

Violent Deaths in Oregon: *2005*

*Oregon Department of Human Services
Office of Disease Prevention and Epidemiology*

Acknowledgements

Xun Shen, MD, MPH, Epidemiologist, Oregon Violent Death Reporting System

Lee Anna Bennett-Ashworth, Data Abstractor, Oregon Violent Death Reporting System

Mel Kohn, MD, MPH, State Epidemiologist, Principal Investigator

Lisa Millet, MSH, Project Manager

Mathew Laidler, Epidemiologist, Injury Surveillance Program

Special thanks to the Oregon Violent Death Reporting System Technical Advisory Committee for their assistance and support:

Jim Bixby, Oregon Crime Lab

Beth Carpenter, Oregon Crime Lab

Karen Gunson, MD, State Medical Examiner

Jennifer Woodward, PhD, State Registrar

David Yandell, Oregon State Police

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For more information or to receive this report in an alternate format, please contact:

Oregon Department of Human Services

Office of Disease Prevention and Epidemiology

Injury and Violence Prevention Program

800 NE Oregon Street, Suite 772

Portland, Oregon 97232

971-673-1111

Web site: <http://oregon.gov/DHS/ph/ipe/nvdrs/index.shtml>

Technical contact: Xun Shen, MD, Epidemiologist,
Oregon Violent Death Reporting System

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Violent Deaths in Oregon: 2005

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 third year.

Overview

Violent death is the second leading cause of death among Oregonians aged 1-44 and the ninth leading cause among all Oregonians. In 2005, the total of violent deaths among Oregonians was 748 (20.5 deaths per 100,000 population). Of those, 555 (74.2 percent) were deaths by suicide (15.2 per 100,000); 103 (13.8 percent) by homicide (2.8 per 100,000); 71 (9.5 percent) by undetermined manner (1.9 per 100,000); 16 (2.1 percent) by legal intervention; and three (0.4 percent) by unintentional firearm injury. Seventeen incidents involved more than one death; 11 of those were homicide-suicides.

Findings

Overall

- The number of violent deaths in 2005 declined slightly from 2004 — from 771 to 748. The reduction was primarily in the number of undetermined deaths, which declined from 92 to 71. In 2005, seven more people died by legal intervention than in 2004.
- Gunshot wound was the most common cause of death, accounting for nearly 54 percent of violent deaths, followed by poisoning (21 percent) and hanging (13 percent).

Suicide

- Suicide remains a serious public health problem in Oregon. With 555 deaths, suicide accounted for 74 percent of violent deaths in 2005.
- The older adult suicide rate was 25.5 per 100,000, which was 78 percent higher than the national average of 14.3 per 100,000 in 2004. Mental and physical health problems among older adults were frequently reported circumstances.

- While suicide rates were highest among older adults, the largest number of suicide deaths occurred among Oregonians aged 25–64. Among males, the rate of death by suicide in these age groups ranged from 21.5–35.9 per 100,000. Among females, the suicide rate ranged from 5.6–15.7 per 100,000.
- The suicide rate among Oregon’s male veterans was significantly higher than non-veteran males. The age-adjusted rates of suicide among Oregon veteran males and non-veteran males for 2000–2005 were 46.05 per 100,000 and 22.09 per 100,000 respectively.

Homicide

- Homicide deaths declined slightly from 111 in 2004 to 103 in 2005. However, 12 more women died by homicide in 2005 than in 2004. There were eleven incidents of homicide-suicide. Robbery/burglary was involved in 8 percent of the homicides.
- There were 28 (24 percent) homicides related to intimate partner violence (IPV) in 2005. A current or ex-spouse, boyfriend, or ex-boyfriend, or other partner killed 21 of 28 victims. Among the 35 female homicide victims, 13 (37 percent) were killed by a current or ex-spouse, boyfriend or girlfriend.
- The homicide rate among African-Americans (12.5 per 100,000) was five times the rate for whites (2.5 per 100,000).

Unintentional firearm deaths

- There were three unintentional firearm deaths.

System evaluation

- Less than 20 percent of the investigative reports in violent death cases included a toxicology screen for alcohol and/or drugs.
- Case information was available in the majority of incidents. Medical examiner and police reports were not found in 15 (1.9 percent) cases.

Recommendations

- Train health care providers to screen and refer individuals at risk for suicide.¹
- Increase screening and treatment of older adults for depression and suicidality in primary care settings.¹
- Build systems to provide follow-up to patients with a positive screening test in all settings.¹
- Implement community-based suicide-prevention activities that link at-risk populations with social services, health care and opportunities for socialization.
- Increase the completeness of the information for toxicological tests, suspect information, and mental health status.
- Develop a prevention plan to reduce suicide among Oregonians across the life span.
- Develop and support 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.
- Convene project Technical Advisors to identify strategies to increase access to data and improve documentation.
- Develop resources to increase the practice of performing toxicological testing of suicide victims.

Violent Deaths in Oregon: 2005

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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, or undetermined (Table 1).² 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 manner

Manner	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

Rate Calculation

Rates were calculated using bridged-race postcensal estimates of July 1, 2005, released by the National Center for Health Statistics (NCHS).³ 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 2005, there were 731 violent death incidents resulting in 748 deaths among Oregon residents. The violent death rate was 20.5 per 100,000 (age-adjusted rate = 20.0 per 100,000). Of 731 incidents, 714 incidents involved one death; 17 incidents involved more than one death and those incidents resulted in a total 34 deaths. Among the 17 incidents involving multiple deaths, 11 were homicide-suicides (Table 2).

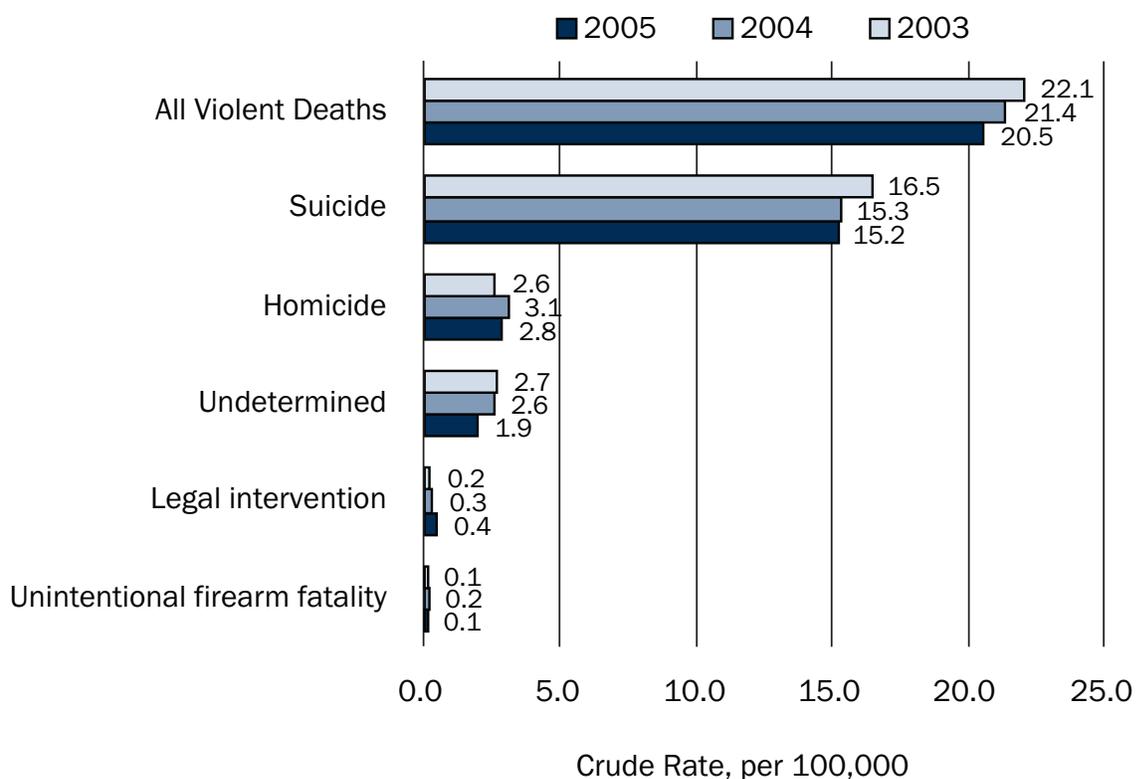
Table 2. Number of violent death incidents & deaths, Oregon, 2005

Type of Incident	Incidents	# Deaths
Unintentional Firearm Injury	3	3
Shot by self	2	2
Unknown who inflicted	1	1
Homicide	88	91
Single homicide	85	85
Multiple homicides	3	6
Suicide	542	543
Single suicide	541	541
Multiple suicides	1	2
Combined homicide-suicide	11	22
Legal intervention	15	15
Homicide-legal intervention	1	2
Undetermined	70	70
Suicide-undetermined	1	2
Total	731	748

Among those who died by violence, 555 died by suicide with a rate of 15.2 per 100,000; 103 died by homicide (2.8 per 100,000); 71 died by undetermined manner (1.9 per 100,000); 16 died by legal intervention (0.4 per 100,000); and three died by unintentional firearm injury (0.1 per 100,000). The number of violent deaths declined slightly from 771 in 2004 to 748 in 2005. This is mainly due to a reduction in the number of undetermined deaths, which declined from 92 to 71.

In contrast, seven more Oregonians died by legal intervention and 12 more women died by homicide. The state's homicide rate and undetermined death rate were slightly decreased, whereas the suicide rate remained approximately the same⁴ (Figure 1).

Figure 1. Violent death rates, OR, 2003-2005



Race, Ethnicity and Sex

Among the violent deaths, 700 (94 percent) were white; 21 (3 percent) were African-American; 15 (2 percent) were Asian/Pacific Islander; 10 (1 percent) were American Indian/Native Alaskan; and one was other race/unspecified. Forty-seven (6 percent) were of Hispanic ethnicity. The ratio of males to females was 3:1. Suicide was the predominant manner of violent death among both males and females. (Table 3). Figure 2, below, refers to the rates per 100,000 specified by race, ethnicity and sex.

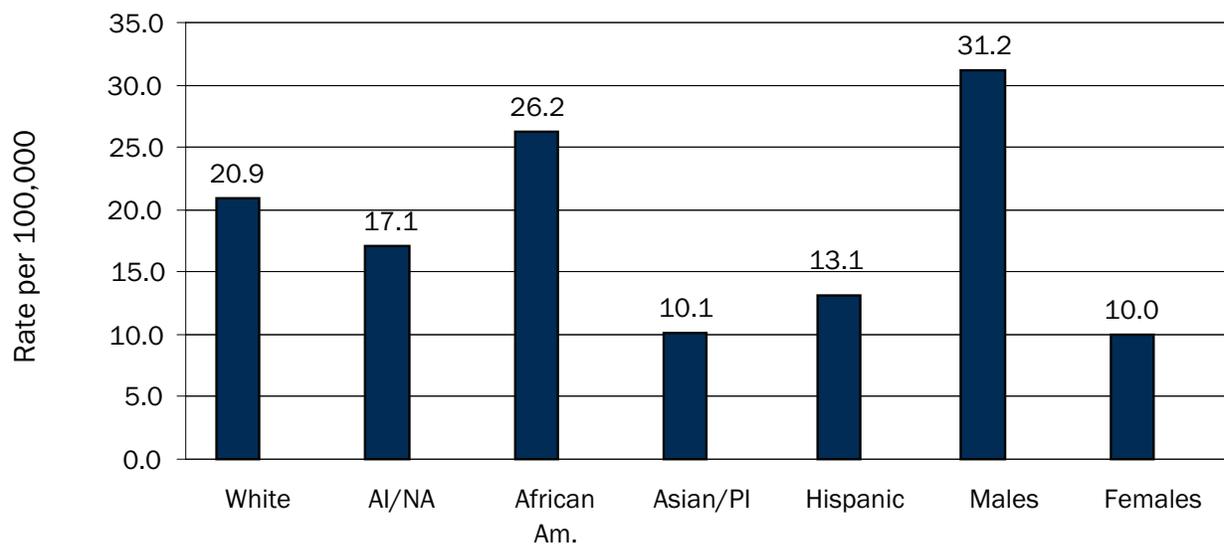
Table 3. Number, proportion & rate of violent deaths by manner & sex, OR, 2005

Manner	Sex				Total		
	Male	%	Female	%	All	%	Crude rate
Suicide	440	78	115	63	555	74	15.2
Homicide	68	12	35	19	103	14	2.8
Unintentional firearm fatality	3	0.5	0	0	3	0.4	0.1*
Legal intervention	16	3	0	0	16	2	0.4*
Undetermined	38	7	33	18	71	10	1.9
Total	565		183		748		20.5

Age-adjusted violent death rate for both sexes and all races was 20.01 per 100,000.

* Be cautious as small numbers generate unstable rates.

Figure 2. Violent death rate by race, ethnicity and sex, OR 2005



Mechanism of Death

Firearms were the mechanism of death in 54 percent of violent deaths. Other common mechanisms of death included poisoning (21 percent), suffocation (13 percent), sharp instruments (4 percent), and falls (2 percent) (Table 4).

Table 4. Mechanism of death in violent death, OR, 2005

Mechanism	Number	% of Total
Firearm	402	54
Poisoning	158	21
Hanging, Strangulation, Suffocation	94	13
Sharp instrument	26	4
Fall	16	2
Blunt instrument	14	2
Drowning	14	2
Personal weapons (fist, feet, hand)	7	0.9
Fire or Burns	3	0.4
Other transport vehicle (trains, boats)	0	0.0
MV, including buses, motorcycles	2	0.3
Shaking (shaken baby syndrome)	1	0.1
Other	6	0.8
Unknown	5	0.7

Place of Violent Incident

Of 748 violent deaths, 738 (98.6 percent) occurred in Oregon and 10 (1.4 percent) occurred outside of the state. Most incidents occurred at home (Table 5).

Table 5. Location of injury by manner, OR, 2005

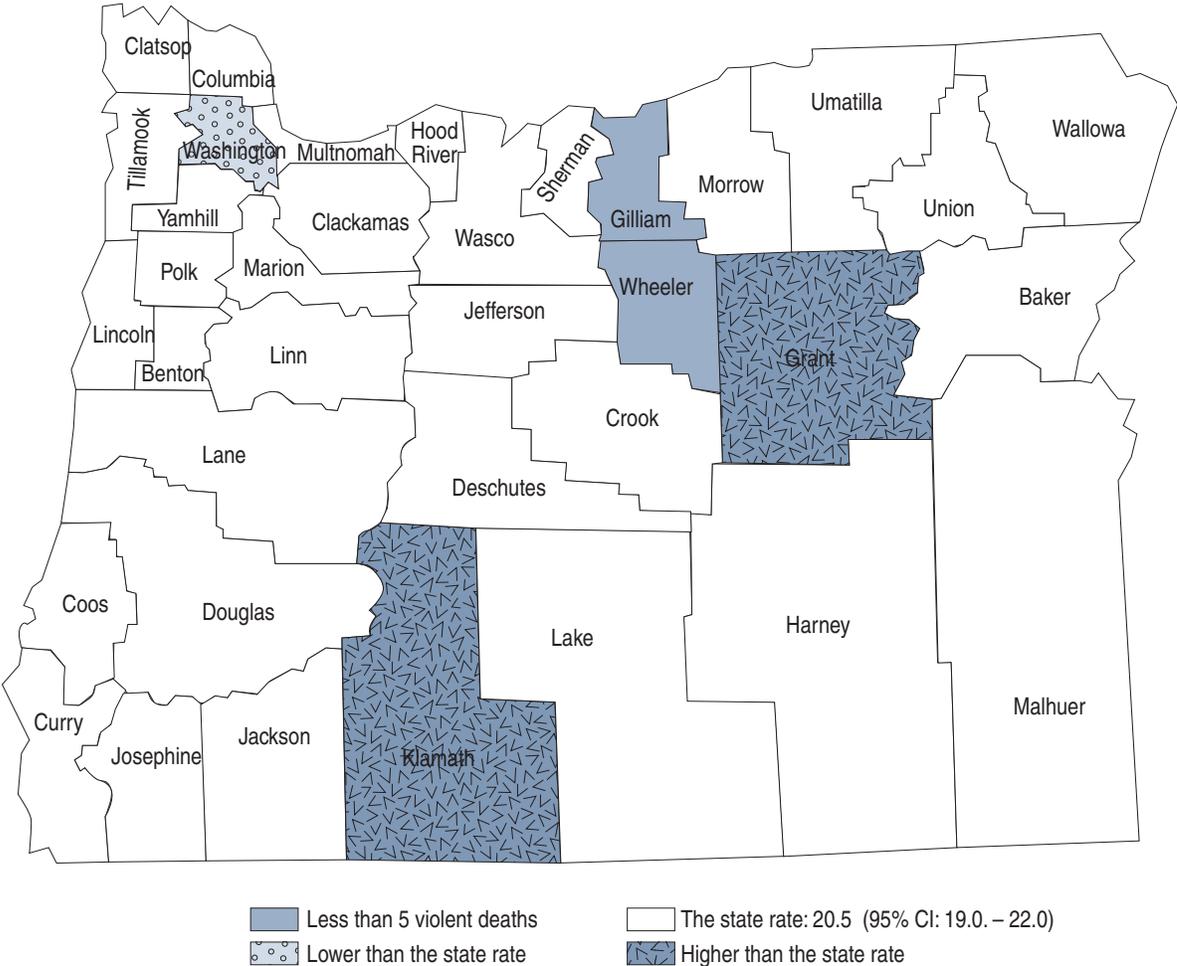
Location Type	Suicide		Homicide		Undetermined	
	No.	%	No.	%	No.	%
House / Apartment	432	78	62	60	56	79
Nature Area	33	6	8	8	8	11
Park / Public use area	29	5	6	6	1	1
Street / Road	17	3	12	12	1	1
Parking lot / Garage	13	2	5	5	2	3
Motel / Inn /Hotel	7	1	0	0	1	1
Jail	1	0	1	1	0	0
Highway	3	1	1	1	0	0
Supervised Resident Facilities	2	0	0	0	0	0
Hospital	1	0	0	0	0	0
Unknown	7	1	3	3	0	0

Nearly one half of the violent deaths occurred in four counties: Multnomah, Lane, Washington and Clackamas; each of the counties had more than 50 cases (Table 6). The violent death rates in most counties were equal to or greater than the state rate (Figure 3).

Table 6. Number and proportion of violent death by manner and county, OR, 2005

County	Violent Death		Suicide		Homicide		Undetermined	
	Total	No.	%	No.	%	No.	%	
Baker	7	6	86	1	14	0	0	
Benton	15	13	87	1	7	0	0	
Clackamas	58	42	72	8	14	6	10	
Clatsop	13	11	85	0	0	2	15	
Columbia	8	8	100	0	0	0	0	
Coos	14	11	79	1	7	0	0	
Crook	6	5	83	0	0	0	0	
Curry	10	9	90	0	0	1	10	
Deschutes	26	23	89	3	12	0	0	
Douglas	26	23	89	1	4	1	4	
Gilliam	0	0	NA	0	NA	0	NA	
Grant	5	4	80	1	20	0	0	
Harney	3	2	67	0	0	1	33	
Hood River	1	1	100	0	0	0	0	
Jackson	45	36	80	5	11	3	7	
Jefferson	7	4	57	2	29	1	14	
Josephine	18	16	89	2	11	0	0	
Klamath	23	19	82	2	9	1	4	
Lake	1	1	N/A	0	N/A	0	N/A	
Lane	87	59	68	13	15	13	15	
Lincoln	12	7	58	2	17	3	25	
Linn	23	19	82	3	13	1	4	
Malheur	6	2	33	2	33	0	0	
Marion	48	38	79	7	15	3	6	
Morrow	1	1	100	0	NA	0	NA	
Multnomah	152	96	63	33	22	19	13	
Polk	11	8	73	2	18	0	0	
Sherman	1	0	0	0	0	0	0	
Tillamook	6	5	83	0	0	1	17	
Umatilla	10	9	90	1	10	0	0	
Union	8	7	88	0	0	1	13	
Wallowa	2	1	50	1	50	0	0	
Wasco	7	5	71	2	29	0	0	
Washington	71	51	72	8	11	12	17	
Wheeler	0	0	NA	0	NA	0	NA	
Yamhill	17	13	77	2	12	2	12	
Statewide	748	555	74	103	14	71	10	

Figure 3. Violent deaths and rates by county, OR, 2005

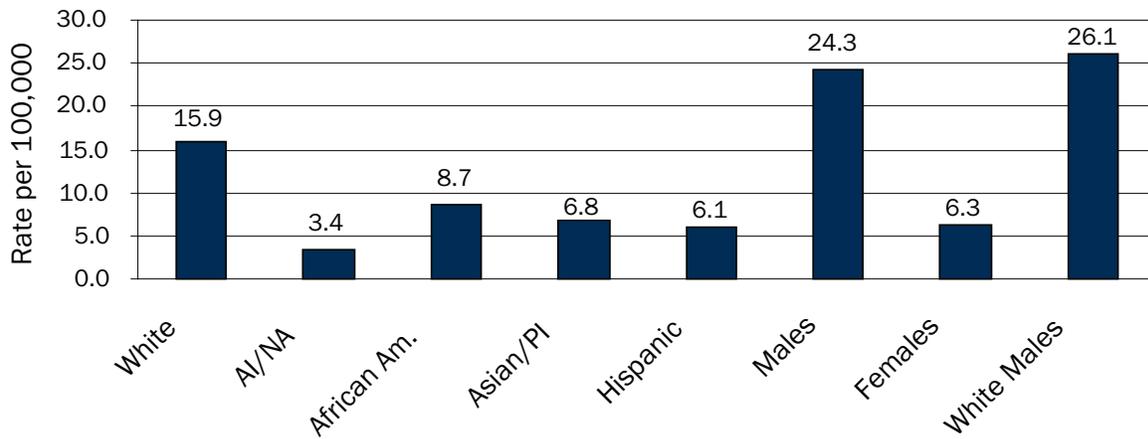


Suicides

Race, Ethnicity and Sex

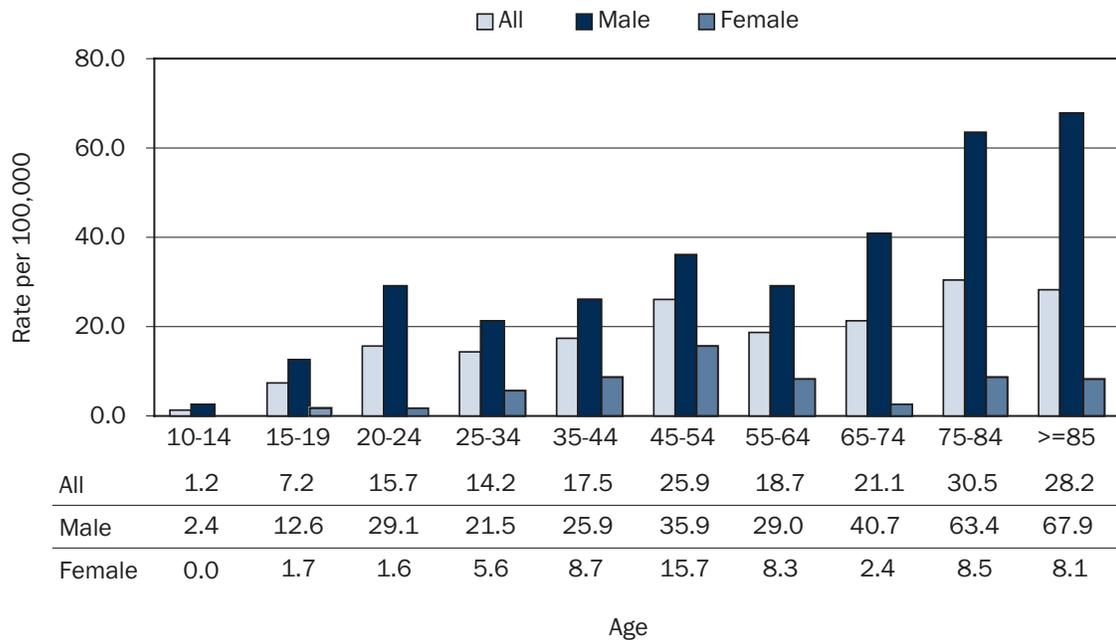
Suicide accounted for nearly 74 percent of violent deaths in 2005. Of 555 suicides, 440 (79 percent) occurred among males and 115 (21 percent) occurred among females; 534 (96 percent) were white; 10 were Asian/Pacific Islander; seven were African-American and two were American Indian/Native Alaskan. Twenty-two (4 percent) were of Hispanic ethnicity. Males were 3.9 times more likely to die by suicide than females. The suicide rate among males was 24.3 per 100,000 and the rate among females was 6.3 per 100,000. The suicide rate overall was 15.2 per 100,000. Rates were highest among white males (Figure 4).

Figure 4. Suicide rates by race, ethnicity & sex, OR, 2005



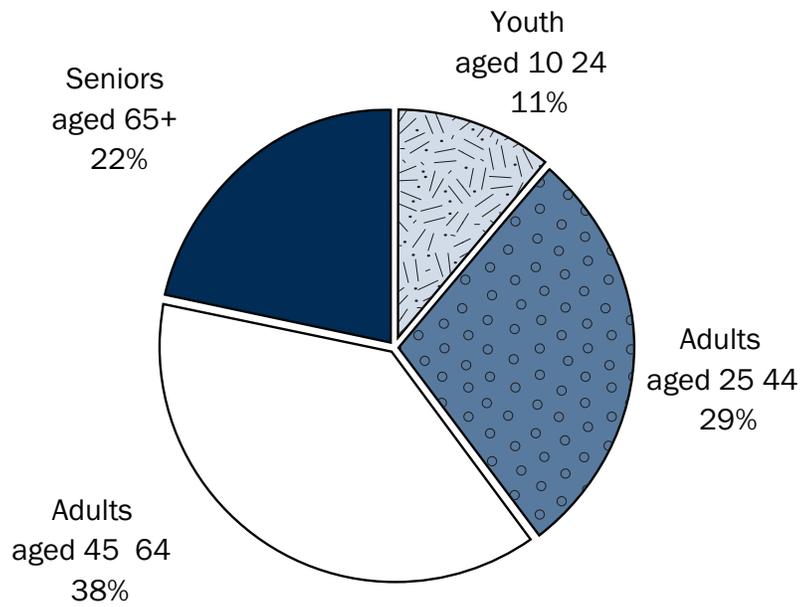
Overall, suicide rates increased with age. The age-specific rate of suicide among males rose sharply after the age of 15 years and reached the first peak between the ages of 20 and 24; the rate decreased slightly at the ages of 25-34, then rose again and reached the second peak between the ages of 45-54. The rates rose dramatically with age after age 65 years and the highest rate occurred among those aged 85 and over. The highest suicide rate among females occurred among women aged 45-54 (Figure 5). Oregon's older adult suicide rate was 78 percent higher than the national average of 14.3 per 100,000 in 2004.⁵

Figure 5. Age-specific rate of suicide, OR, 2005



The majority of suicides (67 percent) occurred among those aged 25-64 (Figure 6).

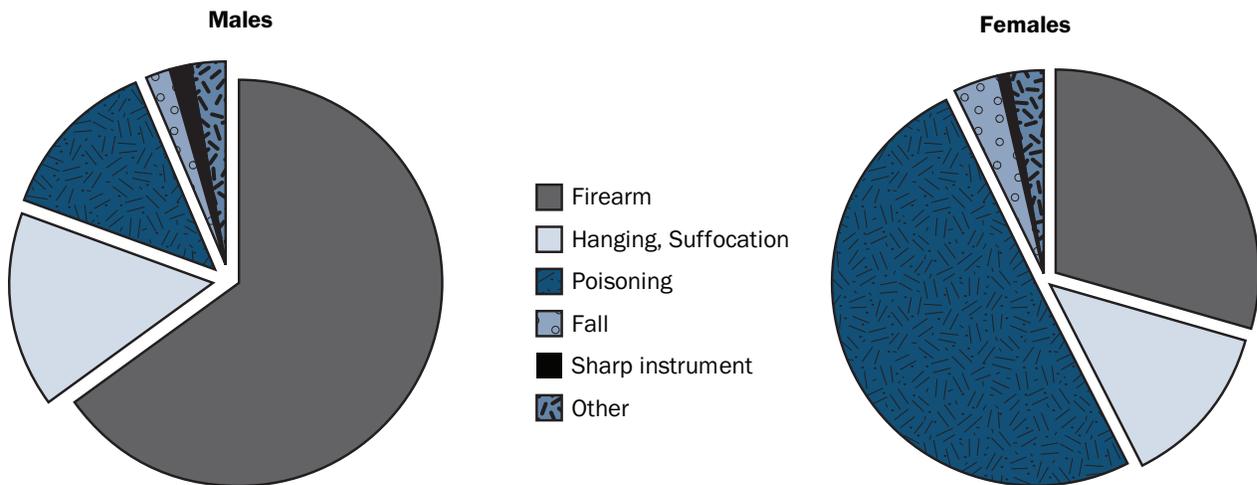
Figure 6. Frequency & percent of suicides by age group, OR, 2005



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 involved in as many as 65 percent of male deaths compared with 30 percent of female deaths. Suffocation was identified as the mechanism of death among 15 percent of male deaths and 13 percent of female deaths. Poisoning was the mechanism of death among only 13 percent of males but 50 percent of the deaths among females (Figure 7).

Figure 7. Mechanism of suicide by sex, OR, 2005



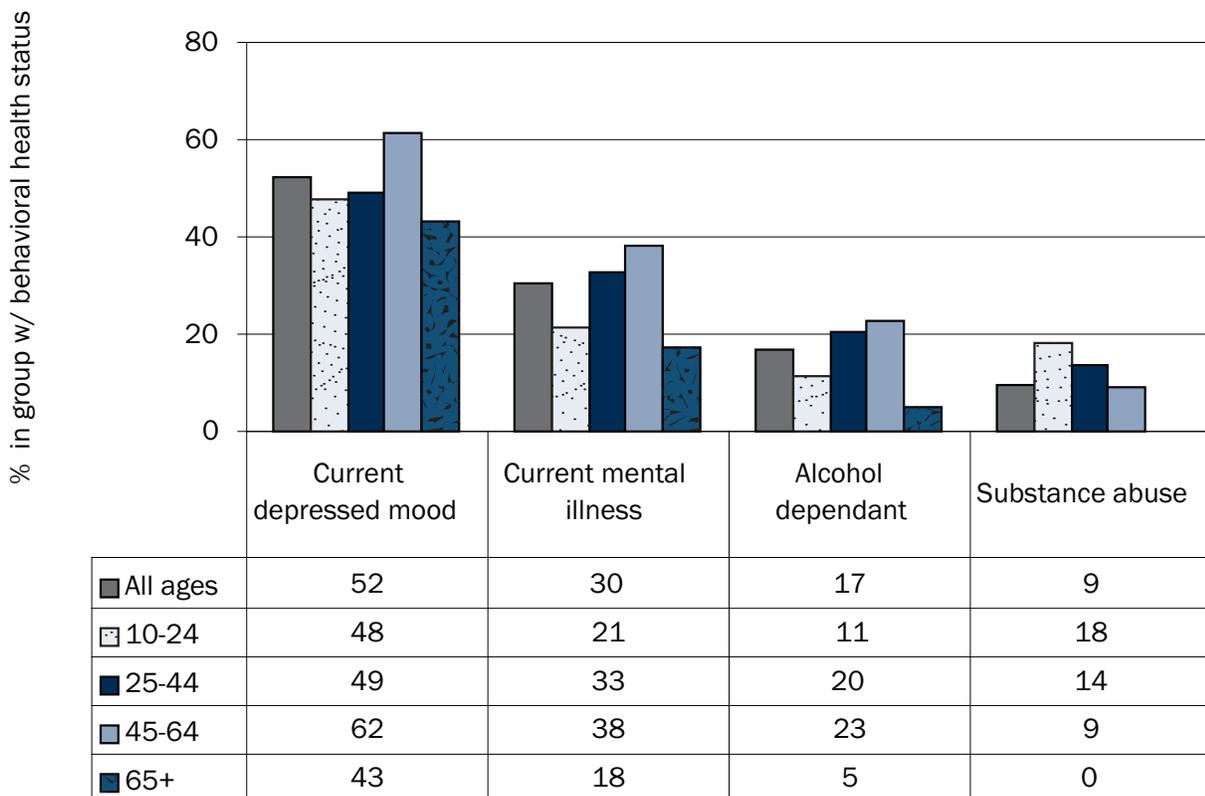
Of 321 firearm suicides, 219 (68 percent) involved a handgun and 47 (15 percent) involved a rifle. Among 115 suicide deaths caused by poisoning, 74 cases (64 percent) involved only one substance. The substances most frequently reported were prescription medications or over-the-counter drugs, which accounted for 68 percent (N=49). Another 20 (28 percent) suicide deaths involved carbon monoxide (automobile exhaust) or other vapor. Narcotics and antidepressants were respectively reported in 19 percent and 12 percent of the 74 deaths. Forty-one of 115 cases (36 percent) involved more than one substance; narcotics and antidepressants were respectively reported in 49 percent and 29 percent of those deaths.

Circumstances

Analysis of reports concerning circumstances surrounding suicides showed that regardless of age, nearly 50 percent of people who died by suicide were reported to have experienced a recent depressed mood. About 30 percent were reported to have a mental illness (Figure 8).

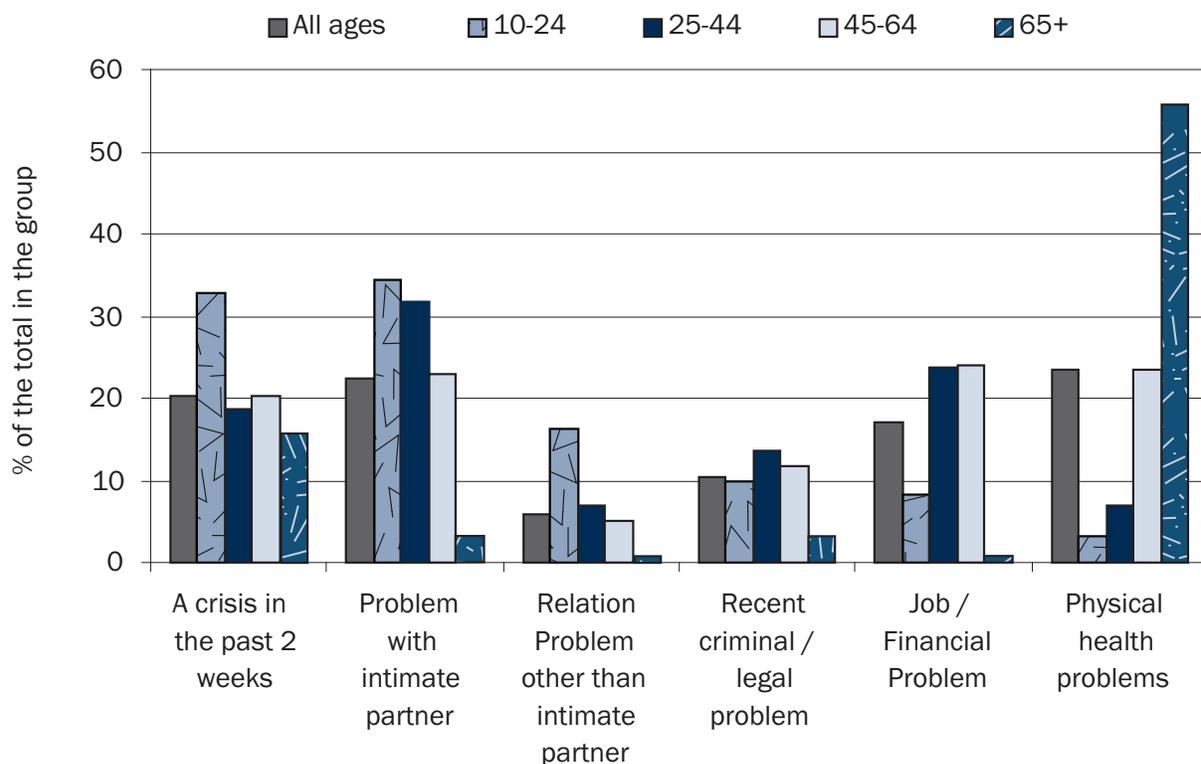
Among suicide victims with mental disorders (N=168), the most frequently reported mental health problems were depression/dysthymia (71 percent), bipolar disorder (15 percent), anxiety disorder (14 percent), and schizophrenia (7 percent).

Figure 8. Behavioral health status among suicide victims by age group, OR, 2005



One in five suicide victims experienced one or more crises within two weeks of death (Figure 9).

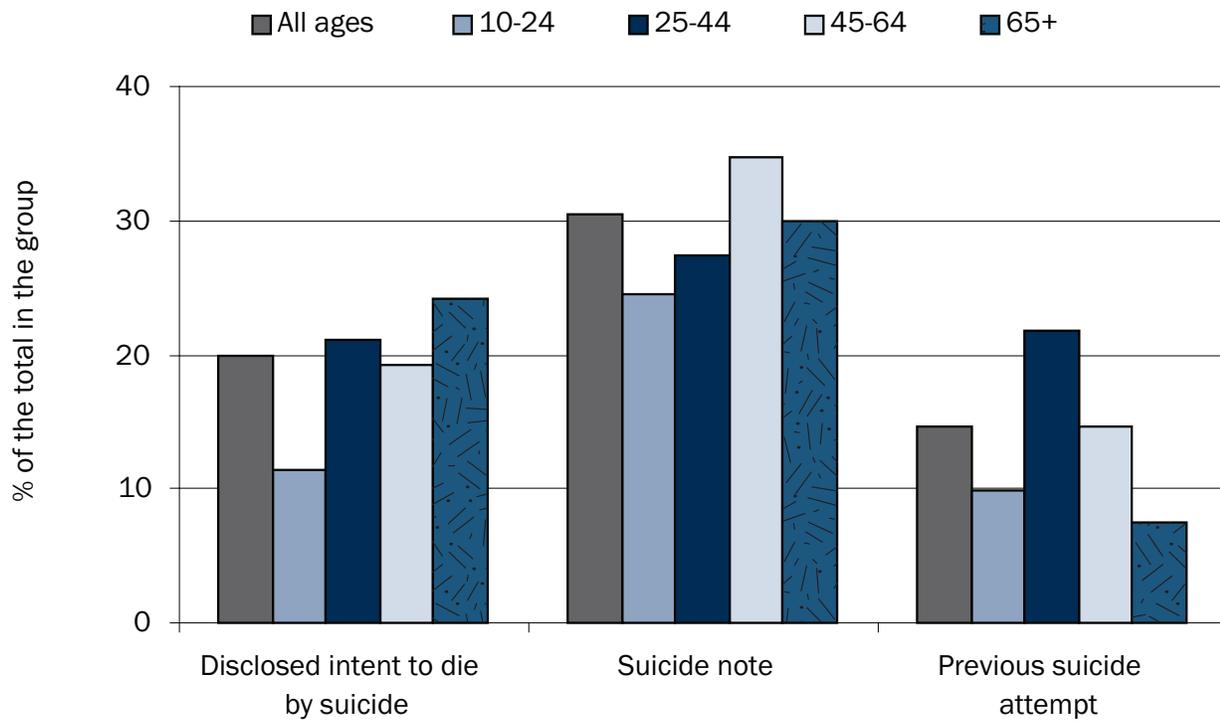
Figure 9. Factors associated with suicide by age group, OR 2005



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, 71 percent had declining health, 51 percent had a loss of autonomy or independence, and 44 percent lived alone. Eighty-six suicide victims (72 percent) were documented to have at least one medical condition. Twenty-one percent had visited a physician within 30 days. The most frequently reported physical illnesses were cancer (29 percent), chronic pain (25 percent), heart disease (10 percent), chronic respiratory disease (5 percent) and diabetes (5 percent). Forty-two (49 percent) suicide victims with physical illnesses were reported to have depressed mood. However, very few suicide victims who had physical illnesses were diagnosed as depressed or were receiving treatment. Only 12 (14 percent) were diagnosed with mental disorders (nine were diagnosed with depression/dysthymia), and only 12 (14 percent) were reported to be receiving treatment for their mental illness.

Approximately one in five adults aged 25 and older who died by suicide had disclosed suicide threats or ideation prior to their deaths (Figure 10).

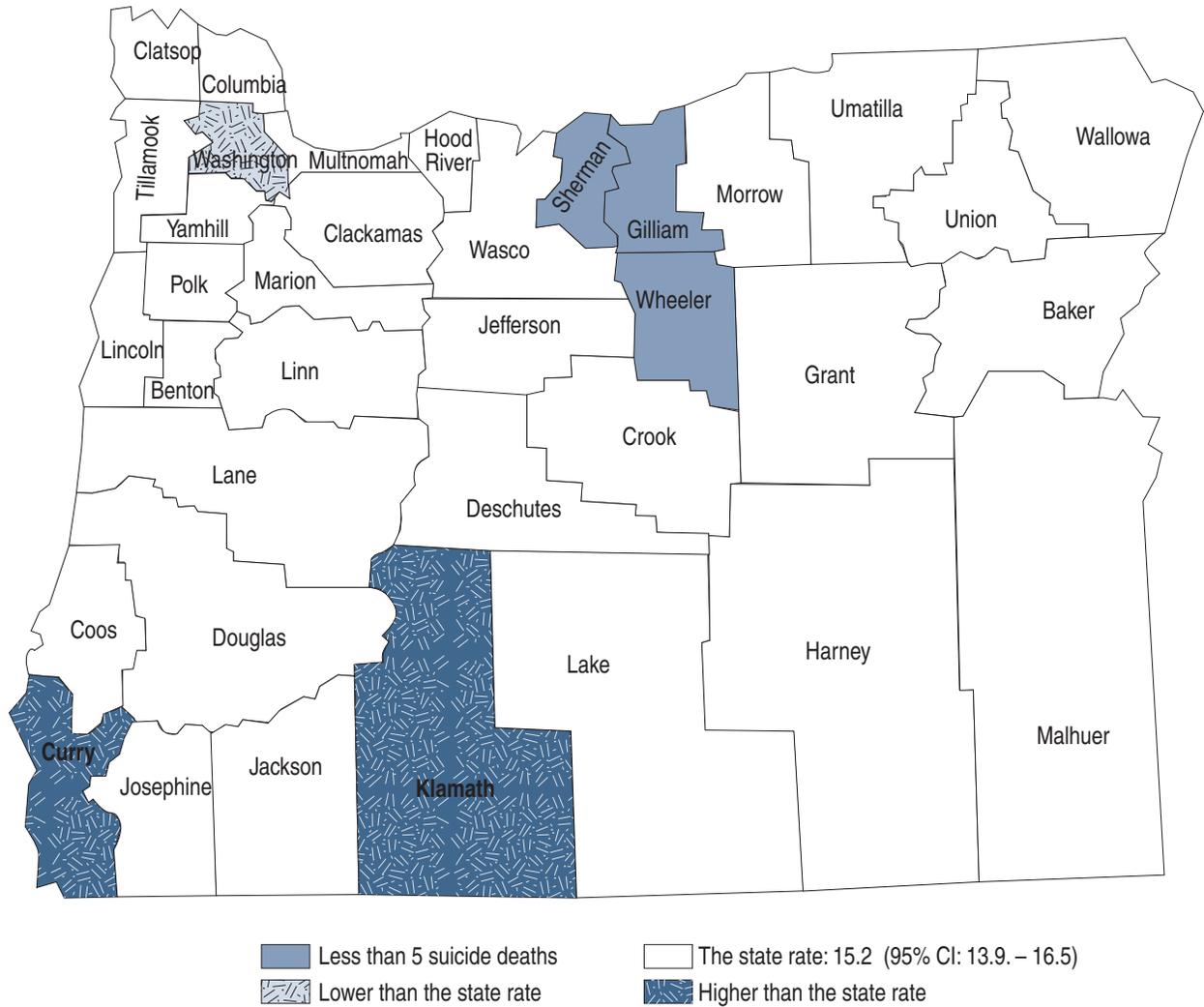
Figure 10. Suicidal behavior by age group, OR 2005



Number of Suicides and Suicide Rates by County

Curry and Klamath counties showed significantly higher rates of suicide deaths than the state rate (Figure 11).

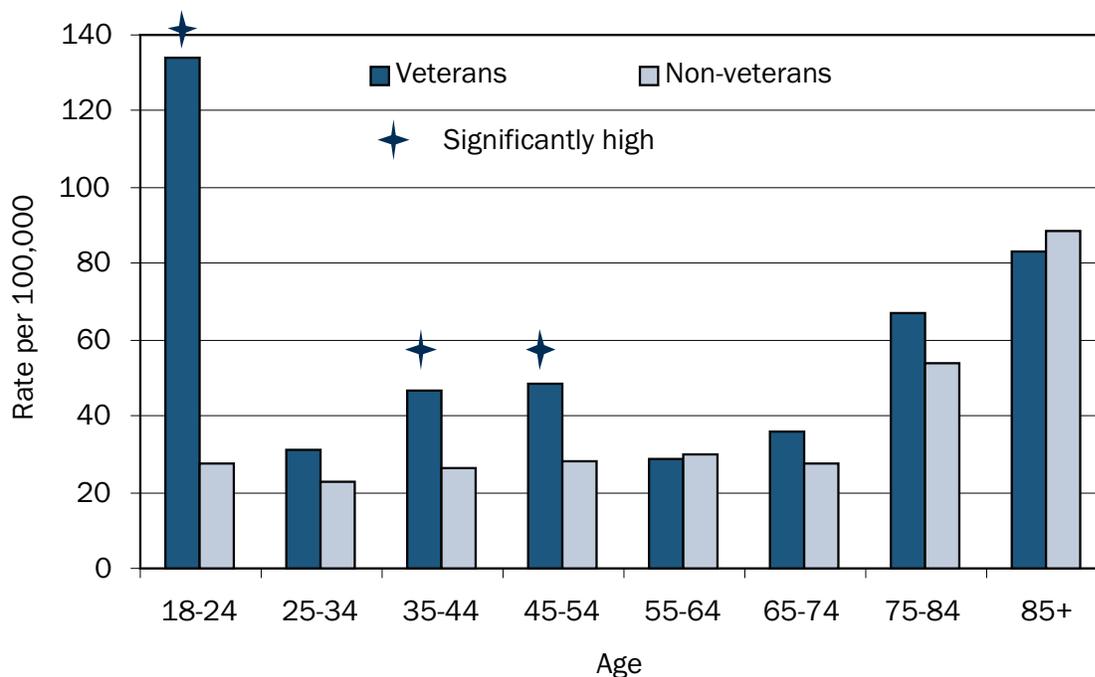
Figure 11. Suicide deaths and rates by county, OR 2005



Suicides among Veterans

In 2005, there were 153 (28 percent) suicides among veterans; 148 of them (97 percent) were male. Reviewing mortality data from 2000-2005, suicide death rates were calculated among male veterans and non-veterans based on estimates of the veteran population from the U.S. Department of Veteran Affairs and bridged-race postcensal estimates.^{6,3} The age-adjusted rates were 46.05 per 100,000 among male veterans and 22.09 per 100,000 among male non-veterans. This difference was largely driven by suicides in the 18-24, 35-44 and 45-54 age groups, for which there are statistically significant differences between the rates of suicide among veterans and non-veterans (Figure 12).

Figure 12. Age-specific suicide rates among male veterans and non-veterans, OR 2000-2005



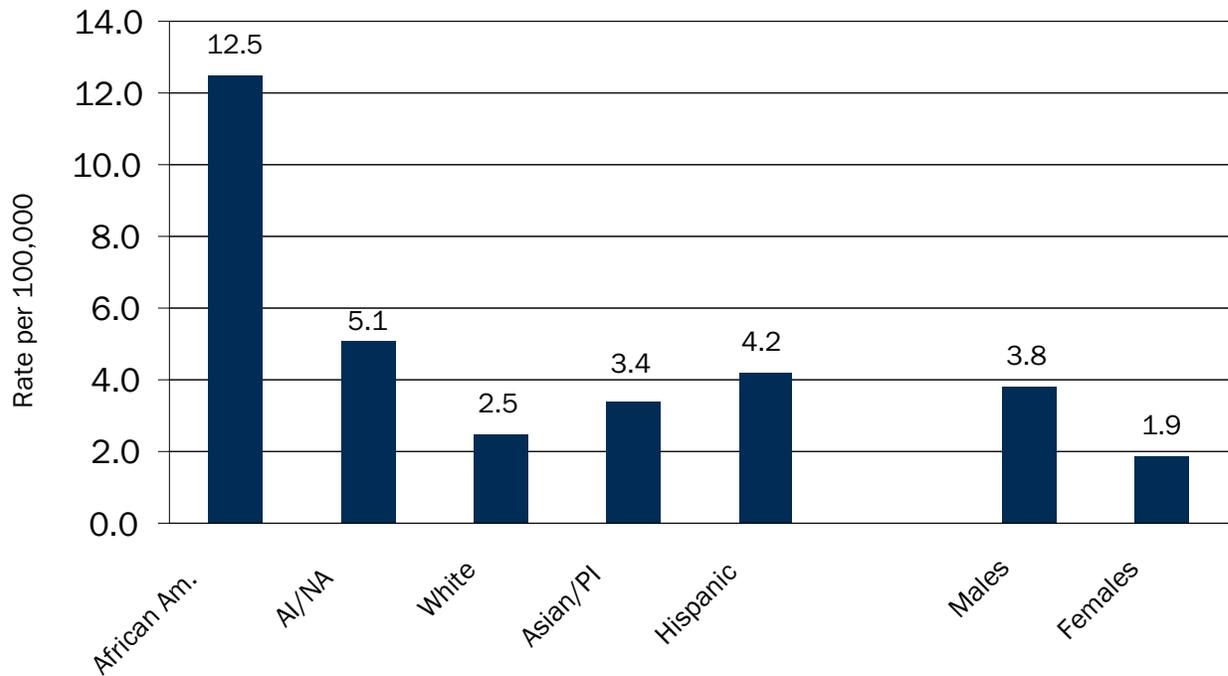
The reasons for higher rates of suicide among veterans are not clear. There are many unexplored possible contributors. For example, the difference could be due to baseline differences predisposing to suicide between those who choose to enter the armed services and those who do not, or could be due to exposure to traumatic events in combat, or a high prevalence of gun availability and familiarity among veterans. Regardless of the cause, these results argue strongly for suicide prevention efforts targeted to veterans. Two facts should prompt officials to make suicide prevention a prominent focus among older veterans: First, the high rate of suicide among veterans older than age 65 and that approximately 70 percent of older males are veterans (2000 census).

Homicides

Race, Ethnicity and Sex

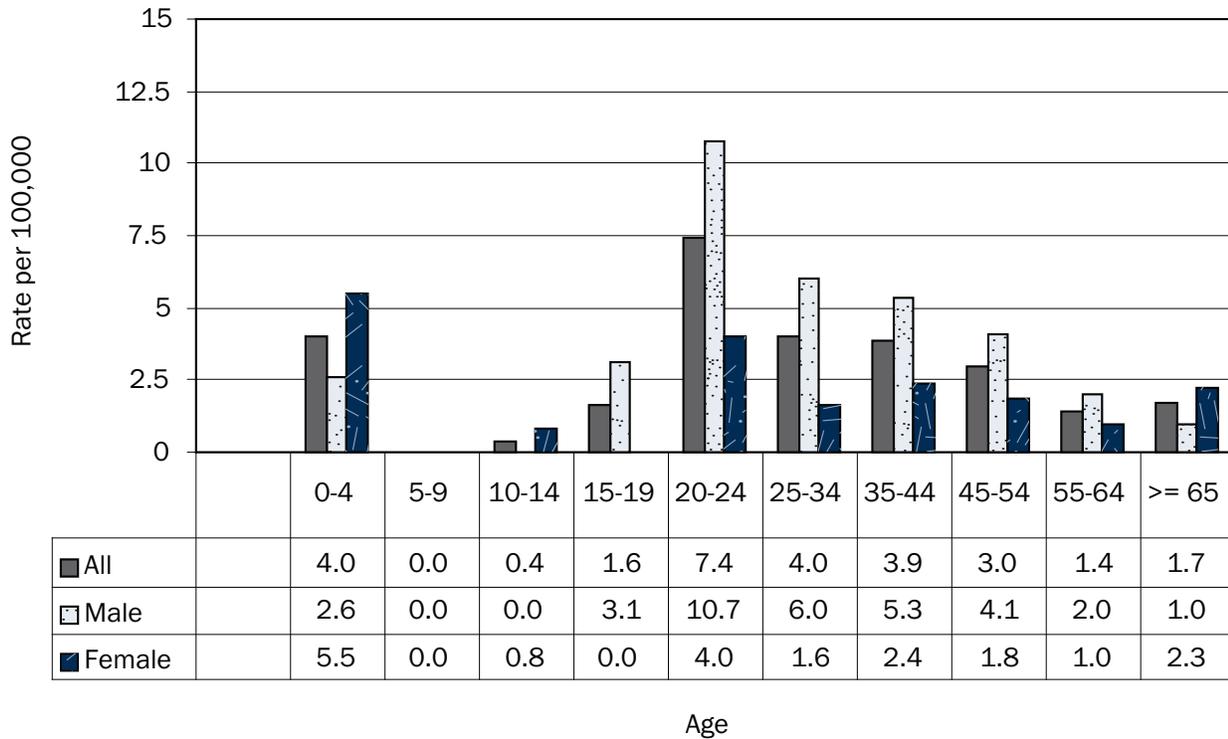
Homicide accounted for nearly 14 percent (103) of violent deaths in 2005 (Figure 13). The homicide rate among males is two times the rate of homicide among females. The homicide rate among African-Americans (12.5 per 100,000) is five times the rate for whites.

Figure 13. Homicide rate by race, Hispanic ethnicity & sex, OR, 2005



The distribution of age-specific rates of homicide is ‘u’ shaped. The first peak occurred among young children (infants) and the second peak occurred among males aged 20-24 (Figure 14). Of the 103 homicides, 10 (9 percent) were children aged less than 15 years; 23 (22 percent) were youth aged 15-24; 40 (39 percent) were young adults aged 25-44; 22 (21 percent) were adults aged 45-64 and eight (8 percent) were older adults aged 65 years and over.

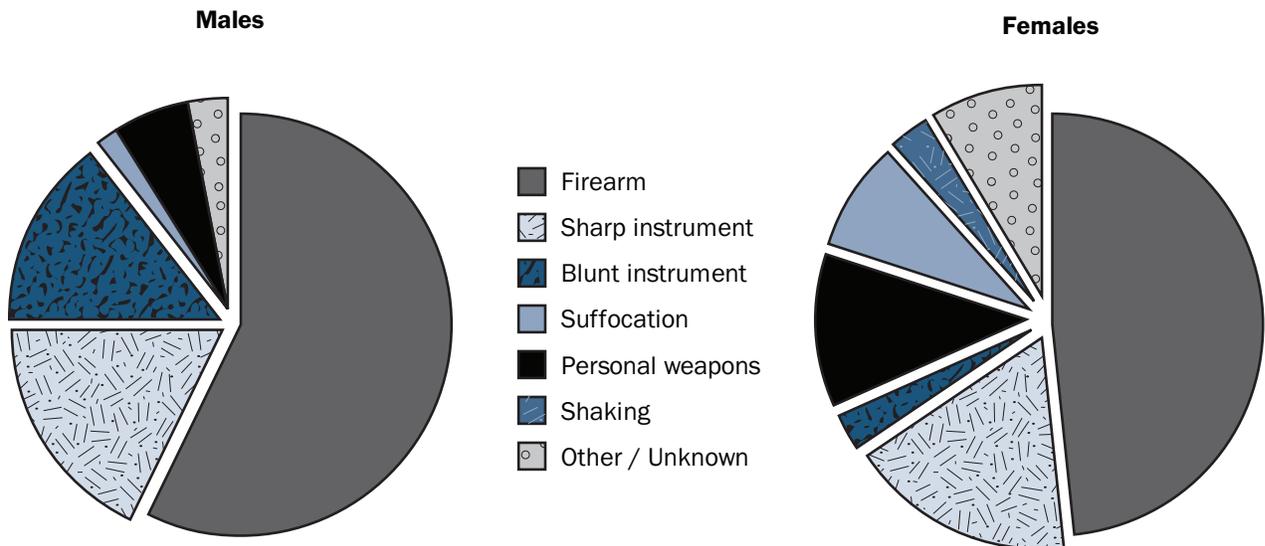
Figure 14. Age-specific rate of homicide, OR, 2005



Mechanism of Death

Firearms were involved in 56 percent of male homicides and 48 percent of female homicides. Sharp instruments were the mechanism of death in 18 percent of male and 17 percent of female homicides. Blunt instruments and personal weapons (fist, feet and hand) accounted for 20 percent of male and 11 percent of female homicides (Figure 15).

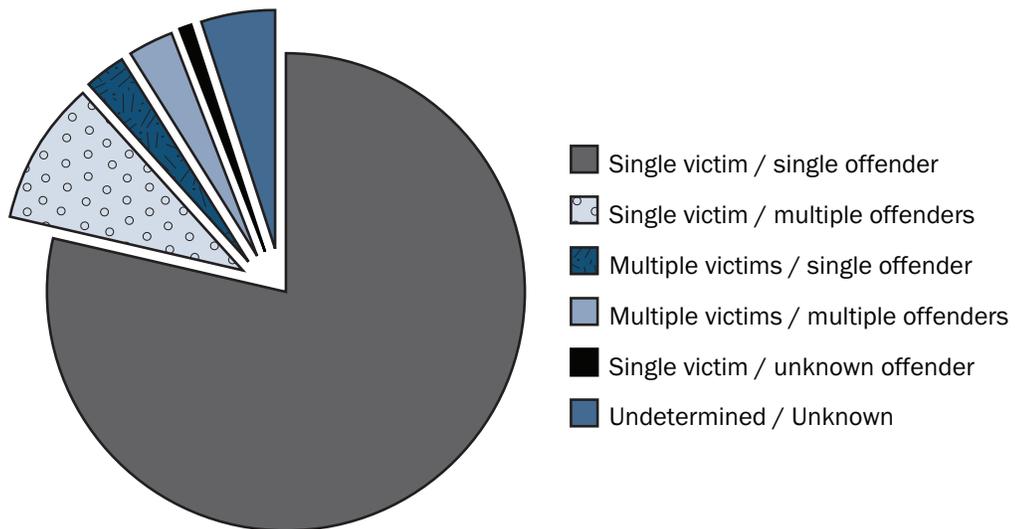
Figure 15. Mechanism of homicide by sex, OR, 2005



Circumstances

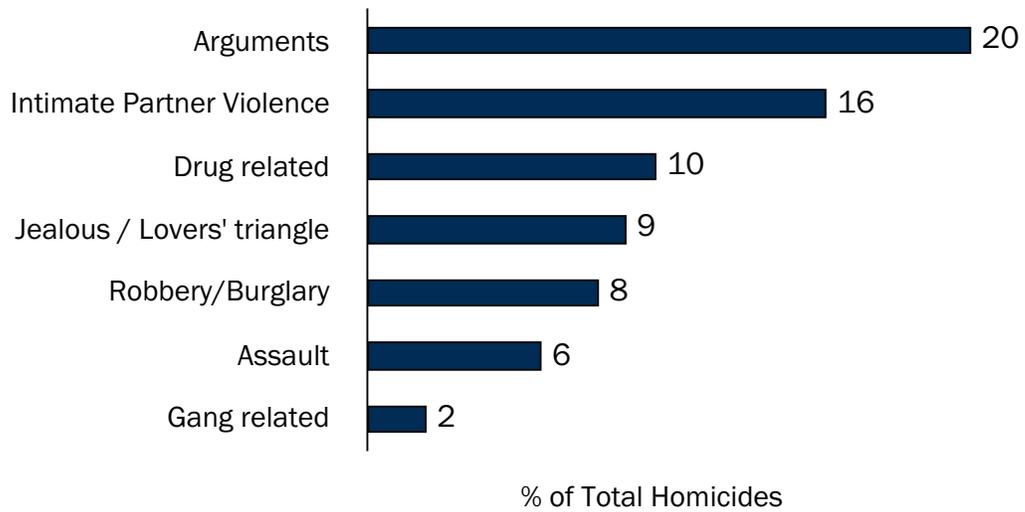
In each incident, a single suspect killed most homicide victims (78 percent); multiple suspects were involved in the deaths of 10 percent of the victims; and a single suspect killed multiple victims in 3 percent of the cases. (Figure 16).

Figure 16. Type of homicide, OR 2005



The most common circumstances surrounding homicides are shown in Figure 17.

Figure 17. Most common circumstances related to homicide, OR, 2005



Homicide Suspect Information

Based on available information on suspects, males aged 20-44 were more likely to be involved in homicide incidents. African-Americans and American Indians were represented disproportionately among suspects (Table 7).

Table 7. Demographics of suspects, OR, 2005

	Single Suspect		Multiple Suspects		OR Population
	No.	%	No.	%	%
Sex					
Male	62	89	17	89	50
Female	7	10	2	11	50
Unknown	1	1	0	0	
Race/Ethnicity					
White	37	53	4	21	91
African American	4	6	0	0	2
Asian	1	1	0	0	3
Am. Indian / Native	3	4	0	0	1
Unknown	25	36	15	79	
Hispanic	6	9	3	16	10
Hispanic, Unknown	25	36	13	68	
Age Group					
10-14	1	1	1	5	7
15-19	4	6	2	11	7
20-24	18	26	9	47	7
25-29	7	10	4	21	7
30-34	6	9	0	0	7
35-44	13	19	1	5	14
45-54	10	14	0	0	15
55-64	2	3	0	0	11
>65	3	4	0	0	13
Age Range (yr)					
	14-86		14-36		
Median Age (yr)	32		22		
Unknown	6		2		

Most homicide suspects killed victims they knew (Table 8).

Table 8. Relationship between suspect and victim, OR, 2005

Type of Relationship (Victim to suspect)	Single Suspect		Multiple Suspects	
	No.	%	No.	%
Spouse or ex-spouse	10	14	1	5
Parent	4	6	1	5
Child	5	7	0	0
Other family member	8	11	0	0
Girlfriend / Boyfriend or Ex	4	6	0	0
Acquaintance / Friend	29	41	8	42
Stranger	7	10	9	47
Other	3	4	0	0

Intimate Partner Violence (IPV) - related Homicides

A total of 28 IPV-related homicides occurred among Oregon residents in 2005. These deaths occurred among perpetrators (primary aggressors) of IPV, victims of IPV, and relatives of an IPV victim. Overall, 37% of homicides among females were related to intimate partner violence and 22% of homicides among males were related to intimate partner violence. The relationship of victim and suspect is shown in Table 9. Of 28 IPV-related homicides, the age range was from 19 to 83 years with an average age of 38 years. A total of 15 IPV-related homicides were committed by an intimate partner and there were differences observed by sex in the victim-suspect relationship. An intimate partner killed 100 percent of female IPV homicide victims while 13 percent of male IPV homicide victims were killed by an intimate partner. Twenty-six were white and three were of Hispanic ethnicity.

Table 9. Relationship of victim and suspect among IPV-related homicides by sex, OR, 2005

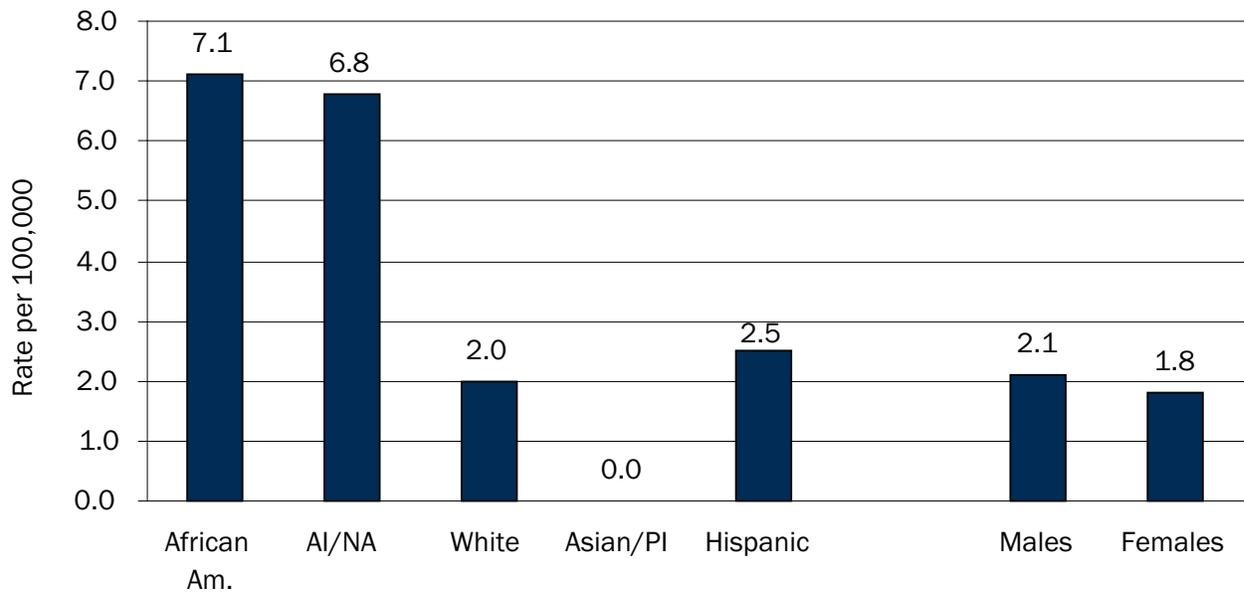
Homicide victim was killed by:	Female	Male	Total
Current spouse	9	2	11
Ex-spouse	0	0	0
Current boy/girl friend	2	0	2
Ex-boy/girl friend	1	0	1
Same-sex couple	1	0	1
Total homicides killed by an intimate partner	13	2	15
Partner's ex-partner	0	3	3
Ex-partner's or lover's current partner	0	3	3
Police officers	0	3	3
Other	0	4	4
Total homicides killed by someone other than a partner	0	13	13
Homicides related to IPV	13	15	28

Undetermined Deaths

Race, Ethnicity and Sex

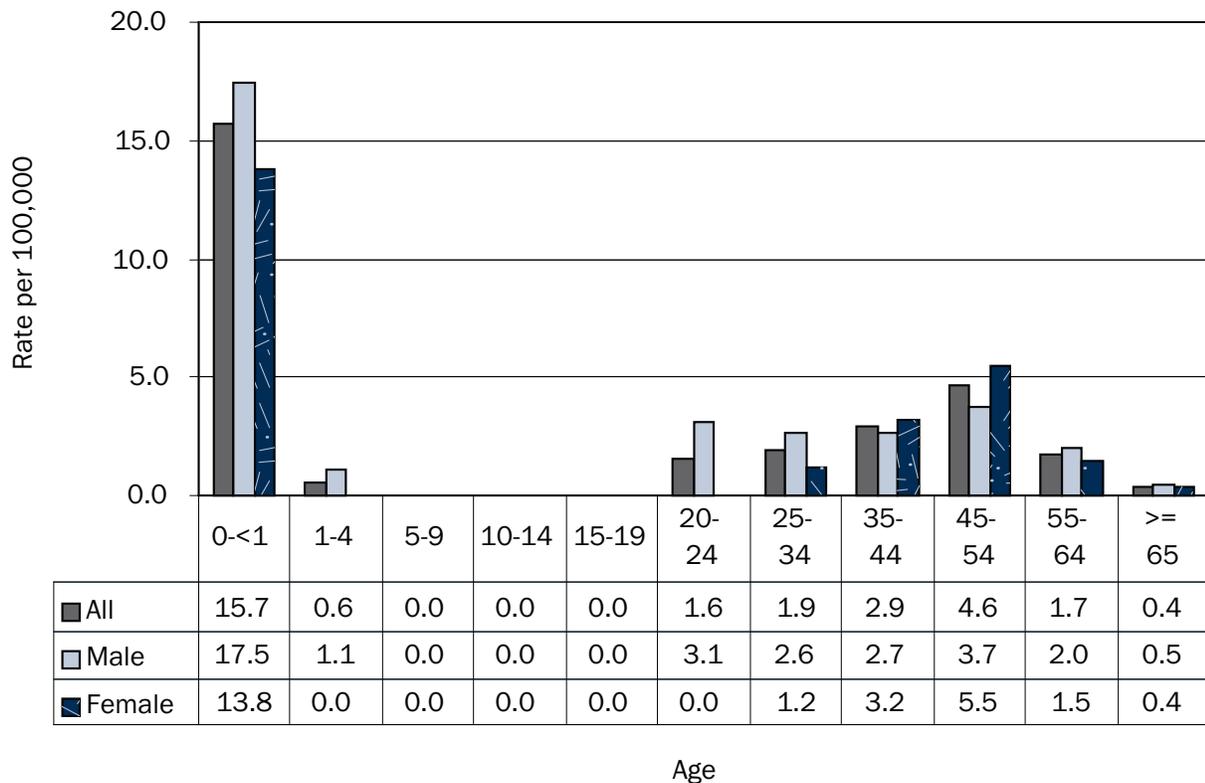
Ten percent of violent deaths were classified as undetermined manner of death in 2005. Of the 71 undetermined deaths, 38 (54 percent) were male and 33 (46 percent) were female; 63 (89 percent) were white; four (6 percent) were American Indian/Native Alaskan; four (6 percent) were African-American. Eight (11 percent) were of Hispanic ethnicity. The undetermined death rate was 1.9 per 100,000 overall. Figure 18 shows the undetermined death rate by race, ethnicity and sex.

Figure 18. Undetermined death rate by race, Hispanic ethnicity & sex, OR, 2005



Infants and young adults had the highest rates of undetermined death (Figure 19). Infant deaths accounted for 10 percent (N=7) of the deaths and adults aged 20-64 accounted for 86 percent (N=61). 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.

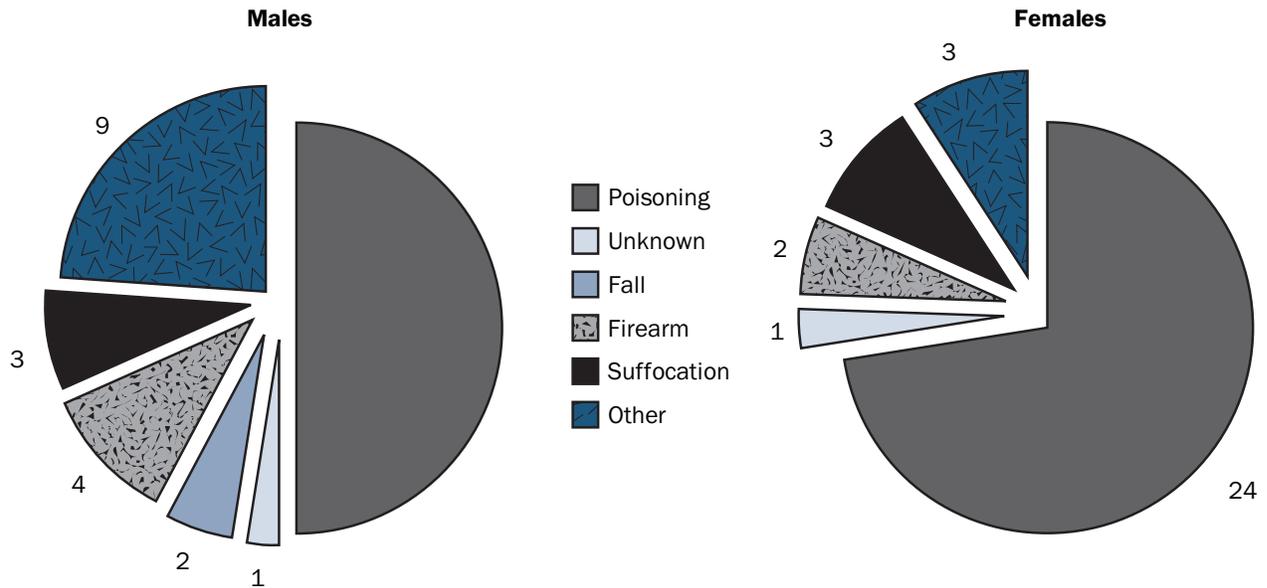
Figure 19. Age-specific rate of undetermined death, OR, 2005



Mechanism of Death

Poisoning was the mechanism of death in 50 percent of the undetermined deaths among males and 73 percent among females (Figure 20). The majority of undetermined infant deaths occurred due to suffocation (six of seven).

Figure 20. Mechanism of undetermined death by sex, OR, 2005

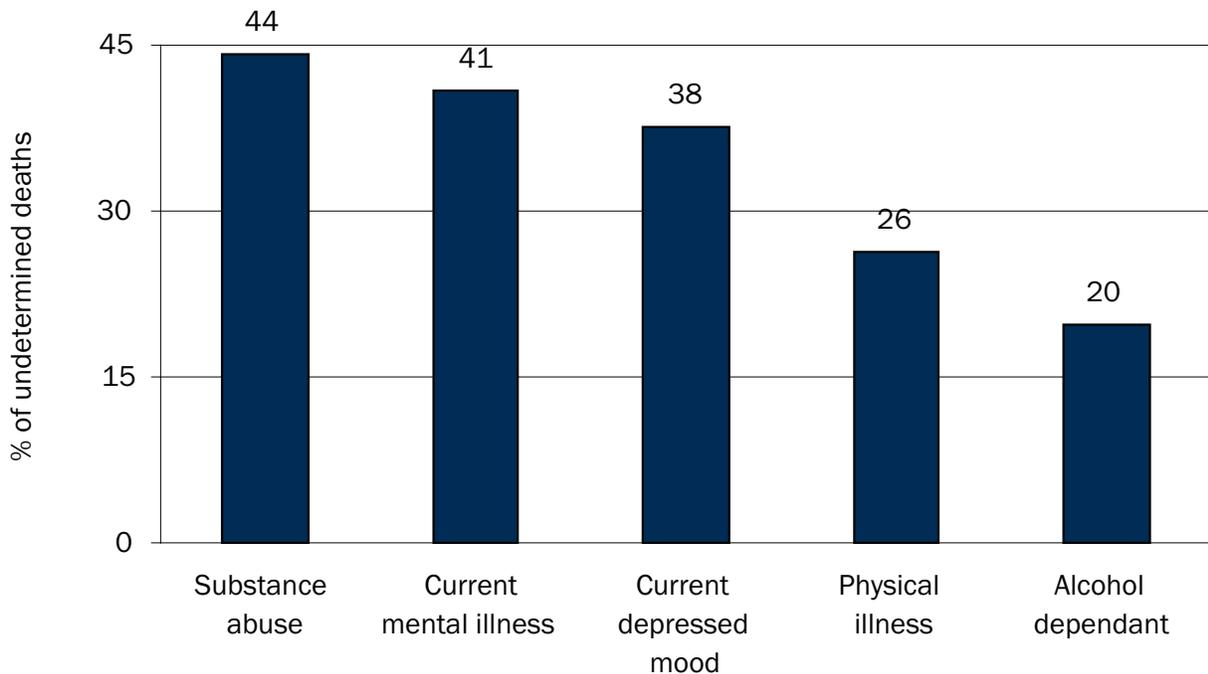


In 43 undetermined poisoning deaths, 35 cases (81 percent) involved one substance; narcotics were predominantly reported (N=26), accounting for 74 percent. Eight in 43 cases (19 percent) involved more than one substance; narcotics were involved in six of those deaths and antidepressants in two. Methadone was reported in 20 victims.

Circumstances

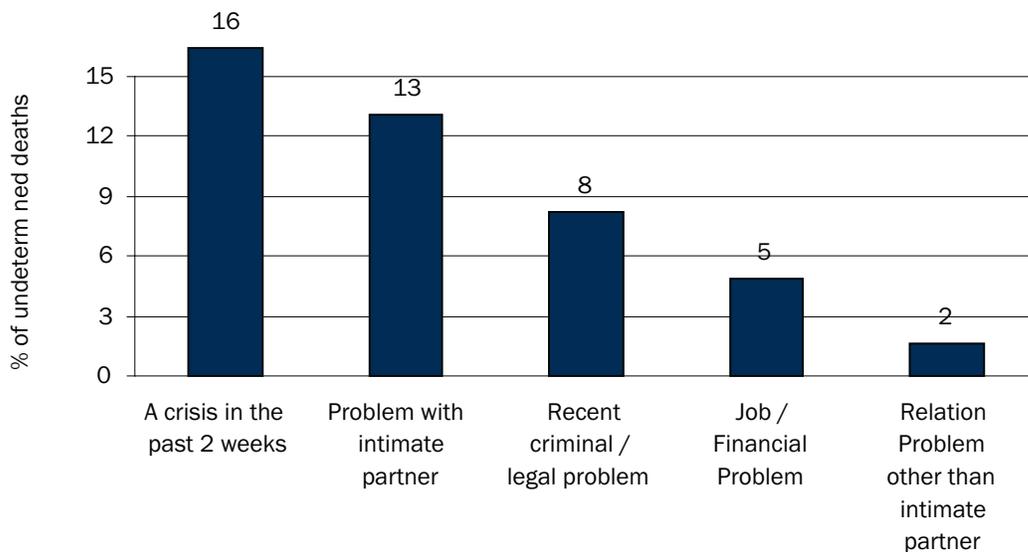
Analysis of undetermined death circumstances demonstrates that more than 40 percent of the victims abused substances; 41 percent of adults aged 20-64 had a mental illness; 38 percent experienced a recent depressed mood; 26 percent had a physical illness; and 20 percent were alcohol dependent (Figure 21).

Figure 21. Mental and physical status among undetermined deaths aged 20-64, OR 2005



Circumstances in undetermined deaths are illustrated in Figure 22 below.

Figure 22. Circumstances in undetermined adult deaths, aged 20-64, OR 2005



Data System Evaluation

Data indicate a lower-than-expected level of alcohol use in violent deaths (Table 10).

Table 10. Summary of suspected alcohol use in violent deaths, OR 2005

Manner	Suicide	Homicide	Undetermined death
# of cases with death scene investigated	499	83	66
# of cases suspected alcohol use	115	17	13
% of cases suspected alcohol use	23	21	20

Data indicate toxicological screening was not conducted in the majority of cases (Table 11). Toxicological screening for alcohol in the victim's blood was conducted in 81 of the 499 suicide cases investigated. In those 81 cases, alcohol was found in the blood of victims in 24 (30 percent) cases.

Table 11. Summary of toxicology test in violent deaths, OR 2005

Alcohol/Substance/ Drugs	Suicide			Homicide			Undetermined deaths		
	Screening	Present	%	Screening	Present	%	Screening	Present	%
Alcohol present in the blood	81	24	30	24	10	42	16	3	19
Amphetamines	32	2	6	19	3	16	11	2	18.
Cocaine	32	1	3	18	5	28	10	1	10
Marijuana	32	1	3	18	0	0	10	0	0
Opioid	32	2	6	18	1	6	16	1	6
Antidepressant drug	31	3	10	18	0	0	11	1	9
Other substances (drug)	44	26	59	19	4	21	15	7	54

The data sources and data in the system were studied to determine the completeness of the data. Overall, 80 percent of violent death cases in the system were documented through both Medical Examiner (ME) and police reports (PR); nearly 18 percent had either an ME or a PR; and in 15 cases (2 percent) the system does not contain information from ME and PR (13 among them died outside of the state). (Table 12).

Table 12. Data sources where cases information was found, by manner, OR, 2005

Manner	(Abstractor)*	ME & PR		ME only		PR only		Neither ME nor PR		Out of state	
		#	%	#	%	#	%	#	%	#	%
Suicide	599	483	81	25	4	79	13	12	2	10	2
Homicide	111	80	72	17	15	11	10	3	3	3	3
Undetermined	78	66	85	6	8	6	8	0	0	0	0
Legal Intervention	19	15	79	3	16	1	5	0	0	0	0
Unintentional Firearm	3	2	67	1	33	0	0.0	0	0	0	0
Total	810	646	80	52	6	97	12	15	2	13	2

* Abstractor defined intent was assigned by ORVDRS personnel based on review of death certificates, police reports, and medical examiner information. In some cases, the intent or manner of death may vary from the manner of death assigned by ICD-10 code on death certificates.

Detailed circumstances of incidents were found in 84 percent of the 646 cases from ME and PR sources (Table 13).

Table 13. Circumstances of incident found by data sources, OR, 2005

Manner (Abstractor)*	Total	ME & PR		ME only		PR only		Neither ME nor PR	
		#	%	#	%	#	%	#	%
Suicide	483	413	86	28	6	25	5	17	5
Homicide	80	60	75	3	4	11	14	6	8
Undetermined	66	52	79	6	9	3	5	5	8
Legal Intervention	15	15	100	0	0	0	0	0	0
Unintentional Firearm	2	1	50	0	0	0	0	1	50
Total	646	541	84	37	6	39	6	29	5

Although several data sources provided homicide suspect information, the data available from these cases were incomplete. Table 14 provides information on the data sources where suspect information was available.

Table 14. Percentage and number of cases where suspect information was available by data source, OR, 2005

Manner (Abstractor)	Total cases	ME & PR & SHR		Two sources		ME only		PR only		SHR only	
		#	%	#	%	#	%	#	%	#	%
Homicide	126	41	33	57	45	10	8	11	9	6	5
Legal Intervention	29	3	10	20	69	3	10	3	10	0	0

Table 15 illustrates the completeness of selected suspect variables by data source.

Table 15. Incomplete information for suspects by selected variable and data source (N=155), OR, 2005

Variable	ME		PR		SHR	
	# Incomplete	%	# Incomplete	%	# Incomplete	%
Sex	64	41	41	27	91	59
Age	139	90	70	45	100	64
Race	75	48	79	51	105	68
Hispanic	130	84	82	53	105	68
Victim-Suspect Relation	83	54	65	42	101	65

Discussion

Data pertaining to the characteristics of victims and suspects, main circumstances surrounding violent incidents, and relationships between victims and suspects are relatively consistent with data from previous years.

In particular, data from 2003-2005 demonstrate suicide remains a serious public health problem in Oregon. Some circumstances of persons who died by suicide differ among age groups. It is clear, however, a plan to address death by suicide across the life span is needed.

Frequently reported circumstances in the lives of suicide victims included mental and behavior health problems, interpersonal relationship problems, and current criminal/legal problems among young people, and mental and physical health problems among older adults. These results emphasize the potential and need for screening and assessment referrals for youth in juvenile justice and for young adults in corrections, as well as screening, assessment and treatment in primary care settings for older adults.

The data indicate a high association between suicide and untreated behavioral health issues. Addressing behavioral health is essential to preventing suicide. Integrating primary care and behavioral health care would increase diagnosis and treatment of behavioral health care problems, particularly among youth and older adults. Those who died by suicide appear to have had high rates of known but untreated behavioral health problems. Follow-up and outreach activities directed toward persons who fail to engage in care could improve the rate of treatment.

The strategies in the state's recently developed Older Adult Suicide Prevention Plan address the factors identified in these data among older adults.¹ The state would benefit from investing in staff and resources to implement the plan and evaluate the effectiveness of the proposed interventions.

The state also has established a suicide-prevention program to address youth suicide and resources — including dollars from the state General Fund, federal grants, foundations, local investments and contributions from volunteers — have spurred the growth of additional prevention activities around the state.

As this report observes, however, the majority of deaths due to suicide occur among adults aged 25-64, making it clear the state needs to develop and implement a prevention plan across the life span.

The reasons for higher rates of suicide among veterans are not clear. There are many unexplored possible contributors. For example, the difference could be due to baseline differences predisposing to suicide among those who enter the armed services and those who do not; exposure to combat or combat-related trauma; or a high prevalence of gun availability and familiarity among veterans. Suicide deaths among veterans also may be elevated due to well-known stressors that exist in the lives of military personnel as they

are discharged from active duty to civilian status. To address these stressors, which may in turn reduce suicidal behavior, veterans need primary care, behavioral health care and veterans' services.

The state is acting to assist all veterans as they are discharged from service in Iraq and Afghanistan. Oregon's National Guard has implemented an Integration Team that contacts and works with each veteran as he or she discharges to civilian status.⁸ In addition, the Governor has signed a bill that will provide tax incentives to physicians who enroll and treat veterans in primary care.

The homicide rate in Oregon is lower than the national average. An average of 100 Oregonians die by homicide each year. Twenty-seven percent of homicide deaths are directly caused by or associated with intimate partner violence. IPV-related homicides are a very small portion of a much larger problem of IPV endemic in Oregon. The annual cost of health care and behavioral health care for victims of IPV has been estimated conservatively to cost the state more than \$35 million annually.⁷ Prevention strategies are currently emerging in the literature and should be considered by the state and local communities.

Data collection for this data system is dependent on collaboration among public health, law enforcement and medical examiners. Each contact with a partner is an opportunity to strengthen this collaboration. In addition, the completeness of the variable sets within the system is dependent upon the information documented in law enforcement and medical examiners reports. Much can be done to increase the awareness of the project among these professionals throughout the state. Project staff can work with the State Medical Examiner to insert information on the system into training provided to deputy medical examiners.

It is important to continue to improve the collaboration among public health, law enforcement and medical examiners. To enhance data quality, it is also necessary to improve the reporting of violent incidents from data sources.

Recommendations

- Train health care providers to screen and refer individuals at risk for suicide.¹
- Increase screening and treatment of older adults for depression and suicidality in primary care settings.¹
- Build systems to provide follow-up to patients with a positive screening test.¹
- Implement community-based suicide-prevention activities that link at-risk populations with social services, health care, and opportunities for socialization.¹
- Increase the completeness of the information for toxicological tests, suspect information, and mental health status.

- Develop a prevention plan to reduce suicide among Oregonians across the life span.
- Develop and support 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.
- Convene project Technical Advisors to identify strategies to increase access to data and improve documentation.
- Develop resources to increase the practice of performing toxicological testing of suicide victims.

Conclusion

The ORVDRS provides an ongoing data source for information on violent deaths that has not been available in the past. As a new system, it is yet in early phases of development. ORVDRS is committed to sharing its findings and working with other partners to prevent violence and reduce violent deaths in Oregon. Continued data collection will increase the knowledge of violence and enable officials to generate critical violence prevention strategies. ORVDRS is dependent upon those partners to furnish data and assist in evaluation and improvements to the system. In this collaborative spirit, and in an effort to stimulate further development of prevention strategies, program findings and recommendations will continue to be disseminated to academia, law enforcement and communities. In Oregon's fifth year we anticipate working with partners on the problems of adult suicide, older adult suicide and suicide among veterans. In the end, these data are only the starting point for action to prevent violence.

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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.

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. Homicides include ICD-10 codes X85-X99, Y00-Y09 for individuals less than 1 year of age, and Y87.1 for individuals more than 1 year of age.

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

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. Legal intervention excluding executions include ICD-10 codes Y35.0-Y35.4 and Y35.6-Y35.7 for individuals less than 1 year of age and Y89.0 for individuals more than 1 year of age.

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.

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.

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 for individuals less than 1 year of age and U02 for individuals more than 1 year of age.

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. Undetermined deaths include ICD-10 codes Y10-Y-34 for individuals less than 1 year of age and Y87.2 and Y89.9 for individuals more than 1 year of age.

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. Unintentional firearm deaths include ICD-10 codes W32-W-34 for individuals less than 1 year of age and Y86 determined due to firearms for individuals more than 1 year of age.

