

California State Unintentional Drug Overdose Reporting System

2019 Overview Data Brief

California Department of Public Health
Substance and Addiction Prevention Branch
Overdose Prevention Initiative

The California State Unintentional Drug Overdose Reporting System (CA SUDORS) is a public health surveillance system of drug-related overdose deaths. Overdose deaths captured by CA SUDORS include unintentional and undetermined drug-related overdose deaths occurring in participating counties in the State of California. CA SUDORS collects and combines data from death certificates, medical examiner/coroner (ME/C) investigative narratives, autopsy reports, and toxicology reports to better understand the circumstances surrounding these overdose deaths.

KEY POINTS

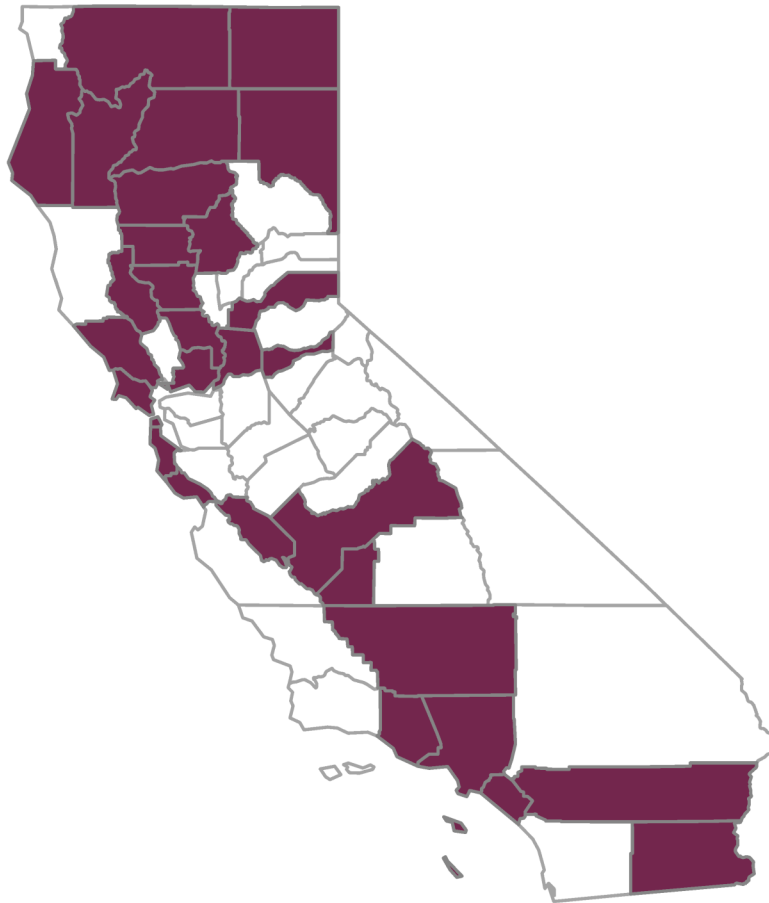
- A total of 3,551 drug-related overdose death cases were received and abstracted from participating counties, representing 60.3% of all unintentional and undetermined drug-related overdose deaths in the state.
- A majority of these drug-related overdose deaths occurred among Non-Hispanic Whites and males.
- Among drug-related overdose deaths, 77.2% occurred among individuals with a history of substance use/misuse*.
- Fentanyl or a fentanyl metabolite was involved in 33.5% of all drug-related overdose deaths.

* Substance use/misuse refers to the use of illicit drugs and/or misuse of prescription medications based on the ME/C reports. It does not include alcohol as a substance or use of marijuana.

CA SUDORS Participation

California has 58 counties total, each constituting its own death investigation jurisdiction. In 2019, CA SUDORS partnered with 30 county ME/Cs throughout California to collect these data.

- According to California death certificate data, there were 5,885 unintentional and undetermined drug-related overdose deaths that occurred in California in 2019 based on ICD-10 codes.
- Data from 3,551 unintentional and undetermined drug-related overdose deaths ME/C investigative narratives, autopsy reports, and toxicology reports were abstracted and are included in this report. All statistics included in this report come from only these 3,551 drug-related overdose deaths and may not be generalizable to all drug-related overdose deaths in California.
- Participating counties included: Amador, Butte, Colusa, Fresno, Glenn, Humboldt, Imperial, Kern, Kings, Lake, Lassen, Los Angeles, Marin, Modoc, Orange, Placer, Riverside, Sacramento, San Benito, San Francisco, San Mateo, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Tehama, Trinity, Ventura, and Yolo.



Demographics and Circumstances

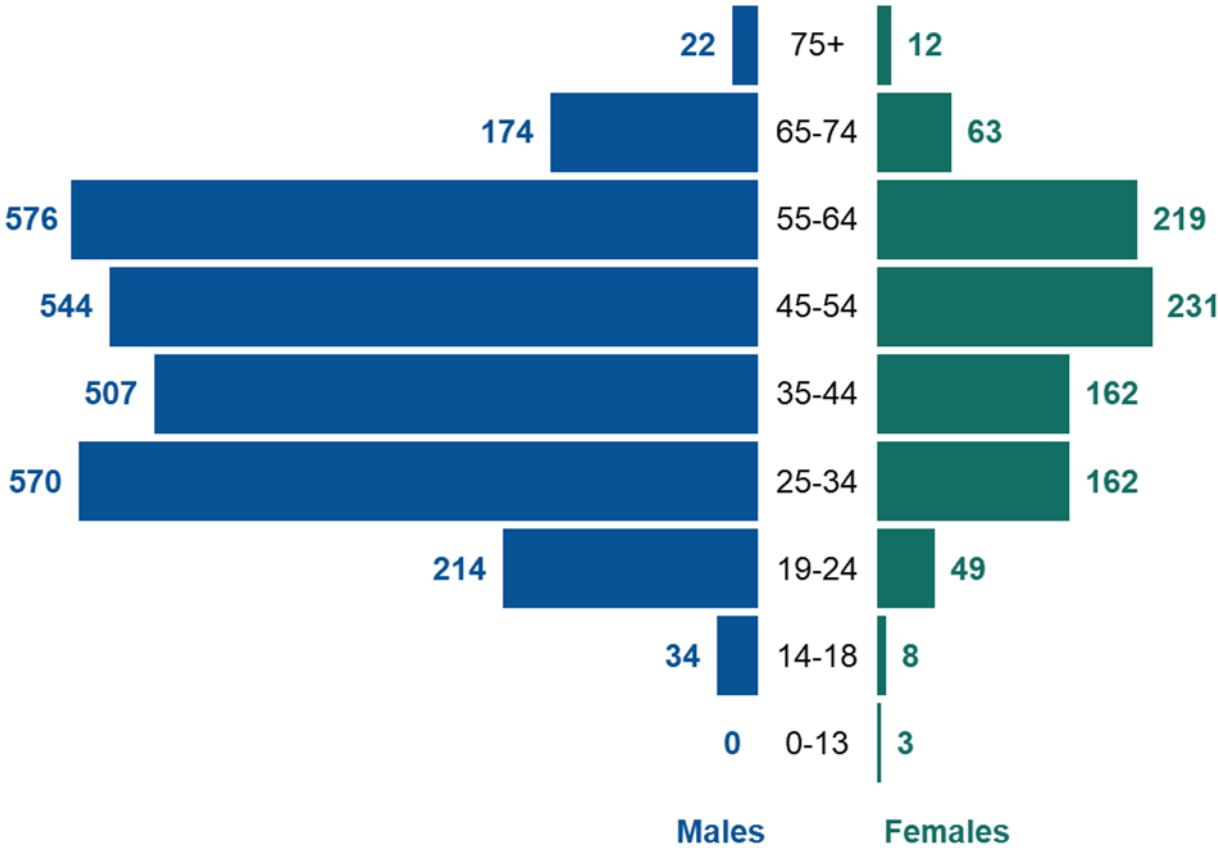
Individuals who died from a drug-related overdose in CA SUDORS participating counties were predominantly:

- Male (74.4%)
- Non-Hispanic White (53.8%)
- 55-64 years old (22.4%)
- Never married (56%)
- Never served in U.S. armed forces (89%)

The distribution of drug-related overdose deaths by age was similar for males and females. **Most drug-related overdose deaths were among individuals in the 25–64-year age range.** The count of drug-related overdose deaths among males was almost 3 times that of females.

For males, the age group with the largest count of drug-related overdose deaths was 55-64 years and for females it was 45-54 years.

Figure 1. Counts of Drug-Related Overdose Deaths by Sex and Age, 2019



Demographics and Circumstances

Gender Identity

- 0.3% of individuals who died from a drug-related overdose were transgender

Education Level

- 18.2% of individuals who died from a drug-related overdose had an education level of 12th grade or less
- 42% were high school graduates or had a GED completed
- 17.6% had some college, but no degree
- 13.6% had a 2-year college degree or more
- 8.6% had an unknown education level

Figure 2. Drug-Related Overdose Deaths by Race/Ethnicity, 2019

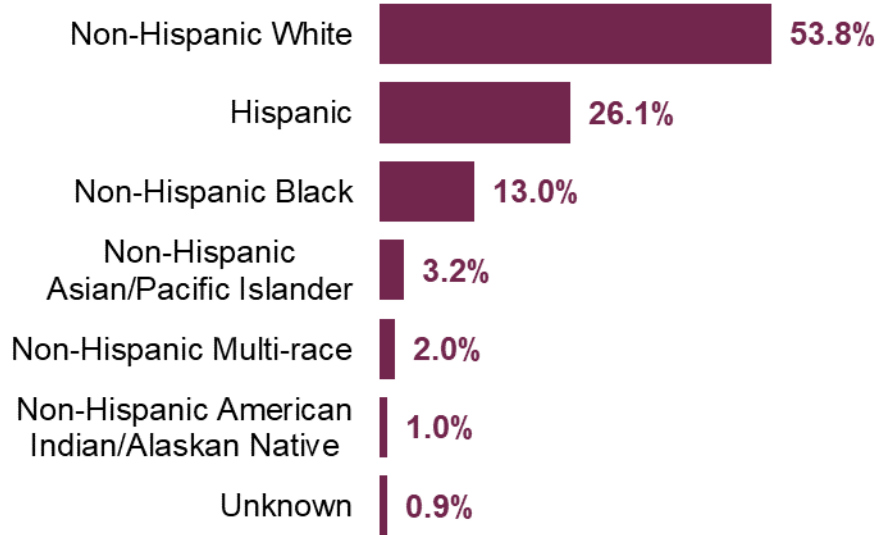
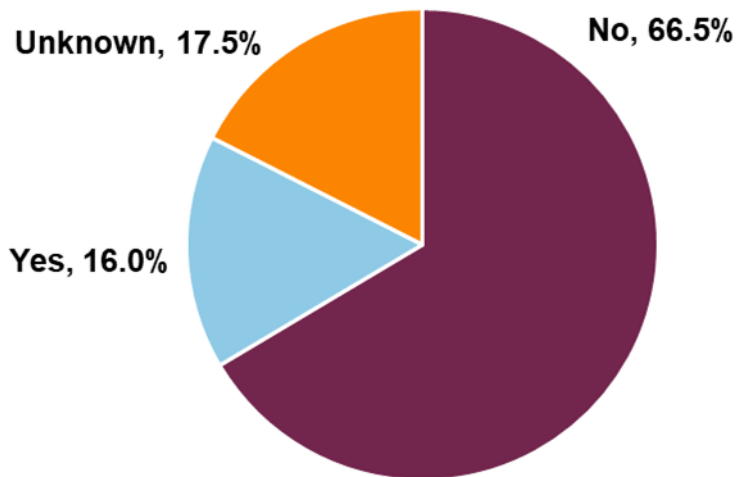


Figure 3. Drug-Related Overdose Deaths by Homeless Status, 2019



In 2019, 16% of individuals who died from a drug-related overdose were homeless. This may be an underestimate since homeless status was unknown for 17.5% of individuals who died from a drug-related overdose.

Health and Substance Use Circumstances

ME/C investigative reports often include detailed information on a decedent's medical and substance use history. As a part of their death investigations, ME/C investigators may conduct interviews with witnesses and next of kin. Additionally, investigators may obtain a decedent's medical records as a part of their investigation. Relevant health and substance use circumstances are abstracted into CA SUDORS from the ME/C reports to help understand possible risk and protective factors of drug-related overdose deaths.

Table 1. Health and substance use circumstances of individuals who died of a drug overdose, 2019

Circumstances	n	% of total deaths
History of substance use/misuse*	2,741	77.2%
History of an alcohol problem	702	19.8%
Current perceived depressed mood	182	5.1%
Current treatment for substance use disorder	134	3.8%
No current treatment, but treated in the past for substance use disorder	181	5.1%
Current mental health diagnoses [†]	704	19.8%
Two or more current mental health diagnoses	351	9.8%
Three or more current mental health diagnoses	133	3.7%

- Among individuals with at least one mental health diagnosis, the top four diagnoses were[§]:
 - Depression (10.7%)
 - Anxiety (6.8%)
 - Bipolar Disorder (4.3%)
 - Schizophrenia (3.2%)
- 8.9% of individuals who died from a drug-related overdose had ever been treated for substance use disorder (3.8% current treatment, 5.1% no current treatment, but treated in the past)

* Substance use/misuse refers to the use of illicit drugs and/or misuse of prescription medications based on the ME/C reports. It does not include alcohol as a substance or use of marijuana.

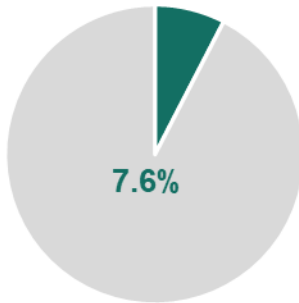
[†] Information on diagnoses may come from an individual's medical record or from a witness statement that is included in the ME/C report.

[§] Percentages are not mutually exclusive.

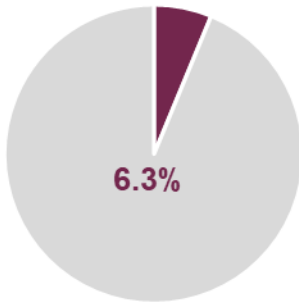
Health and Substance Use Circumstances

Known Medical History:

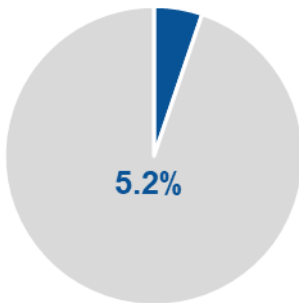
- 5% of individuals who died from a drug-related overdose had a history of major injury, 4.6% had a history of back pain, and 9.2% had a history of other chronic pain
- Other known medical conditions observed included: heart disease (16.5%), obesity (8%), COPD (4.8%), asthma (4.8%), sleep apnea (1.7%), other breathing problem(s) (3.2%), hepatitis C (4.6%), HIV/AIDS (1.9%), and migraine (0.8%)
- 911 (25.7%) individuals who died from a drug overdose had only one of the above medical conditions, 367 (10.3%) had two, and 194 (5.5%) had three or more



Had a previous drug overdose reported



Recent opioid relapse



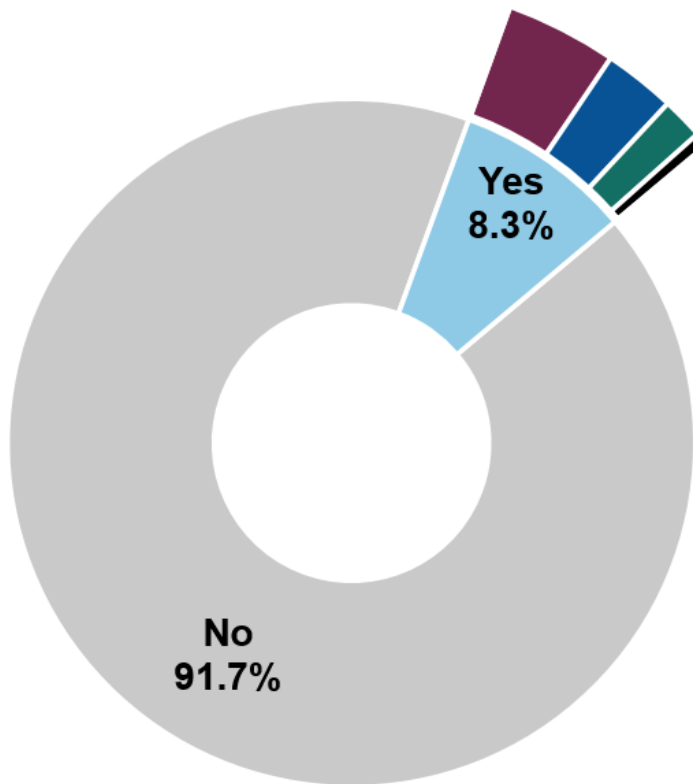
ED or urgent care visit in the past month

A majority of individuals who died from a drug-related overdose (92.4%) had no previous overdose reported by next of kin or other witness reports to the ME/C during their investigation. Among those with a previous drug-related overdose reported, 3.5% had a previous overdose that occurred in the last year.

Health and Substance Use Circumstances

Within the 30 days preceding death, 8.3% of individuals who died from a drug-related overdose were recently released from any institution. Nearly half of them had been recently released from a hospital. Individuals must have stayed overnight in one of these institutions within the 30 days preceding death to be included. Individuals at risk of overdose staying overnight in a hospital, jail, prison, detention center, or supervised residential facility may be a target population for substance use resources and education.

Figure 4. Recent Release from Any Institution among Drug-Related Overdose Deaths, 2019[¶]



Among the 8.3% (296) recently released:

46.6% were released from a hospital

30.1% were released from a jail, prison, or a detention facility

17.6% were released from a supervised residential facility related to alcohol or substance abuse treatment

5.7% were released from other or unknown institution type

Note: Each category in the figure is displayed in the same order as the key.

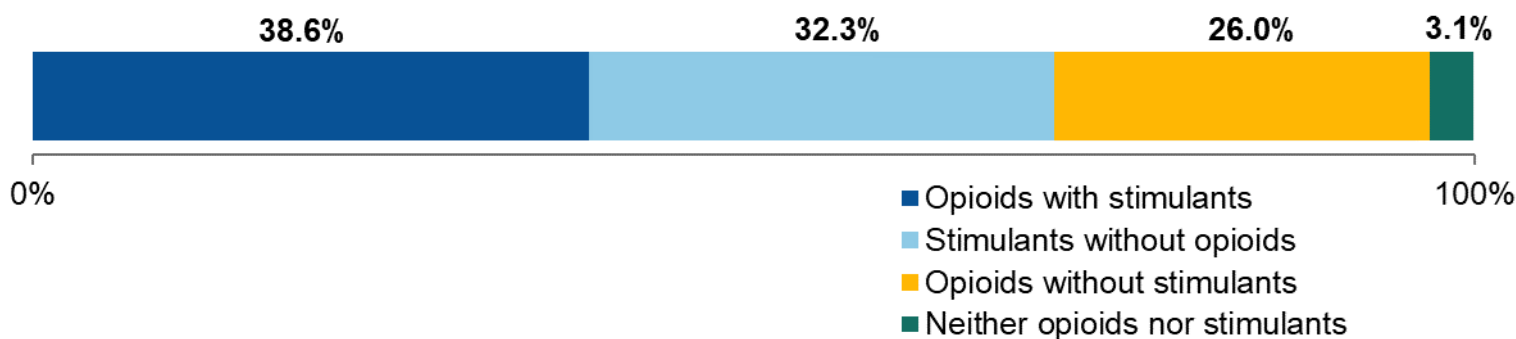
[¶] Recent release from an institution is defined as an overdose death that occurred within a month of the decedent being released from institutional settings such as prisons/jails, residential treatment facilities, and psychiatric hospitals.

Toxicology

Among the 3,551 drug overdose deaths in this report, 98.6% had available toxicology information. Toxicology reports and death certificates include information on which substances were present in a decedent's system (i.e., drug involvement) and which substance(s) caused the drug-related overdose death. Drug-related overdose deaths may be attributed to multiple substances, and it is important to note that these substance categories are not mutually exclusive.

- 33.5% of drug-related overdose deaths involved fentanyl or fentanyl metabolites
- Among the drug-related overdose deaths where fentanyl^{**} was present, almost all (98.6%) were positive for illicitly manufactured fentanyl^{*} (includes fentanyl and fentanyl analogs)

Figure 5. Percentages of Drug-Related Overdose Deaths by Opioid and Stimulant Involvement, 2019

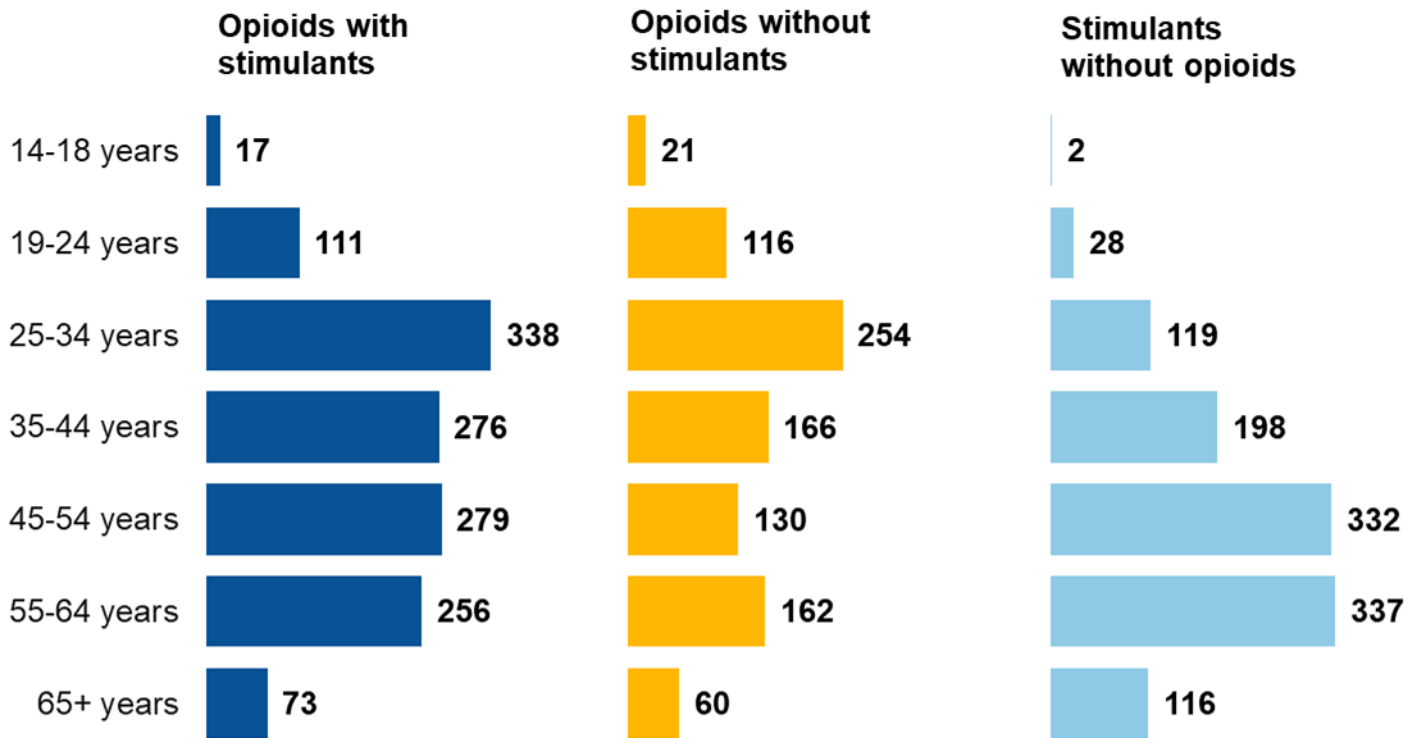


Note: Each category in the figure is displayed in the same order as the key.

Among all drug-related overdose deaths, 38.6% involved opioids with stimulants (Figure 5). Fewer drug-related overdose deaths involved stimulants without opioids (32.3%), or opioids without stimulants (26%). Only 3.1% of drug-related overdose deaths involved neither opioids nor stimulants.

^{**} Fentanyl and fentanyl analogs were classified as likely illicitly manufactured using toxicology, scene, and witness evidence.

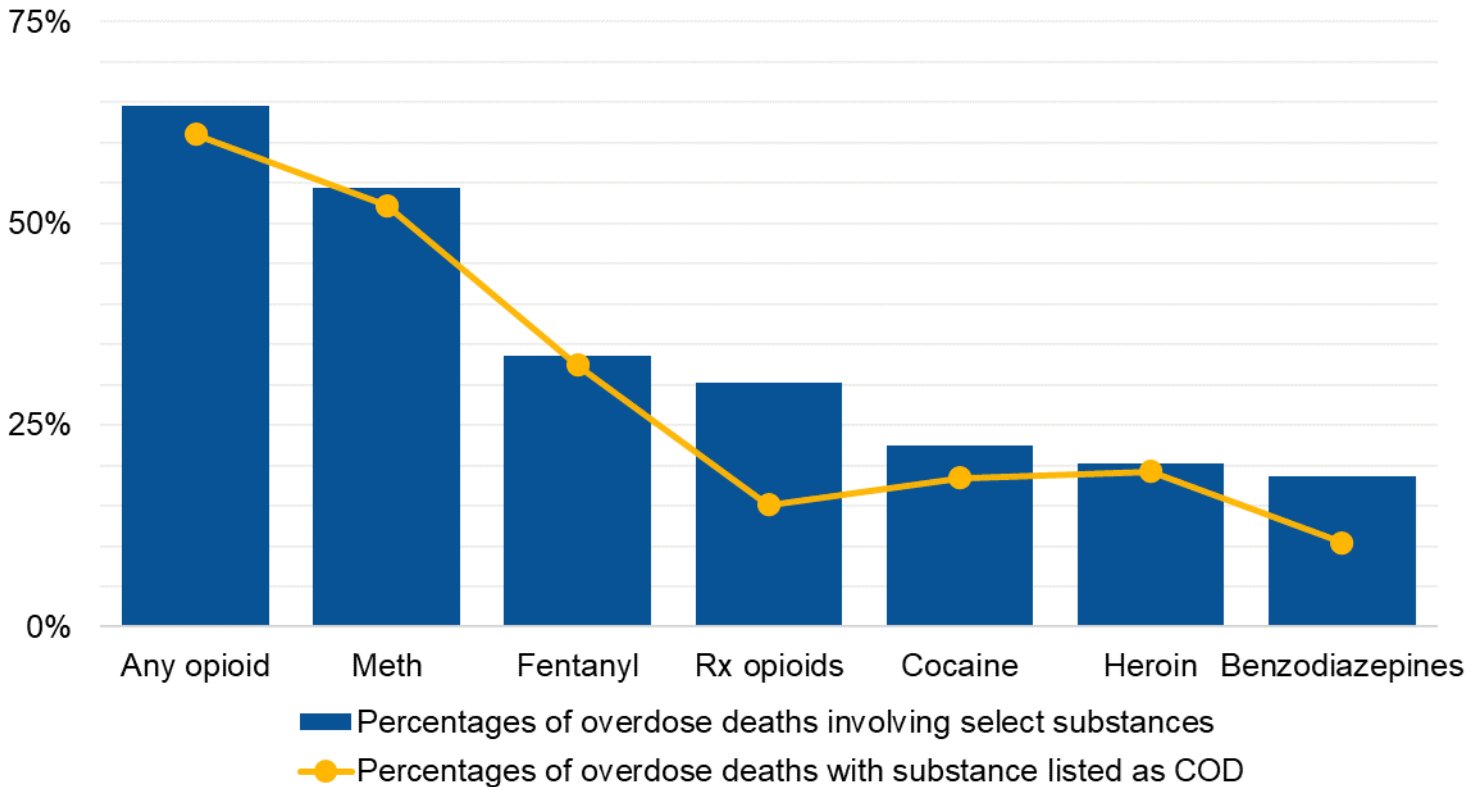
Figure 6. Drug-Related Overdose Death Counts by Age and Opioid and Stimulant Involvement, 2019



The number of drug-related overdose deaths that involved opioids with stimulants, opioids without stimulants, and stimulants without opioids, varied by age (Figure 6).

- Individuals in the age groups 45-54 and 55-64 had the highest count of drug-related overdose deaths that involved stimulants without opioids, compared to the other age groups.
- The age group 25-34 had the highest count of drug-related overdose deaths for the category opioids with stimulants and the category opioids without stimulants.
- In general, the age groups 14-18, 19-24, and 65+ had lower counts of drug-related overdose deaths than the other age groups, regardless of category.
- The age group 0-13 had only 3 deaths total and was excluded from Figure 6.

Figure 7. Involved and Cause of Death (COD) Substances, 2019[§]



A majority, 64.6%, of drug-related overdose deaths involved at least one opioid. For 61% of drug-related overdose deaths at least one opioid was listed as the cause of death (COD). After opioids, methamphetamine was the next most commonly involved drug (54.4%) and was listed as a COD for 52.2% of drug-related overdose deaths.

For most substances listed in Figure 7, the percentage of drug-related overdose deaths that involved the substance and the percentage where the substance was listed as a COD were similar. For example, 1,135 (96.8%) drug-related overdose deaths involving fentanyl also listed fentanyl as a COD. Prescription opioids and benzodiazepines were notably more likely to have been involved in a drug-related overdose death than to be listed as the COD. Alcohol was involved in 833 (23.8%) drug-related overdose deaths and was listed as a COD in 11.9% of drug-related overdose deaths.

[§] Percentages are not mutually exclusive.

Scene Evidence

As a part of their investigative narratives, ME/C investigators often include a detailed description of the scene where the decedent was found. Patterns and trends in types of paraphernalia and substances found on scene may inform prevention and harm reduction efforts to prevent additional drug-related overdose deaths.

It is important to note that some drug-related overdose deaths occur in emergency departments or hospitals and therefore information on the scene where the overdose occurred may not be available as a part of the investigation.

- Alcohol use was suspected (alcohol/evidence of alcohol use found on scene or witness report) in 12.6% of drug-related overdose deaths.
- 1,989 (56%) drug-related overdose deaths had any evidence of drug use reported. Evidence of drug use is determined by scene evidence, including evidence of drugs or paraphernalia, and witness reports of the decedent using drugs. It is not based off toxicology results.
- Among overdose deaths with evidence of drug use reported, 606 (30.5%) had no evidence of any route of drug administration, 1,181 (59.4%) had evidence of one route of administration, and 202 (10.2%) had evidence of two or more routes of administration.

Table 2. Scene evidence among those with any evidence of drug use

Scene evidence	%	male %	female %
Evidence of route of drug administration			
Evidence of injection	32.9%	77.7%	22.3%
Evidence of ingestion	19.8%	63.4%	36.6%
Evidence of snorting/sniffing	9.1%	81.7%	18.3%
Evidence of smoking	19.3%	78.4%	21.6%
Evidence of rapid overdose ^{††}	7.4%	84.4%	15.6%
Evidence of prescription drugs	39.4%	64.9%	35.1%
Evidence of illicit drugs	53.2%	80.1%	19.9%
Evidence of both prescription and illicit drugs	12.9%	75.4%	24.6%

Among all individuals who died of a drug-related overdose with evidence of drug use reported, 32.9% had evidence of injection drug use (Table 2). Approximately 78% of the individuals who had evidence of injection drug use were males and 22.3% were females. Approximately 39% of individuals who died of a drug overdose had evidence of prescription drugs, 53.2% had evidence of illicit drugs, and 12.9% had evidence of both prescription and illicit drugs found.

^{††} A rapid overdose is defined as a drug overdose that appeared to occur within 10 minutes of using the drug.

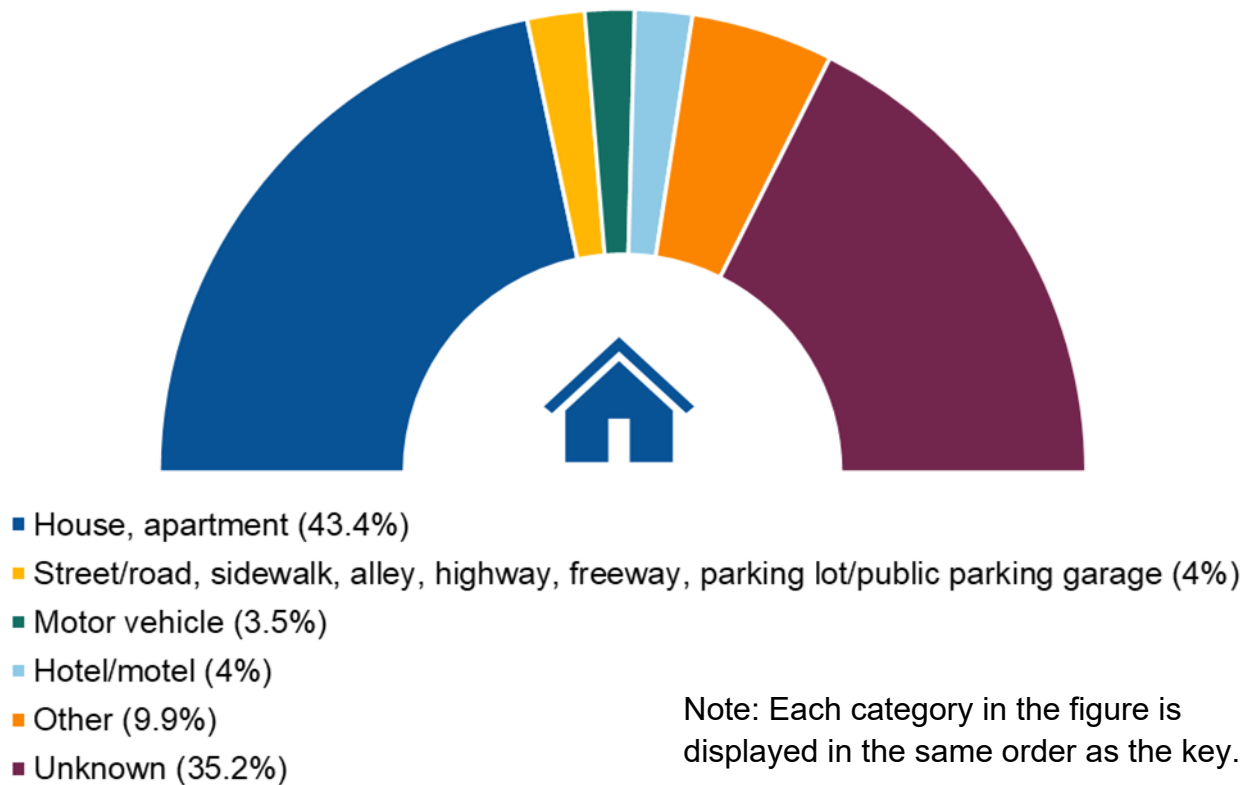
Fatal Overdose and Response

ME/C investigators also document details pertaining to the drug-related overdose response in their reports. When available, this information on the overdose response can include details on naloxone administration, presence of bystander(s), and the location of where the overdose occurred. This additional context can help inform response focused interventions, such as expanded access to naloxone. This report details the response to drug-related overdose deaths and does not contain information on non-fatal overdoses with successful resuscitation, therefore these results are not generalizable to all overdoses.

The most common location of overdose among those who died of a drug-related overdose was a house or apartment (Figure 8).

- Among those who overdosed in a house or apartment the majority, 84.6%, were in their own home.
- Among those who overdosed at a house or apartment, 62.6% had an opioid listed as a substance causing the overdose death.

Figure 8. Injury Location of Drug-Related Overdose Deaths, 2019

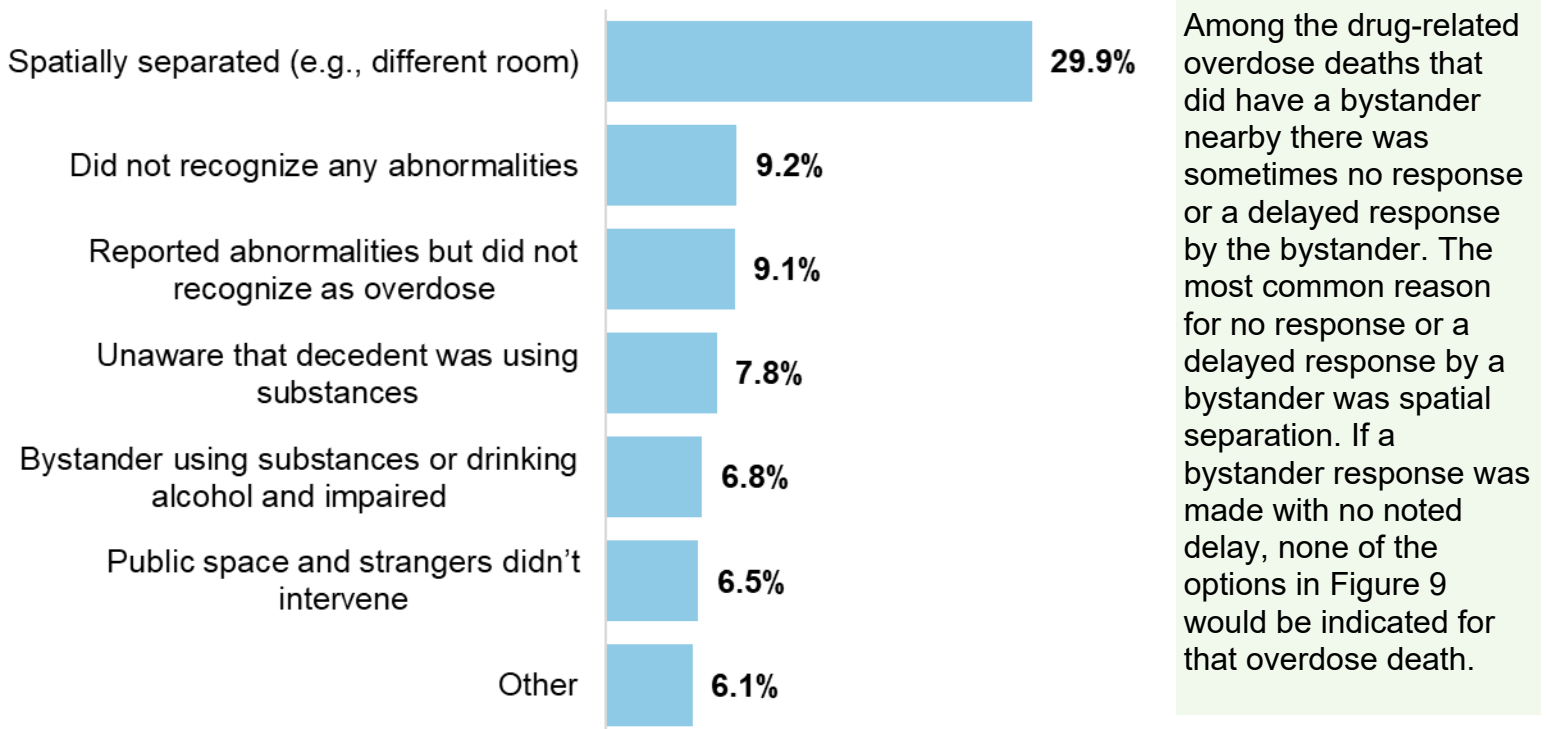


- Emergency Medical Services were present at the overdose scene in 84.3% of overdose deaths, they were not present at 6.2% of scenes, and it was unknown if they were present at 9.5% of scenes
 - 7.4% of individuals who died from a drug-related overdose had a documented pulse present on first responder arrival
 - Based on the ME/C report, it was unknown if 56.6% of individuals who died from a drug-related overdose had a pulse present on first responder arrival

Fatal Overdose and Response

- 88.9% of the drug-related overdose deaths were related to substance use/misuse^{§§}
- 9.4% of individuals who died from a drug-related overdose had known naloxone administration as a part of the response (60% unknown if administered)
 - Among those with any opioid as a cause of death, 12.2% had naloxone administered as a part of the response.
 - Among those with any opioid as a cause of death, 2.2% had naloxone administered by a layperson (someone who is not a first responder or medical health professional).
- 21.8% of individuals who died of a drug-related overdose were seen in the emergency department as a part of the response for the fatal overdose
 - 7.9% were admitted to inpatient care
- Less than half of overdose deaths (41.6%) had a bystander^{¶¶} present

Figure 9. Reasons for No Response or Delayed Response to Drug-Related Overdose Deaths with Bystander Present, 2019[§]



^{§§} Type of overdose categories: Overdose related to substance use/misuse (overdose involving misuse of prescription drugs or use of illicit drugs for the feelings the drugs provide), victim unintentionally takes a drug or wrong dosage, overmedication (taking more than the prescribed dosage), took prescribed dosage, other, and unknown.

^{¶¶} A bystander is defined as an individual greater than 11 years old who was physically nearby either during or shortly preceding a drug overdose who potentially had an opportunity to intervene and respond to the overdose.

[§] Percentages are not mutually exclusive.

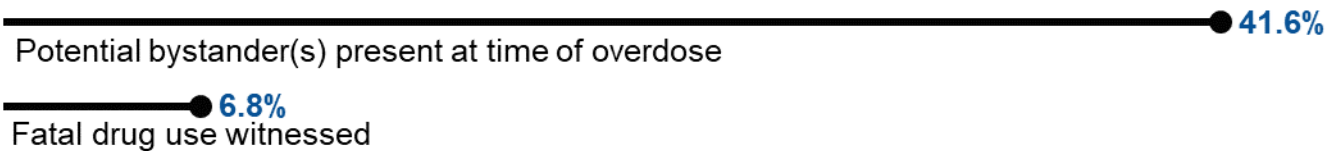
Potential Intervention Opportunities

Sixty-one percent of drug-related overdose deaths had at least one potential opportunity for intervention. The following circumstances represent potential opportunities to provide linkages to care, treatment resources, and other life-saving interventions. The most common potential opportunity for intervention was having a bystander^{¶¶} present at the time of overdose.

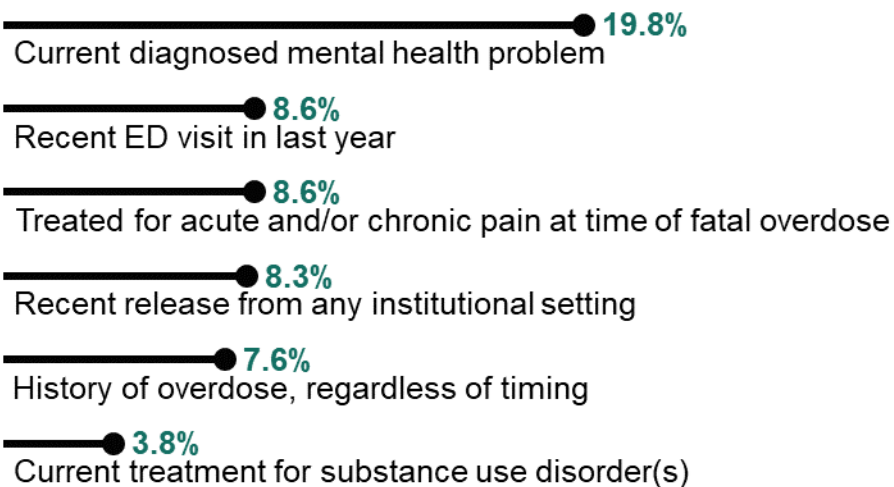
The percent of drug-related overdose deaths that had at least one documented potential opportunity for intervention varied depending on opioid and stimulant involvement.

- Among overdose deaths involving at least one opioid and no stimulants, 74% had at least one potential opportunity for intervention.
- For opioids with stimulants overdose deaths, 55.8% had at least one potential opportunity for intervention.
- For stimulants without opioids overdose deaths, 54.7% had at least one potential opportunity for intervention.
- For neither opioids nor stimulants overdose deaths, 78.5% had at least one potential opportunity for intervention.

Potential Opportunities for Intervention During Fatal Overdose



Potential Opportunities for Intervention Before Fatal Overdose



^{¶¶} A bystander is defined as an individual greater than 11 years old who was physically nearby either during or shortly preceding a drug overdose who potentially had an opportunity to intervene and respond to the overdose.

Resources

CDC Drug Overdose Prevention Strategies and Partnerships

[Center for Disease Control and Prevention - Drug Overdose Strategies and Partnerships webpage](#)

CDPH Drug Overdose Response: Partner Recommendations

[California Department of Public Health \(CDPH\) Drug Overdose Response webpage](#)

Interventions that could take place prior to an overdose/prevent an overdose

Resources to Help Those with Substance Use Disorder

[Choose Change California webpage](#)

Resources for People Who Use Drugs

[California Department of Public Health \(CDPH\) Overdose Prevention Initiative Resources for People Who Use Drugs webpage](#)

Syringe Services Programs & Harm Reduction

[California Department of Public Health \(CDPH\) Office of AIDS Syringe Services Programs & Harm Reduction webpage](#)

Resources for Healthcare Providers

[California Department of Public Health \(CDPH\) Overdose Prevention Initiative Resources for Health Care Providers webpage](#)

Resources for Adult Role Models and Schools

[California Department of Public Health \(CDPH\) Overdose Prevention Initiative Resources for Adult Role Models and Schools webpage](#)

Interventions during an overdose

Naloxone is a life-saving medication used to reverse an opioid overdose.

To learn more about Naloxone visit:

[California Department of Public Health \(CDPH\) Overdose Prevention Initiative – Naloxone webpage](#)

For additional resources and CDPH drug-related overdose data please visit:

[California Department of Public Health \(CDPH\) Overdose Prevention Initiative \(OPI\) webpage](#)

Notes on CA SUDORS data

These 2019 SUDORS data presented, represent 60.3% of all unintentional and undetermined drug-related overdose deaths in California in 2019. As such, the results presented in this data brief may not be generalizable to the entire state of California.

Data represents circumstances and evidence reported in available source documents; these are likely underestimates as death investigators might have limited information depending on the circumstances.

Data Sources

California State Unintentional Drug Overdose Reporting System (CA SUDORS), Substance and Addiction Prevention Branch, Center for Healthy Communities, California Department of Public Health (CDPH).

Vital Statistics (death certificate) data: California Comprehensive Death File (Dynamic) 2019 and 2020.

Acknowledgements

The California SUDORS program is funded by the Centers for Disease Control and Prevention (CDC) Overdose Data to Action cooperative agreement, CDC Grant Number (6 NU17CE925000).

Suggested Citation: Demeter NE, Hirschi HH, Pinsker EA. California State Unintentional Drug Overdose Reporting System: 2019 Overview Data Brief. Overdose Prevention Initiative. California Department of Public Health. July 2023.

California State Unintentional Drug Overdose Death Reporting System (SUDORS), Substance and Addiction Prevention Branch, California Department of Public Health (CDPH). [Substance and Addiction Prevention Branch webpage](http://www.cdph.ca.gov/sapb) (<http://www.cdph.ca.gov/sapb>)

Contact: opi@cdph.ca.gov