AKVDRS Homicide Victims Update — Alaska, 2011–2020
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Background

During 2000–2020, homicide was among the top five leading causes of injury deaths in the United States (U.S.) for persons aged 1–44 years and accounted for 43% of all violent deaths.[1,2] During 2015, the homicide rate in the U.S. was 7.5 times higher than other high-income countries combined.[3] Experiences of violence (non-fatal and fatal) continue to remain elevated in Alaska. According to the Federal Bureau of Investigation's Uniform Crime Report (UCR), Alaska's violent crime rate in 2011—acts of homicide, forcible rape, robbery, and aggravated assault—was 57% higher than the national rate (606.5 vs. 386.3 per 100,000 persons, respectively).[4] Violence that results in a fatality has a substantial social and economic impact. During the last decade, years of potential life lost (YPLL) prior to 65 years of age in Alaska nearly doubled from 1,110 in 2011 to 2,165 YPLL in 2019.[5] Using data from the Alaska Violent Death Reporting System (AKVDRS), this report provides an update on the epidemiology of homicide deaths during 2011–2020 in Alaska.

Methods

Data Source

AKVDRS is an active surveillance system that collects risk factor data concerning all violent deaths that meet the National Violent Death Reporting System (NVDRS) case definitions.[6] NVDRS is an incident-based system that compiles information from three required data sources: death certificates, medical examiner records, and law enforcement investigation reports. Optional secondary documents such as hospital data, crime laboratory data, and other official documents (e.g., court records and official press releases) can be used to complete some data elements. A trained NVDRS abstractor reviews information from all source documents prior to entering coded data elements into the secure NVDRS web-based system. Primacy rules and hierarchal algorithms related to the source documents are applied at the state-level, adhering to CDC guidance. The NVDRS abstractor integrates the information from all source documents prior to assigning an abstractor manner of death based on the preponderance of evidence.[7]

Homicide Case Definition[8]

Consistent with the NVDRS guidelines, this report defines a homicide death as any violent death resulting from physical force or power against another person, group, or community when the preponderance of evidence indicates the use of force was intentional. In this definition, "power" includes acts of neglect or omission by one person who has control over another. Corresponding International Classification of Diseases Code, 10th Revision (ICD-10) codes include X85–X99, Y00–Y09, Y87.1, and U01–02. The NVDRS guidelines follow the National Center for Health Statistics (NCHS) categories for homicide and have additional scenarios for inclusion making the NVDRS counts slightly higher than other crime reports, such as the UCR. A comparison between the inclusion criteria for NVDRS and the UCR can be found in Table 1.

Deaths due to legal intervention, vehicular homicide without intent to injure, unintentional poisoning or overdose death, unintentional firearm deaths, deaths of unborn fetus, and deaths of a child (e.g., premature birth, or "condition originating in the perinatal period") that resulted indirectly from violence sustained by the mother were excluded from this report.

Data Analysis

Homicide deaths identified and recorded by the AKVDRS during 2001–2020 where the victim was fatally injured in Alaska were compiled and summarized by counts, percentages, and rates. Statewide, demographic, and geographic distributions are presented. Rates are calculated as homicide deaths divided by the mid-year population estimate and presented per 100,000 persons. Population denominators were obtained from the Alaska Department of Labor's population estimates. Rates based on fewer than 20 observations are subject to large variation and should be interpreted with caution. Rates based on ≤5 observations are suppressed to protect confidentiality. Rate ratios and 95% Confidence Intervals (95% CI) were also calculated. Analyses were performed using SAS (v9.4) and MS Excel.

Results

Homicide Count and Rates

Of all violent deaths in Alaska during 2011–2020, 19% (532/2,781) were due to homicide (range: 34 in 2011 to 78 in 2019). The annual average homicide rate was 7.2 per 100,000 persons. While homicide rates varied by year, the overall trend has increased from an annual low homicide rate of 4.7 per 100,000 persons in 2011 to the highest rate at 10.7 per 100,000 persons in 2019 (Figure 1). Notably, the number of homicides decreased considerably in 2020 compared to 2019 (from 75 to 51 deaths per year, respectively). Most homicide incidents identified a single victim (428/532; 80%). The remaining incidents identified multiple homicide deaths (70/532; 13%) and combined homicide/suicide deaths (34/532; 6%).

Rates by Age, Sex, and Race
The median age of homicide victims was 34 years (range: 0–91 years). The annual average homicide rate was highest among persons aged 25–29 years (12.2 per 100,000 persons) (Table 2). Among victims aged ≤14 years, the highest homicide rate was found among children aged <5 years (5.1 per 100,000). Of note, the overall homicide rate for infants aged <1 year (9.6 per 100,000 persons) was 2.4 times the overall rate for children aged 1–4 years (4.0 per 100,000 persons) and 8.7 times the overall rate for children aged 5–9 years (1.1 per 100,000 persons).

The overall homicide rate among males was nearly double that of females (9.4 versus 5.0 per 100,000 persons, respectively). Rates by sex and age group were highest among males aged 25–29 years, which were twice as high as women of the same age group. The highest rates among women by age group were in those aged 20–24 and 30–34 years (Table 2).

White and American Indian/Alaska Native males accounted for the largest proportion of male victims (37% and 33%, respectively) (Table 3). American Indian/Alaska Native male victims had the highest rate of homicide across racial groups, followed by Black, White, and Asian/Pacific Islanders (20.4, 8.8, 5.1, and 3.4 per 100,000 persons, respectively) (Table 3).

American Indian/Alaska Native and White females accounted for equal proportions of female victims (41%) (Table 3). American Indian/Alaska Native female victims had the highest rate of homicide across racial groups, followed by White, Asian/Pacific Islander, and Black victims (12.8, 3.1, 2.2, and 2.0 per 100,000 persons, respectively) (Table 2).

Rates by Region
The highest homicide rates by region were in the Southwest and Northern regions (13.1 and 9.8 per 100,000 persons, respectively); the lowest rates were in the Southeast and Gulf Coast regions (3.8 and 3.3 per 100,000 persons) (Table 4). The highest rates among males were in the Southwest, Northern, and Anchorage regions (16.0, 12.3, and 11.1 per 100,000 persons, respectively); the highest rates among females were in the Southwest, Northern, and Interior regions (9.5, 6.7, and 6.6 per 100,000 persons, respectively) (Table 4).

Method, Injury Location, and Victim-Suspect Relationship
During 2011–2020, a firearm was the primary weapon used in most homicides (57%), followed by a sharp instrument (16%), personal weapons (e.g., fists, feet, and hands; 9%), blunt instrument (7%), and hanging/strangulation/suffocation (HSS) (4%) (Table 5). Most firearms used were handguns (176/285, 62%).

Firearm injury accounted for the most homicide deaths among both males and females (60% and 50%, respectively) (Table 5). The firearm homicide rate among males was over 2 times the rate among females (5.6 versus 2.5 homicides per 100,000 persons). Although HSS accounted for 4% of homicide deaths, HSS was used more often to cause death among female victims than male victims (10% versus 1%). Half (9/18, 50%) of the HSS homicides among females also documented intimate partner violence as a precipitating factor.

Most homicide victims were injured in a house or apartment (63%), followed by street/sidewalk/alley (6%), motor vehicle excluding bus and public transportation (6%), and natural area (such as woods, river, field, beach areas) (6%) (Table 6). Seventy percent of female and 60% of male homicides occurred in a house or apartment (Table 6). A larger proportion of homicides among males than among females occurred on the street/sidewalk/alley (9% versus 1%, respectively) and motor vehicle (6% versus 5%), respectively (Table 6).

The relationship of the homicide victim to the suspect(s)[i] was known for 72% of the homicide victims (Table 7). The victim/suspect relationship was most often an acquaintance, friend, roommate, or schoolmate of the suspect (24%); another person known to victim (including current or former workplace relationship) (24%); a current or former spouse, boyfriend, or girlfriend (17%); or a family or household member (not an intimate partner) (14%).

For males, when the relationship was known, the highest proportions identified were an acquaintance/friend/roommate/schoolmate (33%) or another person known to the victim (including persons with a current or former workplace relationship; 31%) (Table 7). For females, when the relationship was known, the highest proportion were current or former spouse/boyfriend/girlfriend (38%), followed by family/household member (not an intimate partner)

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[i] *Incidents may include 1 or more suspects.*

(12%), acquaintance/friend/roommate (10%), or a child aged <18 years[ii] (10%) (Table 6).

Precipitating Circumstances
Precipitating circumstances were identified in 87% of the homicides (Table 8). The three most documented circumstances were an argument (33%), other precipitating crime involving the victim (22%), and intimate partner violence (19%). Assault/rape was the most frequently documented other crime (32%), followed by robbery/theft/burglary (21%), and drug trade[iii] (19%) (Table 8).

Incidents precipitated by an argument involved male homicide victims more often than female victims (37% versus 26%, respectively). Male homicide victims were also more likely to have used a weapon than female victims (9% versus <1%), have had a physical fight with the suspect (17% versus 5%), and have had a relationship problem with the suspect (13% versus 7%) (Table 8). In contrast, intimate partner violence was documented more often among female homicide victims than male victims (39% versus 9%, respectively). The same proportion (22%) of male and female victims were involved in a secondary crime prior to the homicide (Table 8).

Mental Health and Substance Abuse
Thirty-four percent (183/532) of homicide victims had a known substance abuse problem and/or mental health problem. A substance abuse problem was the most prevalent among victims, followed by an alcohol abuse problem and a mental health problem (25%, 17%, and 9%, respectively) (Table 8). A larger proportion of male than female victims had a known substance abuse problem (26% versus 22%, respectively). Similar proportions of having a known alcohol problem and a mental health problem were documented among male and female victims (16% versus 18% for an alcohol problem, respectively, and 10% versus 9% for a mental health problem, respectively).

Toxicology
Of the 532 homicide victims, 516 (97%) were tested for alcohol and drugs.[iv] Of these, 280/516 (54%) were positive for alcohol or drugs, 90/516 (17%) were positive for alcohol alone, 127/516 (25%) were positive for alcohol with other substances, and 190/516 (37%) were positive for drugs without alcohol (Table 9). The most frequently identified substances were alcohol (217/498; 44%), marijuana (215/497; 43%), amphetamines (121/495; 24%), and opiates (80/497; 16%). Methamphetamine was identified in nearly all amphetamine-positive victims (117/121; 97%).

Known Characteristics of Suspects
The median age of a suspect was 29 years (range: 9–91); about half (341/635; 53%) of the suspects were aged 18–34 years (Table 10), and most (540/635; 85%) suspects were male. White and American Indian/Alaska Native males accounted for the largest proportion of male suspects (135/540; 25% and 112/540; 21%, respectively), while White and American Indian/Alaska Native female suspects accounted for nearly equal proportions (Table 10).

Many of the alleged perpetrators (244/635; 38%) were suspected of using alcohol and/or other substances prior to the assault. Suspected alcohol use was identified more often than suspected drug use (21% versus 17%, respectively) (Table 10). A quarter (162/635, 26%) of homicide suspects had at least one previous contact with police. Other characteristics included drinking with the victim prior to death (10%), mental illness (9%), history of abuse of the victim by the suspect (6%), and attempted suicide following the incident (3%) (Table 10).

Temporal Changes
A comparison of the first 5 years (2011–2015) to the most recent 5 years (2016–2020) indicated homicide deaths due to a firearm injury increased by 11% (p<0.05, Table 11b; Figure 2). Four out of the seven regions experienced at least a 50% increase in firearm-related homicide deaths (Anchorage, Matanuska-Susitna, Northern, and Southwest regions).

Compared to the number of homicide deaths observed during 2011–2015, the number observed during 2016–2020 increased by 44% (Figure 1). The Matanuska-Susitna region experienced the largest relative increase of violent deaths (70%), followed by Anchorage (57%), and the Southeast (55%) regions (Table 11a).

[ii] *Child relationship may include biological child, stepchild, grandchild, child of girl/boyfriend, babysitter, etc.*
[iii] *Drug trade (trafficking) is defined as manufacturing, buying, selling, and passing drugs in exchange for goods or money.*

[iv] *Denominator is the total number of tested samples that met testing requirements for each analyte. Exclusion included sample size and poor quality.*

During 2016–2020, all regions except the Gulf Coast experienced increased homicide rates (range: 12%–100% increase from 2011–2015); the Gulf Coast region experienced a 7% decrease during this period (Table 11a). The most substantial increase was observed in the Anchorage region where the homicide rate rose by 50% (p<0.001). Relative to 2011–2015, homicide rates among victims aged 10–49 years increased. The homicide rate among victims aged 40–49 years was 2.5 times higher than the rate observed during 2011–2015 (p<0.001; Table 11a).

Overall, the 2016–2020 homicide rate among Alaska Native decedents was significantly higher than any other group (p<0.01; Table 11a). American Indian/Alaska Native and White males accounted for the largest temporal increases (17.6 to 23.0 per 100,000 people and 4.9 to 5.4 per 100,000 people, respectively) (Table 11a). American Indian/Alaska Native females also exhibited a similar temporal increase in rates (9.5 to 16.0 per 100,000 people); however, the rate for Black females declined more than 40% (Table 11a).

Several precipitating circumstances decreased in frequency during 2016–2020. Of significance, incidents precipitated by an argument declined by 9% (p<0.01) and incidents precipitated by another crime decreased 19% (p<0.05) (Table 11b). Yet, among female homicide victims, incidents precipitated by a crime in progress increased from 67% to 80%; of which, assault/rape increased from 21% to 40% between the two time periods (Table 11b). Among male homicide victims, incidents precipitated by a crime in progress decreased from 80% during 2011–2015 to 63% during 2016–2020 (Table 11b). Houses and apartments continued to be the most prominent homicide location, but with decreasing frequency (69% to 59%).

Toxicology test results indicated an increased proportion of homicide victims testing positive for one or more substances (from 74% during 2011–2015 to 86% during 2016–2020). Positive test results increased substantially for amphetamine and marijuana during 2016–2020 relative to 2011–2015 (from 13% to 32% and 33% to 50%, respectively) (Figure 3). Positive test results for cocaine and opiates increased from 3% to 7% and 13% to 18%, respectively; positive test results for alcohol and benzodiazepines remained at 5% (Figure 3).

Discussion
Based on the AKVDRS data, with the exception of 2020, an overall upward trend in homicide rates during the 10-year period was observed and accounted for

19% of all violent deaths in Alaska during this period. While Alaskans of all ages, sexes, races, and ethnicities experience homicides, disparities persist. Alaska's findings are consistent with many other NVDRS state reports and national studies also showing an increase in homicide deaths in recent years.[6,9-11] Interestingly, while the U.S. experienced a 30% increase in homicides between 2019 and 2020,[11] Alaska's homicide rate declined by 35% during that same period (from 10.7 to 7.0, respectively).

Firearm-related homicides were more prevalent during the latter half of the observation period (from 50% in 2011–2015 to 61% in 2016–2020). Precipitating circumstances from AKVDRS data indicated male victims were more often involved in an argument, physical assault, rape, drug trade, robbery, theft, or burglary shortly preceding a homicide.

Research has found that racial and ethnic minority groups in the U.S. experience inequitable rates of violent injury and death.[6,12] In Alaska, homicides were highest among Blacks and American Indian/Alaska Native people, particularly among young adult males. Social and economic inequities often correlate with exposure to violent injury and death.[13,14]

Attention to these inequities needs to be addressed to reduce exposure to community-level risk.[6,15] Communities in rural regions may be disproportionately exposed to inequities increasing the risk of exposure to violence and violent injury. These communities may also exhibit concentrated disadvantages such as depressed economies and employment opportunities. Additional regional and culturally appropriate research should be conducted on available protective factors that could enhance prevention measures at the local level. This approach should be inclusive of culturally appropriate prevention efforts using local and regional support services.

AKVDRS data also showed an increase in intimate partner, interpersonal, and sexual violence among female homicide victims during 2016–2020. Intimate partner violence was identified as a precipitating circumstance for 35% of female homicides victims where a current or former intimate partner was suspected of killing the victim. Local communities can help by promoting evidence-based approaches to teach youth and adults healthy relationship skills, how to recognize warning signs, and how to provide protective environments.[16]

Exposure to violence during childhood can lead to negative health consequences in adulthood. During

2020, homicide was a leading cause of death among persons aged 10–24 years in the U.S., accounting for 27.5% of homicide deaths.[1,2] Yet homicide reflects only a small portion of adolescent violence. In a 2015 report prepared for the Alaska Mental Health Board and the Advisory Board on Alcoholism and Drug Abuse, 16% of Alaska adults had four or more a*dverse* childhood experiences (ACEs),[17] which was comparable to 2015–2017 national estimates.[18] Traumatic experiences included abuse, neglect, witnessing domestic violence, growing up with substance abuse, mental illness, period(s) of parental separation such as a parent in jail, and family economic hardship. Strong, frequent, and/or prolonged experiences can produce a toxic stress response that can undermine healthy physical and brain development, indicating a need for trauma-informed interventions.[17,19] These experiences can also contribute to self-medicating behaviors and substance use disorders.

AKVDRS found that 25% of perpetrators were suspected of substance use prior to the homicide and 10% had been drinking with the victim. These circumstances play a pivotal role related to the impulsive actions taken by suspects and victims.[20,21] Alcohol and drug use can fuel violent situations by reducing inhibitions and amplifying aggressive behaviors. Among victims, alcohol and other substances can lower the ability to recognize warning signs of potential danger and violence.

Postmortem toxicology results indicated a rising prevalence of select substances being used by decedents shortly prior to their death during 2016–2020; amphetamine use observed to have the largest proportional increase among homicide victims (2.5 times higher during 2016–2020) (Figure 3). Nearly all decedents testing positive for amphetamine were also confirmed positive for methamphetamine. Prior research has linked methamphetamine use with violent behavior and homicide.[22] Methamphetamine is highly addictive and may induce anxiety, confusion, insomnia, mood disorders, and aggressive/violent behaviors.[23]

Adult use of marijuana was legalized in Alaska in 2017. During 2015–2019, marijuana use among youth had not changed substantially;[24] however, during the same period, self-reported marijuana use among adults increased by 20%.[25] AKVDRS findings were consistent with previous research that found marijuana was increasingly detected in homicide victims.[26] With legalization, a rise in marijuana use was anticipated and has become more commonly reported among adults representing diverse demographic groups.

Limitations
First, the availability, completeness, and timeliness of data depend on partnerships with key document providers (e.g., the Alaska Health Analytics and Vital Records Section, the Alaska State Medical Examiner Office, and law enforcement agencies). Abstractors are limited to data included in the investigative reports they receive. Death certificate and medical examiner documents might not fully reflect all information known about an incident until a full law enforcement investigation report is completed and the case is adjudicated. Information regarding intimate partner relationships and mental health diagnosis and treatment might not be thoroughly documented during investigation interviews, resulting in an under-ascertainment of precipitating characteristics.

Second, some NVDRS case variables focus on the affirmation of circumstances. Data analysis cannot differentiate whether information was "unavailable" or "unknown", or the circumstance was "not present" or "no".

Third, medical and mental health information (e.g., previous and current treatment and adherence to prescribed treatment) were not always available in the medical records. Medical examiner and law enforcement records may summarize information from patient records and information imparted by family and friends.

Fourth, protective factor data (i.e., characteristics or circumstances that reduce the risk of violence and death) are not collected in NVDRS. Documents collected (i.e., death certificate, medical examiner reports, toxicology results, and law enforcement investigation reports) typically contain only circumstances associated with risk factors.

Fifth, this database does not include information on missing individuals that have a high probability of death due to violence. While missing people is a crucial issue, information is not collected and entered into the NVDRS system. An actual or presumptive death certificate meeting NVDRS parameters (e.g., ICD-10 codes or manner of death) is required for entry into the database.

Sixth, while suspect information was captured from available records, 25% of victim-suspect relationship data remained incomplete. Abstraction from law enforcement case reports was dependent on the adjudication process; only fully adjudicated cases are provided for abstraction into the AKVDRS.

Conclusion

This report presents a detailed summary of homicide deaths in Alaska captured through the AKVDRS system during 2011–2020 and highlights frequently occurring circumstances associated with these deaths. Over the 10-year period, a statistically significant increase in annual homicide rates was observed. One notable exception to this trend was 2020, when Alaska experienced a 35% decrease in homicide deaths compared to 2019. Analytical findings from the AKVDRS surveillance provided comprehensive data that identified common characteristics among violent deaths and evolving risk factors (e.g., substance use). In 2022, AKVDRS received funding to continue participating and entering data into the national web-based surveillance system through 2027. AKVDRS can help provide robust data to state and local sectors to develop and improve strategies for prevention.

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Table 1a. Comparison of NVDRS and UCR Inclusion Criteria

NVDRS Homicide Inclusion Criteria	UCR Murder Inclusion Criteria
- Death from intentional physical force or power against another person or community - Death due to neglect or abuse with unspecified intent - Death due to arson without intent to injure - Death due to stabbing of unspecified intent - Death due to legal intervention - Death when the suspect intended to injure rather than kill - Death resulting from heart attacks induced when someone uses power or force against another person - Deaths resulting from a weapon that discharges unintentionally while being used to control or frighten a victim - Deaths that occur when the suspect acts in self-defense - Deaths labeled "justifiable homicide" when the suspect is **not** a law enforcement official - Deaths resulting from a variation of "Russian Roulette" where one person aims a partially loaded gun at another person and pulls the trigger	- Death classified as murder - Death classified as non-negligent manslaughter

Table 1b. Comparison of NVDRS and UCR Exclusion Criteria

NVDRS Homicide Exclusion Criteria	UCR Murder Exclusion Criteria
- MVA without intent to cause injury - Death of unborn fetus - Death of unborn child (premature birth) due to violence sustained prior to birth	- Death caused by negligence - Death caused by justifiable homicide

Figure 1. Number and Rate of Homicide (Excluding Legal Intervention), by Year — Alaska, 2011–2020

r² = 0.65
p-value < 0.001
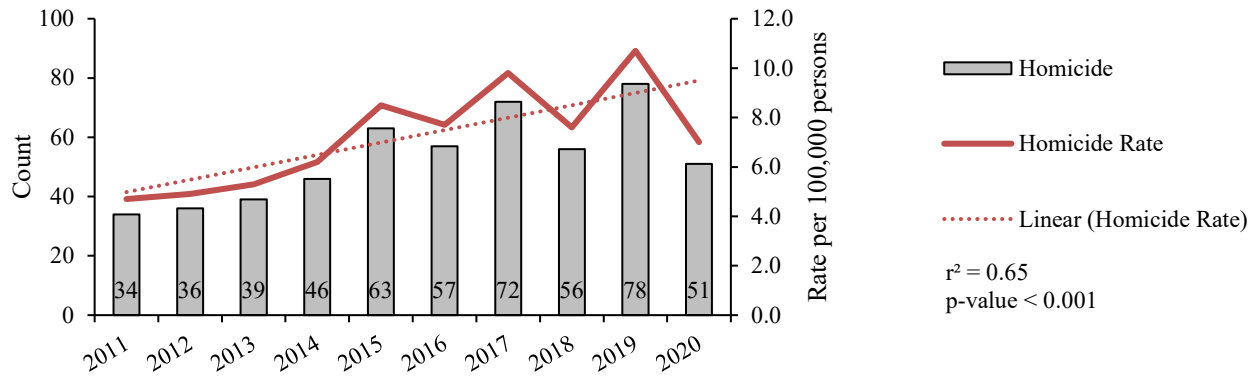
Data for Figure 1

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Count	34	36	39	46	63	57	72	56	78	51
Rate	4.7	4.9	5.3	6.2	8.5	7.7	9.7	7.6	10.6	7.0

Table 2 Number, Percent*, and Rate† of Homicides, by Sex and 5-Year Age Groups — Alaska, 2011–2020

Age group	Male n=355			Female n=177			Total N=532		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Under 5 years	13	4%	4.8	14	8%	5.5	27	5%	5.1
5 to 9 years	5	1%	1.8	1	1%	NR	6	1%	1.1
10 to 14 years	2	<1%	NR	6	3%	2.4	8	2%	1.5
15 to 19 years	27	8%	10.7	11	6%	4.8	38	7%	7.9
20 to 24 years	38	11%	13.7	22	12%	9.4	60	11%	11.7
25 to 29 years	50	14%	16.9	19	11%	7.0	69	13%	12.2
30 to 34 years	41	12%	14.3	24	14%	8.9	65	12%	11.7
35 to 39 years	37	10%	14.6	12	7%	5.1	49	9%	10.0
40 to 44 years	31	9%	13.4	15	8%	7.0	46	9%	10.3
45 to 49 years	23	6%	9.8	10	6%	4.5	33	6%	7.2
50 to 54 years	24	7%	9.2	11	6%	4.5	35	7%	6.9
55 to 59 years	27	8%	10.0	14	8%	5.6	41	8%	7.9
60 to 64 years	16	5%	6.9	5	3%	2.3	21	4%	4.7
65 to 69 years	13	4%	7.8	5	3%	3.3	18	3%	5.6
70+ years	8	2%	3.7	8	4%	3.4	16	3%	6.3
Percent and Rate of Total	355	67%	9.4	177	33%	5.0	532	100%	7.3

* Percentages may not equal 100% due to rounding.

† Rate per 100,000 persons; rates based on <20 occurrences are statistically unreliable and should be used with caution; rates based on ≤5 occurrences were not reported (NR).

Table 3. Number, Percent*, and Rate[†] of Homicides, by Sex and Race — Alaska, 2011–2020

Race	Male n=355			Female n=177			Total N=532		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
American Indian/Alaska Native	116	33%	20.4	72	41%	12.8	188	35%	16.6
Asian / Pacific Islander	24	7%	3.4	15	8%	2.2	39	7%	2.8
Black	54	15%	8.8	11	6%	2.0	65	12%	5.6
White	132	37%	5.1	72	41%	3.1	204	38%	4.2
Two or More Races	25	7%	NA	6	3%	NA	31	6%	NA
Unknown	4	1%	NA	1	1%	NA	5	1%	NA
Percent and Rate of Total	355	67%	9.4	177	33%	5.0	532	100%	7.3

* Percentages may not equal 100% due to rounding. NA-Not available

[†] *Rate per 100,000 persons; Rates based on <20 occurrences are statistically unreliable and should be used with caution; rates based on ≤5 occurrences were not reported (NR).*

Table 4. Number, Percent*, and Rate[†] of Homicides, by Region — Alaska, 2011–2020

Region	Male n=355			Female n=177			Total N=532		
	Number	Percent	Rate	Number	Percent	Rate	Number	Percent	Rate
Anchorage	166	47%	11.1	73	41%	5.0	239	45%	8.1
Gulf Coast	18	5%	4.3	9	5%	2.3	27	5%	3.3
Interior	56	16%	9.4	35	20%	6.6	91	17%	8.1
Matanuska-Susitna	40	11%	7.7	22	12%	4.5	62	12%	6.2
Northern	19	5%	12.3	8	4%	6.7	27	5%	9.8
Southeast	19	5%	5.1	9	5%	2.5	28	5%	3.8
Southwest	37	10%	16.0	18	10%	9.5	55	10%	13.1
Unknown[†]	0	0%	0.0	3	2%	NA	3	1%	NA
Percent and Rate of Total	355	67%	9.4	177	33%	5.0	532	100%	7.2

* Percentages may not equal 100% due to rounding.

[†] *Rate per 100,000 persons; Rates based on <20 occurrences are statistically unreliable and should be used with caution; rates based on ≤5 occurrences were not reported (NR).*

Table 5. Number and Percentage of Homicides by Method of Injury and Sex of Victim —Alaska, 2011–2020

Method of Injury	Male n=355 Number	Male n=355 Percent	Female n=177 Number	Female n=177 Percent	Total N=532 Number	Total N=532 Percent
Firearm	213	60%	88	50%	301	57%
Sharp Instrument	65	18%	20	11%	85	16%
Personal Weapons	32	9%	15	8%	47	9%
Blunt Instrument	21	6%	18	10%	39	7%
H/S/S[†]	5	1%	18	10%	23	4%
All Other	15	4%	13	7%	28	5%
Unknown	4	1%	5	3%	9	2%
Total	355	100%	177	100%	532	100%

* *Percentages may not total 100% due to rounding.*

[†] *Hanging/Strangulation/Suffocation.*

Table 6. Number and Percentage of Homicides by Injury Location and Sex of Victim — Alaska, 2011–2020

Location	Male n=355 Number	Male n=355 Percent	Female n=177 Number	Female n=177 Percent	Total N=532 Number	Total N=532 Percent
House or apartment	212	60%	124	70%	336	63%
Street/sidewalk/alley	31	9%	2	1%	33	6%
Motor vehicle (MV)[†]	23	6%	9	5%	32	6%
Natural area[†]	16	5%	17	9%	33	6%
All other locations	63	18%	20	11%	83	16%
Unknown	10	3%	5	3%	15	3%
Total	355	100%	177	100%	532	100%

* *Percentages may not total 100% due to rounding.*

[†]*MV excludes bus and public transportation; natural area includes fields, rivers, beaches, woods.*

Table 7. Known Victim-Suspect Relationships* by Sex of Victim — Alaska, 2011–2020

Relationship	Male N=355 Number	Male N=355 Percent	Female N=177 Number	Female N=177 Percent	Total N=532 Number	Total N=532 Percent
Acquaintance/Friend/ Roommate/Schoolmate	116	33%	17	10%	127	24%
Another Person Known to Victim[†]	111	31%	14	8%	130	24%
Current or Former Spouse/Boyfriend/Girlfriend	24	7%	68	38%	91	17%
Family/Household Member[±]	43	12%	21	12%	72	14%
Stranger	40	11%	14	8%	54	10%
Child**	13	4%	18	10%	31	6%
Victim was Law Enforcement Officer	4	1%	0	0%	4	1%
Unknown Relationship/Missing	110	31%	41	23%	151	28%

* *One or more suspects may be identified per victim; primary and secondary victim-suspect relationships were included (e.g., family member and co-worker).*
[†] *Another person known to victim includes current or former workplace relationship, babysitter, rival gang member, and persons where the exact relationship is unknown.*
[±] *Family/household member may include parent, foster parent/child, stepparent/stepchild, grandparent, cousin, uncle, aunt, in-law, etc.*
***Child relationship may include biological child, stepchild, etc. regardless of age.*

Table 8. Frequent Precipitating Circumstances by Sex of Victim — Alaska, 2011–2020

Circumstances	Male N=355		Female N=177		Total N=532	
	Number	Percent	Number	Percent	Number	Percent
Circumstances Known	299	84%	162	92%	461	87%
Argument	132	37%	46	26%	178	33%
Precipitated by Other Crimes	79	22%	39	22%	118	22%
-Crime in Progress When Injury Occurred	58/79	73%	28/39	72%	86/118	73%
- Assault/Rape	27/79	34%	11/39	28%	38/118	32%
- Drug Trade	15/79	19%	8/39	21%	23/118	19%
- Robbery/Theft/ Burglary	21/79	27%	4/39	10%	25/118	21%
Intimate Partner Violence	32	9%	69	39%	101	19%
Victim Used Weapon	31	9%	1	<1%	32	6%
Fight Between Two People	61	1%	9	5%	70	13%
Relationship Problem	47	13%	12	7%	59	11%
Random Violence	22	6%	9	5%	31	6%
Interpersonal Violence as Perpetrators	18	5%	3	2%	21	4%
Interpersonal Violence as Victim	6	2%	18	10%	24	5%
Jealousy	14	4%	9	5%	23	4%
Mental Health Problem	34	10%	16	9%	50	9%
History of Mental Illness Treatment	21	6%	11	6%	32	6%
Substance Abuse Problem	94	26%	39	22%	133	25%
Alcohol Problem	57	16%	32	18%	89	17%

Table 9. Number and Percent of Substances Used by Homicide Victims Prior to Death, AKVDRS — Alaska, 2011–2020 (N=516)

Substances Used	Number	Percent
Positive for Any Substance	407	79%
-One Substance per Total Positive	197/407	48%
-Two Substances per Total Positive	137/407	34%
-Three or More Substances per Total Positive	69/407	17%
Positive for Alcohol Only	90	17%
Positive for Both Alcohol and Drugs	127	25%
Positive for Alcohol Only or Alcohol and Drugs	217	42%
Positive for Drugs Only	190	37%

Table 10. Demographics and Frequent Characteristics of Homicide Suspects — Alaska, 2011–2020 (N=635)

Demographics/Characteristics	Male n=540		Female n=64		Total N=635	
	Number	Percent	Number	Percent	Number	Percent
Age Group						
9–17 years	34	6%	0	0%	34	5%
18–24 years	159	29%	13	20%	172	27%
25–34 years	140	26%	29	45%	169	27%
35–44 years	107	20%	8	13%	115	18%
45–54 years	38	7%	4	6%	42	7%
55–64 years	18	3%	2	3%	20	3%
65+ years	6	1%	2	3%	8	1%
Unknown	38	7%	6	9%	75	12%
Race						
White	135	25%	19	30%	154	24%
Black	87	16%	7	11%	94	15%
Asian/Pacific Islander	18	3%	1	2%	19	3%
American Indian/Alaska Native	112	21%	18	28%	130	20%
Other	7	1%	0	0%	7	1%
Unknown	181	34%	19	30%	231	36%
Frequent Characteristics						
Previous Contact with Police	145	27%	17	27%	162	26%
Suspected Alcohol Use Prior to Assault	121	22%	14	22%	135	21%
Suspected Substance Use Prior to Assault	97	18%	12	19%	109	17%
Drinking with Victim	57	11%	9	14%	66	10%
Diagnosed Mental Illness	47	9%	10	16%	57	9%
History of Abuse	37	7%	1	2%	38	6%
Attempted Suicide	13	2%	3	5%	16	3%

* Percentages might not total 100% due to rounding.

Table 11a. Comparison of 2011–2015 to 2016–2020 Homicide Demographics, Alaska

	2011–2015						2016–2020						
	Male N=147		Female N=71		Total N=218		Male N=208		Female N=106		Total N=314		P-value**
Demographics	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Age group													
0 to 9 years	12	4.4	9	3.5	21	3.9	6	2.2	6	2.4	12	2.3	NSD
10 to 19 years	8	3.1	7	2.9	15	3.0	21	8.1	10	4.2	31	6.2	<0.05
20 to 29 years	38	12.7	16	6.1	54	9.6	50	18.2	25	10.3	75	14.5	<0.05
30 to 39 years	25	9.7	13	5.4	38	7.6	53	18.8	23	8.7	76	13.9	<0.01
40 to 49 years	14	5.7	10	4.4	24	5.1	40	18.0	15	7.1	55	12.7	<0.001
50 to 59 years	32	11.4	9	3.4	41	7.6	19	7.6	16	6.8	35	7.2	NSD
60 to 69 years	14	7.5	5	3.0	19	5.4	15	7.0	5	2.5	20	5.1	NSD
70+ years	4	NR	2	NR	6	3.0	4	NR	6	4.5	10	3.9	NSD
Race													
AI/AN†	49	17.6	26	9.5	75	13.6	67	23.0	46	16.0	113	19.5	<0.01
Asian / PI†	8	6.3	7	5.1	15	5.7	16	2.7	8	1.5	24	2.1	NSD
Black	18	24.4	7	12.0	25	19.1	36	11.8	4	NR	40	6.9	NSD
White	64	4.9	31	2.7	95	3.9	68	5.4	41	3.6	109	4.5	NSD
Two or More	8	NA	0	NA	8	NA	17	NA	6	NA	23	NA	
Unknown	0	0.0	0	0.0	0	0.0	4	NA	1	NA	5	NA	
Region													
Anchorage	63	8.3	30	4.1	93	6.2	103	13.9	43	5.9	146	9.9	<0.001
Gulf Coast	10	4.7	4	NR	14	3.5	8	3.8	5	2.6	13	3.2	NSD
Interior	27	9.0	14	5.2	41	7.2	29	9.9	21	7.9	50	9.0	NSD
Matanuska-Susitna	18	7.3	5	2.2	23	4.8	22	8.1	17	6.6	39	7.4	NSD
Northern	6	7.7	3	NR	9	6.6	13	16.8	5	8.3	18	13.1	NSD
Southeast	8	4.2	3	NR	11	3.0	11	5.9	6	3.4	17	4.7	NSD
Southwest	15	12.9	11	11.6	26	12.4	22	19.1	7	7.3	29	13.8	NSD
Unknown	0	0.0	1	NA	1	NA	0	0.0	2	NA	2	NA	
Total	147	7.7	71	4.0	218	5.9	208	7.7	106	5.9	314	8.5	

*Rates based on <20 occurrences are statistically unreliable and should be used with caution; rates based on ≤5 occurrences were not reported (NR). NA-Not available

† AI/AN – American Indian/Alaska Native; A/PI – Asian/Pacific Islander ± Hanging/Strangulation/Suffocation.

** P-value calculated for comparison between 5-year study periods; NSD-No significant difference

Table 11b. Comparison of 2011–2015 to 2016–2020 Homicide Characteristics, Alaska
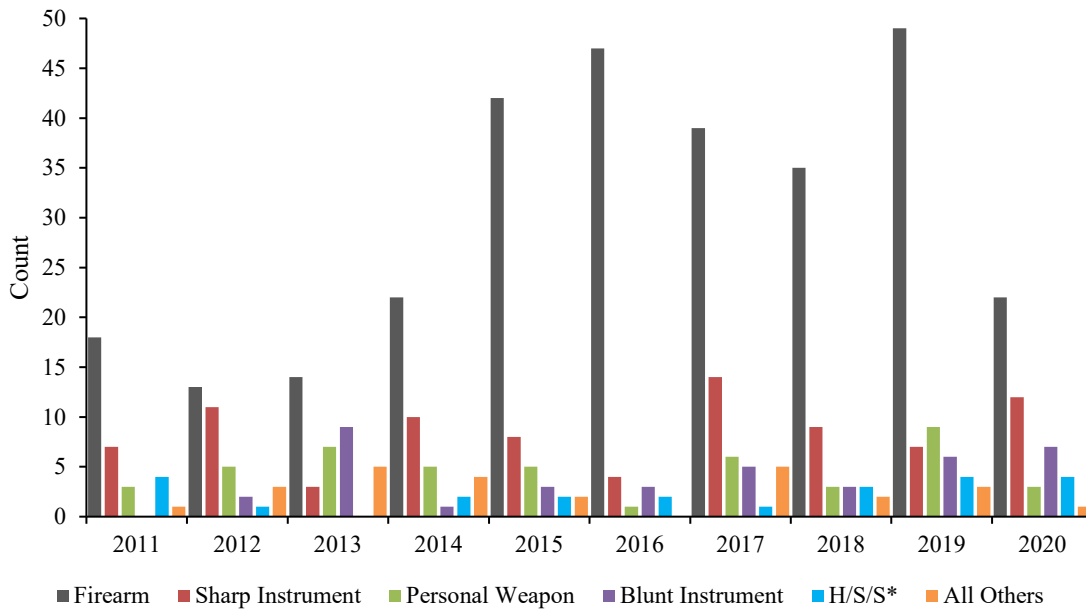
	2011–2015						2016–2020						
	Male N=147		Female N=71		Total N=218		Male N=208		Female N=106		Total N=314		P-value**
Characteristics	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Location of Injury													
House or Apartment	101	69	49	69	150	69	111	53	75	71	186	59	<0.05
Street/Sidewalk/Alley	8	5	2	3	10	5	23	11	0	0	23	7	NSD
Method of Injury													
Firearm	76	52	33	46	109	50	137	66	55	52	192	61	<0.05
Sharp Instrument	28	19	11	15	39	18	37	18	9	8	46	15	NSD
Personal Weapons	19	13	6	8	25	11	13	6	9	8	22	7	NSD
Blunt Instrument	9	6	6	8	15	7	12	6	12	11	24	7	NSD
H/S/S$^{\pm}$	2	1	7	10	9	4	3	1	11	10	14	4	NSD
All Other	10	7	5	7	15	7	4	2	7	7	11	4	NSD
Unknown	3	2	3	4	6	3	2	1	3	3	5	2	NSD
Characteristics													
Circumstances Known	141	96	69	97	210	96	158	76	93	88	251	80	<0.001
Argument	62	42	23	32	85	39	70	34	23	22	93	30	<0.05
Precipitated by Other Crimes	49	33	24	34	73	33	30	14	15	14	45	14	<0.001
- Crime in Progress When Injury Occurred	39/49	80	16/24	67	55/73	75	19/30	63	12/15	80	31/45	69	NSD
- Assault/Rape	17/49	35	5/24	21	22/73	30	11/30	37	6/15	40	17/45	38	NSD
- Drug Trade	9/49	18	5/24	21	14/73	19	6/30	20	3/15	20	9/45	20	NSD
- Robbery/Theft/ Burglary	12/49	24	2/24	8	14/73	19	9/30	30	2/15	13	11/45	24	NSD
Intimate Partner Violence	21	14	32	45	53	24	11	5	37	35	48	15	<0.01
Random Violence	12	8	5	7	17	8	10	5	4	4	14	4	NSD
Interpersonal Violence as Perpetrators	14	10	1	1	15	7	4	2	2	2	6	2	<0.01
Interpersonal Violence as Victim	5	3	10	14	15	7	1	<1	8	8	9	3	<0.05

Table 11b. Comparison of 2011–2015 to 2016–2020 Homicide Characteristics, Alaska (con't)

	2011–2015						2016–2020						P-value**
	Male N=147		Female N=71		Total N=218		Male N=147		Female N=71		Total N=218		
Characteristics	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Substance Abuse Problem	40	27	15	21	55	25	54	26	24	23	78	25	NSD
Alcohol Problem	28	19	13	18	41	19	29	14	19	18	48	15	NSD
Mental Health Problem	14	10	3	4	17	8	20	10	13	12	33	11	NSD
History Mental Illness Treatment	11	7	5	7	16	7	10	5	6	6	16	5	NSD

*** P-value calculated for comparison between 5-year study periods; NSD-No significant difference*

**Figure 2. Homicide Deaths by Known Weapon Type — Alaska, 2011–2020 (N=521)**

H/S/S: Hanging/Strangulation/Suffocation.

Data for Figure 2

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Firearm	18	13	14	22	42	47	39	35	49	22
Sharp Instrument	7	11	3	10	8	4	14	9	7	12
Personal Weapon	3	5	7	5	5	1	6	3	9	3
Blunt Instrument	0	2	9	1	3	3	5	3	6	7
Hanging, Strangulation, Suffocation	4	1	0	2	2	2	1	3	4	4
All Other Weapon Types	1	3	5	4	2	0	5	2	3	1

Figure 3. Comparison of Type and Percent of Substances Used by Homicide Victims, AKVDRS — Alaska, 2011–2015 and 2016–2020
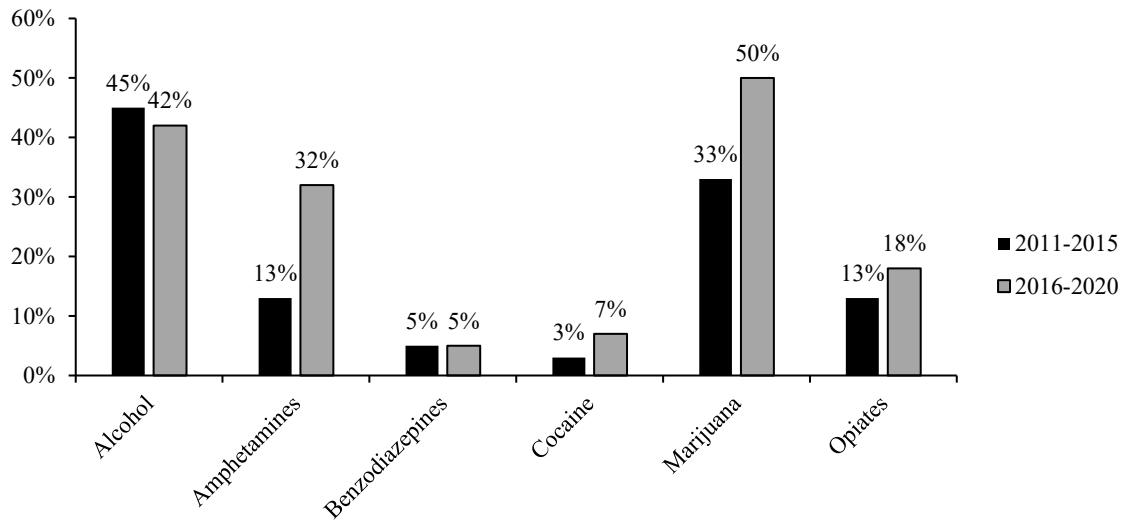
Data for Figure 3

Year	2011–2015	2016–2020
Alcohol	45%	42%
Amphetamines	13%	32%
Benzodiazepines	5%	5%
Cocaine	3%	7%
Marijuana	33%	50%
Opiates	13%	18%