

PART 7

DROWNINGS & OTHER WATER-RELATED INJURIES DURING LAND & AIR TRANSPORT

Most *land and air transport drownings* involve either travel off-road over ice by snowmobiles or on-road over bridges and highways by cars and other motor vehicles. Land and air transport drownings account for 15% of all drownings in Canada.

Drownings are a frequent cause of death among snowmobilers in Canada. Most snowmobile drownings result from recreational or daily living travel, with only an occasional occupational death. Nearly all victims are adult males, and about one-third are aboriginal peoples. Most drownings occur when a snowmobile goes through an open hole in the ice on a lake or river, especially at night when visibility is poor. Visibility is also affected by blowing snow. Alcohol is a factor in about 56% of deaths. High speed and inadequate lighting systems are suspected but unproven risk factors. Multiple-victim incidents are frequent and rescuers also appear to be at risk.

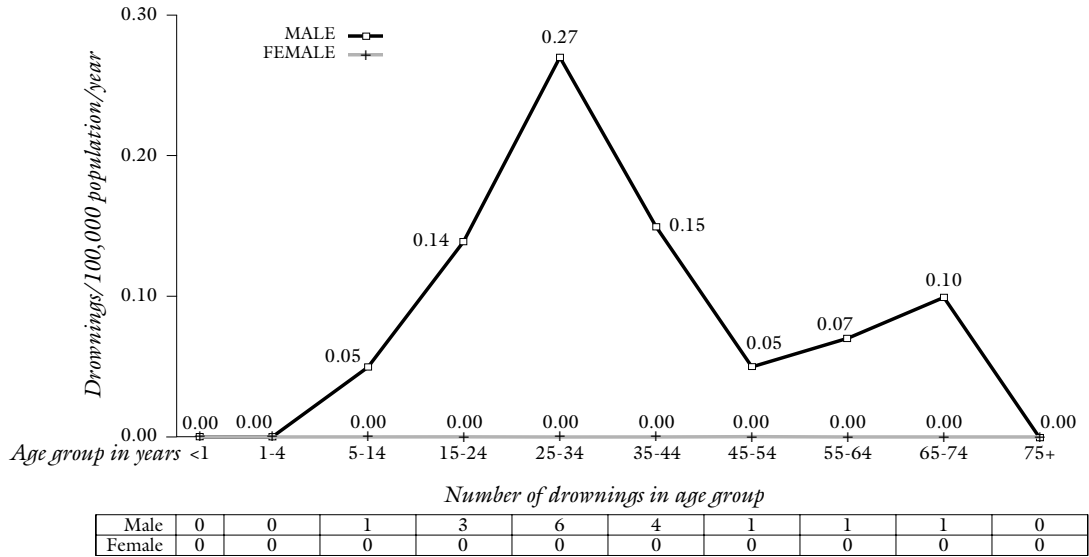
While nearly half of all snowmobile drownings occur in Ontario, the highest rates occur in Nunavut, the Northwest Territories, and Yukon, followed by Newfoundland. Rates in the northern territories are nearly 20 times higher than the Canadian average. Although most snowmobile drownings occur during February to March, in the North some incidents occur as late as June or July.

Seat belts, padded dashboards, energy-absorbing bumpers, and speed limits are mandatory for on-road vehicles; however, comprehensive legislation remains to be developed for issues critical to snowmobile safety. These include mandatory use of flotation/hypothermia suits for travel over ice, speed governors, lighting systems adequate for the top speed of the snowmobile, effective measures to limit alcohol consumption by operators of off-road vehicles, flotation systems for snowmobiles, and rescue throw bags as safety equipment.

Victims of drownings involving *on-road vehicles* tend to be about two-thirds male and one-third female, mainly adults with a small number of child passengers. The proportion of females is higher than for most other activities associated with drowning. Rivers are the most frequent body of water, and bridges with inadequate barriers are associated with many of these incidents in certain provinces. Darkness, alcohol, and slippery road surfaces due to snow, ice, or rain are other frequent risk factors.

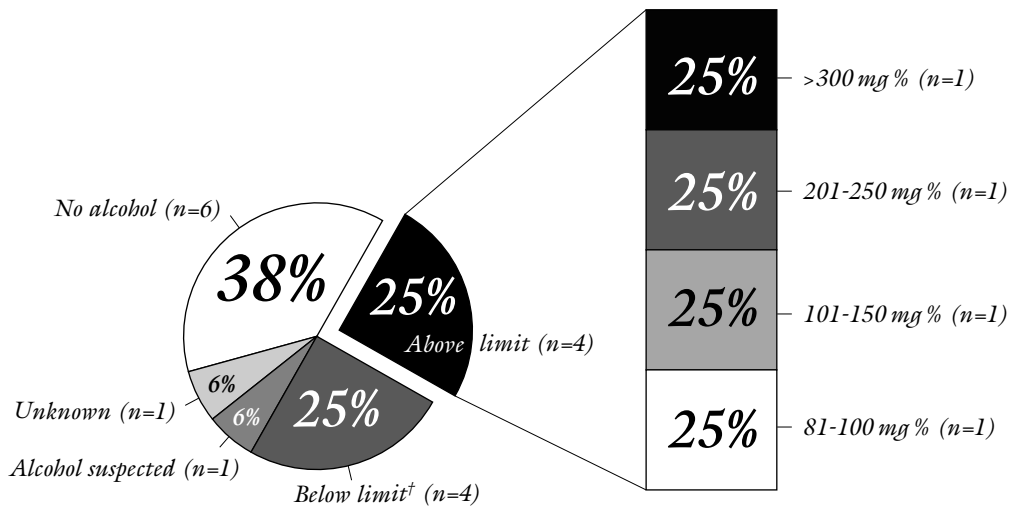
SNOWMOBILE DROWNINGS

Figure 7.1 **RATE AND NUMBER OF SNOWMOBILE DROWNINGS BY AGE & SEX, CANADA 1999 (n=17)***



* Including recreational 11, daily living 6
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

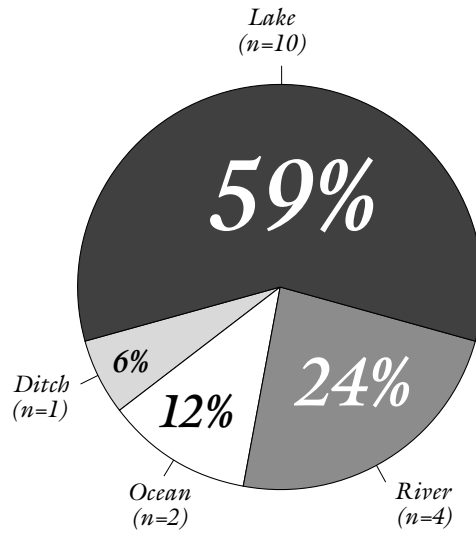
Figure 7.2 **BLOOD ALCOHOL LEVELS* FOR SNOWMOBILE DROWNINGS, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=16)**



* Legal limit is 80 mg % † 1 at 1-49 mg %, 3 at 50-80 mg %
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.3

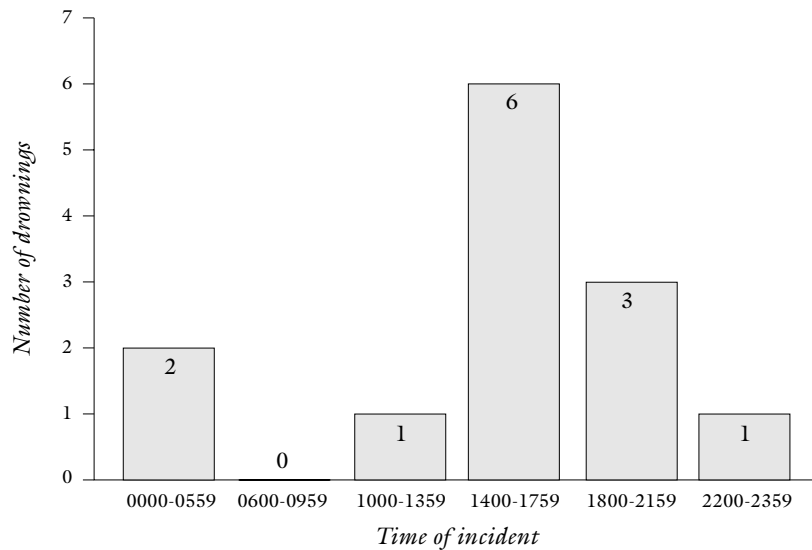
SNOWMOBILE DROWNINGS BY TYPE OF BODY OF WATER, CANADA 1999 (n=17)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.4a

SNOWMOBILE DROWNINGS BY TIME OF INCIDENT, CANADA 1999 (n=17)*

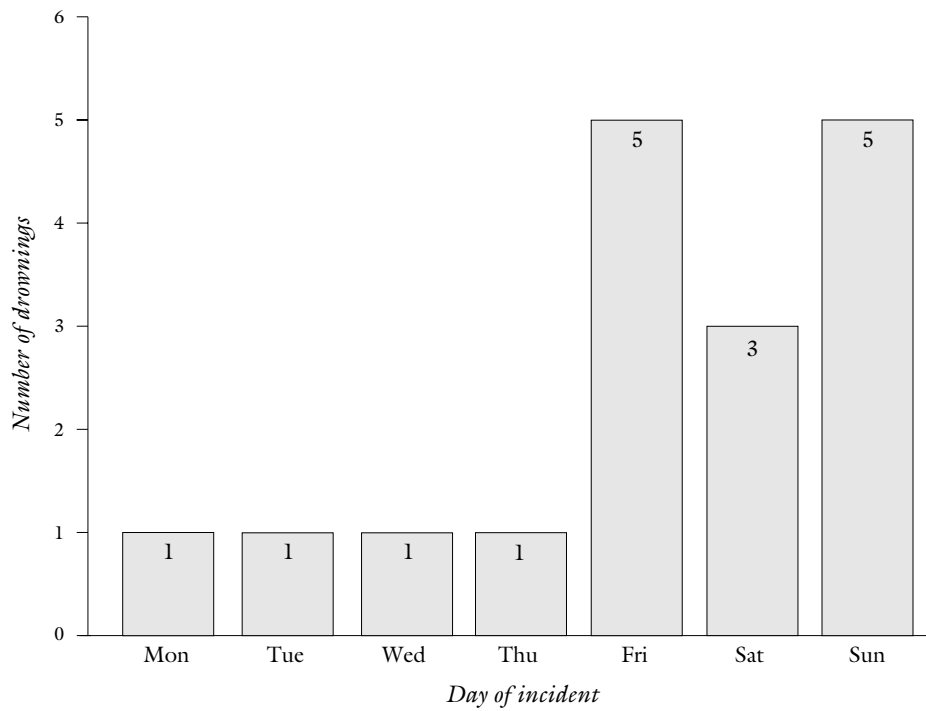


*Time unspecified for 4 drownings; light conditions: dark 3, light 1; for the other 13: dark 6, twilight 3, light 4

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.4b

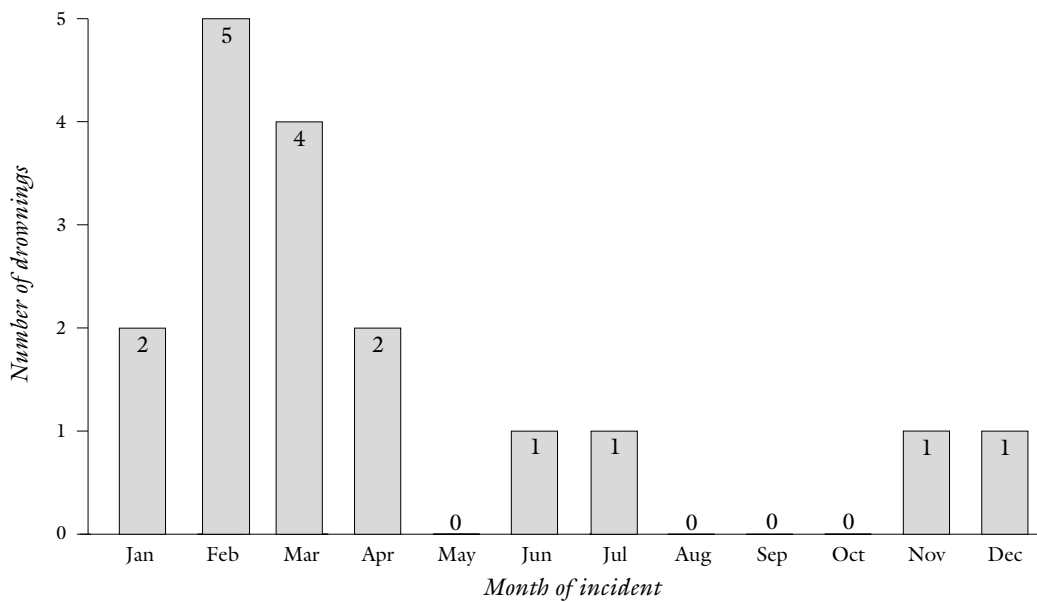
SNOWMOBILE DROWNINGS BY DAY OF INCIDENT, CANADA 1999 (n=17)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.4c

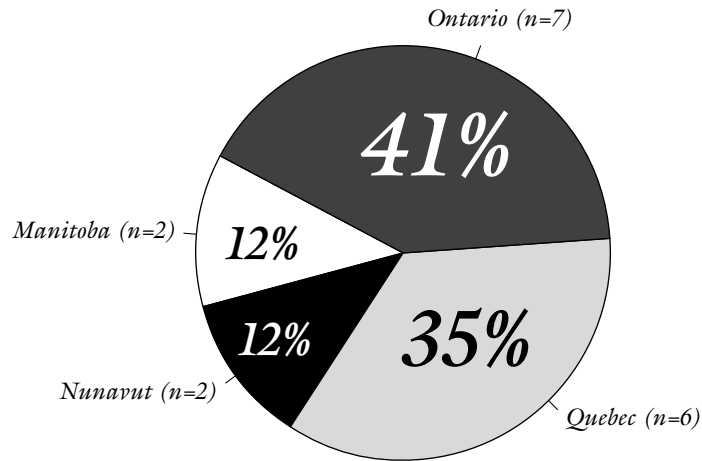
SNOWMOBILE DROWNINGS BY MONTH OF INCIDENT, CANADA 1999 (n=17)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.5

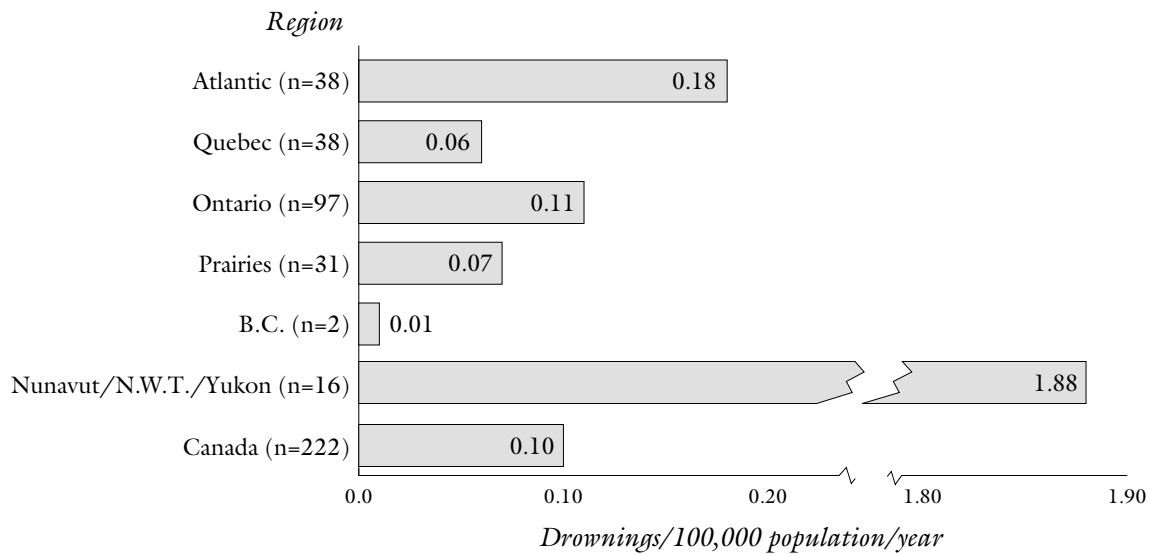
SNOWMOBILE DROWNINGS BY REGION, CANADA 1999 (n=17)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.6

RATE* OF SNOWMOBILE DROWNINGS BY REGION, CANADA 1991-1999 (n=222)



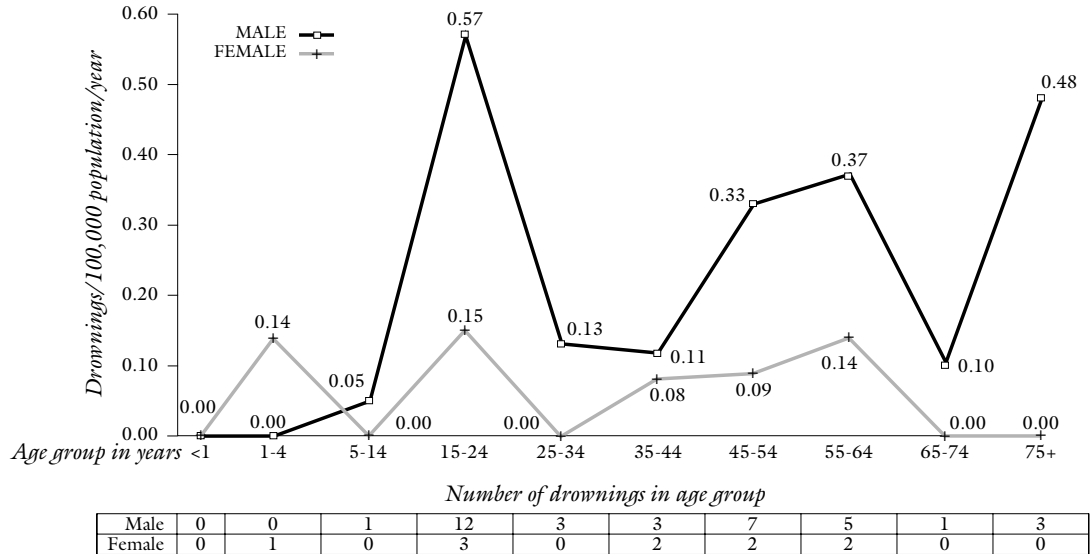
* Because of the small number of incidents in a single year by region, and random variation from year to year, rates are presented for the nine-year period

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

ROAD TRAFFIC DROWNINGS

Figure 7.7

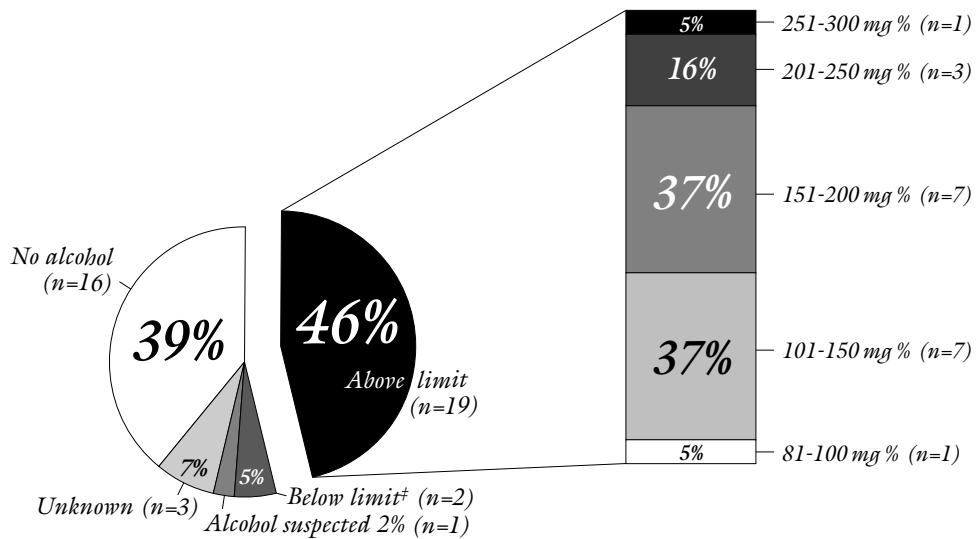
RATE AND NUMBER OF ROAD TRAFFIC DROWNINGS BY AGE & SEX, CANADA 1999 (n=45)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.8

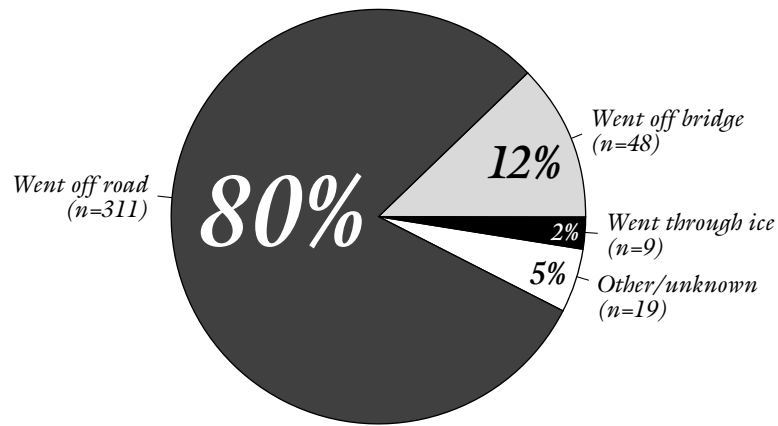
BLOOD ALCOHOL LEVELS* FOR ROAD TRAFFIC DROWNINGS, CANADA 1999 (VICTIMS ≥15 YEARS OF AGE; n=43)†



* Legal limit is 80 mg % † This figure excludes 2 victims; decomposition rendered blood alcohol unreliable ‡ 1 at 1-49 mg %, 1 at 50-80 mg %
 Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.9

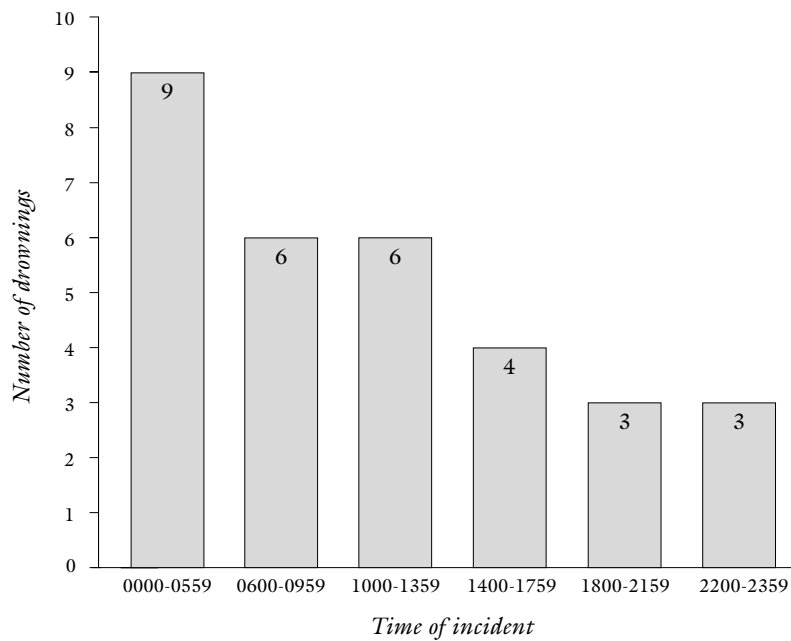
ROAD TRAFFIC DROWNINGS BY TYPE OF INCIDENT, CANADA 1991-1999 (n=387)



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

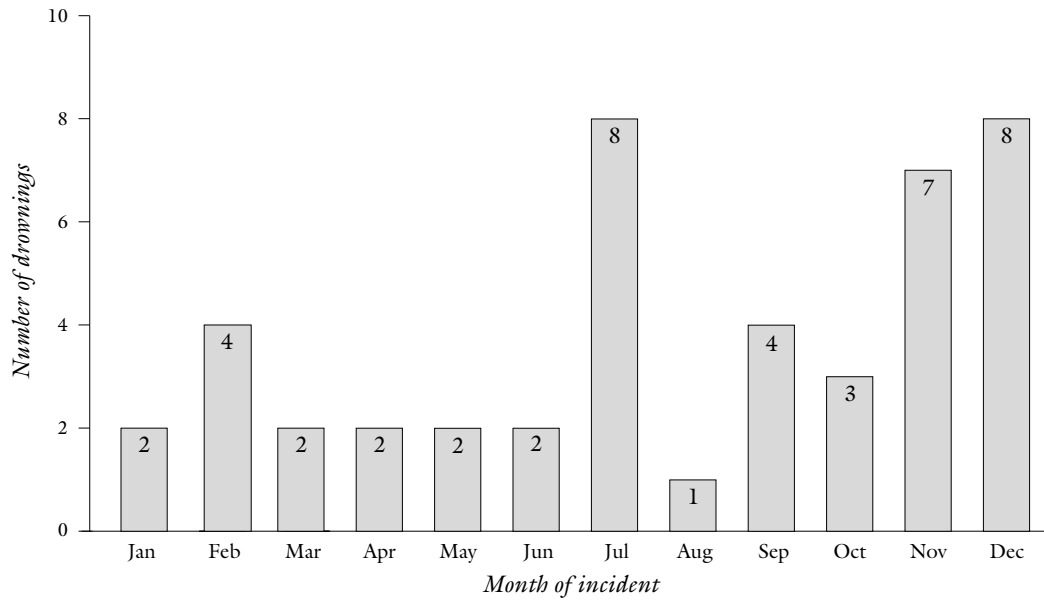
Figure 7.10a

ROAD TRAFFIC DROWNINGS BY TIME OF INCIDENT, CANADA 1999 (n=45)*



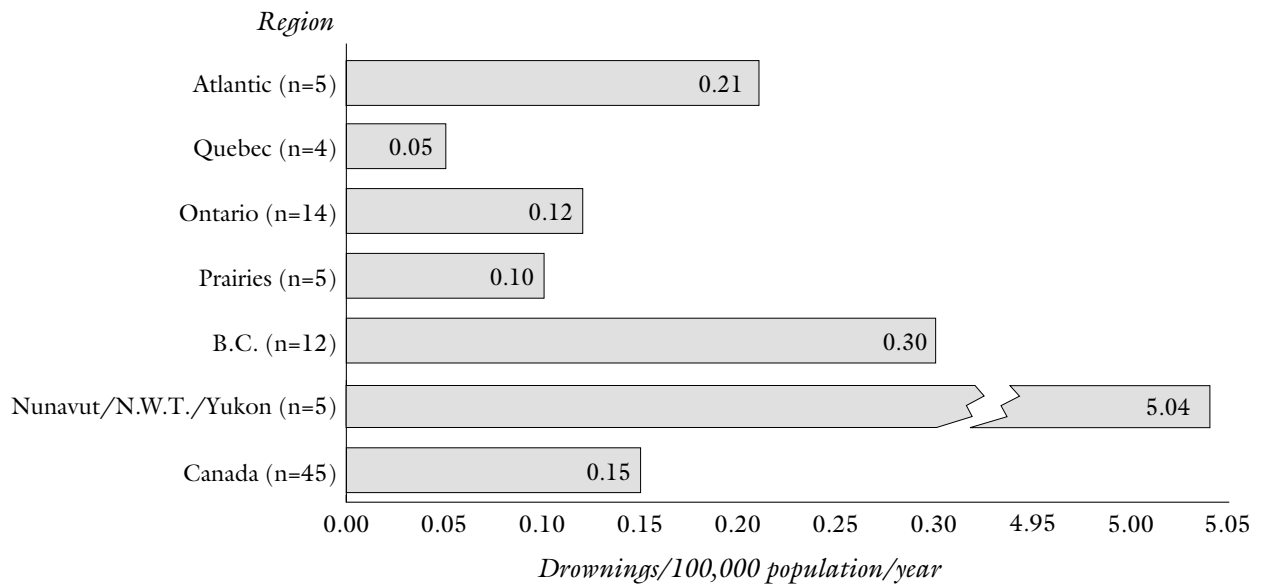
* Time unspecified for 14 drownings; light conditions: dark 5, twilight 1, light 3, unknown 5; for the other 31: dark 12, twilight 5, light 14
Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.10b **ROAD TRAFFIC DROWNINGS BY MONTH OF INCIDENT, CANADA 1999 (n=45)**



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

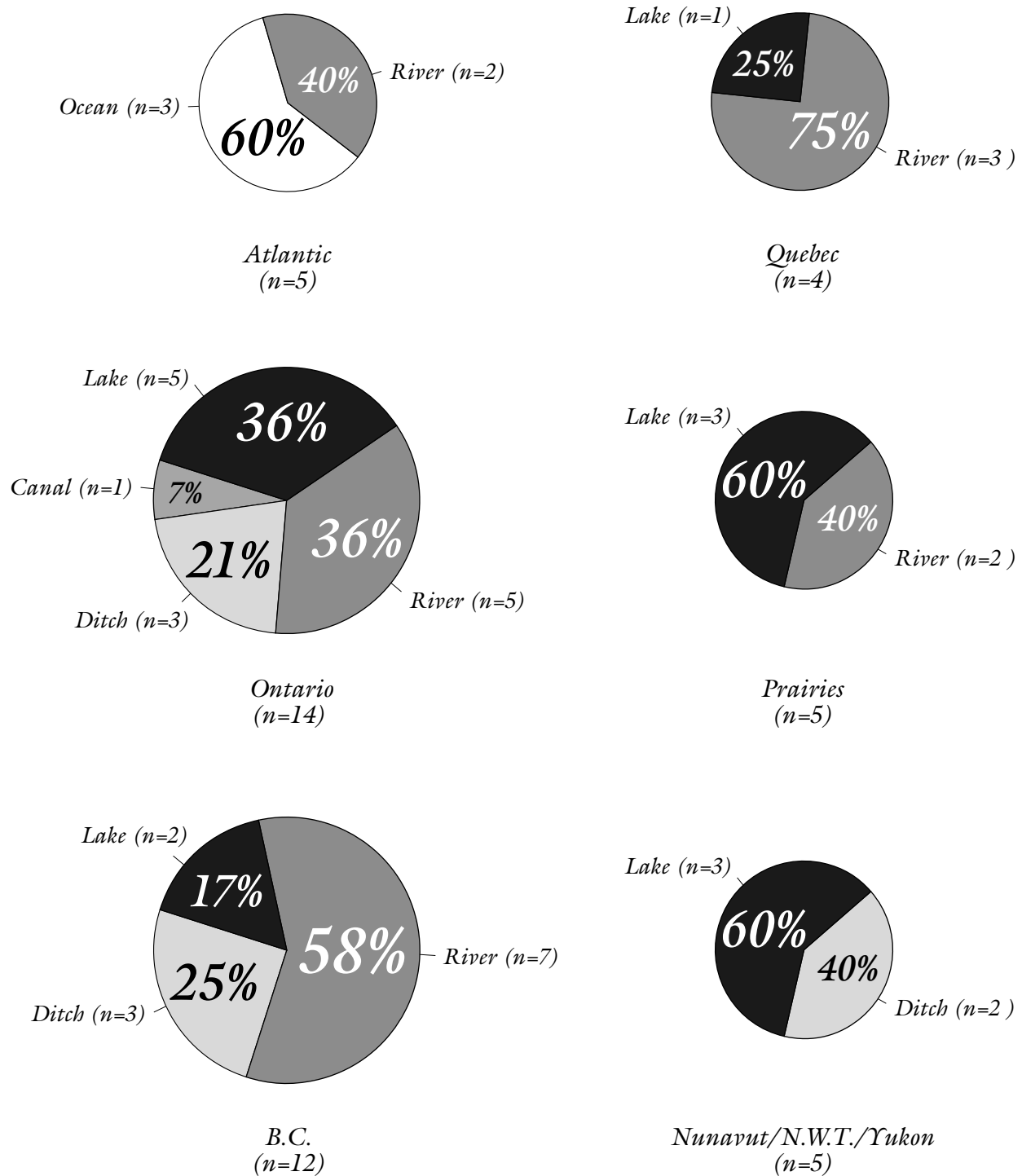
Figure 7.11 **RATE AND NUMBER OF ROAD TRAFFIC DROWNINGS BY REGION, CANADA 1999 (n=45)**



Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Figure 7.12

**ROAD TRAFFIC DROWNINGS BY REGION & TYPE OF BODY OF WATER,*
CANADA 1999 (n=45)**



* "Lake" includes pond & reservoir

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001

Table 7.1

**WATER-RELATED INJURY FATALITIES OTHER THAN DROWNINGS*
DURING LAND & AIR TRANSPORT, CANADA 1999 (n=9)**

Activity/incident	No.	%	Nature of injury	No.	Age	Sex		Alcohol		Other risk factors‡
						M	F	mg%†	No.	
Snowmobile										
Off-road incident, travelling on ocean or lake	5	56	Hypothermia	5	20, 24, 33, 51, 64	3	2	0	1	Thin ice or open water, dark, non-swimmer, alone, left trail, fell through ice
On-road motor vehicle										
On-road incident, left road	1	11	Head injury	1	21	1	0	60	1	Slippery surface, fog, drizzle, probably fell asleep, dark, no seatbelt
All-terrain vehicle										
Off-road incident	1	11	Hypothermia	1	45	1	0	0	1	Thin ice, prolonged immersion
Helicopter										
Crash	1	11	Head injury	1	24	1	0	0	1	Twilight, fog, engine failed, pinned beneath wreckage, fast/strong current, cold air
Float plane										
Crash	1	11	Spinal injury	1	44	0	1	Unk.	1	Strong winds at take off, inexperienced pilot (had training same day as crash)
Total	9	100				6	3			

* Primary cause of death was injury other than drowning, although drowning may have complicated another injury; in case of hypothermia, only hypothermia deaths reportedly uncomplicated by drowning are included here

† Legal limit is 80 mg % ‡ Other factors that may have contributed to these incidents

Source: The Canadian Red Cross Society & the Canadian Surveillance System for Water-Related Fatalities, 2001