State of Alaska Epidemiology Bulletin

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Bulletin No. 5
April 28, 2026

Emergency Department Visits and Deaths due to ATV Crashes—Alaska, 2019–2024

Background

All-terrain vehicles (ATVs) are a vital mode of transportation in Alaska, supporting work, subsistence activities, recreation, and travel. However, operating ATVs on uneven terrain or pavement, at high speeds, or without protective equipment places operators and passengers at risk of injuries.[1] These incidents can result in serious injuries such as fractures, lacerations, and traumatic brain injuries (TBIs), and in some cases, death. During 2019–2024, approximately 1,200 ATV deaths occurred annually in the US (0.4 deaths per 100,000 persons).[1] This *Bulletin* describes current trends and patterns of ATV-related emergency department (ED) visits in Alaska.

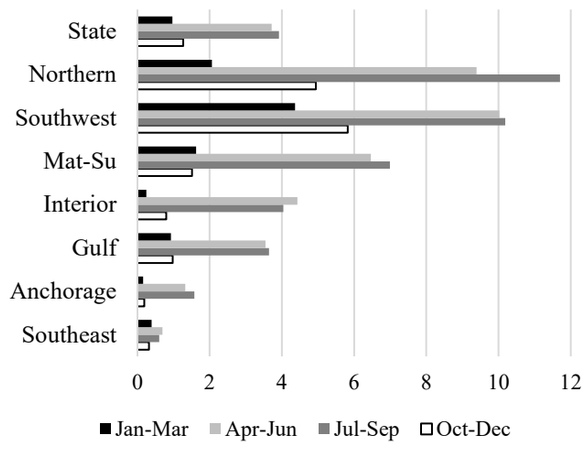
Methods

ATV-related ED visits during 2019–2024 were identified using Alaska syndromic surveillance data, based on diagnosis codes and free-text entries in clinical notes.[2] Each visit was then classified into one or more injury categories according to the associated diagnosis codes. Public health region was assigned based on the patient's residential address. Rates were calculated by dividing the total number of ATV-related visits by the total number of ED visits during the same period. Quarterly rates were calculated using the average number of visits for each quarter across the study period. ATV-related fatalities during 2019–2024 were identified using Alaska death certificate data (ICD code V86, excluding snowmachines and motorcycles).

Results

During 2019–2024, 4,421 ATV-related ED visits were identified. The Northern region experienced the highest rate of ATV-related ED visits (Figure). Rates of ATV-related ED visits were highest during April–September (Figure).

Figure. Rate of ATV-Related Emergency Department Visits per 1,000 ED Visits, by Public Health Region and Quarter — Alaska, 2019–2024



The rate of ATV-related ED visits varied by age group and injury type (Table). Rates were highest among children aged 12–15 years, followed by children aged 16–17 years, and young adults aged 18–24 years (Table). Of the 4,421 persons who had ATV-related ED visits, 1,911 (43%) were injured while riding as passengers. Fractures excluding skull fractures were the most common injury type, accounting for 40% of visits, followed by TBI and lacerations (Table).

During 2019–2024, a total of 71 ATV fatalities were identified statewide (rate: 1.6 fatalities per 100,000 persons); of these, 11 (15%) were among children aged ≤17 years old.

Table. ATV-Related ED Visit Injury Rate, by Age and Injury — Alaska, 2019–2024

	# (%) of ATV-Related Visits (n=4,421)	Rate per 1,000 ED Visits
Age (Years)		
0–11	487 (11%)	2.3
12–15	616 (14%)	12.1
16–17	239 (5%)	7.3
18–24	735 (17%)	4.2
25–39	1,182 (27%)	2.7
40–49	485 (11%)	2.2
50–64	433 (10%)	1.3
65+	243 (5%)	0.7
Selected Injury*		
TBI	769 (17%)	0.4
Bone fracture (not including skull)	1,773 (40%)	1.0
Laceration(s)	737 (17%)	0.4

** Some ATV-related ED visits incur more than one injury*

Discussion

This analysis highlights substantial geographic, temporal, and age-specific variations in ATV-related injuries in Alaska. Higher rates of ED visits in rural regions likely reflect greater reliance on ATVs for daily activities and more riding on uneven terrain. The higher rates of ATV injuries during the warmer months likely reflect increased time spent riding. During 2019–2024, Alaska's ATV-related fatality rate was 4-times higher than the US estimate (1.6 vs 0.4 deaths per 100,000 population, respectively). This likely reflects the frequent use of ATVs for daily activities in rural Alaska. Children and adolescents accounted for 15% of fatalities, highlighting the importance of targeted prevention for young drivers and passengers.

Disproportionately high injury rates among children and young adults and the large share of injuries involving passengers and TBIs point to specific opportunities for intervention, including prevention messages that emphasize the following:[3,4,5]

- Limiting passengers to the ATV's rated capacity;
- Avoiding riding under the influence of alcohol or drugs;
- Ensuring youth ride only age-appropriate ATVs;
- Wearing helmets, eye protection, boots, gloves, long pants, and long-sleeved shirts; and
- Using seat belts when available.

Limitations: 1) Not all ATV-related injuries may result in an ED visit. 2) Incomplete recording of vehicle type in medical records might have resulted in an underestimation of ATV-related ED visits. 3) Rates were calculated per ED visit rather than per hours of ATV use, which might more accurately reflect risk. 4) Due to inconsistent documentation in ED records; the prevalence of protective factors such as helmet and seatbelt use and risk factors (e.g., substance use) could not be assessed.

References

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