

# State of Wyoming



## Department of Health

### VIOLENT DEATHS IN WYOMING 2019-2020

WYOMING VIOLENT DEATH REPORTING SYSTEM- WYVDRS

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# **State of Wyoming Department of Health**

## **Violent Deaths in Wyoming 2019-2020**

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# Executive Summary

The Wyoming Violent Death Reporting System (WYVDRS) collects detailed information about on all violent deaths in Wyoming resulting from suicide, homicide, unintentional firearm deaths, legal interventions and deaths of undetermined intent, which may have been the result of violence. The information is collected from a variety of sources including but not limited to Death Certificates (DC) from the Wyoming Vital Statistics Services, Law Enforcement (LE) agencies throughout the state, and from County Coroner and Medical Examiner (C/ME) reports. This report presents data for violent deaths that occurred in Wyoming from January 1, 2019 through December 31, 2020. We have combined two years of data because of the relatively few cases of violent deaths that occur in Wyoming in a single year. By combining the data over two years we are able to calculate more stable and precise mortality rates.

## Violent Deaths

There were a total of 427 violent deaths in Wyoming from 2019 through 2020 resulting in an overall mortality rate of 36.94 violent deaths per 100,000 population. Of these 427 deaths, 350 occurred in males for a violent death mortality rate of 59.3 deaths per 100,000 males. There were a total of 77 violent deaths among females in Wyoming over 2019-2020 that resulted in a violent death mortality rate of 13.6 deaths per 100,000 females a full four times lower than males.

## Suicide

Since 2015, Wyoming has ranked among the top three states for suicide rates in the nation. From 2018-2020 Wyoming had the highest rate of suicide in all fifty states. The suicide rate for Wyoming for the combined years of 2019-2020 was 32.00 suicide deaths per 100,000 population. The suicide mortality rate for men (53.4/100,000) in Wyoming was over five times that of females (9.7/100,000). American Indian/Alaska Native Males had the highest suicide rate in the state at 61.0 suicide deaths per 100,000 males.

Firearms were used in 68% of all the suicides in Wyoming and were the most common method of suicide for both men and women. Intentional strangulation due to hanging was the second most common method, with intentional poisoning being third. Alcohol was found in the system of over half of the suicide victims for whom toxicology information was available.



# INTRODUCTION

## METHODS

### Case Definition

The Wyoming Violent Death Reporting System (WYVDRS) began in 2018 with a grant from the National Violent Death Reporting System (NVDRS) at the Centers for Disease Control and Prevention (CDC). NVDRS is a population-based active surveillance system that collects information on violent deaths that occur among both residents and nonresidents of U.S. states, the District of Columbia, and Puerto Rico.

The system uses the World Health Organization (WHO) definition of a violent death: *“a death resulting from the intentional use of physical force or power against oneself, another person, or against a group or community.”*<sup>1</sup>

The case definition includes suicides, homicides, deaths from legal intervention (a subtype of homicide where the victim is killed by or died as a result of law enforcement acting in the line of duty), deaths of undetermined intent, and unintentional firearm fatalities. Deaths of undetermined intent are included because this category includes deaths with some evidence of intent, but without enough to definitively classify the death as purposeful. Unintentional firearm injury deaths are included because the category is likely to include some deaths that are intentional or of undetermined intent.

**Table 1. ICD-10 External Causes of Death Codes for Manners of Death Meeting the NVDRS Case Definition. (NVDRS Web Coding Manual V6.0)**

<b>Manner of Death</b>	<b>Death &lt; 1 Year after Injury</b>	<b>Death &gt; 1 Year after Injury</b>	<b>Deaths any time after injury</b>
Intentional Self-Harm (Suicide)	X60-X84	Y87.0	U03 (Attributable to Terrorism)
Assault (Homicide)	X85-X99, Y00-Y09	Y87.1	U01, U02 (Attributable to Terrorism)
Event of Undetermined Intent	Y10-Y34	Y87.2, Y89.9	N/A
Unintentional Exposure to Inanimate Mechanical Forces (Firearms)	W32—W34	Y86	N/A
Legal Interventions (excluding executions; Y35.5)	Y35.0-Y35.4, Y35.6, Y35.7	Y89.0	N/A



## Analysis

The analysis for this report includes descriptive statistics, namely counts and percentages of violent death types and their characteristics. Rates for suicides are reported at the county level as well as across various demographic groupings. Demographic groupings include age, sex, race, ethnicity, and educational attainment. Rates were calculated by dividing the number of group-specific deaths by the total group-specific population (Crude Rates). Population estimates were obtained from bridged Wyoming population data from the National Center for Health Statistics. Rates are expressed per 100,000 persons. Crude rates are reported, unless otherwise specified. Some percentages may not sum to 100.0 due to rounding.

Due to the relatively small number of violent deaths in Wyoming each year this report will combine the data over the first two years of WYVDRS data collection. Specifically, this report will cover all violent deaths from January 1, 2019 through December 31, 2020.

## Data Restrictions

The calculation of rates was limited to instances where death counts were sufficiently large. Small numbers of events can vary considerably over time and could also pose concerns with respect to confidentiality and identifiable data. Several rules of thumb apply for what constitutes as sufficiently large counts. Generally, rate calculations require a count of at least 5 to 20 events and a denominator of at least 100. In the rate calculations generated for this report, denominators were sufficiently large. Counts, however, varied considerably and could decrease substantially once parsed into specific demographic or geographic groupings. For this report mortality rates were calculated for counts of 5 or more, but in instances with fewer events, mortality rates were suppressed. Data were captured for all deaths that occurred in Wyoming, regardless of state of residency. While the vast majority of all the deaths included in this report were Wyoming residents, there were several suicides and one homicide that took place in Wyoming where the victim was not a Wyoming resident. Therefore, there may be some discrepancy between the numbers (counts and rates) recorded in this report and the official mortality counts and rates provided by the Wyoming Vital Statistics Services (VSS); which includes deaths among Wyoming residents regardless of location of occurrence. Both sets of numbers are correct; however, WYVDRS may include some deaths that the Wyoming VSS doesn't and conversely VSS may include deaths not reported to WYVDRS.

# VIOLENT DEATHS

A total of 427 violent deaths took place in Wyoming during 2019 and 2020. Please note that while all of these deaths took place in Wyoming, not all of the victims were Wyoming residents. WYVDRS collects data and information about all violent deaths that occur within the boundaries of Wyoming regardless of the residential status of the victim. Therefore, the number of violent deaths enumerated by the WYVDRS may be different than the official numbers produced by the Wyoming Vital Statistics Service (VSS), who collect data on deaths of Wyoming residents only.

**TABLE 2: Types of Violent Deaths by Year**

	2019		2020	
	Count	Crude Rate	Count	Crude Rate
Suicide	176	30.4	194	33.3
Homicide	21	3.6	23	3.9
Legal Intervention	2	*--	4	*--
Unintentional Firearm Injury	1	*--	3	*--
Undetermined	2	*--	1	*--
<b>TOTAL</b>	<b>202</b>	<b>34.9</b>	<b>225</b>	<b>38.6</b>

*Rates are not calculated on counts less than 5 to avoid unstable estimates.*

Victims of violent deaths in Wyoming included residents of the following states: California, Colorado, Georgia, Indiana, Minnesota, Missouri, Montana, Oregon, South Carolina, Texas, Utah, Washington, and of course Wyoming.

Residents of Colorado made up the most non-resident deaths with 8 deaths, followed by Texas with 5 deaths and Utah with 4 deaths. All other states had two or fewer residents who experienced a violent death in Wyoming during 2019 and 2020. All but one of the deaths in non-Wyoming residents were suicide or intentional self-harm.

## DEMOGRAPHICS

**TABLE 3: Manner of Death by Sex**

	<b>MALE</b>	<b>FEMALE</b>
Suicide	315	55
Homicide	22	22
Legal Intervention	6	0
Unintentional Firearm Injury	4	0
Undetermined	3	0
<b>TOTAL</b>	<b>350</b>	<b>77</b>

Significantly more men than women were victims of a violent death in Wyoming over 2019-2020. Males accounted for 82% of the violent deaths that took place in Wyoming over this time period. However, as many females as males were victims of Homicide.

**TABLE 4: Manner of Death by Race/Ethnicity**

	<b>White</b>	<b>Black</b>	<b>American Indian</b>	<b>Asian or Pacific Islander</b>	<b>Hispanic (Any Race)</b>
Suicide	351	6	11	1	12
Homicide	32	2	9	1	5
Legal Intervention	4	0	2	0	1
Unintentional Firearm Injury	4	0	0	0	0
Undetermined	2	0	1	0	0
<b>TOTAL</b>	<b>393</b>	<b>8</b>	<b>23</b>	<b>2</b>	<b>18</b>

There were 393 violent deaths among Whites for a crude mortality rate of 36.8 per 100,000. The mortality rate for Blacks was 55.0 per 100,000 and for Hispanics was 15.2 per 100,000. The violent death mortality rate for American Indians was 71.4 per 100,000; almost double the rates for Whites. The violent death mortality rate for Asian/Pacific Islander was not calculated due to small numbers.

**TABLE 5: Manner of Death by Age Group**

	Suicide	Homicide	Legal Intervention	Unintentional Firearm	Undetermined
00-04	0	2	0	0	0
05-09	0	1	0	0	0
10-14	6	2	0	0	0
15-19	17	0	0	2	0
20-24	30	4	0	0	0
25-29	25	3	0	0	0
30-34	38	6	2	0	1
35-39	33	6	1	2	0
40-44	27	6	0	0	0
45-49	38	2	1	0	0
50-54	19	3	0	0	0
55-59	28	2	2	0	1
60-64	24	2	0	0	0
65-69	21	1	0	0	0
70-74	18	2	0	0	0
75-79	16	0	0	0	1
80-84	11	1	0	0	0
85+	16	1	0	0	0

Violent death affects Wyoming residents regardless of age. While the majority of violent deaths occurred in middle aged adults, children/adolescents were the victims in six suicides and five homicides in Wyoming during 2019-2020.

**TABLE 6: Manner of Death by Educational Attainment**

	Suicide	Homicide	Legal Intervention	Unintentional Firearm	Undetermined
< 8th Grade	10	5	0	0	0
9th-12th Grade	52	4	1	1	0
High School or GED	157	18	4	3	2
Some College Credit	76	12	0	0	0
Associates	18	3	1	0	1
Bachelors	30	1	0	0	0
Graduate or Professional Degree	23	1	0	0	0
Unknown	4	0	0	0	0

Past research has shown that educational attainment can be somewhat protective against violent death.<sup>2,3</sup> During 2019-2020, in Wyoming 59.2% of all suicides and 61.4% of all homicides victims had a high school education or less; while only 16.6% of suicide and 11.3% of homicide victims had some sort of college degree.

# SUICIDE

Suicide has been and continues to be a significant cause of mortality in Wyoming. According to the CDC there were 170 suicides in Wyoming residents for a rate of 29.3 per 100,000 in 2019. And in 2020, 182 Wyoming residents died by suicide for a rate of 30.5 per 100,000. In each of these years Wyoming had the highest mortality rate by suicide in the United States. Only the States of Alaska and Montana have rates comparable to the rates seen in Wyoming. Remember that the data presented in this report include all suicides that took place in the state and not just among Wyoming residents.

## DEMOGRAPHICS

**TABLE 7: Suicide: Sex by Race/Ethnicity**

	MALE		FEMALE	
	COUNT	RATE	COUNT	RATE
White	298	54.6	53	10.1
Black	5	58.2	1	*--
American Indian	10	61.0	1	*--
Asian or Pacific Islander	1	*--	0	*--
Hispanic	10	16.0	2	*--

*Rates are not calculated on counts less than 5 to avoid unstable estimates. Hispanic cases include any race.*

The overall suicide mortality rate for 2019-2020 in Wyoming was 32.0 per 100,000 population. The rate for males was 53.4 per 100,000 males, while the rate for females was only 9.7 per 100,000 females. The rates for both Black and Native American males were higher than the rate for White males. The rates for all non-White female groups were not calculated due to small numbers.

**TABLE 8: Suicide: Sex by Age Group**

	MALE		FEMALE	
	COUNT	RATE	COUNT	RATE
10-14	5	12.3	1	*--
15-19	15	39.2	2	*--
20-24	25	61.7	5	13.9
25-29	24	61.3	4	*--
30-34	34	84.6	4	*--
35-39	24	58.6	9	23.5
40-44	26	71.0	1	*--
45-49	34	101.2	4	*--
50-54	15	46.6	4	*--
55-59	34	90.9	4	*--
60-64	17	42.0	7	17.3
65-69	16	44.7	5	14.3
70-74	17	63.0	1	*--
75-79	14	83.6	2	*--
80-84	11	110.0	0	*--
85+	14	168.0	2	*--

The highest rates of suicide among male age groups were seen in the 80-84 and 85 and older groups. However, it should be pointed out that these two age groups have relatively small populations overall. By counts alone, middle age males made up the majority of suicides in Wyoming, but the high rates for the 20-24 and 25-29 age groups is also a cause for concern.

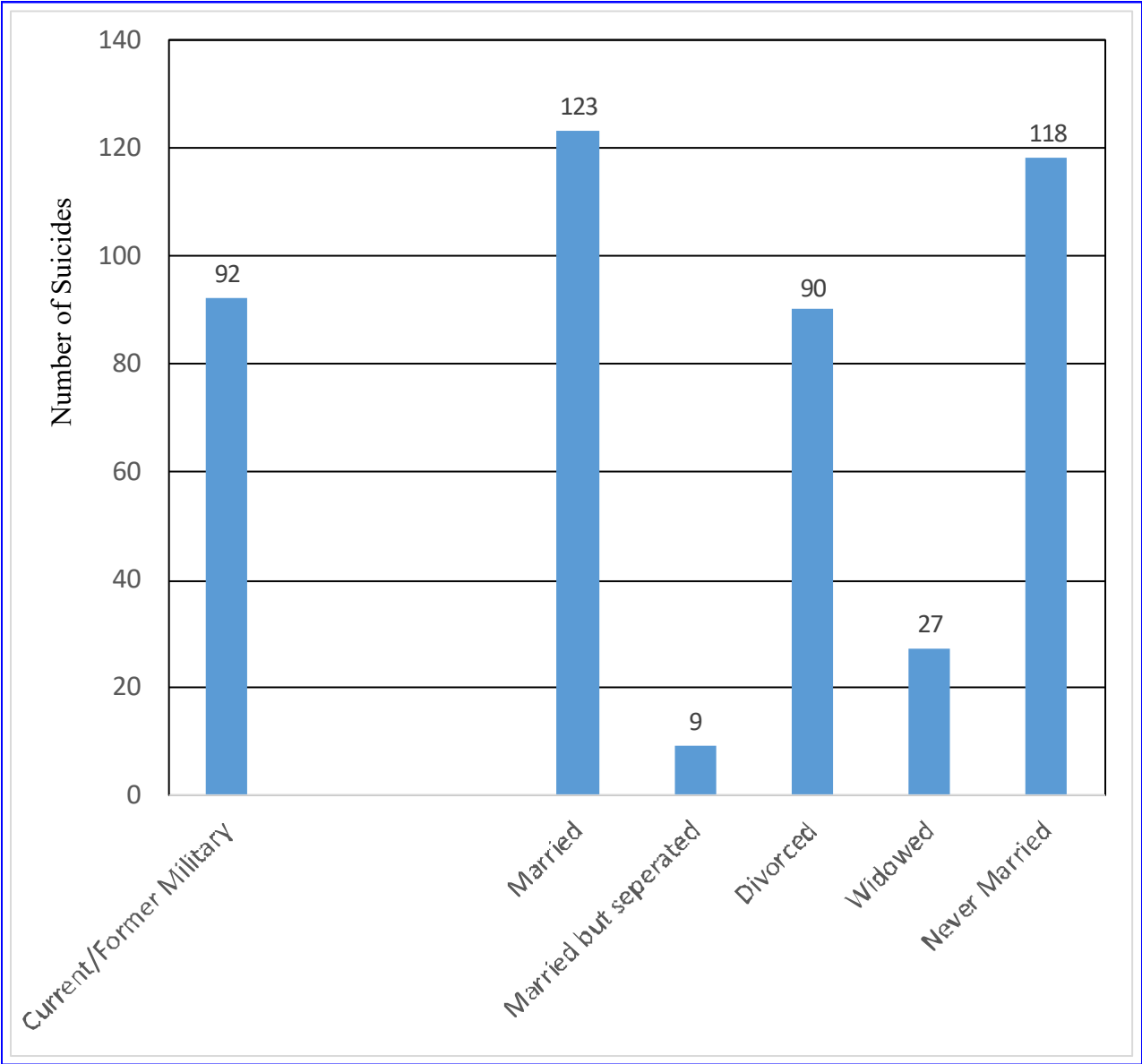
**TABLE 9: Sex by Educational Attainment**

	MALE		FEMALE	
	COUNT	RATE	COUNT	RATE
< 8th Grade	9	108.3	1	*--
9th-12th Grade	47	49.1	5	24.0
High School or GED	138	92.2	19	16.2
Some College Credit	60	52.5	16	13.4
Associates	14	31.3	4	*--
Bachelors	25	35.5	5	6.3
Graduate or Professional Degree	19	46.0	4	*--
Unknown	3	*--	1	*--

The rates for suicide in 2019-2020 were highest among those with a less than 8th grade education with the next highest rate being among those with a high school diploma or GED. While a having a college degree appeared to be associated with lower suicide rates, the rate for males with Graduate or Professional degrees was nearly as high as males with only a 9th-12th grade education, and some college education was actually higher than 9th-12th grade.



**CHART 1: Suicide by Other Demographic Variables**



92 suicides occurred in Current or Former Military Veterans in 2019-2020. Men who had never been married had the highest number of suicide deaths followed by married men, and then men who were divorced. On the other hand, married women accounted for the highest number of deaths in females, with divorced women second and single women third. The number of widowed men who died by suicide was more than five times higher than widowed women.

# LOCALITY

**TABLE 10: Suicide by County**

<b>2019-2020</b>	<b>COUNT</b>	<b>CRUDE RATE</b>
Albany	21	27.0
Big Horn	8	34.2
Campbell	19	20.4
Carbon	14	47.4
Converse	5	18.1
Crook	8	52.7
Fremont	37	47.1
Goshen	8	30.3
Hot Springs	11	124.5
Johnson	8	47.0
Laramie	54	27.0
Lincoln	18	44.9
Natrona	48	29.9
Niobrara	0	*--
Park	21	35.9
Platte	<5	*--
Sheridan	18	29.3
Sublette	<5	*--
Sweetwater	34	40.0
Teton	9	19.2
Uinta	20	49.5
Washakie	<5	*--
Weston	<5	*--

As shown in Table 10 the highest suicide mortality rate belonged to Hot Springs County which was more than twice the rate of the next highest county (Crook). The lowest rate in counties with at least 5 suicides was seen in Teton County. The counties of Laramie and Natrona accounted for 28% of the total number of suicides in the state.

**TABLE 11 : Injury Location**

	<b>Count</b>	<b>Percent</b>
Cemetery, graveyard, or other burial ground	1	0.3
Farm	1	0.3
Highway, freeway	5	1.4
Hospital or medical facility	3	0.8
Hotel/motel	11	3.0
House, apartment	258	69.7
Jail, prison, detention facility	7	1.9
Motor vehicle (excluding school bus, 15, and public transportation, 21)	28	7.6
Natural area (e.g., field, river, beaches, woods)	24	6.5
Office building	1	0.3
Other	8	2.2
Other commercial establishment (e.g., grocery store, retail outlet, laundromat)	1	0.3
Park, playground, public use area	2	0.5
Parking lot/public parking garage	4	1.1
Sports or athletic area (e.g., stadium, baseball field, gymnasium, recreation center)	1	0.3
Street/road, sidewalk, alley	15	4.1
<b>Total</b>	<b>370</b>	<b>100.0</b>

Nearly 70% of all suicides in Wyoming during 2019-2020 occurred in a house or apartment. Other common locations included motor vehicles (e.g., the victims car or truck), natural areas, streets or roads, and hotel or motels. The Other category includes locations that are Outdoors, but more specific than just a “Natural Area,” like a reservoir or specific land mass.

## METHOD OF DEATH

**TABLE 12 Suicide: Means**

<b>Means (ICD-10 Code)</b>	<b>MALE</b>	<b>FEMALE</b>	<b>TOTAL</b>
Ill- Defined or Unknown (R99)	3	0	3
Accidental discharge from unspecified firearm (W34)	1	0	1
Intentional self-harm by Poisoning by drugs (X61-X64)	14	10	24
Intentional self-harm by liquids, vapors or gases (e.g. carbon monoxide) (X65-X69)	17	2	19
Intentional self-harm by Hanging /Strangulation (X70)	49	12	61
Intentional self-harm by Firearms (X72-X74)	225	27	252
Intentional self-harm by Smoke, Fire, or Flames (X76)	0	2	2
Intentional self-harm by Sharp Object (X78)	2	1	3
Intentional self-harm by Jumping from high place (X80)	1	0	1
Intentional self-harm by Jumping or Lying before moving object (X81)	0	1	1
Intentional self-harm by unspecified means (X83-X84)	2	0	2
Intentional self-harm by unspecified Firearm with undetermined intent (Y24)	1	0	1
<b>TOTAL</b>	<b>315</b>	<b>55</b>	<b>370</b>

Firearms were used in 68% of suicides that occurred in Wyoming during 2019-2020. Males were much more likely to use a firearm (71%) than females (49%) though it was still the most common method among females. Intentional hanging/strangulation was the next most used method with 16% of males and 22% of females using this method. Intentional poisoning was also a commonly used method by men (10%) and females (22%). However, men were more likely to use gases or vapors (e.g., carbon monoxide) to poison themselves, while women were more likely to use some type of drug or medication.

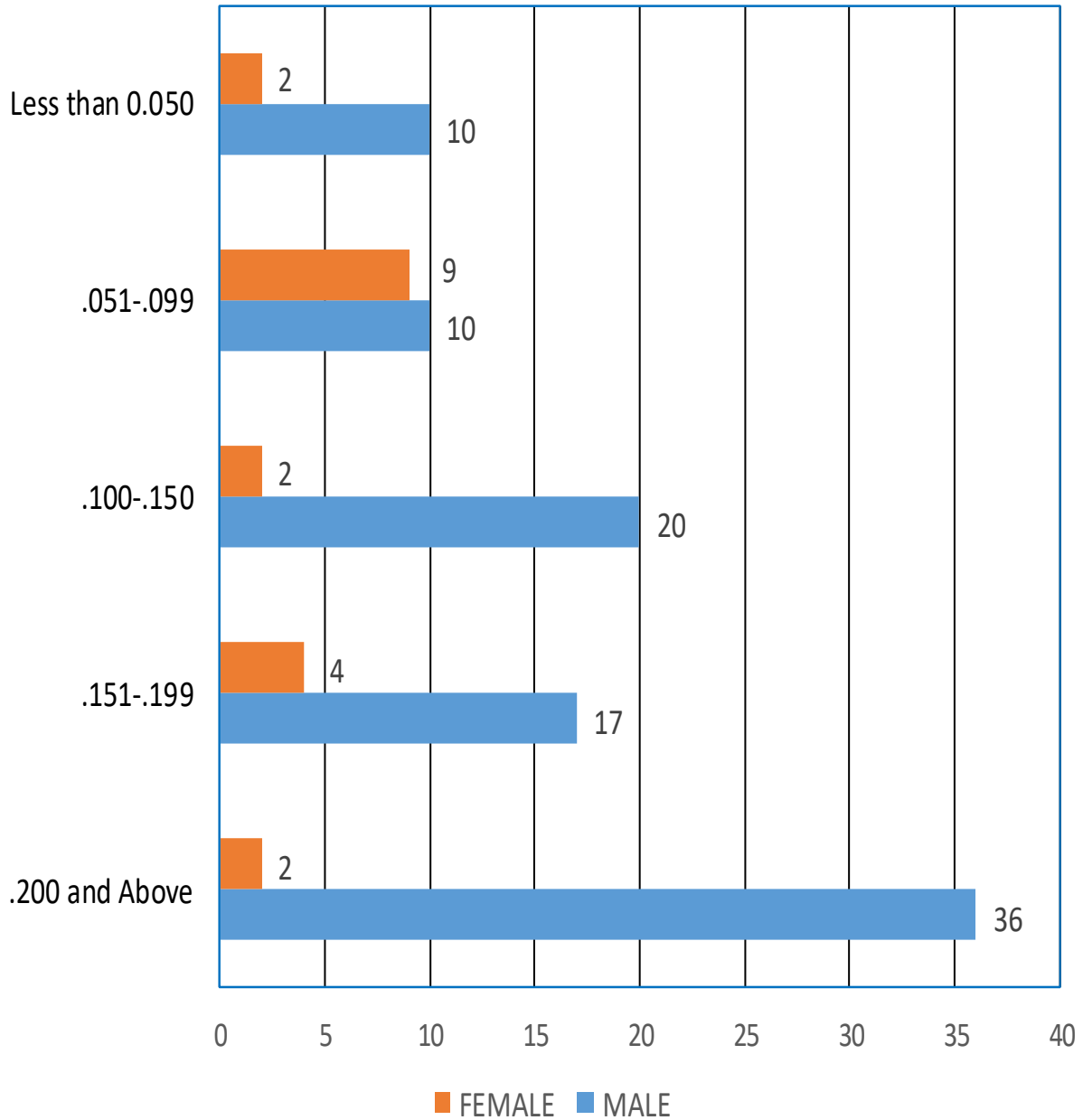
## TOXOCOLOGY

**TABLE 13 Suicide: Sex by Substance Present**

	MALE		FEMALE		TOTAL	
	Count	Percent	Count	Percent	Count	Percent
Alcohol	93	56.7	19	46.3	112	54.6
Amphetamines	24	14.6	7	17.1	31	15.1
Antidepressants	16	9.8	10	24.4	26	12.7
Anticonvulsants	8	4.9	5	12.2	13	6.3
Benzodiazepines	21	12.8	9	22.0	30	14.6
Marijuana	32	19.5	4	9.8	36	17.6
Opiates	11	6.7	5	12.2	16	7.8

Out of the 370 suicides in Wyoming over 2019-2020 toxicology reports were provided to the WYVDRS in 205 cases (164 Male & 41 Female). Alcohol was present in the system of 57% of male and 46% of female suicide victims. Marijuana, Amphetamines (including methamphetamine), and Benzodiazepines (sedatives/anti-anxiety) were also found in the system of a number of suicide victims.

**CHART 2: Alcohol Level (BAC) by Sex**

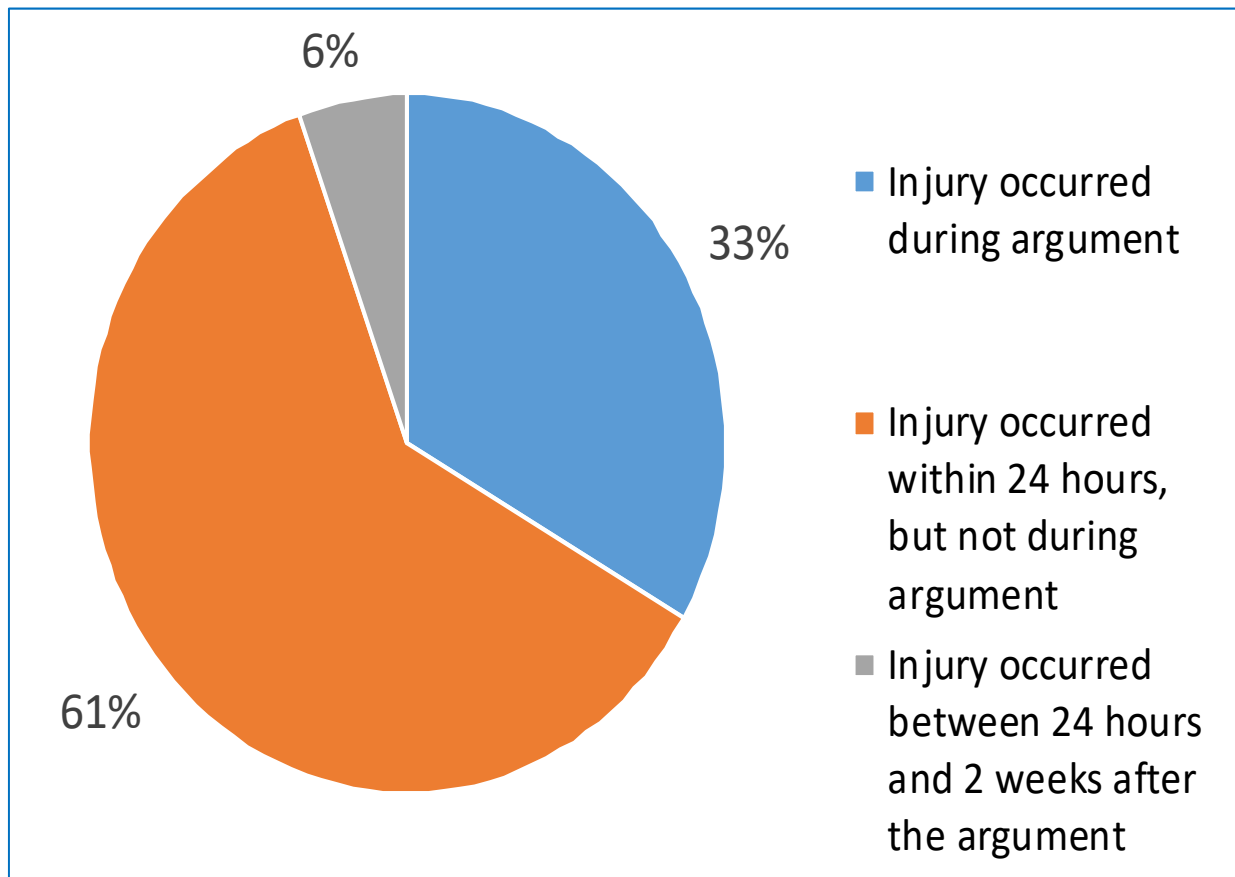


Toxicology reports indicated that alcohol was involved in 112 of the suicides in 2019-2020 with 93 males and 19 female victims having alcohol in their system at the time of death. As shown in Chart 2 above males were more likely to have a greater blood alcohol content levels than females. In fact, 39% of male victims were found to have BAC levels above 0.200, which is more than double the legal limit in Wyoming (.080). The average BAC level in male suicide victims was 0.179, while the average for female victims was 0.109.

## CIRCUMSTANCES

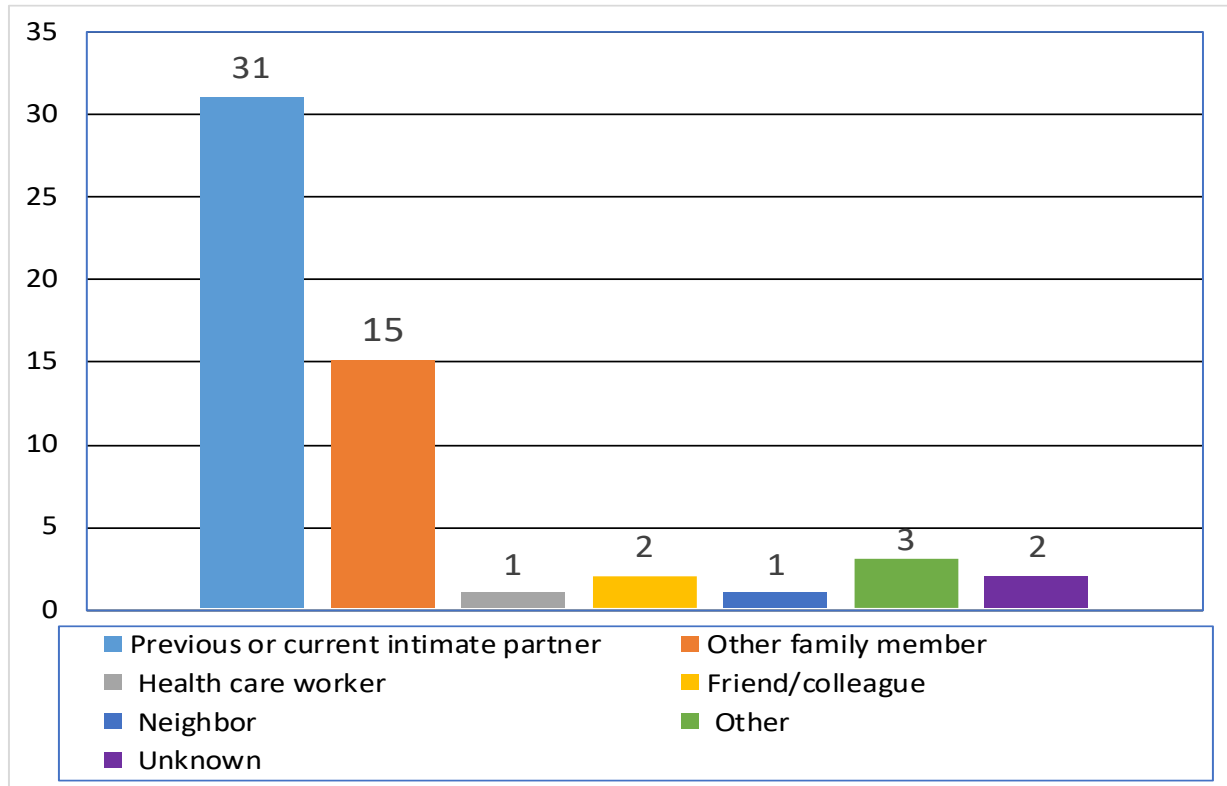
NVDRS collects information about the specific circumstances that are noted in the investigative reports (i.e., C/ME or LE report) as being related to the violent death. For the vast majority of circumstances, inclusion in the investigation reports, and/or the occurrence before or right after the fatal injury (e.g., preceding or impending events) is sufficient to code a circumstance. These circumstances help NVDRS to identify, develop, and evaluate preventive interventions associated with specific circumstances.<sup>1</sup>

**CHART 3: Injury & Argument Timing**



Arguments involving the victim prior to the fatal injury were reported to either law enforcement or county coroner in 72 suicides during 2019-2020. In nearly two-thirds of the cases the injury that lead to the victims death took place within 24 hours of the argument. Another third of the fatal injuries occurred while the actual argument was taking place. Very few of the fatal injuries took place more than 24 hours after the reported argument.

**CHART 4: Disclosure of Suicide Intent**



Out of the 370 suicides in Wyoming during 2019-2020 only 55 victims were known to have recently expressed an intent to take their life. The vast majority of these victims (84%) told a previous or current intimate partner or another family member. Granted not everyone who expresses suicidal thoughts or ideation will attempt to take their own life, but many suicide victims talk about harming themselves before attempting suicide.

According to the CDC major risk factors for suicide include, but are not limited to:

- Previous suicide attempt (s)
- Social isolation
- Financial problems
- Job problems or loss
- Serious illness
- Mental illness, such as depression
- Criminal problems
- Impulsive or aggressive tendencies
- Legal problems
- Substance use disorder



**Chart 5 : Suicide by Occupation**

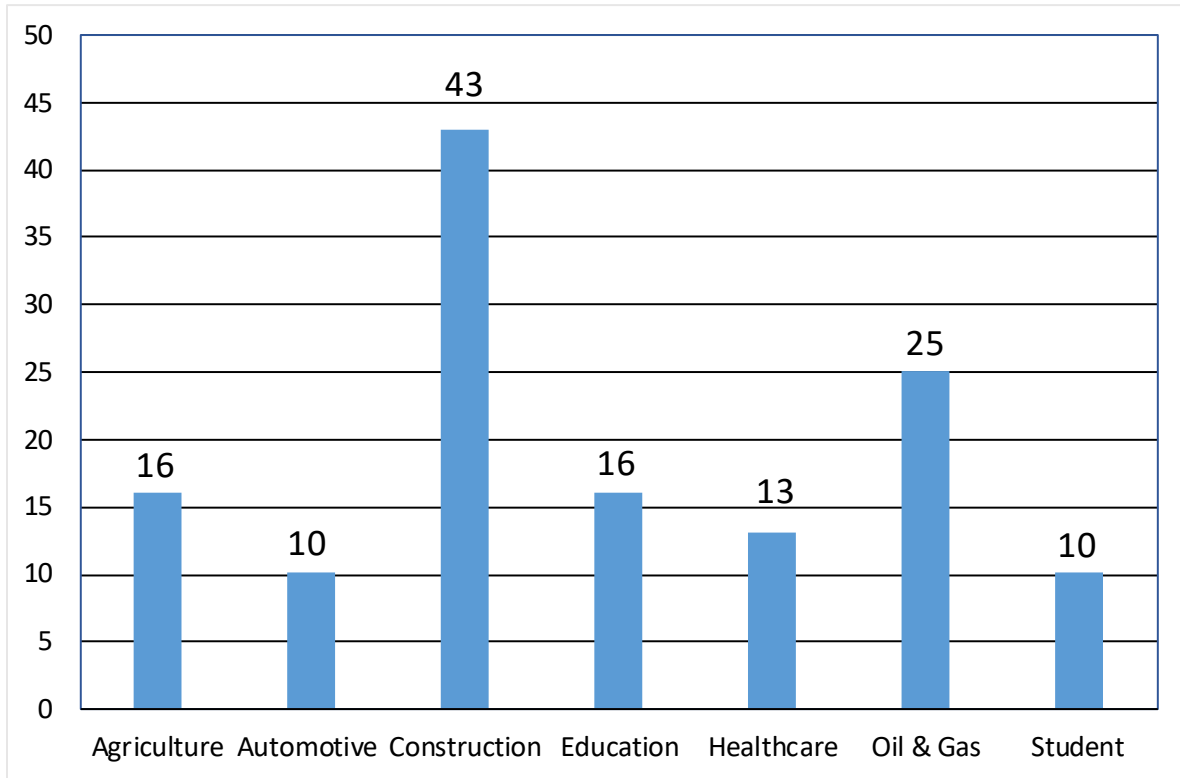


Chart 5 shows the top five most common occupations of suicide victims in 2019-2020 in Wyoming. Construction occupations (e.g., carpenters, laborers, heavy equipment operators) had the highest number, followed by those working in oil & gas occupations (e.g., roustabouts, laborers, drillers). Education occupations (e.g., teachers & administrators) was tied for third with people working in agriculture (e.g., farmers and ranchers). Healthcare occupations (e.g., nurses, physicians, administrators) were fourth, with students and automotive workers (e.g., mechanics) tied for five.

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