than one drug, some deaths are included in more than one category. On death certificates, the specificity of drugs involved with deaths varies over time. In 2016, approximately 15% of drug overdose deaths did not include information on the specific type of drug(s) involved.

[c] Drug overdose deaths, as defined using ICD-10 codes, that involve opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids (T40.2), methadone (T40.3), synthetic opioids other than methadone (T40.4) and other and unspecified narcotics (T40.6).

[d] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2).

[e] Drug overdose deaths, as defined, that involve methadone (T40.3).

[f] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).

[g] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) and methadone (T40.3).

[h] Drug overdose deaths, as defined, that involve heroin (T40.1).

[i] Drug overdose deaths, as defined, that involve cocaine (T40.5).

[j] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).

[k] Cells with nine or fewer deaths are not reported. Rates based on <20 deaths are not considered reliable and not reported.

[l] Data for Hispanic origin should be interpreted with caution; studies comparing Hispanic origin on death certificates and on census surveys have shown inconsistent reporting on Hispanic ethnicity.

[m] Census regions are defined by the following jurisdictions: Region 1: Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Region 2: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; Region 3: Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; Region 4: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[n] Categories of 2013 NCHS Urban-Rural Classification Scheme for Counties.

CONTINUED

	Drug overdose deaths involving:														
	Drug overdose deaths, overall			Any opioid[c]			Natural and semi-synthetic opioids[d]			Methadone[e]			Synthetic opioids other than methadone[f]		
Socio-demographic characteristic	**Number**	**Rate**	**SE**	**Number**	**Rate**	**SE**	**Number**	**Rate**	**SE**	**Number**	**Rate**	**SE**	**Number**	**Rate**	**SE**
Asian/Pacific Islander, non-Hispanic	644	3.1	0.123	323	1.5	0.086	119	0.6	0.055	21	0.1	0.025	134	0.6	0.055
American Indian/Alaska Native, non-Hispanic	638	24.2	0.979	369	13.9	0.739	145	5.5	0.466	37	1.4	0.228	113	4.1	0.395
Hispanic	5,230	9.5	0.133	3,440	6.1	0.106	917	1.7	0.056	275	0.5	0.031	1,505	2.7	0.07
U.S. Census region of residence[m]															
Northeast	14,804	26.6	0.223	10,616	19.3	0.191	2,658	4.7	0.093	761	1.3	0.050	6,486	12.0	0.151
Midwest	14,623	22.3	0.188	10,761	16.5	0.163	2,879	4.3	0.082	614	0.9	0.039	5,379	8.3	0.116
South	23,039	19.0	0.128	14,929	12.4	0.104	6,136	5.0	0.065	1,231	1.0	0.029	6,600	5.6	0.070
West	11,166	14.1	0.136	5,943	7.6	0.100	2,814	3.5	0.068	767	1.0	0.035	948	1.2	0.041
2013 Urbanization[n]															
Large central metropolitan	19,172	18.5	0.135	12,903	12.5	0.111	4,059	3.9	0.062	1,133	1.1	0.032	6,009	5.8	0.077
Large fringe metropolitan	17,039	21.6	0.168	11,993	15.4	0.143	3,851	4.4	0.075	793	1.0	0.036	6,264	8.2	0.105
Medium metropolitan	14,066	21.5	0.185	9,264	14.3	0.152	3,412	5.1	0.090	751	1.1	0.043	3,978	6.3	0.102
Small metropolitan	5,319	19.1	0.269	3,224	11.7	0.212	1,258	4.5	0.130	275	1.0	0.061	1,270	4.7	0.135
Micropolitan	4,986	19.5	0.284	3,068	12.1	0.226	1,285	4.9	0.141	244	1.0	0.064	1,228	5.0	0.146
Noncore	3,050	17.5	0.328	1,797	10.5	0.257	892	5.0	0.173	177	1.0	0.080	664	4.1	0.163
Intent															
Unintentional	54,793	17.1	0.075	37,814	11.9	0.062	12,101	3.7	0.035	2,996	0.9	0.017	17,696	5.7	0.043
Undetermined	3,643	1.1	0.019	2,544	0.8	0.016	1,046	0.3	0.010	258	0.1	0.005	1,259	0.4	0.011
Suicide	5,086	1.5	0.021	1,819	0.5	0.012	1,325	0.4	0.011	111	0.04	0.004	435	0.1	0.007

Source: National Vital Statistics System, Mortality File

Abbreviation: SE, standard error.

[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year. Rates are suppressed when based on <20 deaths. Rates for age groups are crude rates (deaths per 100,000 population).

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Because deaths might involve more than one drug, some deaths are included in more than one category. On death certificates, the specificity of drugs involved with deaths varies over time. In 2016, approximately 15% of drug overdose deaths did not include information on the specific type of drug(s) involved.

[c] Drug overdose deaths, as defined using ICD-10 codes, that involve opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids (T40.2), methadone (T40.3), synthetic opioids other than methadone (T40.4) and other and unspecified narcotics (T40.6).

[d] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2).

[e] Drug overdose deaths, as defined, that involve methadone (T40.3).

[f] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).

[g] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) and methadone (T40.3).

[h] Drug overdose deaths, as defined, that involve heroin (T40.1).

[i] Drug overdose deaths, as defined, that involve cocaine (T40.5).

[j] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).

[k] Cells with nine or fewer deaths are not reported. Rates based on <20 deaths are not considered reliable and not reported.

[l] Data for Hispanic origin should be interpreted with caution; studies comparing Hispanic origin on death certificates and on census surveys have shown inconsistent reporting on Hispanic ethnicity.

[m] Census regions are defined by the following jurisdictions: Region 1: Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Region 2: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; Region 3: Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; Region 4: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[n] Categories of 2013 NCHS Urban-Rural Classification Scheme for Counties.

TABLE 4

Number and age-adjusted rates[a] of drug overdose deaths[b] involving selected drugs by sex, age group, race/ethnicity, census region, urbanization, and intent — United States, 2016

CONTINUED

	Prescription opioids[g]			Heroin[h]			Cocaine[i]			Psychostimulants with abuse potential[j]		
	Number	Rate	SE	Number	Rate	SE	Number	Rate	SE	Number	Rate	SE
All	17,087	5.2	0.041	15,469	4.9	0.040	10,375	3.2	0.032	7,542	2.4	0.028
Sex												
Male	9,978	6.2	0.063	11,752	7.5	0.070	7,493	4.7	0.055	5,348	3.4	0.047
Female	7,109	4.3	0.052	3,717	2.4	0.039	2,882	1.8	0.034	2,194	1.4	0.030
Age group (years)												
0–14	60	0.1	0.013	[k]	[k]		[k]	[k]		11	[k]	
15–19	216	1.0	0.070	212	1.0	0.069	87	0.4	0.044	85	0.4	0.044
20–24	930	4.2	0.136	1,516	6.8	0.174	670	3.0	0.116	486	2.2	0.099
25–34	3,442	7.7	0.131	5,051	11.3	0.159	2,525	5.7	0.112	1,762	3.9	0.094
35–44	3,727	9.2	0.151	3,625	9.0	0.149	2,431	6.0	0.122	1,831	4.5	0.106
45–54	4,307	10.1	0.153	3,009	7.0	0.128	2,629	6.1	0.120	1,914	4.5	0.102
55–64	3,489	8.4	0.142	1,777	4.3	0.102	1,721	4.2	0.100	1,244	3.0	0.085
≥ 65	915	1.9	0.061	275	0.6	0.034	303	0.6	0.035	206	0.4	0.029
Race/ethnicity[l]												
White, non-Hispanic	14,167	7.0	0.061	11,631	6.3	0.060	6,443	3.4	0.044	5,777	3.0	0.040
Black, non-Hispanic	1,392	3.3	0.089	1,899	4.5	0.104	2,599	6.1	0.122	477	1.2	0.053

Source: National Vital Statistics System, Mortality File
Abbreviation: SE, standard error.

[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year. Rates are suppressed when based on <20 deaths. Rates for age groups are crude rates (deaths per 100,000 population).

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Because deaths might involve more than one drug, some deaths are included in more than one category. On death certificates, the specificity of drugs involved with deaths varies over time. In 2016, approximately 15% of drug overdose deaths did not include information on the specific type of drug(s) involved.

[c] Drug overdose deaths, as defined using ICD-10 codes, that involve opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids (T40.2), methadone (T40.3), synthetic opioids other than methadone (T40.4) and other and unspecified narcotics (T40.6).

[d] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2).

[e] Drug overdose deaths, as defined, that involve methadone (T40.3).

[f] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).

[g] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) and methadone (T40.3).

[h] Drug overdose deaths, as defined, that involve heroin (T40.1).

[i] Drug overdose deaths, as defined, that involve cocaine (T40.5).

[j] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).

[k] Cells with nine or fewer deaths are not reported. Rates based on <20 deaths are not considered reliable and not reported.

[l] Data for Hispanic origin should be interpreted with caution; studies comparing Hispanic origin on death certificates and on census surveys have shown inconsistent reporting on Hispanic ethnicity.

[m] Census regions are defined by the following jurisdictions: Region 1: Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Region 2: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; Region 3: Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; Region 4: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

[n] Categories of 2013 NCHS Urban-Rural Classification Scheme for Counties.

CONTINUED

	Prescription opioids[g]			Heroin[h]			Cocaine[i]			Psychostimulants with abuse potential[j]		
	Number	Rate	SE	Number	Rate	SE	Number	Rate	SE	Number	Rate	SE
Asian/Pacific Islander, non-Hispanic	131	0.7	0.058	102	0.5	0.049	85	0.4	0.044	171	0.8	0.064
American Indian/Alaska Native, non-Hispanic	173	6.5	0.507	131	5.0	0.446	56	2.1	0.280	181	6.9	0.524
Hispanic	1,133	2.1	0.063	1,555	2.8	0.071	1,097	2.0	0.060	846	1.5	0.053
U.S. Census region of residence[m]												
Northeast	3,252	5.7	0.103	4,322	7.9	0.122	2,957	5.3	0.100	431	0.8	0.040
Midwest	3,390	5.1	0.089	4,565	7.1	0.107	2,575	3.9	0.079	1,176	1.9	0.055
South	7,044	5.8	0.070	4,542	3.8	0.058	4,005	3.3	0.053	2,483	2.1	0.043
West	3,401	4.3	0.075	2,040	2.7	0.060	838	1.1	0.037	3,452	4.4	0.077
2013 Urbanization[n]												
Large central metropolitan	4,930	4.7	0.068	5,507	5.3	0.073	4,301	4.2	0.064	2,561	2.5	0.050
Large fringe metropolitan	4,209	5.2	0.082	4,623	6.1	0.090	2,734	3.5	0.068	1,235	1.6	0.046
Medium metropolitan	3,988	6.0	0.098	3,077	4.9	0.089	2,082	3.2	0.072	1,821	2.8	0.066
Small metropolitan	1,471	5.2	0.140	990	3.7	0.121	569	2.1	0.089	698	2.6	0.101
Micropolitan	1,475	5.7	0.153	860	3.6	0.124	474	1.9	0.090	745	3.0	0.112
Noncore	1,014	5.7	0.186	412	2.6	0.130	215	1.3	0.091	482	2.9	0.137
Intent												
Unintentional	14,432	4.5	0.038	14,606	4.6	0.039	9,899	3.1	0.032	7,120	2.2	0.027
Undetermined	1,232	0.4	0.011	745	0.2	0.009	378	0.1	0.007	246	0.1	0.006
Suicide	1,401	0.4	0.011	82	0.03	0.004	88	0.03	0.004	163	0.05	0.004

Source: National Vital Statistics System, Mortality File
Abbreviation: SE, standard error.

[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year. Rates are suppressed when based on <20 deaths. Rates for age groups are crude rates (deaths per 100,000 population).

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Because deaths might involve more than one drug, some deaths are included in more than one category. On death certificates, the specificity of drugs involved with deaths varies over time. In 2016, approximately 15% of drug overdose deaths did not include information on the specific type of drug(s) involved.

[c] Drug overdose deaths, as defined using ICD-10 codes, that involve opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids (T40.2), methadone (T40.3), synthetic opioids other than methadone (T40.4) and other and unspecified narcotics (T40.6).

[d] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2).

[e] Drug overdose deaths, as defined, that involve methadone (T40.3).

[f] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).

[g] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) and methadone (T40.3).

[h] Drug overdose deaths, as defined, that involve heroin (T40.1).

[i] Drug overdose deaths, as defined, that involve cocaine (T40.5).

[j] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).

[k] Cells with nine or fewer deaths are not reported. Rates based on <20 deaths are not considered reliable and not reported.

[l] Data for Hispanic origin should be interpreted with caution; studies comparing Hispanic origin on death certificates and on census surveys have shown inconsistent reporting on Hispanic ethnicity.

[m] Census regions are defined by the following jurisdictions: Region 1: Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; Region 2: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; Region 3: Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; Region 4: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

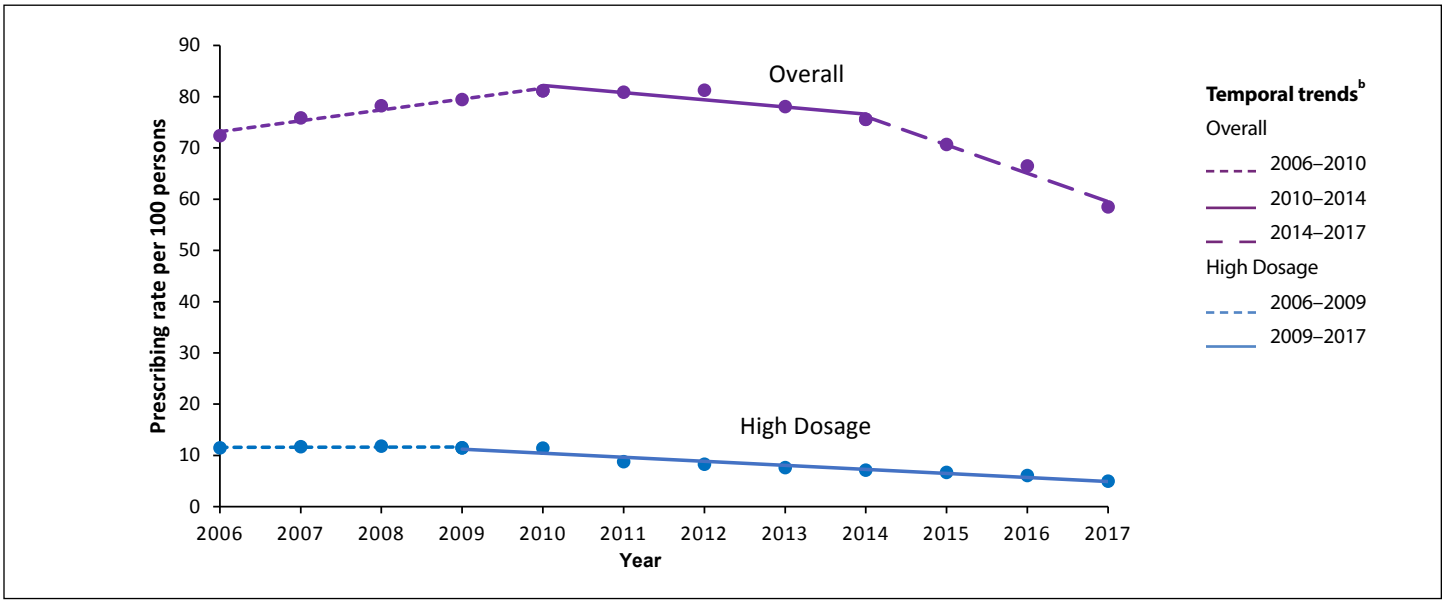
[n] Categories of 2013 NCHS Urban-Rural Classification Scheme for Counties.

FIGURES

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

Trends in Opioid Prescribing

FIGURE 1A **Annual opioid prescribing rates overall and for high-dosage prescriptions[a] (≥ 90 MME/day)[b] — United States, 2006–2017**

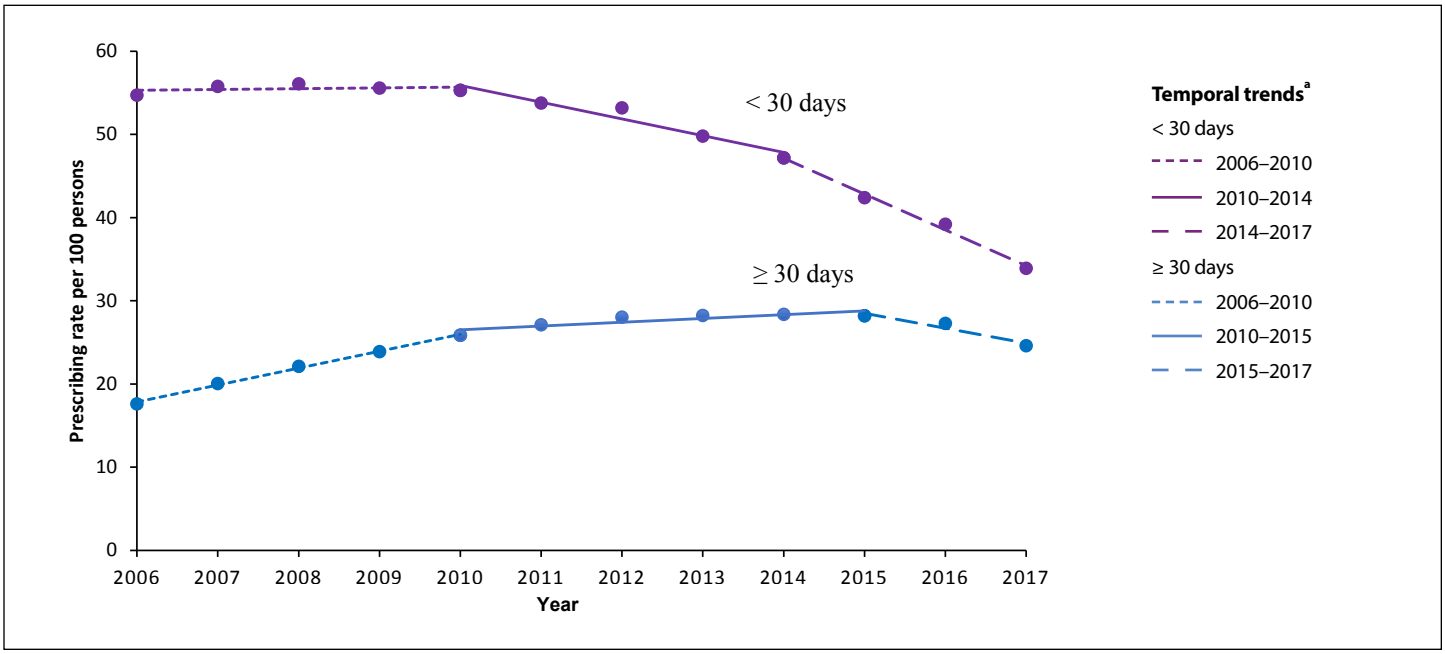


Source: IQVIA™ Transactional Data Warehouse.

[a] High-dosage prescriptions were defined as opioid prescriptions resulting in a daily dosage of ≥ 90 morphine milligram equivalents.

[b] Temporal trends from 2006 to 2017 were evaluated by applying joinpoint regression methodology. This modeling approach simultaneously identified statistically significant trends as well as shifts in trends that occurred within a time series. A maximum of two joinpoints was allowed, and the permutation method was used for model selection. Different line dashes correspond to year groupings as determined by joinpoint regression.

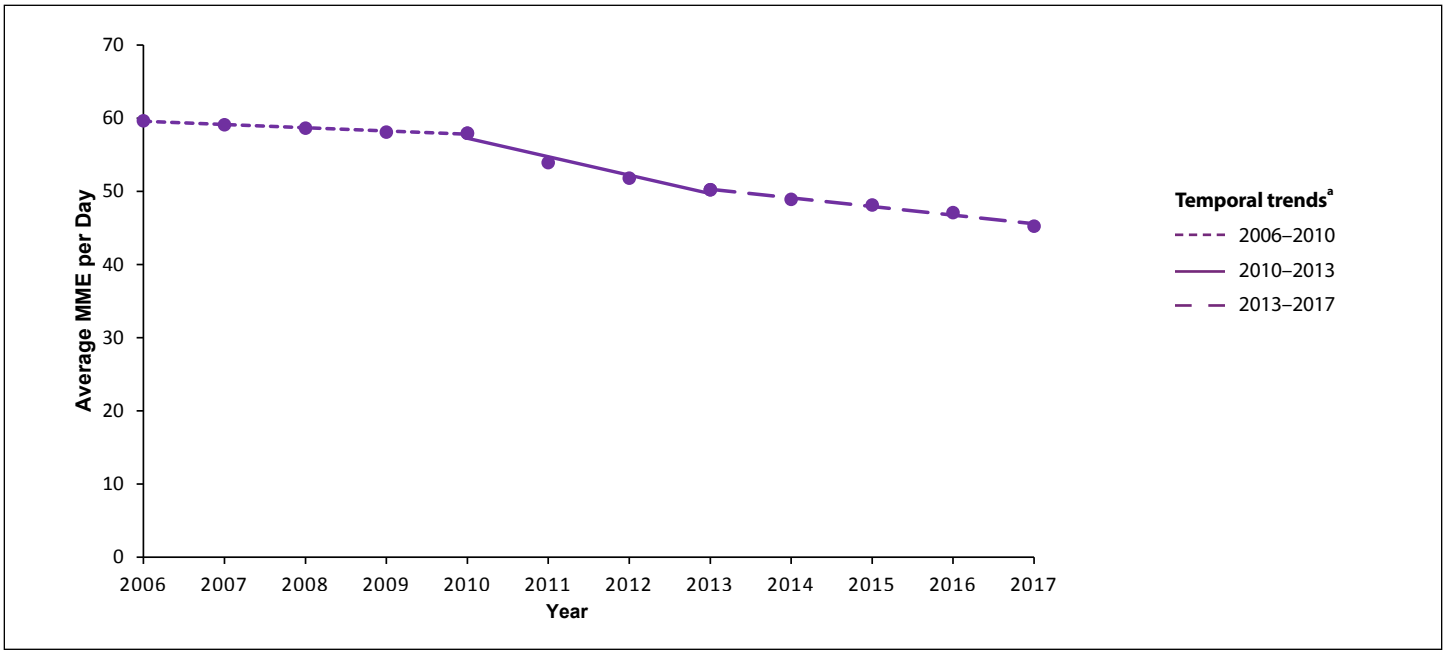
FIGURE 1B **Annual opioid prescribing rates by days of supply per prescription[a] — United States, 2006–2017**



Source: IQVIA™ Transactional Data Warehouse.

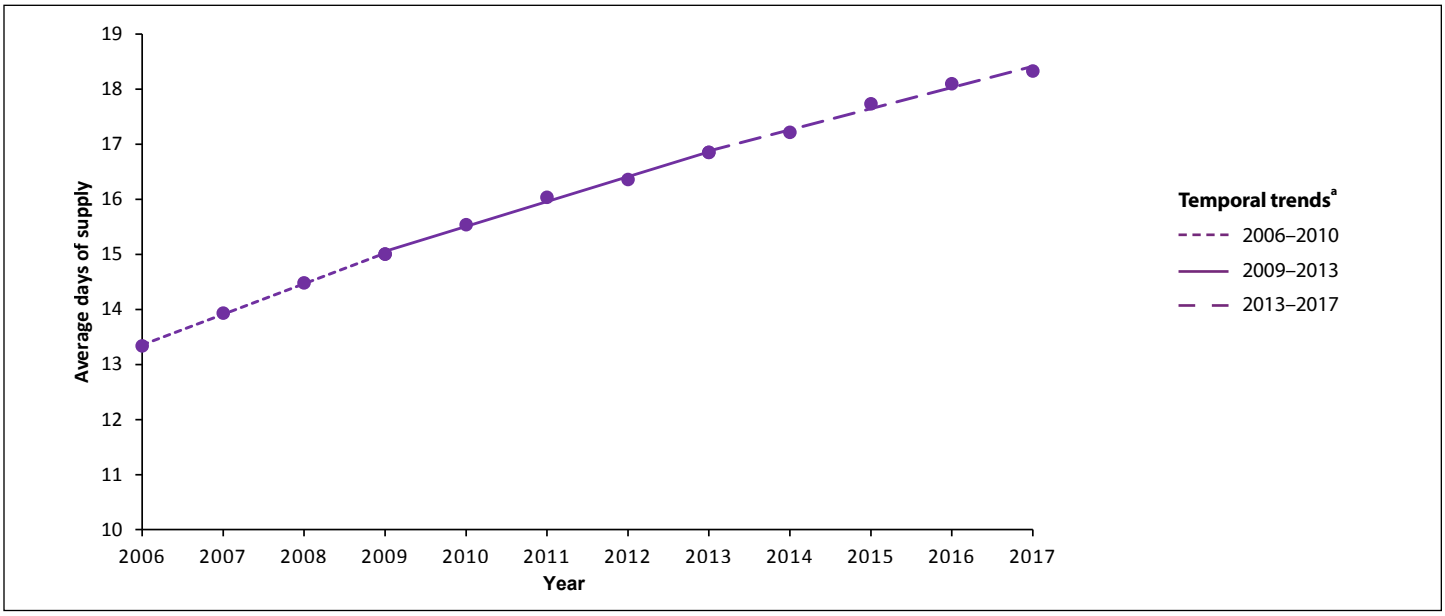
a Temporal trends from 2006 to 2017 were evaluated by applying joinpoint regression methodology. This modeling approach simultaneously identified statistically significant trends as well as shifts in trends that occurred within a time series. A maximum of two joinpoints was allowed, and the permutation method was used for model selection. Different line dashes correspond to year groupings as determined by joinpoint regression.

FIGURE 1C **Average daily morphine milligram equivalents (MME) per opioid prescription[a] — United States, 2006–2017**



Source: IQVIA™ Transactional Data Warehouse.
Abbreviation: MME, morphine milligram equivalents.
[a] Temporal trends from 2006 to 2017 were evaluated by applying joinpoint regression methodology. This modeling approach simultaneously identified statistically significant trends as well as shifts in trends that occurred within a time series. A maximum of two joinpoints was allowed, and the permutation method was used for model selection. Different line dashes correspond to year groupings as determined by joinpoint regression.

FIGURE 1D **Average days of supply per opioid prescription[a] — United States, 2006–2017**



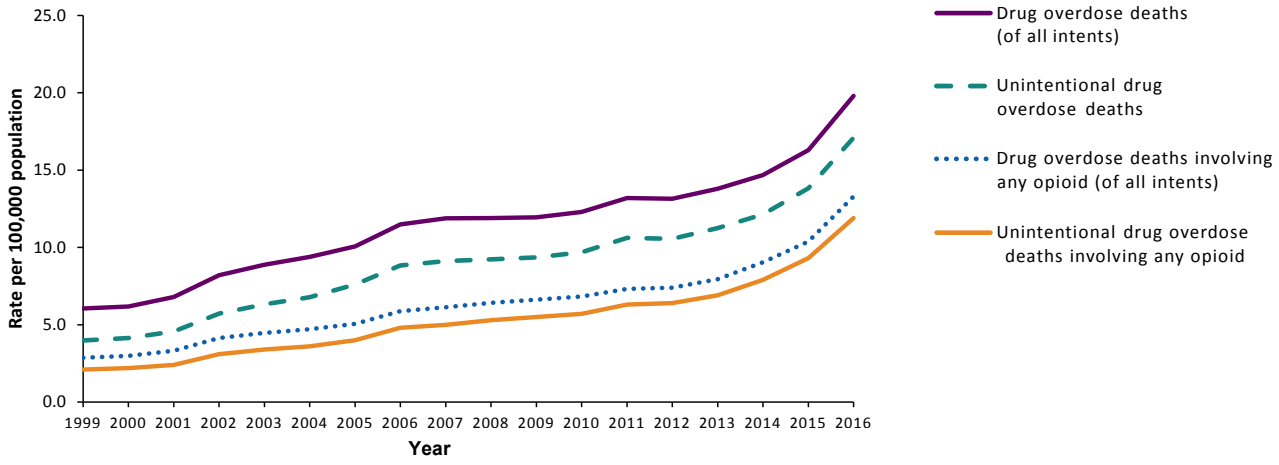
Source: IQVIA™ Transactional Data Warehouse.

[a] Temporal trends from 2006 to 2017 were evaluated by applying joinpoint regression methodology. This modeling approach simultaneously identified statistically significant trends as well as shifts in trends that occurred within a time series. A maximum of two joinpoints was allowed, and the permutation method was used for model selection. Different line dashes correspond to year groupings as determined by joinpoint regression.

Trends in Drug Overdose Deaths

FIGURE 2A

Age-adjusted rates[a] of drug overdose deaths[b] and drug overdose deaths involving any opioid[c] for all intents and for unintentional intent by year — United States, 1999–2016



Source: National Vital Statistics System, Mortality File, CDC WONDER.

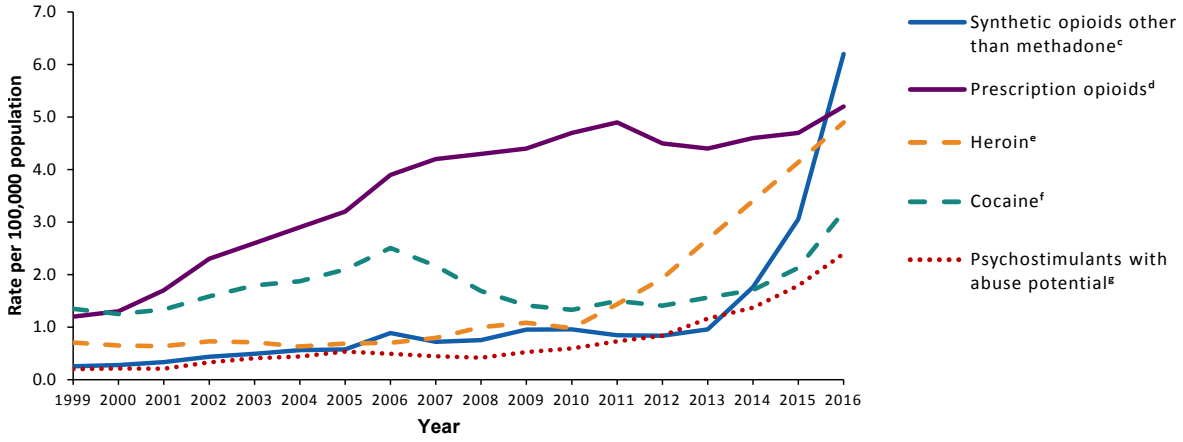
[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year.

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). All drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Unintentional drug overdose deaths are identified using underlying cause-of-death codes X40–X44. Note that overall drug overdose deaths and opioid overdose deaths include deaths of any intent. In 2016, 5.7% of drug overdose deaths had undetermined intent; this is a decrease from 14.7% of drug overdose deaths that had an undetermined intent in 1999. Some of these deaths may be unintentional drug overdose deaths.

[c] Drug overdose deaths, as defined, that involve opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids (T40.2), methadone (T40.3), other synthetic opioids excluding methadone (T40.4), and other and unspecified narcotics (T40.6). Specification on death certificates of drugs involved with deaths varies over time. In 2016, approximately 15% of drug overdose deaths did not include information on the specific type of drug(s) involved. Some of these deaths may have involved opioids.

FIGURE 2B

Age-adjusted rates[a] of drug overdose deaths[b] by drug or drug class and year — United States, 1999–2016



Source: National Vital Statistics System, Mortality File, CDC WONDER.

[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year. Because deaths might involve more than one drug, some deaths are included in more than one category. Specification on death certificates of drugs involved with deaths varies over time. In 2016, 15% of drug overdose deaths did not include information on the specific type of drug(s) involved. Some of these deaths may have involved opioids or stimulants.

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined).

[c] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).

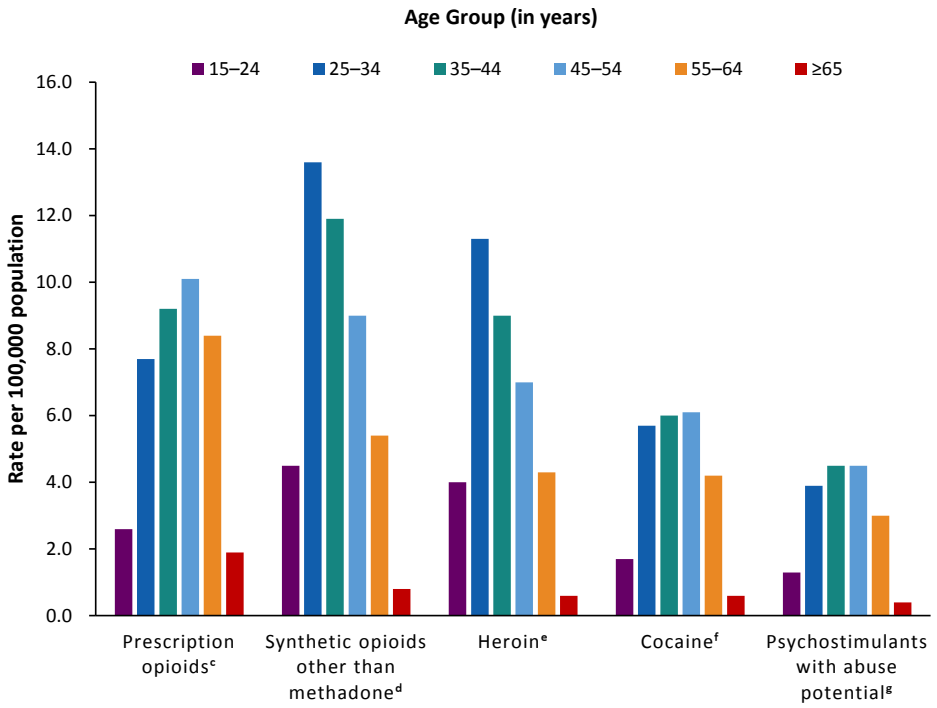
[d] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) or methadone (T40.3).

[e] Drug overdose deaths, as defined, that involve heroin (T40.1).

[f] Drug overdose deaths, as defined, that involve cocaine (T40.5).

[g] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).

FIGURE 2C **Rates[a] of drug overdose deaths[b] by drug or drug class and age category — United States, 2016**



Source: National Vital Statistics System, Mortality File, CDC WONDER.

[a] Rate per 100,000 population using the vintage year population of the data year. Because deaths might involve more than one drug, some deaths are included in more than one category. Specification on death certificates of drugs involved with deaths varies over time. In 2016, approximately 15% of drug overdose deaths did not include information on the specific type of drug(s) involved. Some of these deaths may have involved opioids or stimulants.

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined).

[c] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) or methadone (T40.3).

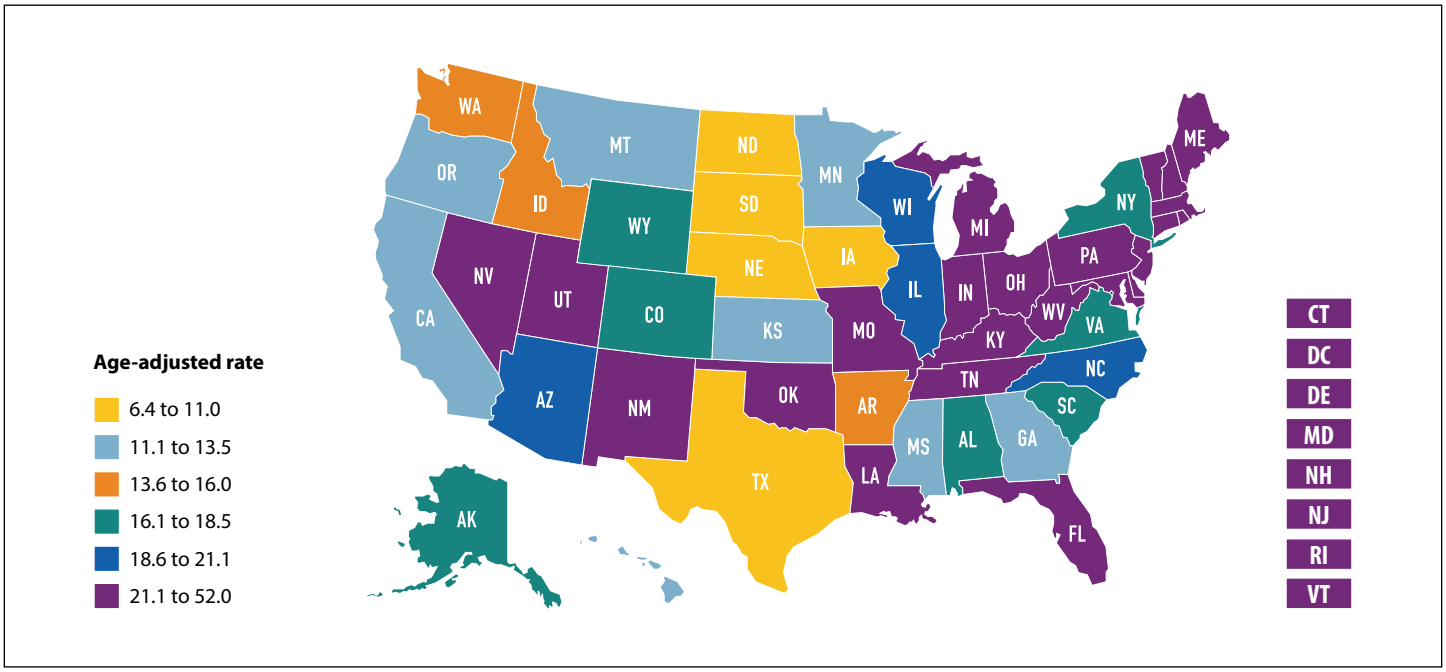
[d] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).

[e] Drug overdose deaths, as defined, that involve heroin (T40.1).

[f] Drug overdose deaths, as defined, that involve cocaine (T40.5).

[g] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).

FIGURE 2D **Age-adjusted rates[a] of drug overdose deaths[b] by state — United States, 2016**



Source: National Vital Statistics System, Mortality File, CDC WONDER.

[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year.

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined).

APPENDIX

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

SUPPLEMENTAL TABLE 1

Opioid prescribing — United States, 2006-2017

Opioid prescribing	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	% change from 2006 to 2017
Prescribing rate[a]													
All opioids	72.4	75.9	78.2	79.5	81.2	80.9	81.2	78.1	75.6	70.7	66.5	58.5	-19.1
High-dosage[b]	11.5	11.7	11.8	11.5	11.4	8.8	8.3	7.6	7.1	6.7	6.1	5.0	-56.5
Days of supply per Rx													
≥ 30 days	17.6	20.1	22.1	23.9	25.9	27.1	28.0	28.3	28.4	28.2	27.3	24.6	39.8
< 30 days	54.7	55.8	56.1	55.6	55.3	53.8	53.2	49.8	47.2	42.5	39.2	33.9	-38.0
Dosage (MME)													
Average daily MME per Rx	59.7	59.1	58.7	58.1	58.0	53.9	51.8	50.2	48.9	48.1	47.1	45.3	-24.1
Average MME per Rx	828.2	861.9	894.1	922.6	963.8	946.7	911.5	901.7	895.9	907.5	901.2	873.4	5.5
MME per capita	599.3	653.9	699.4	733.0	782.3	765.9	740.6	704.1	896.0	641.4	599.3	511.1	-14.7
Average days supply per Rx	13.3	13.9	14.5	15.0	15.5	16.0	16.4	16.9	17.2	17.7	18.1	18.3	37.4

Source: IQVIA™ Transactional Data Warehouse.
Abbreviations: MME, morphine milligram equivalents; Rx, prescription.
[a] Rate per 100 persons adjusted to the U.S. census population.
[b] High-dosage prescriptions were defined as opioid prescriptions resulting in a daily dosage of ≥ 90 MME.

SUPPLEMENTAL TABLE 2A

Estimated numbers[a,b] and rates (not age-adjusted) per 100,000 population of drug poisoning-related hospitalizations by selected substances — United States, 2016

	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisonings[i]		
Socio-demographic characteristic	**No.**	**Rate[j]**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**
All Visits	316,900	98.8	1.24	78,840	24.6	0.38	16,770	5.2	0.15	5,590	1.7	0.07	58,090	18.1	0.29	18,885	5.9	0.22	14,845	4.6	0.14
Gender																					
Male	139,955	88.6	1.24	37,695	23.9	0.44	11,510	7.3	0.23	2,770	1.8	0.08	24,360	15.4	0.31	12,500	7.9	0.32	9,160	5.8	0.20
Female	176,945	108.6	1.43	41,145	25.3	0.43	5,260	3.2	0.12	2,820	1.7	0.09	33,730	20.7	0.36	6,385	3.9	0.18	5,685	3.5	0.13
Age Groups																					
0–14	9,410	15.4	0.83	510	0.8	0.10	[k]	[k]	[k]	65	0.1	0.03	430	0.7	0.09	105	0.2	0.04	365	0.6	0.08
15–19	21,820	103.5	3.16	1,925	9.1	0.51	495	2.3	0.24	85	0.4	0.10	1,395	6.6	0.43	330	1.6	0.20	765	3.6	0.29
20–24	26,385	116.3	2.33	5,485	24.2	0.81	2,785	12.3	0.54	285	1.3	0.17	2,600	11.5	0.53	1,150	5.1	0.35	1,820	8.0	0.46
25–34	50,435	114.6	2.00	12,975	29.5	0.73	5,815	13.2	0.47	990	2.2	0.17	6,615	15.0	0.47	3,395	7.7	0.33	4,310	9.8	0.41
35–44	48,310	119.4	2.06	11,325	28.0	0.72	3,165	7.8	0.36	935	2.3	0.18	7,535	18.6	0.53	3,715	9.2	0.41	3,120	7.7	0.37
45–54	59,010	136.9	2.35	15,630	36.3	0.85	2,545	5.9	0.36	1,210	2.8	0.20	12,135	28.2	0.68	5,680	13.2	0.70	2,695	6.3	0.32
55–64	52,025	127.5	2.04	17,305	42.4	0.93	1,645	4.0	0.28	1,330	3.3	0.21	14,565	35.7	0.82	3,695	9.1	0.58	1,460	3.6	0.24
≥ 65	49,505	103.7	1.49	13,685	28.7	0.68	295	0.6	0.10	690	1.4	0.12	12,815	26.8	0.65	815	1.7	0.16	310	0.6	0.09
U.S. census region of residence																					
Northeast	56,380	100.3	3.02	14,475	25.8	0.92	4,625	8.2	0.43	1,140	2.0	0.16	8,990	16.0	0.61	5,485	9.8	0.86	910	1.6	0.14
Midwest	75,060	110.6	3.09	18,450	27.2	0.95	4,930	7.3	0.43	1,150	1.7	0.17	12,730	18.8	0.66	3,725	5.5	0.41	2,675	3.9	0.29
South	125,375	103.6	2.09	30,605	25.3	0.61	4,800	4.0	0.21	1,860	1.5	0.10	24,525	20.3	0.51	8,045	6.6	0.36	5,390	4.5	0.21
West	60,085	79.2	1.96	15,310	20.2	0.65	2,415	3.2	0.22	1,440	1.9	0.13	11,845	15.6	0.52	1,630	2.1	0.17	5,870	7.7	0.39

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] In-hospital deaths and patients who transferred from another hospital were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL TABLE 2A

Estimated number[ab] and rate per 100,000 population of drug poisoning-related hospitalizations by selected substances — United States, 2014

CONTINUED

	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisonings[i]		
Socio-demographic characteristic	**No.**	**Rate[j]**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**	**No.**	**Rate**	**SE**
2013 urbanization category																					
Large central metropolitan	92,465	93.6	3.18	22,655	22.9	0.89	5,785	5.9	0.33	1,800	1.8	0.13	15,575	15.8	0.62	8,945	9.1	0.64	4,440	4.5	0.25
Large fringe metropolitan	71,590	89.8	3.21	18,900	23.7	0.94	4,965	6.2	0.34	1,195	1.5	0.12	13,145	16.5	0.68	3,760	4.7	0.28	2,760	3.5	0.23
Medium metropolitan	73,790	110.2	5.22	18,490	27.6	1.36	3,575	5.3	0.38	1,235	1.8	0.16	14,080	21.0	1.04	3,600	5.4	0.41	3,255	4.9	0.35
Small metropolitan	32,130	109.7	6.36	7,440	25.4	1.58	985	3.4	0.33	585	2.0	0.23	5,995	20.5	1.32	1,035	3.5	0.37	1,730	5.9	0.67
Micropolitan	27,810	102.2	3.42	6,500	23.9	1.03	840	3.1	0.29	430	1.6	0.18	5,355	19.7	0.91	885	3.3	0.30	1,535	5.6	0.42
Noncore	17,080	90.5	3.18	4,335	23.0	1.12	335	1.8	0.23	305	1.6	0.21	3,720	19.7	1.01	435	2.3	0.27	790	4.2	0.40
Unknown	2,035	[l]	[l]	520	[l]	[l]	285	[l]	[l]	[k]	[l]	[l]	220	[l]	[l]	225	[l]	[l]	335	[l]	[l]

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] In-hospital deaths and patients who transferred from another hospital were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL TABLE 2B

Estimated numbers[a,b] and rates (not age-adjusted) per 100,000 population of drug poisoning-related emergency department visits by selected substances — United States, 2016

Socio-demographic characteristics	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisonings[i]		
	No.	Rate[j]	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE
All Visits	547,543	170.6	5.16	140,077	43.7	2.71	81,326	25.3	2.21	3,709	1.2	0.09	56,233	17.5	0.64	9,401	2.9	0.17	15,808	4.9	0.20
Gender																					
Male	262,277	166.0	5.79	85,596	54.2	3.62	56,341	35.7	3.04	1,994	1.3	0.10	28,067	17.8	0.73	6,049	3.8	0.24	9,533	6.0	0.30
Female	285,266	175.1	4.89	54,480	33.4	1.88	24,985	15.3	1.43	1,716	1.1	0.10	28,166	17.3	0.61	3,352	2.1	0.14	6,275	3.9	0.16
Age Groups																					
0–14	82,064	134.5	5.78	2,458	4.0	0.25	[k]	[k]	[k]	66	0.1	0.03	2,381	3.9	0.24	450	0.7	0.09	2,358	3.9	0.26
15–19	64,873	307.7	9.71	5,590	26.5	1.45	2,355	11.2	1.01	62	0.3	0.09	3,202	15.2	0.81	425	2.0	0.23	1,744	8.3	0.52
20–24	63,787	281.1	11.71	22,617	99.7	7.21	16,616	73.2	6.29	238	1.1	0.16	5,904	26.0	1.37	1,148	5.1	0.4	2,678	11.8	0.75
25–34	114,732	260.6	12.51	49,047	111.4	8.71	35,990	81.8	7.45	1,001	2.3	0.27	12,586	28.6	1.55	2,809	6.4	0.45	4,540	10.3	0.56
35–44	73,133	180.7	7.26	24,091	59.5	4.25	14,521	35.9	3.46	776	1.9	0.19	8,989	22.2	1.04	1,921	4.7	0.35	2,579	6.4	0.41
45–54	62,829	145.8	5.14	17,934	41.6	2.52	7,977	18.5	1.84	657	1.5	0.17	9,484	22.0	0.93	1,634	3.8	0.37	1,258	2.9	0.26
55–64	43,698	107.1	3.33	11,615	28.5	1.44	3,359	8.2	0.79	685	1.7	0.24	7,679	18.8	0.81	810	2.0	0.22	475	1.2	0.14
≥ 65	42,427	88.9	2.37	6,725	14.1	0.58	496	1.0	0.15	223	0.5	0.08	6,007	12.6	0.54	203	0.4	0.07	176	0.4	0.06
U.S. census region of residence																					
Northeast	109,982	195.8	17.01	42,626	75.9	10.89	31,527	56.1	9.13	909	1.6	0.26	10,534	18.7	1.94	1,998	3.6	0.49	1,195	2.1	0.20
Midwest	130,795	192.8	12.25	36,585	53.9	6.37	23,710	35.0	5.15	710	1.0	0.14	12,452	18.4	1.44	2,312	3.4	0.44	3,774	5.6	0.50
South	189,484	156.5	7.43	39,287	32.5	3.37	18,155	15.0	2.7	1,068	0.9	0.10	20,441	16.9	1.00	3,955	3.3	0.27	5,731	4.7	0.28
West	117,282	154.7	7.54	21,578	28.5	2.32	7,933	10.5	1.36	1,023	1.3	0.28	12,806	16.9	1.05	1,137	1.5	0.26	5,108	6.7	0.56

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Emergency Department Sample (NEDS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] Persons who were hospitalized, died, or transferred to another facility were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL TABLE 2B

Estimated numbers[a,b] and rates (not age-adjusted) per 100,000 population of drug poisoning-related emergency department visits by selected substances — United States, 2016

CONTINUED

Socio-demographic characteristics	All drug poisonings[c]			All opioid poisonings[d]			Heroin poisonings[e]			Methadone poisonings[f]			Poisonings by other opioids[g]			Cocaine poisonings[h]			Methamphetamine poisoning[si]		
	No.	Rate[j]	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE	No.	Rate	SE
2013 urbanization category																					
Large central metropolitan	148,440	150.2	10.68	36,213	36.6	4.61	20,888	21.1	3.57	1,306	1.3	0.18	14,327	14.5	1.27	3,651	3.7	0.41	4,721	4.8	0.40
Large fringe metropolitan	123,674	155.1	11.61	41,657	52.2	6.58	28,492	35.7	5.57	728	0.9	0.13	12,777	16.0	1.26	1,760	2.2	0.20	2,537	3.2	0.27
Medium metropolitan	127,119	189.9	14.63	32,220	48.1	5.45	18,565	27.7	4.19	707	1.1	0.12	13,235	19.8	1.62	1,926	2.9	0.35	3,451	5.2	0.48
Small metropolitan	53,540	182.7	20.35	11,408	38.9	6.86	5,528	18.9	4.89	368	1.3	0.22	5,622	19.2	2.37	667	2.3	0.38	1,702	5.8	0.63
Micropolitan	54,629	200.7	9.20	10,668	39.2	3.22	4,824	17.7	2.38	249	0.9	0.15	5,676	20.9	1.25	755	2.8	0.36	1,703	6.3	0.51
Noncore	35,338	187.2	8.54	5,856	31.0	1.94	1,674	8.9	1.12	215	1.1	0.19	4,002	21.2	1.30	471	2.5	0.33	1,344	7.1	0.63
Unknown	4,803	[l]	[l]	2,056	[l]	[l]	1,355	[l]	[l]	[k]	[l]	[l]	593	[l]	[l]	[k]	[l]	[l]	[k]	[l]	[l]

Abbreviations: No., number; SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Emergency Department Sample (NEDS), 2015, Agency for Healthcare Research and Quality (AHRQ). Data are from 2015, when HCUP transitioned from using ICD-9-CM to ICD-10-CM/PCM diagnosis codes and should not be compared with other years. Results may have been affected by the transition; please see the technical notes for a discussion of transition.

[b] Persons who were hospitalized, died, or transferred to another facility were excluded. Visits with missing age and gender were excluded. Numbers subject to rounding error.

[c] For the first three quarters of 2015, includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T36-T50. See technical notes for additional information.

[d] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.1, T40.2, T40.3, T40.6, T40.69.

[e] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.1.

[f] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.3.

[g] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing causes T40.0, T40.2, T40.4, T40.6, T40.69.

[h] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T40.5.

[i] For the first three quarters of 2015, includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2; for the fourth quarter of 2015, includes ICD-10-CM/PCS contributing cause T43.6.

[j] Rates calculated per 100,000 population.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL TABLE 2C

Estimated numbers[a,b] and age-adjusted rates per 100,000 population of drug poisoning-related hospitalizations by selected substances — United States, January 1–September 30, 2016

	All drug poisonings[c]		All opioid poisonings[d]		Heroin poisonings[e]		Methadone poisonings[f]		Poisonings by other opioids[g]		Cocaine poisonings[h]		Methamphetamine poisonings[i]	
Socio-demographic characteristics	**Rate[j]**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**
All Visits	94.9	0.69	22.2	0.25	5.0	0.12	1.7	0.06	16.1	0.20	5.9	0.15	4.6	0.11
Sex														
Male	84.8	0.77	21.9	0.34	6.8	0.19	1.7	0.08	14.0	0.25	7.8	0.23	5.6	0.17
Female	104.8	0.90	22.4	0.33	3.2	0.12	1.7	0.09	18.0	0.28	4.0	0.14	3.6	0.13
Age Groups														
0–14	15.5	0.85	0.8	0.11	[k]	[k]	[k]	[k]	0.7	0.09	0.2	0.05	0.6	0.09
15–19	102.6	3.23	9.4	0.58	2.4	0.28	0.4	0.11	6.7	0.49	1.7	0.25	3.3	0.31
20–24	113.5	2.50	22.7	0.89	11.3	0.59	1.4	0.21	10.9	0.59	4.7	0.39	7.6	0.52
25–34	114.1	2.09	28.3	0.77	12.4	0.51	2.2	0.19	14.7	0.51	7.4	0.36	9.6	0.44
35–44	119.9	2.15	27.3	0.78	7.5	0.40	2.4	0.21	18.2	0.58	9.4	0.46	7.4	0.40
45–54	137.0	2.40	35.3	0.92	5.6	0.39	2.8	0.23	27.6	0.75	13.6	0.74	6.2	0.35
55–64	124.8	2.16	39.9	0.99	3.8	0.30	3.4	0.25	33.4	0.88	9.4	0.62	3.3	0.25
≥ 65	97.2	1.52	26.7	0.71	0.5	0.09	1.4	0.14	25.0	0.68	1.7	0.18	0.7	0.10
U.S. census region of residence														
Northeast	96.8	1.65	23.6	0.64	8.0	0.36	2.0	0.16	14.2	0.44	9.9	0.53	1.7	0.16
Midwest	108.8	1.77	25.6	0.61	7.2	0.33	1.7	0.15	17.2	0.46	5.5	0.30	4.0	0.24
South	98.4	1.11	22.6	0.41	3.7	0.17	1.4	0.09	17.9	0.35	6.5	0.24	4.4	0.18
West	76.2	1.17	17.8	0.43	2.9	0.17	1.8	0.12	13.7	0.37	2.1	0.15	7.5	0.29

Abbreviation: SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ).

[b] In-hospital deaths and patients who transferred from another hospital were excluded. Visits with missing age and sex were excluded. Numbers subject to rounding error.

[c] Includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858.

[d] Includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2.

[e] Includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0.

[f] Includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1.

[g] Includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2.

[h] Includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2.

[i] Includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2.

[j] Rates calculated per 100,000 population. Populations for rate calculations were multiplied by ¾ since only ¾ of the year were included in the numerator. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL TABLE 2C

Estimated numbers[a,b] and age-adjusted rates per 100,000 population of drug poisoning-related hospitalizations by selected substances — United States, January 1–September 30, 2016

CONTINUED

	All drug poisonings[c]		All opioid poisonings[d]		Heroin poisonings[e]		Methadone poisonings[f]		Poisonings by other opioids[g]		Cocaine poisonings[h]		Methamphetamine poisonings[i]	
Socio-demographic characteristics	**Rate[j]**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**
2013 urbanization category														
Large central metropolitan	89.7	1.46	20.7	0.48	5.3	0.23	1.7	0.11	14.2	0.36	8.9	0.39	4.2	0.19
Large fringe metropolitan	86.3	1.47	21.7	0.54	6.2	0.28	1.5	0.12	14.5	0.40	4.9	0.23	3.6	0.20
Medium metropolitan	107.7	2.30	25.2	0.70	5.0	0.27	1.8	0.14	19.0	0.56	5.3	0.29	4.8	0.26
Small metropolitan	107.1	2.96	23.0	0.92	3.4	0.33	1.7	0.20	18.5	0.80	3.6	0.33	6.1	0.48
Micropolitan	100.3	2.11	22.2	0.83	3.4	0.32	1.6	0.22	17.8	0.73	3.7	0.34	6.0	0.44
Noncore	88.1	2.19	20.0	0.93	2.0	0.29	1.5	0.24	16.7	0.83	2.4	0.33	4.7	0.47
Unknown	l	l	l	l	l	l	k	k	l	l	l	l	l	l

Abbreviation: SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2015, Agency for Healthcare Research and Quality (AHRQ).

[b] In-hospital deaths and patients who transferred from another hospital were excluded. Visits with missing age and sex were excluded. Numbers subject to rounding error.

[c] Includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858.

[d] Includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2.

[e] Includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0.

[f] Includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1.

[g] Includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2.

[h] Includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2.

[i] Includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2.

[j] Rates calculated per 100,000 population. Populations for rate calculations were multiplied by ¾ since only ¾ of the year were included in the numerator. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL TABLE 2D

Estimated numbers[a,b] and age-adjusted rates per 100,000 population of drug poisoning-related emergency department visits by selected substances — United States, January 1–September 30, 2016

	All drug poisonings[c]		All opioid poisonings[d]		Heroin poisonings[e]		Methadone poisonings[f]		Poisonings by other opioids[g]		Cocaine poisonings[h]		Methamphetamine poisonings[i]	
Socio-demographic characteristics	**Rate[j]**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**
All Visits	174.4	2.66	41.9	1.51	25.0	1.27	1.2	0.07	16.1	0.34	3.2	0.11	5.3	0.15
Sex														
Male	166.0	3.10	51.6	2.02	34.7	1.74	1.3	0.08	16.1	0.42	4.1	0.17	6.2	0.22
Female	182.8	2.52	32.1	1.07	15.2	0.85	1.1	0.08	16.1	0.36	2.3	0.11	4.3	0.15
Age Groups														
0–14	136.2	5.89	3.9	0.27	[k]	[k]	[k]	[k]	3.8	0.26	1.0	0.12	4.2	0.30
15–19	311.0	9.85	25.9	1.49	11.1	1.05	[k]	[k]	14.8	0.83	2.2	0.27	8.4	0.59
20–24	279.5	12.13	96.7	7.44	71.9	6.50	1.1	0.20	24.4	1.42	5.1	0.45	12.0	0.83
25–34	259.0	12.86	107.3	8.90	79.5	7.64	2.3	0.31	26.6	1.56	6.5	0.46	10.4	0.63
35–44	179.7	7.23	55.9	4.12	33.8	3.33	2.0	0.21	20.7	1.04	4.9	0.37	6.1	0.40
45–54	145.4	5.22	38.8	2.46	17.6	1.79	1.6	0.19	20.1	0.92	4.0	0.38	3.0	0.29
55–64	106.0	3.36	26.0	1.37	7.4	0.74	1.6	0.23	17.3	0.80	2.1	0.23	1.3	0.17
≥ 65	87.7	2.44	13.0	0.60	1.0	0.15	0.5	0.09	11.6	0.56	0.5	0.08	0.4	0.07
U.S. census region of residence														
Northeast	205.0	9.26	76.3	6.41	57.6	5.49	1.7	0.22	17.7	1.07	4.0	0.33	2.4	0.20
Midwest	198.0	6.42	52.6	3.68	35.1	3.05	1.0	0.13	17.0	0.81	3.7	0.30	6.1	0.38
South	159.6	3.83	30.6	1.77	14.6	1.48	0.9	0.08	15.5	0.49	3.5	0.18	5.1	0.22
West	155.8	3.36	26.1	1.06	9.5	0.70	1.4	0.15	15.5	0.52	1.5	0.14	6.9	0.35

Abbreviation: SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Emergency Department Sample (NEDS), 2015, Agency for Healthcare Research and Quality (AHRQ).

[b] Persons who were hospitalized, died, or transferred to another facility were excluded. Visits with missing age and sex were excluded. Numbers subject to rounding error.

[c] Includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858.

[d] Includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2.

[e] Includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0.

[f] Includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1.

[g] Includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2.

[h] Includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2.

[i] Includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2.

[j] Rates calculated per 100,000 population. Populations for rate calculations were multiplied by ¾ since only ¾ of the year were included in the numerator. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL TABLE 2D

Estimated numbers[a,b] and age-adjusted rates per 100,000 population of drug poisoning-related emergency department visits by selected substances — United States, January 1–September 30, 2016

CONTINUED

	All drug poisonings[c]		All opioid poisonings[d]		Heroin poisonings[e]		Methadone poisonings[f]		Poisonings by other opioids[g]		Cocaine poisonings[h]		Methamphetamine poisonings[i]	
Socio-demographic characteristics	**Rate[j]**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**
2013 urbanization category														
Large central metropolitan	150.9	4.95	33.8	2.35	19.7	1.91	1.3	0.12	13.2	0.57	3.7	0.24	4.9	0.25
Large fringe metropolitan	161.0	5.96	52.5	3.78	37.1	3.32	0.9	0.11	15.0	0.67	2.5	0.17	3.4	0.22
Medium metropolitan	194.0	6.24	46.2	2.82	27.0	2.27	1.1	0.12	18.5	0.78	3.1	0.23	5.6	0.35
Small metropolitan	189.5	8.53	38.4	3.89	19.6	3.06	1.2	0.20	18.1	1.16	2.7	0.32	6.6	0.49
Micropolitan	211.5	4.69	37.9	2.01	18.4	1.58	1.0	0.18	18.9	0.91	3.1	0.34	6.9	0.53
Noncore	201.4	4.43	31.4	1.49	10.1	0.92	1.4	0.27	20.1	1.04	3.2	0.40	8.9	0.70
Unknown	l	l	l	l	l	l	k	k	l	l	k	k	k	k

Abbreviation: SE, standard error.

[a] Weighted national estimates from HCUP Nationwide Emergency Department Sample (NEDS), 2015, Agency for Healthcare Research and Quality (AHRQ).

[b] Persons who were hospitalized, died, or transferred to another facility were excluded. Visits with missing age and sex were excluded. Numbers subject to rounding error.

[c] Includes ICD-9-CM diagnosis codes of 960-979 or external cause of injury E850-E858.

[d] Includes ICD-9-CM principal diagnosis code of 965.00, 965.01, 965.02, 965.09 or external cause of injury E850.0, E850.1, E850.2.

[e] Includes ICD-9-CM principal diagnosis code of 965.01 or external cause of injury E850.0.

[f] Includes ICD-9-CM principal diagnosis code of 965.02 or external cause of injury E850.1.

[g] Includes ICD-9-CM principal diagnosis code of 965.00, 965.09 or external cause of injury E850.2.

[h] Includes ICD-9-CM principal diagnosis code of 970.81 or external cause of injury E854.3 or E855.2.

[i] Includes ICD-9-CM principal diagnosis code of 969.72 or external cause of injury E854.2.

[j] Rates calculated per 100,000 population. Populations for rate calculations were multiplied by ¾ since only ¾ of the year were included in the numerator. Age-adjusted to the 2000 U.S. standard population using the vintage year population of the data. Rates for age groups are crude rates.

[k] The relative standard error was > 30% or the standard error = 0, the value of the estimate was considered unreliable and was not reported.

[l] Rates cannot be calculated based on the available data.

SUPPLEMENTAL DATA SUPPORTING MORTALITY FIGURE 2A

Age-adjusted rates[a] of drug overdose deaths[b] and drug overdose deaths involving any opioid[c] for all intents and for unintentional intent by year — United States, 1999–2016

	Drug overdose deaths (of all intents)		Unintentional drug overdose deaths		Drug overdose deaths involving any opioid (of all intents)		Unintentional drug overdose deaths involving any opioid	
Year	Rate	SE	Rate	SE	Rate	SE	Rate	SE
1999	6.1	0.047	4.0	0.038	2.9	0.032	2.1	0.028
2000	6.2	0.047	4.1	0.038	3.0	0.033	2.2	0.028
2001	6.8	0.049	4.6	0.040	3.3	0.034	2.4	0.029
2002	8.2	0.053	5.7	0.045	4.1	0.038	3.1	0.033
2003	8.9	0.055	6.3	0.047	4.5	0.039	3.4	0.034
2004	9.4	0.057	6.8	0.048	4.7	0.040	3.6	0.035
2005	10.1	0.059	7.6	0.051	5.1	0.042	4.0	0.037
2006	11.5	0.062	8.8	0.055	5.9	0.045	4.8	0.040
2007	11.9	0.063	9.1	0.055	6.1	0.045	5.0	0.041
2008	11.9	0.063	9.2	0.055	6.4	0.046	5.3	0.042
2009	11.9	0.063	9.4	0.056	6.6	0.047	5.5	0.043
2010	12.3	0.064	9.7	0.057	6.8	0.047	5.7	0.044
2011	13.2	0.066	10.6	0.059	7.3	0.049	6.3	0.045
2012	13.1	0.065	10.6	0.059	7.4	0.049	6.4	0.046
2013	13.8	0.067	11.3	0.061	7.9	0.051	6.9	0.048
2014	14.7	0.069	12.1	0.063	9.0	0.054	7.9	0.051
2015	16.3	0.072	13.8	0.067	10.4	0.058	9.3	0.055
2016	19.8	0.080	17.1	0.075	13.3	0.066	11.9	0.062

Source: National Vital Statistics System, Mortality File, CDC WONDER.
Abbreviation: SE, standard error.

[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year.

[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). All drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Unintentional drug overdose deaths are identified using underlying cause-of-death codes X40–X44. Note that 5.7% of drug overdose deaths in 2016 had undetermined intent; this is a decrease from 14.7% of drug overdose deaths that had undetermined intent in 1999. Some of these deaths may be unintentional drug overdose deaths.

[c] Drug overdose deaths, as defined, that involve opium (T40.0), heroin (T40.1), natural and semi-synthetic opioids (T40.2), methadone (T40.3), other synthetic opioids excluding methadone (T40.4), and other and unspecified narcotics (T40.6).

SUPPLEMENTAL DATA SUPPORTING MORTALITY FIGURE 2B

Age-adjusted rates[a] of drug overdose deaths[b] by drug or drug class and year — United States, 1999–2016

	Prescription opioids[c]		Synthetic opioids other than methadone[d]		Heroin[e]		Cocaine[f]		Psychostimulants with abuse potential[g]	
Year	Rate	SE	Rate	SE	Rate	SE	Rate	SE	Rate	SE
1999	1.2	0.021	0.3	0.009	0.7	0.016	1.4	0.022	0.2	0.009
2000	1.3	0.022	0.3	0.010	0.7	0.015	1.3	0.021	0.2	0.009
2001	1.7	0.024	0.3	0.011	0.6	0.015	1.3	0.022	0.2	0.009
2002	2.3	0.028	0.4	0.012	0.7	0.016	1.6	0.023	0.3	0.011
2003	2.6	0.030	0.5	0.013	0.7	0.016	1.8	0.025	0.4	0.012
2004	2.9	0.032	0.6	0.014	0.6	0.015	1.9	0.025	0.4	0.012
2005	3.2	0.033	0.6	0.014	0.7	0.015	2.1	0.027	0.5	0.013
2006	3.9	0.036	0.9	0.017	0.7	0.016	2.5	0.029	0.5	0.013
2007	4.2	0.038	0.7	0.015	0.8	0.016	2.2	0.027	0.4	0.012
2008	4.3	0.038	0.8	0.016	1.0	0.018	1.7	0.024	0.4	0.012
2009	4.4	0.038	1.0	0.018	1.1	0.019	1.4	0.022	0.5	0.013
2010	4.7	0.039	1.0	0.018	1.0	0.018	1.3	0.021	0.6	0.014
2011	4.9	0.040	0.8	0.017	1.4	0.022	1.5	0.022	0.7	0.016
2012	4.5	0.038	0.8	0.017	1.9	0.025	1.4	0.022	0.8	0.017
2013	4.4	0.038	1.0	0.018	2.7	0.030	1.6	0.023	1.2	0.020
2014	4.6	0.038	1.8	0.024	3.4	0.034	1.7	0.024	1.4	0.021
2015	4.7	0.039	3.1	0.032	4.1	0.037	2.1	0.026	1.8	0.024
2016	5.2	0.041	6.2	0.045	4.9	0.040	3.2	0.032	2.4	0.028

Source: National Vital Statistics System, Mortality File, CDC WONDER.
Abbreviation: SE, standard error.
[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year. Because deaths might involve more than one drug, some deaths are included in more than one category.
[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined).
[c] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) or methadone.
[d] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).
[e] Drug overdose deaths, as defined, that involve heroin (T40.1).
[f] Drug overdose deaths, as defined, that involve cocaine (T40.5).
[g] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).

SUPPLEMENTAL DATA SUPPORTING MORTALITY FIGURE 2C

Rates[a] of drug overdose deaths[b] by drug or drug class and age category — United States, 2016

	Prescription opioids[c]		Synthetic opioids other than methadone[d]		Heroin[e]		Cocaine[f]		Psychostimulants with abuse potential[g]	
Year	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**	**Rate**	**SE**
Age group (years)										
0–14	0.1	0.013	[h]	[h]	[h]	[h]	[h]	[h]	[h]	[h]
15–24	2.6	0.078	4.5	0.102	4.0	0.096	1.7	0.063	1.3	0.055
25–34	7.7	0.131	13.6	0.175	11.3	0.159	5.7	0.112	3.9	0.094
35–44	9.2	0.151	11.9	0.172	9.0	0.149	6.0	0.122	4.5	0.106
45–54	10.1	0.153	9.0	0.145	7.0	0.128	6.1	0.120	4.5	0.102
55–64	8.4	0.142	5.4	0.114	4.3	0.102	4.2	0.100	3.0	0.085
≥65	1.9	0.061	0.8	0.041	0.6	0.034	0.6	0.035	0.4	0.029

Source: National Vital Statistics System, Mortality File, CDC WONDER.
Abbreviation: SE, standard error.
[a] Rate per 100,000 population using the vintage year population of the data year. Because deaths might involve more than one drug, some deaths are included in more than one category.
[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined).
[c] Drug overdose deaths, as defined, that involve natural and semi-synthetic opioids (T40.2) or methadone (T40.3).
[d] Drug overdose deaths, as defined, that involve synthetic opioids other than methadone (T40.4).
[e] Drug overdose deaths, as defined, that involve heroin (T40.1).
[f] Drug overdose deaths, as defined, that involve cocaine (T40.5).
[g] Drug overdose deaths, as defined, that involve psychostimulants with abuse potential (T43.6).
[h] Rates are suppressed when based on <20 deaths.

SUPPLEMENTAL DATA SUPPORTING MORTALITY FIGURE 2D

Age-adjusted rates[a] of drug overdose deaths[b] by state — United States, 2016

State of residence	Age-adjusted rate	SE	State of residence	Age-adjusted rate	SE
Alabama	16.2	0.602	Montana	11.7	1.111
Alaska	16.8	1.522	Nebraska	6.4	0.602
Arizona	20.3	0.557	Nevada	21.7	0.857
Arkansas	14.0	0.714	New Hampshire	39.0	1.827
California	11.2	0.167	New Jersey	23.2	0.520
Colorado	16.6	0.549	New Mexico	25.2	1.158
Connecticut	27.4	0.906	New York	18.0	0.305
Delaware	30.8	1.879	North Carolina	19.7	0.453
District of Columbia	38.8	2.407	North Dakota	10.6	1.245
Florida	23.7	0.355	Ohio	39.1	0.609
Georgia	13.3	0.362	Oklahoma	21.5	0.772
Hawaii	12.8	0.952	Oregon	11.9	0.544
Idaho	15.2	0.997	Pennsylvania	37.9	0.571
Illinois	18.9	0.391	Rhode Island	30.8	1.752
Indiana	24.0	0.624	South Carolina	18.1	0.626
Iowa	10.6	0.614	South Dakota	8.4	1.042
Kansas	11.1	0.642	Tennessee	24.5	0.620
Kentucky	33.5	0.909	Texas	10.1	0.193
Louisiana	21.8	0.706	Utah	22.4	0.899
Maine	28.7	1.581	Vermont	22.2	2.048
Maryland	33.2	0.750	Virginia	16.7	0.454
Massachusetts	33.0	0.716	Washington	14.5	0.447
Michigan	24.4	0.518	West Virginia	52.0	1.792
Minnesota	12.5	0.491	Wisconsin	19.3	0.604
Mississippi	12.1	0.661	Wyoming	17.6	1.819
Missouri	23.6	0.653			

Source: National Vital Statistics System, Mortality File, CDC WONDER.
Abbreviation: SE, standard error.
[a] Rate per 100,000 population age-adjusted to the 2000 U.S. standard population using the vintage year population of the data year.
[b] Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD–10). Drug overdose deaths are identified using underlying cause-of-death codes X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined).