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Drug Overdose Deaths in the United States, 2003–2023

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Key findings

Data from the National Vital Statistics System

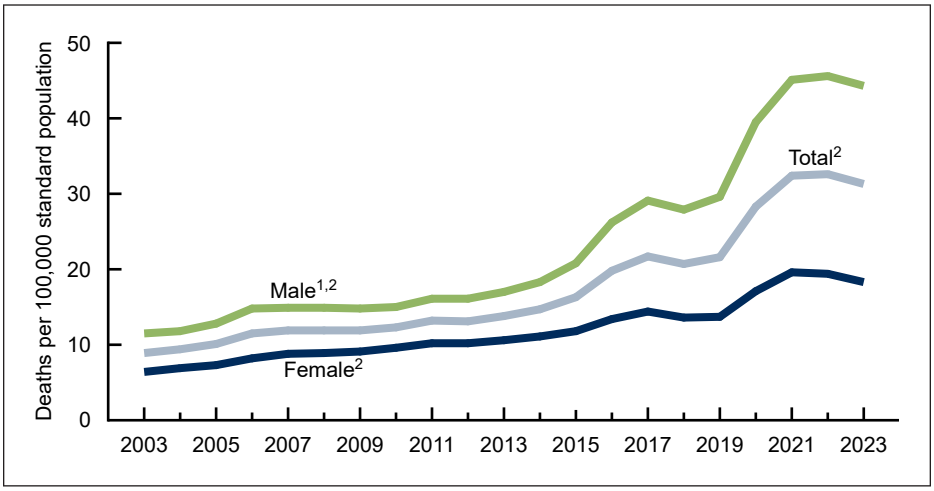
- The age-adjusted rate of drug overdose deaths increased from 8.9 deaths per 100,000 standard population in 2003 to 32.6 in 2022; however, the rate decreased to 31.3 in 2023.
- Rates decreased between 2022 and 2023 for people ages 15–54 and increased for adults age 55 and older.
- From 2022 to 2023, rates decreased for White non-Hispanic people, while rates for other race and Hispanic-origin groups generally stayed the same or increased.
- Between 2022 and 2023, rates declined for deaths involving synthetic opioids other than methadone, heroin, and natural and semisynthetic opioids, while the rate for methadone remained the same.
- From 2022 to 2023, rates increased for deaths involving cocaine by 4.9% (from 8.2 to 8.6) and psychostimulants with abuse potential by 1.9% (10.4 to 10.6).

Drug overdoses are one of the leading causes of injury death in adults and have risen over the past several decades in the United States (1–3). Overdoses involving synthetic opioids (fentanyl, for example) and stimulants (cocaine and methamphetamine, for example) have also risen in the past few years (1). This report presents rates of drug overdose deaths from the National Vital Statistics System over a 20-year period by demographic group and by the type of drugs involved, specifically, opioids and stimulants, with a focus on changes from 2022 to 2023.

The overall age-adjusted rate of drug overdose deaths decreased 4.0% between 2022 and 2023.

- In 2023, 105,007 drug overdose deaths occurred, resulting in an age-adjusted rate of 31.3 deaths per 100,000 standard population (Figure 1, Table 1).

Figure 1. Age-adjusted drug overdose death rate, by sex: United States, 2003–2023



[1]Rate significantly higher than for females for all years ($p < 0.05$).
[2]Significant increasing trend from 2003 to 2022, with different rates of change over time ($p < 0.05$). Rate in 2023 significantly lower than in 2022 ($p < 0.05$).
NOTES: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. The number of drug overdose deaths in 2023 was 105,007. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

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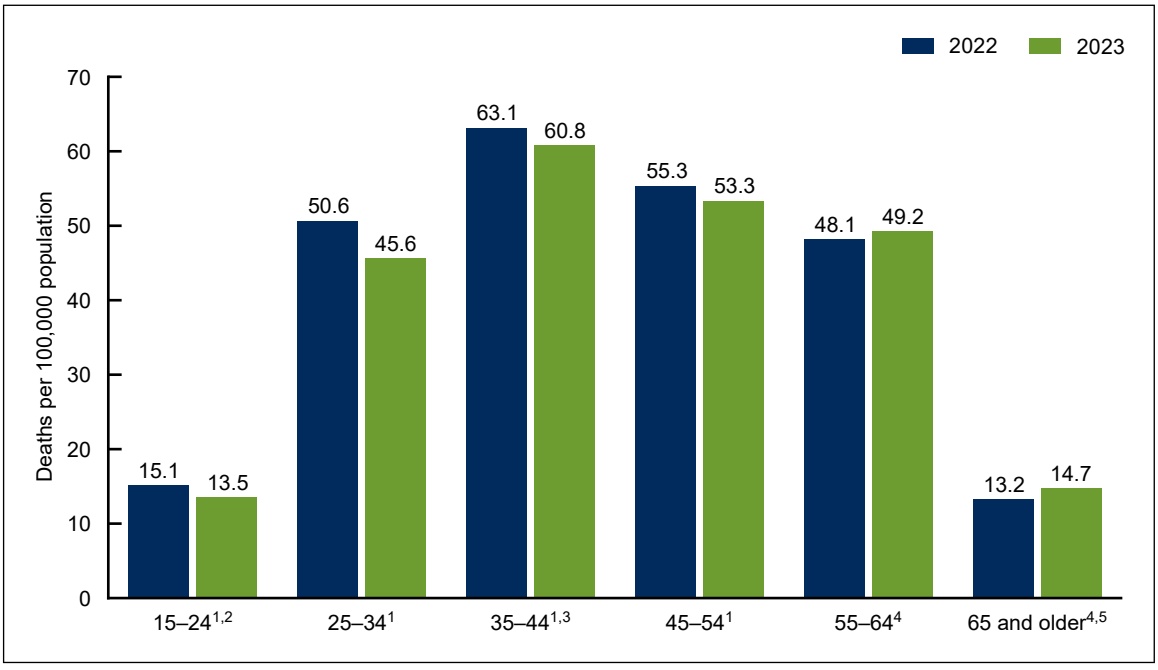
- After the age-adjusted rate of drug overdose deaths nearly quadrupled from 8.9 in 2003 to 32.6 in 2022, the rate decreased to 31.3 in 2023.
- From 2022 to 2023, the age-adjusted rate of drug overdose deaths for males decreased 2.9% from 45.6 to 44.3, while the rate for females decreased 5.7% from 19.4 to 18.3.

The rate of drug overdose deaths decreased among young and middle-aged adults from 2022 to 2023.

- From 2022 to 2023, the rate of drug overdose deaths decreased among people ages 15–24 (from 15.1 deaths per 100,000 to 13.5), 25–34 (50.6 to 45.6), 35–44 (63.1 to 60.8), and 45–54 (55.3 to 53.3) (Figure 2, Table 2).
- Between 2022 and 2023, the rate of drug overdose deaths increased among adults ages 55–64 (from 48.1 to 49.2) and 65 and older (13.2 to 14.7).
- In both 2022 and 2023, the rate of drug overdose deaths was highest for adults ages 35–44. In 2022, the rate was lowest for adults age 65 and older, but in 2023 the rate was lowest for people ages 15–24.
- From 2022 to 2023, adults age 65 and older experienced the largest percentage increase in the rate of drug overdose deaths (11.4%), and the largest decrease was for people ages 15–24 (10.6%).

Figure 2. Drug overdose death rate, by selected age group: United States, 2022 and 2023

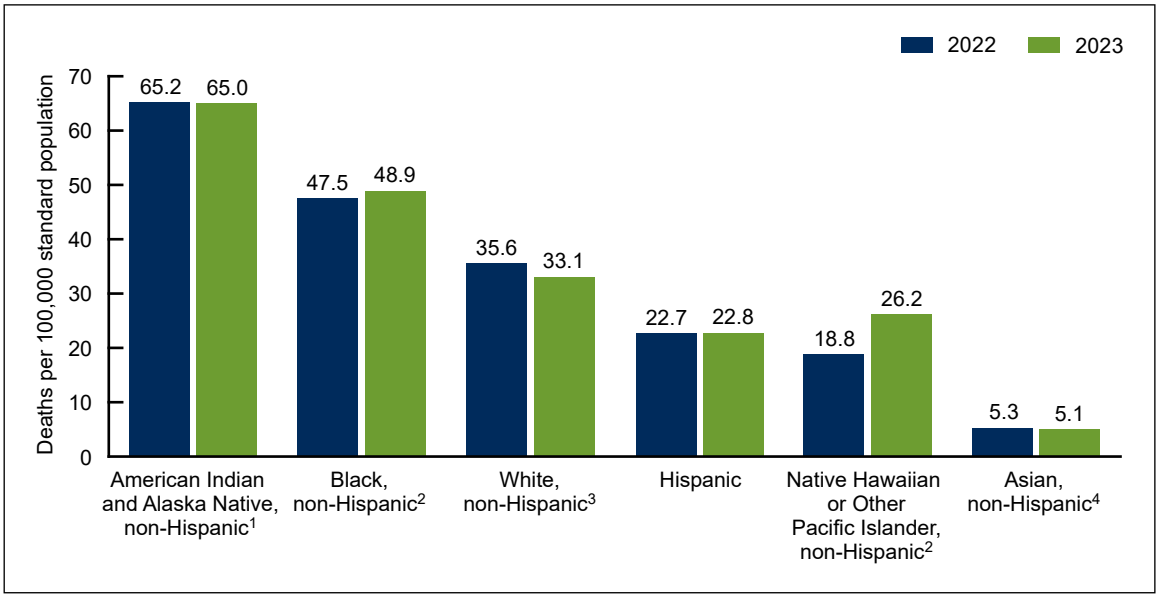


[1]Significant decrease between 2022 and 2023 ($p < 0.05$).
[2]Group was significantly lower than all others in 2023 ($p < 0.05$).
[3]Group was significantly higher than all others in 2022 and 2023 ($p < 0.05$).
[4]Significant increase between 2022 and 2023 ($p < 0.05$).
[5]Group was significantly lower than all others in 2022 ($p < 0.05$).
NOTE: Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Between 2022 and 2023, rates of drug overdose deaths increased for Black non-Hispanic and Native Hawaiian or Other Pacific Islander non-Hispanic people.

- For White non-Hispanic (subsequently, White) people, the age-adjusted rate of drug overdose deaths was lower in 2023 than in 2022, decreasing by 7.0% from 35.6 deaths per 100,000 standard population to 33.1 (Figure 3, Table 3). Drug overdose death rates increased for Black non-Hispanic (subsequently, Black) people (47.5 to 48.9) and Native Hawaiian or Other Pacific Islander non-Hispanic (subsequently, Native Hawaiian or Other Pacific Islander) people (18.8 to 26.2) from 2022 to 2023.
- From 2022 to 2023, the age-adjusted rate of drug overdose deaths did not significantly change for Asian non-Hispanic (subsequently, Asian) people (5.3 to 5.1), Hispanic people (22.7 to 22.8), and American Indian and Alaska Native non-Hispanic (subsequently, American Indian and Alaska Native) people (65.2 to 65.0).
- In both 2022 and 2023, the age-adjusted rate of drug overdose deaths was highest for American Indian and Alaska Native people (65.2 and 65.0, respectively), and lowest for Asian people (5.3 and 5.1, respectively).
- Native Hawaiian or Other Pacific Islander people experienced the largest percentage increase in the age-adjusted rate of drug overdose deaths from 2022 to 2023, with the rate increasing 39.4%.

Figure 3. Age-adjusted drug overdose death rate, by race and Hispanic origin: United States, 2022 and 2023

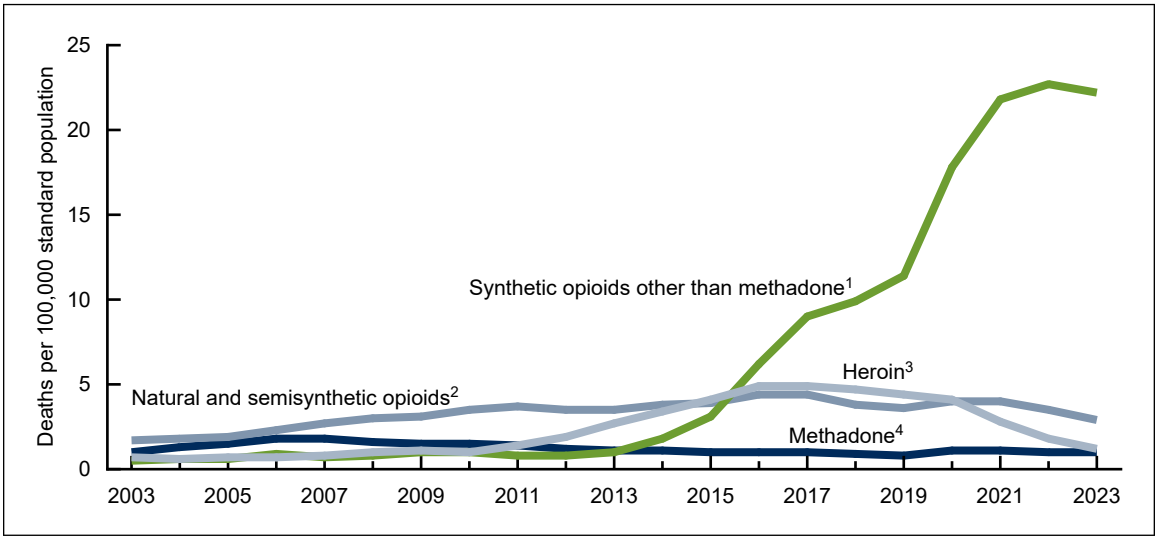


[1]Group was significantly higher than all others in 2022 and 2023 ($p < 0.05$).
[2]Significant increase between 2022 and 2023 ($p < 0.05$).
[3]Significant decrease between 2022 and 2023 ($p < 0.05$).
[4]Group was significantly lower than all others in 2022 and 2023 ($p < 0.05$).
NOTES: Misclassification of race and Hispanic origin on death certificates results in the underestimation of death rates by as much as 34% for American Indian and Alaska Native non-Hispanic people and 3% for Asian non-Hispanic and Hispanic people. Misclassification for Native Hawaiian or Other Pacific Islander non-Hispanic people has not been evaluated. Drug overdose deaths are identified using the *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

After a period of increase between 2013 and 2022, rates of drug overdose deaths involving synthetic opioids other than methadone, which includes fentanyl, fentanyl analogs, and tramadol, decreased between 2022 and 2023.

- The age-adjusted rate of drug overdose deaths involving synthetic opioids other than methadone, which includes fentanyl, fentanyl analogs, and tramadol, was mostly stable from 2003 (0.5 deaths per 100,000 standard population) to 2013 (1.0) and then increased through 2021 (21.8), with different rates of change over time (Figure 4, Table 4). From 2022 to 2023, the rate decreased by 2.2% from 22.7 to 22.2.
- After increasing from 2003 to 2006 and decreasing from 2006 to 2017, the age-adjusted rate of drug overdose deaths involving methadone remained stable through 2023.
- After no significant change from 2020 to 2021, the age-adjusted rate of drug overdose deaths involving natural and semisynthetic opioids, which includes drugs such as morphine, oxycodone, and hydrocodone, decreased 17.1% from 3.5 in 2022 to 2.9 in 2023.
- The age-adjusted rate of drug overdose deaths involving heroin decreased 33.3% from 1.8 in 2022 to 1.2 in 2023.

Figure 4. Age-adjusted rate of drug overdose deaths involving opioids, by type of opioid: United States, 2003–2023

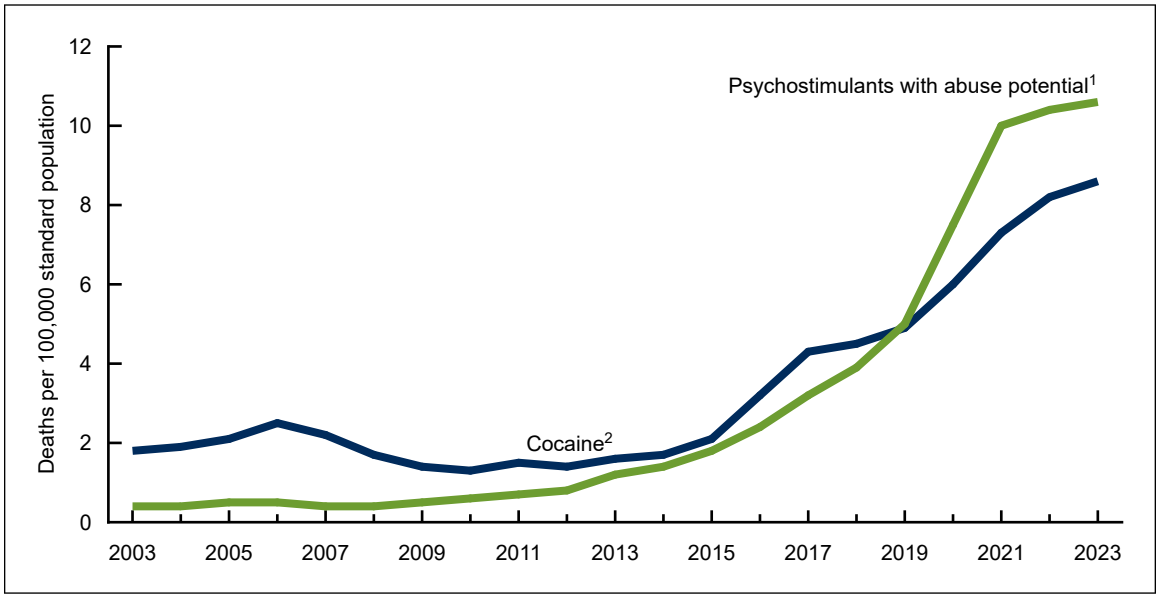


[1]No significant trend from 2003 to 2013; significant increasing trend from 2013 to 2021, with different rates of change over time; no significant trend from 2021 to 2023 ($p < 0.05$). Rate in 2023 significantly lower than in 2022 ($p < 0.05$).
[2]Significant increasing trend from 2003 to 2010; no significant trend from 2010 to 2021; significant decreasing trend from 2021 to 2023 ($p < 0.05$).
[3]Significant increasing trend from 2003 to 2016, with different rates of change over time; significant decreasing trend from 2016 to 2023, with different rates of change over time ($p < 0.05$).
[4]Significant increasing trend from 2003 to 2006; significant decreasing trend from 2006 to 2017; no significant trend from 2017 to 2023 ($p < 0.05$).
NOTES: Drug overdose deaths are identified using the *International Classification of Diseases*, *10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Drug overdose deaths involving selected drug categories are identified by specific multiple cause-of-death codes: heroin, T40.1; natural and semisynthetic opioids, T40.2; methadone, T40.3; synthetic opioids other than methadone, T40.4. Deaths involving more than one opioid category (such as a death involving both methadone and a natural or semisynthetic opioid) are counted in both categories. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75% to 79% from 2003 to 2013 and increasing from 81% in 2014 to 96% in 2023. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

The increases in age-adjusted rates of drug overdose deaths involving cocaine and psychostimulants with abuse potential that began around 2011 have continued through 2023.

- The age-adjusted rate of drug overdose deaths involving cocaine increased slightly from 1.8 deaths per 100,000 standard population in 2003 to 2.5 in 2006, decreased to 1.3 in 2010, and then increased to 8.6 in 2023; the rate in 2023 was 4.9% higher than the rate in 2022 (8.2) (Figure 5, Table 5).
- The age-adjusted rate of drug overdose deaths involving psychostimulants with abuse potential (subsequently, psychostimulants), which includes methamphetamine, amphetamine, and methylphenidate, was stable between 2003 (0.4) and 2010 (0.6), after which it increased through 2021 (10.0), with different rates of change over time. The rate in 2023 (10.6) was 1.9% higher than the rate in 2022 (10.4).

Figure 5. Age-adjusted rate of drug overdose deaths involving stimulants, by type of stimulant: United States, 2003–2023



[1]No significant trend from 2003 to 2010; significant increasing trend from 2010 to 2021, with different rates of change over time; no significant trend from 2021 to 2023 ($p < 0.05$). Rate in 2023 significantly higher than in 2022 ($p < 0.05$).
[2]No significant trend from 2003 to 2012, with different rates of change over time; significant increasing trend from 2012 to 2023, with different rates of change over time ($p < 0.05$). Rate in 2023 significantly higher than in 2022 ($p < 0.05$).
NOTES: Drug overdose deaths are identified using the *International Classification of Diseases*, *10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Drug overdose deaths involving selected drug categories are identified by specific multiple cause-of-death codes: cocaine, T40.5, and psychostimulants with abuse potential, T43.6. Deaths may involve more than one drug. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75% to 79% from 2003 to 2013 and increasing from 81% in 2014 to 96% in 2023. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.
SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Summary

The age-adjusted rate of drug overdose deaths declined 4.0% between 2022 and 2023, which follows a nonsignificant increase between 2021 and 2022 (1). Previously, rates had generally increased across most years over the period 2003–2023.

From 2022 to 2023, the age-adjusted rate of drug overdose decreased 2.9% for males and 5.7% for females. In both 2022 and 2023, adults ages 35–44 had the highest rate among people age 15 and older. The age group with the lowest rates changed from 2022 to 2023, with adults age 65 and older having the lowest rates in 2022 and people ages 15–24 having the lowest rates in 2023. This was due to an increase in the rate for adults age 65 and older and a decrease in the rate for people ages 15–24. Between 2022 and 2023, rates of drug overdose deaths decreased for people ages 15–54 and increased for adults age 55 and older.

In both 2022 and 2023, the age-adjusted rate of drug overdose deaths was highest for American Indian and Alaska Native people and lowest among Asian people. Despite decreases in the overall rate, the rate only significantly decreased for White people. Rate changes for American Indian and Alaska Native, Asian, and Hispanic people were not significant, and rates sigificantly increased for Black and Native Hawaiian or Other Pacific Islander people.

The age-adjusted rate for drug overdose deaths involving synthetic opioids other than methadone decreased from 2022 to 2023, the first such decrease since the large increases that began in 2013. The rate also decreased for deaths involving natural and semisynthetic opioids and heroin between 2022 and 2023. For the same period, rates increased for drug overdose deaths involving psychostimulants and cocaine, and rates stayed the same for deaths involving methadone.

Definitions

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

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

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

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

Data source and methods

Estimates are based on the National Vital Statistics System multiple cause-of-death mortality files (3). Drug poisoning (overdose) deaths were defined as having an *International Classification of Diseases*, *10th Revision* underlying cause-of-death code of X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), or Y10–Y14 (undetermined intent). Of the drug overdose deaths in 2023, 92.6% were unintentional, 4.4% were suicides, 2.8% were of undetermined intent, and less than 1.0% were homicides. The type of drug(s) involved was indicated by *International*

Classification of Diseases, *10th Revision* multiple cause-of-death codes: T40.1 (heroin), T40.2 (natural and semisynthetic opioids), T40.3 (methadone), T40.4 (synthetic opioids other than methadone), T40.5 (cocaine), and T43.6 (psychostimulants with abuse potential).

Age-adjusted death rates were calculated using the direct method and adjusted to the 2000 U.S. standard population (4). Population estimates for 2021–2023 were estimated as of July 1, based on the blended base produced by the U.S. Census Bureau instead of the April 1, 2020, decennial population count. The blended base consists of the blend of vintage 2020 postcensal population estimates based on the 2010 population census, 2020 demographic analysis estimates, and the 2020 decennial census total counts (see https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2020-2021/methods-statement-v2021.pdf and https://www2.census.gov/programs-surveys/popest/technical-documentation/methodology/2020-2023/methods-statement-v2023.pdf). Population data are July 1 postcensal census estimates.

Race and Hispanic origin were categorized based on the 1997 Office of Management and Budget standards for federal statistical and administrative reporting (5). All of the race categories are single race, meaning that only one race was reported on the death certificate. Data shown for the Hispanic population include people of any race. Death rates for Asian, American Indian and Alaska Native, and Hispanic people are affected by misclassification of race and Hispanic origin on death certificates (6). This misclassification results in underestimation of death rates for these groups by about 3% for Asian and Hispanic people and by about 34% for American Indian and Alaska Native people (7). Misclassification for Native Hawaiian or Other Pacific Islander people has not been evaluated. The extent of misclassification has not been evaluated by cause of death for all race and Hispanic-origin groups. As a result, rates of drug overdose deaths presented in this report are not adjusted for race and Hispanic-origin misclassification on death certificates.

Trends in age-adjusted death rates were evaluated using the Joinpoint Regression Program (Version 5.0.2) (8). Joinpoint software fitted weighted least-squares regression models to the rates on the log-transform scale. The permutation tests for model (number of joinpoints) significance were set at an overall alpha level of 0.05 (8,9). Pairwise comparisons of rates (for example, age-adjusted rates for males compared with females and year-to-year comparisons) were conducted using the *z* test with an alpha level of 0.05 (9).

Several factors related to death investigation and reporting may affect measurement of death rates involving specific drugs. At autopsy, the substances tested for and the circumstances under which the toxicology tests are performed vary by jurisdiction. This variability is more likely to affect substance-specific death rates than the overall drug overdose death rate. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75% to 79% from 2003 to 2013, and increasing from 81% in 2014 to 96% in 2023. Additionally, drug overdose deaths may involve multiple drugs; therefore, a death might be included in more than one category when describing the rate of drug overdose deaths involving specific drugs. For example, a death that involved both fentanyl and cocaine would be included in both the rate of drug overdose deaths involving synthetic opioids other than methadone and the rate of drug overdose deaths involving cocaine.

About the authors

The authors are with the National Center for Health Statistics: Matthew F. Garnett is with the Division of Analysis and Epidemiology and Arialdi M. Miniño is with the Division of Vital Statistics.

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Figure Tables

Data table for Figure 1. Age-adjusted drug overdose death rate, by sex: United States, 2003–2023

Year	Total		Male		Female	
	Number	Deaths per 100,000	Number	Deaths per 100,000	Number	Deaths per 100,000
2003	25,785	8.9	16,399	11.5	9,386	6.4
2004	27,424	9.4	17,120	11.8	10,304	6.9
2005	29,813	10.1	18,724	12.8	11,089	7.3
2006	34,425	11.5	21,893	14.8	12,532	8.2
2007	36,010	11.9	22,298	14.9	13,712	8.8
2008	36,450	11.9	22,468	14.9	13,982	8.9
2009	37,004	11.9	22,593	14.8	14,411	9.1
2010	38,329	12.3	23,006	15.0	15,323	9.6
2011	41,340	13.2	24,988	16.1	16,352	10.2
2012	41,502	13.1	25,112	16.1	16,390	10.2
2013	43,982	13.8	26,799	17.0	17,183	10.6
2014	47,055	14.7	28,812	18.3	18,243	11.1
2015	52,404	16.3	32,957	20.8	19,447	11.8
2016	63,632	19.8	41,558	26.2	22,074	13.4
2017	70,237	21.7	46,552	29.1	23,685	14.4
2018	67,367	20.7	44,941	27.9	22,426	13.6
2019	70,630	21.6	47,881	29.6	22,749	13.7
2020	91,799	28.3	63,728	39.5	28,071	17.1
2021	106,699	32.4	74,301	45.1	32,398	19.6
2022	107,941	32.6	75,814	45.6	32,127	19.4
2023	105,007	31.3	74,189	44.3	30,818	18.3

NOTES: Drug overdose deaths are identified using *International Classification of Diseases*, *10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.

SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Data table for Figure 2. Drug overdose death rate, by selected age group: United States, 2022 and 2023

Age group	2022		2023	
	Number	Deaths per 100,000	Number	Deaths per 100,000
15–24	6,694	15.1	5,926	13.5
25–34	23,014	50.6	20,770	45.6
35–44	27,571	63.1	27,005	60.8
45–54	22,340	55.3	21,593	53.3
55–64	20,243	48.1	20,606	49.2
65 and older	7,603	13.2	8,694	14.7

NOTE: Drug overdose deaths are identified using *International Classification of Diseases*, *10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14.

SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Data table for Figure 3. Age-adjusted drug overdose death rate, by race and Hispanic origin: United States, 2022 and 2023

Race and Hispanic origin	2022		2023	
	Number	Deaths per 100,000	Number	Deaths per 00,000
American Indian and Alaska Native, non-Hispanic	1,543	65.2	1,548	65.0
Black, non-Hispanic	20,725	47.5	21,547	48.9
White, non-Hispanic	67,974	35.6	63,659	33.1
Hispanic	14,131	22.7	14,520	22.8
Native Hawaiian or Other Pacific Islander, non-Hispanic	125	18.8	174	26.2
Asian, non-Hispanic	1,142	5.3	1,110	5.1

NOTES: Misclassification of race and Hispanic origin on death certificates results in the underestimation of death rates by as much as 34% for American Indian and Alaska Native non-Hispanic people and 3% for Asian non-Hispanic and Hispanic people. Misclassification for Native Hawaiian or Other Pacific Islander non-Hispanic people has not been evaluated. Drug overdose deaths are identified using *International Classification of Diseases*, *10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.

SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Data table for Figure 4. Age-adjusted rate of drug overdose deaths involving opioids, by type of opioid: United States, 2003–2023

Year	Any opioid		Heroin		Natural and semisynthetic opioids		Methadone		Synthetic opioids other than methadone	
	Number	Deaths per 100,000	Number	Deaths per 100,000	Number	Deaths per 100,000	Number	Deaths per 100,000	Number	Deaths per 100,000
2003	12,940	4.5	2,080	0.7	4,867	1.7	2,972	1.0	1,400	0.5
2004	13,756	4.7	1,878	0.6	5,231	1.8	3,845	1.3	1,664	0.6
2005	14,918	5.1	2,009	0.7	5,774	1.9	4,460	1.5	1,742	0.6
2006	17,545	5.9	2,088	0.7	7,017	2.3	5,406	1.8	2,707	0.9
2007	18,516	6.1	2,399	0.8	8,158	2.7	5,518	1.8	2,213	0.7
2008	19,582	6.4	3,041	1.0	9,119	3.0	4,924	1.6	2,306	0.8
2009	20,422	6.6	3,278	1.1	9,735	3.1	4,696	1.5	2,946	1.0
2010	21,089	6.8	3,036	1.0	10,943	3.5	4,577	1.5	3,007	1.0
2011	22,784	7.3	4,397	1.4	11,693	3.7	4,418	1.4	2,666	0.8
2012	23,166	7.4	5,925	1.9	11,140	3.5	3,932	1.2	2,628	0.8
2013	25,052	7.9	8,257	2.7	11,346	3.5	3,591	1.1	3,105	1.0
2014	28,647	9.0	10,574	3.4	12,159	3.8	3,400	1.1	5,544	1.8
2015	33,091	10.4	12,989	4.1	12,727	3.9	3,301	1.0	9,580	3.1
2016	42,249	13.3	15,469	4.9	14,487	4.4	3,373	1.0	19,413	6.2
2017	47,600	14.9	15,482	4.9	14,495	4.4	3,194	1.0	28,466	9.0
2018	46,802	14.6	14,996	4.7	12,552	3.8	3,023	0.9	31,335	9.9
2019	49,860	15.5	14,019	4.4	11,886	3.6	2,740	0.8	36,359	11.4
2020	68,630	21.4	13,165	4.1	13,471	4.0	3,543	1.1	56,516	17.8
2021	80,411	24.7	9,173	2.8	13,618	4.0	3,678	1.1	70,601	21.8
2022	81,806	25.0	5,871	1.8	11,871	3.5	3,334	1.0	73,838	22.7
2023	79,358	24.0	3,984	1.2	10,112	2.9	3,355	1.0	72,776	22.2

NOTES: Drug overdose deaths are identified using *International Classification of Diseases*, *10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Among deaths with drug overdose as the underlying cause, the following multiple cause-of-death codes indicate the drug type(s) involved: Any opioid (T40.0–T40.4, T40.6), heroin (T40.1), natural and semisynthetic opioids (T40.2), methadone (T40.3), and synthetic opioids other than methadone (T40.4). Deaths involving more than one opioid category (such as a death involving both methadone and a natural and semisynthetic opioid such as oxycodone) are counted in both categories. Natural and semisynthetic opioids include drugs such as morphine, oxycodone, and hydrocodone; and synthetic opioids other than methadone include such drugs as fentanyl, fentanyl analogs, and tramadol. Deaths may involve more than one drug. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75% to 79% from 2003 to 2013 and increasing from 81% in 2014 to 96% in 2023. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.

SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

Data table for Figure 5. Age-adjusted rate of drug overdose deaths involving stimulants, by type of stimulant: United States, 2003–2023

Year	Cocaine		Psychotimulants with abuse potential	
	Number	Deaths per 100,000	Number	Deaths per 100,000
2003	5,199	1.8	1,179	0.4
2004	5,443	1.9	1,305	0.4
2005	6,208	2.1	1,608	0.5
2006	7,448	2.5	1,462	0.5
2007	6,512	2.2	1,378	0.4
2008	5,129	1.7	1,302	0.4
2009	4,350	1.4	1,632	0.5
2010	4,183	1.3	1,854	0.6
2011	4,681	1.5	2,266	0.7
2012	4,404	1.4	2,635	0.8
2013	4,944	1.6	3,627	1.2
2014	5,415	1.7	4,298	1.4
2015	6,784	2.1	5,716	1.8
2016	10,375	3.2	7,542	2.4
2017	13,942	4.3	10,333	3.2
2018	14,666	4.5	12,676	3.9
2019	15,883	4.9	16,167	5.0
2020	19,447	6.0	23,837	7.5
2021	24,486	7.3	32,537	10.0
2022	27,569	8.2	34,022	10.4
2023	29,449	8.6	34,855	10.6

NOTES: Drug overdose deaths are identified using *International Classification of Diseases*, *10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Among deaths with drug overdose as the underlying cause, the following multiple cause-of-death codes indicate the drug type(s) involved: cocaine (T40.5) or psychostimulants with abuse potential (T43.6). Psychostimulants with abuse potential include such drugs as methamphetamine, amphetamine, and ritalin. Deaths may involve more than one drug. The percentage of drug overdose deaths that identified the specific drugs involved varied by year, ranging from 75% to 79% from 2003 to 2013 and increasing from 81% in 2014 to 96% in 2023. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population.

SOURCE: National Center for Health Statistics, National Vital Statistics System, mortality data file.

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