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HEALTH CARE AGENCY

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August 12, 2014

Dear Reader,

Every year in Orange County about 3,000 residents intentionally harm themselves and about 278 end their lives by suicide. Such intentional self-harm is a serious public health problem that has a devastating impact on those affected, including family, friends, and the community.

To better identify those at risk and prevent such needless tragedies, at the request and in collaboration with staff from the Prevention and Intervention Division in Behavioral Health Services, our Research and Planning Unit has completed a study. The results of this study highlight the problem of suicide in Orange County from 2009 to 2011 and document its prevalence, risk factors, and demographics.

While females were more likely to intentionally injure themselves, self-inflicted injuries by males were almost three times more likely to result in a suicide death. Consistent with previous research, males' increased likelihood to die by suicide is due to using more lethal means such as firearms and hanging/strangulation. Females are more likely to use poisoning/overdose. While older males (75+) had the highest rate of suicide death, middle-aged men 45 to 54 years have the highest number each year – an average of 50 of the 278 suicides per year in Orange County.

Importantly, the study also found that in addition to mental illness and substance abuse, another major risk factor for suicidal behavior is if a person is a military veteran. The suicide rate among military veterans in the county is three times higher than that of non-veterans (31.5 vs. 10.8 per 100,000 population, respectively). Understanding how to address these risk factors and implementing preventive measures will help reduce intentional self-harm and suicide deaths in our county. One major goal of the Prevention and Early Intervention (PEI) effort funded through the Mental Health Services Act (MHSA or Proposition 63) is to do just that.

MHSA PEI supports a broad spectrum of mental health services, including services to address suicide prevention that is specifically aimed at improving early identification, intervention, and referral for at-risk suicidal behavior. In addition, other PEI programs are aimed at reducing multiple risk factors and promoting well-being in order to prevent the mental health problems that can lead to self-harm.

Telephone support is available one phone call away by calling the 24/7 Suicide Prevention Hotline at 877-727-4747 and by calling the Veterans' Crisis Line at 800-273-8255. In addition, assistance linking to any Behavioral Health Service within the Health Care Agency is available by calling 855-OC-Links (855-625-4657). For more information on these and other Suicide Prevention Resources, please refer to page 19 of the report.

Thank you for your interest. In light of Suicide Prevention Week, September 8th to 14th, we hope this information is helpful to increase awareness and further guide efforts to eliminate such preventable deaths and suffering.

Sincerely,

Mark A. Refowitz
Director

Mary R. Hale
Deputy Agency Director

Suicide Deaths

in

Orange County

(2009 - 2011)

HEALTH

Mark Refowitz

Director

Suicide Deaths in Orange County (2009-2011)

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Suicide Deaths in Orange County (2009 – 2011)

Self-inflicted injury and suicide are serious community health problems and are one of the top 10 leading causes of death in the U.S., accounting for 38,364 deaths a year or 102 suicide deaths per day in 2010.[1] With such high human and economic cost on individuals, families and communities, suicide continues to be a major concern throughout the state, nation and world.

In Orange County, suicide was ranked as the fourth leading cause of death for residents in 2010.[2] A total of 835 Orange County residents died as a result of suicide between 2009 and 2011; for an average of 278.3 deaths per year. Adjusting for the age distribution of the population resulted in an annual age-adjusted rate of 9.2 deaths per 100,000 in 2011.[3] Orange County's suicide rate remains below the age-adjusted suicide rates of both the state of California (9.9) and nation (12.0). The national *Healthy People 2020* (HP2020 Objective MHMD-1) goal set by the Centers for Disease Control and Prevention (CDC) is to reduce the age-adjusted rate of suicide to no more than 10.2 suicides per 100,000 population by the year 2020. If the current trend continues, Orange County's age-adjusted suicide rate should continue to meet the *Healthy People 2020* goal.

Self-Harm and Suicide in Orange County

Between the years of 2009 to 2011, there were **8,939** incidents of self-inflicted injury or suicide reported among Orange County residents (**Table 1**). While the majority of cases (91.6%, n=8,104) were non-fatal, nearly one in ten people (9%, n=835) ultimately died from their self-inflicted injury.

Table 1: Self-Inflicted Injury & Suicide Cases by Year

Incident Type	2009	2010	2011	Total
Self-Harm	2,762	2,695	2,647	8,104
Suicide	251	279	305	835
Total	**3,013**	**2,974**	**2,952**	**8,939**

In this report we examine fatal self-inflicted injury (suicides) among Orange County residents and describe trends by gender, age group, race/ethnicity, veteran status, and geographic location. Self-inflicted injury emergency department visits and hospitalizations will be described in more detail in a separate report. Suicide death data were obtained from the Orange County Master Death File and were identified according to International Classification of Diseases, Tenth Revision (ICD-10) codes for the underlying cause of death. Suicide deaths included ICD-10 codes of X60-X84 or Y87.0.[4] Because the number of suicides can fluctuate from year-to-year, examining a single year may not provide the most accurate description of the problem. Thus, in this report we report the rates over a three-year period from 2009 to 2011. The population data specific to Orange County and the county's cities used to calculate rates were obtained from the 2010 Census. Comparisons between Orange County suicide rate to state, national, and national objectives are made when possible.

The mechanism or cause of death for suicide among Orange County residents from 2009 to 2011 is presented in **Table 2**. The majority of suicides (88.8%) were caused by one of three mechanisms:

firearms, hanging/strangulation, or poisoning/overdose. Firearms accounted for a third of suicides (33.2%, n=277), and hanging, strangulation and suffocation accounting for another third (33.1%, n=276). Poisoning/overdose accounted for about a fifth of all suicides (22.5%, n=188). Less common mechanisms of suicide, accounting for the remaining 11.2% of suicides included: jumping from a high place (3.2%, n=27), cutting or piercing with a sharp object (2.3%, n=19) or other means (5.7%, n=48).

Table 2: Number and Percentage of Suicides by Mechanism, 2009-2011

Mechanism (Principal External Cause of Death ICD-10)	2009	2010	2011	Total Number	3-Year Average	Percent of Total
Poisoning (X60-X69)	**56**	**60**	**72**	**188**	**62.7**	**22.5%**
Non-opioid analgesics, antipyretics and anti-rheumatics (X60)	0	1	0	1	0.7	0.1%
Antiepileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified (X61)	12	6	8	26	8.7	3.1%
Narcotics and psychodysleptics [hallucinogens] not elsewhere classified (X62)	5	3	4	12	4	1.4%
Other unspecified drugs, medicaments and biological substances (X64)	31	45	50	126	42	15.1%
Alcohol (X65)	0	0	1	1	0.3	0.1%
Poisoning by Exposure to Other Gases and Vapors (X67)	6	4	9	19	6.3	2.3%
Other and unspecified chemicals and noxious substances (X69)	2	1	0	3	1.0	0.4%
Hanging, Strangulation and Suffocation (X70)	**90**	**91**	**95**	**276**	**92.0**	**33.1%**
Firearms (X72-X74)	**74**	**99**	**104**	**277**	**92.3**	**33.2%**
By handgun discharge (X72)	52	77	75	204	68.0	24.4%
By rifle, shotgun and larger firearm discharge (X73)	9	13	20	42	14.0	5.0%
By other and unspecified firearm discharge (X74)	13	9	9	31	10.3	3.7%
Cutting & Piercing Instrument (X78)	**9**	**4**	**9**	**19**	**6.3**	**2.3%**
Jumping from a High Place (X80)	**8**	**9**	**10**	**27**	**9.0**	**3.2%**
Other and Unspecified Means and Their Sequelae (X71, X76, X81-X84, Y87.0)	**14**	**16**	**18**	**48**	**16.0**	**5.7%**
By submersion/Drowning (X71)	3	2	2	7	2.3	0.8%
By smoke, fire, and flames (X76)	2	3	2	7	2.3	0.8%
By jumping or lying before moving object (X81)	1	4	8	13	4.3	1.6%
By crashing of motor vehicle (X82)	1	3	3	7	2.3	0.8%
By other specified means (caustic substances, crash plane, electrocution; X83)	1	3	1	5	1.7	0.6%
By unspecified means (X84)	4	0	1	5	1.7	0.6%
Late Effects of Self-Inflicted Injury (Y87.0)	2	1	1	4	1.3	0.5%
Total	**251**	**279**	**305**	**835**	**278.3**	**100.0%**

Suicide deaths by firearm most often involved the use of a handgun (24.4%, n=204) and a smaller number involved rifles/shotguns (5.0%, n=42). The majority of suicide deaths by poisoning were due to other unspecified drugs, medicaments and biological substances (15.1%, n=126; **Table 1)**.

GEOGRAPHIC VARIATION IN SUICIDE

The geographic distribution of suicide deaths among Orange County residents for the 2009-2011 time period were geocoded based on the decedent's residence and summarized in **Table 3** by city. Rates based on fewer than 15 deaths (3-year average <5) were not calculated.

Based on calculated rates, Orange County cities ranged from a high of 21.1 suicides per 100,000 population in Laguna Beach to a low of zero suicides in Villa Park during the three year time period. In all, 13 cities had age-adjusted suicide rates higher than the countywide rate of 9.0 per 100,000 population.

Villa Park and Santa Ana were the only two cities that met the HP2010 objective of no more than five suicides per 100,000 population. If current trend continues, thirteen cities with suicide rates, and Orange County as a whole, will meet the Healthy People 2020 objective of no more than 10.2 suicides per 100,000 population. Conversely, eleven cities would not meet the HP 2020 goal.

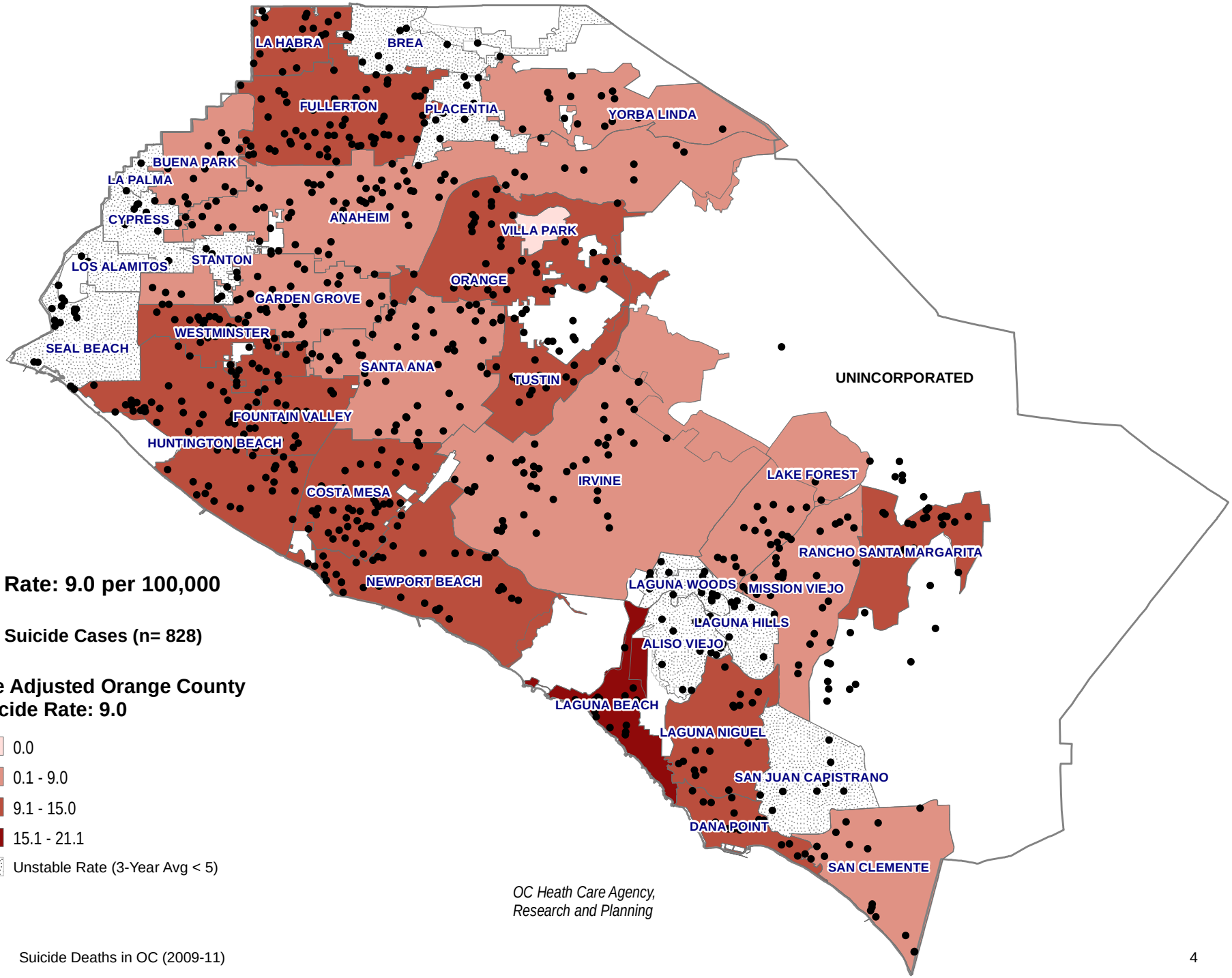
The map on the following page illustrates the three-year average age-adjusted suicide rate for each city and presents the approximate, geocoded residential address for each descedent during the 2009-2011 time period.

¥*All rates are age-adjusted to the standard 2000 U.S. population. Rates based on fewer than 20 deaths (3-yr average < 20 cases) should be interpreted with caution.*
**Rates are unreliable and suppressed when the 3-year average was < 5 cases.*

Table 3: Annual Average Number and Age-Adjusted Suicide Rate by City, 2009-2011

City	Total Number	3-Year Average Number	Age-Adjusted Rate ¥ (Per 100,000 Population)
Laguna Woods	14	4.7	*
Laguna Beach	17	5.7	21.1
Unincorporated	24	8.0	n/a
Seal Beach	12	4.0	*
Dana Point	15	5.0	13.5
Newport Beach	40	13.3	13.5
Fullerton	55	18.3	13.4
Rancho Santa Margarita	17	5.7	12.9
Aliso Viejo	14	4.7	*
Westminster	33	11.0	12.3
Costa Mesa	42	14.0	12.2
Laguna Hills	12	4.0	*
Los Alamitos	5	1.7	*
Fountain Valley	20	6.7	11.1
Orange	44	14.7	10.8
La Habra	19	6.3	10.7
Healthy People 2020	-	-	10.2
Tustin	23	7.7	10.2
Laguna Niguel	21	7.0	9.9
Huntington Beach	61	20.3	9.5
ORANGE COUNTY	835	278.3	9.0
Lake Forest	22	7.3	9.0
San Juan Capistrano	9	3.0	*
San Clemente	17	5.7	8.6
Yorba Linda	16	5.3	8.3
Mission Viejo	26	8.7	8.2
Brea	10	3.3	*
Anaheim	72	24	7.5
Buena Park	18	6.0	7.3
Irvine	44	14.7	6.8
Garden Grove	34	11.3	6.7
Placentia	10	3.3	*
Cypress	9	3.0	*
Stanton	6	2.0	*
Healthy People 2010	-	-	5.0
Santa Ana	49	16.3	5.0
La Palma	3	1.0	*
Villa Park	0	0	0.0
Unknown	2	0.7	-

Suicides Among Orange County Residents (2009-2011)



OC Rate: 9.0 per 100,000

- **Suicide Cases (n= 828)**

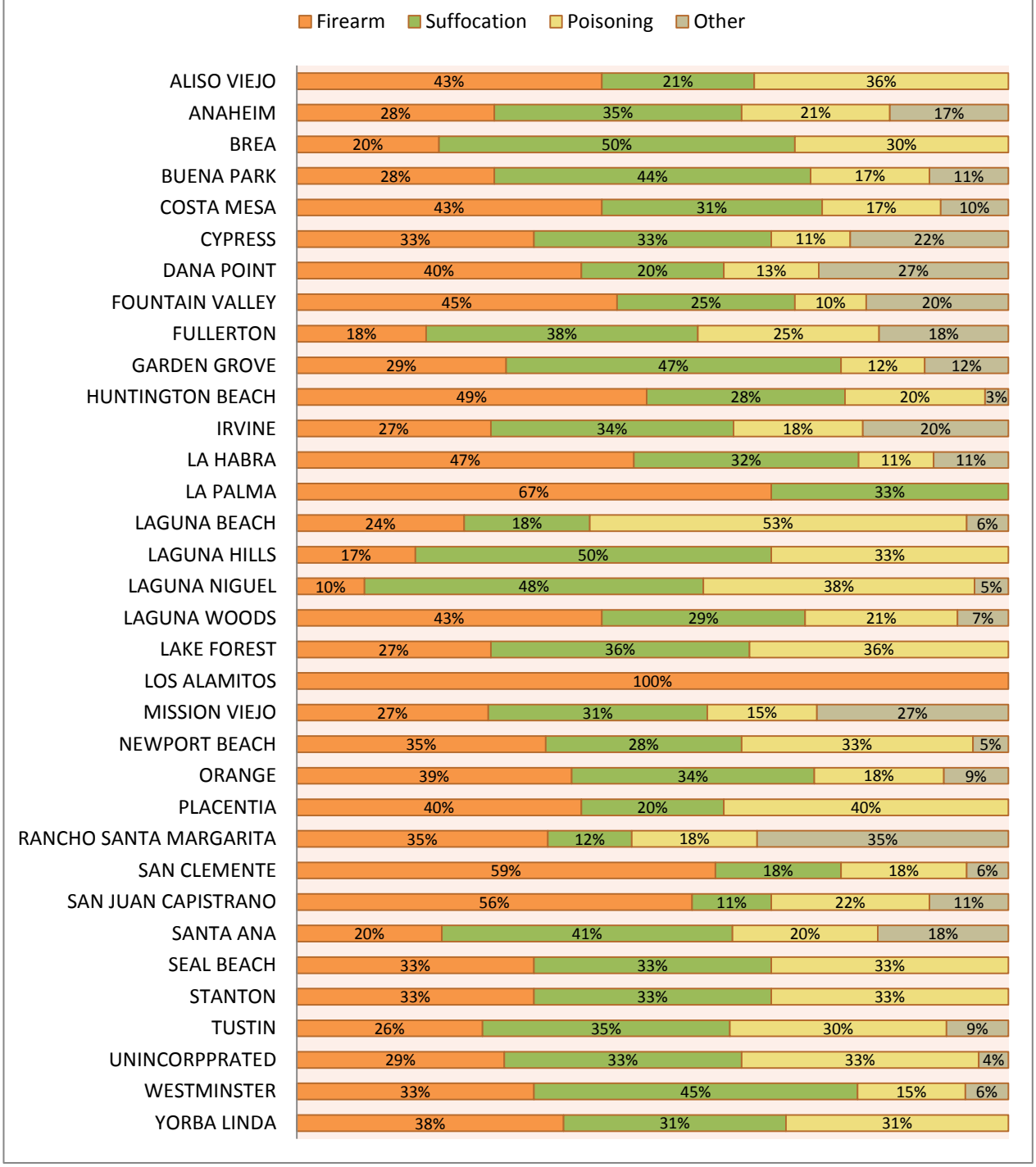
Age Adjusted Orange County Suicide Rate: 9.0

- 0.0
- 0.1 - 9.0
- 9.1 - 15.0
- 15.1 - 21.1
- Unstable Rate (3-Year Avg < 5)

OC Heath Care Agency, Research and Planning

Figure 1 shows the leading cause or mechanism of suicide by city based on the broad categories of firearm, strangulation/hanging/suffocation, poisoning/overdose and other methods of suicide. For most cities, the predominant methods of suicide were firearm (15 cities) and suffocation (13 cities). Interestingly, in Los Alamitos 100% of suicides were caused by firearms. Laguna Beach was the only city where the leading cause of suicide was due to poisoning/overdose (53%).

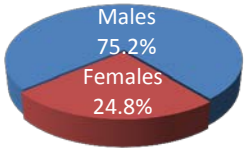
Figure 1: Percentage of Suicides by Mechanism (Method) and City, 2009-2011



SUICIDE BY GENDER

As shown in **Figure 2**, there was great disparity in suicides by gender. In Orange County, as in the nation and state, more male residents ended their lives compared to female residents.

Figure 2: Percent of Suicides Among OC Residents by Gender, 2009-2011



As shown in **Table 4**, males accounted for 75% of suicides (n=628 out of 835 suicides) although they comprise only 49% of the total county population. On average, males accounted for 209 suicide deaths each year compared to 69 for females. At 14.1 deaths per 100,000 population, males had an average age-adjusted suicide rate three times higher than female residents (4.4 deaths per 100,000 population).

Table 4: Number and Average Rate of Suicides by Gender, 2009-2011

Gender	2009	2010	2011	Total Number	Percent of Total	3-Year Average	2010 Population	Crude Rate per 100,000	Age-Adjusted Rate per 100,000
Male	195	210	223	628	75.2%	209.3	1,488,782	14.1	14.1
Female	56	69	82	207	24.8%	69.0	1,521,450	4.5	4.4
Total:	**251**	**279**	**305**	**835**	**100.0%**	**278.3**	**3,010,232**	**9.2**	**9.0**

¥All rates are age-adjusted to the standard 2010 population.

Orange County females have met the HP2020 goal for suicide and had a lower suicide rate than the overall county-wide rate. Males, on the other hand, had a higher suicide rate than the overall county rate and exceeded the HP2020 goal for suicide (**Figure 3**).

Figure 3. Three-Year Average Age-Adjusted Suicide Rate by Gender, 2009-2011

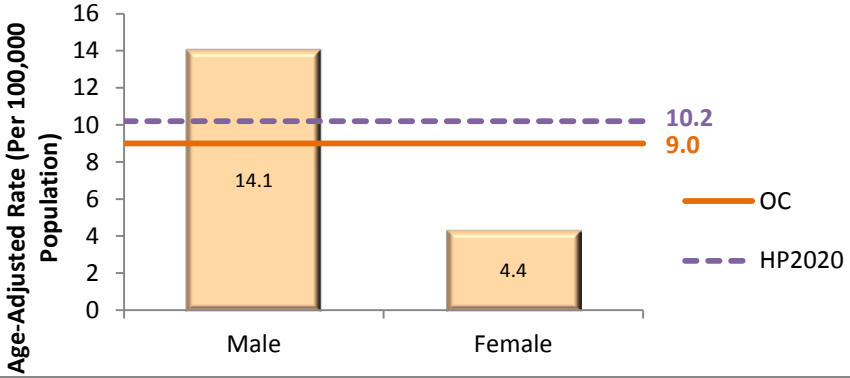


Table 5 shows that male and female residents in Orange County also tended to differ in their method of suicide. Males frequently completed suicide via more lethal and violent method of firearms (38.1%); predominantly with handguns. In contrast, female residents tended to die by lethal poisoning/drug overdose (39.6%). The second most frequent method of suicide among both genders was hanging/suffocation (males=33.3%, females=32.4%). The use of firearms was the third most common method of suicide by females in Orange County (18.4%), while poisoning/overdose was the third most common method by males (16.9%).

Table 5: Number and Percentage of Suicides by Mechanism and Gender, 2009-2011

Mechanism (Principal External Cause of Death ICD-10)	Male Total #	Female Total #	Total #	% of Total
Poisoning (X60-X69)	**106**	**82**	**188**	**22.5%**
Non-opioid analgesics, antipyretics and anti-rheumatics (X60)	0	1	1	0.1%
Antiepileptic, sedative-hypnotic, anti-parkinsonism and psychotropic drugs, not elsewhere classified (X61)	12	14	26	3.1%
Narcotics and psychodysleptics [hallucinogens] not elsewhere classified (X62)	8	4	12	1.4%
Other unspecified drugs, medicaments and biological substances (X64)	68	58	126	15.1%
Alcohol (X65)	0	1	1	0.1%
Poisoning by Exposure to Other Gases and Vapors (X67)	15	4	19	2.3%
Other and unspecified chemicals and noxious substances (X69)	3	0	3	0.4%
Hanging, Strangulation and Suffocation (X70)	**209**	**67**	**276**	**33.1%**
Firearms (X72-X74)	**239**	**38**	**277**	**33.2%**
By handgun discharge (X72)	171	33	204	24.4%
By rifle, shotgun and larger firearm discharge (X73)	41	1	42	5.0%
By other and unspecified firearm discharge (X74)	27	4	31	3.7%
Cutting & Piercing Instrument (X78)	**18**	**1**	**19**	**2.3%**
Jumping from a High Place (X80)	**20**	**7**	**27**	**3.2%**
Other and Unspecified Means and Their Sequelae (X71, X76, X81-X84, Y87.0*)	**36**	**12**	**48**	**5.7%**
By submersion/Drowning (X71)	4	3	7	0.8%
By smoke, fire, and flames (X76)	6	1	7	0.8%
By jumping or lying before moving object (X81)	9	4	13	1.6%
By crashing of motor vehicle (X82)	6	1	7	0.8%
By other specified means (caustic substances, crash plane, electrocution; X83)	4	1	5	0.6%
By unspecified means (X84)	3	2	5	0.6%
Late Effects of Self-Inflicted Injury (Y87.0)*	4	0	4	0.5%
Total	**628**	**207**	**835**	**100.0%**

*Categories Y87 are to be used to indicate circumstances as the cause of death, impairment or disability from sequelae or "late effects", which are themselves classified elsewhere. The sequelae include conditions reported as such, or occurring as "late effects" one year or more after the originating event. (Y87.0) late effects of intentional self-harm.

SUICIDE BY AGE GROUP

As shown in **Table 6**, adults 45-54 years of age had the highest three-year average number of suicides (64.7 deaths per year) from 2009-2011. Older adult suicide has been noted as a critical issue in Orange County with the highest rates among all ages. Consistent with this trend, the rate of suicide was higher for seniors 75-84 years of age (19.5 deaths per 100,000) than any other age group. Those age 85 and older had the second highest suicide rate at 18.9 deaths per 100,000 (albeit a relatively small number of cases; n=28).

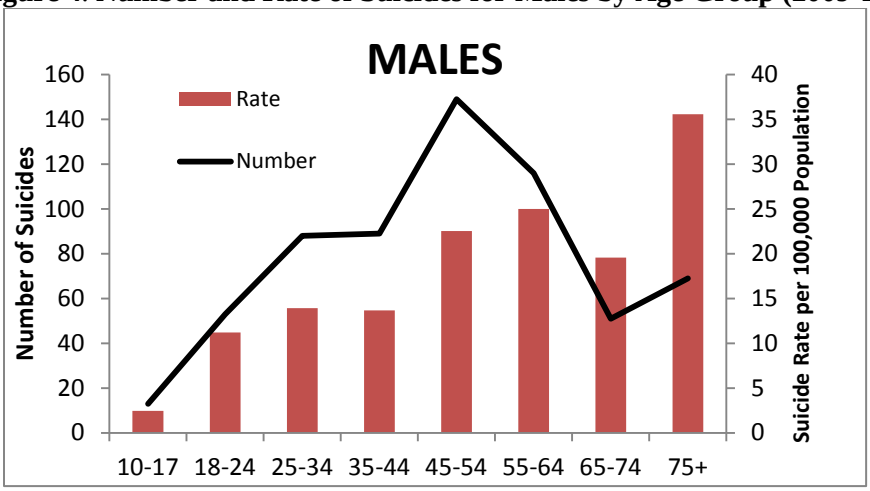
Table 6: Number and Average Age-Specific Rate of Suicides, 2009-2011

Age Group	2009	2010	2011	Total Number	Percent of Total	3-Year Average	2010 Population	3-Yr. Average Age-Specific Suicide Rate (per 100,000)
0-9 Years	-	-	-	-	-	-	390,437	-
10-17 Years	9	7	6	22	2.6%	7.3	346,158	2.1
18-24 Years	16	31	20	67	8.0%	22.3	305,537	7.3
25-34 Years	27	29	52	108	12.9%	36.0	413,564	8.7
35-44 Years	50	30	53	133	15.9%	44.3	439,005	10.1
45-54 Years	58	67	69	194	23.2%	64.7	444,120	14.6
55-64 Years	41	55	51	147	17.6%	49.0	321,803	15.2
65-74 Years	23	19	28	70	8.4%	23.3	187,416	12.4
75-84 Years	18	29	19	66	7.9%	33.0	112,681	19.5
85+ Years	9	12	7	28	3.4%	9.3	49,511	18.9
Total:	**251**	**279**	**305**	**835**	**100%**	**278.3**	**3,010,232**	**9.2**

Note: Rates based on fewer than 20 deaths (3-yr average < 20 cases) should be interpreted with caution.

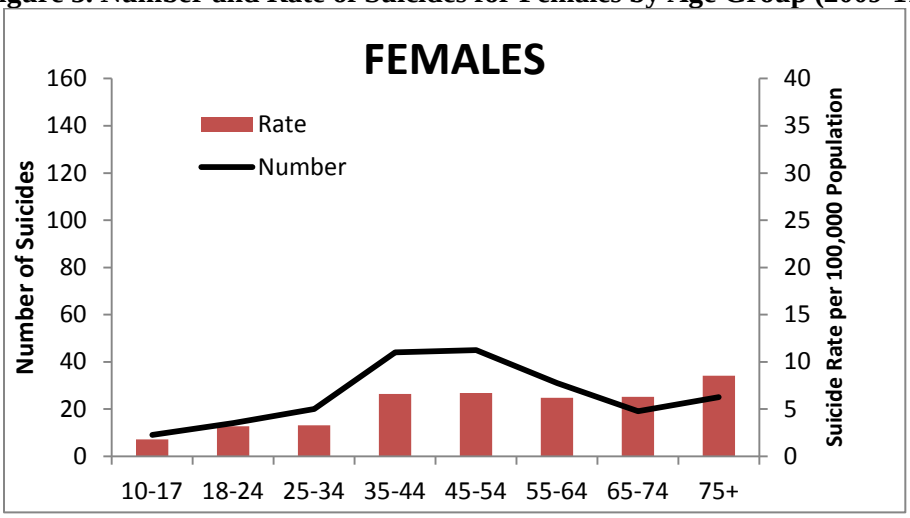
While males age 75 or older years of age had the highest rate (35.6 per 100,000), they were among the adult males with lower number of suicide deaths (n=69) during the three-year period of 2009-11 (**Figure 4**). Males 45-54 years of age had the highest number of suicide deaths during this time with 149 cases.

Figure 4. Number and Rate of Suicides for Males by Age Group (2009-11)



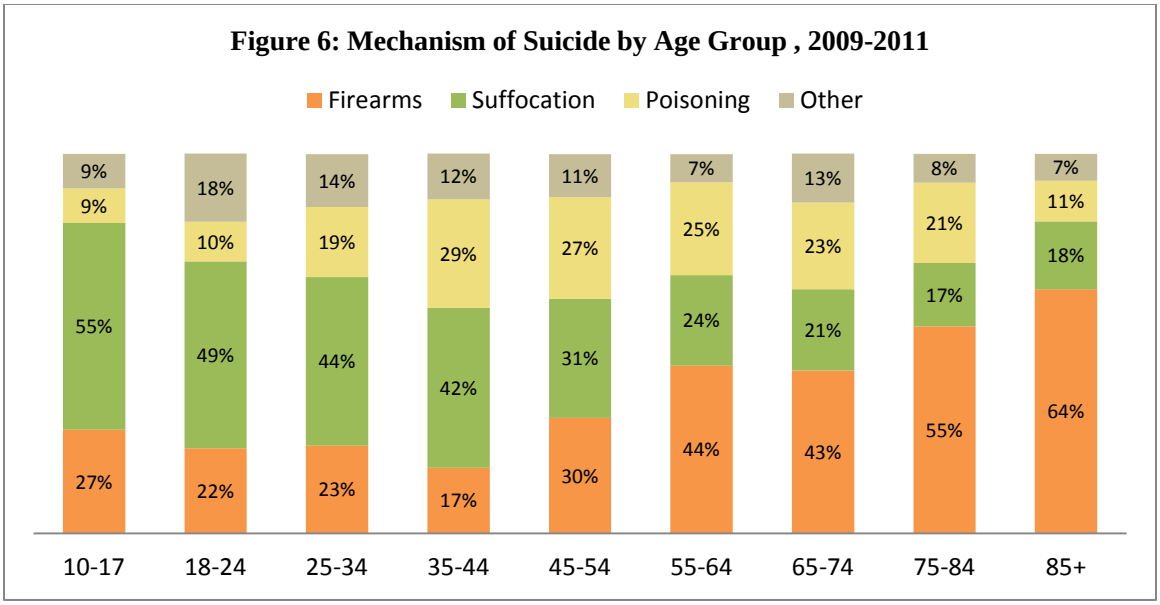
The number and rate of suicide for females is presented in **Figure 5** by age group. Females had much lower numbers and rates of suicide compared to males across the life span. Similar to males, older females (75+ years) had the highest rate of suicide (8.5 per 100,000), while 45-54 year old females had the highest number of suicide deaths (n=45) during the three-year period.

Figure 5. Number and Rate of Suicides for Females by Age Group (2009-11)



The mechanism of suicide is presented by age group in **Figure 6**. The mechanism of suicide differed by age group. Hanging, strangulation, and suffocation were most commonly utilized among the younger age groups between 10 and 54 years old – yet this method of suicide decreased with increasing age. Discharge of firearms were the most common mechanism of suicide for those who were 55 years or older.

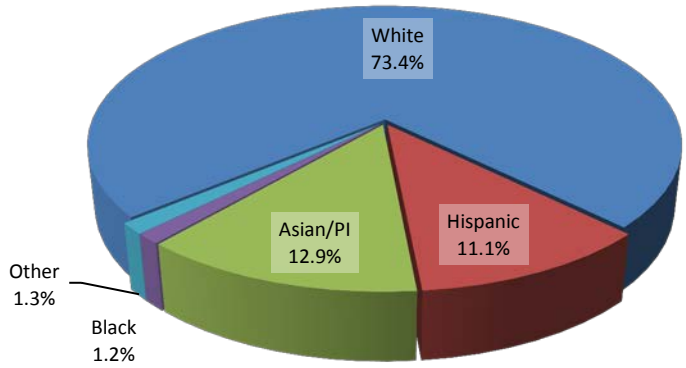
Figure 6: Mechanism of Suicide by Age Group , 2009-2011



SUICIDE BY RACE/ETHNICITY

Whites accounted for the majority of suicides among Orange County residents in 2009-2011 with 73.4% of all cases. Asian/Pacific Islanders accounted for 12.9% of all suicides, followed by Hispanics with 11.1%, and Blacks/African Americans with 1.2% (**Figure 7**).

Figure 7: Percentage of Suicides Among OC Residents by Race/Ethnicity, 2009-2011



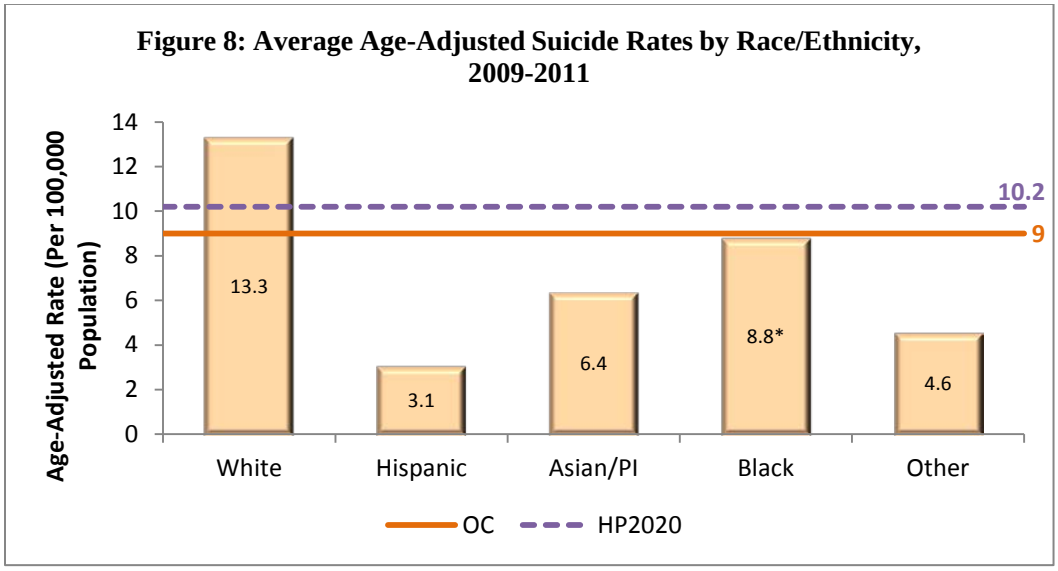
As shown in **Table 7**, White residents had the highest number and rate of suicide deaths during the three-year period of 2009-2011. At 13.3 deaths per 100,000 population, Whites had an average age-adjusted suicide rate that was 4.3 times higher than Hispanics (3.1 deaths per 100,000), 2.1 times higher than Asian/Pacific Islanders (6.4 per 100,000) and 1.5 times higher than Blacks (8.8 per 100,000). While Orange County's Black population is very small and the rates may be unstable, this racial disparity is consistent with suicide rates for Blacks at the national and state level.

Table 7: Number and Age-Adjusted Rates of Suicide by Race/Ethnicity, 2009-2011

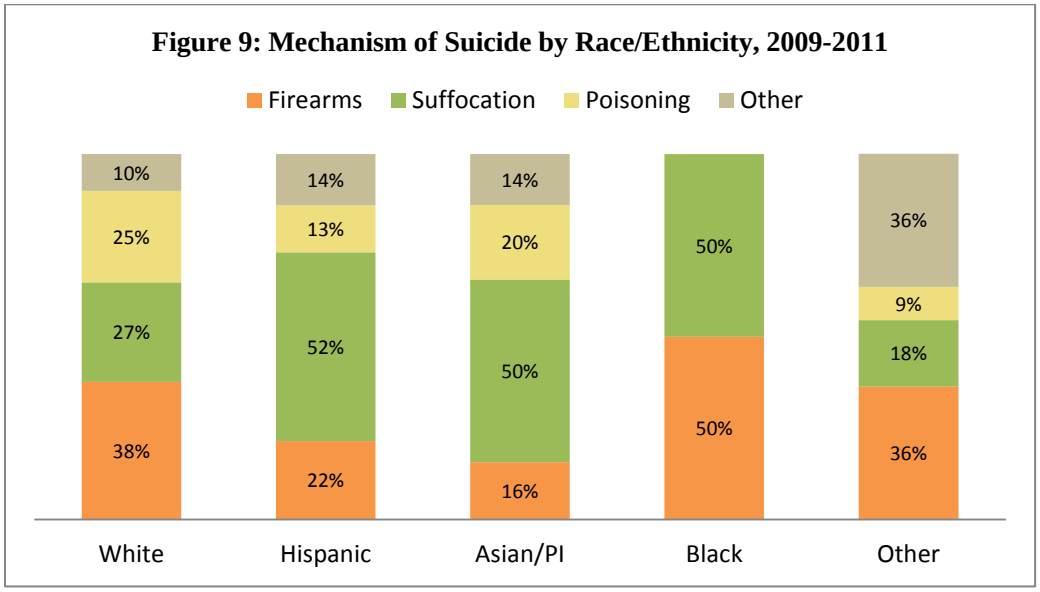
Race/Ethnicity	2009	2010	2011	Total	Percent of Total	3-Yr Average	2010 Population	Crude Rate per 100,000	Age-Adjusted Rate per 100,000¥
White	182	203	228	613	73.4%	204.3	1,328,499	**15.4**	**13.3**
Hispanic	30	35	28	93	11.1%	31.0	1,012,973	**3.1**	**3.1**
Asian/Pacific Islander	34	33	41	108	12.9%	36.0	540,834	**6.7**	**6.4**
Black	1	4	5	10	1.2%	3.3	44,000	**7.5***	**8.8***
Other/Unknown	4	4	3	11	1.3%	3.7	83,926	**8.7**	**4.6**
Total:	**251**	**279**	**305**	**835**	**100%**	**278.3**	**3,010,232**	**9.2**	**9.0**

¥ All rates are age-adjusted to the standard 2000 population.
Rates based on fewer than 20 deaths (3-yr average < 20 cases) should be interpreted with caution.

With the exception of Whites, all racial/ethnic groups had an average age-adjusted suicide rate lower than the overall County rate. With the exception of Whites, all racial/ethnic groups with reliable rates have met the HP2020 goal for suicide (**Figure 8**).



As shown in **Figure 9**, the mechanism of suicide differed by race/ethnicity for Orange County residents. Firearms (37.7%, n=231/613) were the most prominent mechanism of suicide for Whites, followed by hanging, strangulation and suffocation (27.2%, n=167/613) and poisoning/overdose (25.0%, n=153/613). For Hispanics, hanging, strangulation and suffocation accounted for slightly more than half of all suicide deaths (51.6%, n=48/93), followed by firearms (21.5%, n=20/93) and poisoning/overdose (10.8%, n=12/93). For Asian/Pacific Islanders, half of suicide deaths were due to hanging, strangulation and suffocation (50%, n=54/108), followed by poisoning (20.4%, n=22/108) and firearms (15.7%, n=17/108). For Blacks, half of all suicide deaths were caused by firearms (50%, n=5/10) and the other half by hanging, strangulation and suffocation (50%, n=5/10).

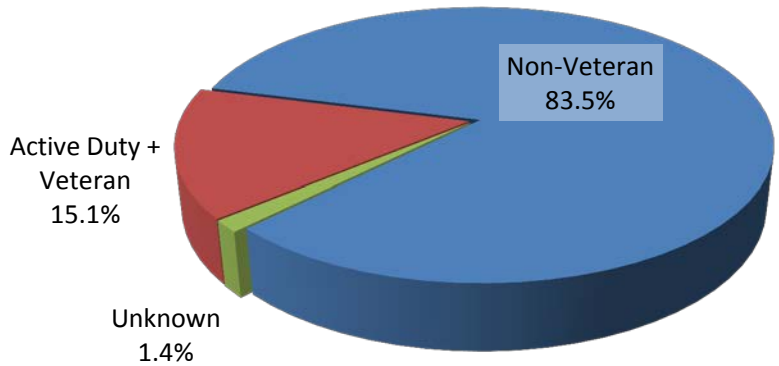


MILITARY VETERANS

According to preliminary suicide data from the 21 states published by the Department of Veterans Affairs, in 2012 about 22% of all suicide victims were identified as having served in the U.S. Armed Forces at some time in their life.[5] Veteran status was determined from the death certificate, which asks if the decedent was ever in the U.S. Armed Forces. Therefore, this definition includes men and women who were veterans and possibly those who were active duty military at the time of death. Most of these men and women served during the major conflicts of the last 70 years. These conflicts range from the Second World War (1940-1945), the Korean (1950-1953) and Vietnam (1964-1975) Wars, the Gulf War (1990-1991), the Global War on Terror (2001-2012) including Bosnia/Serbia, Iraq, Operation Iraqi Freedom (OIF), and Afghanistan as well as a wide range of smaller conflicts and deployments.

In Orange County, veterans accounted for 15% (n=126/835) of all suicides between 2009 and 2011 with an annual average of 42 suicides per year (**Figure 10**).

Figure 10: Percent of Suicide by Veteran Status, 2009-2011



As shown in **Table 8**, the suicide rate for veterans in Orange County (31.5 per 100,000) was three times higher than non-veterans (10.8 per 100,000 population).

Table 8: Number, Percent and Crude Rate of Suicides by Veteran Status, 2009-2011

Veteran Status at Time of Death	Total	Percent of Total	3-Yr Average	2010 Population*	Average Crude Rate
Active Duty + Veteran	126	15.1%	42.0	133,236	31.5
Non-Veteran	697	83.5%	232.3	2,147,480	10.8
Unknown Status	12	1.4%	4.0	-	
Total:	**835**	**100.0%**	**278.3**	**2,280,716**	**12.2**

*All rates are calculated using ACS 2010 population data.

Gender: There were differences in gender composition among veterans who died by suicide compared to those without history of military service. Specifically, males accounted for 98.4% (n=124/126) of all suicides among those identified as veterans, compared to approximately 70.9% (n=494/697) among non-Veteran suicide decedents **(Table 9)**. Conversely, females accounted for less than 2% (1.6%, n=2/126) of all suicides among Orange County veterans, compared to 29.1% (n=203/697) among suicide decedents without a history of military service. Among male decedents, we found that veterans accounted for nearly one-fifth of all male suicides (n=124/628; 19.7%).

Table 9: Suicides by Veteran Status and Gender, 2009-2011

Veteran Status at Time of Death	Males 3-Year Total	Females 3-Year Total	Total	3-Yr Average	Percent of Total
Active Duty + Veteran	124	2	126	42.0	15.1%
Non-Veteran	494	203	697	232.3	83.5%
Unknown Status	10	2	12	4.0	1.4%
Total:	**628**	**207**	**835**	**278.3**	**100.0%**

Age: The proportion of veterans who died by suicide increased greatly as the age group of the decedents increased (**Table 10**). Veterans 18-34 years accounted for 6% of suicides in this age group. The proportion increased to 11% for 35-64 year olds, and veterans age 65 years or older accounted for 40% of all suicides in this oldest age group. The average age of the veterans who died by suicide was 64.0 years; considerably older than the suicide victims who did not have history of military service (46.5 years) or unknown history of military service (51.7 years).

Table 10: Number and Rate of Suicides by Veteran Status and Age Group, 2009-2011

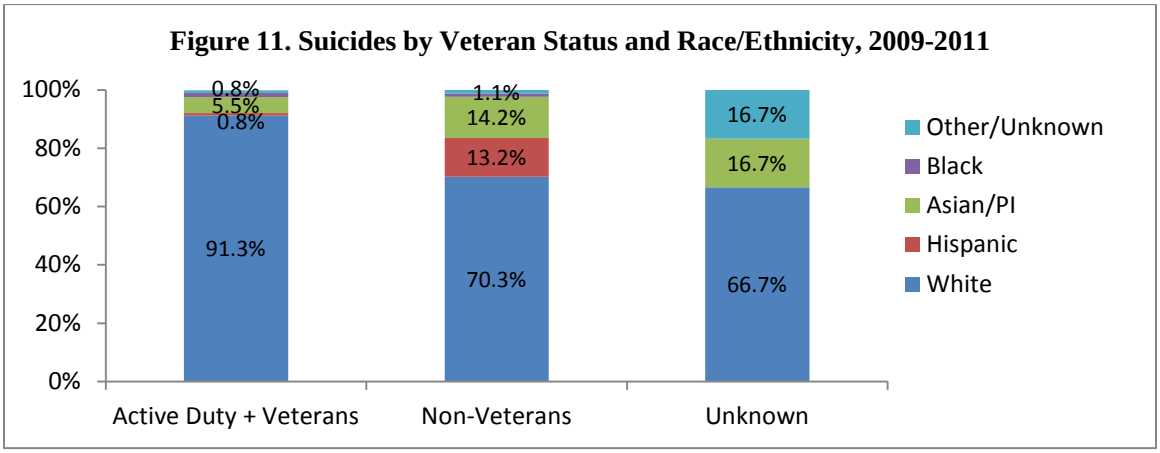
Age Group	Veteran Status	Active Duty + Veteran	Non-Veteran	Unknown	Total
18-34 Years	3-Year Total	10	163	2	175
	3 Year Average	3.3	54.3	0.7	58.3
	2010 Population	10,561	709,408	-	719,969
	Crude Rate	**31.6**	**7.7**	-	8.1
35-64 Years	3-Year Total	51	417	6	474
	3 Year Average	17	139	2	158
	2010 Population	56,932	1,152,055	-	1,208,987
	Crude Rate	**29.9**	**12.1**	-	13.1
65+ Years	3-Year Total	65	95	4	164
	3 Year Average	21.7	31.7	1.3	54.7
	2010 Population	65,743	286,017	-	351,760
	Crude Rate	**33.0**	**11.1**	-	15.5

Consistent with reports at the state and national levels, suicide rates were much higher for veterans than for non-veterans across all age groups. For 18-34 year olds, the suicide rate for veteran was 4.1 times

that of non-veterans (31.6 vs. 7.7). Although the suicide rate for this age group was lower than the 65+ age group, the difference between suicide rates for veterans and non-veterans were greatest out of all the age groups. For 35-64 year olds, the suicide rate for veteran swas 2.5 times that of non-veterans (29.9 vs. 12.1). For 65+ year olds, suicide rate for veterans was 3.0 times that of non-veterans (33.0 vs. 11.1). This age group saw the highest suicide rate for veterans out of all the age groups.

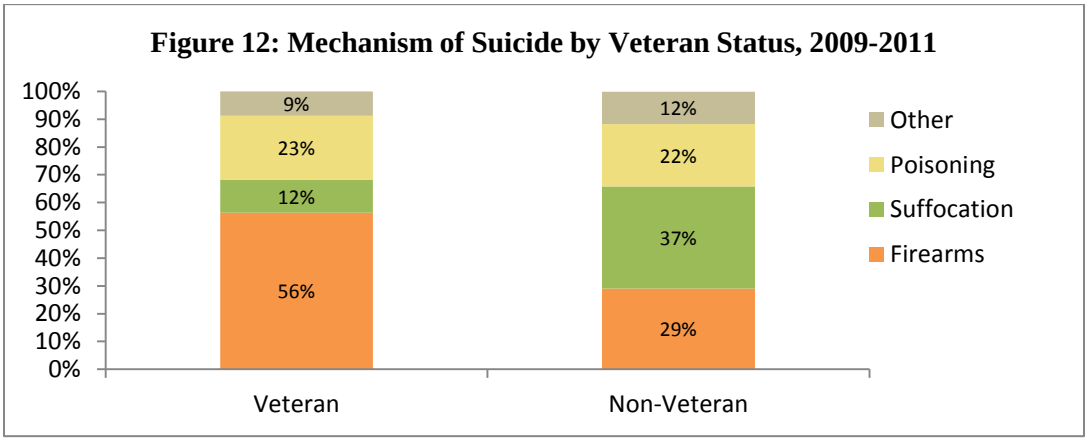
Race/Ethnicity: The majority of veterans who died by suicide between 2009 and 2011 were White (91.3%, n=115/126; **Figure 11**). The remainder of the 9% of veterans who died by suicide were Asian/PI (5.5%), Black (1.5%), Hispanic (0.8%), or other/unknown race (0.8%). There were differences in the racial/ethnic composition among veterans who died by suicide compared to those without history of military service. While Whites accounted for the majority of suicides among non-veterans (70%, n=490/697), the proportion was higher among for veteran decedents. Conversely, the proportion of Asian/PI (14%) and Hispanics (13%) who died by suicide was higher for non-veterans.

Figure 11. Suicides by Veteran Status and Race/Ethnicity, 2009-2011



Mechanism of Suicide: The most common mechanisms of suicide used by veterans in Orange County differed from non-veteran residents (**Figure 12**). Suffocation was the most common method of suicide for non-veteran residents, accounting for 37.0% (n=261/709) of suicide deaths within this group. Conversely, discharge of firearms (n= 71/126) was the most common method of suicide for veterans, accounting for 56.3% of all suicide deaths within this group.

Figure 12: Mechanism of Suicide by Veteran Status, 2009-2011

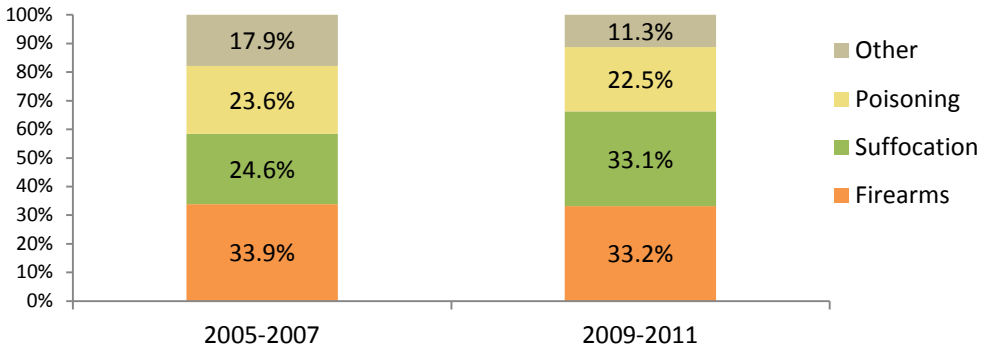


SUICIDE TRENDS

Changes in the Mechanism of Suicide in Orange County between 2005-2007 and 2009-2011

The mechanism of suicide, as shown in **Figure 13**, has changed between the two time periods: 2005-07 and 2009-11. Firearms continued to be the most common mechanism of suicide. However, in the 2009-2011 time period the use of hanging/suffocation increased to a third of all cases compared to 24.6% for 2005-07 and was used almost as often as firearms. Poisoning continued to be the third leading mechanism of suicide for Orange County residents. The percentage of suicides caused by poisoning decreased slightly in 2009-11 compared to 2005-07, from 23.6% of all suicides to 22.5% in 2009-11.

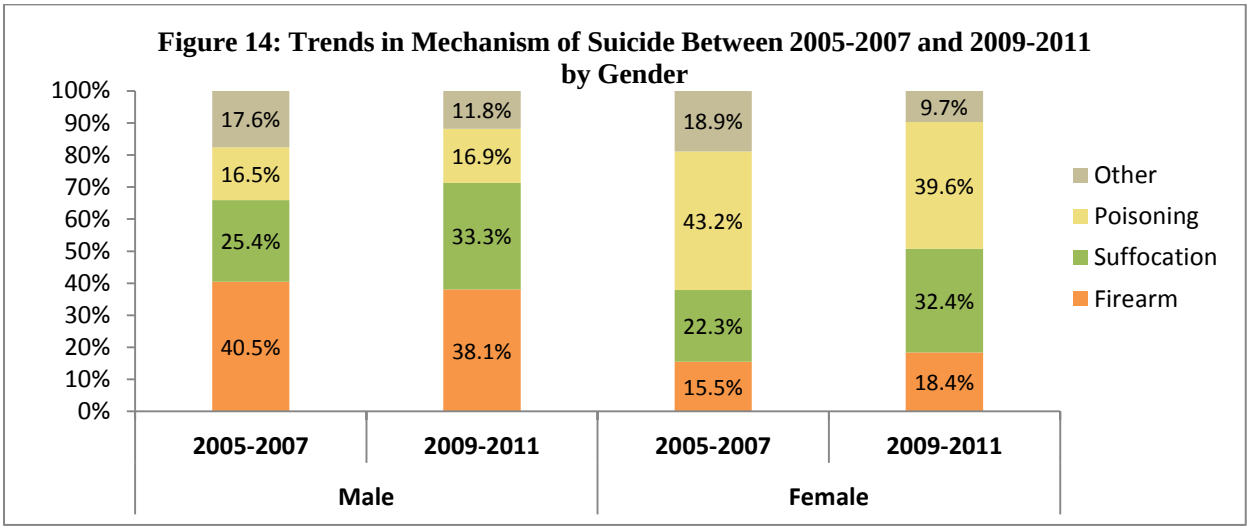
Figure 13: Trends in Mechanism of Suicide Between 2005-2007 and 2009-2011



Changes in the Mechanism of Suicide by Gender

The mechanism of suicide by gender, as illustrated in **Figure 14**, changed between 2005-2007 and 2009-2011 for both males and females. For males, firearms remained the leading method of suicide. However, the relative use of firearms and other methods decreased slightly over time while suffocation increased in the 2009-2011 time period. For females, poisoning continued to be the leading mechanism of suicide. However, the use of poisoning and other methods decreased slightly over time while the relative use of both firearms and suffocation increased in recent years for females.

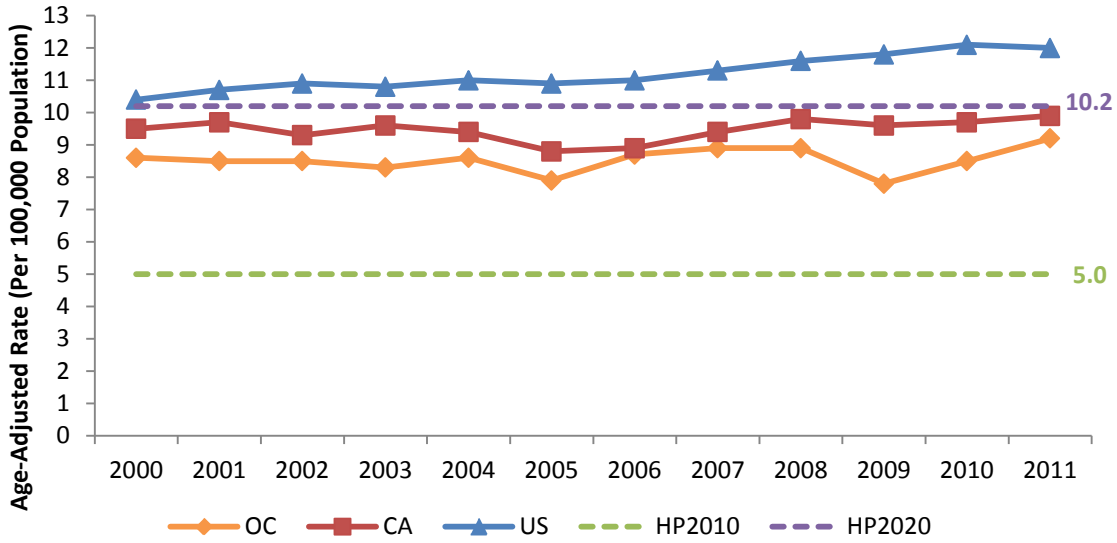
Figure 14: Trends in Mechanism of Suicide Between 2005-2007 and 2009-2011 by Gender



Changes in Suicide Rates at Local, State and National Levels

Figure 15 presents age-adjusted suicide death rates for the U.S., California and Orange County from 2000 through the most recent year available, 2011.* The rates for the U.S. display a slightly different trend from California and Orange County. Suicide rates in the U.S. have been generally increasing from 10.4 deaths per 100,000 population in 2000 to 12.1 in 2010. The statewide rate of suicide over the past decade has remained fairly constant from 9.5 deaths per 100,000 population in 2000 to 9.9 in 2011. During the same time period, Orange County had a lower rate than California, but experienced a relatively similar, proportional change with the rates of the state. Similar to the state trend, the rate for Orange County experienced ups and downs. Suicide rates in the county decreased from 2000, reaching a low point in 2005 and gradually increased again until 2008, before dipping to the lowest point for the county in 2009. While the suicide rate has fluctuated over the years in Orange County, there appears to be a marked (18%) increase in the rate over the last three years, from the low of 7.8 in 2009 to a high of 9.2 in 2011.

Figure 15: Suicide Rates for United States, California, & Orange County, 2000-2011*



*National suicide rate data for 2011 are preliminary.

The average age-adjusted suicide rate in Orange County for the 3-year period, 2009-2011, was 9.0 per 100,000 population. The suicide rate for Orange County was lower than that of the State of California, the nation, and the Healthy People 2020 objective. However, it is important to note that the suicide rate for Orange County went above 9.0 in 2011 for the first time in 10 years.

The U.S., California and Orange County were unable to meet the HP 2010 objective of no more than 5.0 suicides per 100,000 population. If the suicide rates in the state and county do not continue increasing trend, they could both meet the HP2020 objective of no more than 10.2 suicides per 100,000 population by the end of this decade.

SUMMARY AND NEXT STEPS

Suicide remains the number one cause of injury deaths in Orange County and the fourth leading cause of premature death.[2] Because self-inflicted injury and suicide is a public health problem that is preventable, increased awareness about the behavior, demographics (e.g., age, gender, veteran status) and circumstances associated with self-harm may help inform more effective prevention/intervention efforts.

Every year almost 3,000 Orange County residents intentionally injure themselves, about 1 in 10 fatally. Orange County's overall suicide death rate of 9.0 per 100,000 age-adjusted population is well below state and national rates. However, 835 residents died by suicide between 2009 and 2011, corresponding to about 278 people ending their life per year. Males typically accounted the majority of cases (75% vs. 25%). Firearms and hanging/strangulation were the most often used method of suicide followed by overdose. Violent mechanisms such as firearms were more often employed by males, while most females typically used poisoning/overdose to end their life. Non-Hispanic Whites had the highest rate of suicide death in Orange County (15.4 per 100,000) followed by Blacks at 8.8 per 100,000. Hispanics and Asian/Pacific Islanders in the county had suicide death rates well below the countywide rate, 3.1 and 6.4 per 100,000 population, respectively.

Risk factors that can place a person at increased risk for suicide include: mental illness, substance use disorders, physical abuse, recent losses, and painful physical illnesses (*California Strategic Plan on Suicide Prevention: Every Californian Is Part of the Solution*, 2008). Thus, public mental health prevention efforts that target those with a history of mental illness can be a key factor to decreasing the incidence of self-inflicted injury and suicide in the county. Indeed, this is one of the main objectives of the Mental Health Services Act (MHSA). MHSA funding supports a broad spectrum of mental health services, including a state-administered project to address suicide prevention. In addition, MHSA funding began to cover Prevention and Early Intervention (PEI) programs in 2009, with the goals of reducing multiple risk factors and promoting well-being in order to prevent the initial onset of, worsening of, or suffering associated with mental health problems. For an extensive description of planned statewide prevention effort, please see: *California Strategic Plan on Suicide Prevention: Every Californian Is Part of the Solution* (2008).

MHSA's suicide prevention activities aim specifically to improve early identification, early intervention, and referral for at-risk suicidal behavior. Many of the characteristics of the PEI priority populations designated by the California Department of Mental Health (trauma exposed individuals, stressed families, youth at risk of school failure, etc.) are associated with greater suicide risk. Therefore, many of the PEI programs will inherently address suicide prevention, and some PEI programs will more directly address suicide prevention. For example, crisis and referral services have been implemented to help reduce suicide risk factors and suicidal behavior, as well as provide support for suicide survivors.

The findings of this study will hopefully help target prevention and intervention efforts for those most at risk of intentional injury and suicide in Orange County.

References

1. Centers for Disease Control and Prevention. National Centers for Injury Prevention and Control. *Suicide Facts at a Glance*. Atlanta, GA. Available at: http://www.cdc.gov/violenceprevention/pdf/Suicide_DataSheet-a.pdf. Last accessed 2014 March 26.

2. OC Health Care Agency, Research and Planning. *Premature Mortality* in *Orange County*. Santa Ana, CA. July 2014.

3. Age-adjusted rates are based on 2000 U.S. Standard Population Weights.

4. Source: Centers for Disease Control and Prevention. External Cause of Injury Mortality Matrix for ICD-10. Available at: http://www.cdc.gov/nchs/data/ice/icd10_transcode.pdf. Last accessed March 17, 2014.

5. Suicide Data Report 2012, Department of Veterans Affairs, Mental Health Services, Suicide Prevention Program.

6. *California Strategic Plan On Suicide Prevention: Every Californian Is Part of the Solution* (2008) California Department of Mental Health. Sacramento, California. http://www.dmh.cahwnet.gov/Prop_63/MHSA/Prevention_and_Early_Intervention/docs/SuicidePreventionCommittee/FINAL_CalSPSP_V9.pdf

SUICIDE PREVENTION RESOURCES

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, Vietnamese and Farsi, while interpretation for other languages is available upon request.

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 other languages.

OC Links
855 OC-LINKS (855-625-4657)
www.ochealthinfo.com/oclinks

OC Links is an information and referral phone and online 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.

Centralized Assessment Team (CAT)
866-830-6011

The Centralized Assessment Team performs assessment and evaluation of individuals experiencing psychiatric emergencies including threats to harm self, others, or gravely disabled.

Know The Signs
800-273-TALK (800-273-8255)
www.suicideispreventable.org

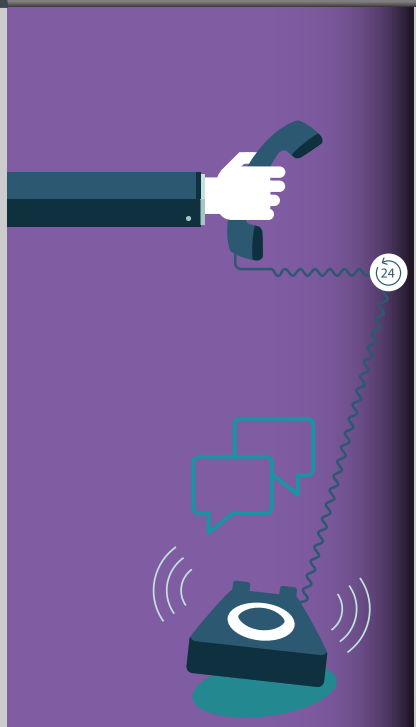
If you are feeling suicidal (or if you are concerned about someone), there is help available right now. A trained counselor is ready to talk to you and provide help. Pain isn't always obvious, but most suicidal people show some signs that they are thinking about suicide. If you see even one warning sign, step in or speak up. Take the time to learn what to do now, so you're ready to be there for a friend or loved one when it matters most.

Veterans' Crisis Line
800-273-TALK, Option 1 (800-273-8255)
www.vetcenter.va.gov

Veteran and Family crisis hotline services are available by calling the National Suicide Prevention Hotline. Callers are connected to a skilled, trained counselor at a crisis center in your area, anytime 24/7.

SUICIDE PREVENTION
Orange County Resources

24 Hours, 7 Days a Week



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namioc.org

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Need to Talk or Get Linked to Services?

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