



**COLORADO**

Department of Public Health & Environment

# Violent Deaths in Colorado: Health Statistics Region 11, 2010-2014

Center for Health and Environmental Data

Office of E-Health and Data

Registries and Vital Statistics Branch

Colorado Central Cancer Registry (CCCR)

Colorado Responds to Children With Special Needs (CRCSN)

Colorado Violent Death Reporting System (CoVDRS)

Vital Statistics Program

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## Introduction

In the United States, approximately 55,000 people die annually as a result of violence<sup>1</sup>. Nationally, violent death is estimated to cost \$107 billion a year in medical care expenses and lost productivity, mentally and economically affecting millions of people<sup>2,3</sup>. With both suicide and homicide consistently ranking in the top four leading causes of death, especially in younger age groups, violent death remains at the forefront as a public health concern<sup>1</sup>. Violent deaths often vary in both magnitude and nature, based on the geographic region and local community.

In an attempt to better understand this issue, violent deaths can be analyzed regionally using data from the Colorado Violent Death Reporting System (CoVDRS). The CoVDRS is an enhanced public health surveillance system designed to obtain a complete census of violent deaths in Colorado, and was implemented in 2004. Colorado is one of 42 states currently participating in the broader National Violent Death Reporting System (NVDRS), which is maintained and funded by the Centers for Disease Control and Prevention (CDC). The CoVDRS collects data from multiple sources including death certificates, coroner/medical examiner reports, and law enforcement investigations, which allows for greater case detail than death certificates alone.

This report focuses on profiling violent death in Colorado Health Statistics Region (HSR) 11. Included in HSR 11 are Jackson, Moffat, Rio Blanco and Routt Counties. Jackson, Moffat, and Rio Blanco counties are categorized as frontier, while Routt County is categorized as rural<sup>4</sup>. The report provides descriptive information using CoVDRS surveillance data from 2010 to 2014 and includes trends, and circumstances surrounding violent death in this region. The purpose of this report is to increase violent death awareness, and to gain a better understanding of regional violent death in HSR 11. The information presented in this report may be used to promote prevention and intervention efforts aimed at decreasing the impact of violent death in local and regional communities.

## Methods

Data for this report were obtained from the CoVDRS database and include homicide, suicide, and unintentional firearm deaths that occurred in Colorado among residents from 2010 to 2014, excluding legal intervention deaths. Deaths were selected for inclusion in the CoVDRS based on either the indication of violent death as the manner of death on the death certificate or International Classification of Disease, 10th Revision (ICD-10)-coded underlying cause of death as reported on the death certificate<sup>5</sup>. A full description of the data collection processes of the NVDRS is provided elsewhere<sup>6</sup>. Circumstances associated with most violent deaths were obtained through information contained in the death certificates, coroner/medical examiner investigation and autopsy reports, as well as the law enforcement investigation reports.



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Violent deaths were analyzed by health statistics region (HSR), lethal means, victim circumstances, and toxicology. For this report, lethal means of suicide are reported as: firearm, hanging, poisoning, and other (sharp instrument, fall, etc.). Place of injury is presented as six location types and represent the location where the victim inflicted the injury that eventually led to their death. Injury location is not necessarily the location of death, for example if the victim was transported to the hospital before death. Violent deaths are presented as counts, percentages or as a mortality rate (frequency of death per 100,000 population) with the ninety-five percent (95%) confidence interval.

Population estimates used in computing mortality rates are based on 2014 estimates from the State Demography Office, Colorado Department of Local Affairs. Age-adjusted suicide rates were calculated using the direct method and standardized according to the 2000 United States standard population. To calculate violent death rates and frequencies by geographic location within the state, counties in Colorado were categorized by Health Statistics Region (HSR), a method often used to examine regional differences for various health indicators within Colorado.

## Results

**Violent Death Rates** Table 1 presents the violent death counts and age-adjusted rates for both HSR11 and Colorado as a whole. Between 2010 and 2014, the age-adjusted suicide rate decreased, from 34.8 per 100,000(n=17) to 27.9 per 100,000(n=13), respectively (data not shown). In HSR11, the age-adjusted suicide rate for males is significantly greater than for females, 39 deaths per 100,000 population (n=48) as compared to 9.1 deaths per 100,000 population (n=12), respectively (data not shown).

**Table 1. Violent deaths and age-adjusted rates, Colorado and HSR 11 residents (2010-2014)**

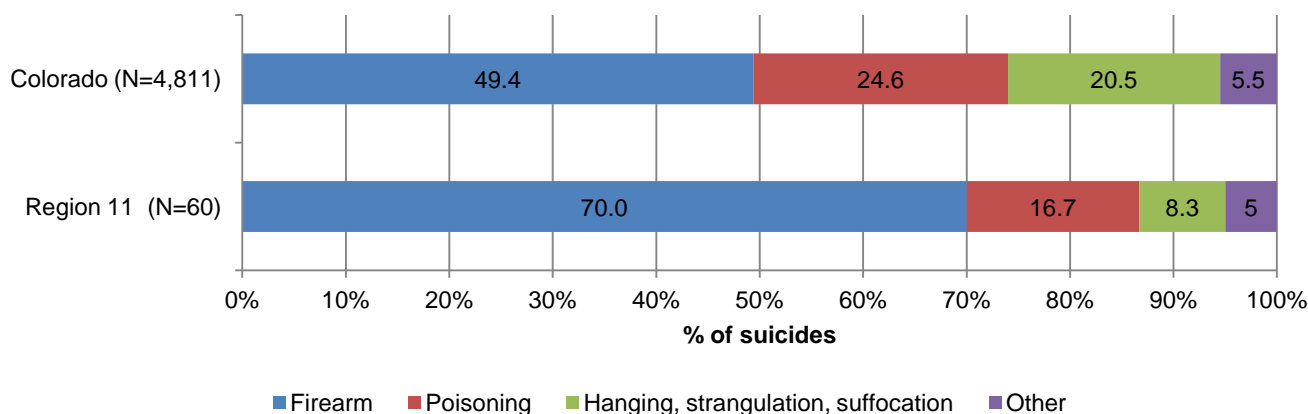
Violent Death Type	Colorado (Avg. Annual Population=5,197,313)		HSR 11 (Avg. Annual Population=44,790)	
	N	Age-Adjusted Rate (95% CI)	N	Age-Adjusted Rate (95% CI)
<b>Suicide</b>	4,811	18.1 (17.6-18.6)	60	24.7 (18.2-31.2)
<b>Homicide</b>	875	3.4 (3.2-3.6)	4	1.7 (0-3.5)
<b>Unintentional Firearm</b>	26	0.1 (0.07-0.2)	*	*

\*Counts of less than 3 are suppressed; rates are per 100,000 population.

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment

**Suicide Methods** Figure 1 presents suicide deaths by method used to inflict the fatal injury in HSR11 and Colorado. Over 20% more suicides occurred by firearm in HSR11 than in Colorado. Subsequently there were fewer hanging/suffocation and poisoning deaths in HSR11 as well.

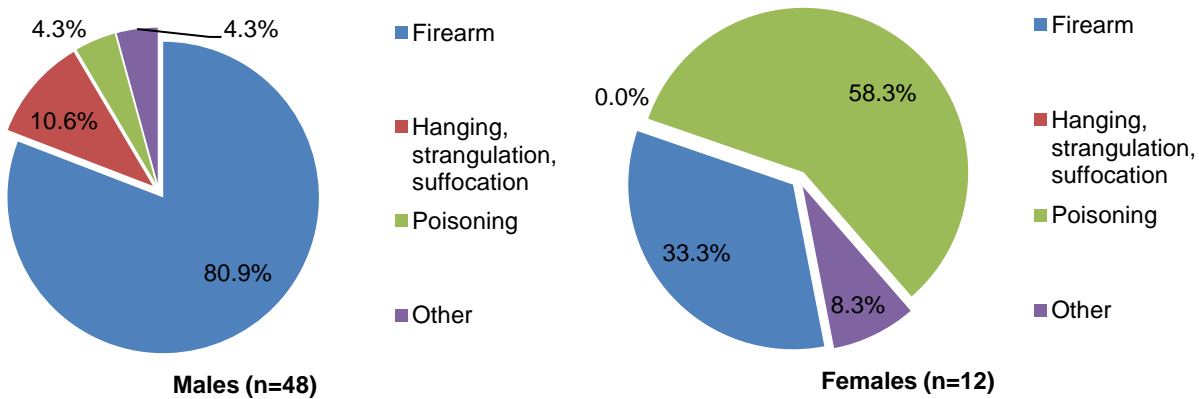
**Figure 1. Suicides by method of injury, Colorado and HSR 11 residents (2010-2014)**



Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment

**Suicide Methods by Gender** Figure 2 presents the method that was used to inflict the fatal injury in HSR 11 suicide victims, broken out by gender. The figure reveals that the majority of male suicide victims in HSR 11 die from a firearm injury, whereas the female suicide victims in the region died much more often from poisoning injuries.

**Figure 2. HSR 11 suicide deaths by method of injury and gender, 2010-2014**



Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment

**Victim Circumstances** Table 2 outlines the circumstances most frequently associated with suicide deaths in HSR11 compared with all Colorado suicide deaths. The percentages are computed using only cases where at least one circumstance was known. In HSR 11, 81.7% of suicide cases had some sort of circumstance known about the incident per information pulled from coroner/medical examiner reports and law enforcement investigations. No HSR11 homicides during the study period had any reported circumstance information. The highlighted cells represent the three most common circumstances for each population, which reveals differences between groups. The most frequent circumstance associated with HSR11 and Colorado suicide deaths was current depressed mood (38.8% and 56.2%, respectively).

**Table 2. Suicide deaths by circumstances, Colorado and HSR 11 residents (2010-2014)**

Suicide Circumstances	Colorado		HSR 11	
	n	% of suicides with known circumstance	n	% of suicides with known circumstance
Suicides with 1+ known circumstance	4,380	91	49	81.7
Current depressed mood	2,462	56.2	19	38.8
Current mental health problem	2,023	46.2	16	32.7
Ever treated for mental health problem	1,749	39.9	16	32.7
Left a suicide note	1,591	36.3	18	36.7
Intimate partner problem	1,530	34.9	17	34.7
Diagnosis of depression	1,514	34.6	13	26.5
Disclosed intent to commit suicide	1,488	34	18	36.7
Physical health problem	1,392	31.8	12	24.5
Current mental health treatment	1,374	31.4	13	26.5
History of previous suicide attempts	1,214	27.7	6	12.2
Problem with alcohol	1,196	27.3	11	22.5
Death preceded by argument	1,078	24.6	15	30.6
Crisis in last two weeks	1,017	23.2	8	16.3
History of suicidal thoughts or plans	856	19.5	9	18.4
Problem with other substance	722	16.5	6	12.2

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment

**Suicide Injury Location** Tables 3 contains the percentages of the types of locations where suicide victims were fatally injured. The tables shows that HSR 11 suicide victims, more often died in natural areas (13.3%), when compared with all other Colorado suicide deaths (5.2%). Additionally more HSR 11 suicide victims were injured on roadways and parking lots (5.0% and 6.7 % respectively) than in Colorado (3.9% and 4.3% respectively).

**Table 3. Suicide deaths by location where fatal injury was inflicted, Colorado and HSR 11 residents, 2010-2014**

Injury Location	Colorado	HSR 11
	%	%
House or apartment	76.0	71.7
Natural area (e.g., field, river, beaches, woods)	5.2	13.3
Roadway (including highways, roads, alleys, and sidewalks)	3.9	5.0
Parking lot (public or private parking lot, also including inside vehicle)	4.3	6.7
Supervised facility (including jails, halfway houses, treatment facilities, and residential facilities)	2.7	3.3
Other (including all other location types)	7.9	0.0

Source: Colorado Violent Death Reporting System, Colorado Department of Public Health and Environment

## Discussion

This analysis reveals the trends and characteristics of violent deaths in Health Statistics Region 11. The results of these analyses serve to inform local and state agencies for violence and injury prevention planning and intervention efforts by providing a better understanding of the populations at greatest risk for violent death. These results represent only a snapshot of the types of data the CoVDRS collects. For more information on the types of data collected by CoVDRS or specific data questions or needs contact the CoVDRS team (contact info on first page).

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