



ARIZONA DEPARTMENT
OF HEALTH SERVICES

Opioid Overdoses Surveillance Report, Arizona, 2020-2021

Prepared by:

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Intended Audience

This is a technical report on the analysis of the prevalence and causes of opioid overdoses in Arizona. This report is aimed primarily at those actively involved in the prevention, intervention, and interdiction of substance use disorders, including healthcare providers, community service providers, researchers, policymakers, law enforcement, and other stakeholders. While publicly available, the intended audience of this report is not the general public, and extra care in the use or interpretation of this report should be taken by those with limited background or subject-matter expertise in the areas of substance use disorders.

How to Use This Report

This report describes the prevalence of opioid overdoses in Arizona, as well as a variety of risk- and associated-factors contributing to these events among persons in Arizona. The key findings presented in this report should assist in the identification of future targets for intervention and guide effective and evidence-based efforts towards the reduction of substance use disorder outcomes.

Disclaimer

Use of Term: Opioid Overdose

The use and definition of the term “opioid overdose” in this report may differ than use by other organizations, and is largely dependent on the data source from which it is derived. All definitions are described in the **Methods Section**.

Previous ADHS Reports on Opioid Overdoses

The findings in this report related to opioid overdoses were derived from methods established (2021) by the Business Intelligence Office during the revision of the [ADHS Opioid Dashboard](#), including institution of increase data quality standards for all data sources. These methods differ somewhat from the methods used to review and report on opioid overdoses from 2017-2019. For this reason, findings may not be comparable to previous ADHS reports on opioid overdoses.

Arizona Health Status and Vital Statistics Annual Report

The ADHS publishes the [Arizona Health Status and Vital Statistics Annual Report](#), which includes drug overdose outcomes. Data in this report differs from the annual reports as data is limited to opioid-related overdoses. Population level data for deaths of all Arizona residents can be found in the Arizona Health Status and Vital Statistics Annual Report. In order to produce the timeliest availability of reported data, provisional fatal opioid data (i.e., death certificates) and population denominators were used.

Arizona Department of Health Services aspires to present data humbly, recognizing numbers never tell the whole story. We strive to work with individuals and communities to learn and share their stories to improve collective understanding. Knowing that people across life circumstances have inequitable opportunities to achieve optimal health, we commit to pair numbers and stories to inform policy and systems change to improve health for all.

Executive Summary

Prescription and illicit opioids, like fentanyl, are addictive and responsible for an increasing number of deaths in Arizona.¹ This rise reflects a growing problem across the nation and overdose deaths are the leading cause of preventable injury death.^{2, 3} In 2020-2021, there were 3,888 opioid overdose deaths among Arizona residents. The leading manner of death was an accident (93% of all opioid overdose deaths). The leading cause was prescription and synthetic opioids (94.5%). The mortality rate for opioid overdose deaths was highest among males (39 per 100,000 persons), Black or African American (38 per 100,000 persons), and persons 25-34 years old (59 per 100,000 residents) or 35-44 years old (49 per 100,000 persons). The overall trend of opioid overdose deaths increased significantly from 2017-2020, but was stable (not significantly increasing or decreasing) from 2020-2021.

Other opioid-related events are reported via three mechanisms, with varying degrees of specificity. From most to least specific, there were 7,448 reportable non-fatal opioid overdose events (MEDSIS), 18,203 suspected emergency department (ED) or inpatient visits (syndromic surveillance), and 104,450 hospitalization or ED visits with any mention of opioids (hospital discharge records) in 2020-2021. Non-fatal opioid-related overdoses most commonly occurred among males (65%), White (58%) and Hispanic (28%) persons, and persons ages 18-44 (68%). The rate of non-fatal opioid-related overdoses were highest among males (67 per 100,000), American Indian or Alaska Native (35 per 100,000) and African American or Black persons (33 per 100,000), and persons ages 18-44 (289 per 100,000). The overall trend of non-fatal opioid overdoses was stable (not significantly increasing or decreasing) during 2020-2021.

The number of opioid prescriptions, pills, and average morphine milligram equivalents (MME) dispensed in Arizona decreased during 2020-2021 compared to previous years.

There were 17,484 Emergency Medical Services (EMS)/Law Enforcement responses reported for suspected opioid overdoses. EMS/Law Enforcement response for suspected opioid overdoses occurred most commonly for males (66%), White (55%) and Hispanic (25%) persons, and persons ages 18-44 years old (62%). Naloxone was administered for 15,012 EMS/Law Enforcement responses for suspected opioid overdoses (>80% of all responses). Naloxone was administered most commonly by EMS (75%), Law Enforcement (19%), or a bystander (5%). Naloxone dispensed by pharmacies has continued to significantly increase during 2020-2021 compared to previous years.

Hospitalizations with any mention of opioids resulted in approximately \$2.2 billion in total charges annually in 2020-2021.

¹ Arizona Department of Health Services, Bureau of Public Health Statistics. (2020). Opioid Interactive Dashboard. Accessed August 23, 2021. <https://www.azdhs.gov/prevention/womens-childrens-health/injury-prevention/opioid-prevention/opioids/index.php#dashboard>

² Centers for Disease Control & Prevention, Opioid Data Analysis and Resources. Trends in Death Rates Involving Opioids (2020). Accessed July 28, 2021. <https://www.cdc.gov/drugoverdose/data/analysis.html>

³ Woolf, S.H., Schoomaker, H. (2019). Life Expectancy and Mortality Rates in the United States, 1959-2017. JAMA. 322(20): 1996-2016. doi:10.1001/jama.2019.16932

The most current statistics for opioid-related overdoses can be viewed on the ADHS Opioids Dashboard.
<https://www.azdhs.gov/opioid/index.php#dashboards-nonfatal-overdoses>

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Introduction

In 2020, in the United States there were an estimated 91,799 drug overdose deaths. The age-adjusted rate of overdose deaths increased by 31% from 2019 (21.6 per 100,000) to 2020 (28.3 per 100,000).⁴ Age-adjusting the rates ensures that differences in deaths from one year to the next are not due to differences in the age distribution of the populations being compared. Opioids, mainly synthetic opioids (other than methadone), are currently the largest driver of drug overdose deaths (82.3% of all drug overdose deaths). Opioids were involved in 68,630 overdose deaths in 2020 (74.8% of all drug overdose deaths).⁴

In Arizona the number and age-adjusted rate of drug overdose deaths increased from 2018 [1,766 (25.0 per 100,000)] to 2019 [2,000 (39.8 per 100,000)].⁵ Rates of overdose deaths in 2019 varied by county (Figure 1).⁶ Relative to other states, Arizona ranked 17th highest in 2019 for the rate of drug overdose deaths.⁷ The current report provides an update on current trends of opioid-related overdoses from 2020-2021.

The most current statistics for opioid-related overdoses can be viewed on the [ADHS Opioids Dashboard](#). The data presented in this report may differ slightly, even for comparable years, as this is a snapshot of the data and the dashboard will continue to be updated.

Methods

All methodology for reporting of opioid overdoses vary based on reporting requirements for each data source type. It is unclear to what extent (during 2020) the spread of SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19), may have impacted the trends of fatal and non-fatal opioid-related overdoses.

⁴ <https://www.cdc.gov/opioids/data/index.html>

⁵ Arizona Department of Health Services, Bureau of Public Health Statistics (2020). Health Status and Vital Statistics Annual Reports (2018-2019). <https://pub.azdhs.gov/health-stats/report/ahs/>

⁶ Sum rounded to nearest tens unit (due to addend of county count less than 10).

⁷ <https://www.cdc.gov/drugoverdose/deaths/2019.html>

Definitions

Opioids

Opioids are a class of drugs that include the illegal drug heroin, synthetic opioids such as fentanyl, and pain relievers available legally by prescription, such as oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, morphine, and many others.⁸

Opioid Deaths

Opioid death events in Arizona are based upon final determination of cause of death as reported on the official certificate of death. The underlying cause code used in opioid overdose deaths may not always be specific to opioids, in which case the contributing cause(s) are also referenced. For example, drug overdose deaths caused by acute poisonings as the underlying cause of death that involve any opioid as a contributing cause of death, regardless of intent (e.g., unintentional, suicide, assault, or undetermined) or type of drug are considered opioid deaths. The list of ICD-10 codes used to identify opioid deaths can be found [here](#).

Non-Fatal Opioid Overdose

Suspected opioid overdoses with confirmed or probable case classifications. To meet the case classification, various criteria are taken into consideration in addition to the toxicology report.

Suspected Drug Overdose Categories for Syndromic Surveillance

Standardized syndrome definitions, developed by the Centers for Disease Control and Prevention (CDC), are used for suspected all drug, all opioid, heroin, and stimulant overdoses. More information can be found [here](#).

Syndromic Surveillance

Syndromic surveillance provides public health officials with a timely system for detecting, understanding, and monitoring health events. By tracking symptoms and diagnosis information of patients (syndromes) in participating emergency and inpatient departments, public health can detect unusual levels of illness to determine whether a response is warranted. Visits are classified by the type of facility the person visited (i.e., ED or inpatient hospitalization).

⁸ <https://www.cdc.gov/opioids/data/index.html>

Data Sources

Hospital Discharge Data

ADHS [collects](#) hospital discharge records for ED and hospitalizations from all Arizona licensed hospitals. This collection is required by Arizona Revised Statute (A.R.S.) § 36-125-05, and Arizona Administrative Code Title 9, Chapter 11, Articles 4 and 5. Hospital discharge data included both fatal and non-fatal encounters. Data were submitted by 144 facilities in Arizona (as of December, 2020). Submission of hospital discharge records for federal (e.g., military) and tribal facilities is voluntary. The list of ICD-10 codes used to identify opioid deaths can be found [here](#).

MEDSIS

[Medical Electronic Disease Surveillance Intelligence System](#) (MEDSIS) is used by healthcare professionals, healthcare institutions, correctional facilities, and medical examiners to report suspected opioid overdose events. Only non-fatal opioid overdose related events with confirmed or probable [case classification](#) are included.

Death Certificates

Information on opioid deaths (see definition above) is compiled from the original documents filed with the Arizona Department of Health Services Vital Statistics and from transcripts of original death certificates filed in other states but affecting Arizona residents. Death certificate data used for this report was *provisional* at the time of report development (i.e., death data was not finalized by ADHS when the data was extracted for analysis).

Emergency and Inpatient Visits Data

[The BioSense Platform](#)- In partnership with local and state jurisdictions, the CDC hosts a secure, cloud-based, integrated electronic health information system to store syndromic surveillance data called the BioSense Platform. Participating health departments can access their jurisdiction's facility information through the platform. Syndromic surveillance visits include fatal or non-fatal encounters. Data used meet the criteria for "suspected drug overdose categories for syndromic surveillance" define above.

AZ-PIERS

The Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS) is a web-based prehospital patient care data repository supported by the ADHS [Bureau of EMS & Trauma System](#) (BEMSTS). Emergency Medical Services and Law Enforcement use AZ-PIERS to report

any out-of-hospital suspected opioid overdoses, suspected opioid overdose deaths, and out-of-hospital use of naloxone to treat opioid overdoses.

Prescription Drug Monitoring Program (PDMP)

Arizona State Board of Pharmacy's [Controlled Substances Prescription Monitoring Program](#) (CSPMP) requires pharmacies and medical practitioners who dispense Schedule II, III, and IV controlled substances to a patient, to report prescription information to the PDMP on a daily basis. This report only includes data for prescriptions dispensed among Arizona residents. As pertaining to prescriptions dispensed, we also excluded Schedule I and V controlled substances, buprenorphine drugs that were not Butrans® or Belbuca®, and values greater than 2,000 for quantity dispensed (presumed to be erroneous).

Analytic Methods

Prevalence Estimates

The prevalence for the number of fatal and non-fatal opioid related events were calculated as the proportion of persons who had an opioid overdose at a specified point in time.

Denominators

The denominators for rates of fatal and non-fatal opioid related events and hospital encounters were calculated based on 2017-2020 population data from [ADHS](#). For 2021 calculations, 2020 population data was used (because 2021 population data was not yet available at the time of report development). Denominators for ED visits (syndromic surveillance), Emergency Medical Services (EMS), Naloxone administration, and prescriptions filled were data source specific, and based on the number of events.

Trend Analyses

Prevalence estimates were examined over multiple years (and across groups) to compare current and past trends to provide insight into population differences over time.

Findings

The findings described in this section are derived from several sources, including hospital discharges, death certificates, various surveillance systems, and stakeholder inputs. It is important to note that ADHS suppresses numbers less than ten to protect confidentiality of rare cases and to eliminate bias or room for error in reporting numbers or rates.

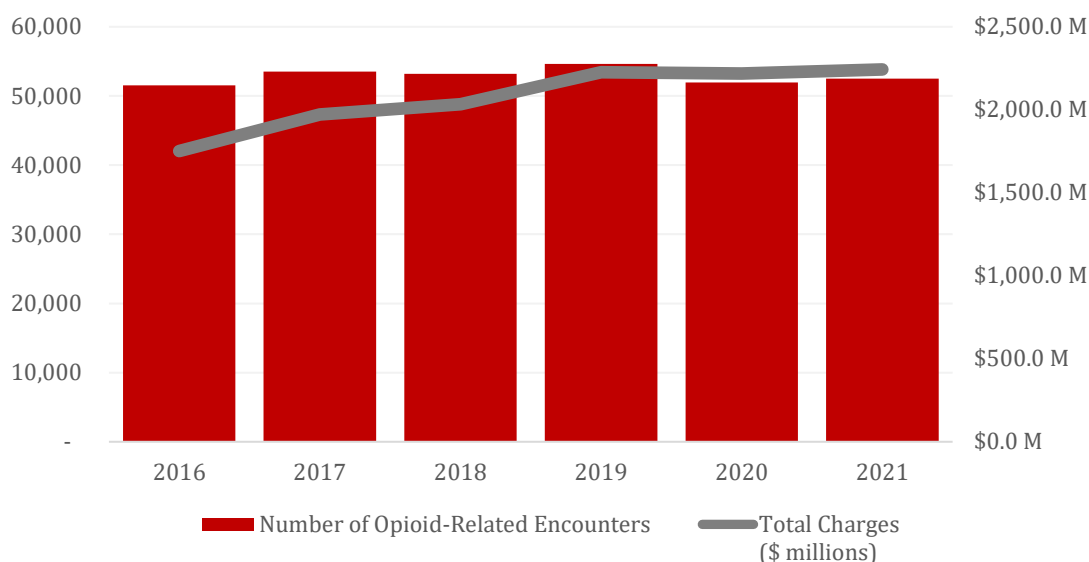


Hospital Discharges and Costs (Data: Hospital Discharge Data)

Trends 2016-2021

The number and associated costs of opioid-related hospitalizations have been fairly stable from 2020-2021, subsequent to a significant increase in the number and associated costs of opioid-related hospitalizations from 2016-2019. In 2020-2021, there were 51,943 and 52,507 opioid-related hospitalizations, respectively, with a 0-1% annual net change in associated costs.

Figure 1. Number and Cost of Opioid-Related Hospitalization and Emergency Department Visits, Arizona, 2016-2021



Data Source: Hospital Discharge Data; Notes: Total charges abbreviated as millions of dollars (e.g., “\$500.0 M” is equal to \$500,000,000); Includes Arizona residents and non-residents; includes [relevant ICD-10 codes](#) in any position (not just first (primary) diagnosis); total reported charges not adjusted to estimate the actual amount paid to the provider for healthcare services received

Table 1. Number, Cost, and Net-Annual Change in Costs of Opioid-Related Encounters, Arizona, 2016-2021

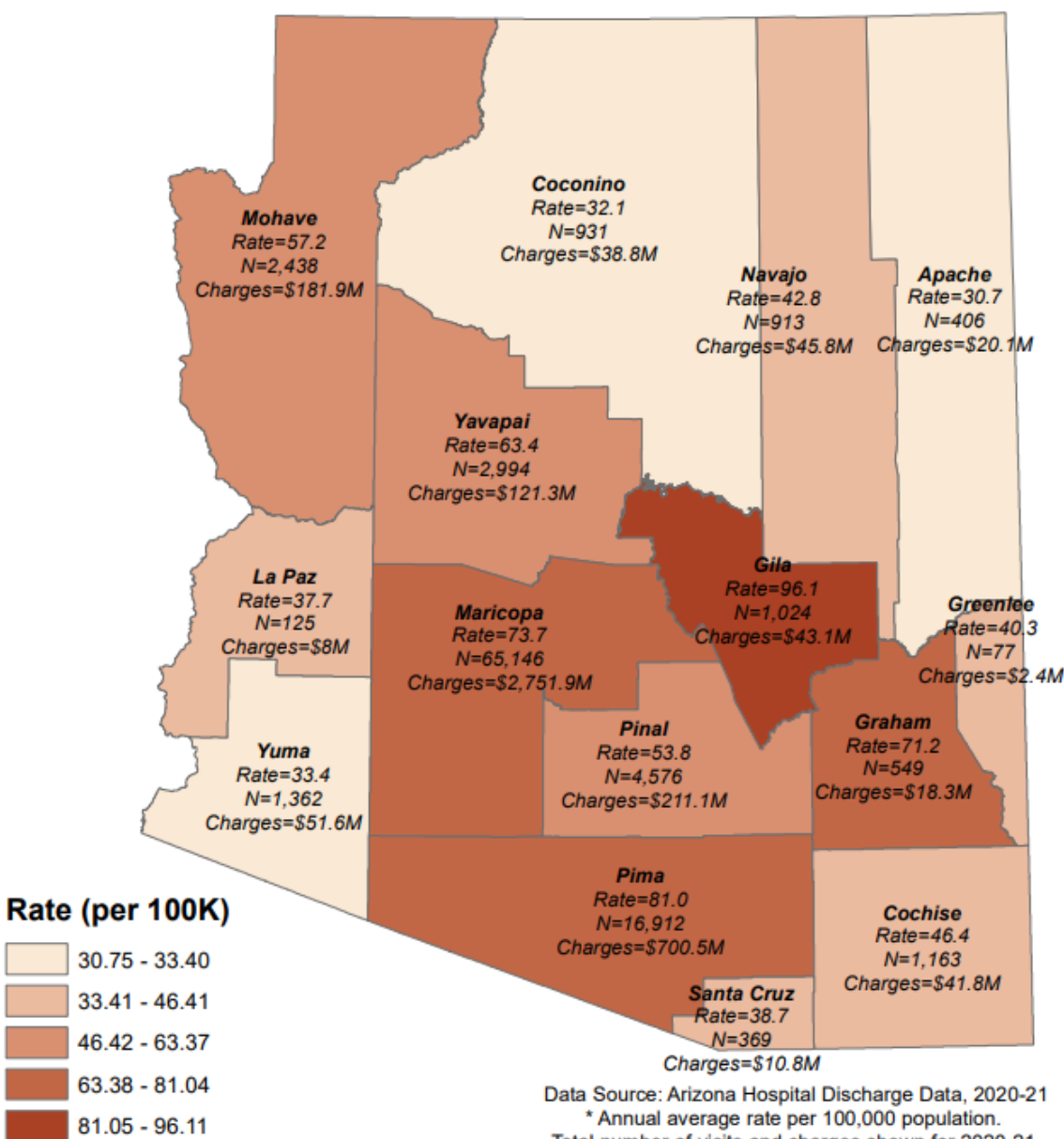
	Number of Opioid-Related Encounters	Total Charges (\$ millions)	Per Encounter Charges (\$)	Net Annual Change in Total Charges
2016	51,532	\$ 1,751.6	\$33,991	.
2017	53,519	\$ 1,971.5	\$36,837	13%
2018	53,216	\$ 2,033.6	\$38,213	3%
2019	54,623	\$ 2,227.2	\$40,774	10%
2020	51,943	\$ 2,218.4	\$42,708	0%
2021	52,507	\$ 2,243.1	\$42,720	1%

Data Source: Hospital Discharge Data; Notes: Total charges abbreviated as millions of dollars (e.g., “\$500.0 M” is equal to \$500,000,000); Net annual change in total charges rounded to nearest whole integer percent

County Comparison

The overall state average annual rate of opioid-related hospitalizations and ED visits (2020-2021) was 69.2. The average annual rate of opioid-related hospitalizations and ED visits (2020-2021) was highest (and higher than the overall state average) in Gila, Pima, Maricopa, and Graham Counties.

Figure 2. Rate (per 100,000 population), Number of Opioid-Related Hospitalization and Emergency Department Visits and Charges (\$Millions), Arizona, 2020-2021



Data Source: Hospital Discharge Data. Notes: Total charges abbreviated as millions of dollars (e.g., "\$500.0 M" is equal to \$500,000,000); County reflects person place of residence.

Table 2. Opioid-Related Hospitalization and Emergency Department Visit Charges by Resident County, Arizona, 2020-2021

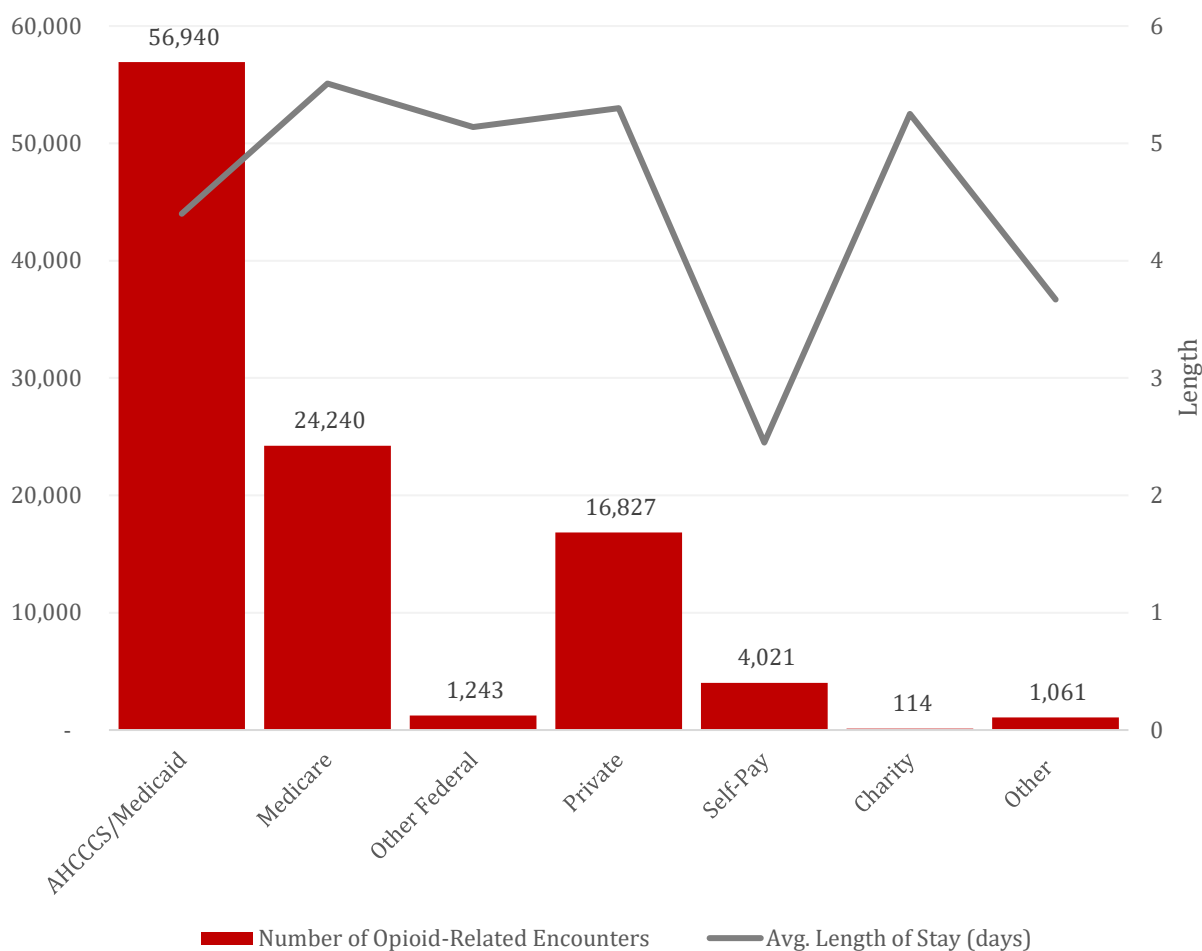
	Number of Opioid-Related Encounters	Total Charges (\$ millions)	Per Encounter Charges (\$)	Average Annual Rate (per 10,000)
TOTAL AZ	104,450	\$ 4,461.5	\$42,714	69.2
Apache	406	\$ 20.1	\$49,530	30.7
Cochise	1163	\$ 41.8	\$35,930	46.4
Coconino	931	\$ 38.8	\$41,625	32.1
Gila	1024	\$ 43.1	\$42,065	96.1
Graham	549	\$ 18.3	\$33,403	71.2
Greenlee	77	\$ 2.4	\$31,272	40.3
La Paz	125	\$ 8.0	\$64,289	37.7
Maricopa	65,146	\$ 2,751.9	\$42,242	73.7
Mohave	2438	\$ 181.9	\$74,619	57.2
Navajo	913	\$ 45.8	\$50,160	42.8
Pima	16,912	\$ 700.5	\$41,418	81.0
Pinal	4,576	\$ 211.1	\$46,131	53.8
Santa Cruz	369	\$ 10.8	\$29,137	38.7
Yavapai	2,994	\$ 121.3	\$40,508	63.4
Yuma	1,362	\$ 51.6	\$37,895	33.4

Data Source: Hospital Discharge Data; Notes: Total charges abbreviated as millions of dollars (e.g., “\$500.0 M” is equal to \$500,000,000); Average annual rate is calculated as the average of the annual rate in 2020 and 2021); Total number of county encounters do not sum to total due to inclusion of non-resident and/or missing county information for encounters; County reflects person place of residence.

Payer Type Comparison

The most common payer for ED visits and hospitalizations was AHCCCS/Medicaid (56,940), Medicare (24,240), and Private Insurance (16,827). The average length of stay was highest for visits paid for by Medicare (5.5 days) and Private Insurance (5.3 days). The overall length of stay for all visits was 4.7 days.

Figure 3. Number of Opioid-Related Hospitalization and Emergency Department Visit and Length of Stay, by Payer Type, Arizona, 2020-2021



Data Source: Hospital Discharge Data; Notes: Length of stay for persons admitted and discharged on same date are calculated as 1 day; Other payer types include worker's compensation, foreign national, automobile policy due to injury sustained in motor vehicle accident, Border Patrol for care of illegal immigrants.

Table 3. Opioid-Related Hospitalization and Emergency Department Visits Charges, by Payer Type, Arizona, 2020-2021

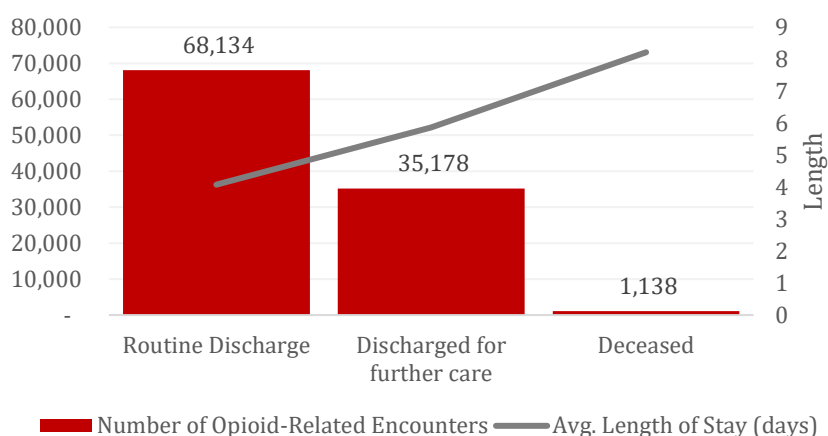
	Number of Opioid-Related Encounters	Total Charges (\$ millions)	Per Encounter Charges (\$)	Avg. Length Stay (days)
Total AZ	104,446	\$ 4,461.5	\$42,715	4.73
AHCCCS/Medicaid	56,940	\$ 1,931.5	\$33,921	4.40
Medicare	24,240	\$ 1,654.7	\$68,261	5.51
Other Federal	1,243	\$ 59.9	\$48,220	5.14
Private	16,827	\$ 676.9	\$40,227	5.30
Self-Pay	4,021	\$ 78.6	\$19,541	2.45
Charity	114	\$ 4.1	\$36,205	5.25
Other	1,061	\$ 55.8	\$52,613	3.67

Data Source: Hospital Discharge Data; Notes: Total charges abbreviated as millions of dollars (e.g., "\$500.0 M" is equal to \$500,000,000); Length of stay for persons admitted and discharged on same date are calculated as 1 day; Other payer types include worker's compensation, foreign national, automobile policy due to injury sustained in motor vehicle accident, Border Patrol for care of illegal immigrants.

Disposition Comparison

The majority of opioid-related hospitalization and ED visits had a disposition of routine discharge (68,134, (65%)) or discharged for further care (35,178 (34%)). Visits with a disposition resulting in death (1,138 (1%)) were associated with higher costs per encounter and a longer length of stay.

Figure 4. Number of Opioid-Related Hospitalization and Emergency Department Visits and Length of Stay, by Disposition, Arizona, 2020-2021



Data Source: Hospital Discharge Data; Notes: Disposition is defined as the location or facility to where the patient left following a hospital encounter; Routine discharge includes home or self-care; discharged for further care includes inpatient, other care facility (short- or long-term), hospice, and left against medical advice; Length of stay for persons admitted and discharged on same date are calculated as 1 day

Table 4. Opioid-Related Hospitalization and Emergency Department Visits Charges, by Disposition, Arizona, 2020-2021

	Number of Opioid-Related Encounters	Total Charges (\$ millions)	Per Encounter Charges (\$)	Avg. Length Stay (days)
Routine Discharge	68134	\$ 2,015.6	\$29,583	4.08
Discharged for further care	35178	\$ 2,230.3	\$63,400	5.87
Deceased	1138	\$ 215.6	\$189,473	8.22

Data Source: Hospital Discharge Data; Notes: Total charges abbreviated as millions of dollars (e.g., “\$500.0 M” is equal to \$500,000,000); Disposition is defined as the location or facility to where the patient left following a hospital encounter; Routine discharge includes home or self-care; discharged for further care includes inpatient, other care facility (short- or long-term), hospice, and left against medical advice; Length of stay for persons admitted and discharged on same date are calculated as 1 day

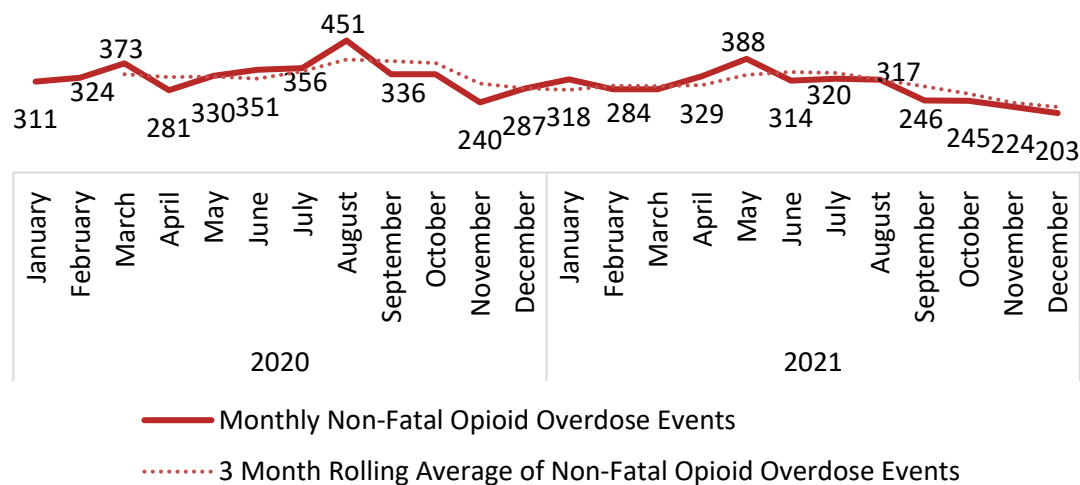


Reportable Non-Fatal Opioid Overdose Events (Data: MEDSIS)

Trends 2020-2021

The number and 3-month average trends of non-fatal opioid overdose events was fairly stable from 2020-2021. The number of non-fatal opioid overdose events was highest in the summer months (May-August) during 2020-2021.

Figure 5. Non-Fatal Opioid Overdose Events, Monthly, January 2020-December 2021, (n=7,448)



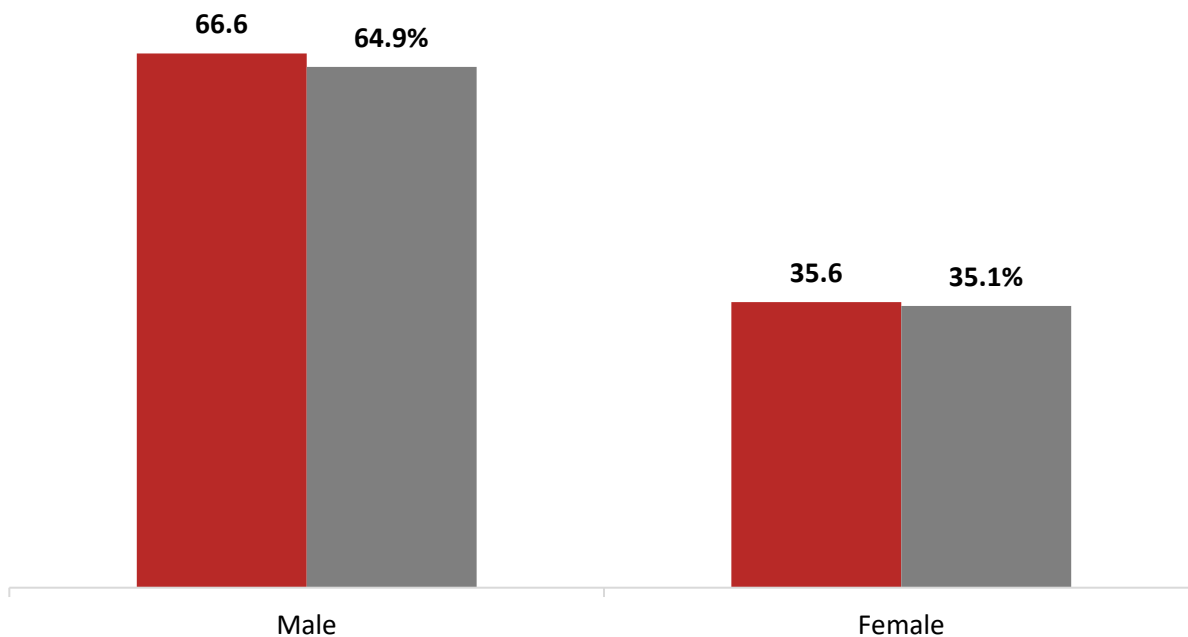
Data Source: MEDSIS

Demographic Comparisons

Sex

The percent and rate of non-fatal opioid overdose events was higher among males (65%, rate 67 per 100,000) compared with females (35%, rate 36 per 100,000).

Figure 6. Rate per 100,000 and Percentage (%) of Non-Fatal Opioid Overdose Events by Sex, Arizona, 2020-2021 (n=7,441)



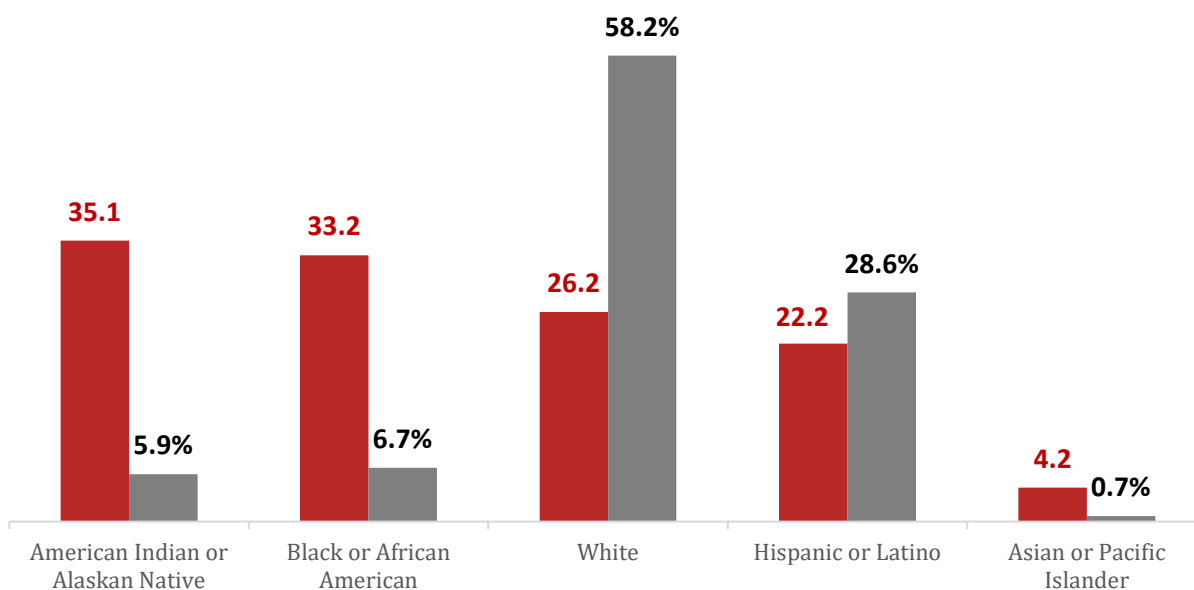
Arizona overall combined average annual (2020-2021) was 51.1 per 100,000.

Data Source: MEDSIS; Notes: Individuals with Unknown sex (n=7; 0.1%) have been excluded from this graphic. Unknown sex may include unidentified persons. Arizona overall combined average annual (2020-2021) was 51.1 per 100,000.

Race and Ethnicity

The percent of non-fatal opioid overdose events was highest among Whites (58%) and Hispanic or Latino (29%) persons. The rate of non-fatal overdose events was highest among American Indian or Alaska Natives (35 per 100,000) and Black or African American (33 per 100,000) persons.

Figure 7. Rate per 100,000 and Percentage of Non-Fatal Opioid Overdose Events by Race and Ethnicity, Arizona, 2020-2021 (n=3,618)



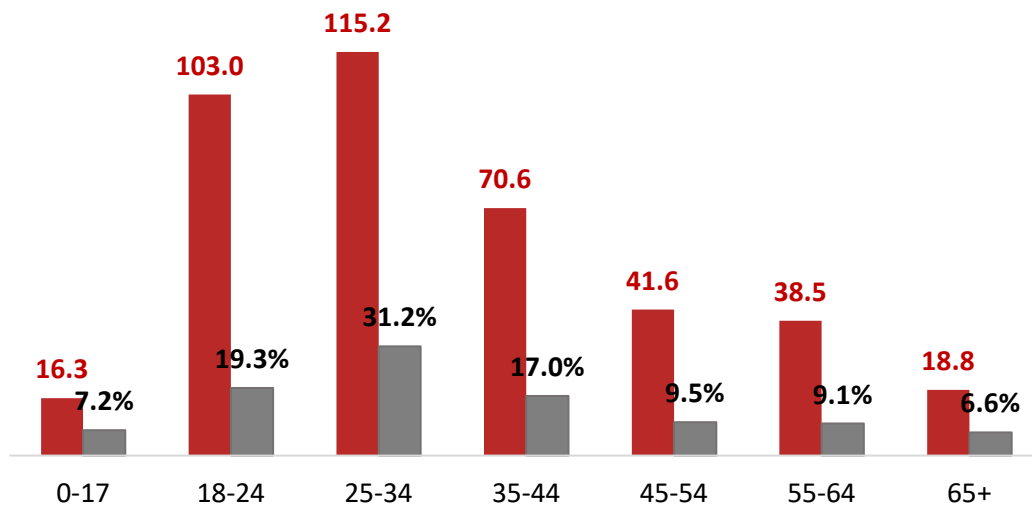
Arizona overall combined average annual (2020-2021) was 51.1 per 100,000.

Data Source: MEDSIS; Notes: Individuals with Unknown Race and Ethnicity (n=3,745; 50.3%) and Other Race (n=85; 1.1%) have been excluded from this graphic. Missing race/ethnicity data within MEDSIS has been identified as a priority and steps are in progress to improve reporting, and this now a required field.

Age

The percent of non-fatal opioid overdose events was highest among persons aged 25-34 years (31%), 18-24 years (19%), and 35-44 years (17%). The rate of non-fatal overdose events was also highest among persons aged 25-34 years (115 per 100,000), 18-24 years (103 per 100,000), and 35-44 years (71 per 100,000).

Figure 8. Rate per 100,000 and Percentage of Non-Fatal Opioid Overdose Events by Age Group, Arizona, 2020-2021 (n=7,442)



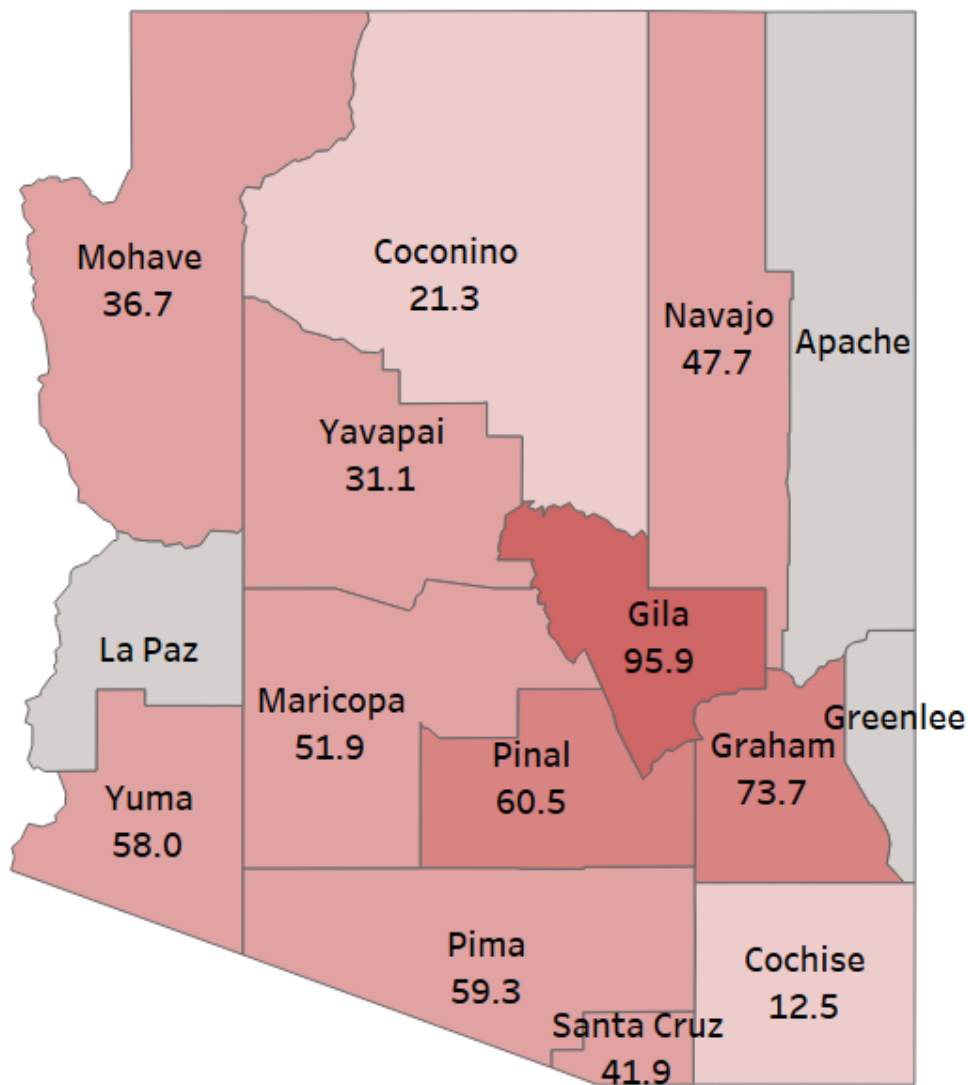
Arizona overall combined average annual (2020-2021) was 51.1 per 100,000.

Data Source: MEDSIS; Notes: Individuals with Unknown Age (n=6; 0.1%) have been excluded from this graphic.

County

The Arizona overall combined average annual (2020-2021) was 51.1 per 100,000. The rate of non-fatal opioid overdose events was highest (and higher than the overall combined average rate) in Gila, Graham, Pinal, Pima, Yuma, and Maricopa Counties.

Figure 9. Rate per 100,000 of Non-Fatal Opioid Overdose Events by County, Arizona, 2020-2021



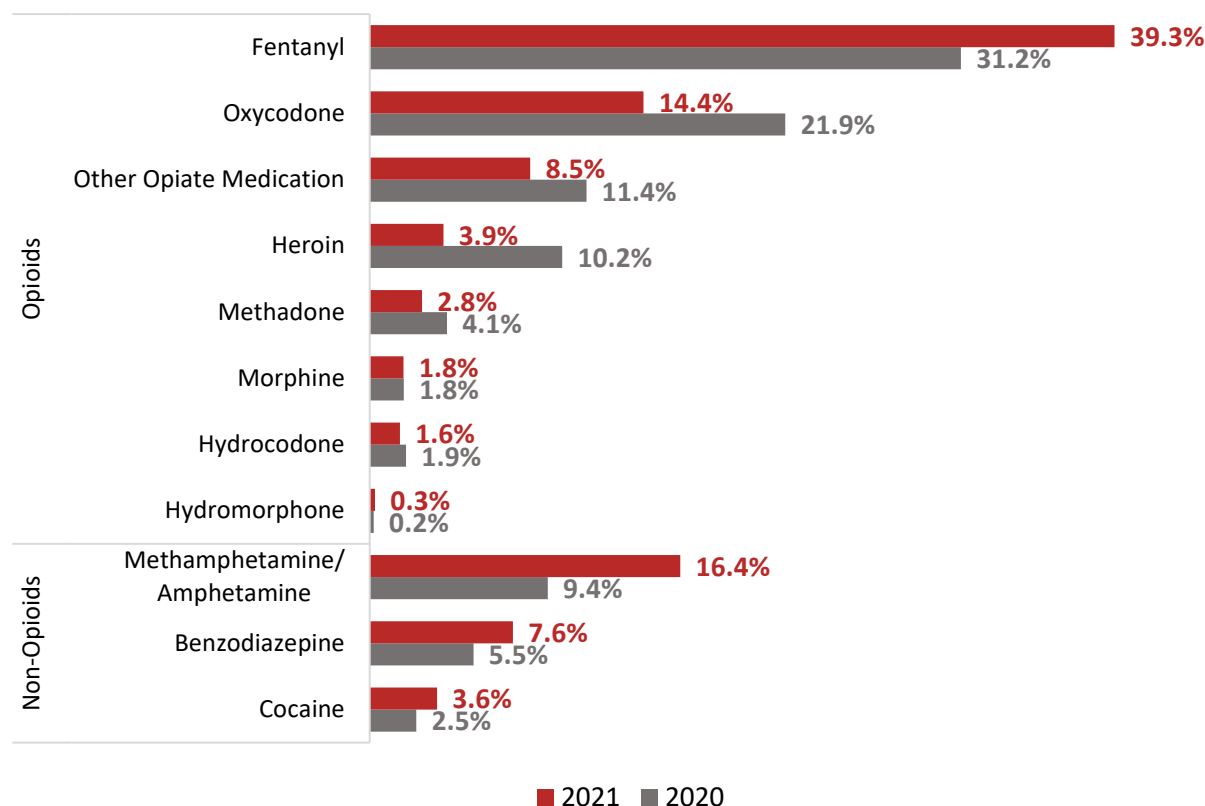
Arizona overall combined average annual (2020-2021) was 51.1 per 100,000.

Data Source: MEDSIS; Notes: To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are not displayed (indicated in gray). Data table in Appendix; County reflects person place of residence.

Drugs Involved in Non-Fatal Opioid Overdose Events

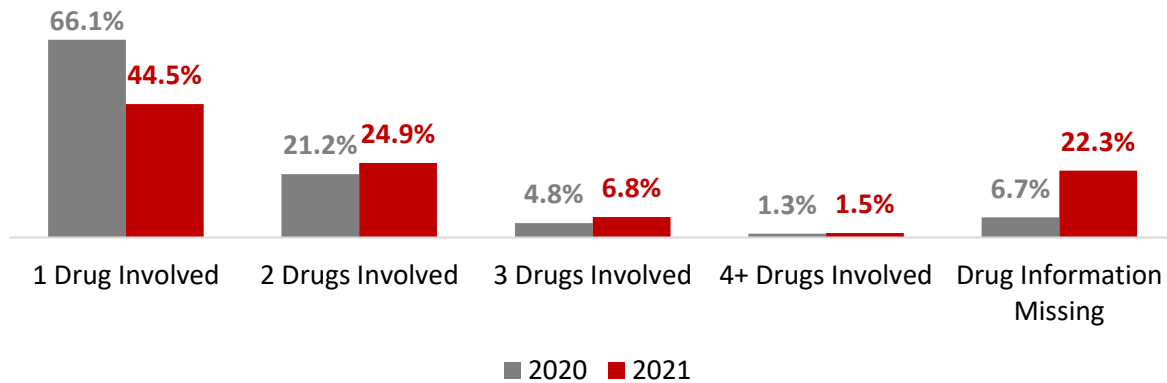
Fentanyl was the most common drug reported that was involved in non-fatal opioid overdose events during 2020-2021. Polysubstance (typically defined as the consumption of more than one drug at once) was reported in about a third of non-fatal opioid overdose events during 2020-2021.

Figure 10. Percent of Non-Fatal Opioid Overdose Events Involving Selected Drugs, Arizona, 2020 vs. 2021, (n=9,297)



Data Source: MEDSIS. Notes – Non-opioid drugs are included because they were identified along with an opioid. ADHS does not have a requirement for reporting any drug overdoses other than opioids (e.g., all methamphetamine overdoses that are happening in Arizona are not identified nor represented).

Figure 11. Number of Drugs Involved with Non-Fatal Opioid Overdose Events, Arizona, 2020 vs. 2021, (n=7,448)



Data Source: MEDSIS. Notes- Non-opioid drugs are included because they were identified along with an opioid. ADHS does not have a requirement for reporting any drug overdoses other than opioids (e.g., all methamphetamine overdoses that are happening in Arizona are not identified nor represented). List of drugs collected is shown in Figure 10.

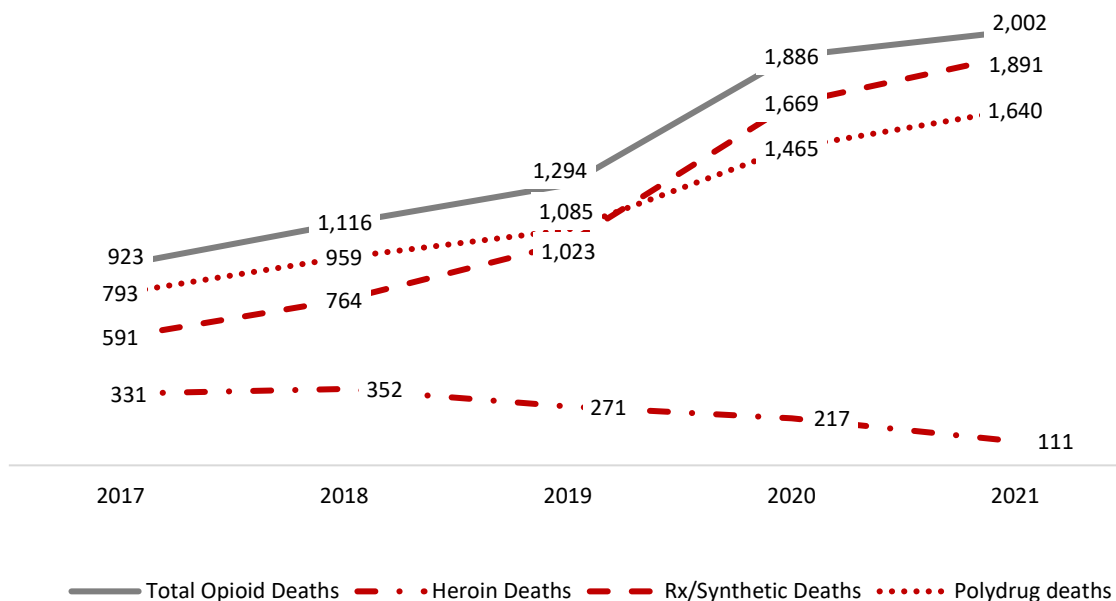


Opioid Overdose Deaths Among Arizona Residents (Data: Death Certificates)

Trends 2017-2021

The total number of opioid overdose deaths among Arizona residents increased from 2017-2021 (+120%). The number of prescription/synthetic drugs and polysubstance drug deaths increased from 2017-2021 (+75%). From 2020-2021 the increase in total opioid deaths was minimal (+6%). The number of heroin drug deaths decreased from 2017-2021 (-49%).

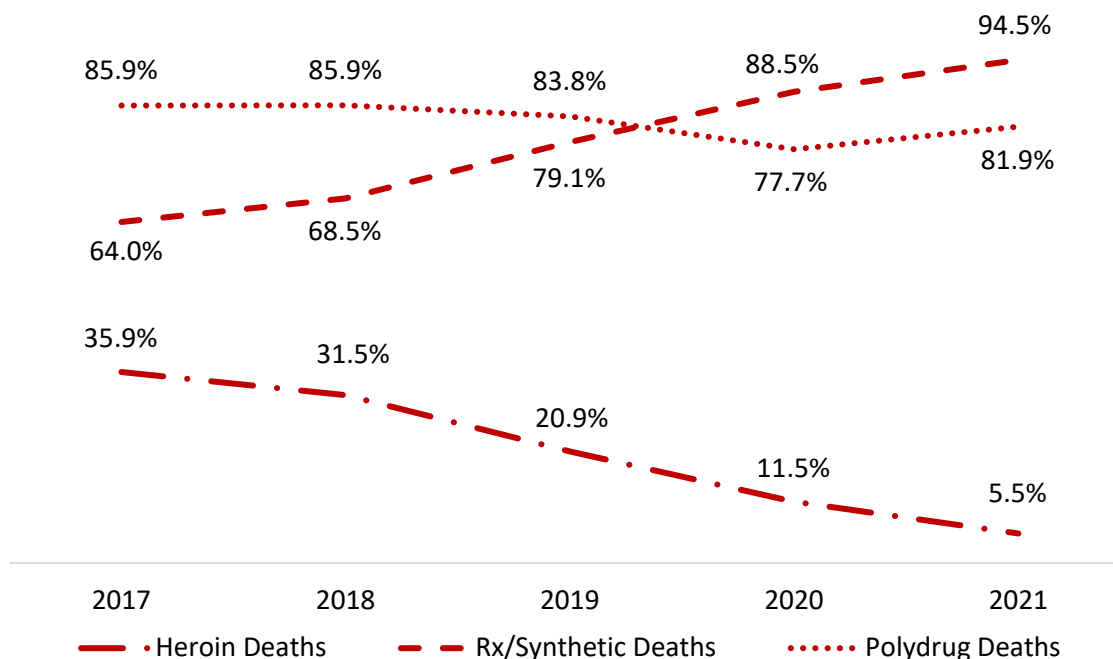
Figure 12. Number of Opioid Overdose Deaths, Arizona, 2017-2021, (n=7,390)



Data Source: Arizona Vital Statistics, Death Certificates

The percent of opioid overdose deaths involving prescription/synthetic drugs increased from 2017-2021. The percent of opioid overdose deaths involving polysubstance drug use increased slightly from 2020-2021. The percent of opioid overdose deaths involving heroin decreased from 2017-2021.

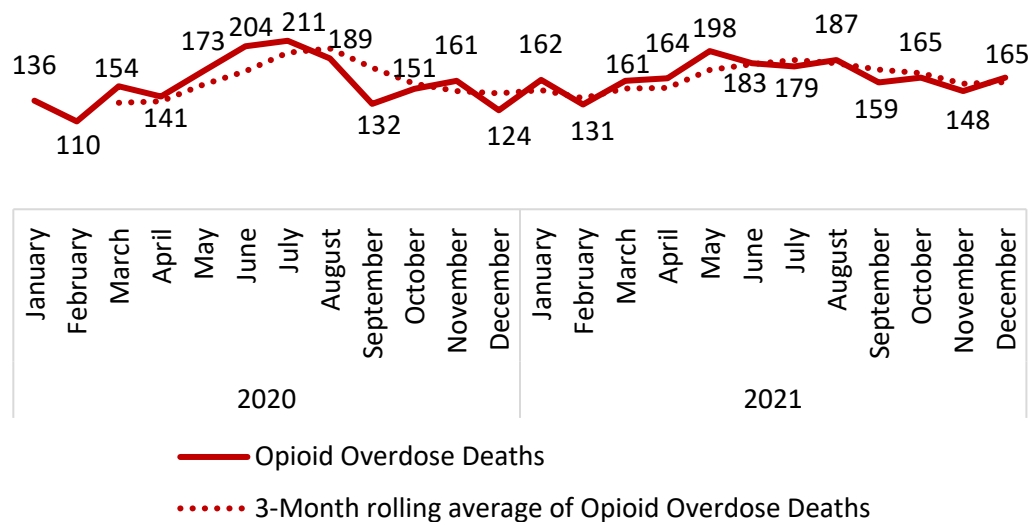
Figure 13. Percent of Opioid Deaths Involving Selected Drugs, Arizona, 2017-2021, (n=7,390)



Data Source: Arizona Vital Statistics, Death Certificates; Notes: Heroin: Opioid deaths involving heroin (T40.1); Rx/Synthetic: Opioid deaths involving all “other opioids” except heroin (T40.2, T40.3, T40.4, and T40.6); Polydrug: Opioid deaths involving opioids in combination with other non-opioid substances. All polydrug deaths are also counted in either the Heroin or Rx/Synthetic Drug Category

The number and 3-month average trends of opioid overdose deaths was fairly stable from 2020-2021. The number of opioid overdose deaths was highest in the summer months (May-August) during 2020-2021.

Figure 14. Number of Opioid Overdose Deaths, Arizona, 2020-2021, (n=3,888)

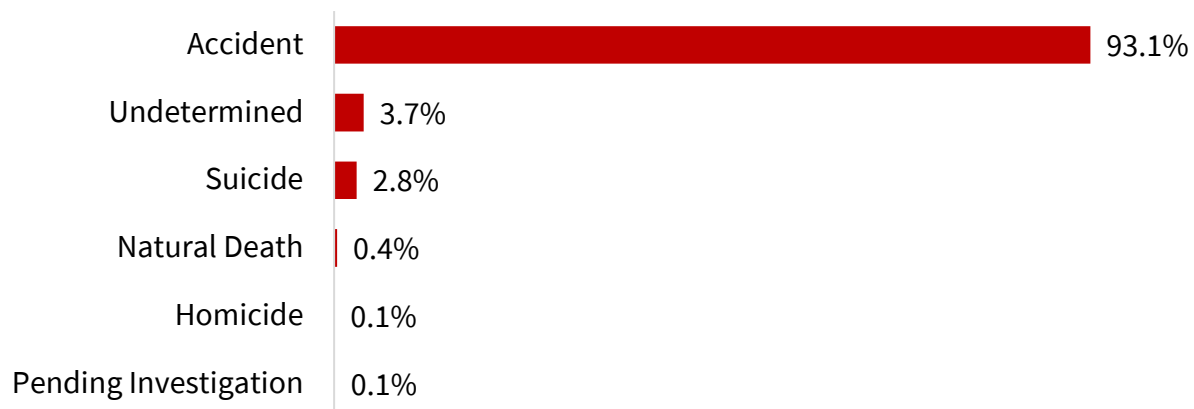


Data Source: Arizona Vital Statistics, Death Certificates;

Manner of Death

The majority of opioid overdose deaths (93%) were classified as an Accident.

Figure 15. Percent of Opioid Overdose Deaths by Manner of Death, Arizona, 2020-2021, (n=3,888)



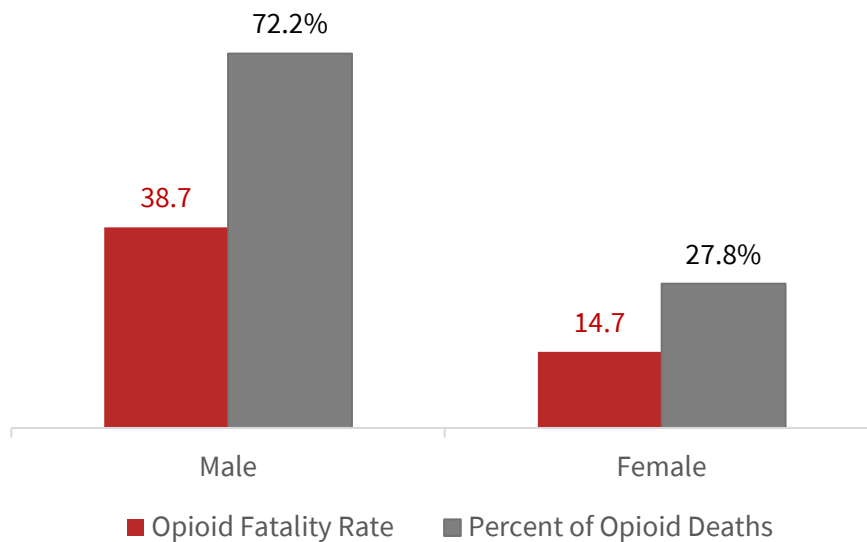
Data Source: Arizona Vital Statistics, Death Certificates

Demographic Comparisons

Sex

The percent and rate of opioid overdose deaths was higher among males (72%, rate 39 per 100,000) compared with females (28%, rate 15 per 100,000).

Figure 16. Opioid Overdose Fatality Rate per 100,000 Population and Percent of Opioid Deaths by Sex, Arizona, 2020-2021, (n=3,888)



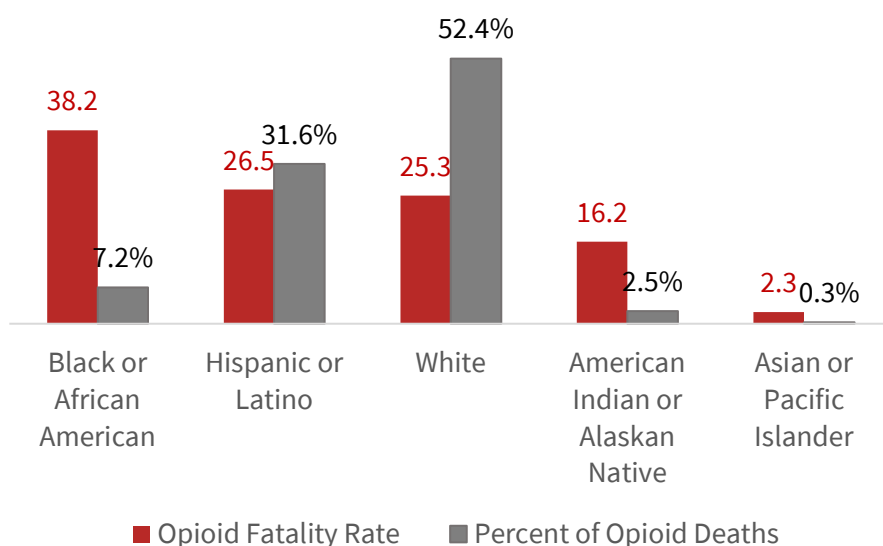
Arizona overall combined average annual (2020-2021) was 26.4 per 100,000.

Data Source: Arizona Vital Statistics, Death Certificates; Notes: There were no missing data for Sex. Detailed charts are available in Appendix.

Race and Ethnicity

While the percent of opioid overdose deaths was highest among Whites (52%) and Hispanic or Latino (32%) persons, the highest rate of opioid overdose deaths was highest among Black or African American (39 per 100,000), Hispanic or Latino (27 per 100,000), and White (26 per 100,000) persons.

Figure 17. Opioid Overdose Fatality Rate per 100,000 Population and Percent of Opioid Deaths by Race/Ethnicity, Arizona, 2020-2021, (n=3,888)



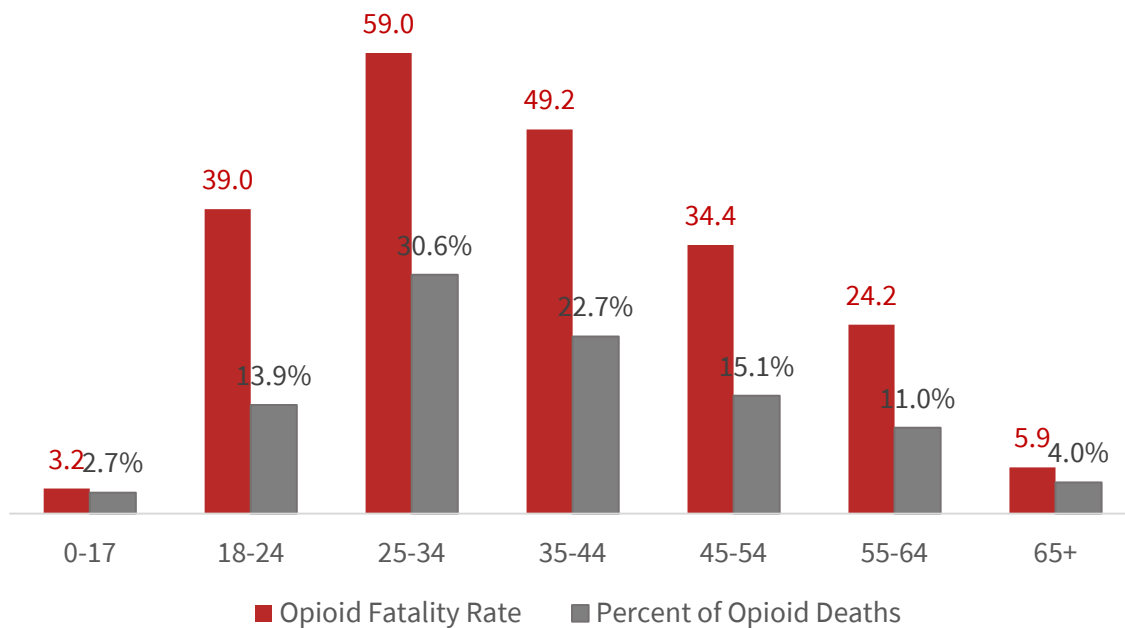
Arizona overall combined average annual (2020-2021) was 26.4 per 100,000.

Data Source: Arizona Vital Statistics, Death Certificates; Notes: There were no missing data for Race/Ethnicity. Detailed charts are available in Appendix.

Age

The percent of opioid overdose deaths was highest among persons aged 25-34 years (31%), 35-44 years (23%), 45-54 years (15%), and 18-24 years (14%). The rate of opioid overdose deaths was highest among persons aged 25-34 years (59 per 100,000), 35-44 years (49 per 100,000), 18-24 years (39 per 100,000), and 45-54 years (34 per 100,000).

Figure 18. Opioid Overdose Fatality Rate per 100,000 Population and Percent of Opioid Deaths by Age Group, Arizona, 2020-2021, (n=3,888)



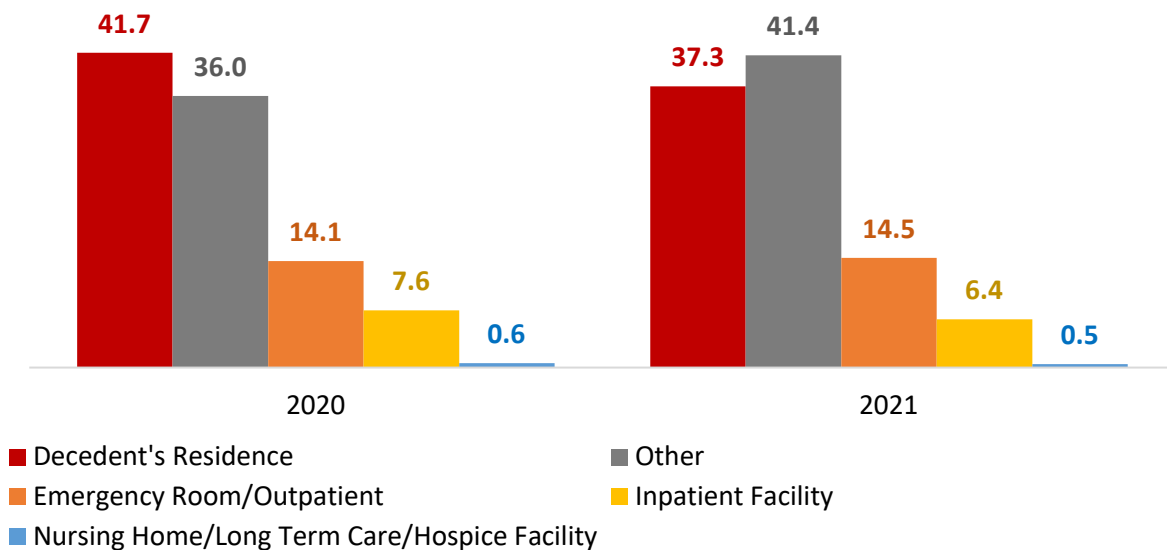
Arizona overall combined average annual (2020-2021) was 26.4 per 100,000.

Data Source: Arizona Vital Statistics, Death Certificates; Notes: There were no missing data for Age Group. Detailed charts are available in Appendix.

Place of Death Occurrence

The highest percent of opioid overdose deaths occurred at the decedent's residence or an "other" location (e.g., hotel/motel, street, workplace, unknown). Beginning 2019, there has been a gradual decline in opioid overdose deaths at decedent's residence whereas an increase has been observed in other undefined location during the same time period.

Figure 19. Percent of Opioid Overdose Deaths by Place of Occurrence, Arizona, 2020-2021, (n=3,888)

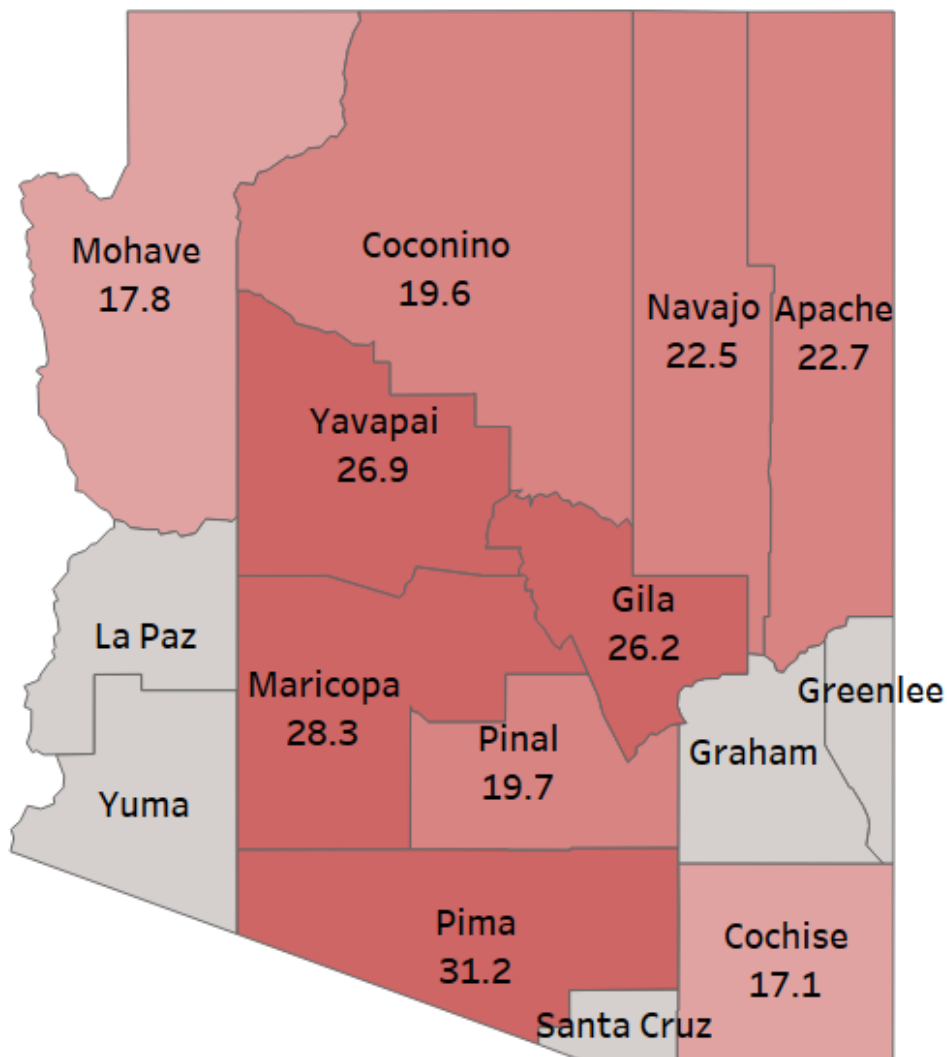


Data Source: Arizona Vital Statistics, Death Certificates. Notes: Detailed charts are available in Appendix. The category 'Other' includes, among other places, other residences (e.g., friend or family residence).

County

The Arizona combined average annual opioid-related fatality rate (2020-2021) was 26.4 per 100,000. The rate of opioid overdose deaths was highest (and higher than the state combined annual rate) in Pima, Maricopa, Yavapai, and Gila Counties.

Figure 20. Opioid Fatality Rate per 100,000 Population by County, Arizona, 2020-2021, (n=3,888)



Data Source: Arizona Vital Statistics, Death Certificates; Notes: To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are not displayed (indicated in gray). Detailed charts are available in Appendix; County reflects person place of residence.



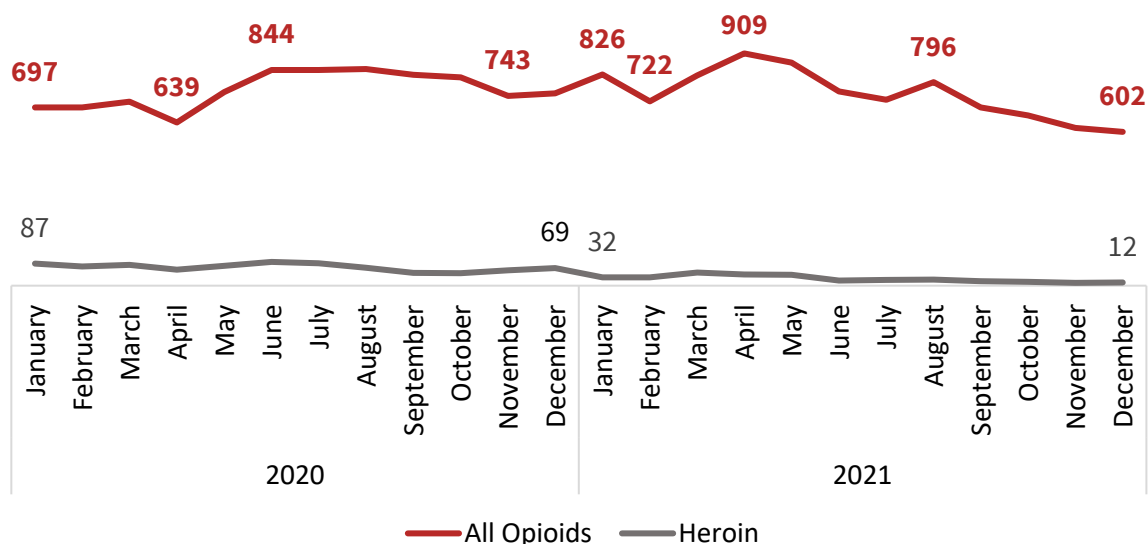
Emergency Department (ED) and Inpatient Visits Related to Suspected Opioid Overdoses (Data: Syndromic Surveillance)

Syndromic surveillance provides public health officials with a timely system for detecting, understanding, and monitoring health events. By tracking symptoms and diagnosis information of patients (syndromes) in participating emergency and inpatient departments, public health can detect unusual levels of illness to determine whether a response is warranted. The number of facilities included in the calculation of monthly estimates will vary over time. In Arizona over 100 facilities are participating (~90% of EDs) reporting approximately 10,000 hospital visits every day. Diagnoses and chief complaints are used to query the occurrence of drug classes.

Trends 2020-2021

The number of opioid overdose ED and inpatient visits reported by syndromic surveillance was fairly stable from 2020-2021. The number of opioid overdose ED and inpatient visits reported by syndromic surveillance was highest in the summer months (June-August) during 2020, but highest in the spring months (March-May) during 2021.

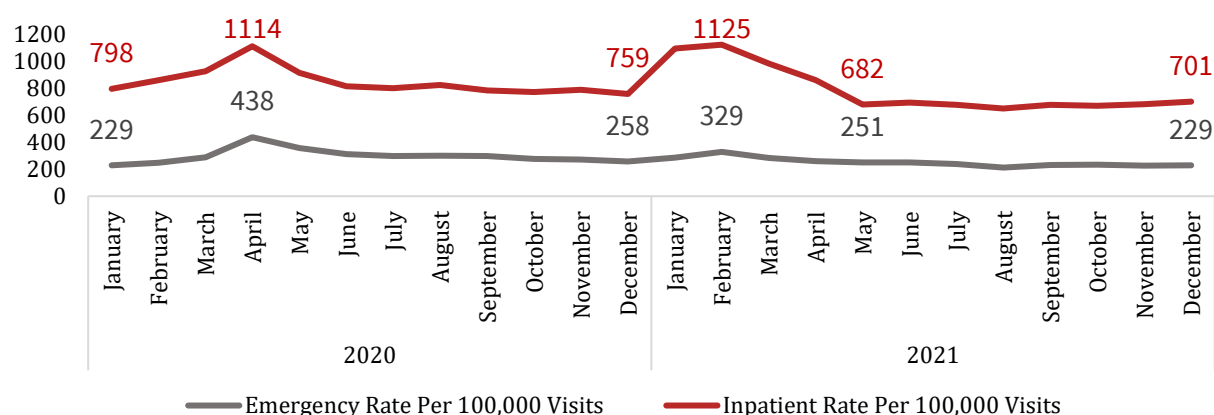
Figure 21. Emergency and Inpatient Visits by Substance, Monthly, Arizona, January 2020-December 2021



Data Source: ESSENCE Syndromic Surveillance; Notes: All Opioids category includes Heroin. These data are not comparable with hospital discharge data (HDD).

The overall (2020-2021) rate of visits was higher for inpatient visits (860 per 100,000 visits) than ED visits (255 per 100,000 visits). The monthly rate of opioid overdose ED and inpatient visits reported by syndromic surveillance was fairly stable from 2020-2021. The rate of opioid overdose ED and inpatient visits reported by syndromic surveillance was highest in the spring months (March-April) during 2020, but highest in the winter months (January-February) during 2021.

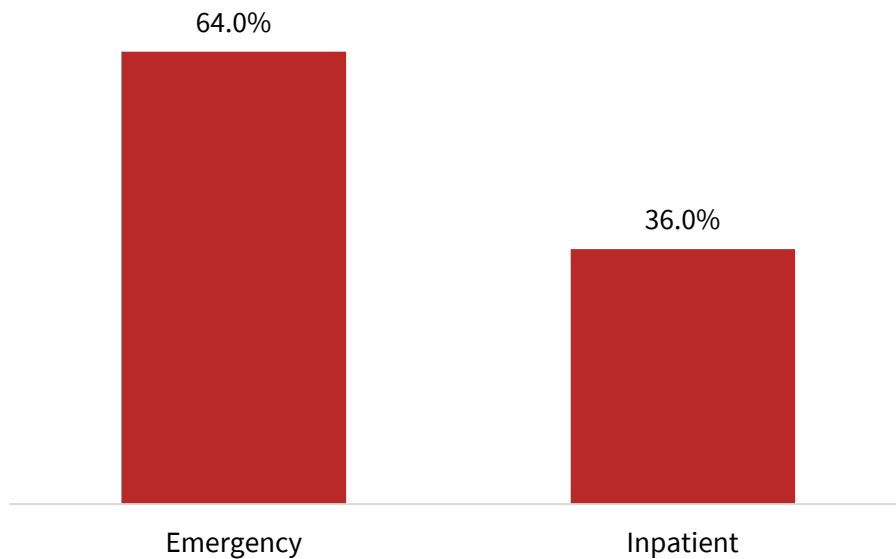
Figure 22. Monthly Rate of Emergency and Inpatient Suspected Opioid Overdoses by Visit Type, Monthly, Arizona, January 2020-December 2021 (n=18,203)



Data Source: ESSENCE Syndromic Surveillance; Data table available in Appendix. Notes: All Opioids category includes Heroin. The rate was calculated by dividing the count of suspected drug overdose visits by the total number of visits for the given time period and multiplied by 100,000. These data are not comparable with hospital discharge data (HDD).

ED visits (64%) made up a higher percent of opioid overdose visits compared with inpatient visits (36%) during 2020-2021.

Figure 23. Percent of Emergency and Inpatient Visits for Suspected Opioid Overdoses by Visit Type, Arizona, 2020-2021 (n=18,203)



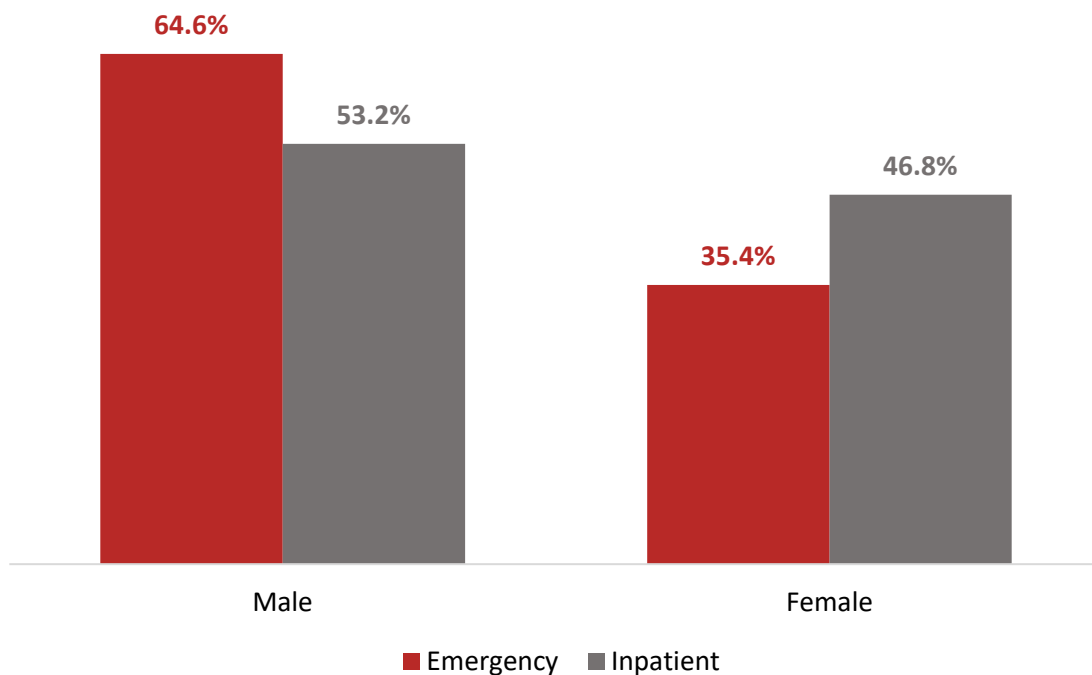
Data Source: ESSENCE Syndromic Surveillance (as identified using defined queries for opioid overdoses). Notes: Visits are classified by the type of facility the person visited (i.e., ED or inpatient visit).

Demographic Comparisons

Sex

The percent of opioid overdose ED and inpatient visits reported by syndromic surveillance was higher among males (65% and 53%, respectively) compared with females (35% and 47%, respectively).

Figure 24. Percent of Emergency and Inpatient Visits for Suspected Opioid Overdoses by Sex and Visit Type, Arizona, 2020-2021 (n=18,199)

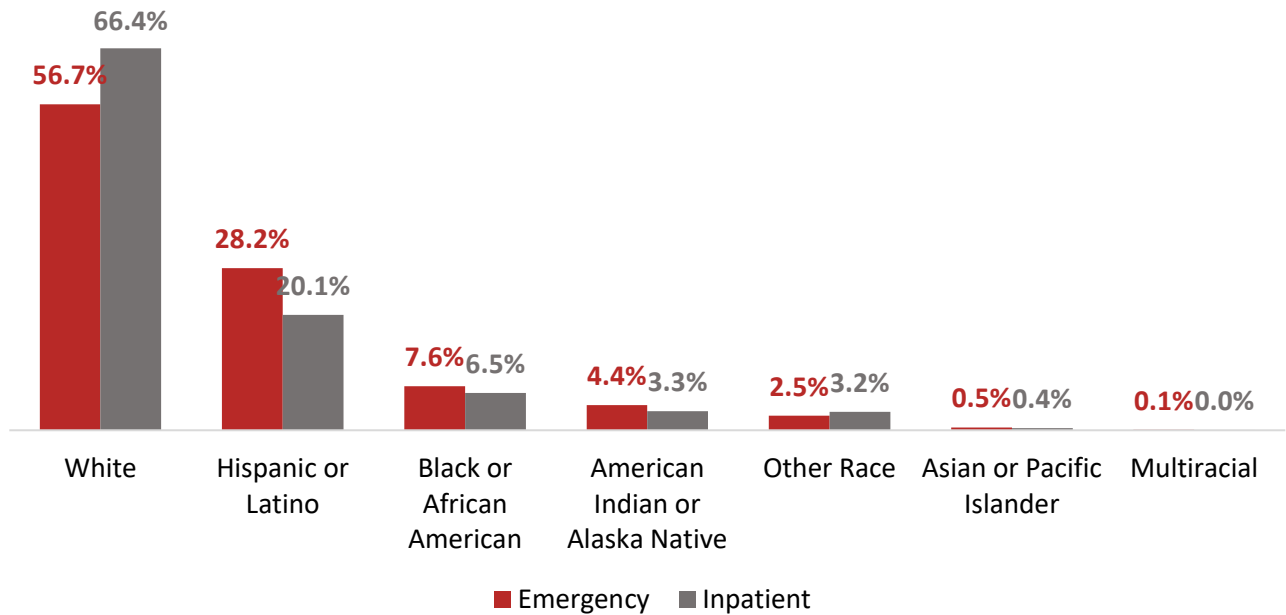


Data Source: ESSENCE Syndromic Surveillance; Notes: Individuals with Unknown Sex (n=4; 0.02%) have been excluded from this graphic. Unknown gender may include unidentified persons.

Race and Ethnicity

The percent of opioid overdose ED and inpatient visits reported by syndromic surveillance was highest among Whites (57% and 66%, respectively) and Hispanic or Latino (28% and 20%, respectively) persons.

Figure 25. Percent of Emergency and Inpatient Visits for Suspected Opioid Overdoses by Race and Ethnicity, Arizona, 2020-2021 (n=18,131)

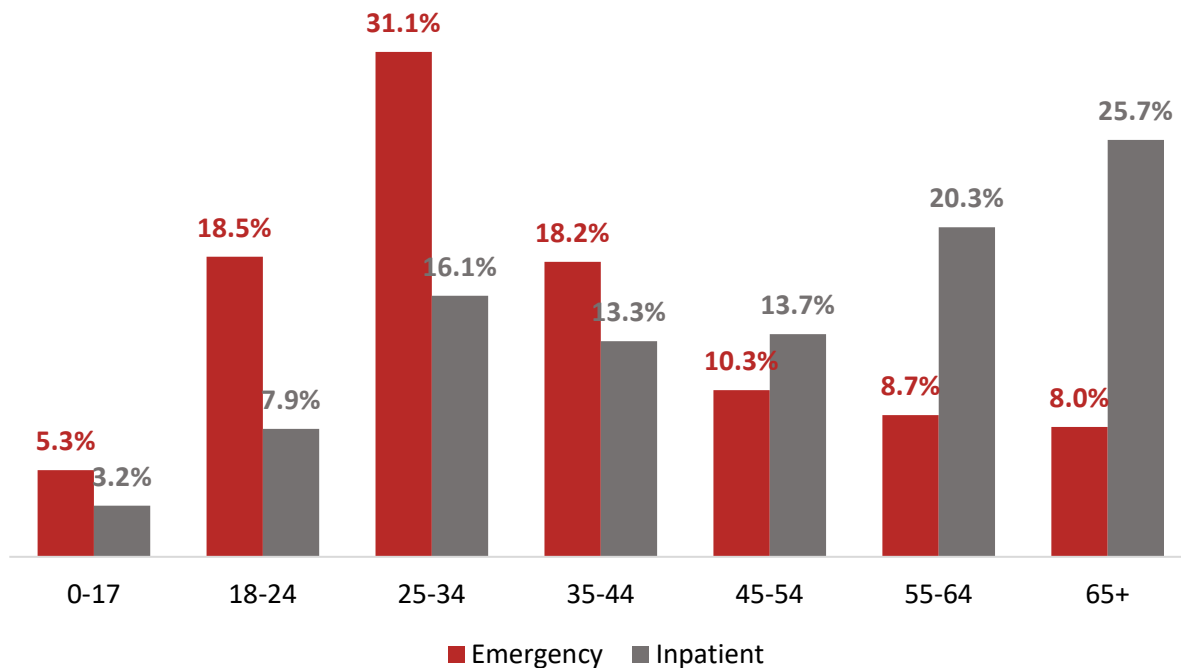


Data Source: ESSENCE Syndromic Surveillance; Notes: Individuals with Unknown Race and Ethnicity (n=72; 0.4%) have been excluded from this graphic. "Other" includes any other race or ethnicity (e.g., international persons, non-US born).

Age

The percent of opioid overdose ED visits reported by syndromic surveillance was highest among persons aged 25-34 years (31%), 18-24 years (19%), and 35-44 years (18%). The percent of opioid overdose inpatient visits reported by syndromic surveillance was highest among persons aged 65+ years (26%), 55-64 years (20%), and 25-34 years (16%).

Figure 26. Percent of Emergency and Inpatient Visits for Suspected Opioid Overdoses by Age Group and Visit Type, Arizona, 2020-2021 (n=18,181)



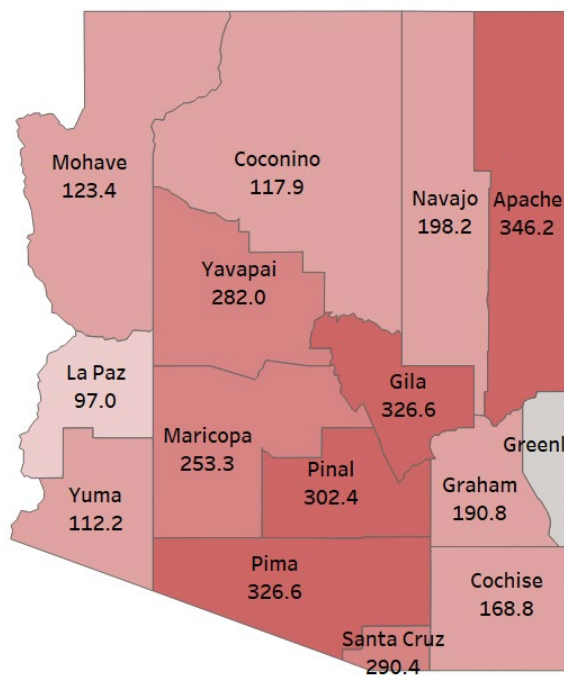
Data Source: ESSENCE Syndromic Surveillance; Notes: Individuals with Unknown Age (n=22; 0.1%) have been excluded from this graphic.

County

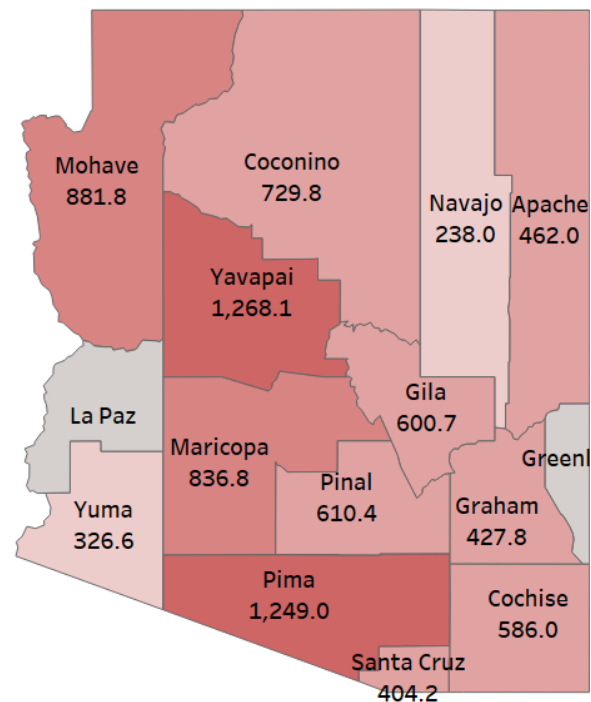
The overall (2020-2021) rate was higher for inpatient visits (860 per 100,000 visits) than ED visits (255 per 100,000 visits). The rate of opioid overdose inpatient visits reported by syndromic surveillance was highest (and higher than the overall Arizona rate) in Yavapai, Pima, and Mohave Maricopa Counties. The rate of opioid overdose ED visits reported by syndromic surveillance was highest (and higher than the overall Arizona rate) in Apache, Gila, Pima, Pinal, Santa Cruz, and Yavapai Counties.

Figure 27. Rate per 100,000 of Emergency and Inpatient Visits for Suspected Opioid Overdoses by Visit Type and County of Residence, Arizona, 2020-2021

Rate of Emergency Visits per 100,000 Visits



Rate of Inpatient Visits per 100,000 Visits



Data Source: ESSENCE Syndromic Surveillance; Notes: Data table available in Appendix. To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are not displayed (indicated in gray); County reflects person place of residence. The rate was calculated by dividing the count of suspected drug overdose visits by the total number of visits for the given time period and multiplied by 100,000. These data are not comparable with hospital discharge data (HDD).

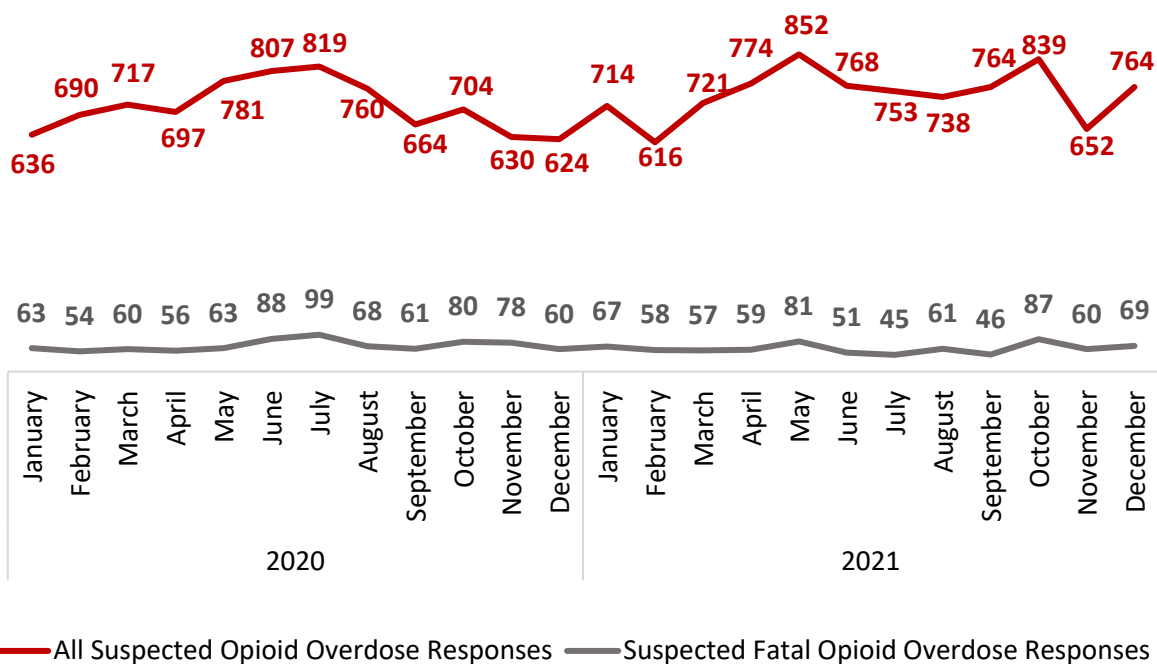


EMS/Law Enforcement Responses for Suspected Opioid Overdose (Data: AZ-PIERS)

Trends 2020-2021

The number of EMS/law enforcement responses for total (and fatal) suspected opioid overdoses was fairly stable from 2020-2021. The number of EMS/law enforcement responses for total (and fatal) suspected opioid overdoses was highest in the summer months (May-July) during 2020, but highest in the spring/summer (April-June) and Fall (September-October) months during 2021.

Figure 28. EMS/Law Enforcement Responses for Suspected Opioid Overdoses, Monthly, Arizona, January 2020-December 2021, (n=17,484)



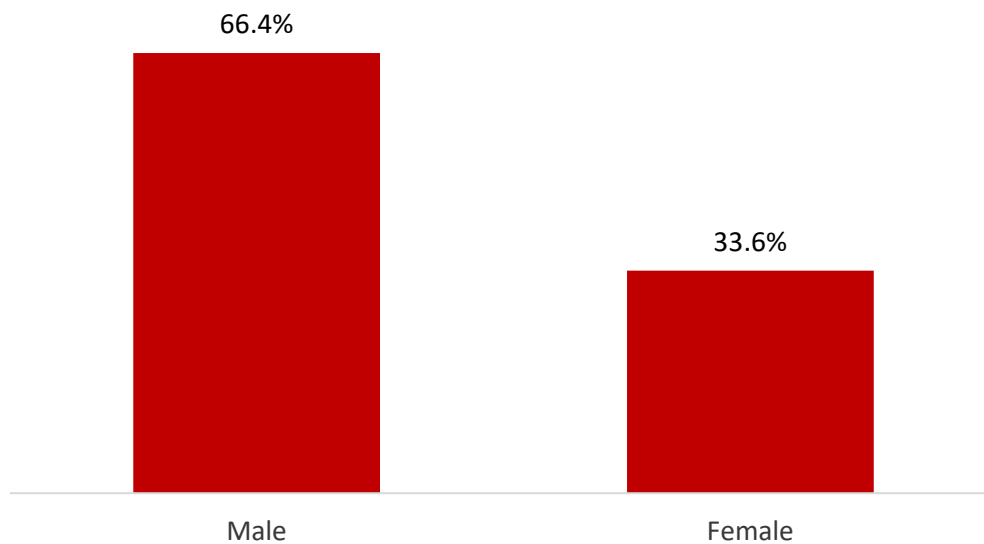
Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

Demographic Comparisons

Sex

The percent of EMS/law enforcement responses for total suspected opioid overdoses was higher among males (66%) compared with females (34%).

Figure 29. Percentage of EMS/Law Enforcement Responses for Suspected Opioid Overdoses by Sex, Arizona, 2020-2021, (n=17,484)

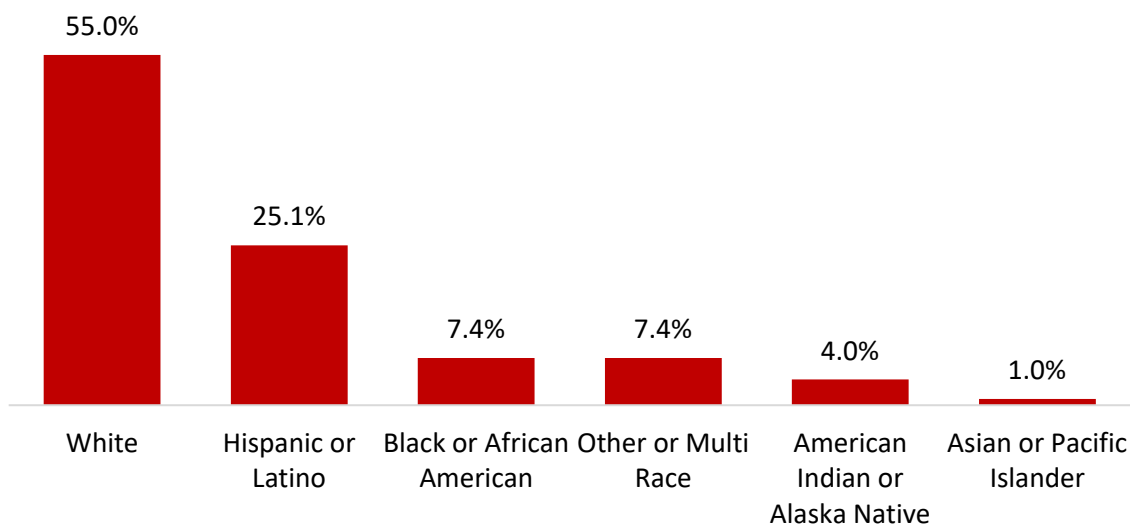


Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS); Notes: Missing values for sex (n=70; 0.4%) are excluded from this graph. Unknown sex may include unidentified persons. Detailed charts are available in Appendix.

Race and Ethnicity

The percent of EMS/law enforcement responses for suspected opioid overdoses was highest among White (55%) and Hispanic or Latino (25%) persons.

Figure 30. Percentage of EMS/Law Enforcement Responses for Suspected Opioid Overdoses by Race/Ethnicity, Arizona, 2020-2021, (n=17,484)

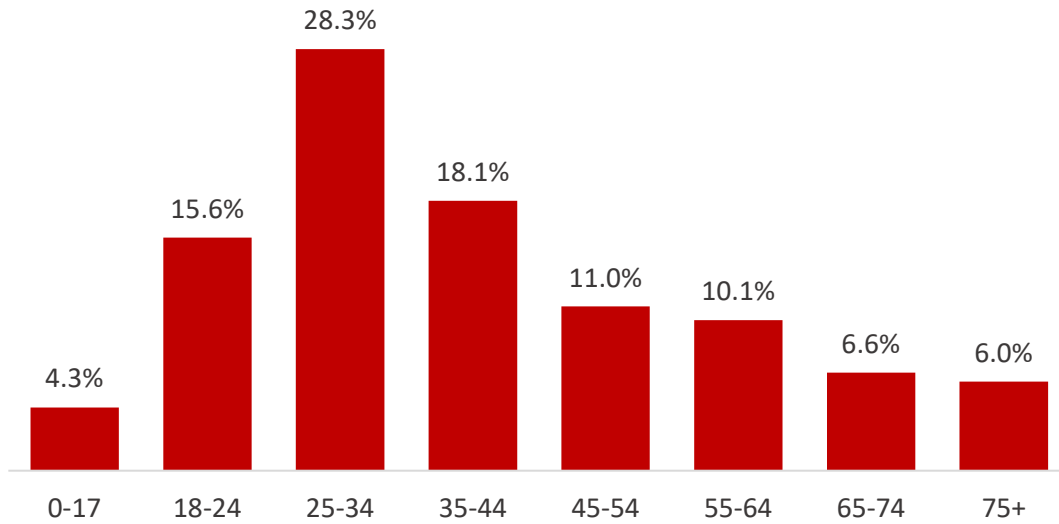


Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS); Notes: Missing values for race/ethnicity (n=5,836; 33.4%) are excluded from this graph. "Other or Multi Race" includes all other race and ethnicity groups, including persons who reported more than one race. Detailed charts are available in Appendix.

Age

Persons 18-44 years of age account for 62% of of EMS/law enforcement responses for suspected opioid overdoses, with persons aged 25-34 years (28%), 35-44 years (18%), and 18-24 years (16%) making up the highest percentages by age group.

Figure 31. Percentage of EMS/Law Enforcement Responses for Suspected Opioid Overdoses by Age Group, Arizona, 2020-2021, (n=17,484)



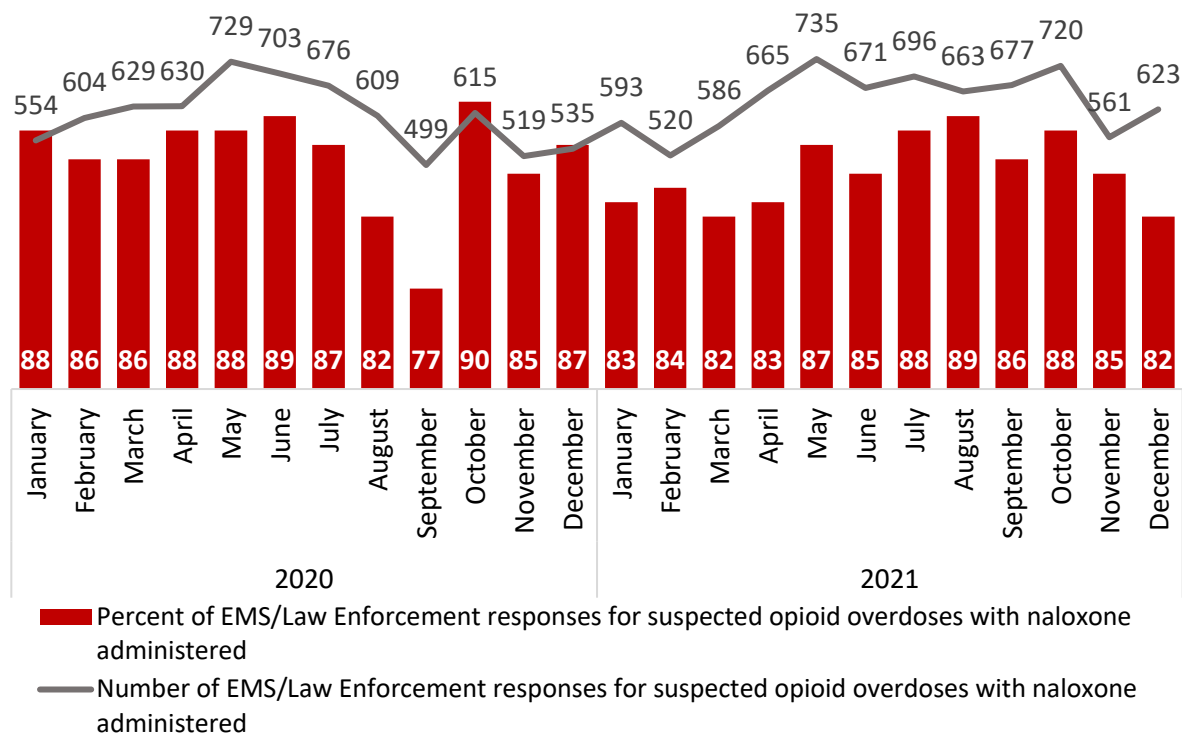
Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS); Notes: Missing values for age (n=52; 0.3%) are excluded from this graph. Detailed charts are available in Appendix.

EMS/Law Enforcement Administered Naloxone

Out-of-hospital suspected opioid overdoses, suspected opioid overdose deaths, and out-of-hospital use of naloxone to treat opioid overdoses is reported through the web-based prehospital patient care data repository (AZ-PIERS). ADHS has naloxone available at no cost for law enforcement agencies, county health departments, hospital and medical center EDs, and community-based organizations (i.e., substance use coalitions, harm reduction organizations, family and homeless shelters).

The number of EMS/law enforcement responses for suspected opioid overdoses with naloxone administered varied monthly from 2020-2021 (total doses = 15,012), coinciding with the months when the number of suspected opioid overdoses are highest and lowest. The percent of EMS/law enforcement responses for suspected opioid overdoses with naloxone administered was fairly consistently above 80% (range 77-90%) during 2020-2021. There are situations where naloxone is appropriately not administered, and thus the goal for naloxone administration is not 100%.

Figure 32. EMS/Law Enforcement Responses for Suspected Non-fatal Opioid Overdoses with Naloxone Administered, Monthly, Arizona, January 2020-December 2021, (n=15,012)

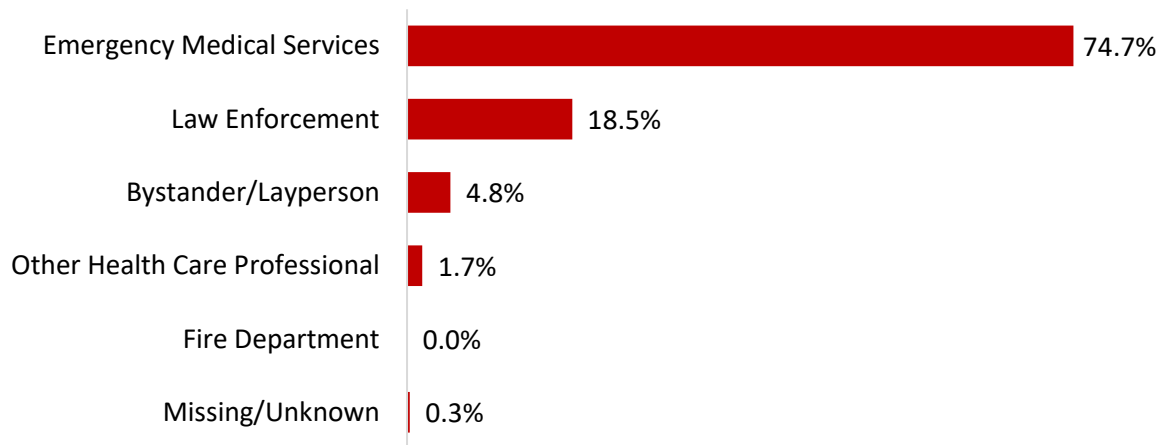


Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

Reporting Entity

EMS/law enforcement responses for suspected opioid overdoses where naloxone administered were most commonly reported by emergency medical services (75%) and law enforcement (19%) during 2020-2021.

Figure 33. Percentage of EMS/Law Enforcement Responses for Non-fatal Suspected Opioid Overdoses with Naloxone Administered by Reporting Entity, Arizona, 2020-2021, (n=15,012)

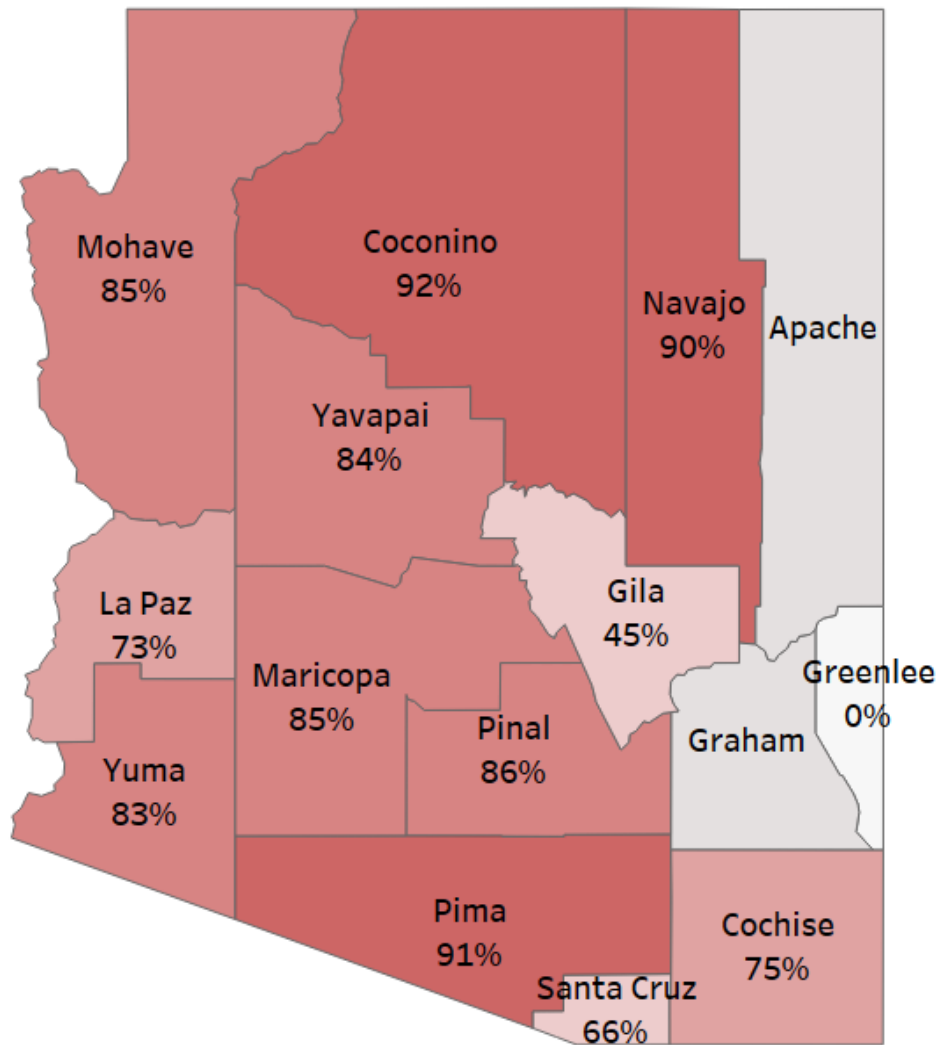


Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

County

The percent of EMS/law enforcement responses for suspected opioid overdoses with naloxone administered was highest in Coconino, Pima, Navajo, Pinal, Mohave, and Maricopa Counties.

Figure 34. Percent of EMS/Law Enforcement Responses for Suspected Non-fatal Opioid Overdoses with Naloxone Administered by County, Arizona, 2020-2021, (n=15,012)



Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS). Notes: To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are not displayed (indicated in gray). Detailed charts are available in Appendix; County reflects patient's place of overdose.

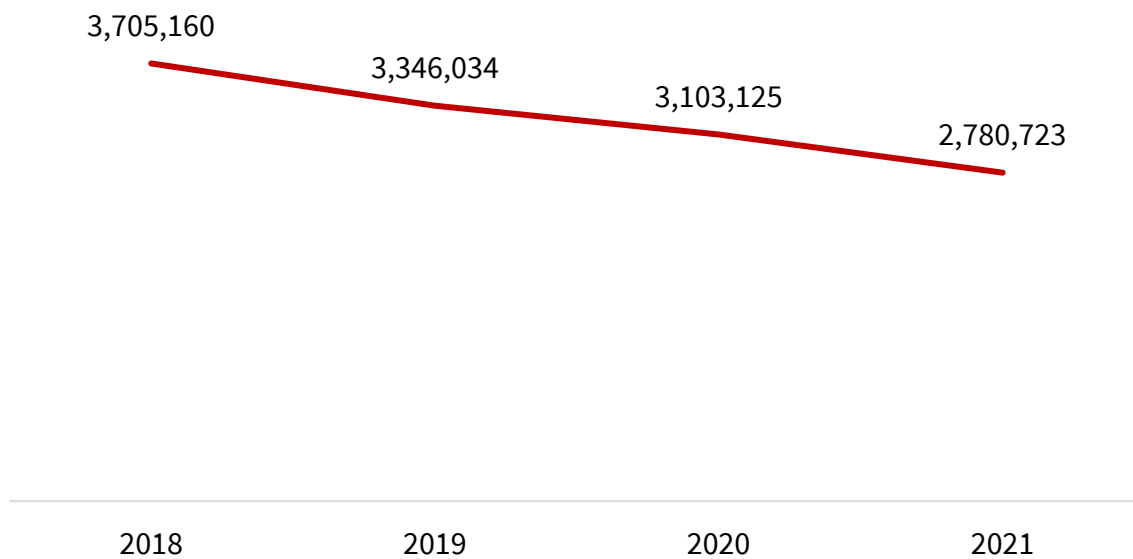


Prescription Opioid Data

Trends 2018-2021

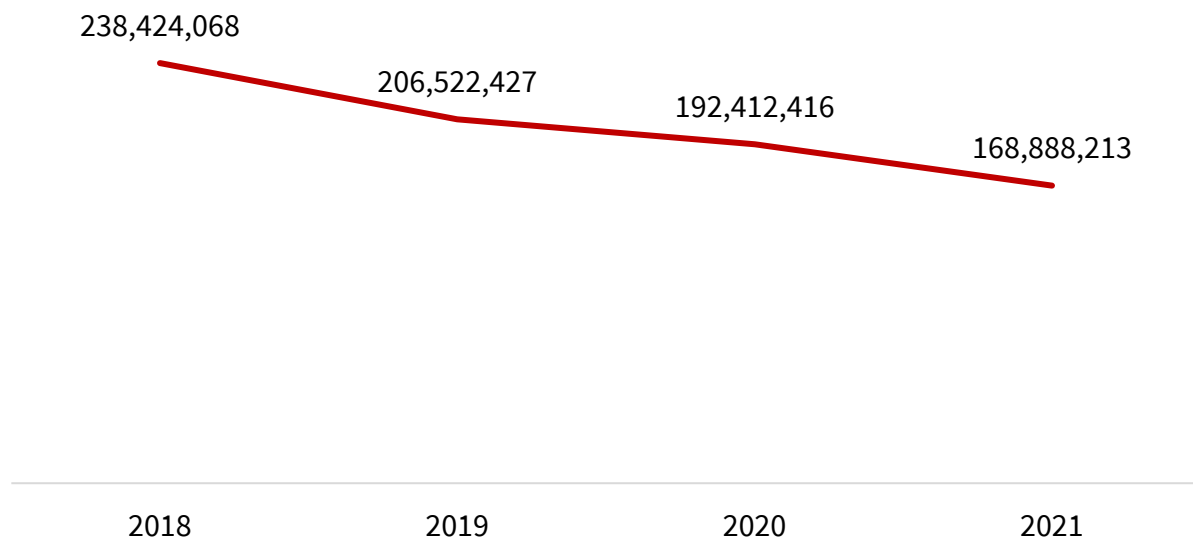
The number of opioid prescriptions, opioid pills, and average morphine milligram equivalents (MME) dispensed in Arizona decreased from 2018-2021.

Figure 35. Opioid Prescriptions Dispensed by Year, Arizona, 2018-2021 (n=12,935,042)



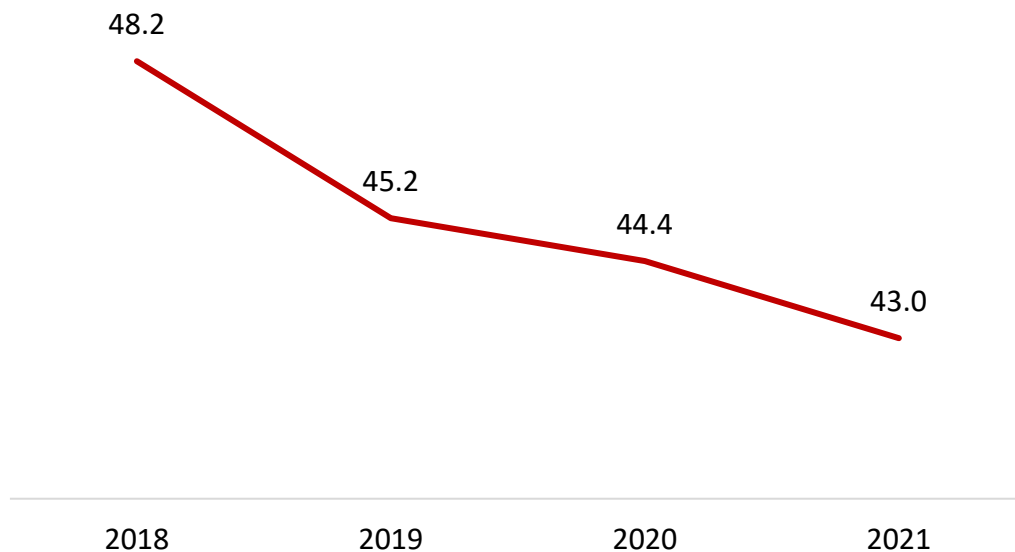
Data Source: Arizona Prescription Drug Monitoring Program; Note: Only opioid prescriptions dispensed among Arizona residents are included in the graph.

Figure 36. Opioid Pills Dispensed by Year, Arizona, 2018-2021 (n=806,247,124)



Data Source: Arizona Prescription Drug Monitoring Program; Note: Only opioid prescriptions (n=12,935,042) dispensed among Arizona residents are included in the graph. Only solid dosage forms (i.e. tablets or capsules) were included in the analysis.

Figure 37. Average Morphine Milligram Equivalent (MME) Prescribed, Arizona, 2018-2021 (n=12,935,042)

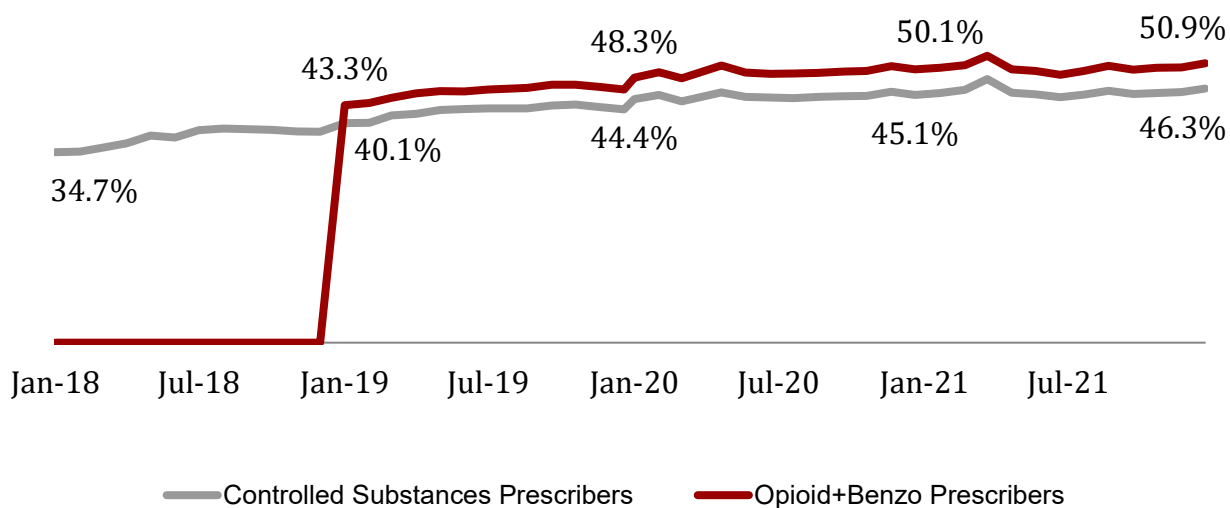


Data Source: Arizona Prescription Drug Monitoring Program; Notes: Only opioid prescriptions dispensed among Arizona residents are included in the graph. MME are values that represent the potency of an opioid dose relative to morphine.

CSPMP Prescriber Lookups

The percent of prescribers who checked the PMP⁹ has increased from 2018-2021 for prescribers of all controlled substances (34.7% to 46.3%) and from 2019-2021 for prescribers of opioids and benzodiazepines (43.3% to 50.9%).

Figure 38. Percentage of Controlled Substances and Opioid/Benzodiazepine Prescribers who Checked PMP, 2018-2021



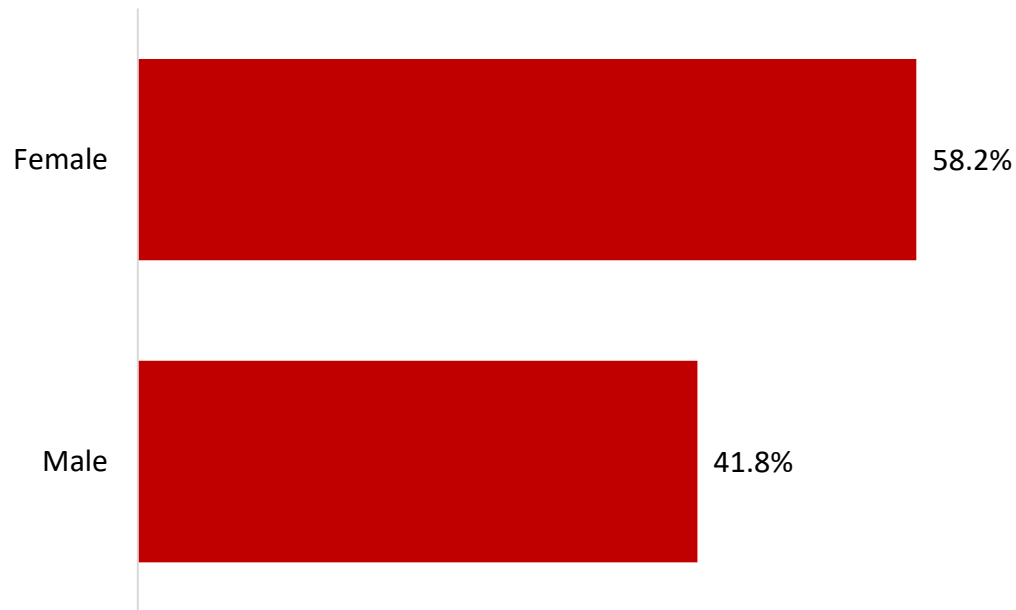
Data Source: Controlled Substance Prescription Monitoring Program (CSPMP)

⁹ As of October 16, 2017, prescribers are required to check the Prescription Monitoring Program (PMP) before prescribing an opioid analgesic or benzodiazepine-controlled substance listed in schedule II, III or IV for a patient, shall obtain a patient utilization report regarding the patient for the preceding 12 months from the controlled substances prescription monitoring program's central database tracking system at the beginning of each new course of treatment and at least quarterly while that prescription remains a part of the treatment. For information on exemptions, review Arizona Revised Statutes (A.R.S.) § 36-2606.

Sex

The percent of opioid prescriptions dispensed for females (58%) was higher than compared with males (42%).

Figure 39. Percentage of Opioid Prescriptions Dispensed by Sex, Arizona, 2020-2021 (n= 5,883,848)

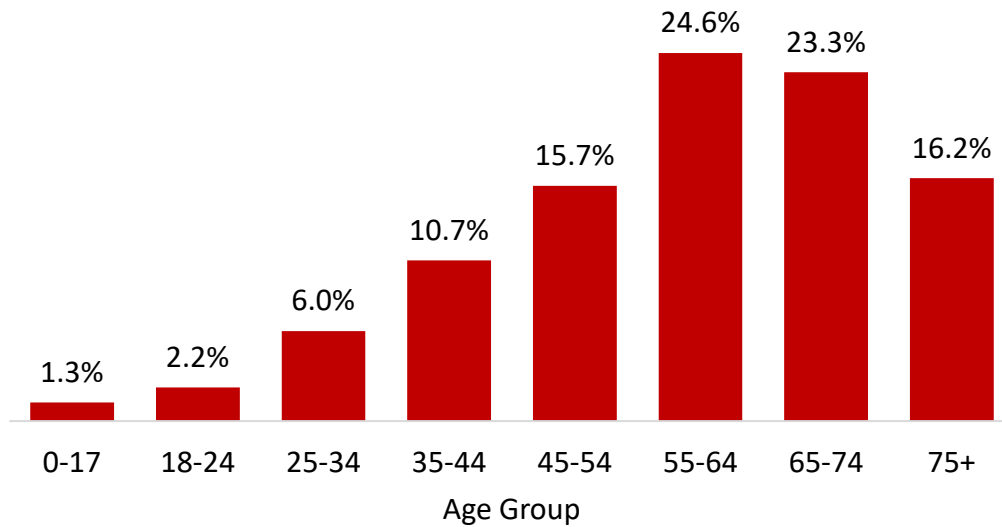


Data Source: Arizona Prescription Drug Monitoring Program; Notes: Missing values for sex (n=985; 0.02%) are excluded from this graph. Unknown sex may include unidentified persons. Only opioid prescriptions dispensed among Arizona residents are included in the graph.

Age

The percent of opioid prescriptions dispensed for persons aged 55-64 years (25%), 65-74 years (23%), and 75+ years (16%) was higher than compared with persons of other ages.

Figure 40. Percentage of Opioid Prescriptions Dispensed by Age Group, Arizona, 2020-2021 (n= 5,883,848)

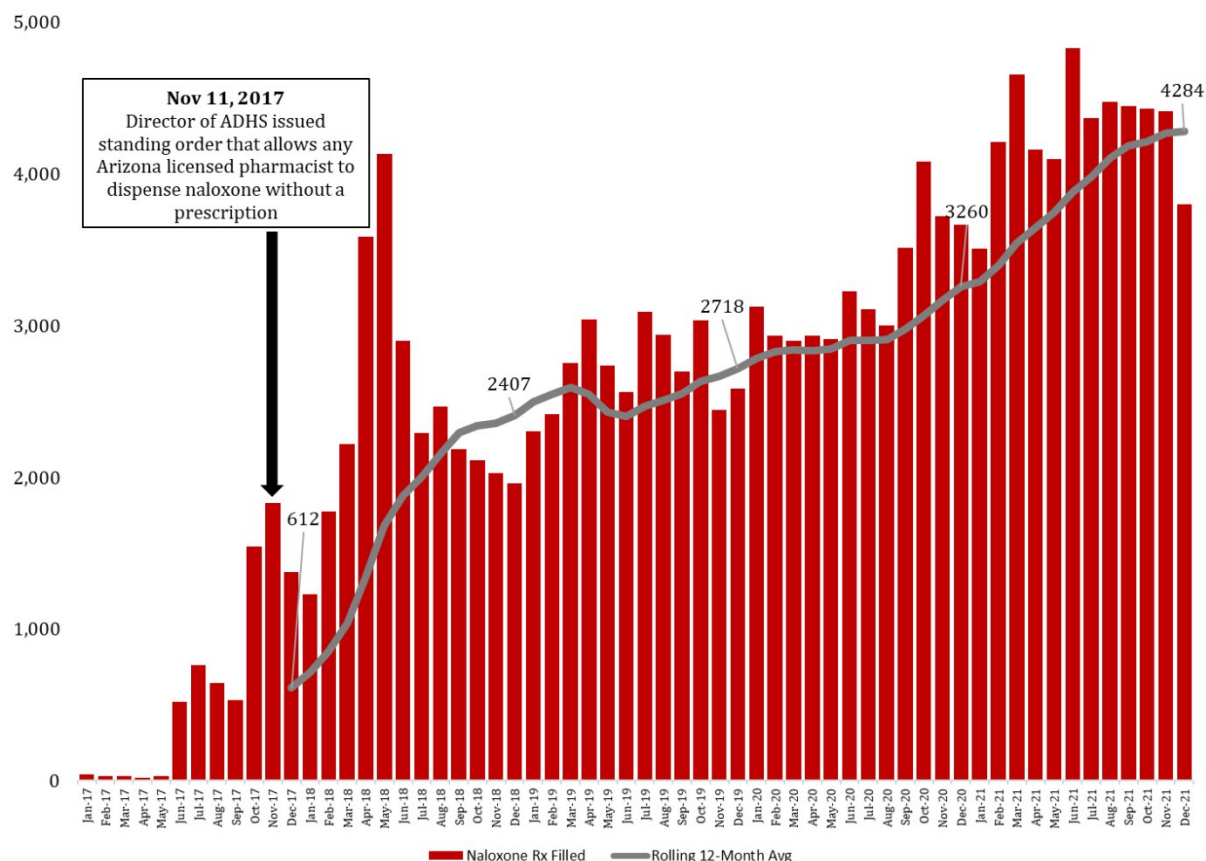


Data Source: Arizona Prescription Drug Monitoring Program; Notes: There were no missing data for Age Group. Only opioid prescriptions dispensed among Arizona residents are included in the graph.

Naloxone Dispensed by Pharmacies

The Director of ADHS issued a standing order effective November 11, 2017 that allows any Arizona licensed pharmacist to dispense naloxone without a prescription. The number of prescriptions dispensed by pharmacies in Arizona has increased significantly from 2017-2021.

Figure 41. Naloxone Dispensed by Pharmacies, Arizona, 2017-2021, (n=159,376)



Data Source: Controlled Substance Prescription Monitoring Program (CSPMP). Notes-Rolling average calculated as average number of events in previous 12 months.

Limitations

Several limitations should be kept in mind when reviewing data included in this report.

Rate Calculations

Populations rates for fatal and non-fatal opioid overdoses in 2020 and 2021 were calculated using provisional 2020 populations data. Likewise, the number of fatal opioid overdoses were provisional at the time of report development. Other rates throughout are calculated using different denominators depending on the particular source of data (e.g., syndromic surveillance uses total number of events, hospital discharge uses total number of visits, AZ-PIERS uses total number of responses). This report is cross-sectional analysis of events and rates for 2020-2021, with no additional statistical testing to quantify the significance of relationships between various factors and outcomes. As such data should be interpreted with caution in identifying potential associations, and without conclusions about cause and effect.

Timeliness of Data

Data for this report were pulled from June-August, 2022. All death data for 2021 were still considered provisional at this time. Several other data source data from 2021 may update slightly from what was reported as they become more complete. For this reason, data reported may differs slightly from what is reported elsewhere, and specifically on the ADHS Opioid Dashboard.

Classification of Opioid Overdoses

Case classification of opioid overdoses is complex and differs significantly between data sources. Most data and data systems (with the exception of MEDSIS for non-fatal overdoses) used for the surveillance of opioid overdoses were not created for the express purpose of capturing opioid overdoses. Estimates are likely a slight underrepresentation of the true prevalence of events in Arizona.

Other Causes of Opioid Overdoses

Most of this analysis could not consider social determinants of health of a particular opioid overdose, such as economic stability, access to health providers or behavioral health care, or other environmental impacts. These can be important contributors of opioid overdoses that are often overlooked.

Conclusions

In 2020-2021, there were 3,888 opioid overdose deaths among Arizona residents. The leading cause was prescription and synthetic opioids (94.5%). The mortality rate for opioid overdose deaths was highest among males (39 per 100,000 persons), Black or African American (38 per 100,000 persons), and persons 25-34 years old (59 per 100,000 residents) or 35-44 years old (49 per 100,000 persons). The overall trend of opioid overdose deaths increased significantly from 2017-2020, but was stable (not significantly increasing or decreasing) from 2020-2021.

There were 7,448 reportable non-fatal opioid overdose events (MEDSIS), 18,203 suspected ED or inpatient visits (syndromic surveillance), and 104,450 ED or hospitalizations with any mention of opioids (hospital discharge records).

Non-fatal opioid-related overdoses most commonly occurred among males (~65%), White (~58%) and Hispanic (~28%) persons, and persons ages 18-44 (~68%). The rate of non-fatal opioid-related overdoses were highest among males (67 per 100,000), American Indian or Alaska Native (35 per 100,000) and African American or Black persons (33 per 100,000), and persons ages 18-44 (289 per 100,000). The overall trend of non-fatal opioid overdoses was stable (not significantly increasing or decreasing) during 2020-2021.

The number of opioid prescriptions, pills, and average morphine milligram equivalents (MME) dispensed in Arizona decreased during 2020-2021.

There were 17,484 Emergency Medical Services (EMS)/Law Enforcement responses reported for suspected opioid overdoses. EMS/Law Enforcement response for suspected opioid overdoses occurred most commonly among males (66%), White (55%) and Hispanic (25%) persons, and persons ages 18-44 years old (62%).

Naloxone was administered for 15,012 EMS/Law Enforcement responses for suspected opioid overdoses (>80% of all responses). Naloxone was administered most commonly by EMS (75%), Law Enforcement (19%), or a bystander (5%). Naloxone dispensed by pharmacies has continued to significantly increase during 2020-2021.

Hospitalizations and ED visits for ED and hospitalizations with any mention of opioids resulted in approximately \$2.2 billion in total charges annually in 2020-2021.

Appendix (Supplemental Tables/Figures)

Fatal Opioid Overdose Events (Data: Death Certificates)

Table A1. Opioid deaths by Age Group, Arizona, 2020-2021 (n=3,888)

Age Group	Count			Percent			Rate per 100,000 population		
	2020	2021	2020-2021	2020	2021	2020-2021	2020	2021	2020-2021
Total AZ	1,886	2,002	3,888	100.0	100.0	100.0	25.6	27.2	26.4
0-17	59	46	105	3.1	2.3	2.7	3.6	2.8	3.2
18-24	306	236	542	16.2	11.8	13.9	44.0	33.9	39.0
25-34	581	609	1,190	30.8	30.4	30.6	57.6	60.4	59.0
35-44	402	481	883	21.3	24.0	22.7	44.8	53.6	49.2
45-54	280	306	586	14.9	15.3	15.1	32.8	35.9	34.4
55-64	194	233	427	10.3	11.6	11.0	22.0	26.4	24.2
65+	64	91	155	3.4	4.6	4.0	4.9	6.9	5.9

Data Source: Vital Statistics, Death Certificates

Table A2. Opioid deaths by Sex, Arizona, 2020-2021 (n=3,888)

Sex	Count			Percent			Rate per 100,000 population		
	2020	2021	2020-2021	2020	2021	2020-2021	2020	2021	2020-2021
Total AZ	1,886	2,002	3,888	100.0	100.0	100.0	25.6	27.2	26.4
Female	527	552	1,079	27.9	27.6	27.8	14.4	15.0	14.7
Male	1,359	1,450	2,809	72.1	72.4	72.2	37.5	40.0	38.7

Data Source: Vital Statistics, Death Certificates

Table A3. Opioid deaths by Race/Ethnicity, Arizona, 2020-2021 (n=3,888)

Race/ Ethnicity	Count			Percent			Rate		
	2020	2021	2020- 2021	2020	2021	2020- 2021	2020	2021	2020- 2021
Total AZ	1,886	2,002	3,888	100.0	100.0	100.0	25.6	27.2	26.4
White	994	1,043	2,037	52.7	52.1	52.4	24.7	26.0	25.3
Hispanic or Latino	598	632	1,230	31.7	31.6	31.6	25.7	27.2	26.5
Black or African American	123	156	279	6.5	7.8	7.2	33.7	42.7	38.2
Unknown	93	102	195	4.9	5.1	5.0	<0.01	<0.01	<0.01
American Indian or Alaska Native	49	49	98	2.6	2.4	2.5	16.2	16.2	16.2
Other Race	25	11	36	1.3	0.5	0.9	<0.01	<0.01	<0.01
Asian or Pacific Islander	*	*	*	*	0.4	*	*	3.2	*

Data Source: Vital Statistics, Death Certificates; To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are shown by “*”; Rate Calculations:

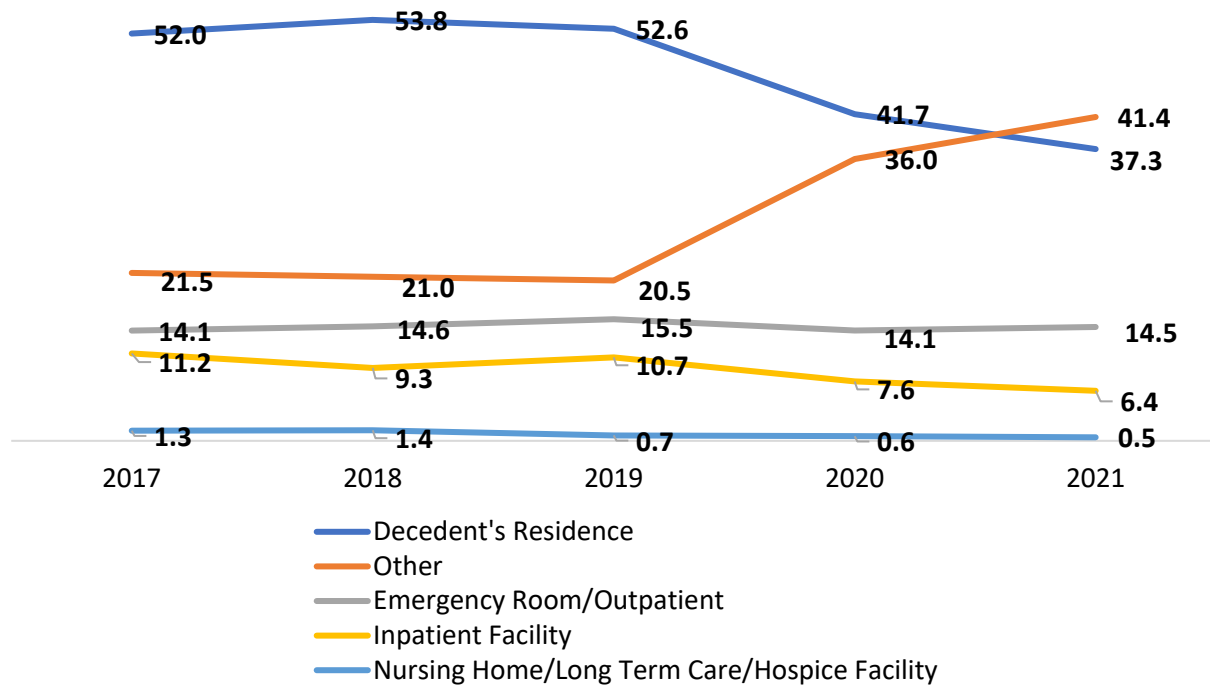
**Table A4. Opioid deaths (rate per 100,000 population) by County, Arizona, 2020-2021
(n=3,888)**

County	2020		2021		2020-2021
	Count	Rate per 100,000 population	Count	Rate per 100,000 population	Rate per 100,000 population
Total AZ	1,868	25.6	1,981	27.2	26.4
Apache	14	19.3	19	26.2	22.7
Cochise	29	22.0	16	12.1	17.1
Coconino	29	20.0	28	19.3	19.6
Gila	10	18.1	19	34.4	26.2
Graham	*	*	*	*	*
Greenlee	*	*	*	*	*
La Paz	*	*	*	*	*
Maricopa	1,236	27.8	1,276	28.7	28.3
Mohave	35	15.9	43	19.6	17.8
Navajo	21	18.5	30	26.5	22.5
Pima	308	29.3	348	33.1	31.2
Pinal	83	17.7	101	21.6	19.7
Santa Cruz	16	29.8	*	*	*
Yavapai	68	28.8	59	25.0	26.9
Yuma	*	*	14	5.9	*

Data Source: Vital Statistics, Death Certificates

Notes: To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are shown as “* “. County reflects person place of residence.

Figure A1. Percent of Opioid Overdose Deaths by Place of Occurrence, Arizona, 2017-2021 (n=7,390)



Data Source: Vital Statistics, Death Certificates; Notes: The category 'Other' includes, among other places, other residences (e.g., friend or family residence).

Reportable Non-Fatal Opioid Overdose Events (Data: MEDSIS)

Table A5. Rate per 100,000 of Reportable Non-Fatal Opioid Overdose Events (MEDSIS) by Year, Arizona, 2020-2021

	2020		2021		Average Annual
County	Count	Rate per 100,000	Count	Rate per 100,000	Rate per 100,000
AZ Total	3,976	54.5	3,472	47.6	51.1
Apache	*	*	20	27.5	*
Cochise	18	13.7	15	11.4	12.5
Coconino	28	19.3	34	23.4	21.3
Gila	49	88.6	57	103.1	95.9
Graham	42	108.6	15	38.8	73.7
Greenlee	*	*	*	*	*
La Paz	*	*	*	*	*
Maricopa	2,522	56.8	2,087	47.0	51.9
Mohave	71	32.3	90	41.0	36.7
Navajo	50	44.1	58	51.2	47.7
Pima	651	61.9	598	56.8	59.3
Pinal	330	70.5	236	50.4	60.5
Santa Cruz	24	44.7	21	39.1	41.9
Yavapai	99	41.9	48	20.3	31.1
Yuma	84	35.7	189	80.3	58.0

Data Source: MEDSIS

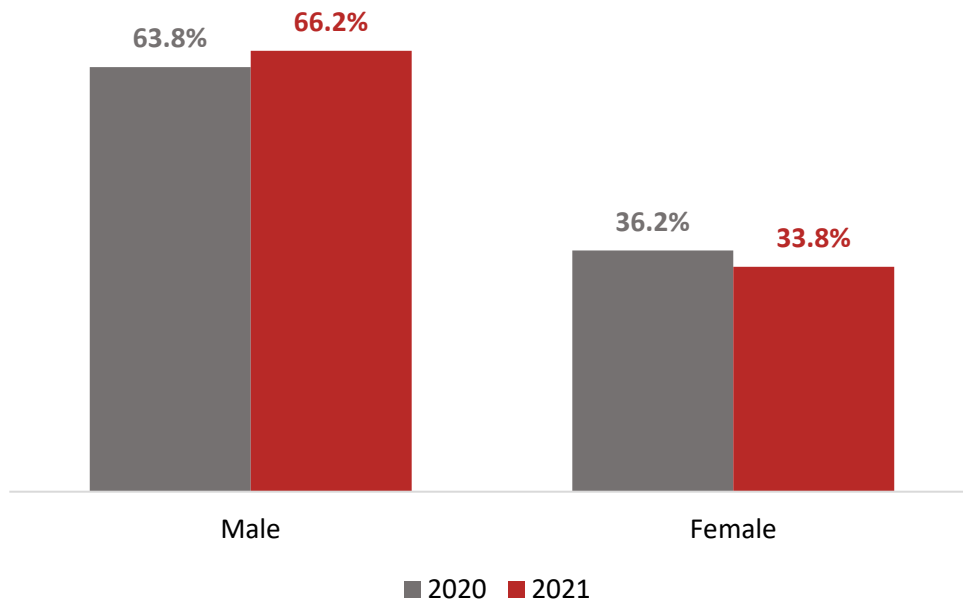
Notes: County reflects person place of residence. To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are shown by “*”; Rate Calculations:

2020 Rate= (Non-Fatal Opioid Overdose Events for County in 2020)/(County Population in 2020)*100,000

2021 Rate= (Non-Fatal Opioid Overdose Events for County in 2021)/(County Population in 2020)*100,000

Total Rate= (Non-Fatal Opioid Overdose Events for County in 2020 + Events for County in 2021)/(County Population in 2020 + County Population in 2020)*100,000

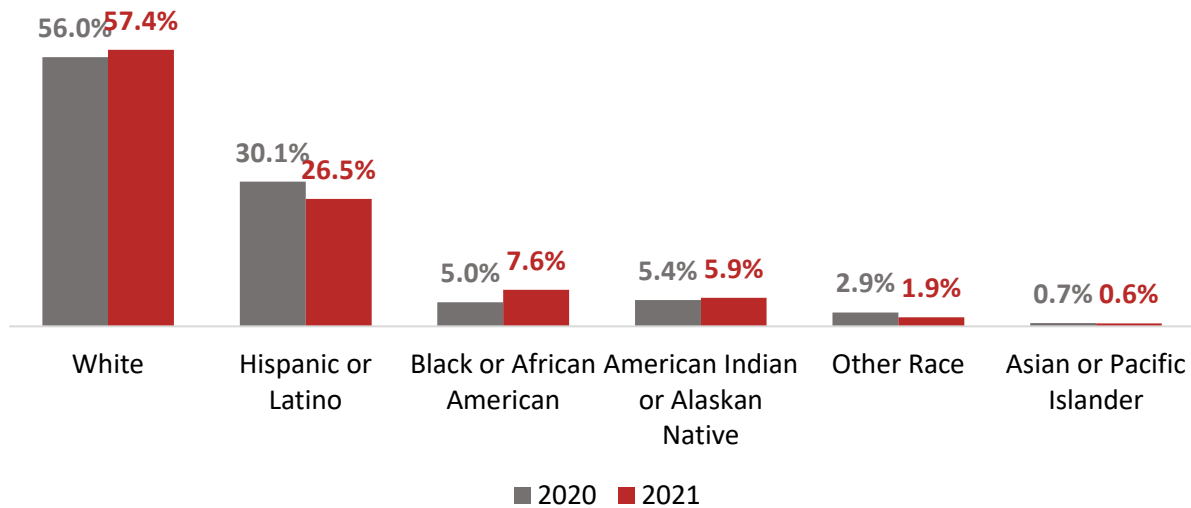
Figure A2. Non-Fatal Opioid Overdose Events by Sex, Arizona, 2020 vs. 2021 (n=7,441)



Data Source: MEDSIS

Notes: Individuals with Unknown sex (n=7; 0.1%) have been excluded from this graphic. Unknown sex may include unidentified persons.

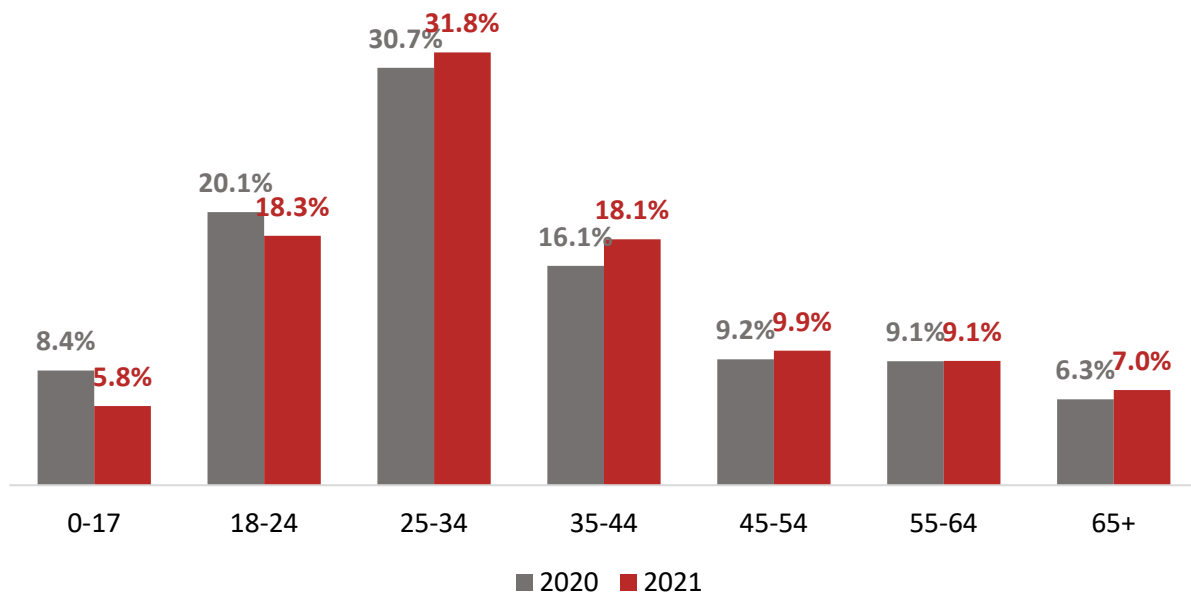
Figure A3. Non-Fatal Opioid Overdose Events by Race and Ethnicity, Arizona, 2020 vs. 2021 (n=3,703)



Data Source: MEDSIS

Notes: Individuals with Unknown Race and Ethnicity (n=3,705; 50.3%) have been excluded from this graphic.

**Figure A4. Non-Fatal Opioid Overdose Events by Age Group, Arizona, 2020 vs. 2021
(n=7,442)**



Data Source: MEDSIS

Notes: Individuals with Unknown Age (n=6; 0.1%) have been excluded from this graphic.

Inpatient and Emergency Visits (Data: Syndromic Surveillance)

Table A6. Monthly Rate of Emergency and Inpatient Suspected Opioid Overdoses by Visit Type, Arizona, 2020-2021 (n=18,203)

		Emergency Rate Per 100,000 Visits	Inpatient Rate Per 100,000 Visits
2020	January	229.1	797.9
	February	249.1	861.7
	March	288.7	929.2
	April	438.1	1114.2
	May	358.2	917.4
	June	311.7	815.9
	July	297.3	802.2
	August	301.5	825.6
	September	298.2	784.8
	October	277.3	772.6
	November	272.4	790.8
	December	257.7	759.4
2021	January	286.9	1097.5
	February	329.1	1125.4
	March	283.7	984.7
	April	260.3	861.4
	May	250.9	681.9
	June	250.2	694.4
	July	239.5	679.3
	August	212.6	651.4
	September	232.6	677.5
	October	234.3	671.5
	November	227.0	682.4
	December	229.5	701.5

Data Source: ESSENCE Syndromic Surveillance

Rate Calculations:

Emergency Rate= (Emergency Visits by Month and Year)/(Emergency Visit Total by Month and Year)*100,000

Inpatient Rate= (Inpatient Visits by Month and Year)/(Inpatient Visit Total by Month and Year)*100,000

Table A5. Frequency and Rate per 100,000 of Emergency and Inpatient Visits for Suspected Opioid Overdoses by Visit Type and Patient County, Arizona, 2020-2021

	Emergency Visits		Inpatient Visits	
County	Frequency	Rate per 100,000 Visits	Frequency	Rate per 100,000 Visits
Total AZ	11,641	254.6	6,562	860.0
Apache	57	346.2	20	462.0
Cochise	169	168.8	97	586.0
Coconino	69	117.9	80	729.8
Gila	127	326.6	43	600.7
Graham	59	190.8	26	427.8
Greenlee	*	*	*	*
La Paz	16	97.0	*	*
Maricopa	7,038	253.3	3,802	836.8
Mohave	248	123.4	217	881.8
Navajo	84	198.2	25	238.0
Pima	2,230	326.6	1,551	1,249.0
Pinal	824	302.4	325	610.4
Santa Cruz	108	290.4	29	404.2
Yavapai	461	282.0	270	1,268.1
Yuma	146	112.2	61	326.6

Data Source: ESSENCE Syndromic Surveillance

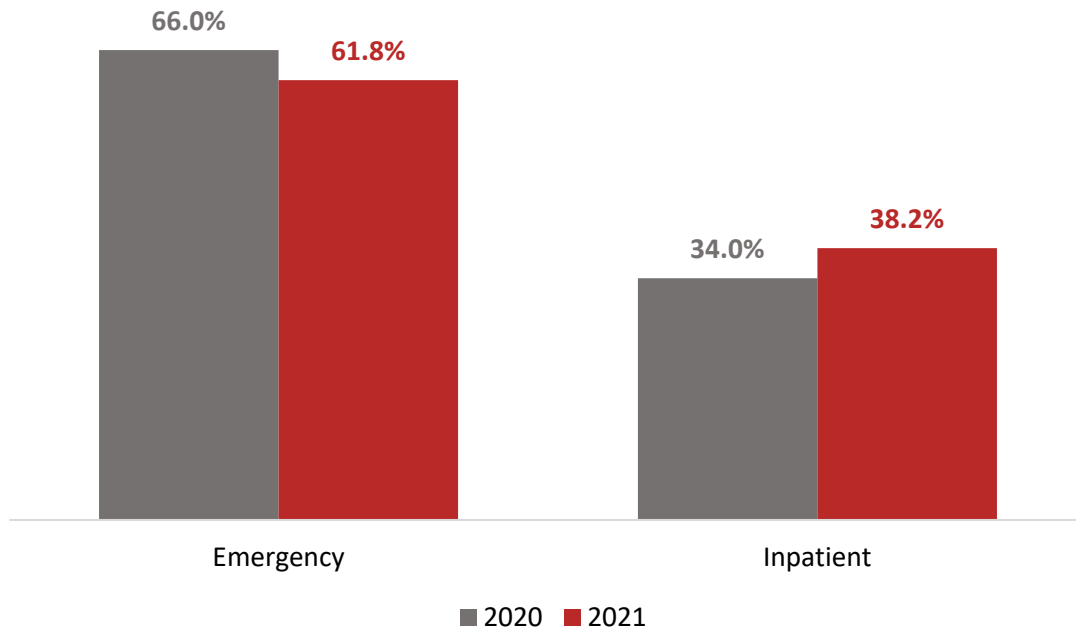
Notes: To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are shown as “*”. County reflects person place of residence.

Rate Calculations:

Emergency Rate= (Emergency Visits by County)/(Emergency Visit Total by County in 2020 + Total by County in 2020)*100,000

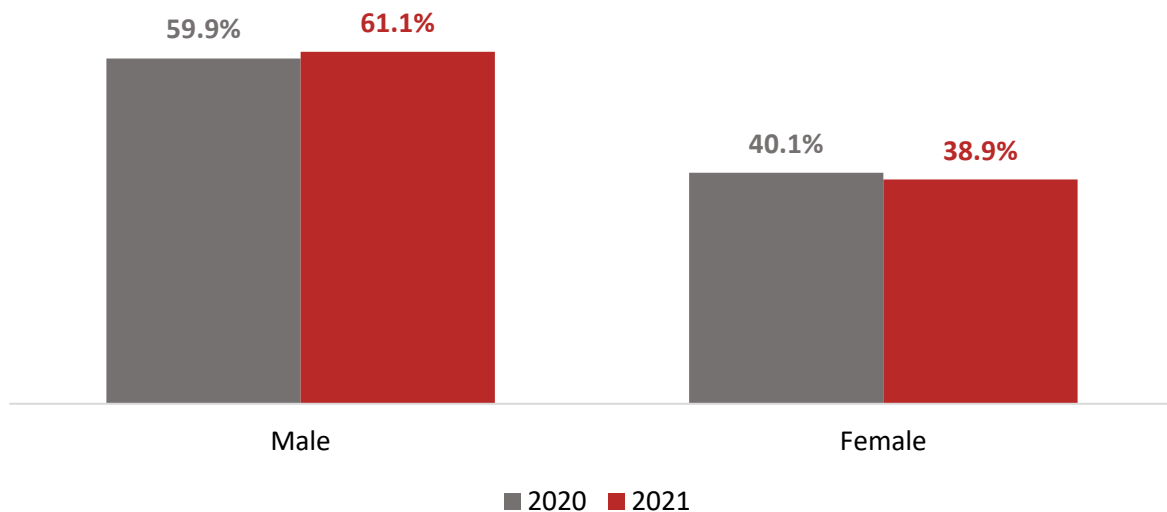
Inpatient Rate= (Inpatient Visits by County)/(Inpatient Visit Total by County in 2020 + Total by County in 2020)*100,000

Figure A5. Percent of Emergency and Inpatient Suspected Opioid Overdoses by Visit Type, Arizona, 2020 vs. 2021 (n=18,199)



Data Source: ESSENCE Syndromic Surveillance

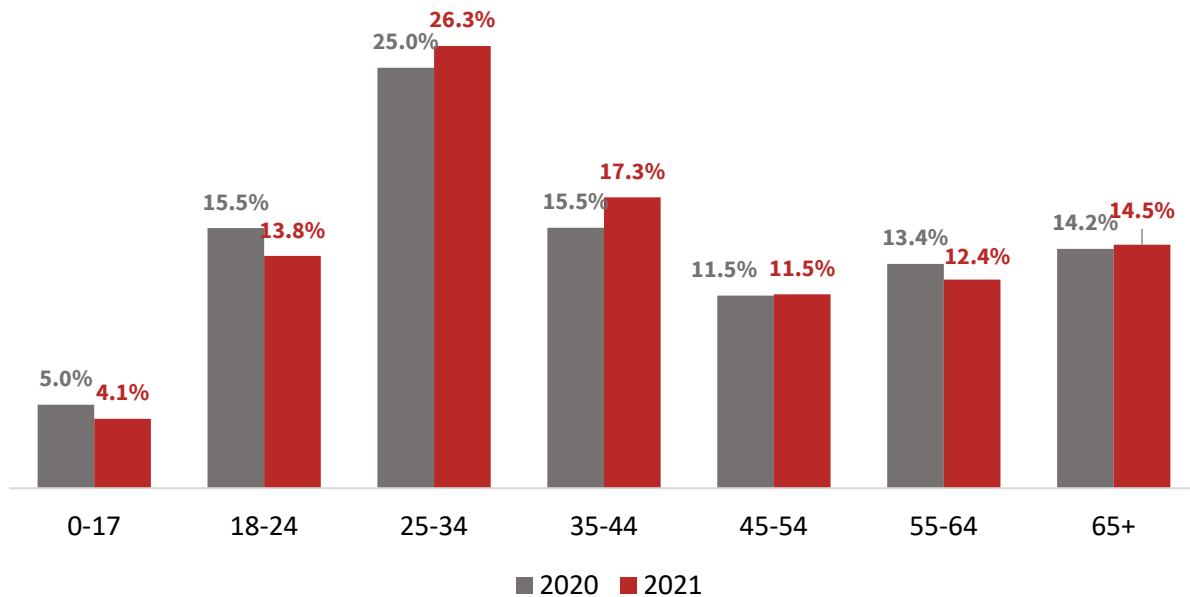
Figure A6. Percent of Emergency and Inpatient Suspected Opioid Overdoses by Sex, Arizona, 2020 vs. 2021 (n=18,199)



Data Source: ESSENCE Syndromic Surveillance

Notes: Individuals with Unknown Sex (n=4; 0.02%) have been excluded from this graphic. Unknown sex may include unidentified persons.

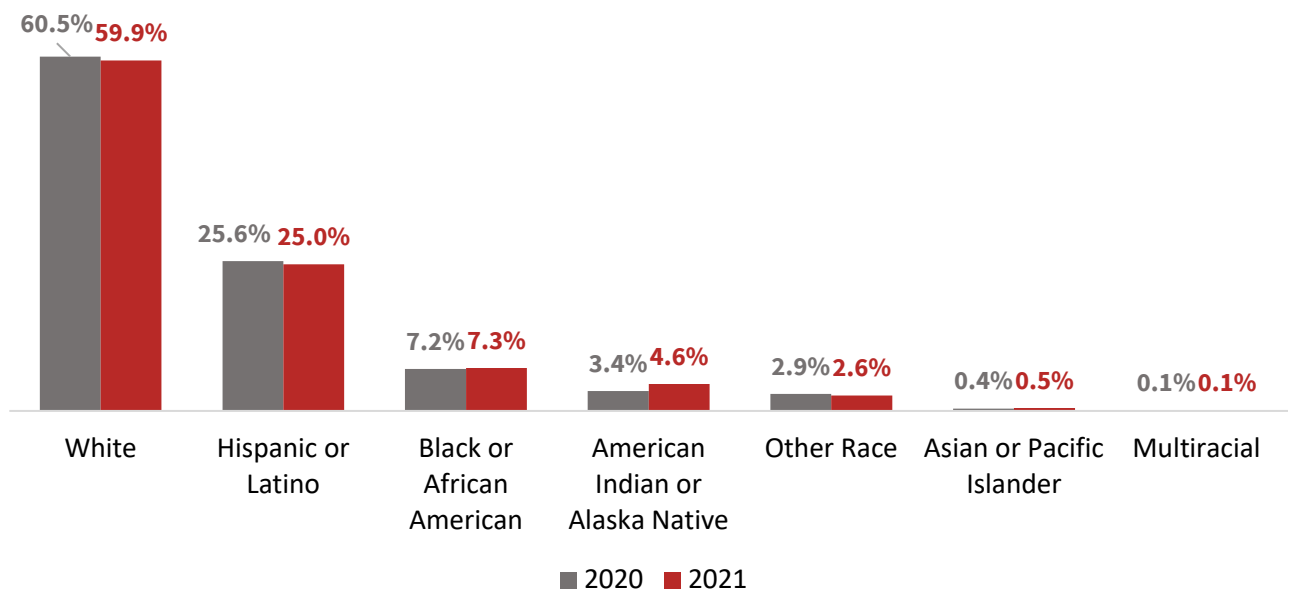
Figure A7. Percent of Emergency and Inpatient Suspected Opioid Overdoses by Age Group, Arizona, 2020 vs. 2021 (n=18,181)



Data Source: ESSENCE Syndromic Surveillance

Notes: Individuals with Unknown Age (n=22; 0.1%) have been excluded from this graphic.

Figure A8. Percent of Emergency and Inpatient Suspected Opioid Overdoses by Race and Ethnicity, Arizona, 2020 vs. 2021 (n=18,131)



Data Source: ESSENCE Syndromic Surveillance

Notes: Individuals with Unknown Race/ Ethnicity (n=72; 0.4%) have been excluded from this graphic.

EMS/Law Enforcement Responses (Data: AZ-PIERS)

Table A8. All Suspected Opioid Overdose EMS/Law Enforcement Responses by Sex, Arizona, 2020-2021 (n=17,484)

Sex	Count			Percent		
	2020	2021	2020-2021	2020	2021	2020-2021
AZ Total	8,485	8,929	17,414	100.0	100.0	100.0
Female	2,835	3,014	5,849	33.4	33.8	33.6
Male	5,650	5,915	11,565	66.6	66.2	66.4

Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

Table A9. All Suspected Opioid Overdose EMS/Law Enforcement Responses by Age Group, Arizona, 2020-2021 (n=17,484)

Age Group	Count			Percent		
	2020	2021	2020-2021	2020	2021	2020-2021
AZ Total	8,485	8,929	17,414	100.0	100.0	100.0
0-17	408	333	741	4.8	3.7	4.3
18-24	1,491	1,236	2,727	17.5	13.8	15.6
25-34	2,330	2,603	4,933	27.4	29.2	28.3
35-44	1,507	1,653	3,160	17.7	18.5	18.1
45-54	892	1,029	1,921	10.5	11.5	11.0
55-64	850	913	1,763	10.0	10.2	10.1
65-74	542	604	1,146	6.4	6.8	6.6
75+	484	557	1,041	5.7	6.2	6.0

Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

Table A10. All Suspected Opioid Overdose EMS/Law Enforcement Responses by Race/Ethnicity, Arizona, 2020-2021 (n=17,484)

Race/Ethnicity	Count			Percent		
	2020	2021	2020-2021	2020	2021	2020-2021
AZ Total	8,485	8,929	17,414	100.0	100.0	100.0
White	3,200	3,211	6,411	56.2	53.9	55.0
Hispanic or Latino	1,480	1,446	2,926	26.0	24.3	25.1
Black or African American	419	446	865	7.4	7.5	7.4
Other or Multi Race	345	518	863	6.1	8.7	7.4
American Indian or Alaska Native	199	272	471	3.5	4.6	4.0
Asian or Pacific Islander	48	64	112	0.8	1.1	1.0

Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

Table A11. Number and Rate of EMS/Law Enforcement Responses for Suspected Opioid Overdoses Per 100,000 Population by County, Arizona, 2020-2021 (n=17,484)

County	2020		2021		2020-2021
	Count	Rate	Count	Rate	Rate
Total AZ	8,529	116.9	8,954	122.7	119.8
Apache	*	*	13	17.9	*
Cochise	99	75.2	108	82.0	78.6
Coconino	70	48.2	63	43.4	45.8
Gila	28	50.6	54	97.7	74.2
Graham	10	25.9	*	*	*
Greenlee	N/R	N/R	N/R	N/R	N/R
La Paz	31	137.5	40	177.4	157.5
Maricopa	4,810	108.4	5,287	119.1	113.7
Mohave	143	65.1	189	86.1	75.6
Navajo	104	91.8	128	113.0	102.4
Pima	1,903	180.8	1,840	174.8	177.8
Pinal	419	89.5	374	79.9	84.7
Santa Cruz	108	201.0	139	258.7	229.8
Yavapai	488	206.4	448	189.5	197.9
Yuma	311	132.2	264	112.2	122.2

Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

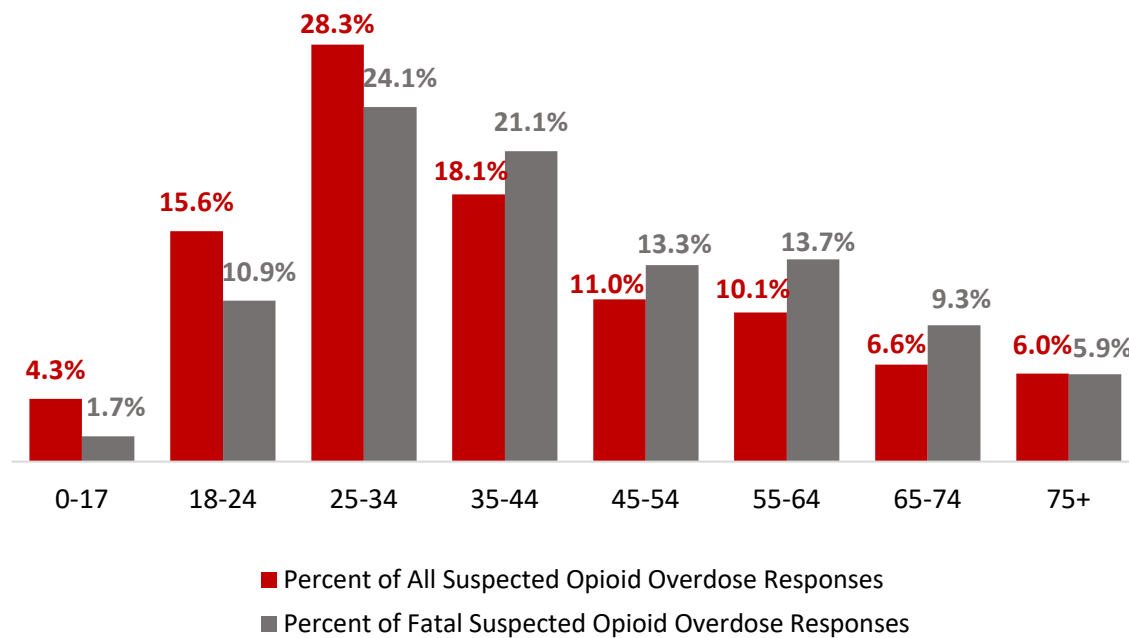
Notes: N/R = none reported; To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are shown as “*”. County reflects person’s place of overdose.

Table A12. EMS/Law Enforcement Responses for Suspected Non-fatal Opioid Overdoses with Naloxone Administered by County, Arizona, 2020-2021 (n=15,012)

Residence County	Number of Responses where naloxone was administered		All suspected non-fatal opioid responses		Percent of suspected non-fatal opioid responses with naloxone administered	
	2020	2021	2020	2021	2020	2021
Total AZ	7,221	7,672	8,385	8,997	86	85
Apache	*	14	*	16	*	88
Cochise	72	90	96	120	75	75
Coconino	54	61	60	65	90	94
Gila	14	20	26	49	54	41
Graham	*	*	*	*	*	*
Greenlee	N/R	N/R	N/R	N/R	N/R	N/R
La Paz	23	29	30	41	77	71
Maricopa	4,064	4,531	4,747	5,363	86	84
Mohave	122	173	150	197	81	88
Navajo	83	117	94	127	88	92
Pima	1,726	1,585	1,850	1,776	93	89
Pinal	362	320	431	366	84	87
Santa Cruz	68	116	119	160	57	73
Yavapai	350	369	434	426	81	87
Yuma	275	242	335	285	82	85

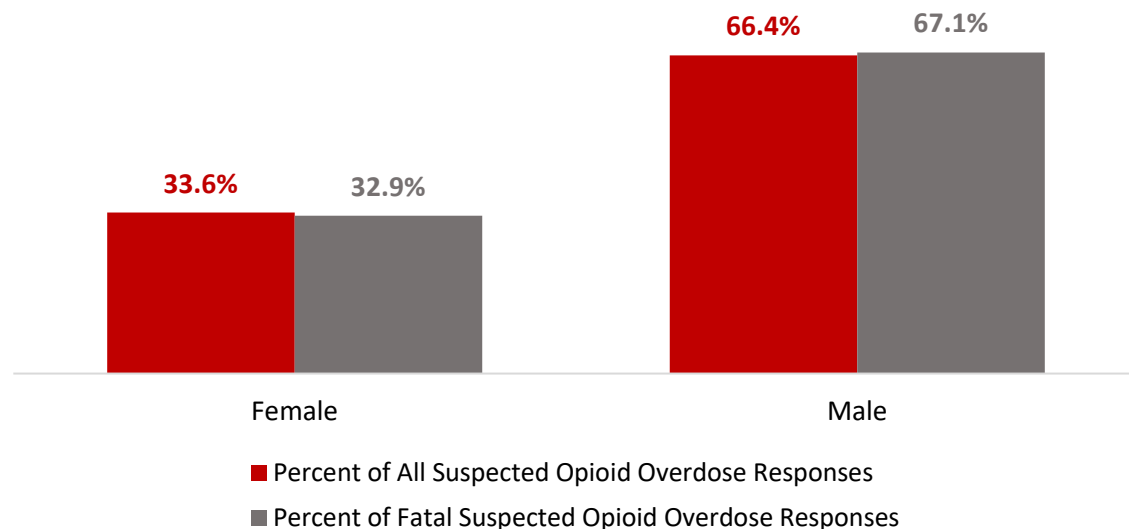
Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS); Notes: N/R – none reported; To prevent the public disclosure of personally identifying information, data points based on fewer than 10 counts are shown as “*”. County reflects person place of overdose.

Figure A9. Percent of All vs. Fatal Suspected Opioid Overdose EMS/Law Enforcement responses by Age Group, Arizona, 2020-2021 (n=17,484)



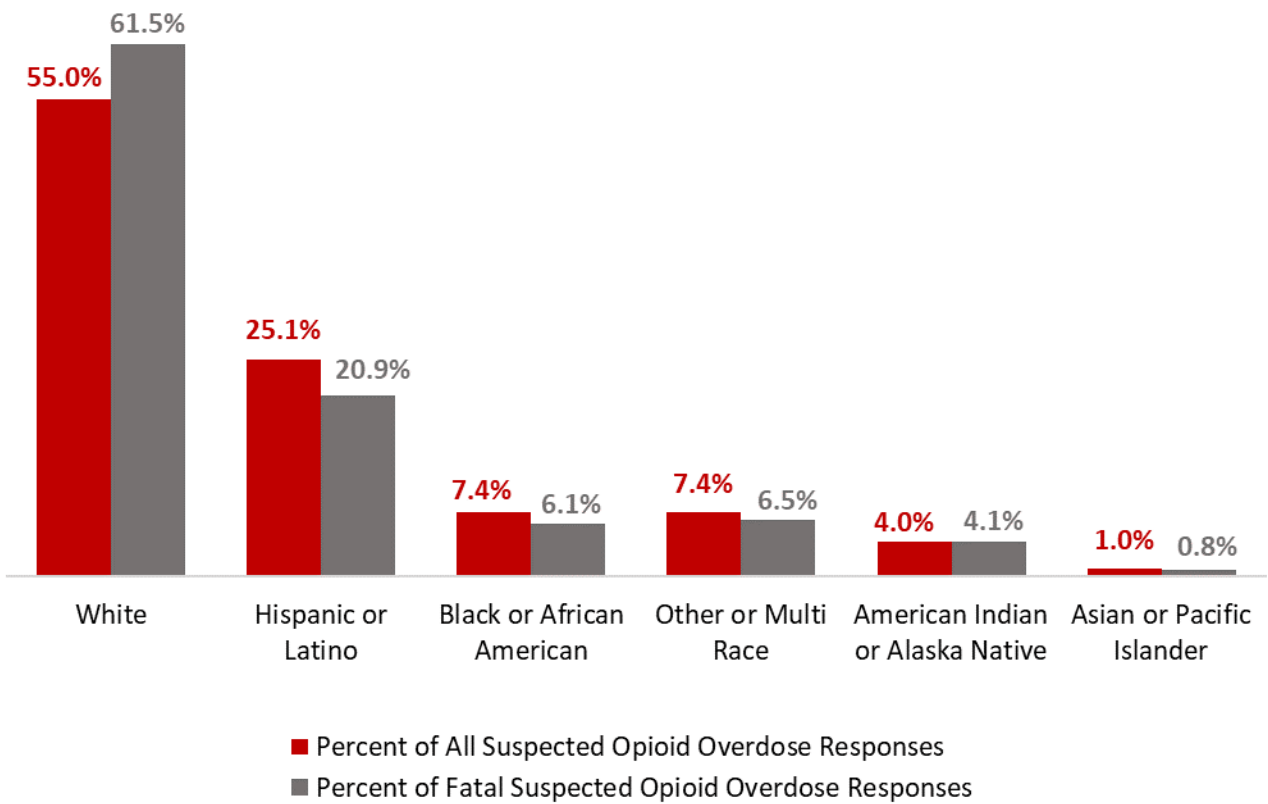
Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

Figure A10. Percent of All vs. Fatal Suspected Opioid Overdose EMS/Law Enforcement responses by Sex, Arizona, 2020-2021 (n=17,484)



Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)

Figure A11. Percent of All vs. Fatal Suspected Opioid Overdose EMS/Law Enforcement responses by Race/Ethnicity, Arizona, 2020-2021 (n=17,484)



Data Source: Arizona Pre-Hospital Information & EMS Registry System (AZ-PIERS)