

Violent Deaths in Oregon: *2007*

Oregon Violent Death Reporting System
Oregon Injury Prevention and Epidemiology Program
Office of Disease Prevention and Epidemiology

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Violent Deaths in Oregon: 2007

Executive Summary

The Oregon Violent Death Reporting System (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. The goals of this system are to generate public health information on violent deaths and to work with partners to develop prevention strategies. Since 2003, ORVDRS has collected data from Oregon medical examiners, local police, death certificates, and the Homicide Incident Tracking System. This report describes data collected in the system's fifth year.

Findings

- In 2007 violent death ranks as the second leading cause of death among Oregonian aged 15-34 and the eighth leading cause among all Oregonians. Violent death accounted for approximately 33 percent of total injury deaths.
- Of 789 violent deaths among Oregonians (crude rate of 21.1 deaths per 100,000 population):
 - 590 (75 percent) were deaths by suicide (15.7 per 100,000);
 - 83 (11 percent) by homicide (2.2 per 100,000);
 - 102 (13 percent) by undetermined manner (2.7 per 100,000);
 - 8 (1 percent) by legal intervention; and
 - 6 (1 percent) by unintentional firearm injury.

Ten incidents involved more than one death; eight of those were homicide-suicides.

- Homicide decreased to the lowest level since 1981.
 - Homicides decreased from 108 (2.9 per 100,000) in 2006 to 83 (2.2 per 100,000) in 2007. The homicide deaths and rate are the lowest in more than two decades.
- Suicide deaths and rate increased for the third consecutive year.
 - Suicides increased from 555 (15.2 per 100,000) in 2005 to 569 (15.4 per 100,000) in 2006 to 590 (15.7 per 100,000) in 2007.
 - Suicides among women increased from 115 (6.3 per 100,000) in 2005 to 128 (6.8 per 100,000) in 2007.
 - Suicides among adult males aged 45-64 increased from 150 (30.7 per 100,000) in 2006 to 173 (34.6 per 100,000) in 2007.

- Suicides among veterans increased from 142 (39.7 per 100,000) in 2006 to 155 (44.1 per 100,000) in 2007.
- Mental and behavioral health problems, conflict in interpersonal relationship, physical health problems among the elderly remain the most reported factors surrounding suicide incidents.
- Firearms were the most common mechanism of death, accounting for nearly 50 percent of violent deaths, followed by poisoning (24 percent) and hanging (13 percent).

Recommendations

- Train health care providers to screen and treat depression, and to screen and refer individuals at risk for suicide for appropriate care.¹
- Build systems within primary care and behavioral healthcare that both integrate care and provide follow-up for patients with a positive screening test for depression and suicide risk.¹
- Develop resources to implement community-based suicide-prevention activities that link at-risk populations with social services, health care, and opportunities for socialization.
- Develop a lifespan suicide prevention plan.
- Use state resources to support the growth of activities to reduce suicide among Oregon veterans.
- Obtain data on Oregonians who served in the regular Army, Army Reserves, Oregon National Guard and other military branches. Use these data and the suicide data to conduct epidemiological studies to better understand suicide among veterans and potentially contribute to prevention.
- Study the suicide trend in Oregon and produce detailed reports on five years of aggregated data on suicide.
- Study infant homicide and infant undetermined deaths and report to the State Child Fatality Review Team in the spring of 2010.

Violent Deaths in Oregon: 2007

The Oregon Violent Death Reporting System (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. Since 2003, ORVDRS has collected data from Oregon medical examiners' reports, local police reports, death certificates and the Homicide Incident Tracking System. This report describes data collected during the fourth year.

Case Definition

In this report, violent deaths are identified according to International Classification of Diseases, Tenth Revision (ICD-10) codes for the underlying cause of deaths on death certificates. Manner of death was coded according to ICD-10 classification and categorized as suicide, homicide, legal intervention, unintentional firearm discharge, undetermined or terrorism-related death (Table 1).^{2,3} if ICD-10 code is not available, manner of death will be determined according to death certificate and/or medical examiner report. Occasionally, data sources may record a different determination on the manner of death. **Deaths relating to the death with Dignity Act (physician-assisted suicides) are not classified as suicides by Oregon law and therefore are excluded from data collection and this report.**

Table 1. Violent death by intent

Intent	ICD-10 code
Suicide	X60-X84, Y87.0
Homicide	X85-X99, Y00-Y09, Y87.1
Undetermined	Y10-Y34, Y87.2, Y89.9
Legal intervention excluding execution (Y35.5)	Y35.0-Y35.4, Y35.6-Y35.7, Y89.0
Unintentional firearm fatality	W32-W34, Y86 determined to be due to firearm
Terrorism-related death	U01-U03

Rate Calculation

Rates were calculated using bridged-race postcensal estimates of July 1, 2007, released by the National Center for Health Statistics (NCHS).⁴ The age-adjusted rate was adjusted to the 2000 standard million. Because of limited death counts in some races, age groups and/or manner of death, some rates might not be statistically reliable or stable; use caution with regard to those categories with fewer than 21 deaths.

Data Summary

Magnitude of violent death

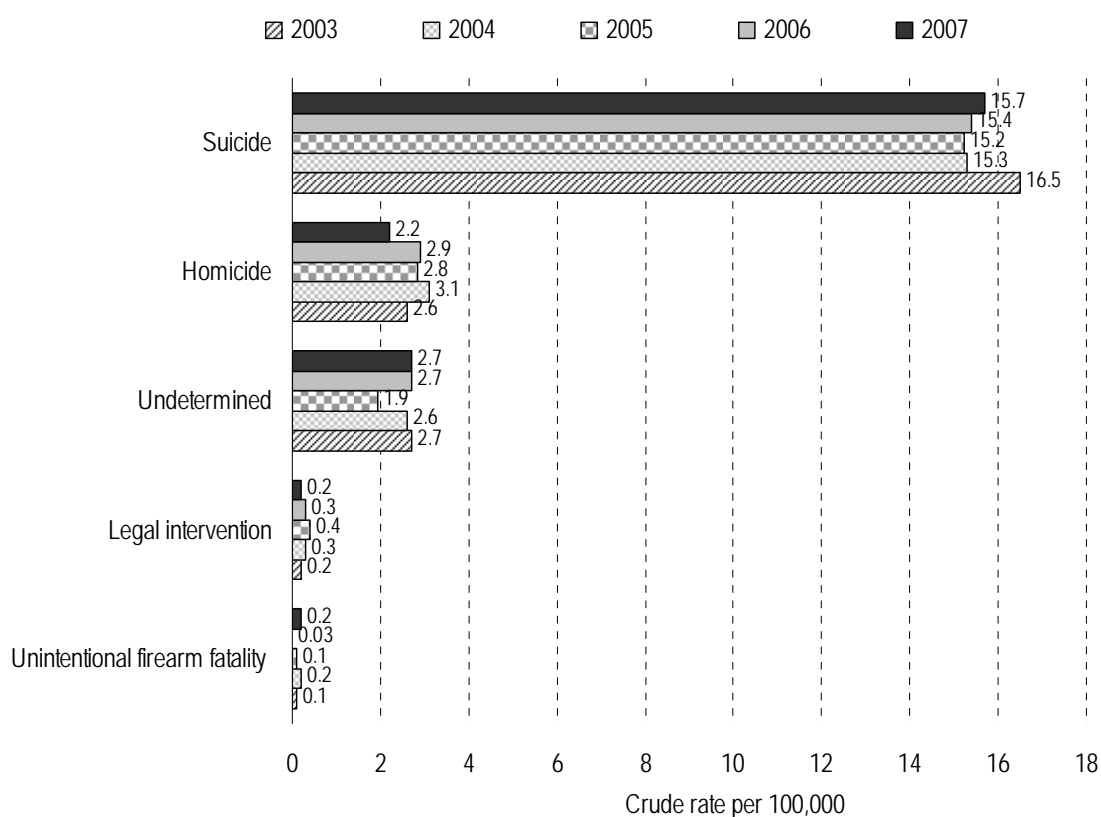
In 2007, there were 779 violent death incidents resulting in 789 deaths among Oregon residents. The violent death rate was 21.1 per 100,000 (age-adjusted rate = 20.3 per 100,000). Of 779 incidents, 769 incidents involved one death; 10 incidents involved more than one death and those incidents resulted in a total of 21 deaths. Among the 10 incidents involving multiple deaths, eight were homicide-suicides (Table 2).

Table 2. Number of violent death incidents and deaths, Oregon 2007

Type of incident	# Incidents	# Deaths
Unintentional firearm injury	6	6
Shot by self	4	4
Shot by other	1	1
Unknown who inflicted	1	1
Homicide	82	83
Single homicide	73	73
Multiple homicides	1	2
Homicide-suicide	8	8
Suicide	589	590
Single suicide	580	580
Multiple suicides	1	2
Homicide-suicide	8	8
Combined homicide-suicide	8	16
Legal intervention	8	8
Undetermined	102	102
Homicide-suicide-undetermined	1	3
Total	779	789

Overall, the number of violent deaths was approximately the same as in 2006; the state's homicide rate decreased from 108 (2.9 per 100,000) in 2006 to 83 (2.2 per 100,000) in 2007. The homicide deaths and rate are the lowest in more than two decades.⁵ Suicides increased from 569 (15.4 per 100,000) in 2006 to 590 (15.7 per 100,000) in 2007. Suicide rate was the highest since 2003. Suicides among women increased from 115 (6.3 per 100,000) in 2005 to 128 (6.8 per 100,000). The largest increases were observed among adult males aged 45-64, from 150 (30.7 per 100,000) in 2006 to 173 (34.6 per 100,000) in 2007; and adult males aged 65 and over, from 85 (40.7 per 100,000) in 2006 to 101 (47.1 per 100,000) in 2007 (Figure 1).^{6,7}

Figure 1. Violent death rates in Oregon: 2003 - 2007



In 2007, violent death ranks as the second leading cause of death among Oregonians aged 15-34 and the eighth leading cause among all Oregonians. Violent deaths accounted for approximately 33 percent of total injury deaths.

Race, ethnicity and sex

Among the violent deaths, 750 (95 percent) were white; 20 (3 percent) were African-American; eight (1 percent) were Asian/Pacific Islander; seven (1 percent) were American Indian/Native Alaskan; and four were other race/unspecified. Twenty-eight (4 percent) were of Hispanic ethnicity. The ratio of males to females was 2.9 (Figure 2). Suicide was the predominant manner of violent death among both males and females (Table 3).

Figure 2. Violent death rate by race, ethnicity and sex, OR 2007

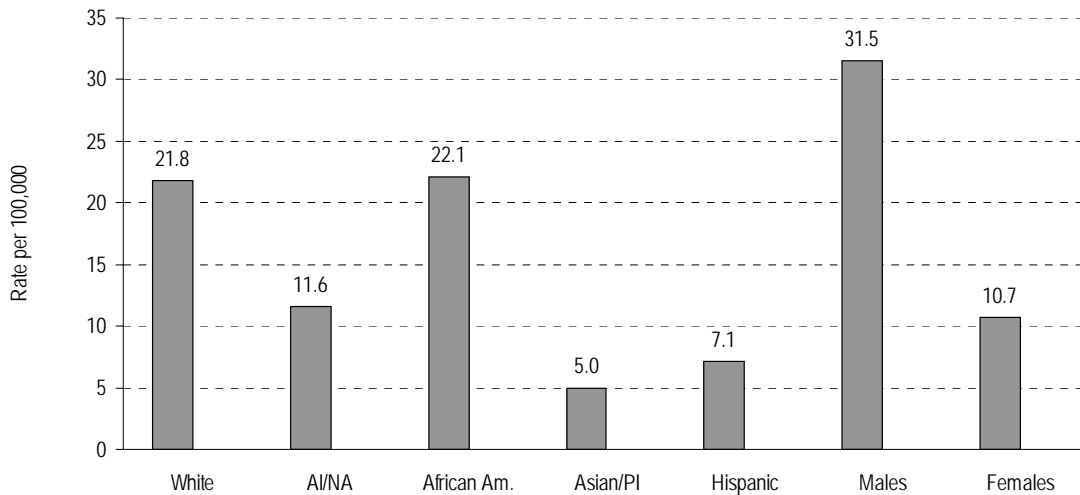


Table 3. Number, proportion and rate of violent deaths by sex and intent, Oregon 2007

Intent	Sex				Total		
	Male	%	Female	%	All	%	Crude rate
Suicide	462	79	128	63	590	75	15.7
Homicide	62	11	21	10	83	11	2.2
Unintentional firearm fatality	6	1	0	0.0	6	1	0.2*
Legal intervention	8	1	0	0.0	8	1	0.2*
Undetermined	49	8	53	26	102	13	2.7
Total	587		202		789		21.1

* Use rates from small numbers with caution as they generate unstable rates.

Mechanism of death

Firearms were the mechanism of death in 50 percent of violent deaths. Other common mechanisms of death included poisoning (24 percent), suffocation (13 percent), sharp instruments (3 percent), and falls (3 percent) (Table 4).

Table 4. Violent deaths by mechanism, Oregon 2007

Mechanism	Number	% of Total
Firearm	391	50
Poisoning	189	24
Hanging, Strangulation, Suffocation	103	13
Sharp instrument	24	3
Fall	23	3
Blunt instrument	7	1
Drowning	22	3
Personal weapons (fist, feet, hand)	9	1
Fire or Burns	1	<1
Other transport vehicle (trains, boats)	5	1
MV, including buses, motorcycles	9	1
Shaking (shaken baby syndrome)	1	<1
Other	3	<1
Unknown	2	<1

Place of violent incident

Of 789 violent deaths, 780 (99 percent) occurred in Oregon. Most incidents occurred at home (Table 5).

Table 5. Location of injury by manner, Oregon 2007

Location Type	Suicide		Homicide		Undetermined	
	No.	%	No.	%	No.	%
House / apartment	444	75	46	55	75	74
Nature area	48	8	5	6	7	7
Park / public use area	19	3	2	2	2	2
Street / road	20	3	17	20	3	3
Parking lot / garage	10	2	2	2	0	0
Motel /inn /hotel	11	2	1	1	3	3
Jail	5	1	0	0	0	0
Highway	7	1	1	1	2	2
Supervised resident facilities	1	0	1	1	0	0
Hospital	4	1	0	0	1	1
Unknown	2	0	3	4	1	1

More than 60 percent of violent deaths occurred in six counties: Multnomah, Washington, Lane, Marion, Clackamas and Jackson; each county had more than 50 cases (Table 6).

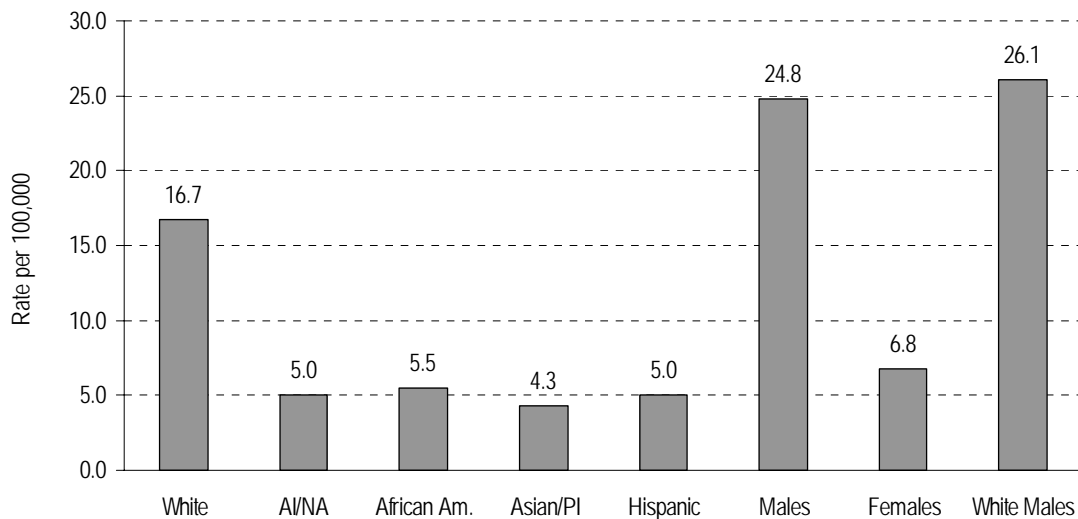
County	Violent Death		Suicide		Homicide		Undetermined	
	Total	No.	%	No.	%	No.	%	
Baker	3	3	100	0	0	0	0	
Benton	17	14	82	2	12	1	6	
Clackamas	55	44	80	5	9	6	11	
Clatsop	9	8	89	0	0	1	11	
Columbia	7	4	57	1	14	2	29	
Coos	18	15	83	0	0	2	11	
Crook	6	6	100	0	0	0	0	
Curry	6	4	67	0	0	2	33	
Deschutes	30	25	83	2	7	3	10	
Douglas	33	24	73	1	3	8	24	
Gilliam	1	1	100	0	0	0	0	
Grant	2	2	100	0	0	0	0	
Harney	3	2	67	1	33	0	0	
Hood River	3	3	100	0	0	0	0	
Jackson	55	45	82	5	9	5	9	
Jefferson	3	2	67	1	33	0	0	
Josephine	31	18	58	6	19	6	19	
Klamath	27	16	59	7	26	2	7	
Lake	1	1	100	0	0	0	0	
Lane	72	52	72	5	7	14	19	
Lincoln	15	11	73	1	7	2	13	
Linn	17	17	100	0	0	0	0	
Malheur	5	4	80	0	0	0	0	
Marion	57	45	79	8	14	4	7	
Morrow	2	2	100	0	0	0	0	
Multnomah	168	109	65	28	17	29	17	
Polk	18	13	72	1	6	3	17	
Sherman	0	0	N/A	0	N/A	0	N/A	
Tillamook	6	6	100	0	0	0	0	
Umatilla	12	9	75	3	25	0	0	
Union	7	7	100	0	0	0	0	
Wallowa	2	1	50	1	50	0	0	
Wasco	2	2	100	0	0	0	0	
Washington	86	65	76	5	6	12	14	
Wheeler	0	0	N/A	0	N/A	0	N/A	
Yamhill	10	10	100	0	0	0	0	
<i>Statewide</i>	<i>789</i>	<i>590</i>	<i>75</i>	<i>83</i>	<i>11</i>	<i>102</i>	<i>13</i>	

Suicides

Race, ethnicity and sex

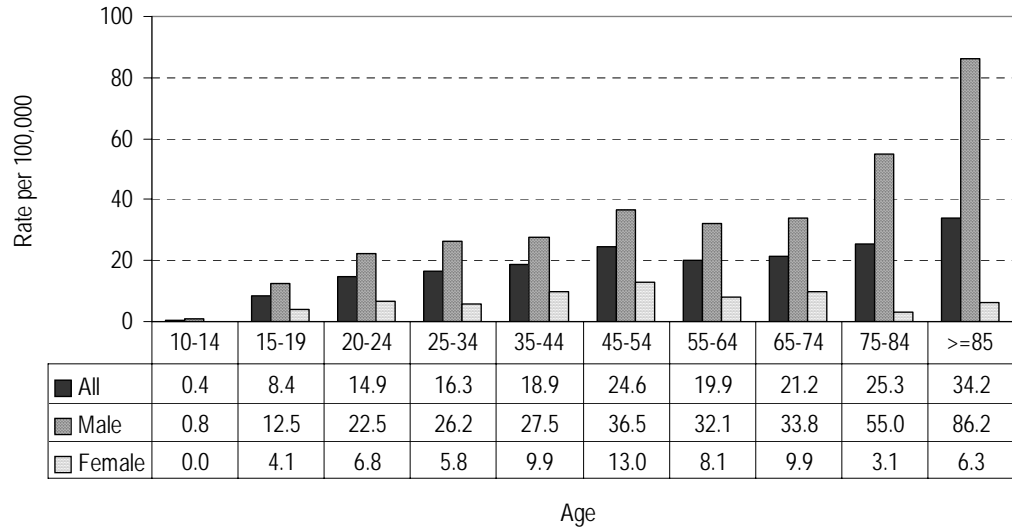
Nearly 75 percent of violent deaths were suicides. Of 590 suicides, 462 (78 percent) occurred among males and 128 (22 percent) occurred among females; 573 (97 percent) were white; seven were Asian/Pacific Islander; five were African-American; three were American Indian/Native Alaskan and two were other race/unspecified. Twenty (3 percent) were of Hispanic ethnicity. Males were 3.6 times more likely to die by suicide than females. The suicide rate among males was 24.8 per 100,000 and the rate among females was 6.8 per 100,000. The suicide rate overall was 15.4 per 100,000 (age-adjusted rate = 15.0 per 100,000). Rates were highest among white males (Figure 3).

Figure 3. Suicide rate by race / ethnicity, OR 2007



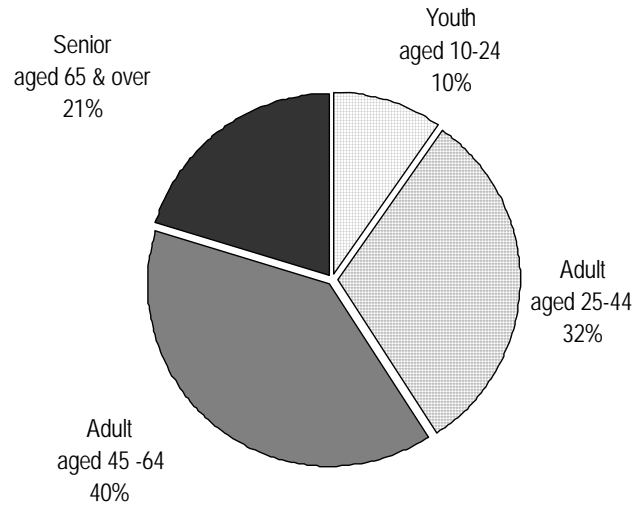
Overall suicide rates increased with age. The age-specific rate of suicide among males rose sharply after age 15 and reached the first peak between the ages of 45 and 54; the rate decreased slightly at the ages of 55-64, then rose again. The rates rose dramatically after age 65 years. The highest suicide rate among females occurred among women aged 45-54 (Figure 4).

Figure 4. Age-specific rate of suicide, OR 2007



The majority of suicides (72 percent) occurred among those aged 25-64 (Figure 5).

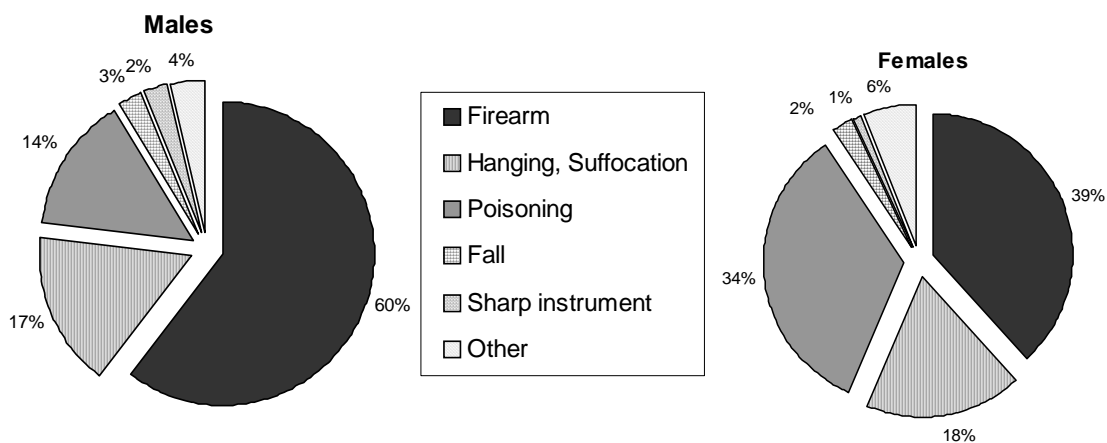
Figure 5. Percentage of suicides by age group, OR 2007



Mechanism of death

Firearms, suffocation (hanging/strangulation) and poisoning were the most frequently observed mechanisms of suicide deaths. Differences in mechanisms of death were observed by sex of the victim. Firearms were the mechanism of suicide in as many as 60 percent of male deaths compared with 32 percent of female deaths. Suffocation was identified as the mechanism of death among 17 percent of male deaths and 18 percent of female deaths. Poisoning was the mechanism of death among only 14 percent of males but 34 percent of the deaths among females (Figure 6).

Figure 6. Mechanism of suicide by sex, OR 2007

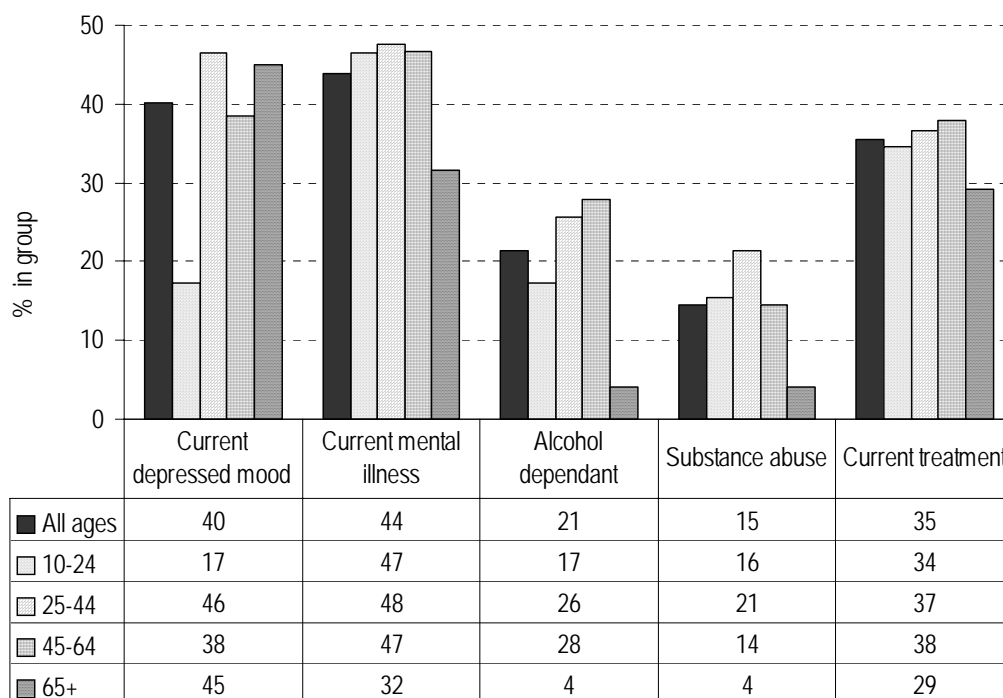


Of 328 firearm suicides, 223 (68 percent) involved a handgun, 48 (15 percent) involved a rifle and 37 (11 percent) involved a shotgun; in 20 cases the type of firearm involved was unknown. Among 110 suicide deaths caused by poisoning, 79 cases (72 percent) involved only one substance. The substances most frequently reported were prescription medications or over-the-counter drugs, which accounted for 44 percent (N=35). Another 33 (42 percent) suicide deaths involved carbon monoxide (automobile exhaust) or other vapor. Narcotics and antidepressants were respectively reported in 20 percent and 14 percent of the 79 deaths. Twenty-six of 110 cases (24 percent) involved more than one substance; narcotics and antidepressants were respectively reported in 42 percent and 35 percent of those deaths.

Circumstances

Analysis of reports concerning circumstances surrounding suicides showed that regardless of age, 40 percent of people who died by suicide were reported to have experienced a recent depressed mood. About 44 percent were reported to have a mental illness. But only one third were being treated for mental health problem (Figure 7).

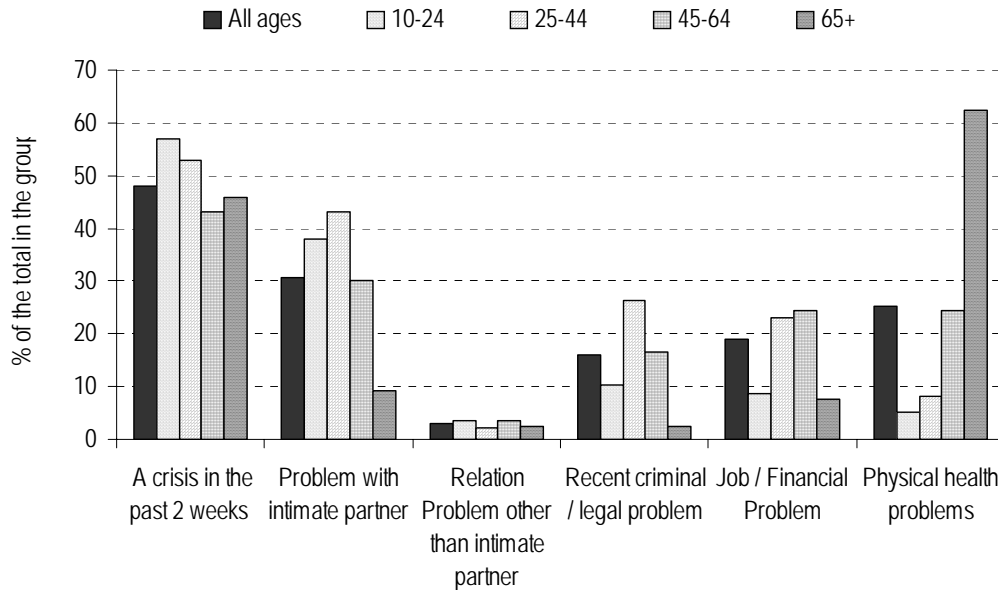
Figure 7. Behavioral health status among suicide victims by age group, OR 2007



Among suicide victims with mental disorders (N=259), the most frequently reported mental health problems were depression/dysthymia (81 percent), bipolar disorder (13 percent), and anxiety disorder (13 percent).

Approximately half of suicide victims experienced one or more crises within two weeks of death (Figure 8).

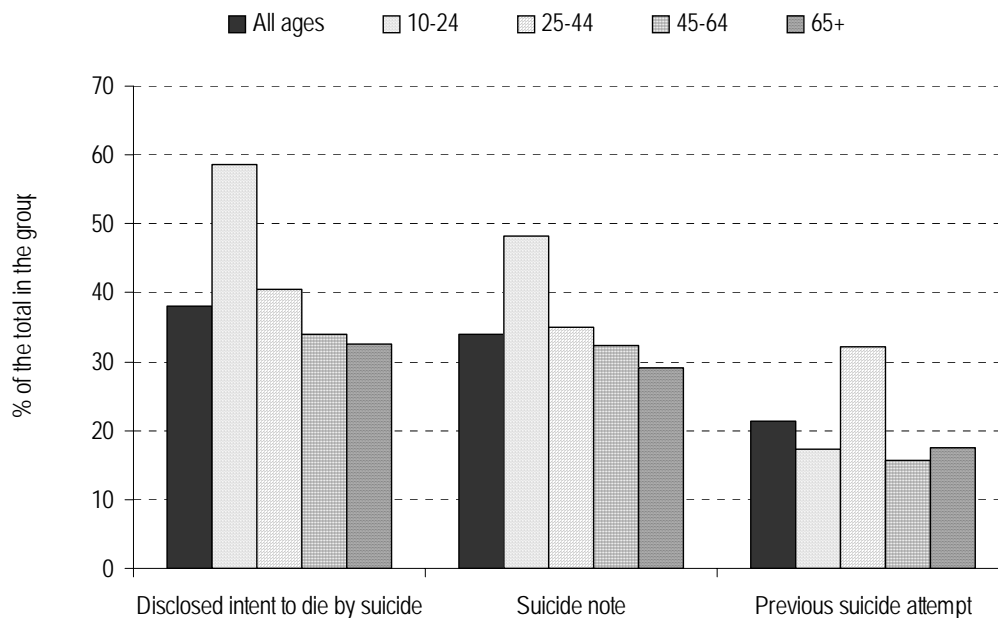
Figure 8. Factors associated with suicide by age group, OR 2007



Older adults who died by suicide were observed to have numerous health conditions and health-related problems. Among 120 adults aged 65 and older who died by suicide, 64 percent had declining health, and 40 percent had a loss of autonomy or independence. Seventy-two suicide victims (60 percent) were documented to have at least one medical condition. Twenty-three percent had visited a physician within 30 days. The most frequently reported physical illnesses were heart disease (18 percent), chronic pain (18 percent), cancer (14 percent), diabetes (10 percent), and chronic respiratory disease (8 percent). Forty-one (57 percent) suicide victims with physical illnesses were reported to have depressed mood. However, only 26 (36 percent) were diagnosed with mental disorders (26 were diagnosed with depression/dysthymia), and only 23 (32 percent) were reported to be receiving treatment for their mental illness. Among 120 elder suicides, 39 percent lived alone.

Approximately 40 percent of people who died by suicide had disclosed suicide threats or ideation prior to their deaths (Figure 9).

Figure 9. Suicidal behavior by age group, OR 2007



Suicides among Oregon veterans

Suicide increased among veterans to 155 deaths (44.1 per 100,000) in 2007 from the previous year of 142 deaths (39.7 per 100,000). Of 155 suicides among veterans, 153 (99 percent) were male. Reviewing the death certificates from 2003-2007, there were a total of 770 and an annual average of 154 veterans who died by suicide. Ninety-eight percent were male. Overall suicide ranked as the second leading cause of death among male veterans aged less than 45.

According to the estimates of veterans and population,⁸ the crude suicide rate among veterans in Oregon was 43.5 per 100,000 between 2003 and 2007. Male veterans had a much higher suicide rate than non-veteran males (45.7 vs. 27.4 per 100,000). This difference was largely driven by suicides among veterans aged 18-24, 35-44 and 45-54. There were statistically significant differences between the rates of suicide among veterans and non-veterans (Figure 10).

Firearms were a dominant mechanism of suicide among male veterans, accounting for 74 percent of male suicidal deaths; followed by poisoning (11 percent) and hanging/suffocation (10 percent). Firearm suicides were much more common among veteran males (74 percent) than among non-veteran males (56 percent).

Mental health, interpersonal relationship and physical health problems were common reported circumstances among veterans who died by suicide (Table 7).

Figure 10. Age-specific suicide rates among male veterans and non-veterans, OR 2003-2007

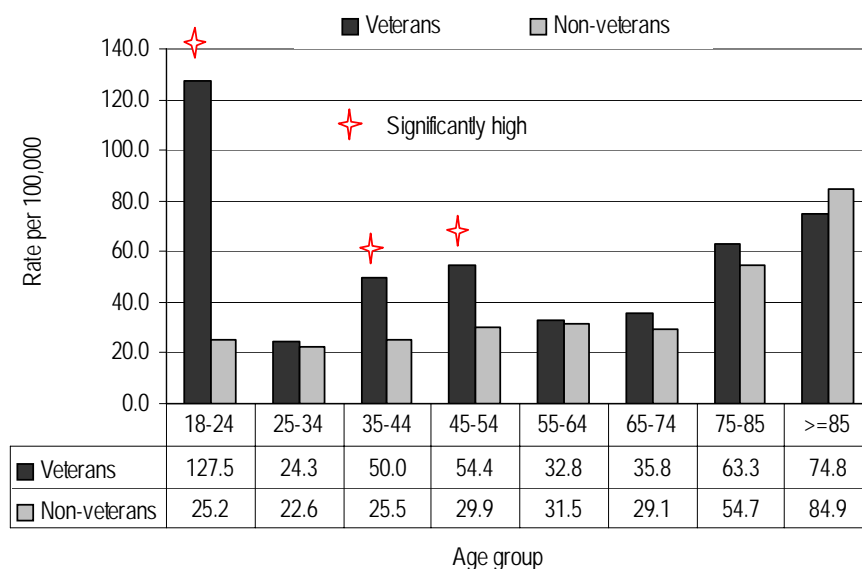


Table 7. Frequencies of circumstances surrounding suicide incidents among veterans, Oregon 2003-2007

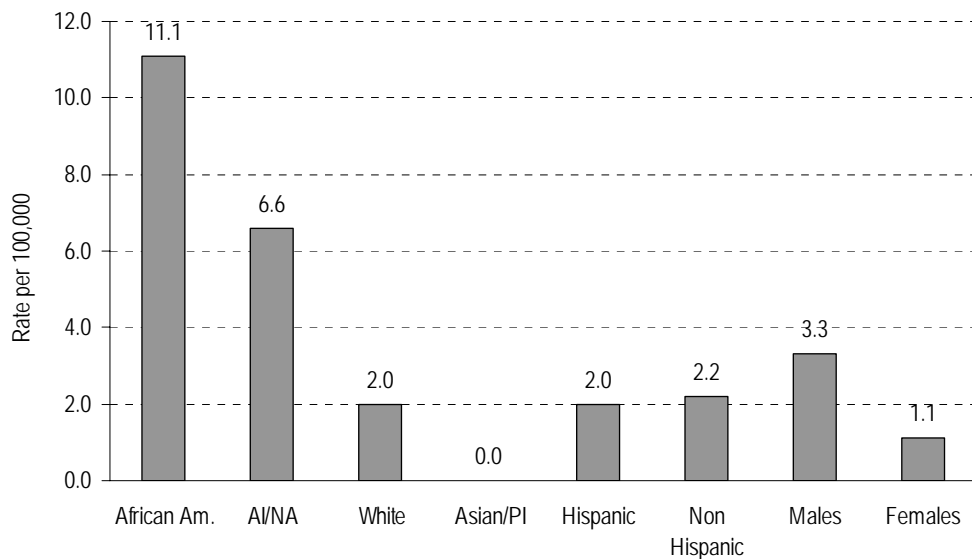
Circumstances	% of Ages 18-64	% of Ages >= 65
Mental health status	%	%
Diagnosed mental disorder	39	20
Problem with alcohol	26	4
Problem with other substance	14	1
Current depressed mood	57	48
Current treatment for mental health problem	34	16
Interpersonal relationship problems		
Intimate partner problem	34	7
Non-intimate partner relationship problem	3	1
Victim of interpersonal violence within past month	0	0
Perpetrator of interpersonal violence within past month	8	3
Death of family member or friend within past five years	6	13
Suicide of family member or friend within past five years	2	0
Life stressors		
A crisis in the past two weeks	37	34
Physical health problem	24	71
Financial problem	14	4
Lost job / job problem	14	0
Recent criminal legal problem	13	1
Noncriminal legal problem	6	1
Suicidal behaviors		
Disclosed intent to commit suicide	33	36
Left a suicide note	34	33
History of suicide attempt	19	9

Homicides

Race, ethnicity and sex

Homicide accounted for 11 percent (n=83) of violent deaths in 2007. The homicide rate among males is three times the rate of homicide among females. The homicide rates were higher among African Americans and American Indians than among white people (Figure 11).

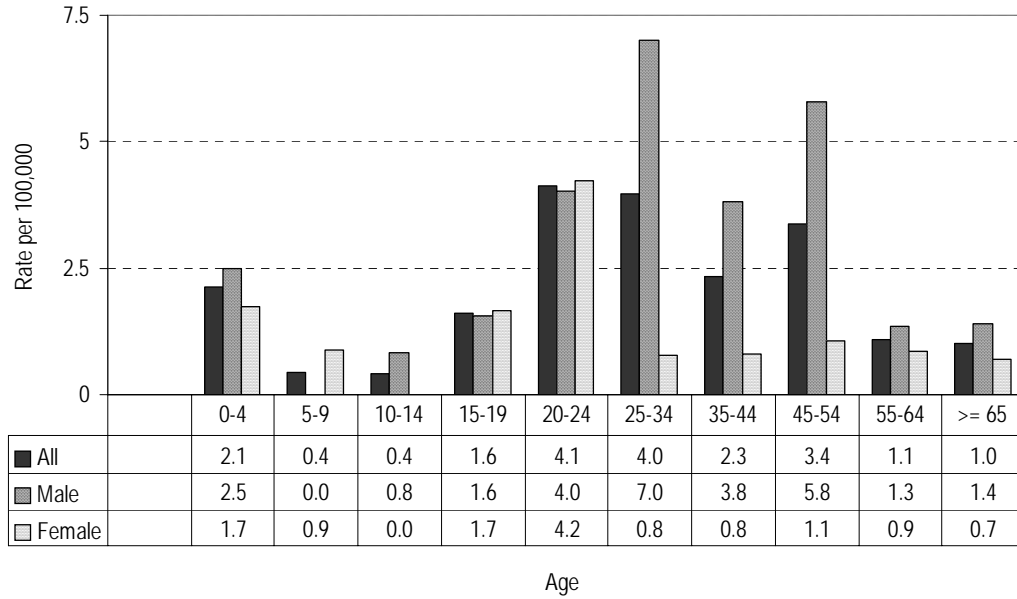
Figure 11. Homicide rate by race / ethnicity and sex, 2007



The distribution of age-specific rates of homicide is ‘u’ shaped. The first peak occurred among infants and the second peak occurred among males aged 20-44 (Figure 12). Of the 83 homicides, seven (8 percent) were children aged less than 15 years; 14 (17 percent) were youth aged 15-24; 33 (40 percent) were young adults aged 25-44; 24 (29 percent) were adults aged 45-64 and five (6 percent) were adults aged 65 years and older.

Compared with the previous year,⁵ all age groups except ages 25-45 had a decreased homicide number and rate. The big decreases in rates were observed among children less than 15 years, from 15 to 7 per 100,000; ages 15-25, from 23 to 14 per 100,000; and ages 65 and older, from 9 to 5 per 100,000.

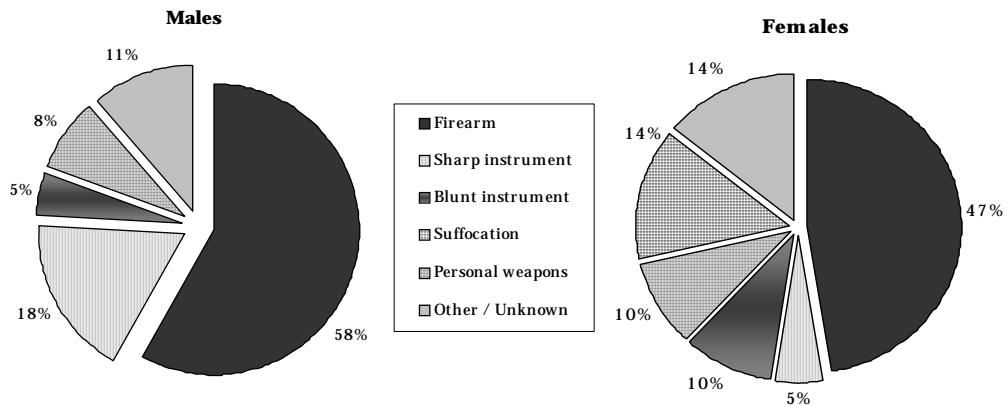
Figure 12. Age-specific rate of homicide, OR 2007



Mechanism of death

Firearms were the mechanism of death in 58 percent of male homicides and 47 percent of female homicides. Sharp instruments were the mechanism of death in 18 percent of male and 5 percent of female homicides. Blunt instruments and personal weapons (fist, feet and hand) accounted for 13 percent of male and 24 percent of female homicides (Figure 13).

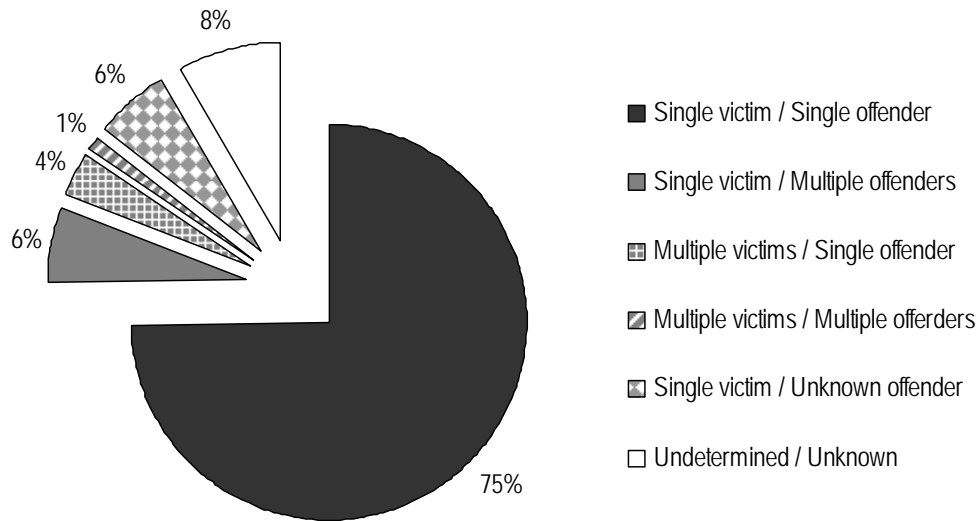
Figure 13. Mechanism of homicide by sex, OR 2007



Circumstances

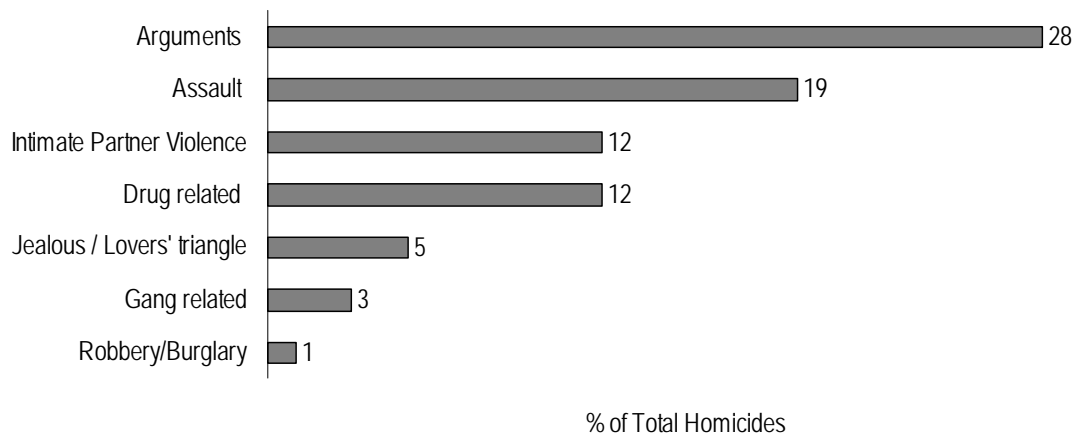
In each incident, a single suspect killed most homicide victims (75 percent); multiple suspects were involved in the deaths of 7 percent of the victims; and a single suspect killed multiple victims in 4 percent of the cases (Figure 14).

Figure 14. Type of homicide, OR 2007



The most common circumstances surrounding homicides are shown in Figure 15.

Figure 15. Most common circumstances related to homicide, OR 2007



Homicide suspect information

Based on available information on suspects, males aged 15-29 were more likely to be involved in homicide incidents. The persons with Hispanic ethnicity were represented disproportionately among suspects (Table 8).

Table 8. Demographics of suspects, Oregon 2007

Sex Race/ethnicity	Single suspect		Multiple suspects		OR population
	No.	%	No.	%	%
Male	42	82	11	79	49.7
Female	6	12	3	21	50.3
Unknown	3	6	0	0	
White	30	59	4	29	91.9
African Am.	0	0	0	0	2.3
Asian	1	2	0	0	4.2
Am. Indian / Native	1	2	0	0	1.6
Unknown	19	37	10	71	
Hispanic	10	20	0	0	10.2
Hispanic, unknown	20	39	10	71	
Age group					
<10	0	0	0	0	12.4
10-14	0	0	0	0	6.5
15-19	3	6	3	21	6.7
20-24	15	29	2	14	6.7
25-29	10	20	1	7	7
30-34	2	4	5	36	7
35-44	7	14	2	14	13.9
45-54	4	8	0	0	15.1
55-64	0	0	0	0	11.8
≥ 65	3	6	0	0	12.9
Age range (yr)	18-81		16-43		
Median age (yr)	27		31		
Unknown	7		1		

Most homicide suspects knew their victims (Table 9).

Table 9. Relationship between victim and suspect, Oregon 2007

Type of relationship	Single suspect		Multiple suspects	
	No.	%*	No.	%*
Victim to suspect				
Spouse or ex-spouse	5	10	0	0
Parent	1	2	0	0
Child	3	6	3	21
Other family member	4	8	0	0
Girlfriend / boyfriend or ex	5	10	2	14
Acquaintance / friend	29	57	6	43
Stranger	2	4	2	14
Other	2	4	1	7

Intimate partner violence (IPV) - related homicide

A total of 20 IPV-related homicides occurred among Oregon residents in 2007. The number of deaths was the lowest since 2003. These deaths occurred among perpetrators (primary aggressors) of IPV, victims of IPV, and relatives of an IPV victim. The relationship of victim and suspect is shown in Table 10. Fourteen of the 20 IPV-related homicides were committed by an intimate partner. Forty-three percent of total female homicide victims were killed by an intimate partner. Among 20 IPV-related homicide victims, 19 were white and one was African American. One was of Hispanic ethnicity. The age range was 18 to 81 years with an average age of 43.

Table 10. Relationship of victim and suspect among IPV-related homicides by sex, Oregon 2007

Relationship				
Homicide victim was killed by	Female	Male	Total	
Current spouse	6	2	8	
Ex-spouse	0	0	0	
Current boy/girl friend	2	2	4	
Ex-boy/girl friend	1	0	1	
Couple (same sex)	0	1	1	
Total homicides killed by an intimate partner	9	5	14	
Partner's ex-partner	0	1	1	
Ex-partner's or lover's current partner	1	2	3	
Police officers	0	0	0	
Other	0	2	2	
Total homicides killed by someone other than a partner	1	5	6	
Homicides related to IPV	10	10	20	

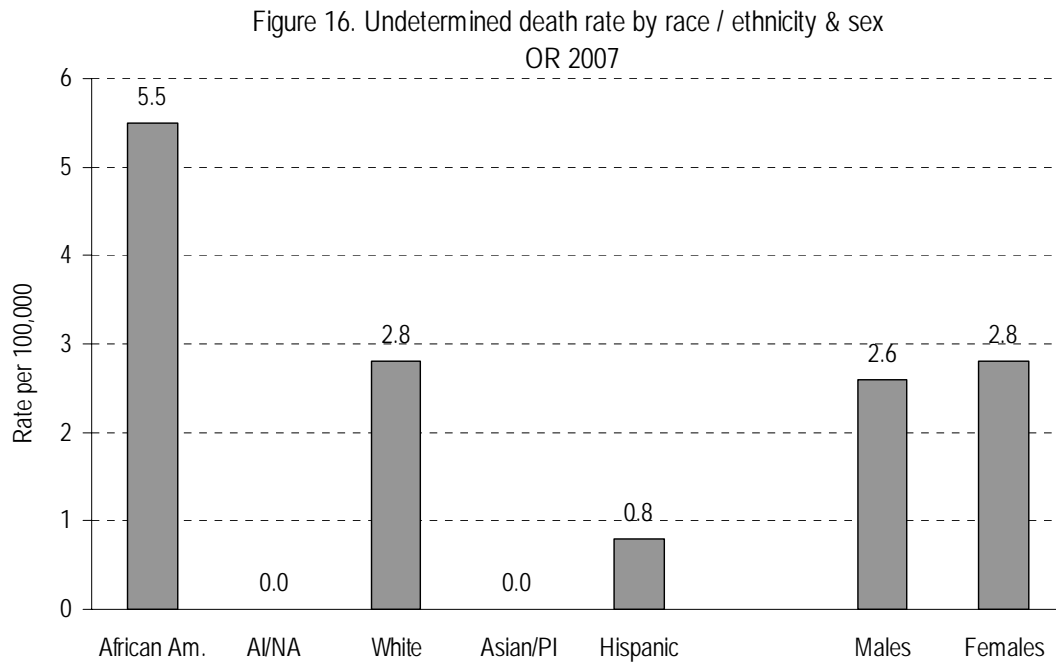
Child deaths due to physical abuse ⁹

Among seven children who died by homicide, six children were killed by a parent (n=5), and/or a boyfriend /girlfriend of his/her parent (n=1), and other caregiver (n=1). Among those six child physical abuse deaths, three were male, three were female and five were white. The children' ages were from less than one year to five years with a median age of 18 months. None of children died from shaking baby syndrome in 2007. Child deaths due to physical abuse were dropped from ten in 2006 to six in 2007.

Undetermined deaths

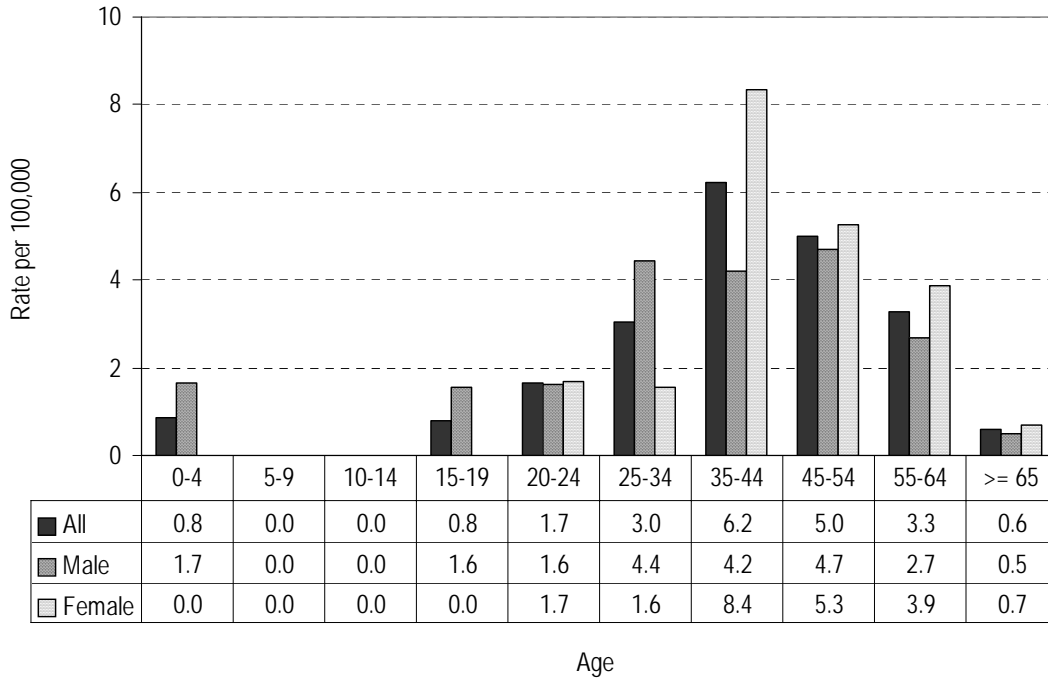
Race, ethnicity and sex

Thirteen percent of violent deaths were classified as undetermined manner of death in 2007. Of the 102 undetermined deaths, 49 (48 percent) were male and 53 (52 percent) were female; 96 (94 percent) were white; five (5 percent) were African-American. Three (3 percent) were of Hispanic ethnicity. The undetermined death rate was 2.7 per 100,000 overall. Figure 16 shows the undetermined death rate by race, ethnicity and sex.



Adults aged 35-44 had the highest rate of undetermined death (Figure 17). Adults aged 20-64 accounted for 93 percent (N=95) of those deaths. It should be noted undetermined manner among adults means investigators were not able to determine if the person died by unintentional injury (accidental overdose), homicide or suicide.

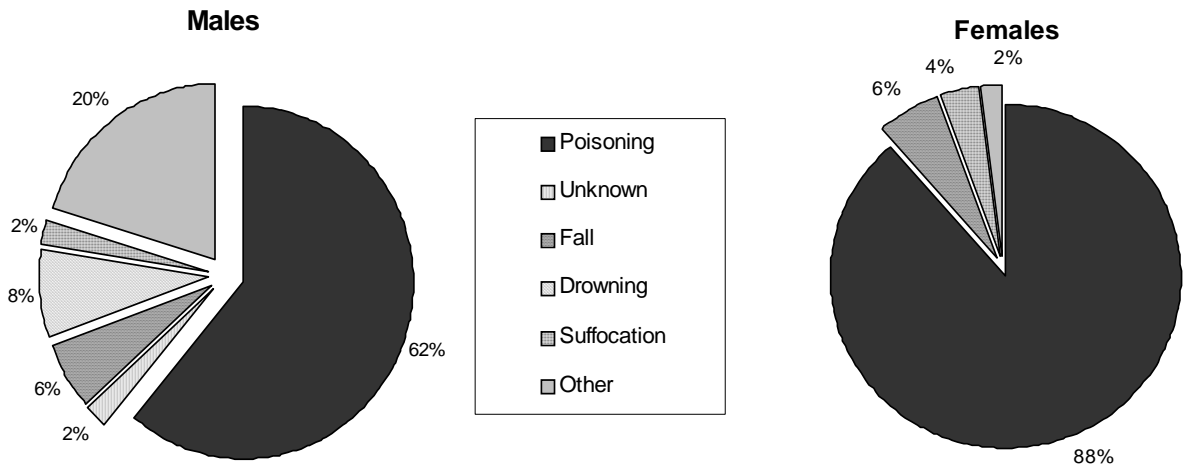
Figure 17. Age-specific rate of undetermined death, OR 2007



Mechanism of death

Poisoning was the mechanism of death in 62 percent of the undetermined deaths among males and 88 percent among females (Figure 18).

Figure 18. Mechanism of undetermined death by sex, OR 2007

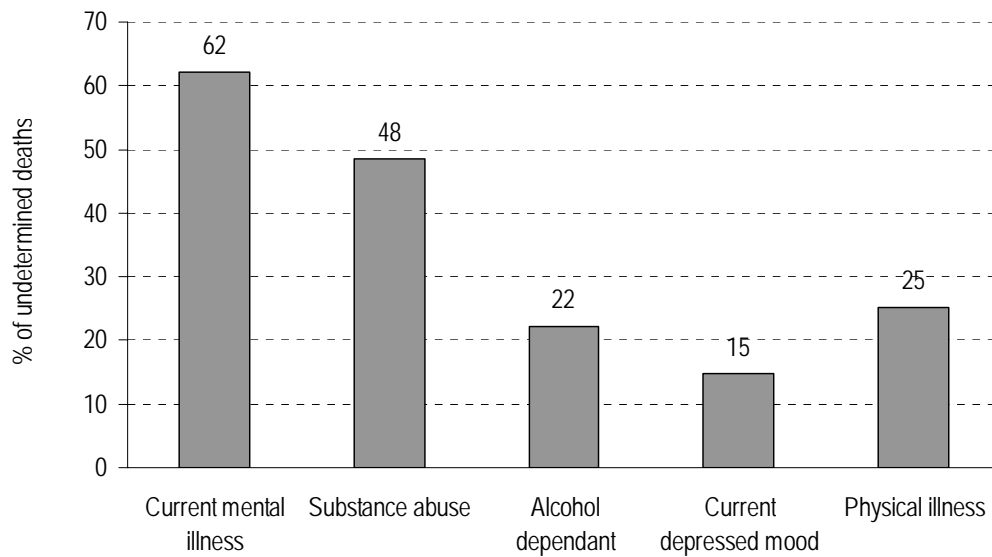


In 77 undetermined poisoning deaths, 53 cases (69 percent) involved one substance; narcotics were predominantly reported (N=35). Twenty-two in 77 cases (29 percent) involved more than one substance; narcotics were involved in 19 of those deaths and antidepressants in nine. Methadone was reported in 21 victims.

Circumstances

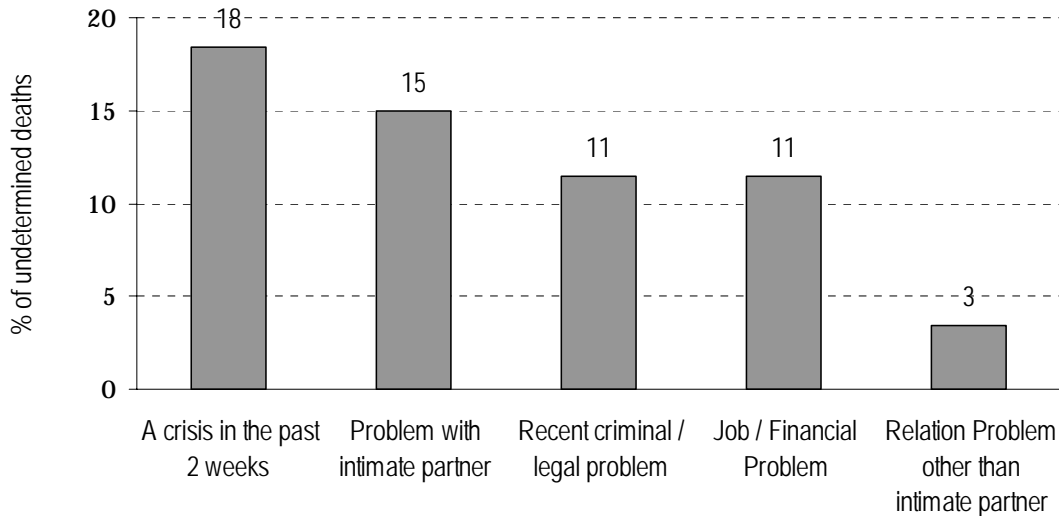
Analysis of undetermined death circumstances among adults aged 20-64 demonstrates that 48 percent of the victims abused substances; 62 percent of them had a mental illness; 22 percent were alcohol dependent; 15 percent experienced a recent depressed mood; and 25 percent had a physical illness (Figure 19).

Figure 19. Mental and physical status among undetermined deaths aged 20-64, OR 2007



Circumstances in undetermined deaths are illustrated in Figure 20 below.

Figure 20. Circumstances in adult undetermined deaths aged 20-64 surrounding undetermined deaths, OR 2007



Discussion

Although violent deaths and proportion of manner of death varies year by year, the past five year data all identify suicide as a serious public health problem in Oregon.

Given the facts that the prevalence of mental and behavioral health problems among people who died by suicide and many of them were not being treated, intensive screening for depression and appropriately treatment for mental health problems are essential to preventing suicide. Our data indicate that integrating primary care and mental and behavioral health care would increase diagnosis and treatment of mental and behavioral health problems. Follow-up and outreach activities directed toward persons who fail to engage in care could improve the rate of treatment.

As this report observes, the majority of deaths due to suicide (72%) occur among adults aged 25-64, the number of suicides and rate among ages 40-64 were increasing,¹⁰ it is clear the state needs to develop and implement a prevention plan across the life span.

The death by suicide among veterans who have served this nation is tragic. Suicide ranked as the second leading cause of death among male veterans aged less than 45 in Oregon. The suicide rate was significantly higher among young male veterans than among young male non-veterans. Considering well-known stressors that exist in the lives

of military personnel as they are discharged from active duty to civilian status, it is necessary to assess health care for veterans and develop suicide prevention efforts that target veterans.

Suicide is a multidimensional, multidetermined, and multifactorial behavior. Increasing knowledge about characteristics and circumstances associated with suicide can assist the state in planning prevention programs. Analyzing five years of aggregated ORVDRS data could provide a complete picture of suicide in Oregon.

Homicide deaths and rate were decreased to the lowest level in 2007. The decreases were observed across all age groups except 25-44, and among IPV-related homicide and child death due to physical abuse. We will continue closely to monitor the trend.

Recommendations

- Train health care providers to screen and treat depression, and to screen and refer individuals at risk for suicide for appropriate care.¹
- Build systems within primary care and behavioral healthcare that both integrate care and provide follow-up for patients with a positive screening test for depression and suicide risk.¹
- Develop resources to implement community-based suicide-prevention activities that link at-risk populations with social services, health care, and opportunities for socialization.
- Develop a lifespan suicide prevention plan.
- Use state resources to support the growth of activities to reduce suicide among Oregon veterans.
- Obtain data on Oregonians who served in the regular Army, Army Reserves, Oregon National Guard and other military branches. Use these data and the suicide data to conduct epidemiological studies to better understand suicide among veterans and potentially contribute to prevention.
- Study the suicide trend in Oregon and produce detailed reports on five years of aggregated data on suicide.
- Study infant homicide and infant undetermined deaths and report to the State Child Fatality Review Team in the spring of 2010.

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Glossary

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.

Blunt instrument: A mechanism of death resulting from being struck by or crushed by blunt instruments such as clubs and bats.

Child physical abuse: It is defined as a parent or a caregiver intentionally uses physical force against a child that results in, or has the potential to result in, physical 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.

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

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

Firearm: A mechanism of death resulting from a penetrating force injury by a bullet or other projectile shot from a powder-charged gun, including handguns, shotguns, hunting rifles, and military firearms.

Homicide: A manner of death resulting from the intentional use of force or power, threatened or actual, against another person, group or community. A preponderance of evidence must indicate that the use of force was intentional.

Incident: One or more deaths committed by a person or group of persons acting at the same time and place.

IPV-related homicide: A homicide occurred in the context of intimate partner violence (IPV). IPV is actual or threatened physical aggression, sexual assault, and psychological / emotional abuse directed toward a spouse, ex-spouse, current or former boyfriend or girlfriend, or former dates. IPV-related homicides include but not limited to intimate partner homicide. For example, when a boyfriend killed his girlfriend and her child, the incident is defined as IPV-related homicide and both the girlfriend and the child are considered as IPV-related homicide victims.

Legal intervention: A death when the decedent was killed by a police officer or other peace officer (persons with specified legal authority to use deadly force), including military police, acting in the line of duty.

Manner of death and cause (or mechanism) of death matrix: Injury deaths are classified by the manner and cause of death. Example: Poisoning can be the mechanism of death in all manners of death including homicide, suicide, unintentional, and undetermined.

Mental illness (disorder): 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: Deaths involving any motorized vehicle.

Personal weapons: Deaths resulting from beating by using personal fists, feet, or hands.

Poisoning: A mechanism of death resulting from intentional or unintentional ingestion of a lethal amount of drugs, toxins, or chemical substances.

Rate: An expression of the frequency with which an event occurs in a defined population.

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.

Sharp instrument: A mechanism of death resulting from a cut and/or pierce from instruments such as knives, razors, chisels, or broken glass.

Suffocation: A mechanism of death resulting from suffocation such as hanging, strangulation.

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

Suspects: People who are suspected of having killed another person in an incident, whether intentionally or unintentionally. Persons who died in an incident who also have killed someone else are considered both a victim and a suspect.

Terrorism-related death: Homicide or suicide deaths that result from events that are labeled by the Federal Bureau of Investigation as acts of terrorism. Terrorism is a mechanism of death rather than a manner of death. The manner of death is either homicide or suicide. Terrorism-related deaths include ICD-10 codes U01 and U03.

Undetermined manner of death: A death resulting from the use of force or power against oneself or another person for which the evidence indicating one manner of death is no more compelling than the evidence indicating another manner of death.

Unintentional firearm death: A death resulting from a penetrating injury or gunshot wound from a weapon that uses a powder charge to fire a projectile when there was a preponderance of evidence that the shooting was not intentionally directed at the victim.