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Snowmobile Injuries in Alaska, 1993-1994

During 1990-1994, Alaska had the highest snowmobile injury death rate in the United States. We studied injuries associated with snowmobiles in Alaska and compared these injuries with those associated with on-road motor vehicles.

Vehicles in Use - While vehicle registrations provide a reliable estimate of on-road motor vehicles in use in Alaska, snowmobile registrations provide a poor estimate of snowmobiles in use because point-of-sale registration is not required. However, reliable annual statewide sales totals are available for 1993-1996.¹ Snowmobiles in use in Alaska during calendar years 1993-1994 were estimated from projected 10-year sales totals using two methods. First, the ratio of snowmobile registrations during 1993-1996 to sales totals from 1993-1996 was determined, and annual registrations from earlier years were multiplied by this ratio to provide a 10-year sales total of 38,950 vehicles. Second, the average annual sales for 1993-1994 (6,000 vehicles) was multiplied by 10 to obtain a 10-year sales total of 60,000 snowmobiles. Because snowmobiles are operable in Alaska for approximately half of each year, these totals were halved resulting in a range of 19,475-30,000 snowmobiles/year of use (vehicle-years).

Snowmobile Injury Deaths and Hospitalizations - There were more deaths² and hospitalizations³ associated with snowmobile injuries per vehicle-year than deaths⁴ and hospitalizations³ associated with on-road motor vehicle injuries (Table 1).

Table 1. Deaths and Hospitalizations associated with Snowmobile and On-road Motor Vehicle Injuries per Vehicle-year, Alaska, 1993-1994.

Vehicle	Deaths	(Rate*)	Hospitalizations	(Rate*)
Snowmobile	26	(43.3-66.8)	238	(397-611)
On-road motor vehicle	176	(16.8)	1,137	(109)

*per 100,000 vehicle-years

Because estimates of snowmobiles in use by region and race were unavailable, we calculated death and hospitalization rates per 100,000 person-years for snowmobile and on-road motor vehicle injuries by region and race. The northern region (Figure 1) of the state had the highest rate of snowmobile injury deaths and hospitalizations, surpassing those associated with on-road motor vehicles (Table 2). Alaska Natives had a higher snowmobile injury death rate (7.8/100,000 person-years) than did non-Natives (1.1/100,000 person-years). All Alaska Native snowmobile injury deaths were in the northern region.

Table 2. Deaths and Hospitalizations associated with Snowmobile and On-road Motor Vehicle Injuries by Region per Person-year, Alaska, 1993-1994.

Region	Snowmobile				On-Road Motor Vehicle			
	Deaths	(Rate*)	Hosp.	(Rate*)	Deaths	(Rate*)	Hosp.†	(Rate*)
Northern	16	(11.2)	136	(96.9)	15	(10.7)	59	(42.1)
Central	9	(1.2)	88	(11.3)	121	(15.6)	755	(97.2)
Southern	1	(0.3)	14	(4.9)	40	(13.9)	317	(109.9)

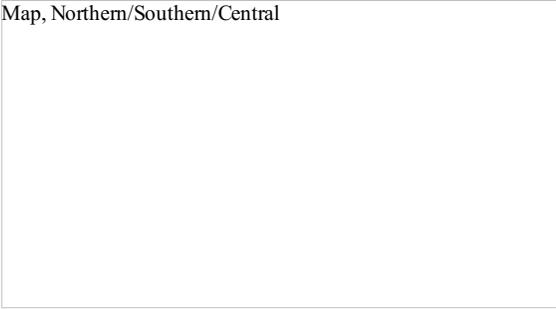
* per 100,000 person-years
† excludes 6 hospitalizations where region was unknown

Characteristics of Deaths and Hospitalizations - Snowmobile injury death victims were more likely to be male (96%) and Alaska Native (56%), than were on-road motor vehicle injury death victims (66% and 19%, respectively). The median age of snowmobile injury death victims was 28 years. Of 17 snowmobile injury death victims with a blood alcohol concentration, 11 (65%) were ≥ 100 mg/dL. Ejection (n=8) and drowning (n=7) were the most common mechanisms of snowmobile injury death. Fifteen deaths (58%) involved a natural object such as a boulder, ravine or river. Only 6 (35%) of 17 deaths with helmet use recorded were wearing a helmet. Among events leading to a snowmobile injury hospitalization, 36% involved a natural object. Lower extremity fractures, frequently a result of ejection, were more common among persons hospitalized with snowmobile injuries (90/238, 38%) than among persons hospitalized with on-road motor vehicle injuries (262/1137, 23%).

Discussion - Snowmobile injury deaths and hospitalizations were much more common per vehicle-year than on-road motor vehicle injury deaths and hospitalizations. Snowmobile injury deaths and hospitalizations were more common per person than on-road motor vehicle injury deaths hospitalizations in northern Alaska. Alaska Natives were at greater risk for snowmobile injury death than were non-Natives, partly due to a greater likelihood of living in northern Alaska. Alcohol intoxication and natural obstacles contributed to the risk of injury and death associated with snowmobile use in Alaska.

Snowmobile exposure data in Alaska could be strengthened by point-of-sale registration. Snowmobile injury control strategies, including trail development and improvement, are urgently needed. Efforts to reduce alcohol consumption through local alcohol statutes and increased alcohol taxation should be supported.

Map, Northern/Southern/Central



References

1. Personal communication, T. Borgstrom, Anchorage Economic Development Corporation.
2. Mortality Data for Alaska Residents, provided by the Bureau of Vital Records, Alaska Division of Public Health. ICD-9 E820. Supplemented by records of the Alaska Department of Public Safety, the State Medical Examiners Office, Alaska Division of Public Health, and by Alaska Department of Transportation records for traffic-related deaths.
3. Hospitalizations of ≥ 24 hours duration for Alaska residents from the Alaska Trauma Registry, Section of Community Health and Emergency Medical Services, Alaska Division of Public Health. Snowmobile injuries: ICD-9 E820. On-road motor vehicle injuries: ICD-9 E810-E819.
4. Mortality data for Alaska residents, provided by the Bureau of Vital Records, Alaska Division of Public Health. ICD-9 E810-E819.
5. Regions are equivalent to BRFSS strata, with the exception of the southern region which combines two strata.