

NON-FATAL OPIOID AND ALL DRUG OVERDOSE SURVEILLANCE REPORT

Florida, Q1-2019



Florida Drug Overdose Surveillance and Epidemiology

FL-DOSE

Funding Agency:

*Centers for Disease Control and Prevention
Grant No. NU17CE925020*

Author:

*Jared Jashinsky, PhD
Epidemiologist
Florida Department of Health
Division of Emergency Preparedness and Community Support
Bureau of Emergency Medical Oversight*

Disclaimer:

This product is for reference purposes only and is not to be construed as a legal document. Any reliance on the information contained herein is at the user's own risk. The Florida Department of Health and its agents assume no responsibility for any use of the information contained herein or any loss resulting therefrom.

EXECUTIVE SUMMARY

BACKGROUND

Opioid overdose rates have increased dramatically since the turn of the century and have continued to rise in recent years. Previous data from Florida's Drug Overdose Surveillance and Epidemiology (FL-DOSE) system showed that men and adults ages 25–34 were most likely to non-fatally overdose on opioids and all drugs. The purpose of this report is to provide current estimates of non-fatal opioid and all drug overdoses in Florida using data from FL-DOSE. Estimates of drug overdoses in this report include rates of non-fatal overdoses across demographic and contextual groups, as well as rates over time.

METHODS

The number of non-fatal opioid and all drug overdoses and related data were derived from Florida's Emergency Medical Services Tracking and Reporting System (EMSTARS) database, which receives information from EMS agencies throughout the state and represented 98 percent of Florida prehospital EMS runs. All drug overdoses include opioids, as well as drugs such as heroin, cocaine, stimulants, and others. Rates per 100,000 persons were estimated using data from the 2017 United States Census Bureau, 2013–2017 American Community Survey Five-Year Estimates. Demographic information included sex, race and ethnicity, and age. Percent of non-fatal opioid overdose cases where naloxone was administered was calculated. County overdose rates were calculated using direct age-adjustment to facilitate comparisons. Overdose rates were also calculated across time since 2015.

RESULTS

Florida experienced 3,340 and 9,272 non-fatal opioid and all drug overdoses respectively between January and March of 2019. A total of 16.47 and 45.72 non-fatal opioid and all drug overdoses occurred per 100,000 individuals during these three months. Males were more likely than females to experience non-fatal overdoses. Whites were more likely than other racial and ethnic groups to experience non-fatal overdoses. Adults ages 30–40 were the most likely age group to experience non-fatal overdoses. Pinellas, Brevard, and Manatee counties experienced the highest age-adjusted opioid overdose rates. Sumter, Alachua, and Escambia counties experienced the highest age-adjusted all drug overdose rates. Overdose rates started lower in 2015, spiked in 2017, and have partially decreased through 2019. Overdose rates in young adults ages 20–24 have largely returned to 2015 levels, while rates remain high in adults ages 25–39.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	iii
BACKGROUND	iii
METHODS	iii
RESULTS	iii
TABLE OF CONTENTS	iv
BACKGROUND	1
METHODS	2
SAMPLE	2
MEASURES	4
Demographics and Naloxone Administration	4
Non-Fatal Overdose Rates	4
RESULTS	5
DEMOGRAPHICS AND NALOXONE ADMINISTRATION	5
NON-FATAL OVERDOSE RATES BY GEOGRAPHY	9
NON-FATAL OVERDOSE RATES OVER TIME	13
DISCUSSION	16
REFERENCES	17

BACKGROUND

Opioid overdose rates have increased dramatically since the turn of the century and have continued to rise in recent years.¹⁻³ In 2010, opioid analgesic overdose deaths represented 75 percent of all pharmaceutical overdose deaths. While opioid overdoses have been on the rise in general, overdoses from illegally produced fentanyl and synthetic opioid pain relievers are particularly on the rise.² Opioid abusers accumulate 12 times the health care costs of a similar individual who does not abuse opioids.⁴ The cost to society in the United States from opioid abuse through increased health care, workplace, and criminal justice costs was estimated as \$66.5 billion (2019 dollars) in 2007. This number has likely only increased with the increase in opioid abuse in the United States. Though opioids are involved in the most drug overdoses in the United States, all drug overdoses remain a high concern.

People prescribed higher doses of opioids compared to lower doses for pain management are more likely to experience fatal and non-fatal opioid overdoses.^{5,6} These relationships hold even after controlling for demographic and health factors. Previous data from Florida's opioid overdose surveillance system reported 3,078 non-fatal opioid overdoses for the fourth quarter of 2018. An additional 5,399 non-fatal overdoses on other drugs meant that a total of 8,477 non-fatal drug overdoses occurred in reporting EMS jurisdictions. The same data showed that men and adults ages 25–34 were most likely to fatally overdose on opioids.⁷ Pinellas, Brevard, and Escambia counties previously had the highest rates of non-fatal opioid overdoses.⁷

Naloxone is a medication that can reverse the fatal effects of an opioid overdose, such as failed breathing and loss of consciousness.⁸ Naloxone has been distributed in many states to medical professionals, and even to lay individuals in some states.⁹ Distributing naloxone and training lay people in its use have been found to effectively reduce fatal opioid overdoses and to be cost effective.¹⁰⁻¹² The World Health Organization and other medical groups recommend expansion of naloxone to lay persons in contact with opioid users, and thus in a position to administer during opioid overdoses.^{13,14} Drug users are the laypeople most often given naloxone. Besides medical professionals, drug users have reversed the most opioid overdoses.¹⁵ Increasing distribution of naloxone in Florida would help reduce the number of fatal opioid overdoses in the state. The Florida Department of Children and Families and the Florida Department of Health are involved in efforts to distribute naloxone for use by first responders and members of the community.

The purpose of this report is to provide current and over time estimates of the number of non-fatal opioid and all drug overdoses in Florida with data from the Florida Drug Overdose Surveillance and Epidemiology (FL-DOSE) system. Rates of overdoses are presented for various demographic and contextual groups are also presented. Those groups most at risk are identified to characterize the epidemic, as well as highlight those most at need of targeted interventions.

METHODS

Details of the surveillance system, sample, and measures are outlined below. The number of nonfatal opioid and all drug overdoses and related data were derived from Florida’s EMSTARS (Emergency Medical Services Tracking and Reporting System) database, which receives information from state EMS agencies and represents over 95 percent of Florida prehospital EMS runs. All analyses were conducted in SAS 9.4 for Windows¹⁶ by a Florida Department of Health surveillance epidemiologist.

Data received from EMS agencies must meet the following two criteria to be included in these analyses: 1) is a response to an emergency medical situation (e.g., response to 9-1-1 call) where the patient is transported to a hospital or received treatment and refused transport to the hospital, and 2) excludes EMS transfers when a patient is transferred between hospitals or medical care facilities.

Case definitions for opioid and all drug overdoses and how they changed between early and recent versions of EMSTARS are shown in Table 1. The current version of EMSTARS uses any presence of ICD-10-CM codes that list poisoning by drugs of interest as the case definition of an all drug or opioid-involved overdose. The T and F ICD-10-CM codes used in the case definitions refer to poisoning by various types of drugs: T36-T50 (range includes all drugs), T40.1 (heroin), T40.2 (other opioids), T40.3 (methadone), T40.4 (other synthetic narcotics), T40.60 (unspecified narcotics), T40.69 (other narcotics), F11 (opioid related), F12 (cannabis related), F13 (sedative, hypnotic, or anxiolytic related), F14 (cocaine related), F15 (other stimulant related), F16 (hallucinogen related), F18 (inhalant related), and F19 (other psychoactive substance related).

Table 1: Case Definitions

Overdose Type	EMSTARS v1.4	EMSTARS v3
<i>All drug</i>	The primary or secondary impression is “Poisoning/Drug Ingestion,” or any case where the medication administered is naloxone, and the patient exhibits a positive response, no matter the primary or secondary impression listed.	The primary or secondary impression is any of the following ICD-10-CM codes: T36-T50, F11-F16, F18, and F19.
<i>Opioid-involved</i>	The medication administered is naloxone and patient exhibits positive response, no matter the primary or secondary impression listed.	The primary or secondary impression is any of the following ICD-10-CM codes: T40.1-T40.4, T40.60, T40.69, and F11.

SAMPLE

This report represents data from 185 reporting EMS agencies throughout Florida during the first quarter of 2019, and 210 agencies since 2015. These EMS agencies reporting data to EMSTARS represent 98 percent of EMS runs in Florida during the first quarter of 2019. The percent coverage of EMS runs in EMSTARS was determined by combining the counts from EMSTARS with counts from Florida’s AGGREGATE EMS reporting system. EMS agencies not

reporting event level data to EMSTARS, instead report aggregate quarterly data to AGGREGATE. Most, or 56 of Florida's 67, counties had all EMS runs reported to EMSTARS. No county had less than 70 percent of EMS runs reported to EMSTARS. Only four counties reported less than 90 percent. These data are presented in Table 2.

Table 2: EMSTARS Percent Representation of All EMS Runs; January–March, 2019; Florida

County	EMSTARS	AGG	Rep %	County	EMSTARS	AGG	Rep %
Alachua	13,506	5,076	73%	Lee	33,780	3,037	92%
Baker	583	0	100%	Leon	14,884	0	100%
Bay	4,713	0	100%	Levy	1,802	0	100%
Bradford	1,619	0	100%	Liberty	163	0	100%
Brevard	26,180	3,249	89%	Madison	684	0	100%
Broward	43,284	1,942	96%	Manatee	14,433	0	100%
Calhoun	26	0	100%	Marion	26,592	0	100%
Charlotte	7,823	1	100%	Martin	5,729	0	100%
Citrus	3,218	0	100%	Miami-Dade	103,516	0	100%
Clay	9,814	0	100%	Monroe	3,117	0	100%
Collier	13,864	0	100%	Nassau	2,573	0	100%
Columbia	6,573	0	100%	Okaloosa	6,031	0	100%
DeSoto	703	0	100%	Okeechobee	1,840	0	100%
Dixie	853	0	100%	Orange	61,196	1,191	98%
Duval	78,439	0	100%	Osceola	6,294	0	100%
Escambia	12,870	0	100%	Palm Beach	67,291	400	99%
Flagler	4,416	0	100%	Pasco	17,074	0	100%
Franklin	249	0	100%	Pinellas	101,651	27	100%
Gadsden	1,944	52	97%	Polk	23,028	0	100%
Gilchrist	785	0	100%	Putnam	3,480	0	100%
Glades	18	0	100%	Santa Rosa	2,729	1,011	73%
Gulf	504	0	100%	Sarasota	17,546	0	100%
Hamilton	693	0	100%	Seminole	14,778	0	100%
Hardee	406	0	100%	St. Johns	5,353	0	100%
Hendry	1,379	0	100%	St. Lucie	10,766	0	100%
Hernando	6,162	0	100%	Sumter	7,060	0	100%
Highlands	4,667	0	100%	Suwannee	1,741	0	100%
Hillsborough	51,950	0	100%	Taylor	511	0	100%
Holmes	360	0	100%	Union	570	0	100%
Indian River	7,079	0	100%	Volusia	22,260	5,578	80%
Jackson	43	0	100%	Wakulla	792	0	100%
Jefferson	665	0	100%	Walton	1,736	0	100%
Lafayette	91	0	100%	Washington	605	0	100%
Lake	1,439	0	100%	Florida	888,523	21,564	98%

'AGG': Florida's AGGREGATE reporting system, 'Rep %': EMSTARS percent representation of all EMS events (i.e., EMSTARS and AGGREGATE data)

The total population from the included geographic area, used to calculate rates per 100,000 persons, was estimated using data from the 2013–2017 American Community Survey Five-Year Estimates.¹⁷ The 2013–2017 five-year estimate was the most up-to-date population and demographic estimates of county level data in Florida. The estimated population of Florida between 2013 and 2017 was 20,278,447.

MEASURES

Measures were collected for demographic variables and county where overdose occurred. These data were used to calculate counts and rates by demographics and geographic areas. The sections below explain how the measures were created.

Demographics and Naloxone Administration

Demographic information including sex, race and ethnicity, age, and naloxone administration was collected for decedents. Frequencies and percentages of decedents from demographic categories were calculated.

Sex was recorded as male or female. Racial and ethnic categories were those recommended by the National Institutes of Health.¹⁸ People were categorized as American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or other Pacific Islander, or White. All groups apart from Hispanic or Latino were non-Hispanic or Latino. Those who were not recorded as Hispanic or Latino, but had two or more racial groups recorded, were counted as multiracial. Age was originally measured in years for all participants except for very young individuals whose age was measured in minutes, hours, days, or months. All ages were converted to categories to match reporting by the Centers for Disease Control and Prevention (CDC).

Percent of non-fatal opioid overdose cases where naloxone was administered was calculated across Florida. This analysis was limited to those patients recorded in Version 3 of EMSTARS as a positive response to naloxone was used as the case definition for an opioid overdose in the previous version of EMSTARS.

Non-Fatal Overdose Rates

Non-fatal opioid and all drug overdose rates were calculated by age range, sex, race and ethnicity, and county. County level overdose rates were directly age-adjusted to facilitate county comparisons without concern for differences in ages across counties.¹⁹

Non-fatal opioid and all drug overdose rates were also calculated over time. Rates were calculated over time across age range, sex, and race. Rates were averaged across six-month periods. Six-month periods were selected to increase the frequency of reporting, while accounting for the cycle in Florida where rates then to be the lowest in the winter months and highest in the summer months. Rates over time and demographic characteristics that varied proportionally over time are presented.

Rates were adjusted by dividing the percent of EMS events reported to EMSTARS for that half year period. This adjustment facilitates comparisons across time by not making certain time periods appear larger simply due to more data being reported but removes the ability to interpret any specific number objectively. These results should be used to interpret data patterns over time instead of specific data values.

RESULTS

The findings of this report are detailed below. Findings are divided into sections for the demographics of decedents, characteristics of the overdoses, and non-fatal opioid overdose rates.

DEMOGRAPHICS AND NALOXONE ADMINISTRATION

This section details the demographic breakdowns of non-fatal opioid and all drug overdoses in Florida's areas between January 1, 2019 and March 31, 2019. Frequency and percentage values for all demographic variables are found in Tables 3 and 4. Visual presentation of these data are found in Figures 1–4.

Males were about 1.5 times more likely to experience non-fatal opioid or all drug overdoses compared to females. Whites were more likely to experience opioid and all drug overdoses than other races and ethnicities. Asians experienced the least overdoses compared to all other race and ethnicities.

EMSTARS data showed significantly higher rates of non-fatal opioid and all drug overdoses among Pacific Islanders and American Indians compared to all other races. However, a large majority of Pacific Islander cases were from Palm Beach County and American Indian cases were from Hillsborough County. These counties did not have meaningfully higher numbers of these population groups. In turn, these counties had very extreme overdose rates among these racial groups, while other areas of Florida showed relatively similar overdose rates compared to other races. This anomaly, along with these racial groups not experiencing significantly higher fatal opioid overdoses, led to the decision to not include these data in the results.

Adults ages 25–34 were the most likely CDC age range to experience opioid and all drug overdoses. However, separating age ranges by five-year intervals revealed that adults ages 30–35 was the most likely age range and 30–39 the most likely ten-year age range.

Naloxone was administered to 62.6 percent of non-fatal opioid overdoses in Florida during this time period.

Table 3: Demographics of Non-Fatal Opioid Overdose Patients; January–March, 2019; Florida

<i>Variable</i>	<i>Frequency</i>	<i>Percent</i>	<i>Rate per 100,000</i>
Sex			
<i>Female</i>	1,295	38.80%	12.50
<i>Male</i>	2,043	61.20%	20.61
<i>Unknown</i>	2	–	–
Race/Ethnicity			
<i>White</i>	2,699	83.82%	24.26
<i>Hispanic or Latino</i>	132	4.10%	2.63
<i>Black or African American</i>	295	9.16%	9.43
<i>Asian</i>	6	0.19%	1.12
<i>Hawaiian or other Pacific Islander</i>	†	†	†
<i>American Indian or Alaska Native</i>	†	†	†
<i>Multiracial</i>	18	0.56%	4.99
<i>Unknown</i>	120	–	–
CDC Age Range			
0–9	4	0.12%	0.18
10–14	5	0.15%	0.43
15–24	265	7.94%	10.64
25–34	1,112	33.31%	42.73
35–44	789	23.64%	32.01
45–54	459	13.75%	16.67
55–64	390	11.68%	14.72
65–74	173	5.18%	7.97
75–84	95	2.85%	7.69
85+	46	1.38%	8.80
<i>Unknown</i>	2	–	–

*Valid percent values presented which exclude missing values; †Data not shown due to anomalies in results, see text for further details

Table 4: Demographics of Non-Fatal All Drug Overdose Patients; January–March, 2019; Florida

<i>Variable</i>	<i>Frequency</i>	<i>Percent</i>	<i>Rate per 100,000</i>
Sex			
<i>Female</i>	3,868	41.74%	37.32
<i>Male</i>	5,398	58.26%	54.45
<i>Unknown</i>	6	–	–
Race/Ethnicity			
<i>White</i>	6,601	76.08%	59.34
<i>Hispanic or Latino</i>	596	6.87%	11.88
<i>Black or African American</i>	1,186	13.67%	37.90
<i>Asian</i>	38	0.44%	7.12
<i>Hawaiian or other Pacific Islander</i>	†	†	†
<i>American Indian or Alaska Native</i>	†	†	†
<i>Multiracial</i>	56	0.65%	15.53
<i>Unknown</i>	596	–	–
Age			
<i>0–9</i>	100	1.08%	4.48
<i>10–14</i>	118	1.27%	10.17
<i>15–24</i>	1,365	14.74%	54.82
<i>25–34</i>	2,541	27.44%	97.63
<i>35–44</i>	1,972	21.30%	80.00
<i>45–54</i>	1,284	13.87%	46.64
<i>55–64</i>	1,080	11.66%	40.78
<i>65–74</i>	434	4.69%	20.00
<i>75–84</i>	240	2.59%	19.44
<i>85+</i>	125	1.35%	23.92
<i>Unknown</i>	13	–	–

*Valid percent values presented which exclude missing values; †Data not shown due to anomalies in results, see text for further details

Figure 1: Non-Fatal Opioid and All Drug Overdose Rates by Age in Years; January–March, 2019; Florida

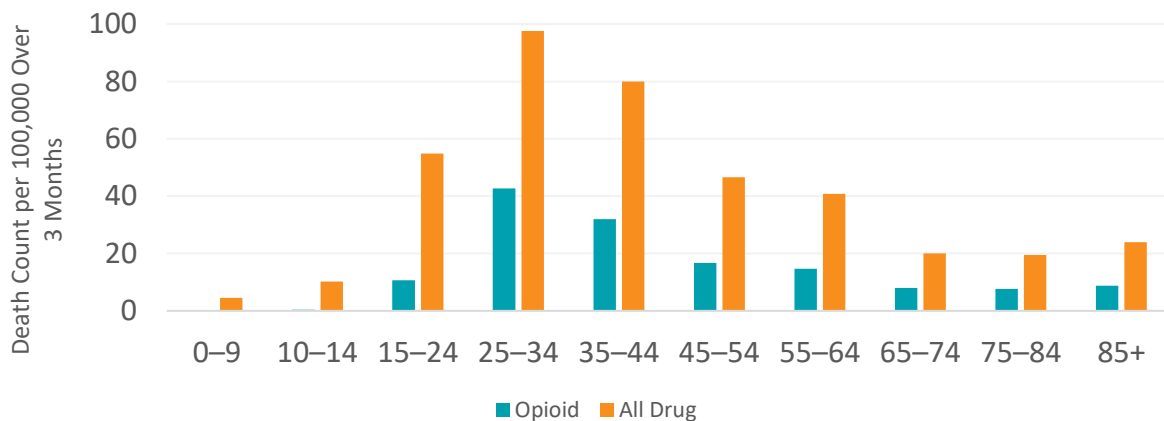


Figure 2: Non-Fatal Opioid and All Drug Overdose Rates by Age in Years; January–March, 2019; Florida

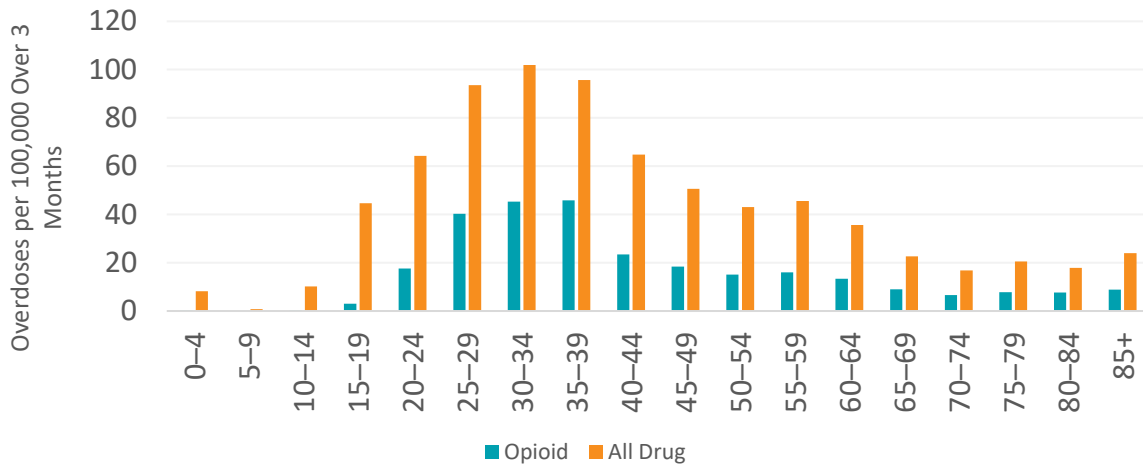


Figure 3: Non-Fatal Opioid and All Drug Overdose Rates by Sex; January–March 2019; Florida

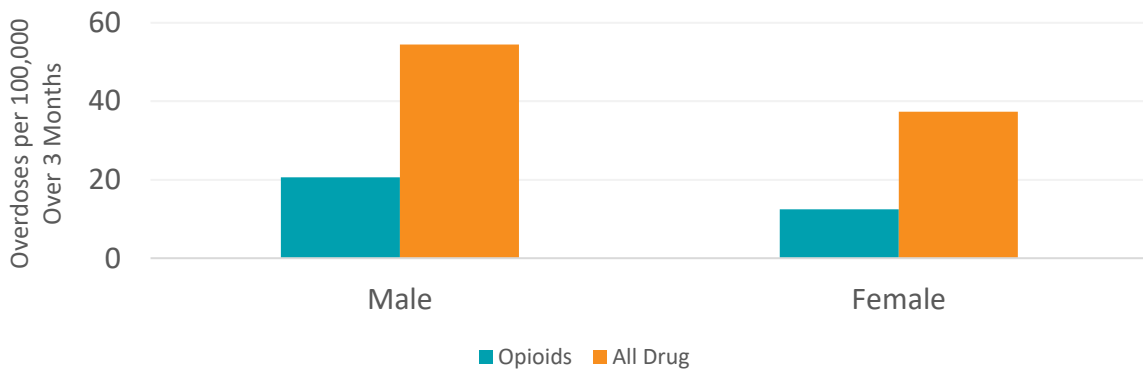
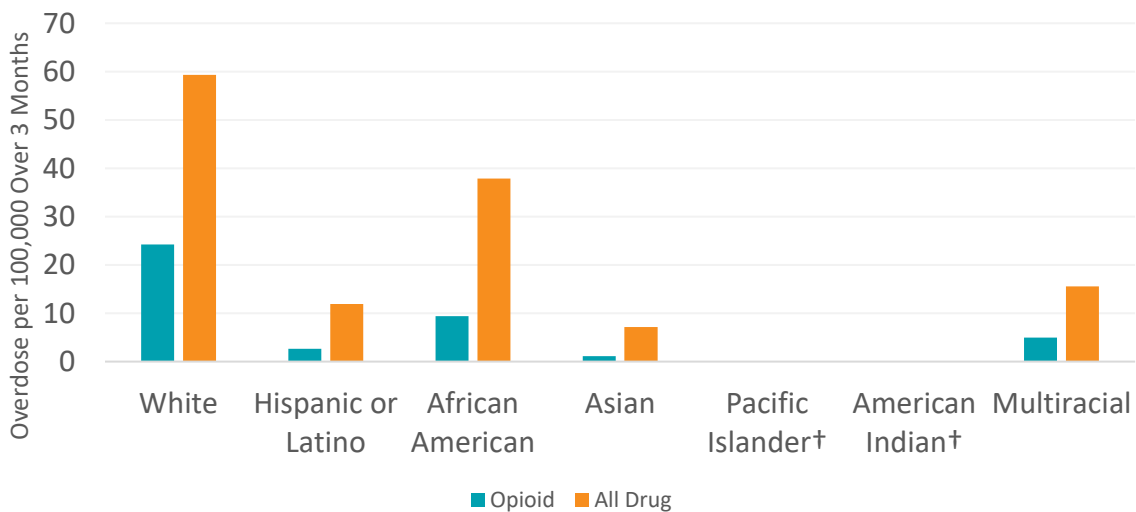


Figure 4: Non-Fatal Overdose Rates by Racial/Ethnic Groups; January–March, 2019; Florida



NON-FATAL OVERDOSE RATES BY GEOGRAPHY

Florida experienced 3,340 opioid and 9,272 all drug non-fatal overdoses in the reporting EMS agencies between January and March of 2019. A total of 16.47 and 45.72 non-fatal opioid and all drug overdoses occurred per 100,000 individuals during these three-months. This section shares non-fatal opioid overdose count and rates by Florida counties.

Florida reported 3,340 opioid and 9,272 all drug non-fatal overdoses between January and March of 2019

Counts as well as raw and age-adjusted non-fatal opioid and all drug overdose rates in all reporting Florida counties are in Tables 5 and 6. Age-adjusted non-fatal opioid and all drug overdose rates are mapped by Florida counties in Figures 5 and 6. Seven counties experienced age-adjusted non-fatal opioid overdose rates above 35 per 100,000 population. In descending order, they were Pinellas, Brevard, Manatee, Escambia, Union, Palm Beach, and Duval counties. Nine counties experienced age-adjusted non-fatal all drug overdose rates above 90 per 100,000 population. In descending order, they were Sumter, Alachua, Escambia, Manatee, Jefferson, Marion, Brevard, Union, and Pasco counties. Non-fatal overdose rates in counties with low overall counts should be interpreted cautiously as they can drastically change due to small amounts of error or underreporting.

Table 5: Non-Fatal Opioid Overdose Rates Per 100,000 People by County; January–March, 2019; Florida

<i>County</i>	<i>Count</i>	<i>Raw</i>	<i>Age-Adjusted</i>	<i>County</i>	<i>Count</i>	<i>Raw</i>	<i>Age-Adjusted</i>
Alachua	36	13.85	16.56	Lee	7	0.10	1.09
Baker	3	10.89	10.12	Leon	12	4.20	4.67
Bay	23	12.77	12.55	Levy	1	2.52	2.03
Bradford	2	7.47	7.23	Liberty	0	0	0
Brevard	345	60.72	66.39	Madison	2	10.80	9.96
Broward	117	6.19	6.10	Manatee	184	50.61	58.13
Calhoun	0	0	0	Marion	16	4.65	5.63
Charlotte	0	0	0	Martin	25	16.05	19.65
Citrus	0	0	0	Miami-Dade	44	1.63	1.57
Clay	39	19.18	18.94	Monroe	9	11.73	10.77
Collier	45	12.61	15.18	Nassau	19	24.22	23.59
Columbia	18	26.28	26.96	Okaloosa	32	16.20	14.79
DeSoto	5	14.02	13.29	Okeechobee	6	14.92	14.63
Dixie	3	18.38	18.99	Orange	219	16.97	15.54
Duval	363	39.80	36.64	Osceola	18	5.54	6.08
Escambia	162	52.27	53.60	Palm Beach	523	36.66	38.97
Flagler	15	14.28	18.92	Pasco	28	5.62	6.10
Franklin	1	8.57	7.87	Pinellas	651	68.54	68.59
Gadsden	1	2.17	1.96	Polk	36	5.52	5.58
Gilchrist	2	11.63	11.90	Putnam	12	16.57	18.07
Glades	0	0	0	Santa Rosa	1	0.60	0.60
Gulf	1	6.24	4.44	Sarasota	4	0.99	1.23
Hamilton	1	7.02	6.78	Seminole	54	12.02	11.20
Hardee	0	0	0	St. Johns	0	0	0
Hendry	5	12.80	12.37	St. Lucie	16	5.36	5.95
Hernando	17	9.49	10.44	Sumter	0	0	0
Highlands	3	2.99	2.48	Suwannee	7	15.98	16.94
Hillsborough	173	12.80	13.30	Taylor	1	4.47	5.06
Holmes	1	5.13	4.50	Union	5	32.68	42.20
Indian River	17	11.49	13.83	Volusia	0	0	0
Jackson	0	0	0	Wakulla	0	0	0
Jefferson	0	0	0	Walton	4	6.30	6.43
Lafayette	0	0	0	Washington	2	8.17	8.84
Lake	0	0	0	Florida	3,340	16.47	–

Figure 5: Age-Adjusted Non-Fatal Opioid Overdose Rates per 100,000 People; January–March, 2019; Florida

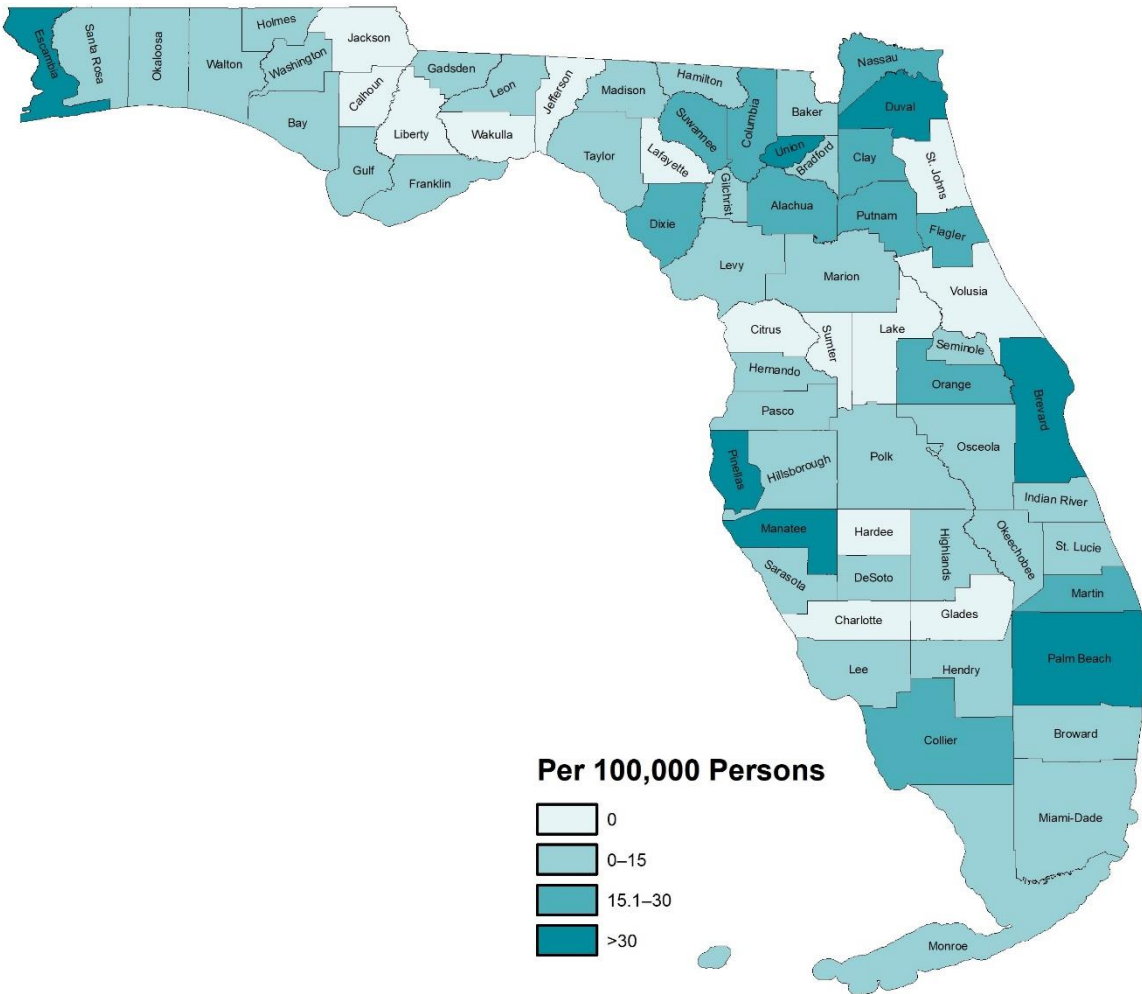
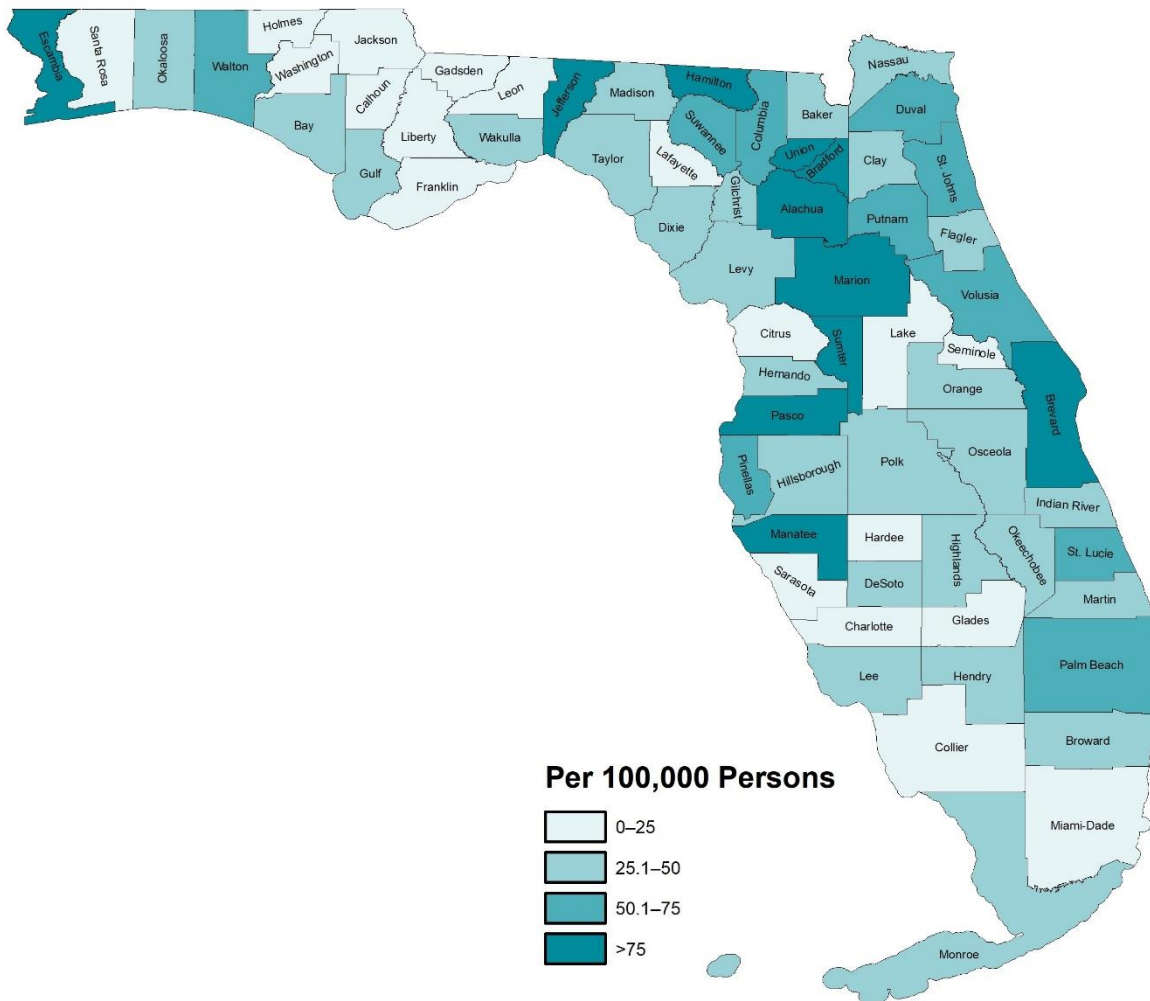


Table 6: Non-Fatal All Drug Overdose Rates Per 100,000 People by County; January–March, 2019; Florida

<i>County</i>	<i>Count</i>	<i>Raw</i>	<i>Age-Adjusted</i>	<i>County</i>	<i>Count</i>	<i>Raw</i>	<i>Age-Adjusted</i>
Alachua	319	122.76	121.05	Lee	243	34.71	38.26
Baker	8	29.05	27.27	Leon	66	23.09	22.44
Bay	70	38.86	38.56	Levy	17	42.81	45.76
Bradford	23	85.90	87.55	Liberty	0	0.00	0.00
Brevard	502	88.35	95.52	Madison	7	37.80	35.53
Broward	611	32.32	32.02	Manatee	347	95.45	108.16
Calhoun	0	0.00	0.00	Marion	300	87.27	99.03
Charlotte	6	3.46	3.38	Martin	53	34.04	40.52
Citrus	23	16.27	18.20	Miami-Dade	691	25.57	24.83
Clay	77	37.88	36.85	Monroe	29	37.79	36.71
Collier	50	14.01	16.83	Nassau	29	36.97	37.40
Columbia	41	59.87	60.40	Okaloosa	68	34.42	32.65
DeSoto	9	25.23	26.59	Okeechobee	19	47.23	47.92
Dixie	7	42.88	44.14	Orange	582	45.11	41.53
Duval	677	74.23	69.64	Osceola	123	37.83	37.91
Escambia	338	109.06	110.02	Palm Beach	808	56.63	60.01
Flagler	39	37.14	46.14	Pasco	424	85.12	90.16
Franklin	2	17.13	17.30	Pinellas	659	69.38	69.46
Gadsden	6	13.01	11.96	Polk	173	26.52	27.14
Gilchrist	7	40.72	41.87	Putnam	41	56.60	61.19
Glades	1	7.58	7.41	Santa Rosa	21	12.59	11.78
Gulf	8	49.94	46.22	Sarasota	37	9.14	10.04
Hamilton	11	77.26	77.37	Seminole	96	21.37	20.23
Hardee	0	0.00	0.00	St. Johns	115	50.76	51.89
Hendry	11	28.16	26.99	St. Lucie	150	50.21	53.00
Hernando	45	25.12	26.65	Sumter	83	71.09	128.09
Highlands	24	23.96	25.34	Suwannee	22	50.21	53.03
Hillsborough	641	47.44	46.87	Taylor	6	26.85	30.18
Holmes	1	5.13	4.50	Union	12	78.43	95.84
Indian River	52	35.14	41.35	Volusia	296	57.07	61.18
Jackson	0	0.00	0.00	Wakulla	9	28.49	39.81
Jefferson	14	99.40	104.01	Walton	35	55.16	55.31
Lafayette	0	0.00	0.00	Washington	4	16.35	17.14
Lake	18	5.52	5.41	Florida	9,272	45.72	–

Figure 6: Age-Adjusted Non-Fatal All Drug Overdose Rates per 100,000 People; January–March, 2019; Florida



NON-FATAL OVERDOSE RATES OVER TIME

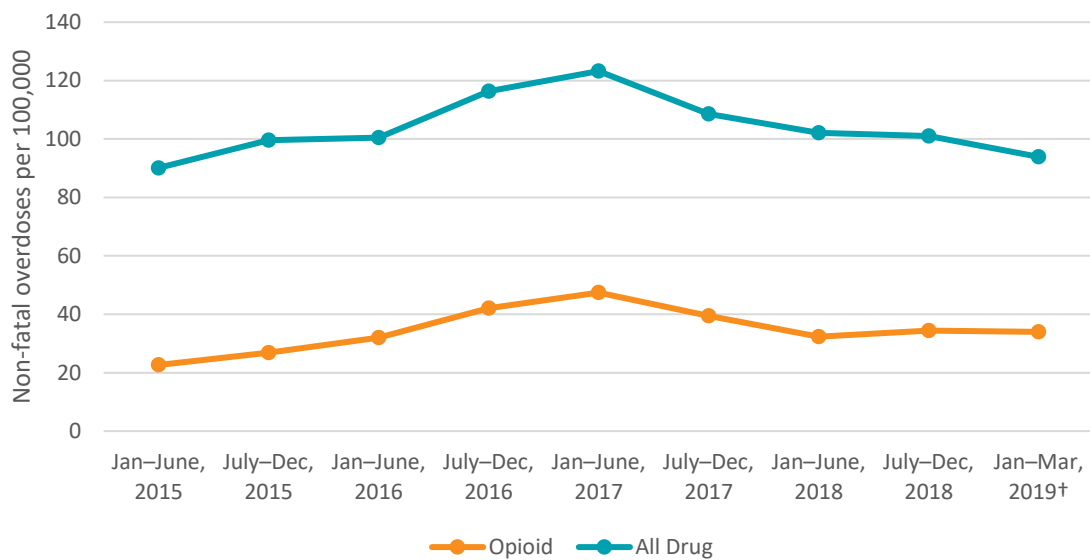
Data during the first quarter of 2019 showed that levels of non-fatal opioid overdoses are the same as in the second half of 2018, but lower than the spike in non-fatal overdoses that occurred in the first half of 2017. Non-fatal all drug overdoses decreased since the second half of 2018 and have largely returned to 2015 levels after experiencing a large peak in the first half of 2017. These trends can be found in Figure 7.

Non-fatal opioid and all drug overdoses trends tended to not differ over time across most demographic groups. However, different age groupings experienced different trends since 2015. The four age groups presented in Figures 8 and 9 represent groupings of the five-year age ranges that had similar trends. These groupings were done to improve readability of the figure.

Children ages 0–19 experienced very low rates of non-fatal opioid overdoses since 2015. Adults ages 40 and over experienced low rates of non-fatal opioid overdoses since 2015. These two age groups did not experience the large rise and fall in overdoses around 2017. Young adults ages 20–24 initially in 2015 had similar non-fatal opioid overdose rates to adults 40 years and over, but experienced a large spike through 2017. However, non-fatal opioid overdose rates in young adults have dropped until 2019 and are nearly at the same rates as those in 2015. Most alarmingly, adults ages 25-39 experienced similar rates in 2015, the large increase through 2017, and have only experienced partially lower opioid overdose rates through 2019.

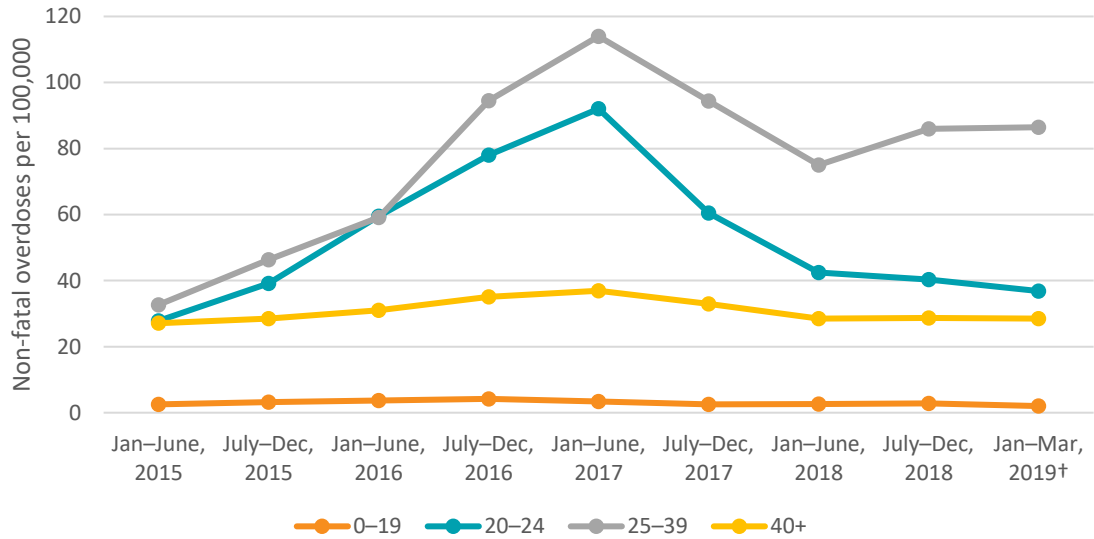
Trends for non-fatal all drug overdoses were similar in these age groups compared to non-fatal opioid overdoses except for a couple points. Young adults ages 20–24 and adults ages 25–39 started significantly higher compared to adults ages 40 and over at the start of 2015.

Figure 7: Non-Fatal Overdose Rates Over Time from 2015–2019; Florida



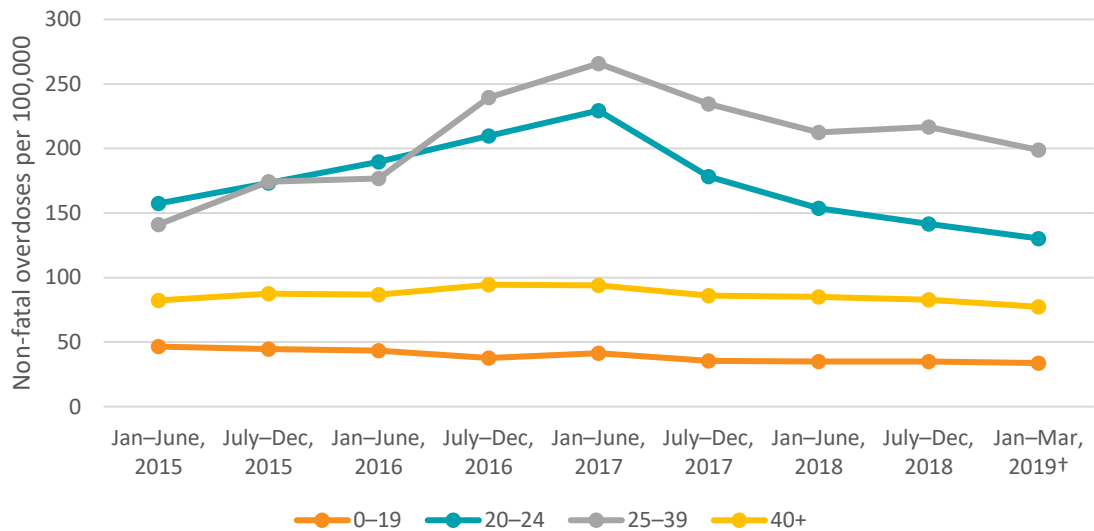
**These data are adjusted for percent of EMS events reported to EMSTARS to facilitate comparisons across time. This chart should be used to interpret patterns over time, but not Individual numbers.
 †Jan-Mar, 2019 value multiplied by two to help comparison against other six month periods.*

Figure 8: Non-Fatal Opioid Overdose Rates Over Time from 2015–2019 by Age Groups; Florida



**These data are adjusted for percent of EMS events reported to EMSTARS to facilitate comparisons across time. This chart should be used to interpret patterns over time, but not Individual numbers.
 †Jan-Mar, 2019 value multiplied by two to help comparison against other six month periods.*

Figure 9: Non-Fatal All Drug Overdose Rates Over Time from 2015–2019 by Age Groups; Florida



**These data are adjusted for percent of EMS events reported to EMSTARS to facilitate comparisons across time. This chart should be used to interpret patterns over time, but not Individual numbers.
 †Jan-Mar, 2019 value multiplied by two to help comparison against other six month periods.*

DISCUSSION

Though not all Florida's population is included in this report, it is likely these results are generally representative of the state of Florida given that EMSTARS included 98 percent of all EMS events for this quarter, at least 70 percent of EMS runs were collected from all Florida counties, and all but four counties reported at least 90 percent of their EMS events. The section below identifies the most salient points of the report and discusses areas of opportunity for the state.

Men and Whites were more likely to experience opioid and all drug overdoses than women or other races and ethnicities. Though people ages 20–39 experienced the highest non-fatal overdose rates, important differences existed. Adults ages 30–39 experienced the highest rates. Additionally, adults ages 20–24 have largely returned to previous levels while adults ages 25–39 remain elevated after the spike in overdoses during 2017. Prevention efforts should be targeted toward those ages 25–39 to maximize impacts and help those who have not recovered from the recent spike in overdoses. These findings are similar to previous reporting in the state that men, Whites, and those ages 25–44 were at greater risk of non-fatal opioid and all drug overdoses.²⁰ Additionally, some counties in Florida were burdened with markedly higher opioid and all drug overdose rates compared to the rest of the state. Overdose prevention efforts should target these groups to maximize impacts.

Over time, opioid and all drug overdose rates started the lowest in 2015, spiked in the first half of 2017, and partially dropped through 2019. Though the situation is better than 2017 concerning non-fatal opioid and all drug overdoses in Florida, more work still needs to be done.

Data from this report were not able to accurately inform opioid and all drug overdose rates among American Indians and Pacific Islanders. Anomalies in the data led to their exclusion from the race and ethnicity reporting. Future work should revisit overdose rates in these groups to accurately characterize the situation, and possibly explain noted patterns in the data. It is possible that alternate data sources or subsequent time periods of EMSTARS might better inform the issue.

Almost two-thirds of opioid overdose patients received naloxone. Some organizations have successfully distributed naloxone to laypersons to combat fatal opioid overdoses in settings where medical professionals are not present.^{9–12} Naloxone is highly effective at rapidly reversing the effects of an opioid overdose, presents minimal risks, and is cost-effective.^{8,11} The Florida Department of Health implements the Helping Emergency Responders Obtain Support (HEROS) Program where Florida agencies who employ emergency responders and agree to report naloxone administrations through approved systems, can receive free naloxone. Eligible applicants can visit <http://www.floridahealth.gov/licensing-and-regulation/ems-system/heros.html> to learn more and enroll in the program.

REFERENCES

1. Volkow ND, Frieden TR, Hyde PS, Cha SS. Medication-Assisted Therapies — Tackling the Opioid-Overdose Epidemic. *N Engl J Med*. 2014;370(22):2063-2066. doi:10.1056/nejmp1402780
2. Rudd RA, Aleshire N, Zibbell JE, Gladden RM. Increases in Drug and Opioid Overdose Deaths—United States, 2000–2014. *Morb Mortal Wkly Rep*. 2016;64(50):1378-1382. doi:10.1111/ajt.13776
3. Rudd RA, Seth P, David F, Scholl L. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. *Morb Mortal Wkly Rep*. 2016;65(50-51):1445-1452. doi:10.2105/AJPH.2014.302367?journalCode=ajph
4. White AG, Birnbaum HG, Mareva MN, et al. Direct Costs of Opioid Abuse in an Insured Population in the United States. *J Manag Care Pharm*. 2005;11(6):469-479.
5. Dunn KM, Saunders KW, Rutter CM, et al. Overdose and prescribed opioids: Associations among chronic non-cancer pain patients. *Ann Intern Med*. 2010;152(2):85-92. doi:10.1059/0003-4819-152-2-201001190-00006.
6. Bohnert AS, Valenstein M, Bair MJ, et al. Association Between Opioid Prescribing Patterns and Opioid Overdose-Related Deaths. *J Am Med Assoc*. 2011;305(13):1315-1321.
7. Florida Department of Health. *Non-Fatal Opioid Overdose Surveillance*. Tallahassee, FL; 2018. http://www.floridahealth.gov/statistics-and-data/fl-esoots/_documents/non-fatal-od-2018-q4.pdf.
8. Centers for Disease Control and Prevention (CDC). *Using Naloxone to Reverse Opioid Overdose in the Workplace: Information for Employers and Workers.*; 2018. doi:https://doi.org/10.26616/NIOSH PUB2019101
9. Wheeler E, Davidson PJ, Jones TS, Irwin KS. Community-Based Opioid Overdose Prevention Programs Providing Naloxone — United States, 2010 Drug Overdose Prevention and Education (DOPE) Project, Harm Reduction Coalition, Oakland. *MMWR Morb Mortal Wkly Rep*. 2012;61(6):101-105.
10. Walley AY, Xuan Z, Hackman HH, et al. Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: Interrupted time series analysis. *BMJ*. 2013;346(f174):1-13. doi:10.1136/bmj.f174
11. Coffin PO, Sullivan SD. Cost-Effectiveness of Distributing Naloxone to Heroin Users for Lay Overdose Reversal. *Ann Intern Med*. 2013;158(1):1-9. doi:10.3111/13696998.2013.811080
12. Clark AK, Wilder CM, Winstanley EL. A Systematic Review of Community Opioid Overdose Prevention and Naloxone Distribution Programs. *J Addict Med*. 2014;8(3):153-163. doi:10.1097/ADM.0000000000000034

13. Doyon S, Aks SE, Schaeffer S. Expanding Access to Naloxone in the United States. *J Med Toxicol.* 2014;10(4):431-434. doi:10.3109/15563650.2014.968657
14. World Health Organization. *Community Management of Opioid Overdose.* Geneva, Switzerland; 2014. doi:10.4324/9781315775425
15. Wheeler E, Jones TS, Gilbert MK, Davidson PJ. Opioid Overdose Prevention Programs Providing Naloxone to Laypersons — United States, 2014. *Morb Mortal Wkly Rep.* 2015;64(23):631-635.
<http://www.ncbi.nlm.nih.gov/pubmed/26086633><http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC4584734>.
16. SAS Institute Inc. SAS/STAT 9.4 for Windows. 2016.
17. U.S. Census Bureau. *Understanding and Using ACS Single-Year and Multiyear Estimates.*; 2018.
https://www.census.gov/content/dam/Census/library/publications/2018/acs/acs_general_handbook_2018_ch03.pdf.
18. National Institutes of Health. Racial and Ethnic Categories and Definitions for NIH Diversity Programs and for Other Reporting Purposes. NOT-OD-15-089.
<https://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-089.html>. Published 2015. Accessed August 13, 2019.
19. Buescher PA. *Statistical Primer: Age-Adjusted Death Rates.* Raleigh, NC; 2010.
https://schs.dph.ncdhhs.gov/schs/pdf/primer13_2.pdf.
20. Florida Department of Health. *Fatal Opioid Overdose Surveillance: Florida 2017 Q3-Q4.* Tallahassee, FL; 2017. <http://www.floridahealth.gov/statistics-and-data/fl-esoos/reports.html>.