



Orange County Health Care Agency & Sheriff-Coroner

2017 Opioid Overdose & Death in Orange County



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This report, a story map, and a variety of additional resources
about outreach and prevention efforts are available online at
www.ochealthinfo.com/opioids.

EXECUTIVE SUMMARY

Drug overdose (poisoning) is now the leading cause of unintentional injury death in the United States, causing more deaths than motor vehicle crashes. Opioids – both prescription pain-killers and heroin – are responsible for most of those deaths. The number of Californians affected by prescription and non-prescription opioid misuse and overdose is substantial, with rates varying significantly across counties, and even within counties. In Orange County, there were **7,457** opioid overdose/abuse cases treated in emergency departments (ED) between 2011 and 2015. Importantly, seven of every 10 overdose deaths investigated by the Orange County Sheriff-Coroner during this five-year period involved opioids.

While Orange County has lower opioid mortality rates compared to some other states and the nation, notable disparities and risk factors were identified for some of our residents. For example, males were nearly two times more likely than females to overdose and/or die from an opioid-related incident. Geographically, cities along the coastal and southern regions of Orange County tended to have higher rates of ED visits and death than other cities.

Some key findings of the report include:

- ◆ The rate of opioid-related overdose deaths has remained relatively level between 2011 and 2015, but the rate of opioid-related ED visits has more than doubled since 2005.
- ◆ The majority of overdose deaths were to Non-Hispanic Whites (81%), followed by Hispanics.
- ◆ Residents between the ages of 45 to 54 had the highest overdose death rates, and nearly half of all deaths occurred for those between the ages of 45 to 64.
- ◆ Higher ED visit rates were found in coastal and southern cities (e.g., Dana Point, Costa Mesa, San Clemente, Laguna Beach, and Laguna Woods).

The Orange County Health Care Agency offers several different public education, prevention, outreach and treatment services aimed at reducing the misuse and abuse of drugs and alcohol among Orange County residents. Current efforts to address these findings include increasing available treatment, the hosting of town halls and community meetings to raise awareness for parents,

support National Take Back Day to encourage the proper disposal of prescription medication, and target educational outreach and services in communities with higher prevalence among high school age youth. The County continues to look for opportunities to expand these services.

On July 11, 2017, the Orange County Board of Supervisors accepted a grant for 6,218 doses of Naloxone. Naloxone, also known as Narcan, is an opiate antagonist and is used to reverse the effects of an opiate overdose. The purpose of the grant is to distribute the naloxone locally and save lives from opioid overdose. Efforts will be made to link those who are using opioids, including those who overdose, to the services available throughout the county.

Additionally, the Orange County Alcohol and Drug Advisory Board is working on an Opioid Strategic Plan that will identify individual and community needs in Orange County and effective strategies to address these needs. The plan will focus on integration of evidence-based practices related to education and prevention, early intervention, treatment and recovery.

For more information on these and additional resources, please refer to page 16 of the report.

INTRODUCTION

According to the National Survey on Drug Use and Health (NSDUH, 2015), 27.1 million people in the United States used illicit drugs or misused prescription drugs in the last month (Center for Behavioral Health Statistics and Quality, 2016). Additionally, the rate of drug-induced overdose deaths in the U.S. has significantly increased in the past decade with an estimated 47,055 drug overdose deaths occurring in 2014 and over 60% of such deaths are due to opioids, including heroin and prescription drugs (Rudd et al., 2016). The Centers for Disease Control and Prevention (CDC) also found the lethal combination of benzodiazepines and opioids was a leading cause of overdose in the nation (CDC, 2014; Chen et al., 2014). Researchers have speculated that concurrent use of multiple substances may be related to the surge in hospitalizations and overdose deaths (CDC, 2013a; Paulozzi et al., 2011).

Substance use disorders also have serious economic consequences resulting in lost productivity, criminal justice involvement, and health care expenses accumulating upwards of \$400 billion annually in the U.S. (Sacks et al., 2015; National Drug Intelligence Center, 2011). In Orange County alone, substance-related hospitalization charges between 2011 and 2012 were estimated to be more than \$269 million (OSH-PD-ED & OSH-PD-PD, 2011-12) and increased to over \$425 million between 2013 to 2015 (OSH-PD-ED & OSH-PD-PD, 2013-15). The development of prevention programs not only have the potential to reduce substance-related hospitalizations and/or deaths, but also provide cost-effective interventions. The benefit-per-dollar cost ratios can range from small returns to more than \$64 for every dollar invested in prevention programs (U.S. Department of Health and Human Services, 2016).

Similar to nationwide trends, Orange County has seen an increase in drug-related overdose deaths within the last 15 years. In a recent report, drug overdose deaths increased by 88% between 2000 and 2015 (HPRC, 2017), and nearly half

of all deaths were due to accidental prescription drug overdoses. Moreover, a total of 1,711,809 prescriptions for opioids (e.g.,

hydrocodone, oxycodone) were dispensed to OC residents in 2015 according to the Controlled Substance Utilization Review and Evaluation System (CURES; data provided by California Department of Justice). Additionally, opioids have become the most prescribed class of medications in the U.S. with more than 289 million prescriptions written each year (Levy et al., 2015; Volkow et al., 2011). This highlights the importance of focusing prevention efforts to address the rising opioid consumption among residents.

This report serves as a follow-up to Orange County Health Care Agency's (HCA) Drug & Alcohol Overdose Hospitalization & Death report published in 2017, wherein we further examine in more detail, opioid-related emergency department (ED) visits, hospitalizations, and deaths that occurred between 2011 and 2015. It presents demographic

differences (e.g., gender, age, race/ethnicity, and geography) of Orange County residents who overdosed and/or died as a result of using opioids, as well as examines factors that contributed to an overdose (e.g., intent and type of substance used). These findings and profiles are intended to help guide local

substance use education, prevention, and treatment efforts.

ED visit and hospitalization cases (2011-2015) were collected from the State of California Office of Statewide Health



The average prescription in OC was filled for 72 pills, which corresponds to over 122 million pills in one year.

Top 5 Prescribed Opioids in OC:

1. **Hydrocodone (62%)**
2. **Oxycodone (16%)**
3. **Morphine (7%)**
4. **Methadone (2%)**
5. **Hydromorphone (2%)**

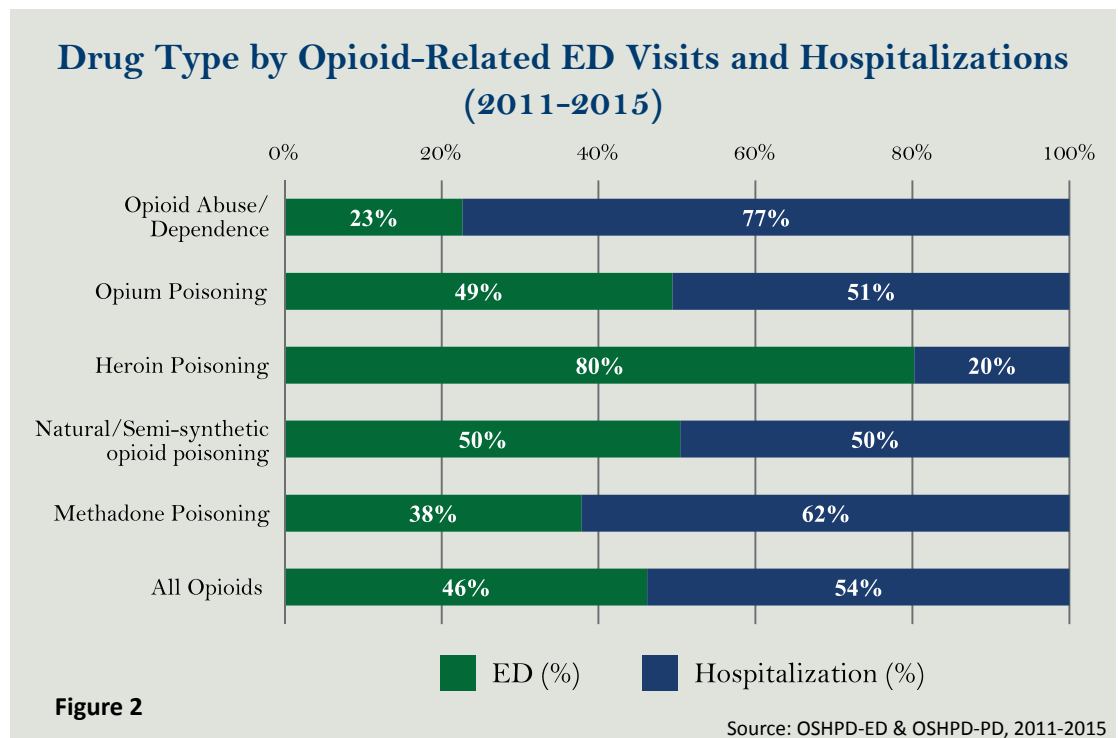
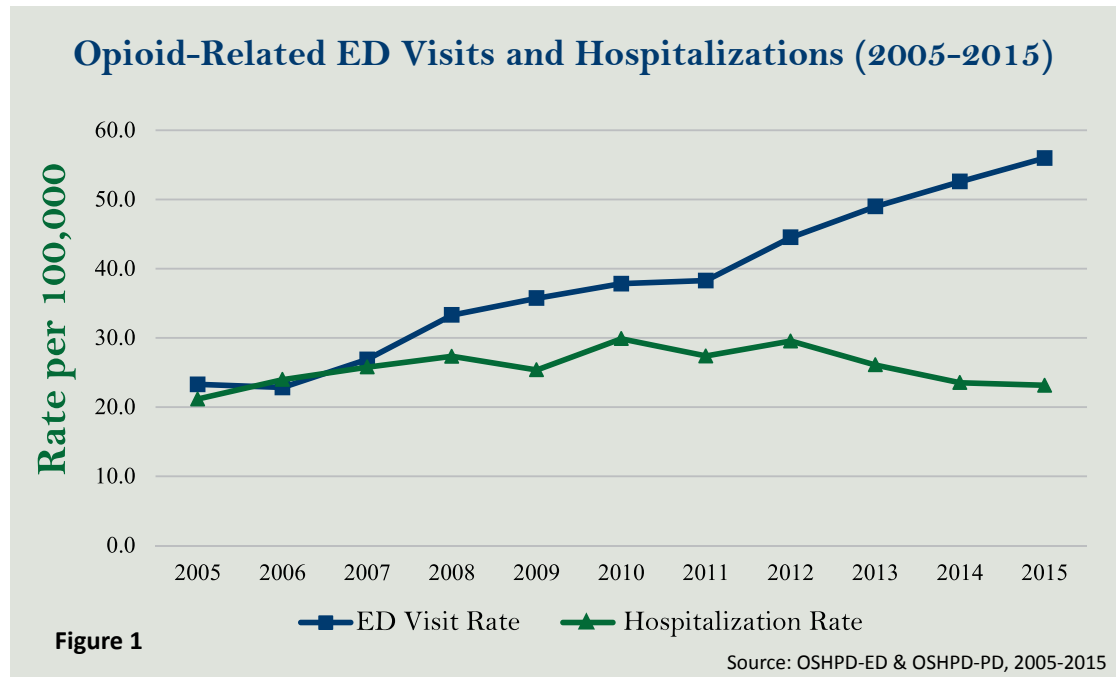
Planning and Development – Emergency Department (OSH-PD-ED) and Patient Discharge (OSH-PD-PD) and were categorized according to the International Classification of Disease 9th (ICD-9) and 10th (ICD-10) Revisions. Information regarding overdose deaths (2011-2015) were analyzed from death certificates, which was found in the state master death file for the county and matched to data from the Orange County Sheriff's Department, Coroner Division.

OPIOID-RELATED ED VISITS AND HOSPITALIZATIONS

As part of an indepth investigation into the substance use habits of Orange County residents, this report examines cases where opioids were the primary drug resulting in a visit to the Emergency Department (ED) or subsequent hospitalization. Over the last ten years (2005-2015), the rate of opioid-related ED visits has steadily increased, while the rate of hospitalizations has remained relatively level. The overall rate of ED visits has increased by 141%, from 23.3 per 100,000 in 2005 to 56.0 in 2015 (**Figure 1**). The rate of hospitalizations as a result of an opioid-related overdose also increased by 9% over this ten year period (21.1 vs. 23.1 per 100,000). Overall, this increase can largely be attributed to the rise of opioid abuse or opioid dependence cases, as well as poisoning by heroin.

The type of opioid substance used prior to overdose also influenced whether or not

patients were admitted to the hospital after being treated in the ED. Opioid-related cases were classified based on the principal diagnosis (ICD-9 or ICD-10) in to one of five categories (**Figure 2**). Overall, 54% of opioid cases (n = 4,012 of 7,457) were admitted to the hospital for additional treatment. Patients who were classified as opioid abuse or dependent, as well as those poisoned by prescription opioids (i.e., opium, semi-synthetic, or methadone) were more likely to be admitted to the hospital. Conversely, only 20% of cases involving heroin poisoning were admitted to the hospital for additional treatment.



Frequency of Opioid-Induced Emergency Department Visits (2011-2015)

During this time period, 7,457 residents visited an ED for opioid-related issue (**Table 1**) – the majority of which were for opioid abuse or dependence (39%), followed by heroin poisoning (24%), and natural/semi-synthetic opioid poisoning (21%).

Table 1	2011	2012	2013	2014	2015	Total	
						N	%
Opioid Abuse/Dependence	398	514	545	623	846	2,926	39%
Heroin Poisoning	241	322	394	419	444	1,820	24%
Semi-Synthetic Opioid Poisoning (Prescription)	314	319	345	317	274	1,569	21%
Opium Poisoning	150	148	176	220	160	854	11%
Methadone Poisoning	62	64	57	60	45	288	4%
Total	1,165	1,367	1,517	1,639	1,769	7,457	100%

Source: OSHPD-ED, 2011-2015

DEMOGRAPHIC PROFILES

On average, 1,500 residents are treated in the ED each year for an opioid-related overdose or dependence. Roughly six out of ten (61%) cases were among males (n = 4,532), while 39% (n = 2,924) were female (**Table 2**). Additionally, males were treated in the ED at an average rate of 59.1 per 100,000, whereas females had a rate of 37.4 per 100,000. Between 2011-2015, the number of opioid-related ED visits increased for both males (54%) and females (48%).

The majority of opioid-related ED visits was among Non-Hispanic White residents (78%), followed by Hispanics (15%), Other / Unknown (4%), Asian / Pacific Islanders (2%), and African-Americans (1%). Non-Hispanic Whites also had the highest number and rate of ED visits for opioid-related issues at 87.2 (per 100,000). African-Americans had the second highest rate at 41.8 albeit a very small number of cases,¹ followed by Hispanics at 21.5. With the exception of African-Americans, the number of opioid-induced ED visits increased for all racial/ethnic groups between 2011-2015 (**Table 2**).

Adults between the ages of 18 to 34 accounted for more than half of those who were treated for opioid abuse (53%). The highest number and rate of visits were for people between 18 to 24 years old at 133.8 (per 100,000), followed by 25 to 34 year olds at 82.7. Adults ages 45 to 54 and 55 to 64 had the next highest rates (45.2 and 45.9 per 100,000; respectively). Teenagers (<18 years) and seniors (>65 years) had much lower rates. Importantly, the number of opioid-related ED visits increased for all age groups between 2011-2015, except for adolescents ages 10 to 17 (**Table 2**).



1,157
Non-Hispanic
Whites on
average per year



230
Hispanics on
average per year



27
Asian/Pacific
Islanders on
average per year



19
African-
Americans on
average per year

¹The rate of African-American ED visits should be interpreted with caution due to the small population size.

Source: OSHPD-ED, 2011-2015

Demographic Characteristics of Opioid Overdose Emergency Department Visits (2011-2015)

Table 2	2011	2012	2013	2014	2015	5-yr Total No.	5-yr Avg Rate per 100,000
Gender							
Male	696	841	949	972	1,074	4,532	59.1
Female	469	526	568	667	694	2,924	37.4
Race/Ethnicity							
Non-Hispanic White	910	1,071	1,192	1,272	1,341	5,786	87.2
Hispanic	183	198	214	255	298	1,148	21.5
Asian / Pacific Islander	21	29	14	27	43	134	4.6
African-American	20	24	15	19	17	95	41.8
Other / Unknown	31	45	82	66	70	294	73.2
Age							
0-9	10	5	8	7	14	44	2.3
10-17	38	57	35	37	26	193	11.6
18-24	322	434	462	444	464	2,126	133.8
25-34	220	292	341	375	532	1,760	82.7
35-44	135	142	166	213	198	854	40.1
45-54	204	183	195	224	217	1,023	45.2
55-64	134	150	160	198	183	825	45.9
65+	102	104	150	141	135	632	31.7
Total	1,165	1,367	1,517	1,639	1,769	7,457	48.1

Source: OSHPD-ED, 2011-2015



GEOGRAPHY

The geographic distribution for opioid-related ED visits between 2011 and 2015 is presented in **Table 3** and **Map 1** on page 7 and 8. Importantly, those ZIP codes and cities with the highest rates were primarily located in the southern and coastal cities of Orange County. Examining the regional prevalence of ED visits for opioid overdose or poisoning revealed a 59% increase in the number of cases in the southern region of Orange County (50.6 per 100,000). Between 2011-2015, there was also a 58% increase in the number of opioid cases reported in the central portion of the county (50.7 per 100,000).

Opioid Emergency Department Visit Numbers and Rates by Geographic Region and City (2011-2015)

Table 3	City of Residence ²	2011	2012	2013	2014	2015	Total	5-Yr Avg No./Year	5-Yr Avg Rate	95% Confidence Interval
Southern Cities: 59% increase in the number of cases (50.6 per 100,000; CI [46.1, 55.5])										
	Dana Point	27	29	42	37	70	205	41	120.2	86.2 163.0
	San Clemente	50	60	67	53	71	301	60	92.4	70.2 118.5
	Laguna Beach	13	22	20	24	26	105	21	90.0	55.7 137.6
	Laguna Woods	12	9	19	15	17	72	14	87.6	46.6 143.0
	Laguna Niguel	43	40	60	46	50	239	48	73.9	54.0 97.5
	San Juan Capistrano	18	21	28	32	32	131	26	72.8	47.2 105.8
	Laguna Hills	10	22	20	29	20	101	20	65.2	39.4 99.7
	Mission Viejo	37	53	59	55	64	268	54	55.5	41.6 72.4
	Aliso Viejo	26	22	19	26	24	117	23	46.6	29.1 68.8
	Rancho Santa Margarita	14	27	22	23	28	114	23	46.3	28.8 68.8
	Lake Forest	26	31	42	29	31	159	32	40.0	27.0 56.1
	Irvine	47	59	65	78	74	323	65	27.2	21.0 34.7
	Unincorporated	17	34	24	30	35	140	28	24.4	16.2 35.3
Central Cities: 58% increase in the number of cases (50.7 per 100,000; CI [46.6, 54.9])										
	Costa Mesa	74	72	100	139	174	559	112	99.4	81.6 119.4
	Huntington Beach	113	176	123	162	152	726	145	73.3	61.8 86.1
	Fountain Valley	21	29	26	38	44	158	32	55.5	37.7 78.4
	Newport Beach	45	44	44	52	38	223	45	51.1	37.1 68.3
	Seal Beach	7	8	17	4	13	49	10	39.7	18.1 71.9
	Westminster	25	26	43	47	38	179	36	38.9	26.9 53.5
	Tustin	20	22	30	38	42	152	30	38.7	25.8 54.5
	Santa Ana	103	101	119	143	165	631	126	37.6	31.3 44.7
	Garden Grove	48	51	54	55	54	262	52	29.9	22.2 38.9
Northern Cities: 37% increase in the number of cases (42.2 per 100,000; CI [38.4, 46.3])										
	Villa Park	8	5	0	1	2	16	3	53.6	10.4 146.9
	Yorba Linda	34	28	43	30	27	162	32	48.2	32.6 67.2
	Orange	44	56	57	86	81	324	65	46.2	35.4 58.7
	Anaheim	119	147	177	160	179	782	156	45.2	38.3 52.8
	Stanton	13	17	8	18	29	85	17	43.9	25.6 70.3
	Los Alamitos / Rossmoor	13	8	11	8	7	47	9	42.4	18.6 77.0
	Placentia	22	19	21	19	29	110	22	42.0	26.3 63.6
	Brea	16	15	22	16	17	86	17	41.8	24.1 66.2
	Cypress	21	14	26	17	20	98	20	39.8	24.0 61.5
	Buena Park	28	24	28	48	31	159	32	38.3	25.8 53.6
	La Habra	16	21	30	23	28	118	24	38.2	24.2 56.8
	Fullerton	34	53	44	57	51	239	48	34.3	25.1 45.3
	La Palma	1	2	7	1	6	17	3	21.3	3.9 55.0
	Orange County	1,165	1,367	1,517	1,639	1,769	7,457	1,491	47.8	45.4 50.3

Cities with 20 or fewer cases can lead to unstable rates and thus should be interpreted with caution.

Source: OSHPD-ED, 2011-2015

²Geographic regions are based on the Behavioral Health Services' Service Planning Area breakouts.

OPIOID-RELATED EMERGENCY DEPARTMENT VISITS BY ZIP CODE

(2011-2015)

Map 1

Rate of Opioid- Related ED Visits by Zip Code

Rate per 100K



HOSPITALIZATION CHARGES & LENGTH OF STAY

For all opioid-related cases, the total number of hospitalizations between 2011 and 2015 (N = 4,012) resulted in over 20,000 hospital days, with the average length of stay being 5.1 days (**Table 4**). During this five-year period, the total amount of charges accumulated to more than \$133 million. On average, each hospitalization stay resulted in over \$33,000 in charges. Nearly four in ten patients were insured through a private insurance company (41%), followed by those who self-paid (i.e., uninsured) or were covered through Medi-Cal insurance (37%).

Opioid-Related Hospitalization Charges and Length of Stay (2011-2015)

Table 4	
Total Number of Hospitalizations	4,012
Total Number of Bed Days	20,589
Average Length of Stay (in days)	5.1
Total Charges	\$133,880,543
Average Charge per Admission	\$33,370

Source: OSHPD-ED, 2011-2015



Hospitalization
charges averaged
\$33,000
per admission

PATIENT DISPOSITION

The majority of patients admitted to the hospital for opioid-related problems had a routine discharge (75%). Nearly one in ten left the hospital against medical advice (9%), while a smaller percentage of patients transferred to a skilled nursing facility/rehab or home health care/hospice (6%). Fewer were discharged to another acute or psychiatric hospital (4%), and even less died or went to jail after being admitted to the hospital (2%).

CORONER-INVESTIGATED OPIOID-RELATED DEATHS

Data from the Orange County Sheriff's Department's (OCS) Coroner Division was used to identify opioid-related drug overdose deaths. The data contained demographic information of the decedent, as well as information regarding the specific drugs used, categorized specific opioid types, and contributing causes of death. To better understand the latest trends in opioid-related overdose deaths, data was analyzed from the Coroner's database for deaths that occurred between 2011 and 2015. Residents who died out of the county were not investigated by the Coroner and, therefore, not included in the following analysis. Also excluded from this analysis were deaths of non-Orange County residents.

DEMOGRAPHIC PROFILES

Fully 70% of all overdose deaths investigated by the coroner during this five-year period involved opioids, either illicit and/or prescription (n=1,207). Approximately 62% of opioid-related deaths were among males (n = 744), who also had a higher 5-year average rate compared to females (9.7 vs 5.9 per 100,000, respectively; **Table 5**). Between 2011 and 2015, the 5-year average rate of opioid-related deaths was 7.8 per 100,000, and remained relatively stable throughout this time period.

Demographic Characteristics of Opioid-related Overdose Deaths (2011-2015)

Table 5	2011	2012	2013	2014	2015	5-yr Total No.	5-yr Avg. Rate per 100,000
Gender							
Male	149	134	142	152	167	744	9.7
Female	85	90	95	98	95	463	5.9
Race/Ethnicity							
Non-Hispanic White	181	175	201	202	222	981	14.8
Hispanic	38	31	30	37	32	168	3.2
Asian/Pacific Islander	8	9	3	5	7	32	1.1
African-American	2	2	3	6	1	14	6.2
Age							
10-17	5	0	1	2	1	9	0.5
18-24	26	29	31	19	25	130	8.2
25-34	45	44	40	53	63	245	11.5
35-44	45	31	41	45	40	202	9.5
45-54	72	69	67	56	48	312	13.8
55-64	32	37	45	56	62	232	12.9
65+	9	14	12	19	23	77	3.9
Total	234	224	237	250	262	1,207	7.8
Rate (per 100,000)	7.7	7.3	7.7	8.0	8.3	Source: OC Coroner, 2011-2015	

One exception was found in 2012, which demonstrated a very slight drop in the number and rate compared to adjacent years (7.3 per 100,000).

The majority of deaths were among Non-Hispanic White residents (81%), followed by Hispanic (14%), Asian/Pacific Islander (3%), and African-American (1%). Non-Hispanic Whites also had the highest rate with 14.8 per 100,000, which was much higher than other racial/ethnic groups.³ Nearly half of all opioid-involved deaths were between the ages of 45 and 64 (45%). Adults aged 45-54 had the highest rate with 13.8 per 100,000.

³The rate of African-American deaths should be interpreted with caution due to the small population size.

OPIOID SUB-TYPES

Information regarding the specific opioid(s) used were also provided by the Coroner. When examining opioid-related overdose deaths by sub-types, at least one form of natural and/or semi-synthetic opioid was found in 66% of deaths, or 801 cases, followed by heroin (n = 239; 20%), methadone (n = 177; 15%) and synthetic opioids other than methadone (n = 139; 12%; **Table 6**). From 2011 to 2015, deaths involving natural/semi-synthetic opioids and methadone decreased; however, there was an increase in heroin and synthetic opioids other than methadone (e.g., Fentanyl). See the **Appendix** for a classification of opioid types. The growing trend among heroin and synthetic opioids are consistent with other recent reports highlighting this nationwide pattern (Rudd et al., 2016).

Opioid Sub-types in Overdose Deaths (2011-2015)⁴

Table 6	2011	2012	2013	2014	2015	5-yr Total
Natural/Semi-Synthetic Opioids	191	149	145	156	160	801
Heroin	4	37	50	67	81	239
Methadone	46	44	32	33	22	177
Synthetic Opioids other than Methadone	22	24	31	33	29	139

⁴ Drug cause of death may indicate more than one type of opioid found prior to overdose. Source: OC Coroner, 2011-2015

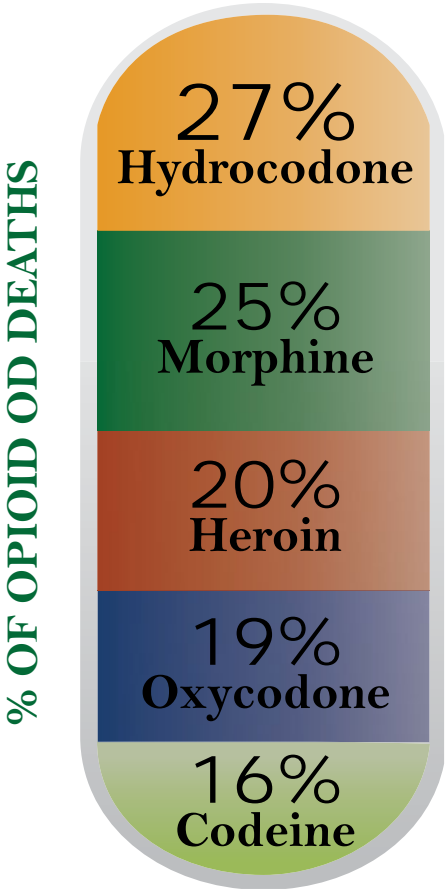
TYPE & INTENT OF DRUG USE

Examining opioid type (e.g., prescription versus illicit opioids) and the intent of use (e.g., intentional or accidental overdoses) can provide evidence for how opioid substances were obtained and how the user planned to use these types of drugs. In general, 81% of all overdoses were accidental, while 16% identified as intentional or suicide. Over half of opioid-involved deaths were categorized as due to prescription opioid medication overdoses (55%), followed by poly-drug use or the mixing of opioids with alcohol (26%; **Table 7**). Deaths caused by illicit opioids such as heroin accounted for 19% of cases. Additionally, accidental overdoses accounted for the majority of illicit, mixture, and prescription opioid overdose death (93%, 88% and 74%, respectively).

Opioid-type and Intention of Opioid-related Overdose Deaths (2011-2015)

Source: OC Coroner, 2011-2015

Table 7	2011	2012	2013	2014	2015	Total	
						N	%
Prescription	134	137	135	129	131	666	55%
Accident	93	108	100	93	96	490	74%
Suicide	30	23	32	32	31	148	22%
Undetermined	11	6	3	4	4	28	4%
Mixture	48	62	57	70	76	313	26%
Accident	40	54	50	64	68	276	88%
Suicide	5	6	7	5	3	26	8%
Undetermined	3	2	0	1	5	11	4%
Illicit (e.g., heroin)	52	25	45	51	55	228	19%
Accident	51	24	39	48	51	213	93%
Suicide	1	1	4	1	4	11	6%
Undetermined	0	0	2	2	0	4	1%
Total	234	224	237	250	262	1,207	100%



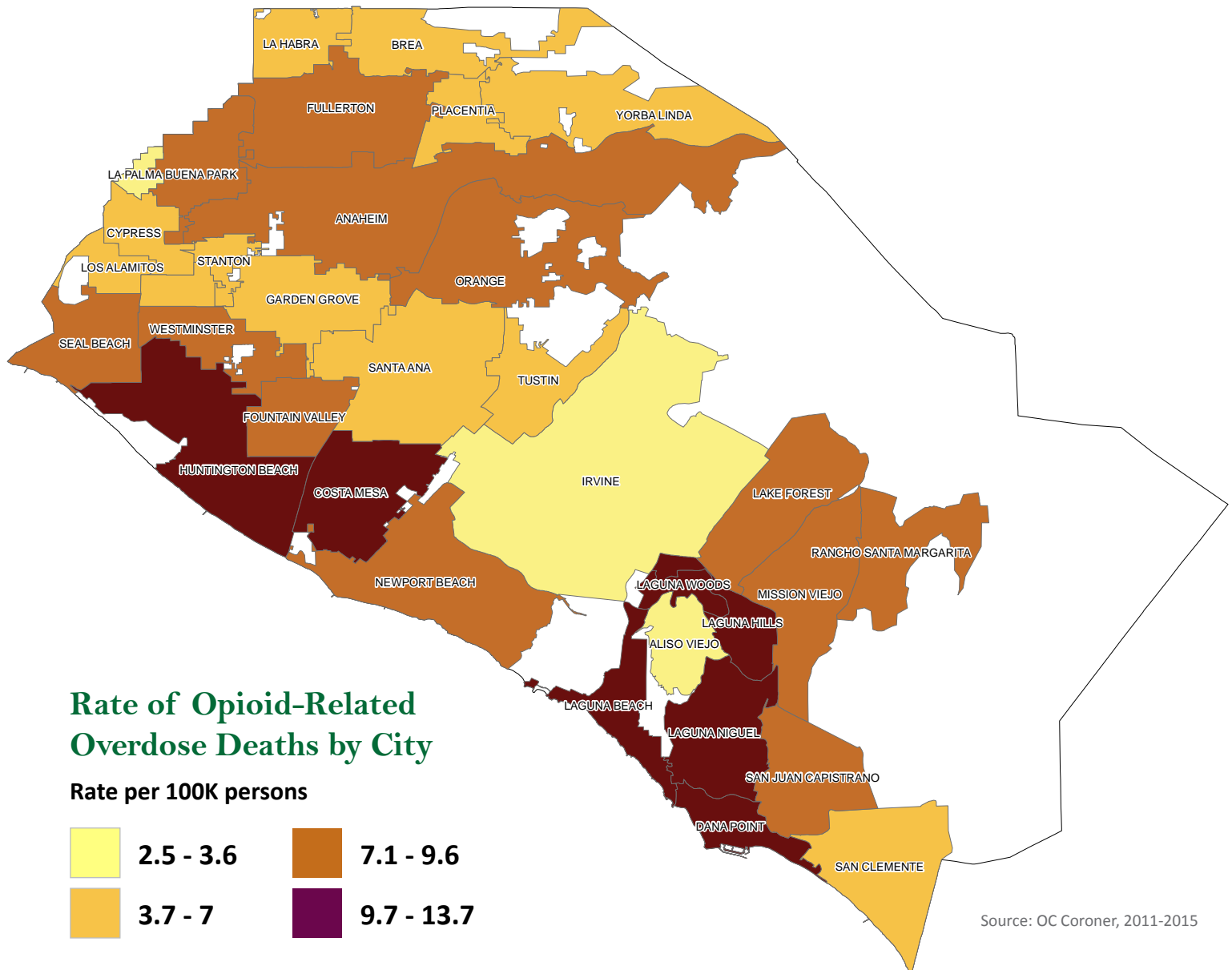
GEOGRAPHY

The geographic distribution for opioid-related overdose deaths between 2011 and 2015 are presented in **Map 2** and **Table 8** on pages 11 and 12. The highest rates were among coastal and south county cities including: Laguna Beach, Laguna Woods, Dana Point, Costa Mesa, Laguna Niguel, Huntington Beach, and Laguna Hills. Moreover, the southern region of Orange County experienced the highest increase in number of deaths (21%) during this time period.

OPIOID-RELATED OVERDOSE DEATHS BY CITY

(2011-2015)

Map 2



Opioid Overdose Death Numbers and Rates by Geographic Region and City (2011-2015)

Table 8 City of Residence ⁵	2011	2012	2013	2014	2015	Total	5-Yr Avg No.	5-Yr Avg Rate	95% Confidence Interval	
Southern Cities: 21% increase in the number of deaths (6.3 per 100,000; CI [4.8, 8.2])										
Laguna Beach	3	2	3	3	5	16	3	13.7	2.7	37.6
Laguna Woods	3	1	1	5	0	10	2	12.2	1.5	44.0
Dana Point	3	3	2	8	4	20	4	11.7	3.2	30.0
Laguna Niguel	7	2	10	10	7	36	7	11.1	4.3	22.3
Laguna Hills	1	4	5	5	1	16	3	10.3	2.0	28.3
Mission Viejo	8	11	5	5	12	41	8	8.5	3.6	16.3
Lake Forest	4	4	8	10	6	32	6	8.0	2.8	16.4
Rancho Santa Margarita	3	2	5	3	6	19	4	7.7	1.7	19.3
San Juan Capistrano	3	3	5	1	1	13	3	7.2	1.2	22.2
San Clemente	3	8	3	1	6	21	4	6.4	1.7	15.7
Aliso Viejo	0	0	6	1	2	9	2	3.6	0.2	12.8
Unincorporated	3	6	5	3	2	19	4	3.3	0.7	8.3
Irvine	6	7	5	10	5	33	7	2.8	1.1	5.8
Central Cities: 20% increase in the number of deaths (7.8 per 100,000; CI [6.2, 9.5])										
Costa Mesa	9	12	13	16	15	65	13	11.6	6.2	19.8
Huntington Beach	20	22	19	16	29	106	21	10.7	6.6	16.2
Westminster	12	9	6	7	10	44	9	9.6	4.1	17.8
Newport Beach	6	6	11	8	10	41	8	9.4	4.0	18.1
Seal Beach	5	1	2	0	3	11	2	8.9	1.0	29.3
Fountain Valley	2	4	7	2	5	20	4	7.0	1.9	18.0
Garden Grove	6	12	9	12	15	54	11	6.2	2.9	10.9
Santa Ana	22	17	20	16	16	91	18	5.4	3.2	8.5
Tustin	7	6	1	2	4	20	4	5.1	1.4	13.0
Northern Cities: 18% decrease in the number of deaths (6.7 per 100,000; CI [5.3, 8.5])										
Orange	11	10	18	9	8	56	11	8.0	3.9	14.0
Buena Park	3	9	8	9	4	33	7	7.9	3.0	16.5
Fullerton	10	10	5	16	10	51	10	7.3	3.4	13.2
Anaheim	32	24	21	26	20	123	25	7.1	4.6	10.5
Placentia	4	4	2	3	4	17	3	6.5	1.2	16.7
Brea	3	0	3	3	4	13	3	6.3	1.0	19.5
Yorba Linda	6	2	2	6	4	20	4	6.0	1.6	15.2
Los Alamitos / Rossmoor	1	0	2	2	1	6	1	5.4	0.1	25.1
Cypress	0	4	3	4	2	13	3	5.3	0.8	16.3
Stanton	4	1	3	0	2	10	2	5.2	0.6	18.6
La Habra	4	1	2	3	4	14	3	4.5	0.7	13.0
La Palma	0	0	1	0	1	2	0	2.5	N/A	23.2
Villa Park	0	0	0	0	0	0	0	0	N/A	N/A
No Fixed Abode: 70% increase in the number of deaths										
Homeless	20	17	16	25	34	112	22	N/A	N/A	N/A
Orange County	234	224	237	250	262	1,207	241	7.8	6.1	23.2

Source: OC Coroner, 2011-2015

⁵Geographic regions are based on the Behavioral Health Services' Service Planning Areas. Cities with 20 or fewer cases can lead to unstable rate estimates and thus should be interpreted with caution.

SUMMARY

Between 2011 and 2015, there were **7,457** opioid overdose/abuse cases treated in the ED, which averaged to approximately 1,491 ED visits each year. Importantly, 7 of every 10 overdose deaths investigated by the Coroner during this five-year period involved opioids (n=**1,207** opioid-related overdose deaths), for an average of 241 opioid-related overdose deaths each year.

OPIOID-RELATED ED VISITS AND HOSPITALIZATIONS

- ❖ The rate of opioid-related ED visits has more than doubled since 2005, increasing to **1,769** cases in 2015.
- ❖ Orange County residents were more likely to be admitted to the hospital for opioid abuse/dependence (77%) or methadone poisonings (62%). Conversely, cases involving heroin poisoning were less likely to be admitted to the hospital (20%).
- ❖ While males had a higher rate of opioid overdoses compared to females (59.1 vs 37.4 per 100,000), the rate increased for both males (54%) and females (48%) over the last five years.
- ❖ Majority of hospitalizations were Non-Hispanic Whites (78%) with a rate of 87.2 per 100,000, followed by Hispanics (15%; 21.5 per 100,000).
- ❖ Residents between the ages of 18 to 24 and 25 to 34 were most likely to visit the ED for an opioid-related issue (53%) and demonstrated the highest rates

(133.8 and 82.7 per 100,000, respectively).

- ❖ Higher ED visit rates were found in coastal and southern cities (e.g., Dana Point, Costa Mesa, San Clemente, Laguna Beach, and Laguna Woods).
- ❖ There were nearly 21,000 hospital bed-days with an average stay length of 5.1 days – resulting in approximately \$133 million in total charges.

141%
increase in
the rate of
opioid-related
ED visits



OPIOID-RELATED DEATHS

- ❖ Between 2011 and 2015, the 5-year average rate of opioid-related overdose deaths was 7.8 per 100,000 persons and has remained relatively level over this time period.
- ❖ Males had a higher rate of overdose deaths when compared to females (9.7 vs 5.9 per 100,000).
- ❖ The majority of overdose deaths were to Non-Hispanic Whites (81%) with a rate of 14.8 per 100,000, followed by Hispanics (14%; 3.2 per 100,000).
- ❖ Residents between the ages of 45 to 54 had the highest overdose death rates of 13.8 per 100,000 with 45% of all deaths in the age range of 45 to 64.
- ❖ Natural or semi-synthetic opioids were present in 66% of overdose deaths (n = 801).
- ❖ Coastal and southern cities demonstrated the highest rates of opioid-related mortality relative to the rest of the county (e.g., Laguna Beach, Laguna Woods, Dana Point,

Costa Mesa, Laguna Niguel, Huntington Beach, and Laguna Hills).

- ❖ There was an increase in the number of deaths that occurred in southern and central regions of the county between 2011 to 2015 (21% and 20%, respectively), while northern cities had an 18% decrease.

The Orange County Health Care Agency (HCA) offers several public education, treatment, and counseling services aimed at reducing the misuse of drugs and alcohol. To support these educational initiatives, the Agency and our partners often host events to provide a safe and responsible way for residents to dispose of unused prescription medication (<http://ochealthinfo.com/eh/waste/medwaste/medwaste>).

Emergency medical personnel and paramedics have administered over 1,500 doses of naloxone in each of the last two years. Additionally, Orange County Emergency Medical Services (OCEMS) developed a public safety, first responder standing order to support the Orange County Sheriff's Department (OCSD) and other jurisdiction's implementation of an Overdose Prevention Program. For example, OCEMS staff partnered with OCSD to train more than 150 OCSD Deputies to administer prepackaged naloxone to unconscious, unrespon-

sive victims of a suspected opioid overdose (after ensuring that 9-1-1 EMS responders are en route) to help reverse effects of these narcotics.

Our efforts focus on providing consumers and professionals in the behavioral health field with accurate information regarding the potential risk factors associated with drug and alcohol abuse. For more information on HCA's Behavioral Health Services, please call the information and referral line at 855-OC-Links (625-4657) or visit <http://www.ochealthinfo.com/oclinks/>.

81%
of overdose
deaths were
accidental

55%
due to
prescription
opioids



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APPENDIX: CLASSIFICATION OF OPIOID SUB-TYPES

Semi-synthetic opioids are derived from the naturally occurring opiates and opium alkaloids (e.g., morphine). Fully-synthetic opioids such as methadone and fentanyl are synthesized from other chemicals and molecules that do not come from alkaloids found in opium.

Natural/Semi-Synthetic Opioids
Codeine
Morphine
Hydrocodone
Oxycodone
Hydromorphone
Oxymorphone
Buprenorphine
Dihydrocodeine
Methorphan
Noroxycodone
Dilaudid
Methadone
Heroin
Synthetic Opioids other than Methadone
Meperidine
Fentanyl
Tramadol
Tapentadol
Propoxyphene
Norpropoxyphene
Normeperidine
Mitragynin

MENTAL HEALTH & SUBSTANCE ABUSE PREVENTION RESOURCES

NAMI WarmLine

877-910-WARM (877-910-9276)

The NAMI WarmLine provides telephone-based, non-crisis support for anyone struggling with mental health and/or substance abuse issues. Services are available in English, Spanish, Vietnamese, Farsi and interpretation for other languages is made available upon request.

24 Hour Suicide Prevention Line

877-7-CRISIS (877-727-4747)

The Suicide Prevention Line provides 24-hour, immediate, confidential over-the-phone suicide prevention services to anyone who is in crisis or experiencing suicidal thoughts. The service is provided in English, Spanish, and Vietnamese, while interpretation for other languages is made available upon request.

Medication Disposal

<http://www.ochealthinfo.com/phs/about/promo/adept>

There are many drop box location sites throughout Orange County. Drop boxes offer a safe location where people can dispose of unused medications, which can help prevent people from using medications that were not prescribed to them. In addition, medications can be safely destroyed at home.

Opioid Strategic Plan

The Orange County Alcohol and Drug Advisory Board is working on an Opioid Strategic Plan that will identify individual and community needs in Orange County and effective strategies to address these needs. In addition, the Orange County Board of Supervisors accepted a grant for 6,218 doses of Naloxone in July 2017. Naloxone, also known as Narcan, is an opiate antagonist used to reverse the effects of an opiate overdose. The purpose of the grant is to distribute the naloxone locally and potentially save lives from opioid overdose. For more information on these resources, please visit:

<http://www.ochealthinfo.com/bhs/about/adab>.



Orange County Collaborative
on Prescription Drug Abuse

<http://www.saferxoc.org/>

Working together to save lives. Misuse and abuse of prescription drugs is Orange County's fastest growing drug problem, with overdose deaths increasing at alarming rates — most of them accidental. The harm of substance abuse is rippling through our families, schools and workplaces. To stem this epidemic, we have launched SafeRx OC, an initiative led by a team of community members and experts.

OC Links

855 OC-LINKS (855-625-4657)

www.ochealthinfo.com/oclinks

OC Links is an information and referral phone and on-line chat service to help navigate the Behavioral Health Services (BHS) system within the Health Care Agency for the County of Orange. Callers are connected to clinical Navigators who are knowledgeable in every program within the BHS system. This includes children and adult mental health, alcohol and drug inpatient and outpatient programs, crisis services, and prevention/early intervention programs. Once a program is identified, the Navigator will make every effort to link the caller directly to that program while still on the call or engaged in a chat.



Behavioral Health Information & Referrals

855-OC-Links
(625-4657)

www.ochealthinfo.com/OCLinks

This information is also available on our website at www.ochealthinfo.com/opioids.