



***Public Health Division***

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# Suicides in Oregon: Trends and Risk Factors -2012 Report-

Oregon Violent Death Reporting System  
Injury and Violence Prevention Program  
Center for Prevention and Health Promotion

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## **Executive Summary**

Suicide is one of Oregon's most persistent yet largely preventable public health problems. Suicide is the second leading cause of death among Oregonians ages 15-34, and the 8<sup>th</sup> leading cause of death among all Oregonians in 2010. The financial and emotional impacts of suicide on family members and the broader community are devastating and long lasting. This report provides the most current suicide statistics in Oregon that can inform prevention programs, policy, and planning. We analyzed mortality data from 1981 to 2010 and 2003 to 2010 data of the Oregon Violent Death Reporting System (ORVDRS). This report presents findings of suicide trends and risk factors in Oregon.

### ***Key Findings***

In 2010, the age-adjusted suicide rate among Oregonians of 17.1 per 100,000 was 41 percent higher than the national average.

The rate of suicide among Oregonians has been increasing since 2000.

Suicide rates among adults ages 45-64 rose approximately 50 percent from 18.1 per 100,000 in 2000 to 27.1 per 100,000 in 2010. The rate increased more among women ages 45-64 than among men of the same age during the past 10 years.

Suicide rates among men ages 65 and older decreased approximately 15 percent from nearly 50 per 100,000 in 2000 to 43 per 100,000 in 2010.

Men were 3.7 times more likely to die by suicide than women. The highest suicide rate occurred among men ages 85 and over (76.1 per 100,000). Non-Hispanic white males had the highest suicide rate among all races / ethnicity (27.1 per 100,000). Firearms were the dominant mechanism of injury among men who died by suicide (62%).

Approximately 26 percent of suicides occurred among veterans. Male veterans had a higher suicide rate than non-veteran males (44.6 vs. 31.5 per 100,000). Significantly higher suicide rates were identified among male veterans ages 18-24, 35-44 and 45-54 when compared to non-veteran males. Veteran suicide victims were reported to have more physical health problems than non-veteran males.

Psychological, behavioral, and health problems co-occur and are known to increase suicide risk. Approximately 70 percent of suicide victims had a diagnosed mental disorder, alcohol and /or substance use problems, or depressed mood at time of death. Despite the high prevalence of mental health problems, less than one third of male victims and about 60 percent of female victims were receiving treatment for mental health problems at the time of death.

Eviction/loss of home was a factor associated with 75 deaths by suicide in 2009-2010.

Investigators suspect that one in four suicide victims had used alcohol in the hours preceding their death.

The number of suicides in each month varies; there was not a clear seasonal pattern.

Baker, Coos, Curry, Douglas, Grant, Harney, Jackson, Josephine, Lincoln, Klamath and Tillamook counties had a higher than state average suicide rate; and Benton, Clackamas, Hood River, Washington, and Yamhill counties had a lower than state average suicide rate.

### ***Recommendations***

1. Develop a new statewide suicide prevention strategy that prioritizes:
  - a. A system of comprehensive primary prevention that implements evidence-based, upstream, primary prevention strategies that foster successful development and prevent psychological and behavioral problems (i.e. nurse family partnership, Paxi Good Behavior Game, Communities that Care, evidence-based parenting programs, mindfulness practice, and other evidence-based practices).
  - b. Identify and implement evidence-based and culturally appropriate practices that address depression and suicidality among adult males to:
    - i. enable men to identify depression as a manageable health condition, and
    - ii. promote community, business, family and individual tools to support successful self management.
  - c. Develop integrated behavioral health and primary care solutions to address depression and suicidal thoughts and behaviors among older adults.
2. Complete statewide implementation of comprehensive suicide prevention in high schools.
3. Expand suicide intervention skills efforts that will have an impact on adults, particularly men and veterans throughout Oregon.

## Introduction

Suicide is an important public health problem in Oregon. Health surveys conducted in 2008 and 2009 show that approximately 15 percent of teens and four percent of adults ages 18 and older had serious thoughts of suicide during the past year; and about five percent of teens and 0.4 percent of adults made a suicide attempt in the past year<sup>1,2</sup>. In 2010, there were 685 Oregonians who died by suicide and more than 2,000 hospitalizations due to suicide attempts<sup>3,4</sup>. Suicide is the second leading cause of death among Oregonians ages 15-34, and the 8<sup>th</sup> leading cause of death among all ages in Oregon<sup>3</sup>. The cost of suicide is enormous. In 2010 alone, self-inflicted injury hospitalization charges exceeded 41 million dollars; and the estimate of total lifetime cost of suicide in Oregon was over 680 million dollars<sup>3,4,5</sup>. The loss to families and communities broadens the impact of each death.

“Suicide is a multidimensional, multi-determined, and multi-factorial behavior. The risk factors associated with suicidal behaviors include biological, psychological, and social factors”<sup>6</sup>. This report provides the most current suicide statistics in Oregon, provides suicide prevention programs and planners a detailed description of suicide, examines risk factors associated with suicide and generates public health information and prevention strategies. We analyzed mortality data from 1981 to 2010 and 2003 to 2010 data from the Oregon Violent Death Reporting System (ORVDRS). This report presents findings of suicide trends and risk factors in Oregon.

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<sup>1</sup> Oregon Healthy Teens 2009 -11<sup>th</sup> Grade Results.

<http://public.health.oregon.gov/BirthDeathCertificates/Surveys/OregonHealthyTeens/results/2009/11/Documents/mental11.pdf>

<sup>2</sup> Crosby A.E., Han B., Ortega L.A.G., Park S.E., et al, Suicidal Thoughts and Behaviors Among Adults aged >= 18 Years – United States, 2008-2009. MMWR. 2011;60:13.

<sup>3</sup> Oregon Vital Statistics Annual Report, Vol. 2, 2010. Oregon Health Authority.

<sup>4</sup> Wright D., Millet L., et al, Oregon Injury and Violence Prevention Program Report for 2011 Data year. Oregon Health Authority.

<sup>5</sup> Corso P.S., Mercy J.A., Simon T.R., et al, Medical Costs and Productivity Losses Due to Interpersonal and Self-Directed Violence in the United States. Am J Prev Med. 2007;32(6):474–482.

<sup>6</sup> Maris R.W., Berman A.L., Silverman A.M. (2000). Comprehensive Textbook of suicidology. New York: The Guilford Press. (p378)

## Methods, data sources and limitations

Suicide is a death resulting from the intentional use of force against oneself. In this report, suicide deaths are identified according to International Classification of Diseases, Tenth Revision (ICD-10) codes for the underlying cause of deaths on death certificates. Suicide was considered with code of X60-84 and Y87.0<sup>1</sup>. Deaths relating to the Death with Dignity Act (physician-assisted suicides) are not classified as suicides by Oregon law and therefore are excluded from this report.

Mortality data from 1981 to 2010 are from Web-based Injury Statistics Query and Reporting System (WISQARS) of the Centers of Disease Control and Prevention<sup>2</sup>. This system contains information from death certificates filed in state vital statistics offices.

The ORVDRS is a statewide, active surveillance system that collects detailed information on all homicides, suicides, deaths of undetermined intent, deaths resulting from legal intervention, and deaths related to unintentional firearm injuries<sup>1</sup>. ORVDRS obtains data from Oregon medical examiners, local police agencies, death certificates, and the Homicide Incident Tracking System. All available data are reviewed, coded, and stored in the National Violent Death Reporting System. Details regarding NVDRS procedures and coding are available at <http://www.cdc.gov/ncipc/profiles/nvdrs/publications.htm>.

Rates were calculated according to death counts and bridged-race postcensal estimates released by the National Center for Health Statistics (NCHS)<sup>3</sup>. The age-adjusted rate was adjusted to the 2000 standard million. Because of limited death counts in some categories, some rates might not be statistically reliable or stable; use caution with regard to those categories with fewer than 20 deaths.

A three-year moving average of age-specific suicide death rates was computed to smooth fluctuations from one year to another. The trend in rates was tested by using Poisson regression analysis.  $P < 0.05$  is considered significant.

When comparing rates, 95 percent confidence intervals were calculated. If the 95 percent confidence intervals do not overlap, then the difference is considered to be statistically significant at the 0.05-level<sup>4</sup>. A Chi-square test was used to test the difference on proportion (percentage) in the studying groups.

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<sup>1</sup> Paulozzi LJ, Mercy J, Frazier Jr L, et al. CDC's National Violent Death Reporting System: Background and Methodology. *Injury Prevention*, 2004;10:47-52.

<sup>2</sup> The Centers for Disease control and Prevention. WISQARS. [http://www.cdc.gov/injury/wisqars/fatal\\_injury\\_reports.html](http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html). Accessed on Sept 26, 2012.

<sup>3</sup> National Center for Health Statistics. U.S. Census Population with Bridged-race Categories (vintage 2010 postcensal estimates): [http://www.cdc.gov/nchs/nvss/bridged\\_race/data\\_documentation.htm#vintage2010](http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm#vintage2010) Accessed on June. 20, 2012.

<sup>4</sup> Miniño AM, Anderson RN, Fingerhut LA et al, Deaths: Injury, 2002. *National Vital Statistics Reports*, 2006; Vol. 54, No. 10

Cohort-specific rates by age group (in five-year intervals) were calculated from the data that were obtained from WISQARS<sup>1</sup>. Six cohorts (period of birth: from 1965-1969 to 1991-1995) and six age groups (15-19 through 40-44) were used to assess suicide risk by birth cohort among white males in Oregon<sup>2</sup>.

Occupation information is based on description of usual occupation and field of industry on death certificates and is coded by using a word-matching computer program<sup>3</sup>.

Although ORVDRS collects data from multiple sources, it is a challenge to capture all of the details and circumstances surrounding a death due to suicide. Lack of standardized questionnaires and investigation protocols, and limited witnesses and limited witness contacts with a victim could result in underreporting of some suicides and in particular some circumstances surrounding suicide incidents. For example, if a person who died by suicide lived alone and did not have many connections with his family members and friends, it is difficult to get information on this person's health status and know his/her life stressors. In addition, all circumstances were based on the reports from the persons who were interviewed by investigators. Those interviewed persons might not recognize some mental health problems. Therefore, this report most certainly underestimates some circumstances surrounding suicide deaths such as mental health problems.

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<sup>1</sup> The Centers for Disease control and Prevention. WISQARS. [http://www.cdc.gov/injury/wisqars/fatal\\_injury\\_reports.html](http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html). Accessed on Sept 26, 2012.

<sup>2</sup> Murphy GE, Wetzel RD, Suicide risk by birth cohort in the United States, 1949 to 1974. Arch Gen Psychiatry, 1980; 37:519-523.

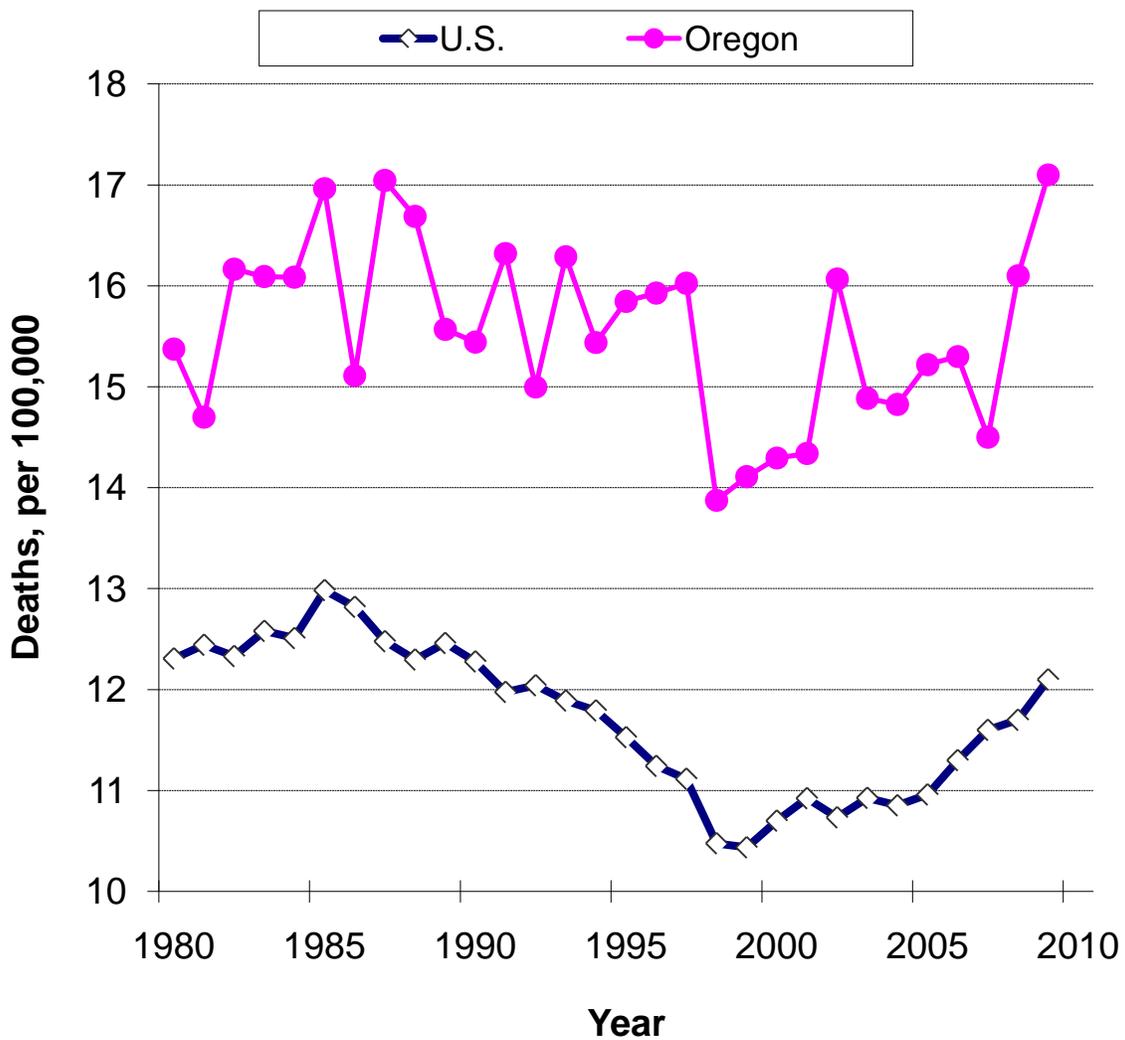
<sup>3</sup> Ossiander EM, Milham S, A computer system for coding occupation. Am J of Industrial Med, 2006; 49:854-57.

## Findings

### Overview

Figure 1 shows suicide rates in the US and Oregon between 1981 and 2010. Overall the trend in Oregon suicide rates is similar to the national trend— but rates in Oregon are much higher. The first peak age-adjusted rate in Oregon between 1981 and 2010 occurred in 1986 at 17.0 per 100,000. The lowest age-adjusted rate during this period occurred in 1999 at 13.9 per 100,000. The age-adjusted rates declined 18 percent from 1986 to 1999. A huge rate decrease occurred in late 90s, as rates fell from 16.2 per 100,000 in 1998 to 13.9 in 1999. Since 2000 Oregon suicide rates have increased 21 percent, reaching 17.1 in 2010.

**Figure 1. Age-adjusted suicide rates, 1981-2010**



Compared to the national average, Oregon suicide rates have been higher for the past three decades. The most recently available national data shows Oregon age-adjusted suicide rate of 17.1 per 100,000 in 2010 was 41 percent higher than the national average and Oregon ranked 9<sup>th</sup> place among all US states in suicide incidence. Between 2003 and 2010, Oregon suicide rates were significantly higher than the national average among all age groups except ages 10-17 and women ages 18-24 (Table 1).

Table 1. Suicide rates per 100,000 by age group and sex, U.S. and Oregon, 2003-2010

	Sex	Age Group				
		10-17	18-24	25-44	45-64	>= 65
<b>U.S.</b>	Male	4.2	19.6	22.3	26	29.2
	Female	1.5	3.7	6.1	7.9	4.0
	All	2.9	11.9	14.3	16.7	14.6
<b>Oregon</b>	Male	4.0 *	24.5	27.7	36.1	44.9
	Female	1.3 *	4.8 *	9.0	12.2	5.7
	All	2.7 *	14.9	18.5	23.9	22.9

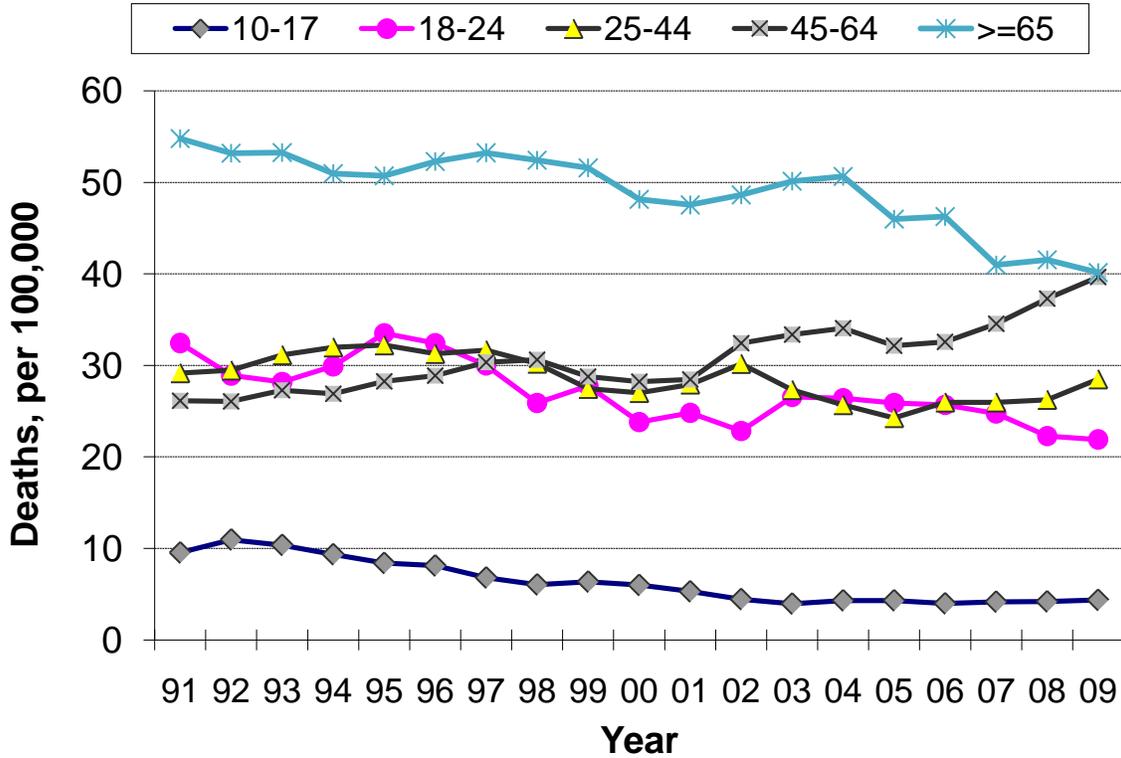
\* Not statistically significant

### *Trend by age group*

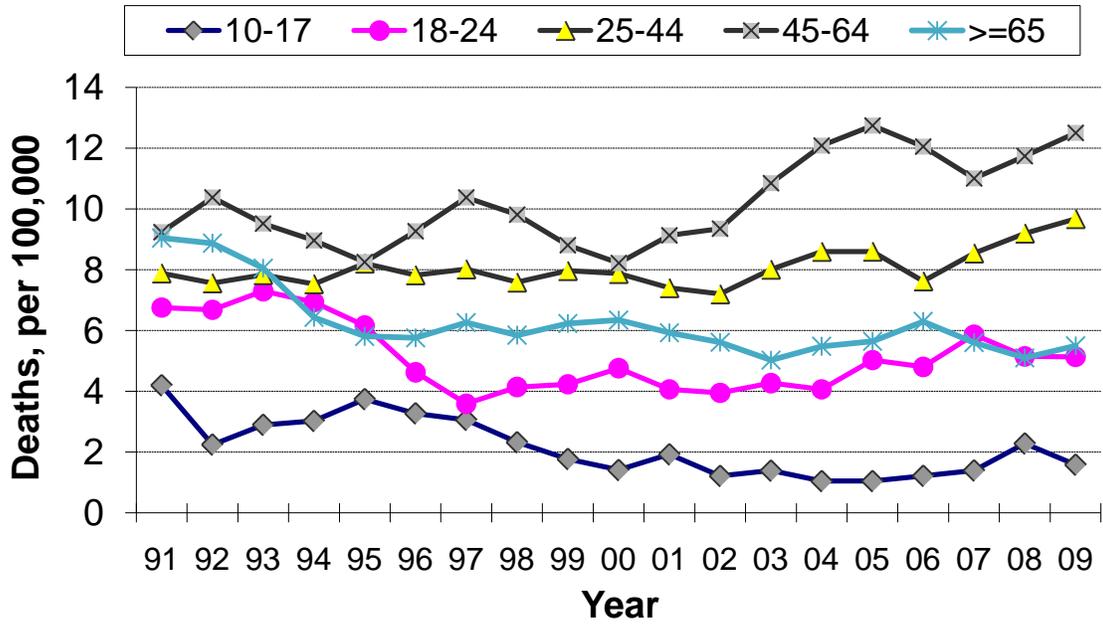
Three-year rolling average rates of suicide by age group in Oregon are illustrated in Figure 2A and Figure 2B. For a long period, from 1991 to 2009, suicide rates decreased among men except ages 45-64, and among women ages 10-17 and 65 and older; suicide rates remained unchanged among women ages 18-24 and 25-44; suicide rates increased among both men and women ages 45 to 64. For the past decade, suicide rates remain approximately the same among men ages 10-17, 18-24 and 25-44; suicide rates increased 41 percent from 28.2 per 100,000 in 2000 to 39.7 per 100,000 in 2009 among men ages 45-64; suicide rates decreased 17 percent among men ages 65 and older. During same period, suicide rates remain approximately the same among women except ages 45 to 64, in which the rates rose more than 50 percent from 8.2 per 100,000 in 2000 to 12.5 per 100,000 in 2009. The suicide trends in Oregon fit the national picture in general<sup>1</sup>.

<sup>1</sup> Hu G., Wilcox H.C, Wissow L., Baker S., Mid-life suicide- An Increasing problem in US Whites, 1999-2005. Am J Prev Med. 2008;35(6):589-593.

**Figure 2A. Three year moving average of suicide rates among males, Oregon, 1991-2009**



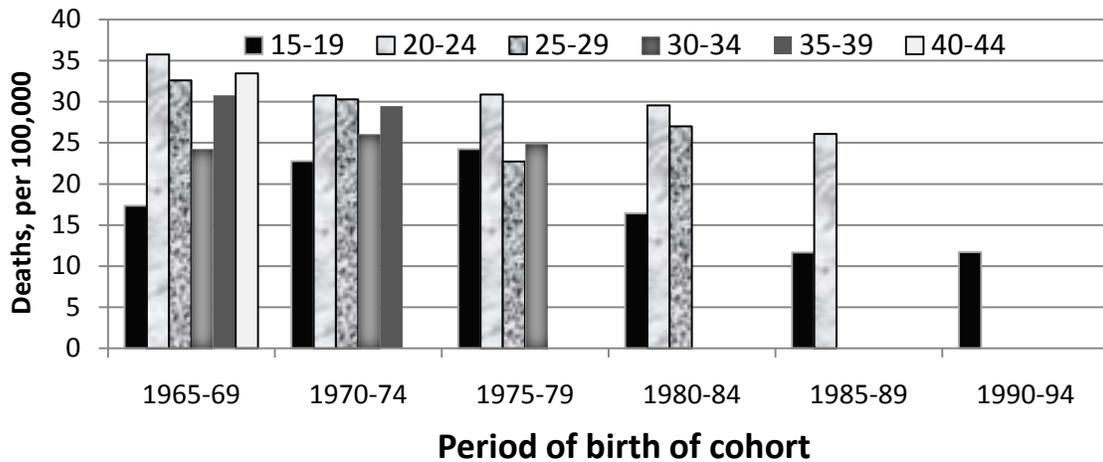
**Figure 2B. Three year moving average of suicide rates among females, Oregon, 1991-2009**



### *Trend by birth cohort*

Most suicides occurred among white males in Oregon. Figure 3 shows cohort-specific suicide rates by age group among white males in Oregon. A similar pattern of rate by age consistently appeared except the birth cohort of 1975-1979 (the rate was slightly higher among ages 15-19 than among ages 20-24). Overall, the suicide rates were slightly decreased over the period of cohort of birth after 1965-1969.

**Figure 3. Cohort-specific suicide rates by age group among white males, Oregon**

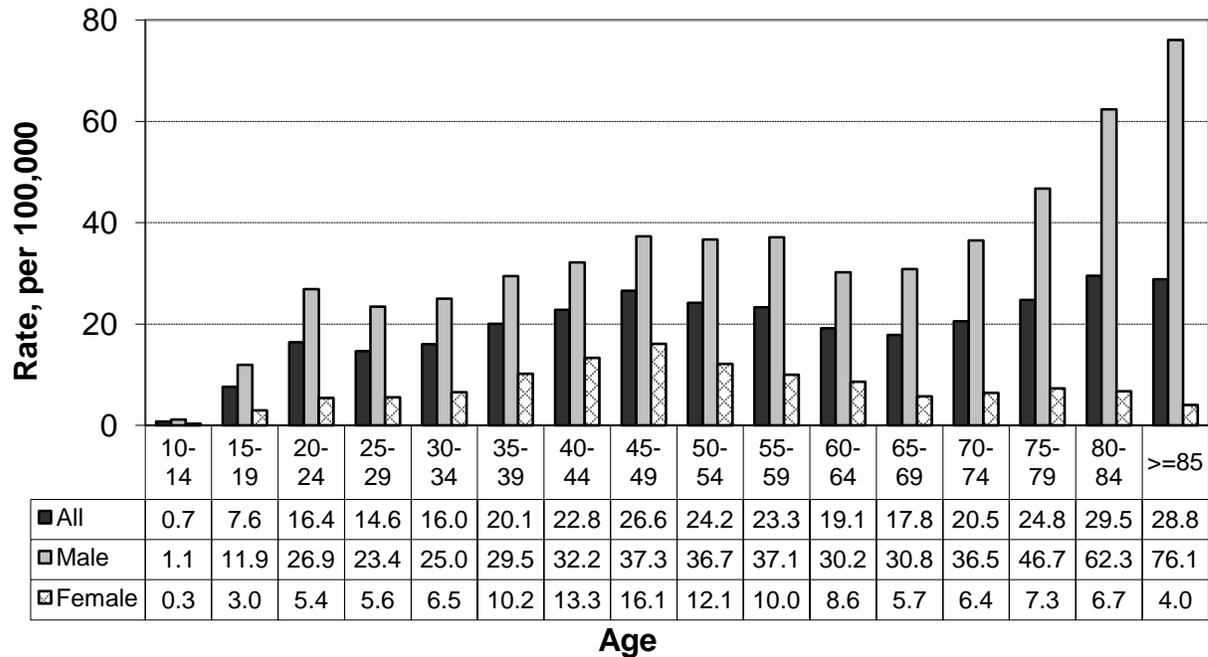


## Suicide rate by age, sex, and race/ethnicity

### Age

In general, suicide rates increase with age. Suicide among children under 10 is rare. The age-specific rate of suicide among men rose sharply after age 15 and reached the first peak between the ages of 20 and 24; the rate decreased slightly at the ages of 25-29, then rose gradually and reached the second peak around age 50. The rates decreased slowly between the ages of 50 and 69. After age 70 the rates rose dramatically. The highest suicide rate was among those ages 85 and over. The age distribution of suicide among women is different from that of men. The age-specific rate of suicide rose gradually after age 10 and reached the peak between the ages of 45 and 49, then decreased slowly. The rates increased slightly again after age of 70 (Figure 4).

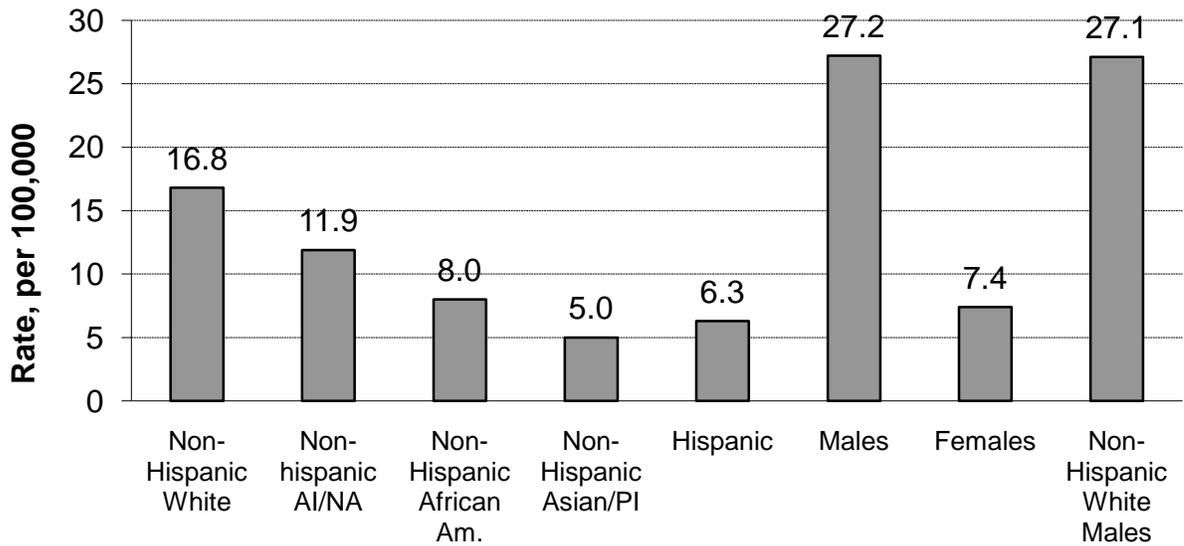
**Figure 4. Age-specific rate of suicide, Oregon, 2003-2010**



### Sex, Race / Ethnicity

Men have a greater risk of dying by suicide than women. In each age group, suicide rates are higher among males than among women (Figure 4). Overall men were 3.7 times more likely to die by suicide than women (Figure 5). Among all suicide victims, 93 percent of the suicides were non-Hispanic white. The age-adjusted suicide rate among non-Hispanic whites was 16.8 per 100,000, which was higher than the rates observed among populations of other races. Overall white men had the highest suicide rate. This is mainly due to extremely high suicide rates among older white men aged 60 and over. There were not significant differences in rates between non-Hispanic white women and women of other races (Figure 5).

**Figure 5. Suicide rate by race / ethnicity, Oregon, 2003-2010**



*Mechanism of death*

Firearms, poisoning, and suffocation (hanging) are the most frequently observed mechanisms of injury in suicide deaths. Differences in mechanisms of death were observed by sex and race/ethnicity (Table 2). Firearms were the mechanism of suicide in as many as 62 percent of deaths among men compared with 31 percent of deaths among women. Poisoning was the mechanism of death among only 13 percent of men but 43 percent of the deaths among women. Suffocation was identified as the mechanism of death among 18 percent of men and women. The proportion of firearm suicides increased with age among men (Table 2A-2E – see pages 25, 27, 29, 31 and 33 for age groups).

**Table 2. Mechanism of suicide by sex, Oregon, 2003-2010**

Method	Males	%	Females	%	Total	%
Firearm	2300	62	332	31	2632	55
Poisoning	488	13	450	43	938	20
Hanging / suffocation	675	18	185	18	860	18
Fall	91	2	29	3	120	3
Sharp instrument	65	2	25	2	90	2
Drowning	45	1	26	2	71	1
Motor Vehicle	13	<1	2	<1	15	<1
Other MV	11	<1	1	<1	12	<1
Fire / Burn	10	<1	2	<1	12	<1
Other / Unknown	17	<1	5	<1	22	<1

Non-Hispanic white men were more likely to die from firearms than other races (64% vs. 50%) and Hispanic ethnicity (64% vs. 40%). Men with Hispanic ethnicity were more likely to die from hanging/suffocation than non-Hispanic white men (42% vs. 17%) and other races (29% vs. 17%). There were no significant differences on the mechanism of death among women between whites and other races (Table 3).

**Table 3. Mechanism of suicide by race/ethnicity, Oregon, 2003-2010**

Race / Ethnicity	Method	Males	%	Females	%	Total	%
Non-Hispanic White	Firearm	2176	64	310	32	2486	56
	Poisoning	459	13	429	44	888	20
	Hanging / suffocation	578	17	159	16	737	17
	Sharp instrument	62	2	23	2	85	2
	Drowning	38	1	23	2	61	1
	Fall	84	2	25	3	109	2
	Hispanic	Firearm	59	40	7	32	66
Poisoning		16	11	4	18	20	12
Hanging / suffocation		62	42	7	32	69	41
Sharp instrument		1	1	2	9	3	2
Drowning		2	1	0	0	2	1
Fall		3	2	2	9	5	3
Non-Hispanic other races		Firearm	56	50	13	25	69
	Poisoning	10	9	16	31	26	16
	Hanging / suffocation	32	29	18	35	50	31
	Sharp instrument	2	2	0	0	2	1
	Drowning	4	4	3	6	7	4
	Fall	3	3	2	4	5	3

Of 2,632 firearm suicides, 1,817 (69%) involved a handgun, 368 (14%) involved a rifle and 284 (11%) involved a shotgun; in 156 cases (6%) the type of firearm involved was unknown.

Among 938 suicides due to poisoning, more than 60 percent of them resulted from a single substance. The most often reported poisoning substance was a prescription medication. Prescription medications were involved 54 percent of male poisoning suicides and 74 percent of female poisoning suicides (Table 4).

**Table 4. Class of substance causing poisoning suicide by sex, Oregon, 2003-2010**

	Males (N=488)	%	Females (N=450)	%
Single substance	335	69	278	62
Prescription drug only	159	33	187	42
Over-counter drug only	16	3	16	4
Carbon monoxide or other gas only	132	27	56	12
Alcohol only	2	<1	2	<1
Street / Recreation drug only	9	2	0	0
Other	9	2	6	1
Multiple substances	143	29	167	37
Prescription drug	102	21	146	32
Alcohol	34	7	28	6
Over-counter drug	15	3	18	4
Street / Recreation drug	7	1	6	1
Carbon monoxide or other gas	5	1	4	1
Unknown	10	2	5	1

### *Circumstances*

Circumstance differed by the sex of victim. Female victims were more likely to have a report indicating that they had a diagnosed mental disorder, depressed mood, substance use problem, that they were receiving treatment for mental health problems and had experienced a previous suicide attempt. Overall, nearly 70 percent of suicide victims had a diagnosed mental disorder, alcohol and /or substance use disorder, or depressed mood at the time of death; 35 percent of female victims and 16 percent of male victims had experienced a previous suicide attempt. Alcohol and/or other substance use problems were reported among 12 to 20 percent of suicide victims. Twelve percent of males and 20 percent of females had both a mental disorder and a substance use problem. Despite the high prevalence of mental health problems, less than one third of male victims and less than 60 percent of female victims were receiving treatment at the time of death. A crisis within the two weeks of a suicide death was reported for about 35 percent of victims. The most common crisis circumstance reported among men were a problem with an intimate partner (29%), physical health problems (25%), lost job / job problem (15% ), financial

problem (14%), crime legal problems (13% ) and family stressors (13%). Among women, they were a problem with an intimate partner (27%), physical health problems (26%), family stressors (17%), lost job / job problem (12%), and financial problem (11%). More than one third of persons who died by suicide had disclosed their intent to kill themselves before they died (Table 5, for age group specific information see Tables 5A – 5E on pages 26, 28, 30, 32, and 34 respectively).

**Table 5. Frequencies of circumstances surrounding suicide incidents, Oregon, 2003-2010**

Circumstances	Males (N=3715)		Females (N=1057)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	2544	68	863	82
Diagnosed mental disorder	1342	36	665	63
Problem with alcohol	784	21	195	18
Problem with other substance	446	12	180	17
Problem with alcohol and other substance	214	6	78	7
Diagnosed mental disorder and problem with alcohol and /or other substance	440	12	215	20
Current depressed mood	1724	46	548	52
Current treatment for mental health problem **	1066	29	613	58
<b>Interpersonal Relationship Problems</b>				
Intimate partner problem	1088	29	282	27
Other relationship problem	97	3	28	3
Victim of interpersonal violence within past month	9	<1	17	2
Perpetrator of interpersonal violence within past month	199	5	13	1
Death of family member or friend within past five years	252	7	96	9
Suicide of family member or friend within past five years	50	1	15	1
Family stressor(s)***	131	13	51	17
History of abuse as a child***	2	<1	9	3
<b>Life Stressors</b>				
A crisis within the two weeks	1387	37	351	33
Physical health problem	935	25	280	26
Financial problem	502	14	121	11
Lost job / job problem	549	15	123	12
Recent criminal legal problem	467	13	49	5
Noncriminal legal problem	190	5	67	6
School problem	41	1	7	1
Eviction/Loss of home***	52	5	23	7
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	1363	37	397	38
Left a suicide note	1189	32	437	41
History of suicide attempt	606	16	365	35

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

Major depression / dysthymia (74%) was the most frequently diagnosed mental health condition, followed by anxiety disorder (14%) and bipolar disorder (14%) (Table 6). Women were more likely to have a diagnosed mental health disorder and more likely to be receiving treatment for mental health problems across all age groups.

**Table 6. Number and percentage\* of people experiencing mental illness among suicide victims by sex, Oregon, 2003-2010**

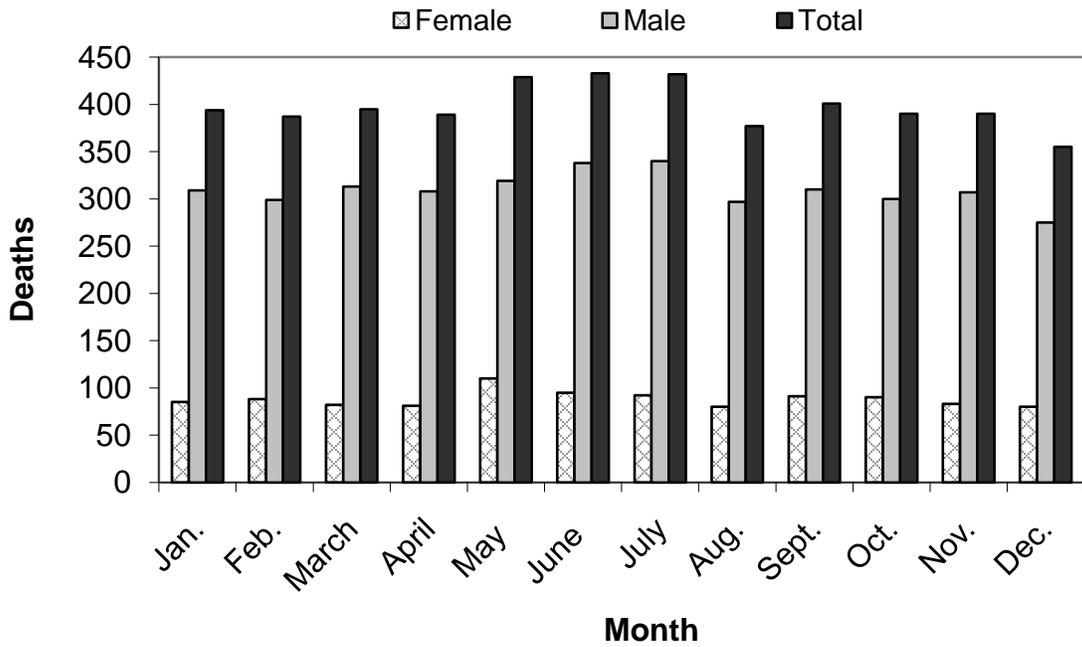
Mental illness	Males (N=1296)		Females (N=665)		All (N=1961)	
	Count	%	Count	%	Count	%
Depression / Dysthymia	961	74	496	75	1457	74
Bipolar	149	11	121	18	270	14
Schizophrenia	64	5	26	4	90	5
Anxiety disorder	169	13	106	16	275	14
Posttraumatic stress disorder	27	2	15	2	42	2
Attention deficit disorder / Attention deficit and hyperactivity disorder	16	1	7	1	23	1
Eating disorder	0	0	1	<1	1	<1
Obsessive compulsive	4	<1	2	0	6	<1
Other	28	2	8	1	36	2
Unknown	64	5	10	2	74	4

\* Percentages might exceed 100% because some victims might have more than one problem.

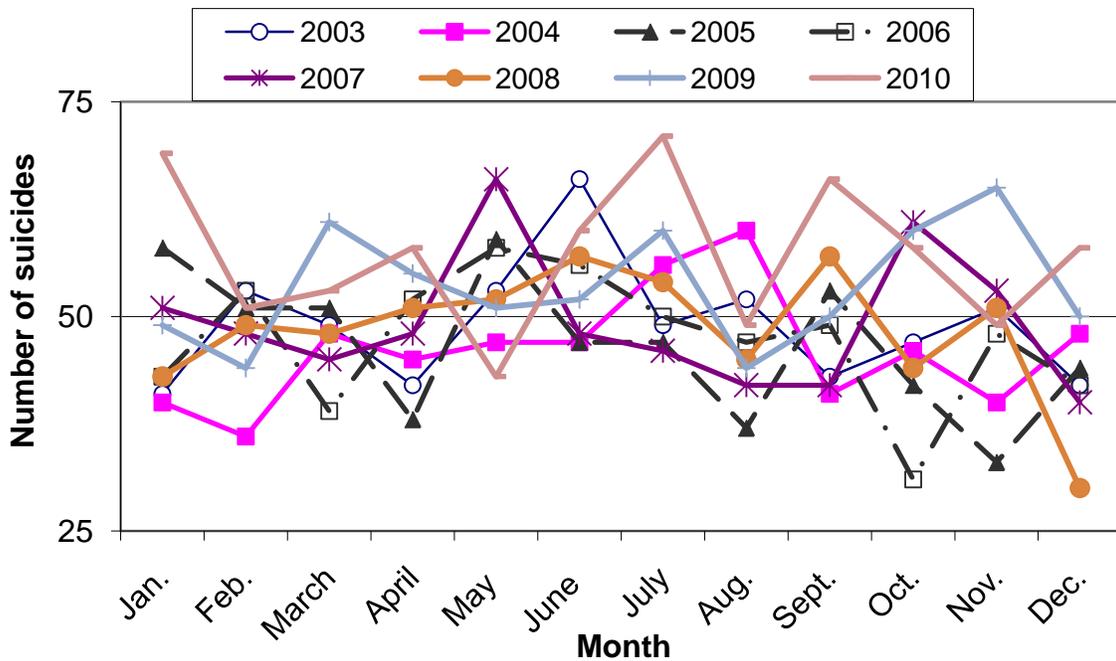
### *Death by month*

The number of suicides in each month varied. On average there were approximately 48 suicide deaths per month. Overall the greatest number of suicides occurred in May (Figure 6), but there was not a clear seasonal pattern (Figure 7).

**Figure 6. Number of suicides by month, Oregon, 2003-2010**



**Figure 7. Suicides by month and year, Oregon, 2003-2010**



### *Type of suicide*

The majority of suicide incidents in Oregon involve one death. Multiple suicides (suicide pacts) occur rarely. From 2003-2010, there were five suicide incidents that involved more than one death, which counted for 0.2 percent of total suicide deaths. Seventy-five suicides (1.6%) were followed by a homicide (combined homicide-suicide).

### *Location of suicide*

Suicides occur in a variety of locations; however, three in four suicides occurred at a house or apartment (Table 7).

**Table 7. Location of suicide incidents by sex, Oregon, 2003-2010**

Type of location	Males	%	Females	%
House / Apartment	2761	74	849	80
Natural Area (e.g. field, river, woods)	242	7	65	6
Park / Public use area	139	4	30	3
Street / Road	157	4	32	3
Parking lot / Garage	71	2	7	1
Motor Vehicle	44	1	9	1
Motel / Inn /Hotel	54	1	31	3
Jail / Prison	42	1	2	<1
Highway	27	1	4	<1
Hospital	14	<1	6	<1
Commercial area	18	<1	0	<1
Supervised Resident Facilities	9	<1	3	<1
Railroad	12	<1	2	<1
Bank / Office building	10	<1	0	<1
Industrial or construction areas	11	<1	2	<1
College/University/School	6	<1	1	<1
Abandoned house, building	4	<1	0	<1
Synagogue, Church, Temple	3	<1	0	<1
Farm	4	<1	0	<1
Other	57	3	5	<1
Unknown	30	5	2	<1

## Suicide by county

Suicide rates varied from 7.4 to 35.2 per 100,000 among the 36 counties in Oregon. The counties of Baker, Coos, Curry, Douglas, Grant, Harney, Jackson, Josephine, Klamath, Lincoln and Tillamook had a higher than state average suicide rate. The counties of Benton, Clackamas, Hood River, Washington, and Yamhill had a lower than state average suicide rate. The counties of Benton, Clackamas, Hood River, Washington, and Yamhill had a lower than state average suicide rate (Figure 8 and Table 8).

**Figure 8: Suicide rate by County, Oregon, 2003-2010**



**Table 8. Suicide deaths and crude rates by age group and county,  
Oregon, 2003-2010**

County	All ages		<= 17	18-24		25-44		45-64		>=65	
	Deaths	Rate		Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
Baker	37	28.9	0	2	20.5	8	32.0	12	29.7	15	54.7
Benton	77	11.9	2	13	8.0	26	18.5	25	16.2	11	15.2
Clackamas	404	13.6	6	32	13.0	134	17.3	170	19.2	62	17.0
Clatsop	50	17.0	0	4	14.4	14	21.1	22	24.4	10	20.9
Columbia	63	16.2	0	5	17.2	16	15.9	29	24.6	13	28.5
Coos	149	29.4	2	15	37.9	31	29.2	63	39.6	38	36.9
Crook	34	18.8	0	3	23.9	6	14.1	14	25.8	11	38.2
Curry	61	35.2	0	4	37.1	10	33.8	19	33.0	28	60.7
Deschutes	220	18.2	7	14	14.8	74	22.8	86	24.7	39	24.2
Douglas	168	20.3	1	15	23.6	39	21.9	66	26.7	47	28.8
Gilliam	3	22.6	1	1	117.9	0	0.0	1	22.8	0	0.0
Grant	19	34.2	1	1	26.0	4	38.0	5	27.2	8	68.4
Harney	18	33.3	0	0	0.0	7	62.8	5	29.7	6	59.7
Hood River	14	8.3	0	0	0.0	5	11.2	2	4.7	7	32.4
Jackson	336	21.3	11	26	19.0	88	23.5	150	33.3	61	23.4
Jefferson	24	14.9	0	6	42.6	10	25.8	4	9.6	4	19.3
Josephine	142	22.0	3	9	20.0	27	20.3	74	37.4	29	21.7
Klamath	125	23.6	2	9	18.8	40	32.0	46	31.0	28	33.7
Lake	15	26.1	0	2	48.5	3	24.8	7	38.3	3	27.4
Lane	481	17.6	6	42	10.6	165	25.3	179	23.9	89	23.3
Lincoln	87	23.7	2	4	14.8	18	25.0	43	33.5	20	28.0
Linn	138	15.4	2	14	19.6	43	18.9	47	19.3	32	23.5
Malheur	34	13.7	0	7	26.8	11	17.4	10	17.5	6	16.6
Marion	351	14.3	3	41	17.3	116	17.4	123	20.6	68	22.7
Morrow	9	9.9	0	0	0.0	2	9.0	4	16.7	3	28.5
Multnomah	842	15.2	12	71	14.7	312	17.0	345	24.1	102	17.8
Polk	74	12.5	2	3	3.7	27	20.2	28	19.1	14	15.0
Sherman	1	7.4	0	0	0.0	0	0.0	1	24.3	0	0.0
Tillamook	49	24.5	0	1	6.6	13	32.2	19	29.0	16	40.8
Umatilla	99	17.0	5	15	28.1	26	16.6	32	22.3	21	29.0
Union	43	21.7	1	3	10.0	15	36.5	12	22.7	12	39.5
Wallowa	12	22.1	0	1	26.6	3	30.9	7	37.7	1	8.1
Wasco	29	15.3	0	1	6.6	11	26.4	10	17.9	7	21.4
Washington	464	11.3	11	49	14.2	145	11.1	196	19.5	63	16.8
Wheeler	3	27.0	0	0	0.0	0	0.0	0	0.0	3	115.4
Yamhill	94	12.4	6	5	6.3	24	11.9	37	19.3	21	22.6
<i>State</i>	<i>4772</i>	<i>16.1</i>	<i>87</i>	<i>418</i>	<i>14.7</i>	<i>1475</i>	<i>18.4</i>	<i>1893</i>	<i>23.7</i>	<i>899</i>	<i>23.2</i>

Rates are per 100,000.

Be cautious to use rates calculated from small numbers less than 20 – rates are unstable.

Because of small number of deaths among ages <=17, the rates for this age group are not calculated.

### *Suspected alcohol use and toxicology*

According to medical examiner and/or police reports, approximately 25 percent of suicide victims might have used alcohol in the hours preceding their deaths. Not all suicide deaths are screened for alcohol or drug use. Toxicology tests showed over one third of tested cases were positive for alcohol and more than 40 percent of tested cases were positive for opiates, and benzodiazepines among the suicide deaths (Table 9).

**Table 9. Number and percentage of suspected alcohol use and toxicology test results in suicide deaths, Oregon, 2009-2010**

<b>Toxicology variable</b>	<b>Investigated / Screened</b>	<b>Present</b>	<b>% positive</b>
Alcohol			
Suspected alcohol use	1109	261	24
Alcohol present in the blood	385	147	38
Amphetamines	277	26	9
Cocaine	277	6	2
Marijuana	278	47	17
Opiate	278	117	42
Marijuana and Opiate	278	18	6
Antidepressant drug	277	119	43
Benzodiazepines	277	111	40

## *Occupation of victims*

Occupation and the industry variables on death certificates were used to group data to examine occupational status among suicide victims. Five percent of suicide victims were unemployed. Table 10 lists types of occupation and specific occupations among suicide victims ages 18-64.

**Table 10. Type of occupation among people ages 18-64  
who died by suicide, Oregon, 2003-2010**

Type of Occupation	Males (N=2881)	%	Females (N=905)	%
<b>Classification</b>				
Agriculture	54	2	5	1
Clerical	93	3	98	11
Craftsmen / Foremen and kindred	640	22	21	2
Laborers	280	10	14	2
Manager / Official	150	5	46	5
Operative	312	11	17	2
Professional technical	506	18	209	23
Service Workers	254	9	132	15
Sales	123	4	67	7
Other	207	7	224	25
Unknown	262	9	72	8
<b>Specific group</b>				
Army/Navy listed	35	1	2	<1
Housewife/Househusband, Homemaker	6	0	152	17
Police / Firefighter	61	2	6	1
Physician/Dentist/Nurse	25	1	37	4
Student age over 18 years	118	4	31	3
Unemployed	118	4	48	5

*Educational level and marital status*

Table 11 and Table 12 show educational attainment and marital status of suicide victims. Educational attainment was missing from 8 percent of the data (Table 11).

**Table 11. Educational attainment among people who died by suicide by sex, Oregon, 2003-2010**

Educational Level	Males		Females	
	Number	%*	Number	%*
8th grade or less	159	5	21	2
9-12th grade	433	13	117	12
High school or GED	1434	42	338	35
Some college or associate degree	815	24	295	30
Bachelor or graduate degree	556	16	200	21
Unknown	318	NA	86	NA

\* Percentage is calculated according to available data.

**Table 12. Marital status among people who died by suicide by sex, Oregon, 2003-2010**

Marital status	Males		Females	
	Number	%*	Number	%*
Married	1285	35	349	33
Never Married	1125	30	239	23
Divorced	977	26	369	35
Widowed	240	6	82	8
Other /Unknown	106	NA	18	NA

\* Percentage is calculated according to available data.

**Table 11A. Educational attainment among people who died by suicide  
by age group and sex, Oregon, 2003-2010**

Educational Level	Ages 18-24		Ages 25-44	
	%, males	%, females	%, males	%, females
	(N=329)	(N=61)	(N=1019)	(N=327)
8th grade or less	3	2	3	2
9-12th grade	22	16	11	12
High school or GED	44	52	47	34
Some college or associate degree	26	25	27	33
Bachelor or graduate degree	4	5	12	20

Educational Level	Ages 45-64		Ages >= 65	
	%, males	%, females	%, males	%, females
	(N=1286)	(N=445)	(N=700)	(N=117)
8th grade or less	2	2	11	11
9-12th grade	10	9	12	10
High school or GED	42	33	42	40
Some college or associate degree	26	32	16	18
Bachelor or graduate degree	21	24	19	21

Percentage is calculated according to available data.

**Table 12A. Marital status among people who died by suicide  
by age group and sex, Oregon, 2003-2010**

Marital Status	Ages 18-24		Ages 25-44	
	%, males	%, females	%, males	%, females
	N=339	N=63	N=1090	N=347
Married	5	3	34	38
Never Married	92	89	42	29
Divorced	3	8	23	32
Widowed	0	0	<1	1

Marital Status	Ages 45-64		Ages >= 65	
	%, males	%, females	%, males	%, females
	N=1374	N=480	N=761	N=130
Married	39	35	48	35
Never Married	18	11	6	5
Divorced	41	48	21	18
Widowed	3	5	26	43

Percentage is calculated according to available data.

## *Characteristics of different life stages*

### Adolescents ages 10-17

Suicide among adolescents accounted for approximately 2 percent of suicides. The rate of suicide among adolescents was 3.2 per 100,000. The rate ratio between men (4.7 per 100,000) and women (1.6 per 100,000) was 2.9.

Firearms were the most common mechanism of death among boys (45%), followed by hanging / suffocation (39%) and poisoning (8%). Among girls, hanging / suffocation was the most common mechanism (57%), followed by firearms (29%) and poisoning (14%) (Table 2A).

**Table 2A. Mechanism of suicide among adolescents ages <=17 by sex, Oregon, 2003-2010**

Method	Males	%	Females	%	Total	%
Firearm	30	45	6	29	36	41
Poisoning	5	8	3	14	8	9
Hanging / suffocation	26	39	12	57	38	44
Fall	1	2	0	0	1	1
Sharp instrument	0	0	0	0	0	0
Drowning	0	0	0	0	0	0
Motor Vehicle	2	3	0	0	2	2
Other MV	2	3	0	0	2	2
Other/Unknown	0	0	0	0	0	0

Approximately 70 percent of youth suicide victims had a diagnosed mental disorder, alcohol and /or substance use problems, or depressed mood at time of death; 27 percent of girls and 12 percent of boys had previously attempted suicide. About one third of suicide victims were under treatment for mental health problems at time of death. Alcohol and/or other substance use problems were reported among 9 to 14 percent of male victims. Some suicides occurred impulsively. A crisis within the two weeks was reported for nearly 50 percent of suicide victims. The most common circumstances reported were a problem with boyfriend / girlfriend, family stressors and school problems (Table 5A next page).

Nearly one third of adolescents who died by suicide had disclosed their intent to kill themselves before they died.

**Table 5A. Frequencies of circumstances surrounding suicide incidents  
among adolescents ages <=17, Oregon, 2003-2010**

Circumstances	Males (N=65)		Females (N=22)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	43	66	15	68
Diagnosed mental disorder	21	32	11	50
Problem with alcohol	6	9	0	0
Problem with other substance	9	14	1	5
Problem with alcohol and other substance	5	8	1	5
Diagnosed mental disorder and problem with alcohol and /or other substance	2	14	1	5
Current depressed mood	34	52	8	36
Current treatment for mental health problem **	19	29	9	41
<b>Interpersonal Relationship Problems</b>				
Broken up with boyfriend/girlfriend	14	22	7	32
Other relationship problem	5	8	1	5
Victim of interpersonal violence within past month	1	2	0	2
Perpetrator of interpersonal violence within past month	2	3	0	0
Death of family member or friend within past five years	4	6	1	5
Suicide of family member or friend within past five years	0	0	1	5
Family stressor(s)***	5	38	3	50
History of abuse as a child***	0	0	0	0
<b>Life Stressors</b>				
A crisis within the two weeks	33	51	11	50
Physical health problem	0	0	0	0
Financial problem	0	0	0	0
Lost job / job problem	0	0	0	0
Recent criminal legal problem	10	15	1	5
Noncriminal legal problem	1	2	1	5
School problem	19	29	4	18
Eviction/Loss of home***	0	0	0	0
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	19	29	9	41
Left a suicide note	18	28	10	45
History of suicide attempt	8	12	6	27

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

### Youth ages 18-24

Suicide among youth accounted for approximately 9 percent of suicides. The rate of suicide among youth ages 18-24 was 17.3 per 100,000. The rate ratio between men (28.4 per 100,000) and women (5.6 per 100,000) was 5.1.

Firearms were the most common mechanism of death among men (60%), followed by hanging / suffocation (27%) and poisoning (5%). Among women hanging / suffocation was the most common mechanism (44%), followed by poisoning (27%) and firearms (24%) (Table 2B).

**Table 2B. Mechanism of suicide among youth ages 18-24 by sex, Oregon, 2003-2010**

Method	Males	%	Females	%	Total	%
Firearm	210	60	16	24	226	54
Poisoning	16	5	18	27	34	8
Hanging / suffocation	94	27	29	44	123	29
Fall	14	4	1	2	15	4
Sharp instrument	2	1	1	2	3	1
Drowning	5	1	1	2	6	1
Motor Vehicle	2	1	0	0	2	<1
Other MV	4	1	0	0	4	1
Other/Unknown	5	1	0	0	5	1

Approximately 80 percent of female victims had a diagnosed mental disorder, alcohol and /or substance use problems, or depressed mood at time of death; nearly 50 percent of women had previously attempted suicide and were under treatment for mental health problems at time of death. Alcohol and/or other substance use problems were reported among 17 to 26 percent of female victims. In contrast, male victims' mental health problems were likely to be undiagnosed and untreated. Less than one fourth of male victims were under treatment for mental health problems. A crisis within the two weeks was reported for about 40 percent of victims. The most common circumstances reported were a problem with an intimate partner, accounting for approximately 40 percent of male victims and 50 percent of female victims, followed by family stressors (21%) and criminal legal problems (14%) among men (Table 5B next page).

Among 418 youth who died by suicide, 94 (22%) were students, 26 were veterans, and 10 were police officers/firefighters.

Nearly 90 percent of suicide victims ages 18-24 were single, never married (Table 12A page 24).

**Table 5B. Frequencies of circumstances surrounding suicide incidents among youth ages 18-24, Oregon, 2003-2010**

Circumstances	Males (N=352)		Females (N=66)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	236	67	51	77
Diagnosed mental disorder	114	32	40	61
Problem with alcohol	60	17	11	17
Problem with other substance	53	15	17	26
Problem with alcohol and other substance	22	6	5	8
Diagnosed mental disorder and problem with alcohol and /or other substance	29	8	20	30
Current depressed mood	143	41	34	52
Current treatment for mental health problem **	83	24	35	53
<b>Interpersonal Relationship Problems</b>				
Intimate partner problem	138	39	33	50
Other relationship problem	17	5	1	2
Victim of interpersonal violence within past month	1	<1	4	6
Perpetrator of interpersonal violence within past month	31	9	3	5
Death of family member or friend within past five years	11	3	2	3
Suicide of family member or friend within past five years	10	3	1	2
Family stressor(s)***	16	21	2	13
History of abuse as a child***	1	1	0	0
<b>Life Stressors</b>				
A crisis within the two weeks	142	40	29	44
Physical health problem	16	5	9	14
Financial problem	27	8	7	11
Lost job / job problem	36	10	8	12
Recent criminal legal problem	51	14	2	3
Noncriminal legal problem	13	4	1	2
School problem	19	5	0	0
Eviction/Loss of home***	5	6	0	0
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	134	38	24	36
Left a suicide note	106	30	24	36
History of suicide attempt	70	20	31	47

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

### Young adults ages 25-44

Suicides among young adults ages 25-44 accounted for approximately 31 percent of all suicides. The suicide rate among young adults ages 25-44 was 19.4 per 100,000. The rate ratio between men (29.0 per 100,000) and women (9.4 per 100,000) was 3.1.

Firearms were the most common mechanism of suicide among men (51%), followed by hanging / suffocation (27%) and poisoning (15%). Among women poisoning was the most common mechanism of death (42%), followed by firearms (32%) and hanging / suffocation (19%) (Table 2C).

**Table 2C. Mechanism of suicide among young adults ages 25-44 by sex, Oregon, 2003-2010**

Method	Males	%	Females	%	Total	%
Firearm	577	51	112	32	689	47
Poisoning	165	15	146	42	311	21
Hanging / suffocation	302	27	67	19	369	25
Fall	31	3	10	3	41	3
Sharp instrument	20	2	4	1	24	2
Drowning	18	2	7	2	25	2
Motor Vehicle	3	<1	1	<1	4	<1
Other MV	2	<1	1	<1	3	<1
Other/Unknown	6	1	3	1	9	1

Over 70 percent of suicide victims ages 25-44 had a diagnosed mental disorder, alcohol and /or substance use problem, or depressed mood at time of death; 44 percent of women and 22 percent of men had previously attempted suicide. Alcohol and/or other substance use problems were reported among 19 to 26 percent of suicide victims. Sixteen percent of male suicide victims and 24 percent of female suicide victims had a mental disorder and substance use problem. Less than one third of male victims and only 60 percent of female victims were under treatment for mental health problems at the time of death. Suicides are often precipitated by one or more stressful events. A crisis within the two weeks was reported for 40 percent of suicide victims. The most common circumstances reported among men were a problem with an intimate partner (44%), lost job / job problem (20%), crime legal problems (18%), financial problem (15%) and family stressors (19%). Among women, they were a problem with an intimate partner (39%), family stressors (19%), physical health problems (17%), lost job / job problem (14%), and financial problem (11%) (Table 5C next page).

Over 80 percent of suicide victims graduated from high school (Table 11A page 23).

Over 40 percent of male suicide victims were single, never married (Table 12A on page 24).

**Table 5C. Frequencies of circumstances surrounding suicide incidents  
among young adults ages 25-44, Oregon, 2003-2010**

Circumstances	Males (N=1124)		Females (N=351)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	826	73	302	86
Diagnosed mental disorder	420	37	229	65
Problem with alcohol	291	26	84	24
Problem with other substance	208	19	82	23
Problem with alcohol and other substance	94	8	42	12
Diagnosed mental disorder and problem with alcohol and /or other substance	181	16	84	24
Current depressed mood	535	48	189	54
Current treatment for mental health problem **	328	29	211	60
<b>Interpersonal Relationship Problems</b>				
Intimate partner problem	500	44	137	39
Other relationship problem	29	3	13	4
Victim of interpersonal violence within past month	5	<1	11	3
Perpetrator of interpersonal violence within past month	86	8	7	2
Death of family member or friend within past five years	45	4	28	8
Suicide of family member or friend within past five years	15	1	6	2
Family stressor(s) ***	40	13	18	19
History of abuse as a child ***	0	0	5	5
<b>Life Stressors</b>				
A crisis within the two weeks	445	40	139	40
Physical health problem	92	8	59	17
Financial problem	171	15	40	11
Lost job / job problem	230	20	48	14
Recent criminal legal problem	198	18	30	9
Noncriminal legal problem	77	7	38	11
School problem	13	1	2	1
Eviction/Loss of home ***	14	4	8	8
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	438	39	139	40
Left a suicide note	324	29	139	40
History of suicide attempt	251	22	153	44

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

### Adults ages 45-64

Suicides among adults ages 45-64 accounted for approximately 39 percent of suicides. Forty-six percent of suicides among women occurred in this age group. The suicide rate among adults ages 45-64 was 24.5 per 100,000. The rate ratio between men (37.0 per 100,000) and women (12.4 per 100,000) was 3.

Firearms were the most common mechanism of death among male victims (59%), followed by poisoning (18%), and hanging / suffocation (15%). Among women, poisoning was the most common mechanism of death (48%), followed by firearms (31%) and hanging / suffocation (12%) (Table 2D).

**Table 2D. Mechanism of suicide among adults ages 44-64 by sex, Oregon, 2003-2010**

Method	Males	%	Females	%	Total	%
Firearm	835	59	151	31	986	52
Poisoning	253	18	234	48	487	26
Hanging / suffocation	209	15	57	12	266	14
Fall	40	3	14	3	54	3
Sharp instrument	31	2	16	3	47	2
Drowning	17	1	12	2	29	2
Motor Vehicle	3	<1	1	<1	4	<1
Other MV	3	<1	0	0	3	<1
Other/Unknown	14	1	3	1	17	1

Approximately 75 percent of male victims and 85 percent of female victims ages 45-64 had a diagnosed mental disorder, alcohol and /or substance use problem, or depressed mood at the time of death; 32 percent of women and 15 percent of men had previously attempted suicide. Alcohol and/or other substance use problems were reported among 12 to 27 percent of suicide victims. About one third of male victims and 65 percent of female victims were under treatment for mental health problems at time of death. The precipitated factors among ages 45-64 were varied, but both men and women had similar circumstances surrounding suicide incidents. A crisis within the two weeks was reported for nearly one third of victims. The most common circumstances reported among this age group were a problem with an intimate partner, physical health problems, lost job / job problem, and financial problem (Table 5D next page).

Over 50 percent of female suicide victims had at least a college or associate degree, and half female victims were divorced (Table 11A page 23, Table 12A page 24).

**Table 5D. Frequencies of circumstances surrounding suicide incidents among adults ages 45-64, Oregon, 2003-2010**

Circumstances	Males (N=1405)		Females (N=488)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	1025	73	414	85
Diagnosed mental disorder	560	40	332	68
Problem with alcohol	378	27	95	19
Problem with other substance	168	12	77	16
Problem with alcohol and other substance	89	6	30	6
Diagnosed mental disorder and problem with alcohol and /or other substance	203	14	103	21
Current depressed mood	677	48	252	52
Current treatment for mental health problem **	479	34	310	64
<b>Interpersonal Relationship Problems</b>				
Intimate partner problem	384	27	100	20
Other relationship problem	32	2	10	2
Victim of interpersonal violence within past month	2	<1	2	<1
Perpetrator of interpersonal violence within past month	65	5	3	1
Death of family member or friend within past five years	92	7	48	10
Suicide of family member or friend within past five years	19	1	7	1
Family stressor(s)***	54	13	24	16
History of abuse as a child***	1	<1	3	2
<b>Life Stressors</b>				
A crisis within the two weeks	497	35	134	27
Physical health problem	320	23	139	28
Financial problem	263	19	63	13
Lost job / job problem	273	19	65	13
Recent criminal legal problem	188	13	16	3
Noncriminal legal problem	86	6	26	5
School problem	9	1	0	0
Eviction/Loss of home***	31	8	13	9
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	496	35	176	36
Left a suicide note	496	35	218	45
History of suicide attempt	214	15	158	32

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

### Older adults ages 65 and over

Suicides among older adults accounted for approximately 19 percent of suicides. The suicide rate was 23.2 per 100,000 among older adults. The rate ratio between men (44.9 per 100,000) and women (6.0 per 100,000) was 7.4, which was the highest among all age groups.

Firearms were the dominate mechanism of death among men (84%); poisoning and hanging / suffocation accounted for 6 percent respectively. Among women, poisoning was the most common mechanism of death (37%), followed by firearms (36%) and hanging / suffocation (15%) (Table 2E).

**Table 2E. Mechanism of suicide among older adults ages >= 65 by sex, Oregon, 2003-2010**

Method	Males	%	Females	%	Total	%
Firearm	648	84	47	36	695	77
Poisoning	49	6	49	37	98	11
Hanging / suffocation	44	6	20	15	64	7
Fall	5	1	4	3	9	1
Sharp instrument	12	2	4	3	16	2
Drowning	5	1	6	5	11	1
Motor Vehicle	3	<1	0	0	3	<1
Other MV	0	<1	0	0	0	0
Other/Unknown	2	<1	1	<1	3	<1

Approximately 60 percent of older suicide victims had a diagnosed mental disorder, alcohol and /or substance use problem, or depressed mood at time of death. Compared to other young age groups, few older adults had a history of suicide attempt and problems with alcohol and substance use. Only about 20 percent of male victims and one third of female victims were receiving treatment for mental health problems at time of death. The notable circumstances reported among older adult suicides were physical health problems, which were reported among 66 percent of men and 56 percent of women, followed by a death of family member or friend within past five years (13%) (Table 5E next page).

Among 507 older adults with physical health problems, 88 percent of had declining health; 59 percent had a loss of autonomy or independence; 31 percent had visited a physician within 30 days. The most frequently reported physical illnesses were cancer (26 percent), chronic pain (25 percent), and heart disease (16 percent). Among 73 elder women with physical health problems, 54 percent had declining health; 48 percent had a loss of autonomy or independence; 19 percent had visited a physician within 30 days. The most frequently reported physical illnesses were chronic pain (27 percent), cancer (15 percent) and heart disease (10 percent).

Of suicide victims among older adults who lost a family member or friend within past five years, nearly a half experienced their spouse's death in the past year.

Among older adults who died by suicide, 44 percent of men and 56 percent of women lived alone; nearly 50 percent of males were married; 43 percent of females were widowed (Table 12A page 24).

**Table 5E. Frequencies of circumstances surrounding suicide incidents among older adults ages 65 and older, Oregon, 2003-2010**

Circumstances	Males (N=768)		Females (N=131)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	414	54	81	62
Diagnosed mental disorder	181	24	53	40
Problem with alcohol	49	6	5	4
Problem with other substance	8	1	3	2
Problem with alcohol and other substance	4	1	1	1
Diagnosed mental disorder and problem with alcohol and /or other substance	25	3	7	5
Current depressed mood	335	44	65	50
Current treatment for mental health problem **	157	20	48	37
<b>Interpersonal Relationship Problems</b>				
Intimate partner problem	52	7	5	4
Other relationship problem	13	2	3	2
Victim of interpersonal violence within past month	1	<1	0	0
Perpetrator of interpersonal violence within past month	15	2	0	0
Death of family member or friend within past five years	100	13	17	13
Suicide of family member or friend within past five years	6	1	0	0
Family stressor(s)***	16	8	3	8
History of abuse as a child***	0	0	1	3
<b>Life Stressors</b>				
A crisis within the two weeks	270	35	38	29
Physical health problem	507	66	73	56
Financial problem	41	5	11	8
Lost job / job problem	10	1	2	2
Recent criminal legal problem	20	3	0	0
Noncriminal legal problem	13	2	1	1
School problem	0	0	0	0
Eviction/Loss of home***	2	1	2	5
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	275	36	49	37
Left a suicide note	247	32	46	35
History of suicide attempt	63	8	16	12

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

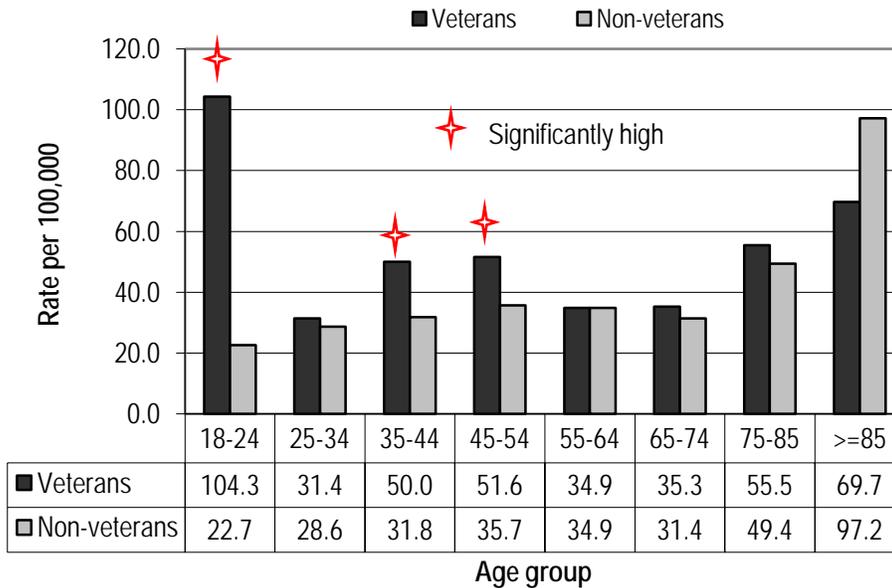
\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

Suicide among veterans

Approximately 26 percent of suicides occurred among veterans in Oregon. Ninety-six percent of veteran suicides were male. Based on the estimates of veterans in Oregon<sup>1</sup>, figure 9 shows male suicide rates by age group. There were statistically significant differences in rates of suicide between veterans and non-veterans among ages 18-24, 35-44 and 45-54. Overall male veterans had a much higher suicide rate than non-veteran males (44.6 vs. 31.5 per 100,000).

Figure 9. Age-specific suicide rates among male veterans and non-veterans, Oregon, 2003-2010



Firearms were a dominant mechanism of suicide among male veterans, accounting for 74 percent of male suicidal deaths, which were much more common than that of non-veteran males (57 percent).

Nearly 75 percent of male veterans ages 18-64 who died by suicide had a diagnosed mental disorder, alcohol and /or substance use problem, or depressed mood at time of death; 17 percent of them had previously attempted suicide. Alcohol and/or other substance use problems were reported among 13 to 24 percent of those veterans. A crisis in the two weeks was reported among about 36 percent of victims. Only one third of victims were reported to be receiving treatment for mental health problems at the time of death. The most common circumstances reported among male veterans were a problem with an intimate partner (34%), physical health problems (20%), lost job / job problem (18%), financial problem (17%) and crime legal problems (14%) (Table 5F next page).

<sup>1</sup> United States Department of Veteran Affairs. VetPop 2007 State data tables: [http://www.va.gov/VETDATA/Veteran\\_Population.asp](http://www.va.gov/VETDATA/Veteran_Population.asp) Accessed on July 26, 2012.

The circumstances of suicide among male veterans were similar to those non-veterans except veteran victims reported more physical health problems (Table 5F).

**Table 5F. Frequencies of circumstances surrounding suicide incidents among male veterans and non-veterans ages 18-64, Oregon, 2003-2010**

Circumstances	Veterans (N=661)		Non-veterans (N=2185)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	487	74	1586	73
Diagnosed mental disorder	251	38	837	38
Problem with alcohol	160	24	562	26
Problem with other substance	84	13	341	16
Problem with alcohol and other substance	36	5	168	8
Diagnosed mental disorder and problem with alcohol and /or other substance	91	14	319	15
Current depressed mood	332	50	1016	46
Current treatment for mental health problem **	215	33	671	31
<b>Interpersonal Relationship Problems</b>				
Intimate partner problem	228	34	792	36
Other relationship problem	16	2	60	3
Victim of interpersonal violence within past month	2	<1	6	0
Perpetrator of interpersonal violence within past month	45	7	137	6
Death of family member or friend within past five years	40	6	108	5
Suicide of family member or friend within past five years	11	2	33	2
Family stressor(s)***	18	11	89	14
History of abuse as a child***	0	0	2	<1
<b>Life Stressors</b>				
A crisis in the past two weeks	239	36	839	38
Physical health problem	129	20	296	14
Financial problem	110	17	346	16
Lost job / job problem	120	18	416	19
Recent criminal legal problem	95	14	339	16
Noncriminal legal problem	42	6	132	6
School problem	1	0	21	1
Eviction/Loss of home***	11	7	37	6
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	231	35	831	38
Left a suicide note	219	33	697	32
History of suicide attempt	110	17	423	19

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

Among older veterans age 65 and over who died by suicide, approximately 55 percent of them had a diagnosed mental disorder, alcohol and /or substance use disorder, or depressed mood at the time of death. Compared to the young veterans, few older veterans had a history of suicide attempt and problems with alcohol and substance. The notable circumstance among older veterans were physical health problems, which were reported among 67 percent of male veterans, followed by death of family member or friend within past five years (13%) (Table 5G next page).

The circumstances of suicide among older male veterans were almost identical to those non-veterans (Table 5G next page).

There were differences in marital status among males between veterans and non-veterans. Compared with non-veterans, veterans who died by suicide were more likely to be married and widowed (Table 12B).

**Table 12B. Marital status among males ages  $\geq 18$  who died by suicide who died by suicide by veteran status, Oregon, 2003-2010**

Marital status	Veterans		Non-veterans	
	Number	%*	Number	%*
Married	511	44	769	32
Never Married	157	14	895	38
Divorced	340	29	627	26
Widowed	147	13	92	4
Other /Unknown	20	NA	47	NA

\* Percentage is calculated according to available data.

**Table 5G. Frequencies of circumstances surrounding suicide incidents among male veterans and non-veterans ages >=65, Oregon, 2003-2010**

Circumstances	Veterans (N=514)		Non-veterans (N=246)	
	Count	%	Count	%
<b>Mental Health Status</b>				
Mentioned mental health problems *	270	53	140	57
Diagnosed mental disorder	110	21	70	28
Problem with alcohol	30	6	16	7
Problem with other substance	6	1	2	1
Problem with alcohol and other substance	2	0	2	1
Diagnosed mental disorder and problem with alcohol and /or other substance	16	3	9	4
Current depressed mood	226	44	107	43
Current treatment for mental health problem **	94	18	62	25
<b>Interpersonal Relationship Problems</b>				
Intimate partner problem	35	7	17	7
Other relationship problem	9	2	4	2
Victim of interpersonal violence within past month	1	0	0	0
Perpetrator of interpersonal violence within past month	12	2	3	1
Death of family member or friend within past five years	69	13	31	13
Suicide of family member or friend within past five years	3	1	3	1
Family stressor(s)***	9	8	7	9
History of abuse as a child***	0	0	0	0
<b>Life Stressors</b>				
A crisis within the two weeks	181	35	88	36
Physical health problem	346	67	157	64
Financial problem	25	5	14	6
Lost job / job problem	4	1	5	2
Recent criminal legal problem	14	3	6	2
Noncriminal legal problem	7	1	5	2
School problem	0	0	0	0
Eviction/Loss of home***	0	0	1	1
<b>Suicidal Behaviors</b>				
Disclosed intent to die by suicide	189	37	84	34
Left a suicide note	173	34	71	29
History of suicide attempt	45	9	18	7

\* Includes diagnosed mental disorder, problem with alcohol and/or other substance, and/or depressed mood.

\*\* Includes treatment for problems with alcohol and/or other substance

\*\*\* Data are not collected before 2009

## Discussion

Suicide is a major public health problem in Oregon. The Oregon public health division has set reducing suicide as a top priority<sup>1</sup>. Traditional suicide prevention strategy is primarily focused on early intervention and referral to treatment. Oregon initiated suicide early intervention efforts targeting youth and young adults in 1998. To date, Oregon's suicide prevention efforts have primarily focused on early intervention - identifying those who suffer and connecting them with resources. Health care reform will complement and build on these efforts as integrating behavioral health and primary care is a priority in transforming healthcare delivery in Oregon. However, early intervention with individuals and referral for mental health treatment alone will not reduce the problem of suicide<sup>1,2</sup>. Recent research has demonstrated that the risk for suicide is established early in life as children experience adverse familial, social, and environmental conditions. Suicide attempts could be attributed to having had several adverse childhood experiences. Prevention research has proven that preventing or mitigating the impact of adverse familial and social conditions can reduce a range of serious and costly co-occurring psychological, behavioral, and physical health problems<sup>2,3</sup>. One example – first grade implementation of the Good Behavior Game can prevent suicide ideation, substance use problems, smoking, antisocial personality disorder, delinquency, and incarceration for violent crimes through the age 21<sup>4</sup>. To prevent suicide, upstream, primary prevention is needed<sup>1-4</sup>.

### Recommendations

4. Develop a new statewide suicide prevention strategy that prioritizes:
  - a. A system of comprehensive primary prevention that implements evidence-based, upstream, primary prevention strategies that foster successful development and prevent psychological and behavioral problems (i.e. nurse family partnership, Paxi Good Behavior Game, Communities that Care, evidence-based parenting programs, mindfulness practice, and other evidence-based practices).

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<sup>1</sup> Oregon Public Health Division Strategic Plan 2012-2017. Oregon Health Authority. It is available at <http://public.health.oregon.gov/about/documents/phd-strategic-plan.pdf>

<sup>2</sup> U.S. Department of Health and Human Services (HHS) Office of the Surgeon General and National Action Alliance for Suicide Prevention. 2012 National Strategy for Suicide Prevention: Goals and Objectives for Action. Washington, DC: HHS, September 2012.

<sup>3</sup> O'Connell M.E., Boat T., and Warner K.E., Editors. Preventing Mental, Emotional, and Behavioral Disorders Among Young People: Progress and Possibilities. 2009. The National Academies Press, Washington, D.C.

<sup>4</sup> Biglan A., Flay B.R., Embry D.D., Sandler I.N. The Critical Role of Nurturing Environments for Promoting Human Well-Being. *American Psychologist*. 2012, 67(4):257-272

- b. Identify and implement evidence-based and culturally appropriate practices that address depression and suicidality among adult males to:
    - i. enable men to identify depression as a manageable health condition, and
    - ii. promote community, business, family and individual tools to support successful self management.
  - c. Develop integrated behavioral health and primary care solutions to address depression and suicidal thoughts and behaviors among older adults.
5. Complete statewide implementation of comprehensive suicide prevention in high schools.
6. Expand suicide intervention skills efforts that will have an impact on adults, particularly men and veterans throughout Oregon.

## Resources

The state prevention program recommends two intervention skills training programs:

1. [QPR](#) (Question, Persuade, Refer)
2. [ASIST](#) (Applied Suicide Intervention Skills Training)

High Schools are encouraged to implement a comprehensive suicide prevention program known as [RESPONSE](#).

Crisis lines can be useful tools if those suffering acute crisis know how to reach them. The state prevention program recommends broad dissemination of crisis line information. There is a national lifeline and there are county crisis contacts.

1. [National Suicide Prevention Lifeline](#)
2. [Oregon County Crisis Lines](#)

National organizations provide a wide variety of information, consultation, training, advocacy, research, program evaluation, and other support. There are four organizations that specialized services in suicide prevention:

1. [Suicide Prevention Resource Center](#) (SPRC)
2. [American Association of Suicidology](#) (AAS)
3. [American Foundation for Suicide Prevention](#) (AFSP)
4. [Make Connection – shared experiences and support for veterans](#)

The state Public Health Division Injury and Violence Prevention Program collects, analyzes, and disseminates data on suicide, suicide attempts, and suicide ideation from a variety of sources. The program epidemiologist and research analyst are good resources for communities and individuals who have questions about incidence, prevalence, and risk factors associated with suicide among Oregon populations. These technical scientists maintain a variety of data resources and they publish reports about suicide on the program website.

The state data reports can be found on the program web pages:

1. [Oregon Violent Death Reporting System](#)
2. [Adolescent Suicide Attempt Data System Reports and Reporting Forms](#)
3. [Oregon Healthy Teen Survey](#)

The youth suicide prevention program provides a listserv, [Youth Suicide Prevention Network](#) (YSPNetwork) that members use to disseminate new research, data reports, make announcements about training, education, new resources, and other program efforts, and query the group. To subscribe to the list: [YSPNetwork](#).

## Glossary

The following definitions refer to terms identified in this report from The State Violent Death Reporting System Workgroup<sup>1</sup>, NVDRS coding manual<sup>2</sup> and ORVDRS' annual report<sup>3</sup>.

**Age-adjusted mortality rate:** A mortality rate statistically modified to eliminate the effect of different age distributions in the different populations.

**Age-specific mortality rate:** A mortality rate limited to a particular age group. The numerator is the number of deaths in that age group; the denominator is the population in that age group.

**Alcohol problem:** A suicide circumstance in which the victim is perceived by self or others as having a problem with or being addicted to alcohol. A victim who is participating in an alcohol rehabilitation program or treatment, including self-help groups and 12-step programs, and has been clean and sober for less than five years is also considered as having this circumstance.

**Atypical antipsychotic drugs:** A group of antipsychotic tranquilizing drugs used to treat psychiatric conditions such as schizophrenia. Atypical antipsychotics include drug such as Clozapine, Olanzapine, Quetiapine, Risperidone and Ziprasidone.

**Benzodiazepines:** A class of drugs used to treat anxiety, insomnia, and seizures. Benzodiazepines include drug such as Alprazolam, Clonazepam, Diazepam, and Lorazepam.

**Blunt instrument:** Clubs, bats, boards, or other objects that can be used to inflict an injury.

**Crude mortality rate:** The mortality rate from all causes of death for a population. It is calculated by dividing the number of deaths in a population in a period by resident population.

**Criminal legal problem:** A suicide circumstance in which the victim was facing a recent or impending arrest, police pursuit, or an impending criminal court date, and the consequence was relevant to the suicide event.

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<sup>1</sup> Sanford C and Hedegaard H (editors). Deaths from Violence: A Look at 17 States -- Data from the National Violent Death Reporting System. December 2008

<sup>2</sup> Centers for Disease Control and Prevention. National Violent Death Reporting System (NVDRS) Coding Manual (2010).

<sup>3</sup> Shen X, Millet L. 2012. Violent Deaths in Oregon: 2010. Oregon Health Authority, Portland, Oregon.

**Crisis:** A suicide circumstance in which an acute precipitating event appears to have contributed to the suicide (e.g., the victim was just arrested; divorce papers were served that day; the victim was about to be laid off; the person had a major argument with a spouse the night before).

**Depressed mood:** A suicide circumstance in which the person was noted by others to be sad, despondent, down, blue, unhappy, etc. This circumstance can apply whether or not the person has a diagnosed mental health problem.

**Drowning:** A mechanism of death resulting from submersion in water or other liquid.

**Eviction:** A suicide circumstance in which the victim had recently been, was in the process of being evicted or foreclosed on, or was confronted with an eviction, foreclosure, or other loss of housing, and this appears to have contributed to the death.

**Falls:** A mechanism of death resulting from a fall, push or jump from a high place.

**Family stressors:** A suicide circumstance in which the victim was experiencing significant problems related to family home environment involving more than an intimate partner or family members other than intimate partners.

**Financial problem:** A suicide circumstance in which the victim was experiencing monetary issues such as bankruptcy, overwhelming debts, a gambling problem, or foreclosure of a business.

**Firearm:** Any weapon (including a starter gun) which is designed to or may readily be converted to expel a projectile by the action of an explosive (e.g., gun powder).

**Hanging/suffocation/strangulation:**

Mechanisms of injury resulting in airway obstruction in which the victim died from lack of oxygen.

**Homicide-suicide:** It is defined as one person killing one or more others then taking his/her own life within 24 hours.

**Incident:** All victims and suspects associated with a given incident are in one record. A violent death incident can be made up of any of the following: a) One isolated violent death. b) Two or more homicides, including legal interventions, when the deaths involve at least one person who is a suspect or victim in the first death and a suspect or victim in the second death. c) Two or more suicides or undetermined manner deaths, when there is some evidence that the second or subsequent death was planned to coincide with or follow the preceding death. d) One or more homicides or unintentional firearm deaths combined with one or more suicides, when the suspect in the first death is the person who commits suicide. e) Two or more unintentional firearm deaths when the same firearm inflicts two or more fatal injuries and the fatal injuries are inflicted by one shot or burst of

shots. For categories (b), (c) and (d), the fatal injuries must occur within 24 hours of each other.

**Intent to commit suicide:** The victim had previously expressed suicidal feelings to another person, whether explicitly (e.g., “I’m considering killing myself”) or indirectly (e.g., “I know how to put a permanent end to this pain”).

**Intimate partner:** A current or former girlfriend, boyfriend, date or spouse. The definition of intimate partner includes first dates.

**Intimate partner problem/violence:** A suicide or homicide circumstance in which the victim was experiencing problems with a current or former intimate partner, such as a divorce, break-up, argument, jealousy, conflict, or discord.

**Job:** A suicide circumstance in which the victim was either experiencing a problem at work (such as tension with a co-worker, poor performance reviews, increased pressure, feared layoff) or was having a problem with joblessness (e.g., recently laid off, having difficulty finding a job).

**Mechanism:** The primary instrument used by a victim or suspect that contributed to someone’s death.

**Mental health problem (Current mental illness):** A suicide circumstance in which the victim was identified as having a mental health illness, such as depression, schizophrenia, obsessive-compulsive disorder, etc. The mental health problem must have been diagnosed by someone who is professionally trained.

**Mental health treatment:** A suicide circumstance in which the victim had a current prescription for a psychiatric medication or saw a mental health professional within the two months prior to death. Treatment includes seeing a psychiatrist, psychologist, medical doctor, therapist or other counselor for a mental health or substance abuse problem; receiving a prescription for an antidepressant or other psychiatric medication; or residing in an inpatient or halfway house facility for mental health problems.

**Motor vehicle:** A mechanism of death resulting from a crash of any motorized vehicle.

**Opioids/Opiates:** A group of psychoactive chemicals that work by binding to opioid receptors. Opioids include prescription drugs (Codeine, Fentanyl, Hydrocodone, Methadone, Morphine, and Oxycodone) and illicit drug (Heroin).

**Other relationship problem:** A suicide circumstance in which the person was experiencing problems or conflict with a family member, friend or associate (other than an intimate partner) that appeared to have contributed to the suicide.

**Perpetrator:** Person or persons suspected of having killed another person in an incident, whether intentionally (any method/weapon) or unintentionally (firearm only) or assisted in the homicide.

**Physical health problem:** A suicide circumstance in which the victim was experiencing terminal disease, debilitating condition, or chronic pain, that was relevant to the suicide event.

**Poisoning:** A state of illness caused by the presence of any harmful or toxic substance that has been ingested, inhaled, applied to the skin or resulted from any other form of contact.

**Reliability of rates:** Some rates in this report are based on a small number of deaths. Chance variation is a common problem when the numbers being used to calculate rates are extremely small. From year to year, large swings can occur in rates, which do not reflect real changes. The rates based on small numbers (less than 20) may be unstable due to random chance factors, and should be used with caution.

**Resident:** The decedent was an official inhabitant of the state (or territory) including those portions of a Native American reservation within the state at the time of injury, according to the death certificate.

**Sharp instruments:** Objects that can be used to inflict a penetrating injury, such as knives, razors, machetes or pointed instruments such as a chisel or broken glass.

**Substance problem:** A suicide circumstance in which the victim was noted as using illegal drugs (such as heroin or cocaine), abusing prescription medications (such as pain relievers or Valium), or regularly using inhalants (e.g., sniffing gas) even if the addiction or abuse is not specifically mentioned. The exception to this is marijuana use. For marijuana, the use must be noted as chronic, abusive, or problematic (e.g., “victim smoked marijuana regularly,” “victim’s family indicated he had been stoned much of the past months”).

**Suicide:** A death resulting from the intentional use of force against oneself. A preponderance of evidence should indicate that the use of force was intentional.

**Suicide attempt history:** A suicide circumstance in which the victim was known to have previously tried to end his/her own life, regardless of the severity of the injury inflicted.

**Suicide note:** A suicide circumstance in which the victim left a message, e-mail, video, or other communication that he or she intended to end his/her own life. A will or folder of financial papers near the victim does not constitute a suicide note.

**Victim:** Person or persons who died in a suicide, violence-related homicide, legal intervention, as the result of a firearm injury, or from an undetermined manner.