

Summary from the State Unintentional Drug Overdose Reporting System

Overdose Deaths from July to December 2019, Colorado Occurrences

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Introduction

Deaths resulting from the use and misuse of prescription and illicit drugs continue to be a public health crisis in Colorado and the United States.^{1,2} In an effort to better understand these deaths the U.S. Centers for Disease Control and Prevention fund and maintain the State Unintentional Drug Overdose Reporting System (SUDORS), through the Overdose Data-to-Action grant. SUDORS aims to bring together multiple sources of data to get a better understanding of the circumstances and risk factors associated with deaths resulting from the overdose of drugs. The Colorado Department of Public Health and Environment began collecting data for the SUDORS program in January of 2020, for deaths occurring between July and December 2019. This reports contains the data from this first six-month period, for the state of Colorado.

Methods

Data in this report comes from the State Unintentional Drug Overdose Reporting System (SUDORS), Colorado specific program. The SUDORS program collects data from death certificates and coroner/medical examiner reports, which include a variety of documents including autopsy reports, toxicology reports, and occasionally investigation summaries and scene descriptions. Inclusion of cases in the SUDORS system is based on death certificate underlying cause of death codes using the International Classification of Disease (ICD-10) schema, (X40-X44 and Y10-Y14). The data presented includes both accidental and undetermined manners of death related to drug overdose deaths, and reflect all relevant deaths occurring in Colorado, irrespective of residency, between July and December 2019.

Data in this report are presented as counts and percentages of the total cases captured by the SUDORS system. Data are presented by demographic categories, residential information, contributing circumstances, and substances that caused death. Additionally, this report includes select enhanced SUDORS data elements: Type of drug overdose, scene evidence of drug use, presence of bystanders, medical history, drug use history, and other risk factor variables and characteristics. The source of these data come from the combination of information gleaned from both the death certificate and, more comprehensively, the coroner/medical examiner investigations and toxicology results.

Results

Between July and December 2019 there were 507 drug overdose deaths in Colorado; 496 of those had a manner of accidental, and 11 had a manner of undetermined. In terms of data collection, 81.7% had available coroner/medical

examiner report information, and 100% had Death Certificate information. Table 1 contains a demographic breakdown for these 507 deaths between July and December 2019.

Demographics

Table 1. Demographics of overdose decedents, deaths between July-December 2019, Colorado occurrences.

Demographics	Overdose decedents (N)	Percent of total
Sex		
Male	331	65.3
Female	176	34.7
Age group		
10-18 years	7	1.4
19-24 years	44	8.7
25-34 years	144	28.4
35-44 years	112	22.1
45-54 years	88	17.4
55-64 years	85	16.8
65+ years	27	5.3
Race group		
White, non-Hispanic	321	63.3
White, Hispanic	116	22.9
Black/African American	43	8.5
Asian/Pacific Islander	8	1.6
American Indian/Alaskan Native	9	1.8
Unknown	10	2.0
Veteran status (ever in U.S. Armed Forces)		
Non-veteran	467	92.1
Veteran	40	7.9

Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

Residence information

Table 2 contains residence information for those who died from overdose for the reporting period. Among the 507 decedents, 30 were not residents of the state of Colorado. Looking at those Colorado residents, the largest number of deaths occurred among residents of counties that were identified as urban, based on the Colorado Rural health center. Additionally it was identified that 35 of the decedents were noted as homeless at the time of death.

Table 2. Residence of information of overdose decedents, from July to December 2019, Colorado occurrences.

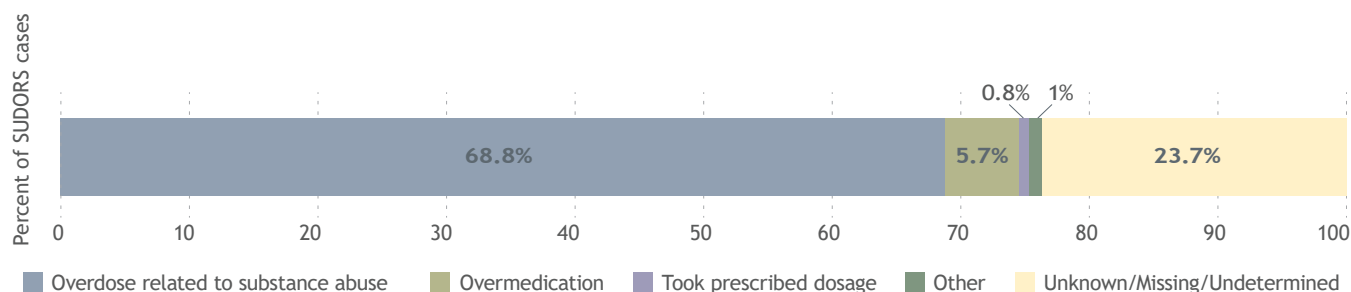
Residence information	Overdose deaths (N)	Percent of total
County of residence type		
Frontier	13	2.6
Rural	51	10.1
Urban	385	75.9
Non-Colorado resident	30	5.9
Unknown	28	5.5
Homeless status		
Not homeless	448	88.4
Homeless	35	6.9
Unknown	24	4.7

Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

Overdose death type

The SUDORS data system categorizes deaths into a type of overdose. These include: ‘Overdose related to substance use/misuse’, ‘Overmedication’, ‘Took prescribed dosage’, ‘Victim unintentionally takes a drug or wrong dosage’, ‘Other’, and ‘Unknown’. Figure 1. presents the breakdown of cases by SUDORS type of overdose, among which the most common was an overdose related to substance misuse (68.8%). The next most common type was unknown/missing/undetermined, which primarily reflects the cases where a coroner/medical examiner report was not received. Other includes all other overdose types based on small counts.

Figure 1. SUDORS deaths by type of overdose, from July to December 2019, Colorado occurrences.



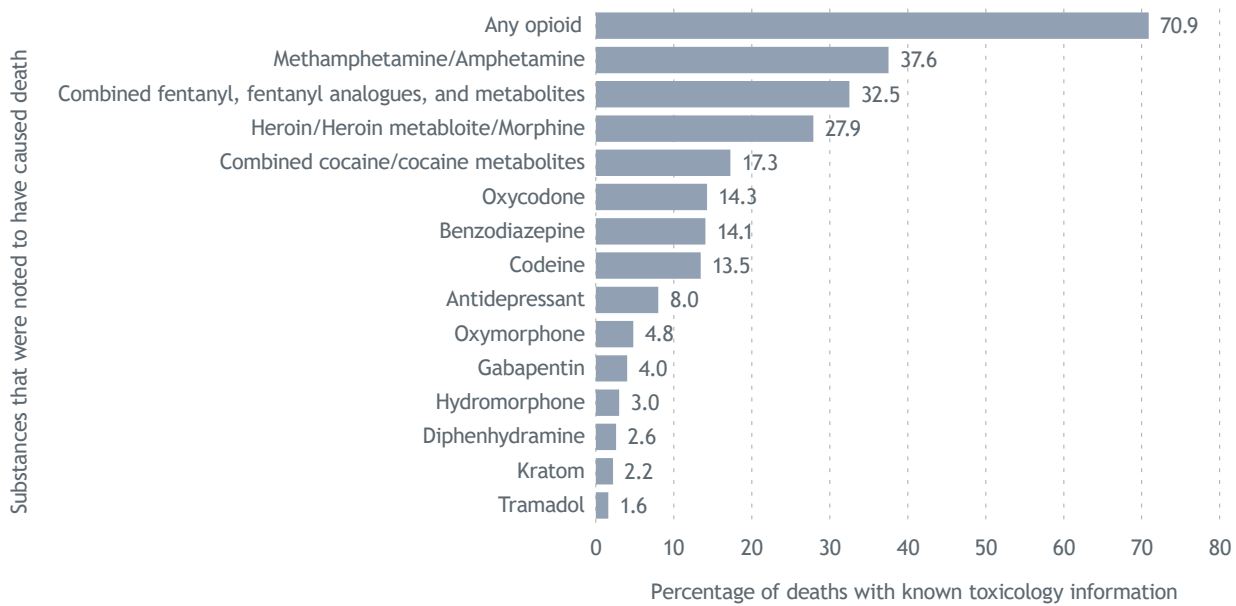
Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

Substance that cause death

Among the SUDORS deaths in this report, 98.2% had available toxicology information. In combination with the autopsy reports and the opinion of forensic pathologists, the SUDORS system is able to identify specific substances in the toxicology report that were noted as causing death, in addition to those simply noted as ‘present’. Figure 2 summarizes specific substances that were noted to cause death. Deaths may be attributed to multiple substances, and therefore these categories are not mutually exclusive. The figure represents the percentage of decedents by substances that were attributed to the cause of death (COD), and percentages are calculated from cases where some toxicology information was received. Of these, 353 or 70.9% of deaths were attributed to an opioid of some kind, which includes the other specific opioids noted in the figure

(fentanyl, heroin, morphine, oxycodone, tramadol, oxymorphone, hydromorphone). As seen in the figure, the next most common overdose substance was methamphetamine and amphetamine (37.6%).

Figure 2. Overdose deaths by select substances identified as cause of death (COD) alone or in combination with other substances, from July to December 2019, Colorado occurrences.



Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

* Deaths for which more than one substance attributed to the cause of death will be counted in each relevant category; sums across categories may then be greater than the total.

Scene evidence of drug use

Data from the coroner/medical examiner reports often describe scene evidence of drug use and route of administration. Among SUDORS cases 296 decedents had reported evidence of drug use either from the scene or the investigation. Among those, 167 had evidence of prescription drugs on scene, and 132 had evidence of illicit drugs on scene. When looking at evidence of route of administration, ingestion and injection were the most common route used to administer the drugs. It is important to note that these categories are not mutually exclusive in that multiple forms of evidence can be present.

Table 3. Overdose deaths by scene evidence of drug use, from July to December 2019, Colorado occurrences.

Scene evidence of drug use	N	Percent of deaths with scene evidence of drug use
Any evidence of drug use	296	58.38
Prescription drugs	167	56.42
Illicit drugs	132	44.59
Ingestion	111	37.5
Injection	99	33.45
Smoking	60	20.27
Rapid overdose	58	19.59
Snorting/sniffing	50	16.89
Transdermal	4	1.35

Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

Bystander present

In addition to scene evidence, coroner/medical examiner reports also often describe whether there were bystander's present. The CDC defines a bystander as "an individual who was physically nearby either during or shortly preceding a drug overdose who potentially had an opportunity to intervene and respond to the overdose." First responders are not considered bystanders and young children (under 10) are also not counted here. Of the deaths examined 214 had at least one bystander present, with variation between how many were present.

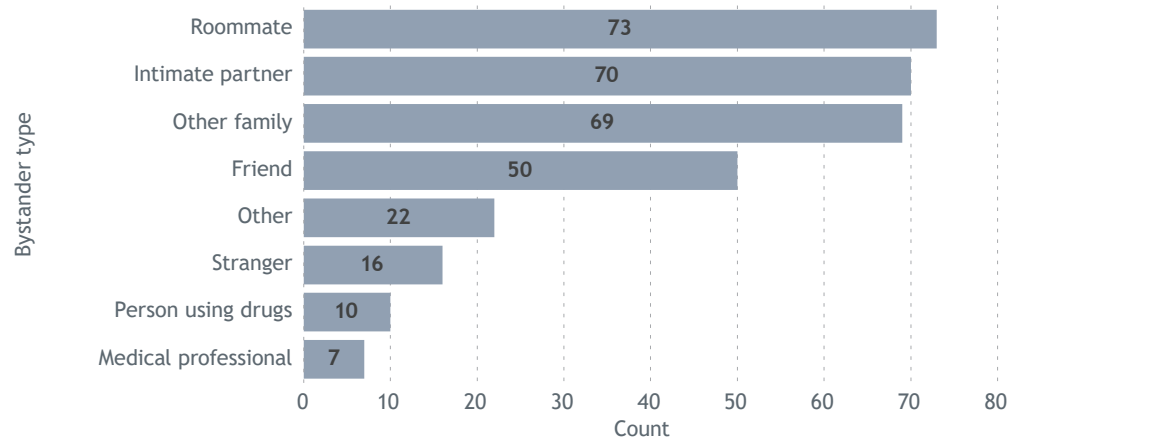
Table 4. Overdose deaths by a bystander present, from July to December 2019, Colorado occurrences.

Bystanders present	N
One bystander present	101
Multiple bystanders present	72
Bystanders present unknown number	41
No bystanders present	129
Unknown/Missing	164

Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

Among those 214 cases where bystanders were noted as present, there are further details about the type of bystander. The most common bystander types were roommate, intimate partner, and family member. When looking at data around whether the drug use was actually witnessed, only in 34 of the deaths was it reported that the drug use was actually witnessed. In 254 cases, it was noted that the drug use was not witnessed, however for 214 cases, this information was unknown.

Figure 3. Type of bystander present, overdose deaths, from July to December 2019, Colorado occurrences.



Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

Additional overdose specifics

There are additional points reported about the events surrounding the overdose. The vast majority of overdose deaths occurred at a residence of some type (384, 75.7%), and 309 (60.9%) were at the decedent's own home. It was reported that for 356 (70.2%) of these deaths EMS (emergency medical services) were noted as present at the scene. To that end, the SUDORS system also looks for the administration of naloxone (i.e. Narcan, Evzio trademarked names), a drug that reverses the effects of an opioid overdose. The data show that 57 (11.2%) of the decedents had received naloxone in some form.

Medical history/treatment

Unique to the SUDORS data collection system is the compilation of data around medical history of the decedents. Among the cases looked at, 54.7% had medical history reported on the coroner/medical examiner report. The most common medical issues were heart disease, chronic pain, and obesity. In terms of treatment, 83 (16.4%) of these decedents were noted as being treated for either chronic or acute pain at the time of injury. Additionally 94 (18.6%) of these decedents had visited an emergency department (ED) within the last year and 47 (9.3%) had visited an ED in the last month before death, (full ED and pain treatment data not shown).

Table 5. Overdose deaths by medical history, from July to December 2019, Colorado occurrences.

Medical history (if noted)	N	Percent of deaths with noted medical history
Any medical history noted	261	54.7
Heart disease	134	51.3
Chronic pain (includes back pain and other)	125	47.9
Obesity	77	29.5
History of major injury	43	16.5
Asthma	32	12.3
Other breathing problem	30	11.5
COPD	29	11.1
Hepatitis C	24	9.2
Migraine	21	8.1
Sleep apnea	14	5.4

Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment

Circumstances

The SUDORS system also captures contributing circumstance data (table 6). Of these deaths 76.5% has some circumstance reported in the CME report. Among those, 82.0% of decedents had a noted substance misuse problem other than alcohol. Of those, 173 (44.5%) had a noted history of misusing prescription or illicit opioids specifically. The data also presented here looks at mental health diagnoses and treatment. Overall 36.9% had a diagnosed mental health condition, and 26.6% had ever been treated for a mental health or substance misuse disorder. Again further drilling down into that, 24 (6.2%) of the deaths had current treatment for a substance use disorder, and 37 (9.5%) were not currently being treated for a substance misuse disorder but received treatment at some point.

Table 6. Overdose deaths by circumstances, from July to December 2019, Colorado occurrences.

Circumstances	N	Percent of overdoses with known circumstance
Deaths with 1+ known circumstance	388	76.5
Substance misuse problem (other than alcohol)	318	82.0
Problem with alcohol	135	34.8
Current diagnosed mental health problem	143	36.9
Diagnosis of depression	77	19.9
Diagnosis of anxiety	64	16.5
Diagnosis of bipolar disorder	36	9.3
Other mental health diagnosis	29	7.5

Circumstances	N	Percent of overdoses with known circumstance
Ever treated for mental health problem	103	26.6
Current mental health treatment	48	12.4
Current depressed mood	30	7.7
Intimate partner problem	21	5.4
Family relationship problem	21	5.4

Source: State Unintentional Drug Overdose Reporting System (SUDORS), Colorado Department of Public Health and Environment.

Conclusion

The data in this report represent newly-available information about unintentional overdoses and those of undetermined intent, collected through the State Unintentional Drug Overdose Reporting System for Colorado (SUDORS). The aim of presenting these data is to support prevention programs and policies, as well as contribute to the body of knowledge around overdose deaths and identifying potential opportunities to prevent them. The Colorado SUDORS program aims to continue to collect, disseminate and share data around overdose deaths in the state.

Acknowledgments

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1. Drug Overdose Deaths in the United States, 1999-2018, NCHS Data Brief No. 356, January 2020, <https://www.cdc.gov/nchs/products/databriefs/db356.htm>
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