



## Policy Brief

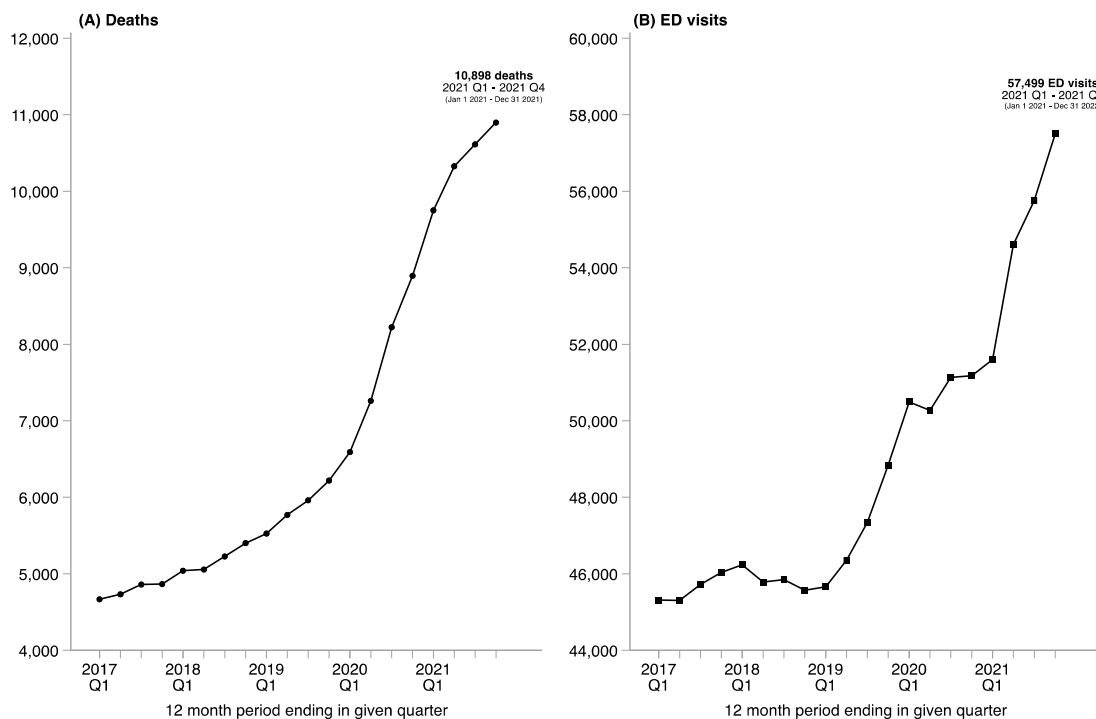
### Fatal Overdoses in California: 2017-2021

April 2023

#### Topline Findings

1. **Preventable drug-related overdose deaths have doubled since 2017.** In 2021 10,898 people in California died from drug-related overdose which is equal to nearly 27 preventable drug-related overdose deaths per 100,000 people.
2. **Drug-related fatal overdose is a top-ten cause of death in California.** Overdoses kill nearly as many people as lung cancer, more than diabetes, and 2-3x as many people as car accidents.
3. **The fatal overdose crisis disproportionately impacts Blacks/African Americans.** Blacks/African Americans are the most overrepresented amongst overdose fatalities. They represent 6% of the population but 13% of all overdose deaths as of 2021.
4. **Fatal overdose rates are rising fastest among Blacks/African Americans, Hispanics/Latinos, and Native Americans.** Blacks/African Americans, Hispanics/Latinos, and Native Americans have experienced 208%, 201%, and 150% increases in age-adjusted overdose mortality rate since 2017, respectively.
5. **Drug overdose is now the leading cause of death for Californians 15 to 44 years old and rates of fatal overdoses are rising fastest among people 15 to 49.** The rate of overdose deaths among teenagers (those 14 to 19 years old) has increased 370% since 2017.
6. **Fentanyl-related deaths have increased 1,027% since 2017.** In 2017 there were 537 deaths related to fentanyl (and other synthetic opioids), but in 2021 there were at least 6,054 deaths. There are now 11x as many fentanyl deaths as there were 5 years ago.
7. **Fentanyl and stimulants (e.g., methamphetamine) are the drugs most frequently involved in the increasing number fatal overdoses.** Approximately 90% of all fatal overdoses now involve one or both these drug classes. Fentanyl is involved in at least 55% of all fatal overdoses.

**Figure 1.**  
**Number of drug-related overdose (a) deaths and**  
**(b) emergency department visits, 2017 to 2021**



Sources and notes

The raw number of drug-related overdose deaths are rising in California. Mortality records indicate that in 2021 over 10,898 Californians died from drug-related overdose which is equivalent to nearly 27 preventable drug-related overdose deaths per 100,000 people (age-adjusted). The total number of overdoses deaths in California has more than doubled since 2017, rising by about 124%. Emergency department (ED) visits due to drug-related overdoses are also rising in California. Hospital records show that there were approximately 57,499 ED visits in 2021 due to all-drug related overdoses. Since 2017, the annual number of ED visits have increased by 11,461 visits (about a 25% increase).

Please note that preliminary data for the first 6-months of 2022 is available at the time of this report’s publication, the data represents an undercount of overdose deaths because the numbers will likely be revised significantly upwards since many coroners have backlogs.

**Figure 2 .  
Change in the number of deaths and age-adjusted rates of death  
for the leading causes of death, 2017 to 2021**

Cause	2017		2021		2017 → 2021	
	Number	Age-adjusted rate	Number	Age-adjusted rate	Increase in number	% increase in rate
Drug overdose	4,866	11.6	10,898	27	6,032	131%
Homicide	2,020	5.2	2,476	6.4	456	23%
Diabetes mellitus	5,993	13.6	7,305	15	1,312	10%
Influenza	642	1.5	29	0.1	-613	-93%
Alcohol-related	5,043	11.5	7,097	16	2,054	38%
Alzheimer's disease	24,865	57	27,754	56	2,889	-2%
Hypertensive heart disease	11,532	26.1	13,810	28	2,278	7%
Ischemic heart disease	37,799	85.4	37,621	76	-178	-11%
COPD	13,265	30.4	11,002	22	-2,263	-27%
Lung Cancer	11,530	26.1	10,191	21	-1,339	-21%
Suicide/Self-harm	4,230	10.3	3,948	9.5	-282	-8%
Other respiratory diseases	4,720	10.8	4,691	9.6	-29	-11%
COVID-19	--	--	43,838	91	--	--

Source and notes

The immense toll of the drug-related overdose crisis in California can be highlighted by comparing the rate of deaths due to drug overdose compared to other leading causes of death. Drug-related fatal overdose is a top-ten cause of death in California. All drug-related overdoses kill nearly as many people as lung cancer and hypertensive heart disease. The age-adjusted rate of total fatal overdoses has risen by 131% since 2017.

**Figure 3.**  
**Fatal overdose deaths by race/ethnic group and drug class, 2021 only**

<b>Race/ethnic group</b>	<b>All Drugs</b>		<b>Synthetic Opioids (Fentanyl)</b>		<b>Stimulants (Meth)</b>	
	<b>Age- adjusted rate</b>	<b>Count</b>	<b>Age- adjusted rate</b>	<b>Count</b>	<b>Age- adjusted rate</b>	<b>Count</b>
White	38.1	5,796	22.8	3,167	19.7	3,092
Black/African American	59.6	1,368	29.5	716	27.6	675
Hispanic/Latino	20.3	3,203	11.8	1,931	10.9	1,694
Native American	77.0	134	39.4	63	48.7	83
Asian/Pacific Islander	7.4	397	3.5	177	3.6	198

[\*Source and notes\*](#)

Native Americans in California have the highest rate of fatal drug overdose as of 2021. In terms of raw overdose counts, Whites and Hispanics experienced the most fatal overdoses with at least 5,796 and 3,203 fatalities, respectively, in calendar year 2021. However, Blacks were by far the most overrepresented amongst overdose fatalities with respect to their share of the population. Blacks account for approximately 6% of the general California population but made up about 13% of all overdose deaths in 2021.

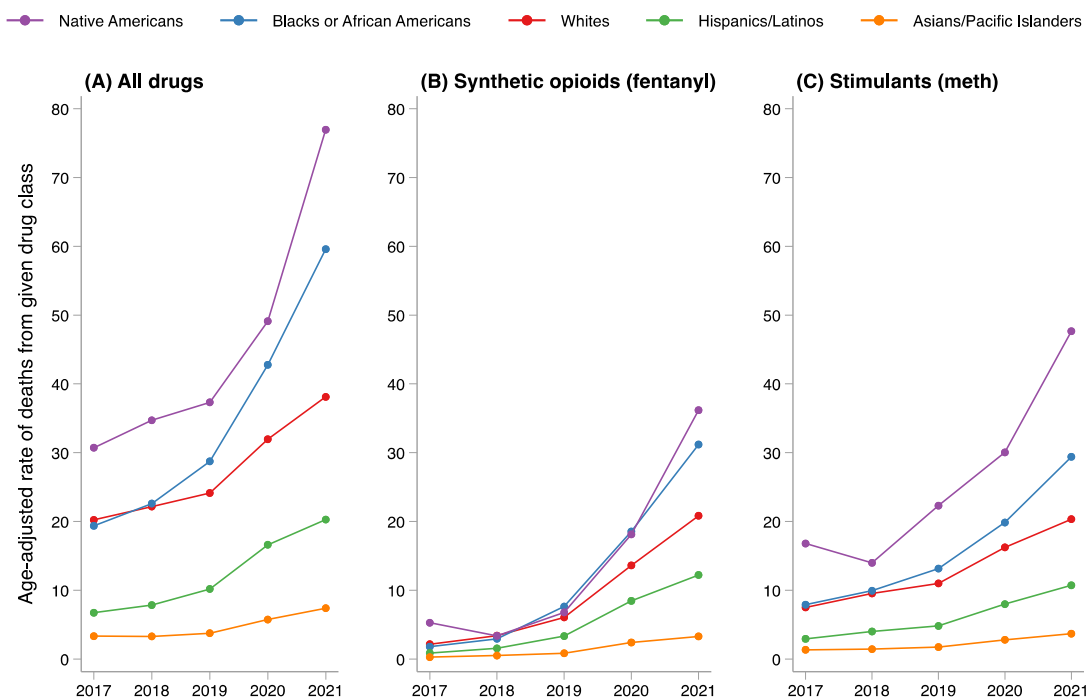
Structural racism and discrimination in California mean many communities lack options for affordable therapy to address opioid or stimulant use disorder. All efforts to address the overdose crisis should consider how it can also address the unequal burden of the epidemic in historically excluded communities and build capacity for accessible treatment amongst the homeless, unemployed, and both Native American and Black communities.

**Figure 4.**  
**Change in total fatal overdose deaths (all drugs) by race/ethnic group, 2017 to 2021**

Race/ethnic group	2017		2021		2017 → 2021	
	Number	Rate	Number	Rate	Increase in number	% increase in rate
White	3,081	20.2	5,796	38.1	2,715	88%
Black/African American	473	19.4	1,368	59.6	895	208%
Hispanic/Latino	1,042	6.7	3,203	20.3	2,161	201%
Native American	64	30.7	134	77.0	70	150%
Asian/Pacific Islander	206	3.3	397	7.4	191	122%

[Source and notes](#)

**Figure 5.**  
**Fatal overdose deaths by race/ethnic group over time, 2017-2021**



The worsening overdose crisis in California means nearly all racial/ethnic groups have experienced more fatal overdoses in 2021 than they did in 2017. However, Native Americans, Blacks, and Hispanics have experienced the most rapidly rising rate of fatal drug overdose. The rate of fatal drug overdose (related to all drugs) increased by 208% among Blacks, 201% among Hispanics, and 150% among Native Americans.

**Figure 6.**  
**Fatal overdose deaths by age group and drug class, 2021 only**

Age Group	All Drugs		Synthetic Opioids (Fentanyl)		Stimulants (Meth)	
	Rate	Number	Rate	Number	Rate	Number
15-19	9.5	264	8.3	230	1.2	34
20-24	24.0	704	19.1	561	6.1	179
25-29	40.4	1,099	31.0	843	16.7	454
30-34	51.4	1,276	37.3	924	25.8	641
35-39	44.8	1,199	29.6	792	24.9	667
40-44	40.2	1,039	23.9	617	23.3	603
45-49	38.6	957	19.7	487	23.4	581
50-54	43.6	1,111	19.1	487	28.0	714
55-59	48.5	1,209	18.2	454	32.1	800
60-64	43.9	1,057	15.7	378	26.8	645
65-69	28.3	589	8.3	172	14.6	304

[Source and notes](#)

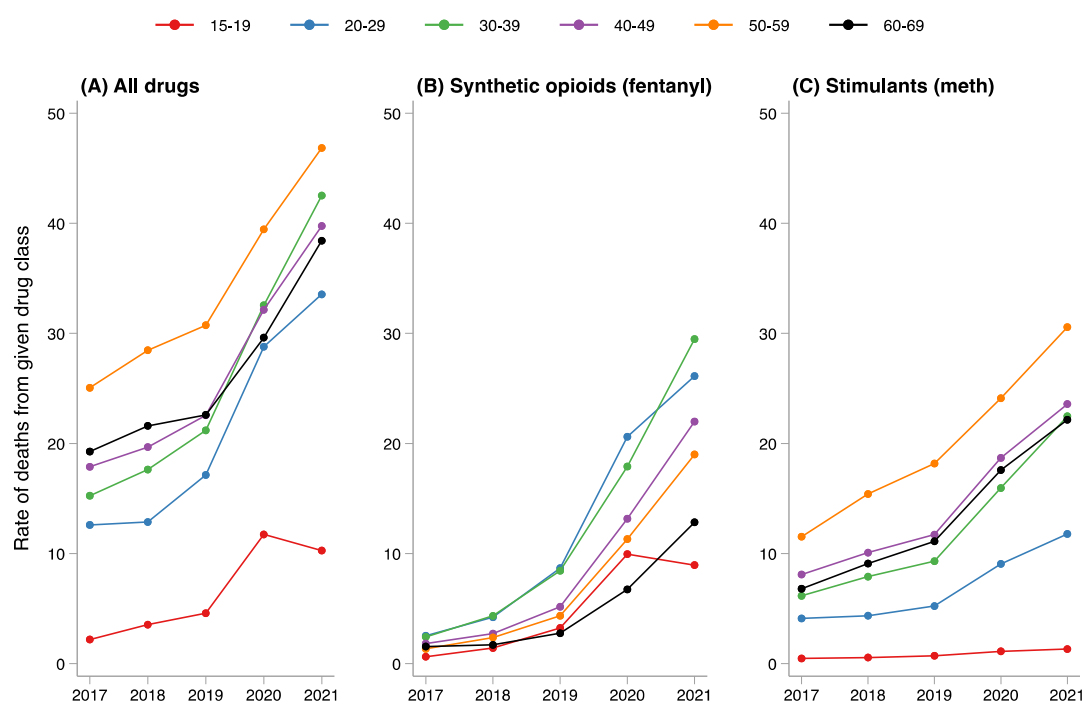
The overdose crisis in California impacts teens and adults across the entire age distribution, but the rate of fatal overdose is higher in some age groups than others. Drug overdose is now the leading cause of death for those 15 to 44 years old. Californians 30 to 34 years old have the highest rate of fatal overdose from all drugs; at least 1,276 people in their early 30s died from overdose just in 2021 alone. People in 20s and 30s have the highest rate of fatal overdose from synthetic opioids (fentanyl), while people in their 50 and 60s have the highest rate of fatal overdose from psychostimulants (meth). There may be important opportunities to better address the crisis by tailoring health policy and harm reduction initiatives to serve people of various ages in different fashions.

**Figure 7.**  
**Change in total fatal overdose deaths (all drugs) by age group, 2017 to 2021**

Age group	2017		2021		2017 → 2021	
	Number	Rate	Number	Rate	Increase in number	% increase in rate
15-19	56	2.2	264	10.3	208	370%
20-29	743	12.6	1,803	33.5	1,060	166%
30-39	855	15.2	2,475	42.5	1,620	179%
40-49	915	17.9	1,996	39.8	1,081	122%
50-59	1,274	25.1	2,320	46.8	1,046	87%
60-69	782	19.3	1,646	38.4	864	99%

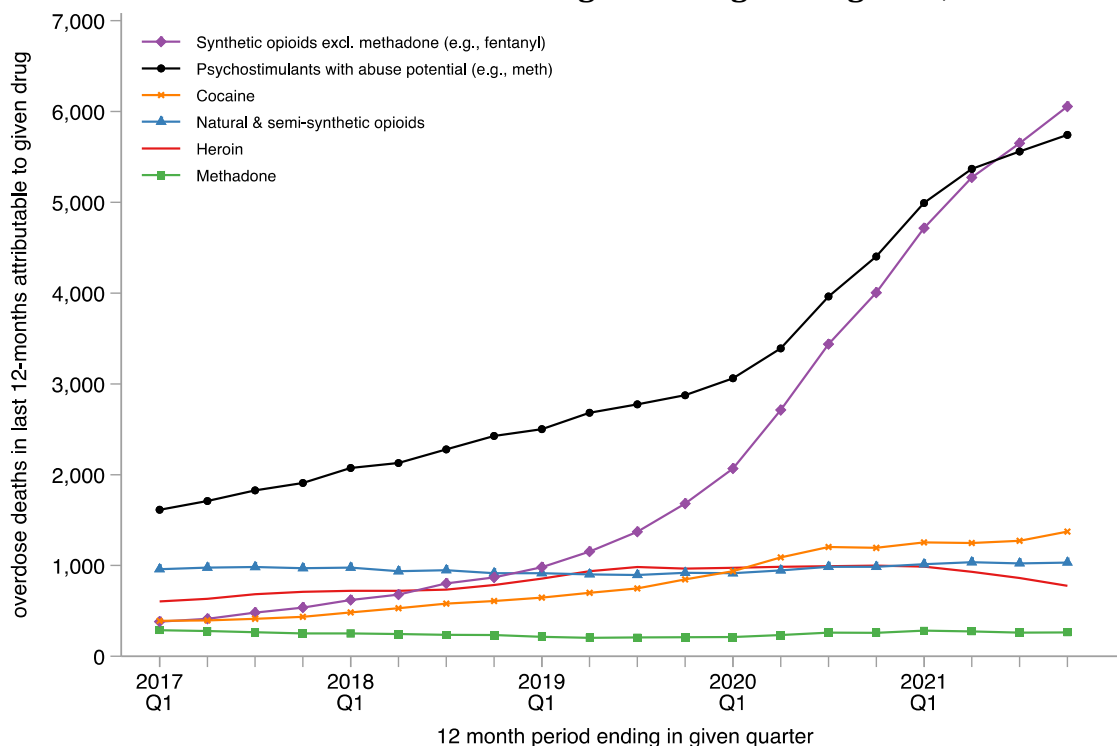
[Source and notes](#)

**Figure 8.**  
**Fatal overdose deaths by age group and drug class over time, 2017-2021**



Drug-related overdose deaths are rising amongst every age group. However, the rate of increase is different across age groups and is greatest amongst people 15-49. Between 2017 and 2021, the rate of all drug-related fatal overdose rose by 380% among teens, 166% among people 20-29, and 179% among people 30-39. The number of fatal drug-related overdoses increased at least 4.5x for teens, increasing from 56 deaths in 2017 to 264 deaths in 2021. Teens urgently need to be informed about this rising danger.

**Figure 9.**  
**Number of fatal overdose deaths involving each drug or drug class, 2017 to 2021**



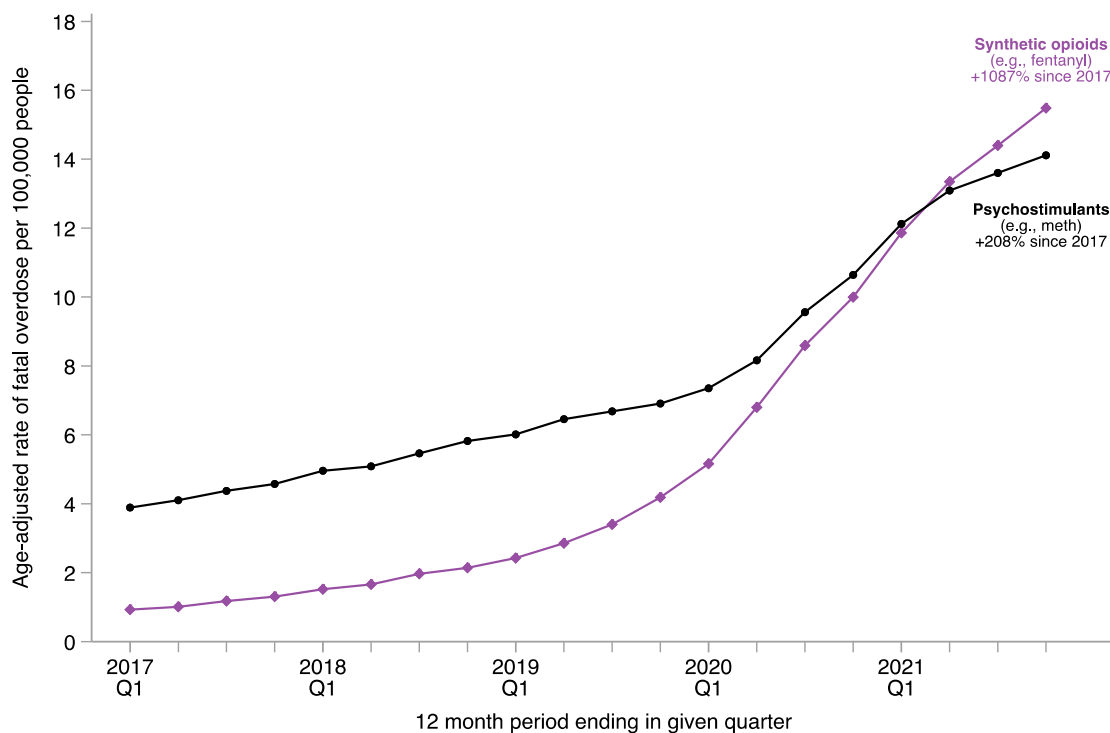
[Source and notes](#)

The increase in opioid-related overdose deaths has been driven by the marked increase in deaths related to synthetic opioids (excluding methadone), such as fentanyl, and stimulants with abuse potential, such as methamphetamine. Please note that these categories are not mutually exclusive, so for example, an overdose fatality related to fentanyl and methamphetamine would show up in both categories separately.

In 2017 there were 537 deaths related to synthetic opioids (fentanyl and others), but in 2021 there were at least 6,054 deaths. This represents at least a 1,027% increase. The count of overdose fatalities involving psychostimulants, such as methamphetamine, has increased by 201% since 2017. Moreover, the number of overdose deaths related to cocaine use have also risen significantly over the last five years. Overdose deaths related to cocaine have increased by 216% since 2017. The number of overdose deaths related to natural or semi-synthetic opioids and heroin have remained mostly unchanged.



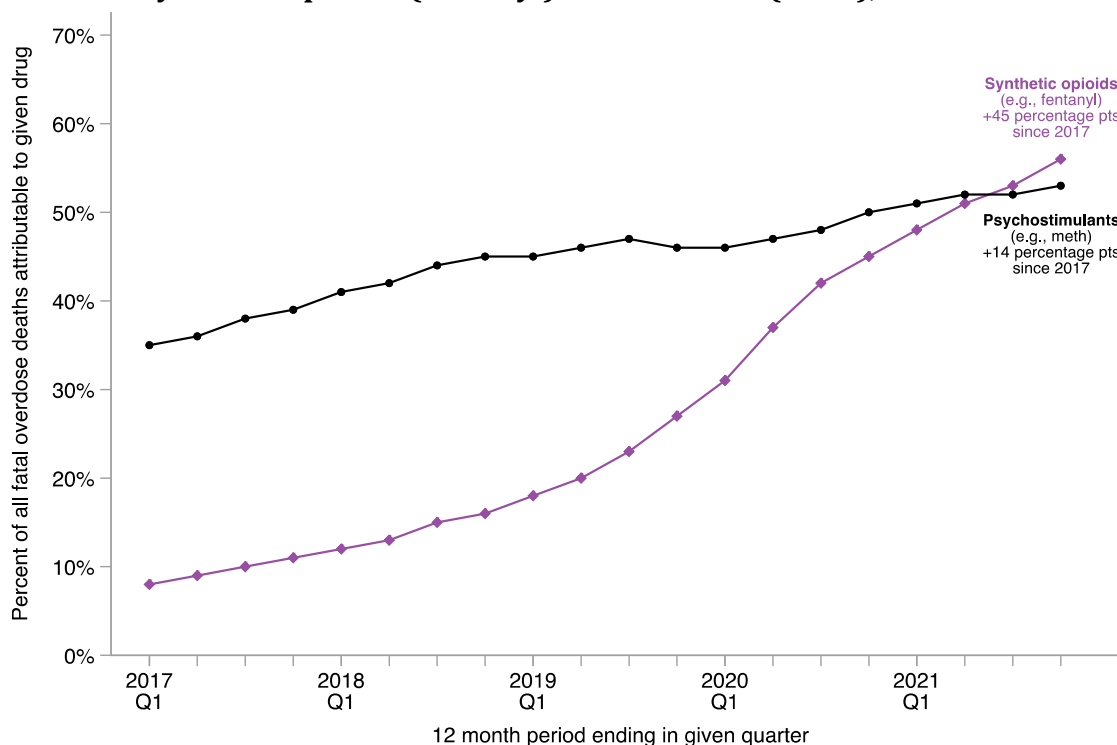
**Figure 10.**  
**Rate of fatal overdose deaths involving synthetic opioids (fentanyl) or stimulants (meth), 2017 to 2021**



[Source and notes](#)

The age-adjusted rate of overdose deaths related to fentanyl and other synthetic opioids has risen by 1,087% since 2017. The age-adjusted rate of fatal overdoses related to fentanyl has increased 54% in just the last year. In 2021 there were 15.5 overdose deaths related to the use of synthetic opioids (mostly involving fentanyl) per 100,000 state residents, but in the 2017 there were only 1.3 fatal overdoses from synthetic opioids per 100,000 people. The age-adjusted rate of overdose deaths related to psychostimulants, such as methamphetamine, has increased by at least 208% since 2017. The rate of fatal overdoses related to stimulants is up 45% in the last year. In 2021 there were approximately 14.1 fatal overdoses involving stimulants (especially methamphetamine) per 100,000 people, well up from the 4.6 per 100,000 in 2017.

**Figure 11.**  
**Share of all fatal overdose deaths involving synthetic opioids (fentanyl) or stimulants (meth), 2017 to 2021**



[Source and notes](#)

Synthetic opioids such as fentanyl are involved in over 55% of fatal drug-related overdoses. And the percent of all overdose fatalities involving a synthetic opioid such as fentanyl has increased by at least 45 percentage points since 2017 and 11 percentage points over the last year. Fentanyl became the leading cause of any opioid-related overdose death in early 2019. Moreover, the percent of all drug-related accidental fatal overdoses involving a stimulant such as methamphetamine increased by 14 percentage points since 2017, but just 3 percentage point in the last year. Meth and fentanyl are both extremely common in accidental drug overdose deaths; approximately 90 percent of all fatal overdoses now involve either one or both these drugs.

**Figure 12.**  
**Estimated age-adjusted rate of fatal overdoses and raw number**  
**for all California counties, 2021 only** *(cont. on next page)*

<b>County</b> (alphabetical)	<b>All Drugs</b>		<b>Synthetic Opioids (Fentanyl)</b>	
	<b>Age- adjusted rate</b>	<b>Number</b>	<b>Age- adjusted rate</b>	<b>Number</b>
Alameda	17.9	325	9.3	163
Amador	31.8	11	17.8	6
Butte	55.0	120	21.0	44
Calaveras	25.3	12	14.2	6
California	26.8	10,898	15.5	6,054
Colusa	7.0	2	3.0	1
Contra Costa	22.4	263	14.5	161
Del Norte	35.3	10	17.0	5
El Dorado	26.4	45	16.0	26
Fresno	19.8	196	6.5	67
Glenn	36.9	12	8.1	2
Humboldt	46.1	56	31.4	37
Imperial	11.1	18	9.2	14
Inyo	74.4	10	41.6	5
Kern	55.0	490	25.6	225
Kings	20.0	28	6.6	11
Lake	97.3	66	43.3	26
Lassen	29.8	8	13.8	4
Los Angeles	21.9	2,272	13.8	1,398
Madera	23.0	35	9.6	14
Marin	24.5	65	15.2	37
Mariposa	39.8	7	12.8	2
Mendocino	76.8	72	49.1	40
Merced	20.9	55	6.8	18
Modoc	42.0	3	0.0	0
Mono	18.7	3	0.0	0
Monterey	20.3	96	3.6	17
Napa	15.6	21	9.8	13
Nevada	48.3	43	22.6	17
Orange	29.3	919	21.4	653
Placer	18.6	76	10.0	36
Plumas	31.7	7	11.1	2

<b>County</b> (alphabetical)	<b>All Drugs</b>		<b>Synthetic Opioids (Fentanyl)</b>	
	<b>Age- adjusted rate</b>	<b>Number</b>	<b>Age- adjusted rate</b>	<b>Number</b>
Riverside	32.6	815	17.1	408
Sacramento	30.0	487	10.5	155
San Benito	20.8	14	12.3	8
San Bernardino	25.1	552	14.3	314
San Diego	29.3	963	20.4	656
San Francisco	52.7	551	38.2	393
San Joaquin	27.4	209	14.1	105
San Luis Obispo	45.2	115	23.3	58
San Mateo	16.7	135	10.2	74
Santa Barbara	27.2	123	7.2	31
Santa Clara	15.2	317	6.8	129
Santa Cruz	30.3	83	10.6	25
Shasta	44.3	71	27.0	41
Siskiyou	31.2	16	11.6	4
Solano	26.0	119	8.9	39
Sonoma	31.7	155	23.3	109
Stanislaus	28.6	158	14.6	77
Sutter	33.6	34	20.1	20
Tehama	31.5	20	8.7	5
Trinity	69.4	7	39.4	4
Tulare	19.9	88	11.1	49
Tuolumne	33.3	16	15.4	6
Ventura	31.0	261	21.9	176
Yolo	12.6	30	1.6	4
Yuba	35.8	26	18.1	13

[\*Source and notes\*](#)

## **Appendix A: Data Source and Notes**

### **Data Sources**

CDPH Center for Health Statistics and Informatics Vital Statistics

- [Overdose Surveillance Dashboard](#), underlying data are from Multiple Cause of Death and California Comprehensive Death Files

CDC, National Center for Health Statistics (National Vital Statistics System)

- [Mortality 1999-2020](#) on CDC WONDER Online Database, released in 2021, underlying data are from the Multiple Cause of Death Files, 1999-2020
- [Mortality 2018-2021](#) on CDC WONDER Online Database, released in 2021, underlying data are from the Multiple Cause of Death Files, 2018-2021

### **Notes**

All overdose deaths are counted, regardless of intent (e.g., unintentional, suicide, assault, or undetermined). However, the following deaths are excluded: deaths related to chronic use of drugs, deaths due to alcohol or tobacco, and deaths that occur under the influence of drugs, but that do not involve acute poisoning. Please note that these categories are not mutually exclusive. Drug overdose deaths may involve multiple drugs; therefore, a single death might be included in more than one category when describing the number of drug overdose deaths involving specific drugs or drug classes. We observe data for 56 counties since records from Alpine and Sierra counties are censored because of their small size. Percentages may not sum to 100% due to rounding. Some demographic subgroups are relatively small, so it is difficult to calculate stable, reliable rates. Additionally, some counties have small populations, and it is difficult to calculate stable, reliable rates. Standard errors are not shown but available upon request.

## **Appendix B: Limitations**

The findings in this report are subject to limitations:

1. Drug overdose deaths represent only a small proportion of the overall burden of drug misuse, dependence, and overdose.
2. Autopsies are done under variable circumstances and the substances tested for vary across time and jurisdiction. Recent improvements in toxicologic testing might account for some reported increases and differences across jurisdictions might contribute to observed differences.
3. Not all death certificates include any mention of specific drugs involved and the percent of death certificates with at least one drug specified varies widely by both state and county.
4. Potential racial or ethnic misclassification might lead to underestimates for certain groups, especially Native Americans and Asians/Pacific Islanders.
5. Certain trend analyses are limited by the small numbers of deaths which means it is difficult to calculate stable rates.

## **Appendix C: All Data Sources on Overdoses in the United States and California**

There are three primary sources for data on overdose deaths:

- [California Opioid Overdose Surveillance Dashboard](#)
  - Final data for the period 2017 Q1-2021 Q4 (quarterly)
  - Provisional data for the period 2022 Q1-2022 Q2 (quarterly)
  - Provided by the California Department of Public Health (CDPH) Health & Informatics Vital Statistics Center.
  - The preliminary data for 2022 Q1 & Q2 was released 02/22/2023.
  - The preliminary data for 2022 cannot be disaggregated by demographics.
- [Center for Disease Control \(CDC\) WONDER Multiple Causes of Death \(MCOD\) database](#)
  - Final data for the period 1999-2021 (monthly)
  - Provided by the CDC National Center for Health Statistics (NCHS)
- [National Vital Statistics System \(NVSS\) Rapid Release Provisional Drug Overdose Death database](#)
  - Provisional data for the period 2021-2023 (monthly)
  - Provided by the CDC NCHS

## **Appendix D: Details on Measuring Drug-Related Overdose Fatalities**

Drug overdose deaths are identified using ICD-10 underlying cause-of-death codes: X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Drug overdose deaths involving most drug categories are identified by specific multiple cause-of-death codes.

Drug categories include: heroin (T40.1); natural opioids, including morphine and codeine, and semisynthetic opioids, including drugs such as oxycodone, hydrocodone, hydromorphone, and oxymorphone (T40.2); methadone, a synthetic opioid (T40.3); synthetic opioids other than methadone, including drugs such as fentanyl and tramadol (T40.4); cocaine (T40.5); and psychostimulants with abuse potential, which includes methamphetamine (T43.6). Opioid overdose deaths are identified by the presence of any of the following MCODE codes: T40.0; T40.1; T40.2; T40.3; T40.4; or other and unspecified narcotics (T40.6).

Drug overdose deaths may involve multiple drugs; therefore, a single death might be included in more than one category when describing the number of drug overdose deaths involving specific drugs. For example, a death that involved both heroin and fentanyl would be included in both the number of drug overdose deaths involving heroin and the number of drug overdose deaths involving synthetic opioids other than methadone.

**Author**

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