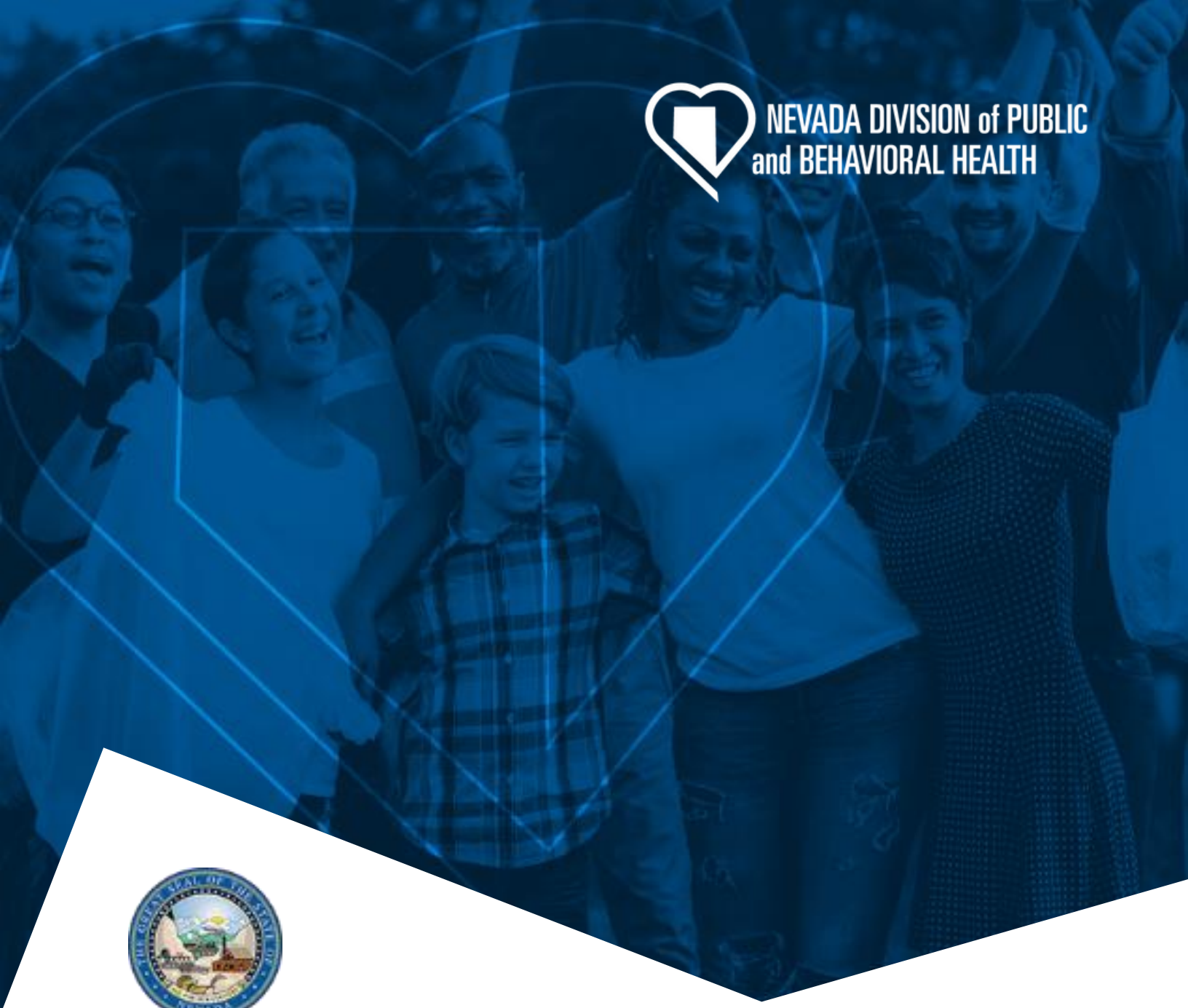


NEVADA DIVISION of PUBLIC and BEHAVIORAL HEALTH

NEVADA STATE UNINTENTIONAL DRUG OVERDOSE REPORTING SYSTEM (SUDORS): A COMPARISON OF CHARACTERISTICS OF OVERDOSE FATALITIES BASED ON NALOXONE ADMINISTRATION

Division of Public and Behavioral Health
State of Nevada Department of Human Services

Reported developed by:
Larson Institute for Health Impact and Equity
School of Public Health, University of Nevada, Reno

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TABLE OF CONTENTS

About The Division Of Public And Behavioral Health.....2
About The Larson Institute.....2
Funding Acknowledgement.....2
Introduction.....3
Comparison of Characteristics of Overdose Deaths, by Naloxone Administration.....4
Implications.....13

About The Division Of Public And Behavioral Health

The Division of Public and Behavioral Health (DPBH) is one of five divisions within the Department of Health and Human Services, which falls within the Executive Branch of the State of Nevada. It is the primary provider of public health services in many rural areas of the state and provides certain public health services statewide, though the majority of public health services in urban areas are provided by local health authorities. The Division also provides a wide range of behavioral health services through civil and forensic inpatient psychiatric hospitals in northern and southern Nevada, rural outpatient clinics and programs, and other critical facilities.

About The Larson Institute

This publication was prepared by the Larson Institute for Health Impact. The Larson Institute, housed within the University of Nevada, Reno School of Public Health, translates academic research into actionable community practices that improve public health outcomes. Through community engagement and workforce development, we build public health capacity, support state systems and mobilize community partners to advance community health and well-being. Learn more by visiting us at larsoninstitute.org. For questions about this report, please contact the Larson Institute's Data Analytics Manager, Taylor Lensch, at tlensch@unr.edu.

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Introduction

Overview

The Centers for Disease Control and Prevention (CDC) Overdose Data to Action (OD2A) is a program that supports state, territorial, county, and city health departments in obtaining more comprehensive and timelier data on overdose morbidity and mortality. The program is meant to enhance opioid overdose surveillance, reporting, and dissemination efforts to better inform prevention and early intervention strategies.

Purpose

The information contained in this special report highlights overdose mortality within the State of Nevada utilizing the State Unintentional Drug Overdose Reporting System (SUDORS) for the period January 1, 2019 to December 31, 2023. Analyses specifically compare fatalities based on whether naloxone was administered prior to fatality to assess differences in overdose characteristics and outcomes. By examining potential differences in overdose patterns, substances involved, and contextual factors between these two groups, this report aims to better understand cross-jurisdictional overdose dynamics and identify implications for prevention, surveillance, and response efforts within Nevada.

Data Characteristics

Data Source: SUDORS uses death certificates and coroner/medical examiner reports (including post-mortem toxicology testing results) to capture detailed information on toxicology, death scene investigations, route of drug administration, and other risk factors that may be associated with a fatal overdose. Case Definitions: A death that occurred in Nevada where the decedent's place of residence was Nevada and was assigned any of the following ICD-10 underlying cause-of-death codes on the death certificate: X40–X44 (unintentional drug poisoning) or Y10–Y14 (drug poisoning of undetermined intent); or a death classified as a drug overdose death by the Medical Examiner/Coroner. Limitations: Data is delayed due to the time required to abstract data from multiple sources. Data completeness is dependent on information documented at time of death and therefore leads to large amounts of missing data.

Acknowledgements

We would like to acknowledge the abstraction team at the Clark County Office of the Coroner/Medical Examiner and the Washoe County Regional Medical Examiner's Office for compiling the data used in this report.

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This publication was supported by the Nevada State Department of Health and Human Services through the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Department nor the Centers for Disease Control and Prevention.

Questions or comments? Please contact Nevada OD2A's Epidemiologist, Taylor Lensch, PhD, MPH, at tlensch@unr.edu.

Comparison of Characteristics of Overdose Deaths, by Naloxone Administration

Summary

There were 4,631 drug overdose deaths of unintentional or undetermined intent from January 2019 to December 2023 in the state of Nevada. Figures 1 through 4 highlight several demographic differences among overdose deaths in Nevada based on whether naloxone was administered prior to death. Decedents who received naloxone were generally younger than those who did not. Adults aged 25–34 years represented 30.1% of deaths involving naloxone administration compared with 17.3% of deaths without naloxone administration, while adults aged 35–44 years accounted for 26.5% and 20.9%, respectively. In contrast, adults aged 55–64 years and 65 years or older represented larger proportions of deaths without naloxone administration. Females also represented a somewhat larger proportion of deaths involving naloxone administration (33.8% vs. 27.5%). Educational attainment was similar between groups. Racial and ethnic distributions were also generally similar, although Hispanic individuals represented a larger proportion of deaths involving naloxone administration (20.8% vs. 16.5%), while non-Hispanic White individuals represented a larger proportion of deaths without naloxone administration (64.3% vs. 59.1%).

Figure 5 demonstrates notable differences in substances involved. Opioids were substantially more common among deaths in which naloxone was administered, with any opioid involved in 79.0% of these deaths compared with 57.1% of deaths without naloxone administration. Illicit opioids (67.0% vs. 45.0%), fentanyl (52.8% vs. 35.2%), heroin (16.7% vs. 10.3%), and prescription opioids (18.3% vs. 16.0%) were all more common among deaths involving naloxone administration. Benzodiazepines were also more frequently involved (17.4% vs. 12.7%). In contrast, methamphetamine was more common among deaths without naloxone administration (58.5% vs. 49.3%). Suspected routes of administration were generally similar between groups, although injection was more commonly documented among deaths involving naloxone administration (17.0% vs. 12.5%).

Figure 7 highlights important differences in the circumstances surrounding fatal overdoses. A bystander was more frequently documented among deaths involving naloxone administration, and witnessed drug use was substantially more common (31.2% vs. 11.2%). Decedents who received naloxone were also more likely to have a documented prior overdose (14.5% vs. 7.9%), history of substance use treatment (12.1% vs. 7.0%), or recent relapse (7.6% vs. 4.8%). In contrast, experiencing homelessness was more common among deaths without naloxone administration (16.9% vs. 11.6%). The proportion of deaths occurring in a household setting, as well as documented mental health problems and chronic pain treatment, was relatively similar between groups. These findings suggest that naloxone administration during fatal overdose events is closely associated with the circumstances surrounding the overdose, particularly whether another person is present and able to recognize and respond to the event.

Figure 1. Age distribution of overdose deaths in Nevada by naloxone administration, 2019-2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)

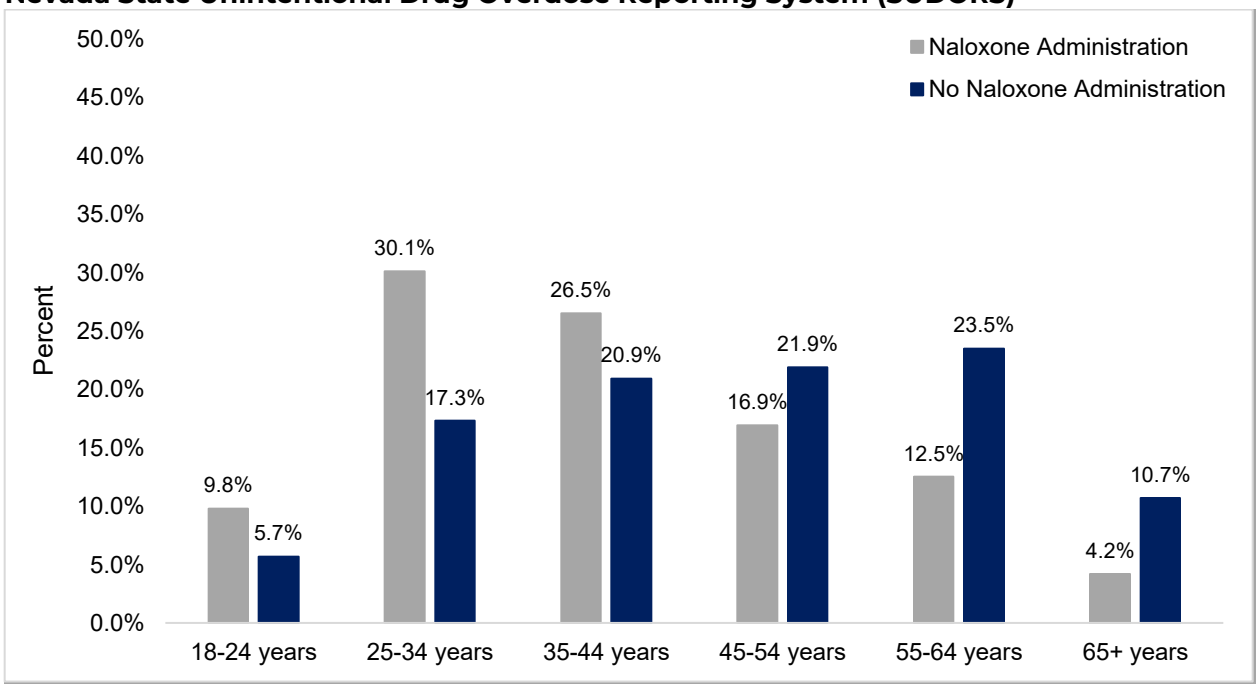


Figure 2. Sex distribution of overdose deaths in Nevada by naloxone administration, 2019-2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)

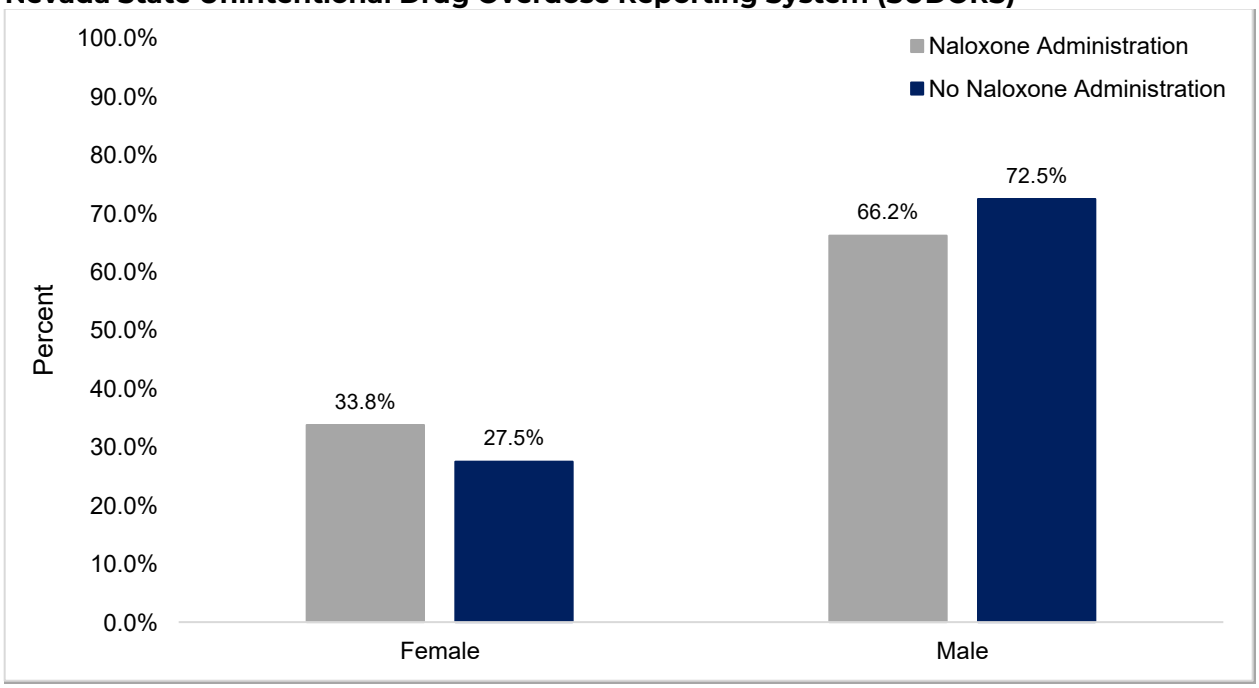


Figure 3. Education distribution of overdose deaths in Nevada by naloxone administration, 2019-2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)

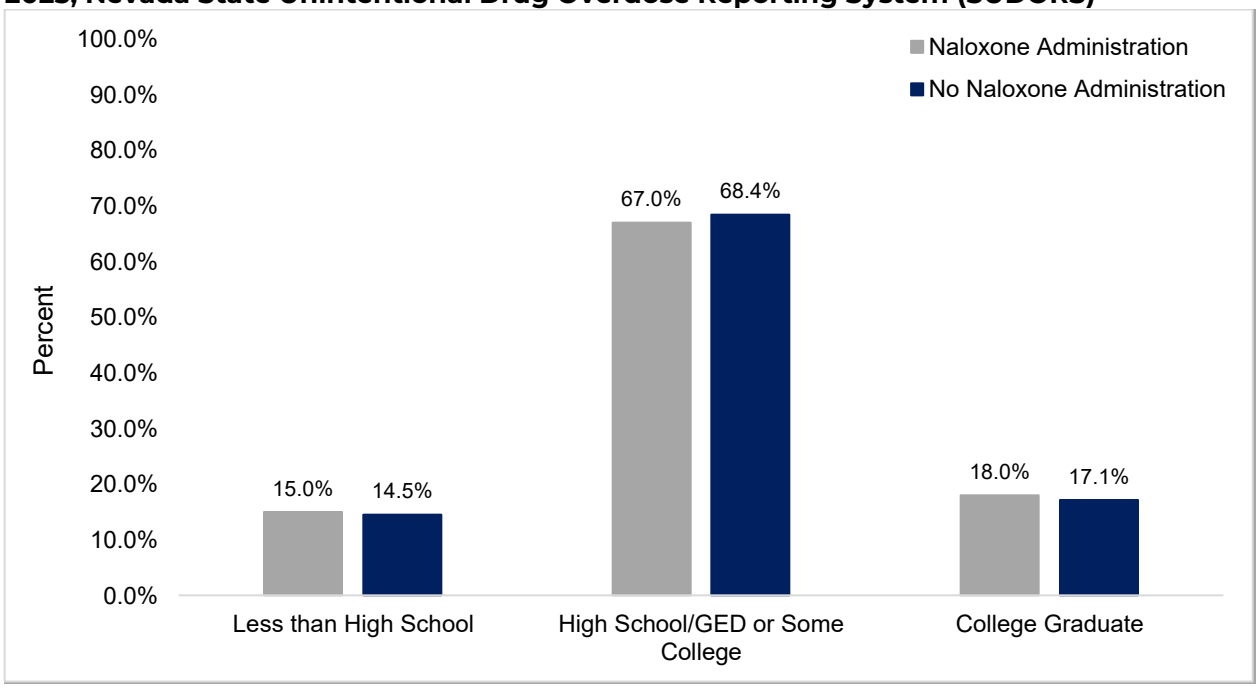


Figure 4. Race/ethnicity distribution of overdose deaths in Nevada by naloxone administration, 2019-2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)

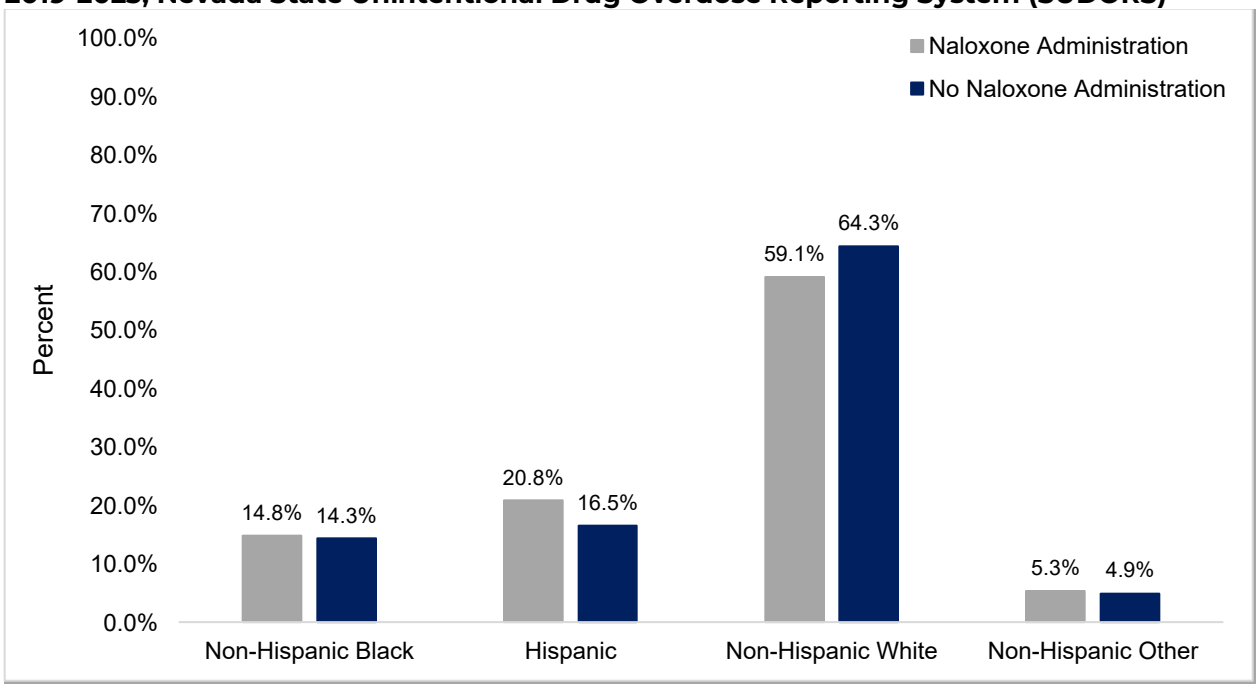
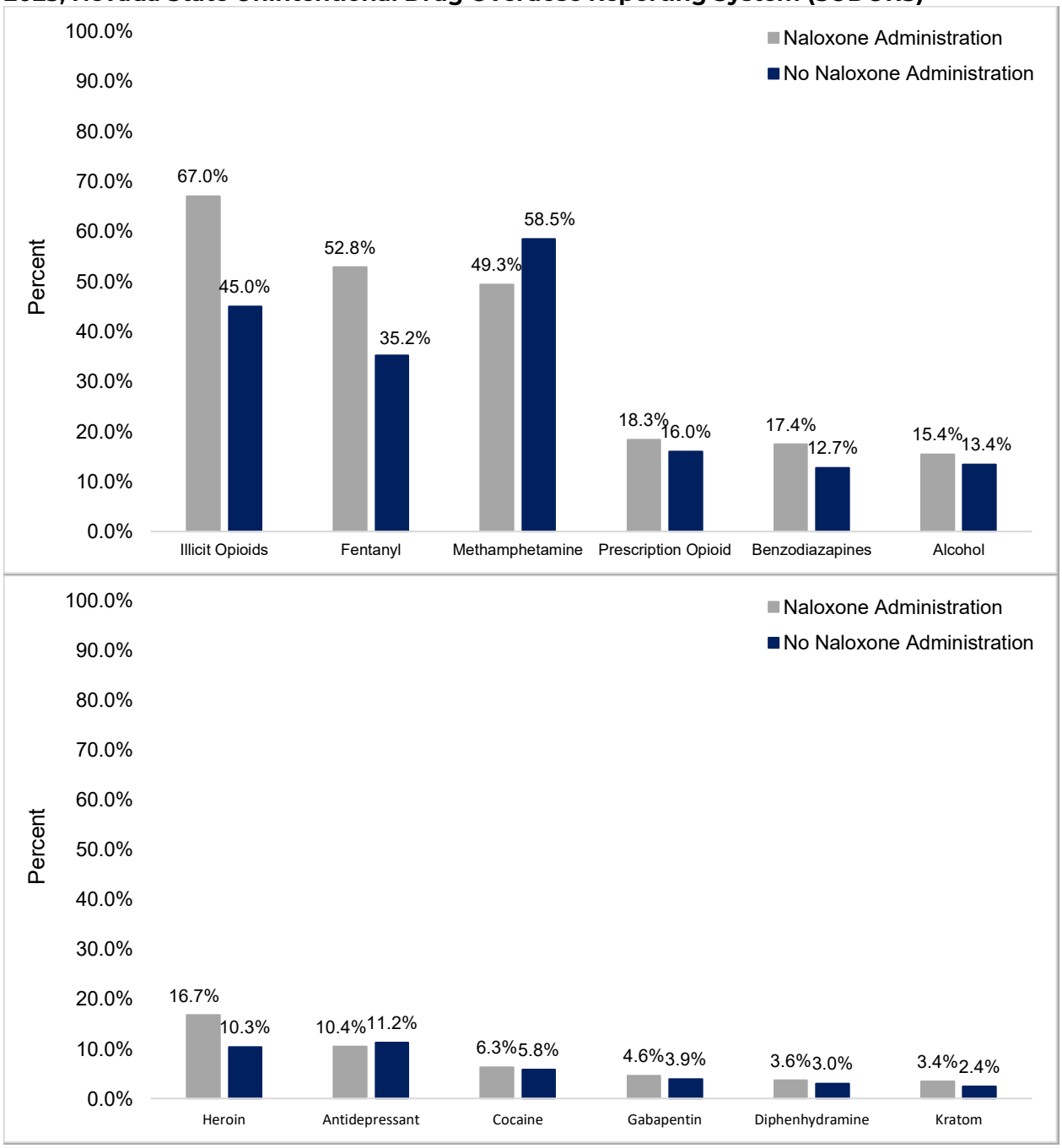
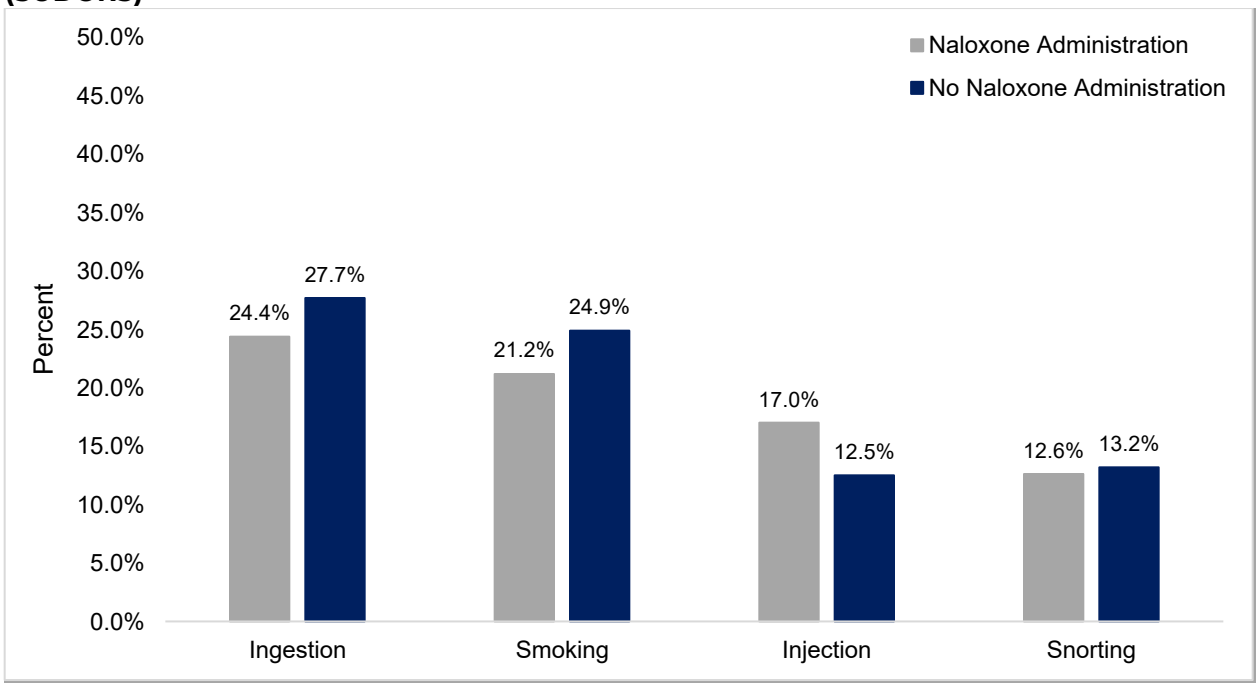


Figure 5. Substances involved in overdose deaths in Nevada by naloxone administration, 2019-2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)



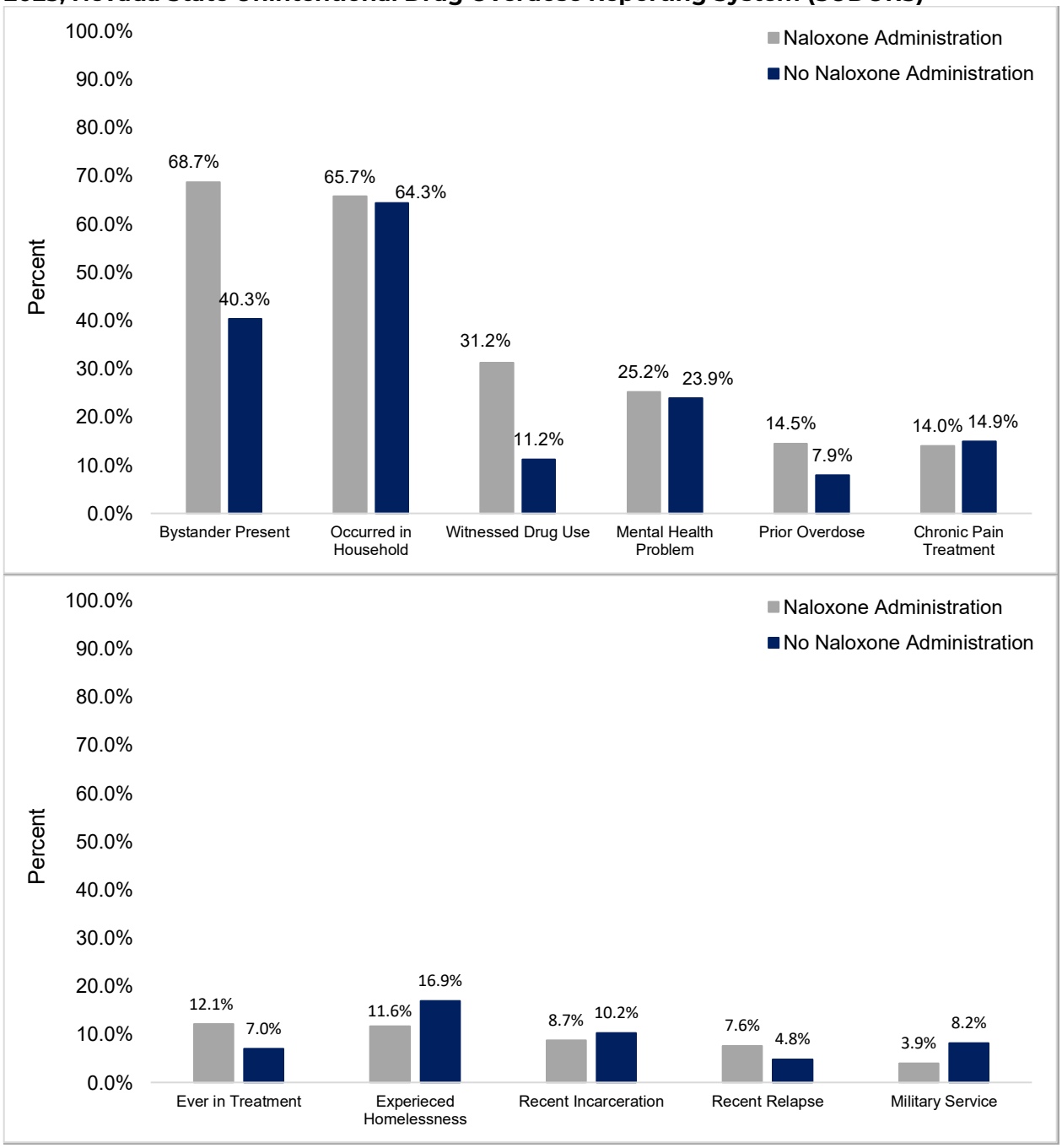
Note: Based on toxicology results for substances ruled by the Coroner/Medical Examiner as causing death. Substances are not mutually exclusive. Illicit opioid is defined as any opioid that is not medically used or prescribed.

Figure 6. Route of substance administration of overdose deaths in Nevada by naloxone administration, 2019-2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)



Note: Suspected route of administration information is based on information documented during the death scene investigation, and due to limited information on the scene in some investigations, may underestimate the occurrence.

Figure 7. Circumstances involved in overdose deaths in Nevada by naloxone administration, 2019-2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)



Note: Based on information documented during the death scene investigation, and due to limited information on scene in some investigations, these results may underestimate their occurrence. Percentages use the denominator of those who had known circumstances.

Table 1. Demographic characteristics by naloxone administration, 2019–2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)

Characteristic	Naloxone Administration N	Naloxone Administration %	No Naloxone Administration N	No Naloxone Administration %
Age				
----------	------	------	------	------
18-24 Years	96	9.8%	209	5.7%
25-34 Years	295	30.1%	636	17.3%
35-44 Years	260	26.5%	772	20.9%
45-54 Years	166	16.9%	807	21.9%
55-64 Years	123	12.5%	865	23.5%
65+ Years	41	4.2%	396	10.7%
Sex				
----------	------	------	------	------
Female	337	33.8%	1019	27.5%
Male	659	66.2%	2689	72.5%
Education				
----------	------	------	------	------
College Graduate	140	15.0%	492	14.5%
HS/GED or Some College	626	67.0%	2312	68.4%
Less than HS	168	18.0%	578	17.1%
Race				
----------	------	------	------	------
Black, NH	147	14.8%	531	14.3%
Hispanic	207	20.8%	611	16.5%
Other*, NH	53	5.3%	182	4.9%
White, NH	589	59.1%	2384	64.3%

Note: Missing data excluded from percentage calculations.

* Other race includes Asian, Pacific Islander, Native American, Alaskan Native, those identifying as other race, or unknown race. NH=Non-Hispanic

Table 2. Substances involved and suspected routes of administration among overdose decedents by naloxone administration, 2019–2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)

Characteristic	Naloxone Administration N	Naloxone Administration %	No Naloxone Administration N	No Naloxone Administration %
Opioids Involved (Cause of Death)				
---	---	---	---	---
Any opioids	787	79.0%	2119	57.1%
Fentanyl	526	52.8%	1305	35.2%
Rx opioids	182	18.3%	595	16.0%
Heroin	166	16.7%	383	10.3%
Illicit opioids	667	67.0%	1668	45.0%
Stimulants Involved (Cause of Death)				
---	---	---	---	---
Methamphetamine	491	49.3%	2169	58.5%
Cocaine	104	10.4%	417	11.2%
Other Substances Involved (Cause of Death)				
---	---	---	---	---
Benzodiazepines	173	17.4%	472	12.7%
Alcohol	153	15.4%	496	13.4%
Antidepressants	63	6.3%	215	5.8%
Diphenhydramine	36	3.6%	111	3.0%
Gabapentin	46	4.6%	144	3.9%
Kratom	34	3.4%	90	2.4%
Suspected Routes of Administration				
---	---	---	---	---
Smoking	211	21.2%	922	24.9%
Ingestion	243	24.4%	1027	27.7%
Injection	169	17.0%	463	12.5%
Snorting	125	12.6%	488	13.2%

Note: Substances are not mutually exclusive, and decedents may have had multiple substances listed as the cause of death, so individual counts may have exceeded the total and percentages may exceed 100%. Route of administration based on death investigation reports.

Table 3. Circumstances documented among overdose decedents by naloxone administration, 2019–2023, Nevada State Unintentional Drug Overdose Reporting System (SUDORS)

Characteristic	Naloxone Administration N	Naloxone Administration %	No Naloxone Administration N	No Naloxone Administration %
Circumstances				
---	---	---	---	---
Occurred in Household	650	65.7%	2359	64.3%
Bystander Present	684	68.7%	1465	40.3%
Mental Health Problem	251	25.2%	888	23.9%
Chronic Pain Treatment	139	14.0%	540	14.9%
Prior Overdose	144	14.5%	287	7.9%
Experiencing Homelessness	104	11.6%	560	16.9%
Witnessed Drug Use	180	31.2%	240	11.2%
Recent Incarceration	86	8.7%	370	10.2%
Ever in Treatment	120	12.1%	256	7.0%
Military Service	37	3.9%	286	8.2%
Recent Relapse	76	7.6%	175	4.8%

Note: Circumstances prior to death were not available for all cases and missing data were excluded. These findings likely underestimate the true proportion of case characteristics.

Implications

Naloxone administration among overdose fatalities in Nevada was strongly associated with opioid involvement. Nearly four in five deaths involving naloxone administration involved an opioid, and illicit opioids and fentanyl were particularly prominent. This pattern is consistent with naloxone's role as an opioid overdose reversal medication and underscores the importance of maintaining widespread access to naloxone among people who use opioids, their family members and friends, and others who may be present during an overdose. At the same time, nearly half of deaths involving naloxone administration also involved methamphetamine, reinforcing the importance of overdose education that addresses polysubstance use and the potential presence of opioids, including fentanyl, within an increasingly complex drug supply.

The circumstances surrounding these deaths highlight the importance of bystander response. Naloxone administration was considerably more common in situations in which a bystander was present or drug use was witnessed. Decedents who received naloxone were also more likely to have experienced a prior overdose or to have a documented history of substance use treatment or recent relapse, representing potential opportunities for naloxone distribution, overdose education, and other harm reduction interventions. Conversely, homelessness was more frequently documented among deaths without naloxone administration, suggesting that some populations may face additional barriers to timely overdose recognition and response.

Overall Implication

These findings reinforce that access to naloxone alone is only one component of effective overdose response. The ability of another person to recognize an overdose, have naloxone immediately available, administer it promptly, and activate emergency medical services is also critical. Continued efforts to expand naloxone distribution should therefore be paired with overdose recognition and response education, particularly for people who use opioids and stimulants, individuals with a previous overdose, people recently engaged in treatment or experiencing relapse, and their social networks. Outreach strategies should also consider individuals who may use drugs alone or experience housing instability, where opportunities for bystander intervention may be more limited. Because this analysis is limited to fatal overdose events, differences between the two groups should not be interpreted as evidence about the effectiveness of naloxone in preventing death.