NON-FATAL OPIOID AND ALL DRUG OVERDOSE SURVEILLANCE REPORT

Florida, Q3-2019

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

GIS Analyst:
Dylan Cummings
Health Data & GIS Analyst
Florida Department of Health
Division of Emergency Preparedness and Community Support
Bureau of Emergency Medical Oversight

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, Whites, and adults ages 30–39 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.

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.

RESULTS

Florida experienced 3,879 and 9,708 non-fatal opioid and all drug overdoses respectively between July and September of 2019. A total of 19.13 and 47.87 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 25–34 were the most likely age group to experience non-fatal overdoses. Pinellas, Manatee, and Palm Beach experienced the highest age-adjusted opioid overdose rates. Alachua, Sumter, and Manatee counties experienced the highest age-adjusted all drug overdose rates.

TABLE OF CONTENTS

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. A total of 3,541 non-fatal opioid overdoses were recorded in Florida's drug overdose surveillance system for the second quarter of 2019. An additional 6,000 non-fatal overdoses on other drugs meant that a total of 9,541 non-fatal drug overdoses occurred in reporting EMS jurisdictions. Men, Whites, and adults ages 30–40 were most likely to fatally overdose on opioids.[7] Brevard, Escambia, and Pinellas counties experienced the three highest rates of non-fatal age-adjusted opioid overdoses during this time period.[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 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 Windows[16] 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 receives treatment and refuses 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***
All drug	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.
Opioid-involved	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 192 reporting EMS agencies throughout Florida during the third quarter of 2019. These EMS agencies reporting data to EMSTARS represent 98 percent of EMS runs in Florida during the third 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 57 of Florida's 67, counties had all EMS runs reported to EMSTARS. Only Santa Rosa County reported less than 70 percent of EMS runs to EMSTARS and did not have its results included in county level analyses. Only four counties reported less than 90 percent. These data are presented in Table 2.

Table 2: EMSTARS Percent Representation of All EMS Runs; July–Sep, 2019; Florida

County	*EMSTARS*	*AGG*	*Rep %*	*County*	*EMSTARS*	*AGG*	*Rep %*
Alachua	13,646	3,950	78%	Lee	28,223	662	98%
Baker	1,110	0	100%	Leon	16,992	0	100%
Bay	5,327	0	100%	Levy	1,886	0	100%
Bradford	1,629	0	100%	Liberty	35	0	100%
Brevard	25,068	2,909	90%	Madison	115	0	100%
Broward	57,824	0	100%	Manatee	15,112	0	100%
Calhoun	11	0	100%	Marion	27,446	0	100%
Charlotte	6,737	3	100%	Martin	4,591	0	100%
Citrus	3,513	0	100%	Miami-Dade	130,478	0	100%
Clay	9,721	0	100%	Monroe	3,286	0	100%
Collier	11,859	0	100%	Nassau	2,802	0	100%
Columbia	4,853	0	100%	Okaloosa	8,473	0	100%
DeSoto	689	0	100%	Okeechobee	1,772	0	100%
Dixie	989	0	100%	Orange	69,104	10,747	87%
Duval	77,046	0	100%	Osceola	11,114	0	100%
Escambia	12,681	0	100%	Palm Beach	76,204	182	100%
Flagler	4,199	0	100%	Pasco	21,437	0	100%
Franklin	496	0	100%	Pinellas	103,693	0	100%
Gadsden	2,406	99	96%	Polk	27,399	0	100%
Gilchrist	812	0	100%	Putnam	3,661	0	100%
Glades	227	0	100%	Santa Rosa	281	938	23%
Gulf	20	0	100%	Sarasota	15,191	0	100%
Hamilton	716	0	100%	Seminole	15,094	0	100%
Hardee	756	0	100%	St. Johns	5,297	0	100%
Hendry	1,386	0	100%	St. Lucie	9,884	0	100%
Hernando	7,067	5	100%	Sumter	7,641	0	100%
Highlands	5,833	0	100%	Suwannee	2,360	0	100%
Hillsborough	77,579	0	100%	Taylor	895	0	100%
Holmes	27	0	100%	Union	119	0	100%
Indian River	6,583	0	100%	Volusia	17,956	5,221	77%
Jackson	41	0	100%	Wakulla	959	0	100%
Jefferson	727	0	100%	Walton	1,501	0	100%
Lafayette	163	0	100%	Washington	46	0	100%
Lake	2,217	0	100%	Florida	989,927	24,716	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 used in reporting by the Centers for Disease Control and Prevention (CDC). Age was also categorized in five-year ranges to further explore overdose rates by age.

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 for the current quarter 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] Age-adjusted non-fatal opioid and all drug overdose rates were mapped by Florida counties. Maps were created in ArcGIS pro and used Jenks Natural Breaks.

Rates over time were not analyzed during the third quarter of the year. Over time data will be presented in the fourth quarter of 2019 report once the additional six-month period is complete.

RESULTS

The findings of this report are detailed below. Findings are divided into sections for the demographics of overdose patients 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 July 1, 2019 and September 30, 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 1–3.

Males were about 1.9 and 1.6 times more likely to experience non-fatal opioid and all drug overdoses compared to females. Whites were more likely to experience non-fatal opioid and all drug overdoses than other races and ethnicities. Asians experienced the least non-fatal overdoses compared to all other race and ethnicities.

EMSTARS data showed substantially 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 non-fatal opioid and all drug overdoses. Five-year age ranges were checked to see whether a more specific age group was at higher risk, but adults ages 25–34 were still the most likely age range to experience non-fatal opioid and all drug overdoses. Naloxone was administered to 60.1 percent of non-fatal opioid overdoses in Florida during this time period.

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

Variable	*Frequency*	*Percent*	*Rate per 100,000*
Sex			
Female	1,396	36.01%	13.47
Male	2,481	63.99%	25.02
Unknown	2	–	–
Race/Ethnicity			
White	2,961	80.11%	26.62
Hispanic or Latino	236	6.39%	4.71
Black or African American	376	10.17%	12.02
Asian	8	0.22%	1.50
Hawaiian or other Pacific Islander	†	†	†
American Indian or Alaska Native	†	†	†
Multiracial	31	0.84%	8.60
Unknown	183	–	–
CDC Age Range			
0–9	10	0.26%	0.45
10–14	6	0.15%	0.52
15–24	311	8.03%	12.49
25–34	1,306	33.71%	50.18
35–44	939	24.24%	38.09
45–54	545	14.07%	19.80
55–64	454	11.72%	17.14
65–74	169	4.36%	7.79
75–84	88	2.27%	7.13
85+	46	1.19%	8.80
Unknown	5	–	–

**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; July–Sep, 2019; Florida

Variable	*Frequency*	*Percent*	*Rate per 100,000*
Sex			
Female	3,896	40.16%	37.59
Male	5,805	59.84%	58.55
Unknown	7	–	–
Race/Ethnicity			
White	6,688	73.85%	60.12
Hispanic or Latino	713	7.87%	14.22
Black or African American	1,302	14.38%	41.61
Asian	33	0.36%	6.19
Hawaiian or other Pacific Islander	†	†	†
American Indian or Alaska Native	†	†	†
Multiracial	92	1.02%	25.51
Unknown	652	–	–
Age			
0–9	85	0.88%	3.81
10–14	95	0.98%	8.19
15–24	1,285	13.26%	51.60
25–34	2,848	29.39%	109.43
35–44	2,093	21.60%	84.90
45–54	1,363	14.06%	49.51
55–64	1,154	11.91%	43.57
65–74	433	4.47%	19.96
75–84	220	2.27%	17.82
85+	115	1.19%	22.01
Unknown	17	–	–

**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 CDC Age Ranges in Years; July–Sep, 2019; Florida

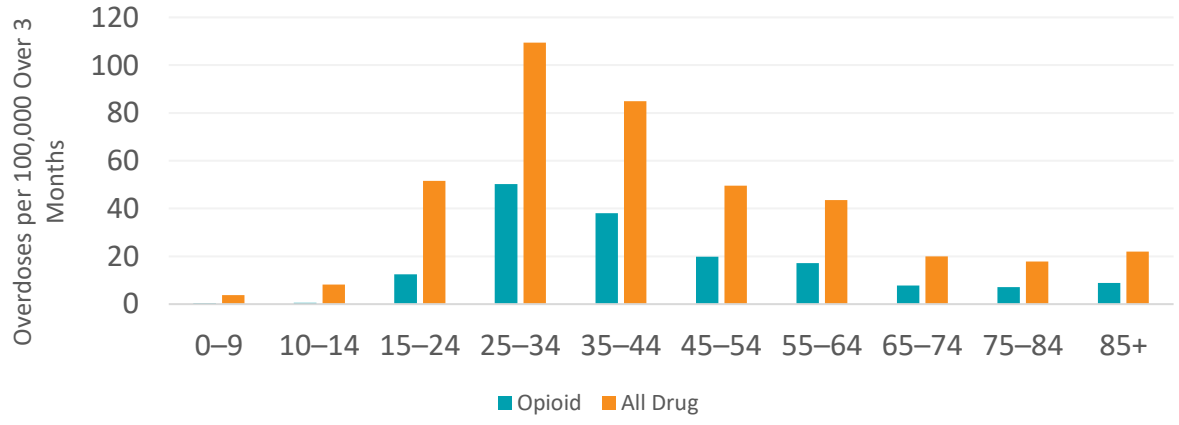


Figure 2: Non-Fatal Opioid and All Drug Overdose Rates by Sex; July–Sep 2019; Florida

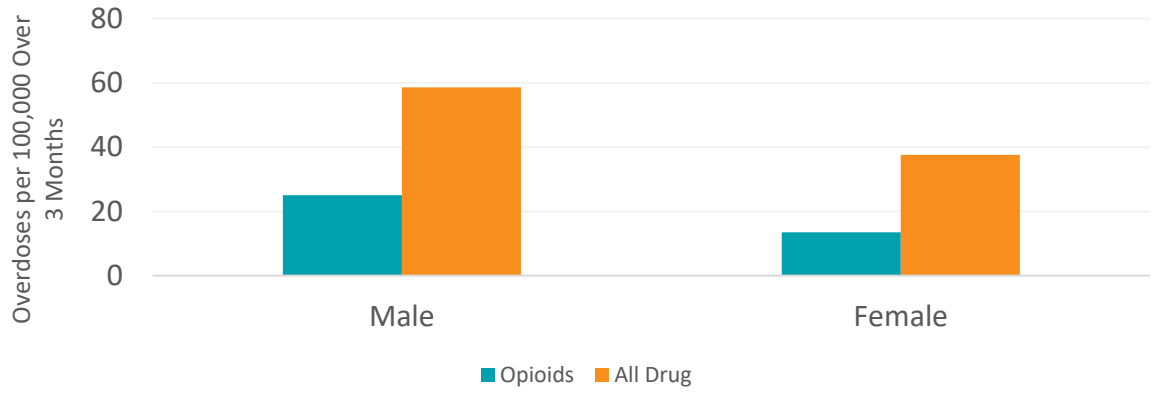
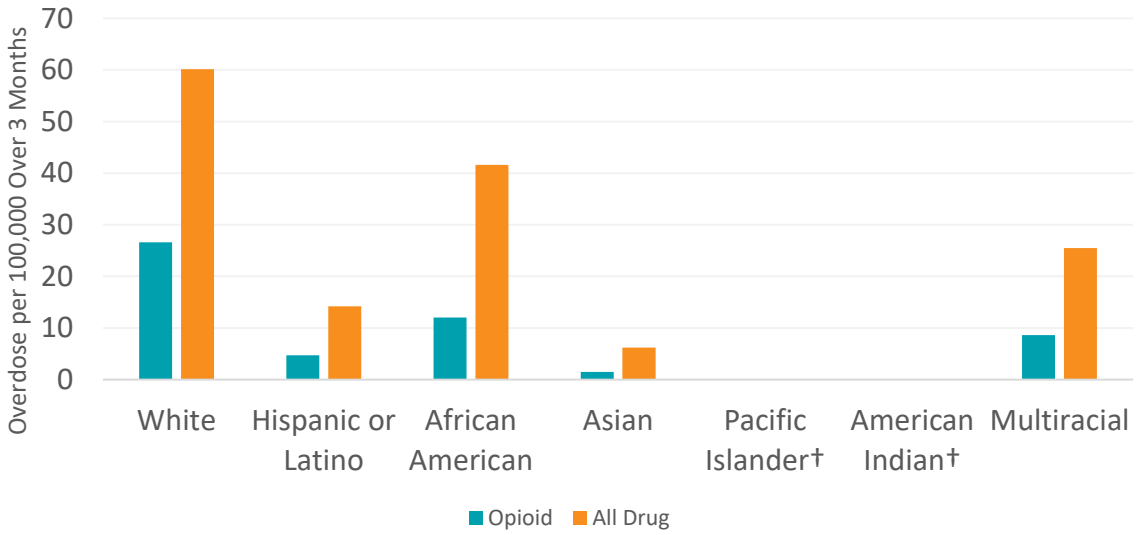


Figure 3: Non-Fatal Overdose Rates by Racial/Ethnic Groups; July–Sep, 2019; Florida



†Data not shown due to anomalies in results, see text for further details

NON-FATAL OVERDOSE RATES BY GEOGRAPHY

Florida experienced 3,879 opioid and 9,708 all drug non-fatal overdoses in the reporting EMS agencies between July and September of 2019. A total of 19.13 and 47.87 non-fatal opioid and

Florida reported 3,879 opioid and 9,708 all drug non-fatal overdoses between July and September of 2019

all drug overdoses occurred per 100,000 individuals during these three-months. This section shares non-fatal opioid and all drug overdose counts and rates by Florida counties.

Counts as well as crude and age-adjusted non-fatal opioid and all drug overdose rates in all reporting Florida counties are presented in Tables 5 and 6. Age-adjusted non-fatal opioid and all drug overdose rates are mapped by Florida counties in Figures 4 and 5. Seven counties experienced age-adjusted non-fatal opioid overdose rates above 35 per 100,000 population. In descending order, they were Pinellas, Manatee, Palm Beach, Escambia, Brevard, Nassau, and Duval counties. Six counties experienced age-adjusted non-fatal all drug overdose rates above 90 per 100,000 population. In descending order, they were Alachua, Sumter, Manatee, Escambia, Okeechobee, and Marion counties. Non-fatal overdose rates in counties with low overall counts and population levels should be interpreted cautiously as they can change dramatically from quarter to quarter due to small amounts of error or underreporting.

Table 5: Non-Fatal Opioid Overdose Counts and Rates Per 100,000 People by County; July–Sep, 2019; Florida

County	*Count*	*Crude*	*Age-Adjusted*	*County*	*Count*	*Crude*	*Age-Adjusted*
Alachua	29	10.77	12.18	Lee	2	0.29	0.33
Baker	4	14.53	14.13	Leon	14	4.90	5.10
Bay	31	17.21	16.50	Levy	4	10.07	11.57
Bradford	4	14.94	15.68	Liberty	0	0.00	0.00
Brevard	253	44.53	48.08	Madison	0	0.00	0.00
Broward	193	10.21	9.96	Manatee	198	54.46	62.76
Calhoun	0	0.00	0.00	Marion	22	6.40	7.22
Charlotte	0	0.00	0.00	Martin	24	15.41	19.22
Citrus	0	0.00	0.00	Miami-Dade	67	2.48	2.46
Clay	27	13.28	13.78	Monroe	13	16.94	16.64
Collier	71	19.90	24.10	Nassau	32	40.80	43.16
Columbia	16	23.36	23.65	Okaloosa	31	15.69	14.71
DeSoto	0	0.00	0.00	Okeechobee	11	27.34	28.47
Dixie	0	0.00	0.00	Orange	277	21.31	19.61
Duval	382	41.88	38.46	Osceola	93	28.29	27.45
Escambia	151	48.72	48.33	Palm Beach	668	46.75	49.73
Flagler	13	12.38	14.12	Pasco	14	2.81	2.94
Franklin	0	0.00	0.00	Pinellas	673	70.85	71.51
Gadsden	0	0.00	0.00	Polk	17	2.61	2.71
Gilchrist	1	5.82	6.25	Putnam	11	15.19	16.72
Glades	1	7.58	7.03	Santa Rosa	–	–	–
Gulf	0	0.00	0.00	Sarasota	17	4.20	4.28
Hamilton	0	0.00	0.00	Seminole	76	16.92	16.22
Hardee	0	0.00	0.00	St. Johns	0	0.00	0.00
Hendry	4	10.24	9.88	St. Lucie	15	5.02	5.59
Hernando	19	10.61	11.55	Sumter	0	0.00	0.00
Highlands	6	5.99	6.27	Suwannee	8	18.26	20.01
Hillsborough	348	25.76	26.37	Taylor	3	13.42	11.96
Holmes	0	0.00	0.00	Union	1	6.54	6.09
Indian River	17	11.49	14.27	Volusia	0	0.00	0.00
Jackson	0	0.00	0.00	Wakulla	0	0.00	0.00
Jefferson	4	28.40	29.25	Walton	9	14.18	15.40
Lafayette	0	0.00	0.00	Washington	0	0.00	0.00
Lake	1	0.31	0.37	Florida	3,879	19.13	–

**Santa Rosa County reported less than 70 percent of EMS runs to EMSTARS and did not have its results included in county level analyses*

Figure 4: Age-Adjusted Non-Fatal Opioid Overdose Rates per 100,000 People; July–Sep, 2019; Florida

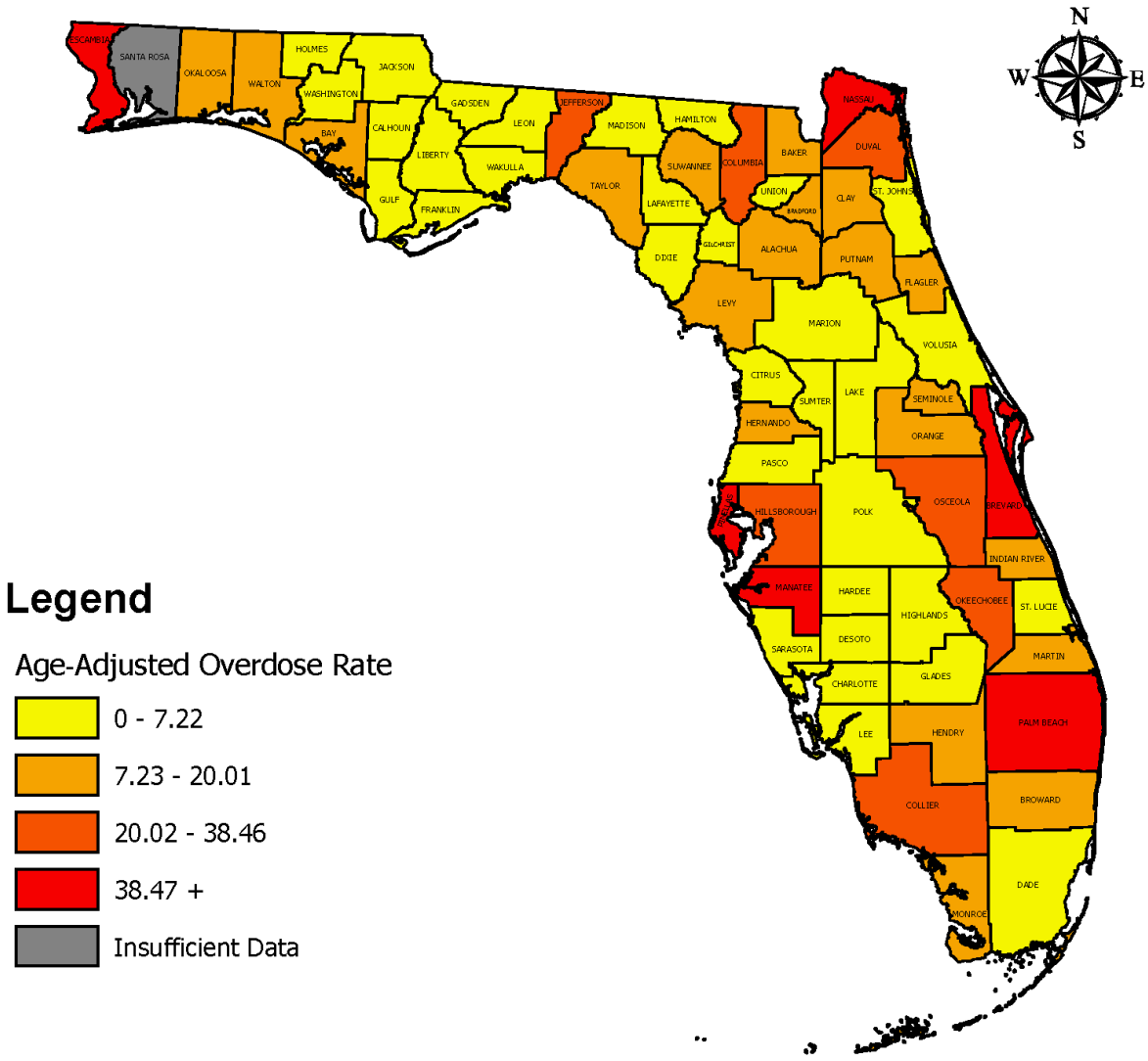
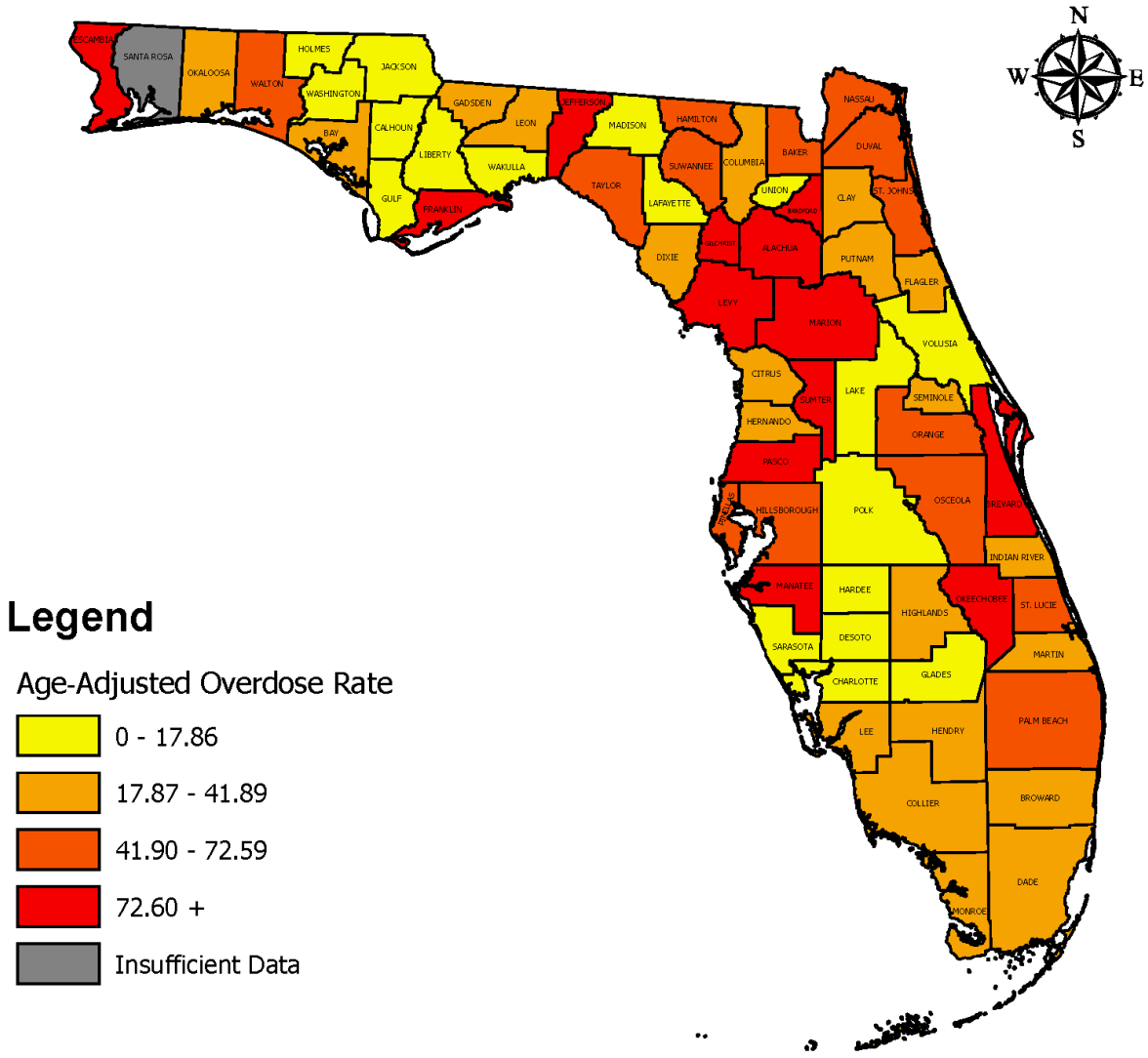


Table 6: Non-Fatal All Drug Overdose Counts and Rates Per 100,000 People by County; July–Sep, 2019; Florida

County	*Count*	*Crude*	*Age-Adjusted*	*County*	*Count*	*Crude*	*Age-Adjusted*
Alachua	362	138.92	132.38	Lee	208	29.71	33.12
Baker	17	61.74	58.34	Leon	57	19.94	20.49
Bay	63	34.98	34.10	Levy	29	73.02	79.06
Bradford	22	82.17	85.79	Liberty	0	0.00	0.00
Brevard	464	81.31	87.14	Madison	1	5.40	5.82
Broward	786	41.53	40.77	Manatee	381	104.80	120.07
Calhoun	0	0.00	0.00	Marion	301	87.27	97.02
Charlotte	8	4.04	4.37	Martin	51	32.75	38.98
Citrus	33	23.34	30.70	Miami-Dade	712	26.31	25.76
Clay	58	28.53	29.18	Monroe	29	37.79	36.85
Collier	78	21.86	26.30	Nassau	47	59.92	63.76
Columbia	28	40.89	41.89	Okaloosa	65	32.39	31.00
DeSoto	1	2.80	2.43	Okeechobee	42	104.40	107.42
Dixie	5	30.63	29.91	Orange	688	53.09	48.93
Duval	645	70.72	65.70	Osceola	228	69.81	68.51
Escambia	336	108.41	107.98	Palm Beach	972	67.92	71.93
Flagler	37	35.23	40.22	Pasco	395	79.30	83.88
Franklin	9	77.09	84.14	Pinellas	683	71.91	72.59
Gadsden	11	23.85	25.59	Polk	98	14.87	15.01
Gilchrist	12	69.80	79.07	Putnam	28	38.66	41.29
Glades	1	7.58	7.03	Santa Rosa	–	–	–
Gulf	1	6.24	5.97	Sarasota	54	13.34	14.87
Hamilton	7	49.16	46.88	Seminole	113	25.15	23.90
Hardee	2	7.32	7.07	St. Johns	111	48.99	51.10
Hendry	8	20.48	20.47	St. Lucie	127	42.51	45.61
Hernando	42	23.44	25.62	Sumter	86	73.66	125.44
Highlands	32	31.94	37.02	Suwannee	20	45.65	48.61
Hillsborough	948	70.17	69.11	Taylor	10	44.74	48.65
Holmes	0	0.00	0.00	Union	2	13.07	13.82
Indian River	48	32.44	37.71	Volusia	12	2.31	2.63
Jackson	0	0.00	0.00	Wakulla	4	12.66	12.27
Jefferson	13	92.30	88.67	Walton	34	53.58	56.09
Lafayette	2	23.03	17.86	Washington	0	0.00	0.00
Lake	12	3.68	3.75	Florida	9,708	47.87	–

**Santa Rosa County reported less than 70 percent of EMS runs to EMSTARS and did not have its results included in county level analyses*

Figure 5: Age-Adjusted Non-Fatal All Drug Overdose Rates per 100,000 People; July–Sep, 2019; Florida



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 but one Florida county, 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 non-fatal opioid and all drug overdoses than women or other races and ethnicities. Adults ages 25–34 experienced the highest non-fatal overdose rates. These findings are similar to previous reporting in the state from the second quarter of 2019 in that men and Whites were at greater risk of non-fatal opioid and all drug overdoses.[7] However, the third quarter of 2019 found that those ages 25–34 were the most at-risk age compared to those ages 30–39 being the most at risk during the second quarter of 2019. Some counties in Florida were burdened with markedly higher non-fatal opioid and all drug overdose rates compared to the rest of the state. Overdose prevention efforts should target these groups to maximize impacts.

Data from this report were not able to accurately inform non-fatal 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 non-fatal 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 non-fatal 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.Overdose

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. Jashinsky JM. *Non-Fatal Opioid and All Drug Overdose Surveillance Report: Florida, Q2-2019*. Tallahassee, FL; 2020. http://www.floridahealth.gov/statistics-and-data/fl-dose/reports.html.

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/NIOSHPUB2019101

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%0Ahttp://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.