

Injury in Review

2012 Edition



Spotlight
on Road and
Transport Safety

Select Results

2011 was Canada's National Year of Road Safety and marked the beginning of the UN Decade of Action for Road Safety. In recognition, a second report from the *Injury in Review* series was published based on collaborative efforts of the Public Health Agency of Canada, Safe Kids Canada, and the Traffic Injury Research Foundation. The report provides surveillance and prevention information on injuries in Canada with a focus on road and transport safety, for children, youth and young adults up to 24 years of age. *Select Results* presents highlights from *Injury in Review, 2012 Edition*.

Surveillance statistics show an important decline in the rates of motor vehicle-related injuries over the past three decades. Nevertheless, injuries and in particular transport-related incidents, are a major public health challenge in Canada, and further injury prevention efforts are needed.

Analysis of the economic burden of illness reveals that injuries –

- ranked as the fourth leading cause contributing to the total (direct and indirect) costs;¹
- represented an estimated economic burden of \$19.8 billion in 2004, of which 19% relate to transport incidents alone.²

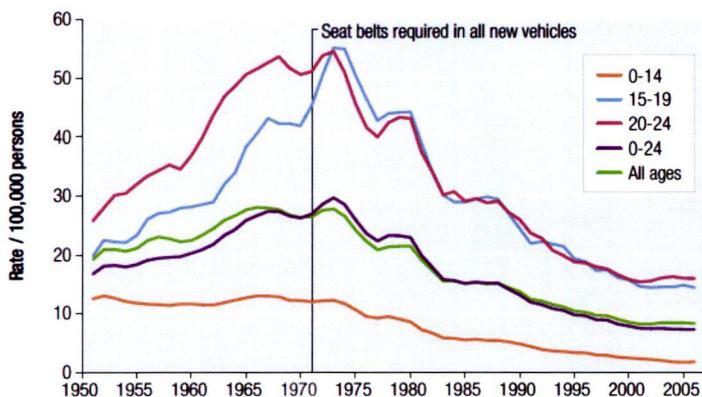
Mortality

Injury³ is the leading cause of mortality for Canadians aged 1-44 and the fourth leading cause of mortality for Canadians of all ages (2007). Suffocation is the leading cause of injury-related mortality for infants less than 1 year old, motor vehicle traffic collisions lead for those aged 1-24 years, suicide for 25-69 year olds, and falls for Canadians aged 70 years or older. **For every 100,000 Canadians aged less than 25 years, 19 were fatally injured,³ 8 of which related to unintentional motor vehicle traffic collisions.**

When grouped, the mortality time trend for 0-24 year olds resembles the trend for Canadians of all ages. However, there are important differences in mortality rates between 0-14 and 15-24 year olds; these differences appear not only in the magnitude of the rates, but also in the rate trends (Figure 1). For 20-24 year olds, males were 3 times more likely than females to be involved in motor vehicle traffic related-deaths, with fatality rates of 24.7 compared to 8.1 per 100,000 persons, respectively (Figure 2).

FIGURE 1

Unintentional motor vehicle traffic-related mortality in Canada, 1950-2007, selected age groups, standardized rates/100,000 persons



Source: Public Health Agency of Canada analysis of Statistics Canada (mortality) data.
Notes: (1) Rates are standardized to the 1991 Canadian population, and adjusted with a three-point central moving average.

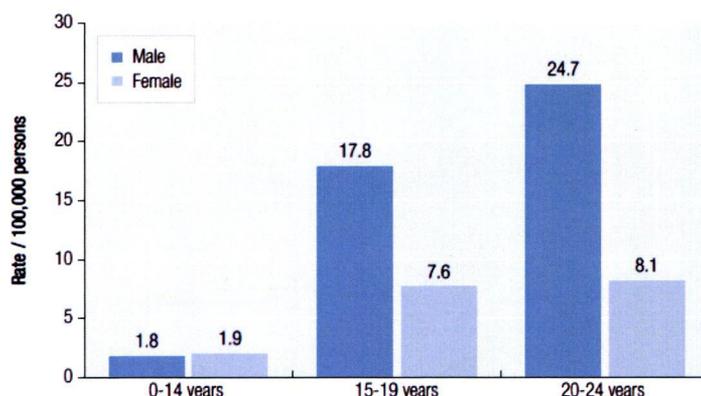
Hospitalization

Injury³ is the leading cause of hospitalization for Canadians aged 10-24 and the third leading cause of hospitalization for Canadians of all ages (for fiscal year 2008/2009). **For every 100,000 Canadians aged less than 25 years, 418 hospitalizations occurred as a result of injury,³ 46 of which related to unintentional motor vehicle traffic collisions.**

Gender differences in motor vehicle traffic-related hospitalization rates are greater with age (Figure 3); for 20-24 year olds, males had twice the likelihood of hospitalization as compared to females (odds ratio of 1.9 for 2008/2009).

FIGURE 2

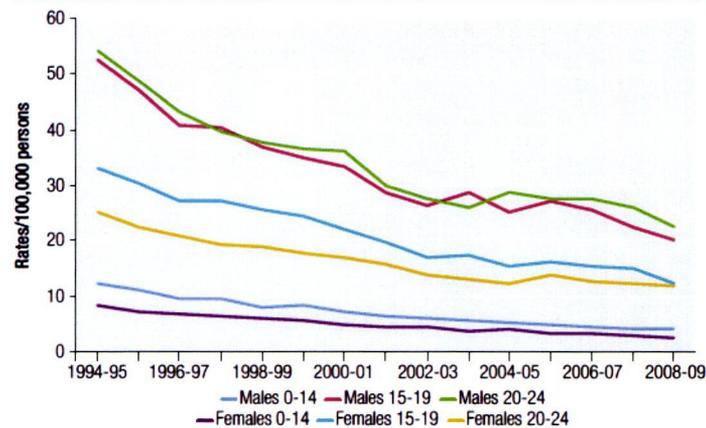
Unintentional motor vehicle traffic-related mortality in Canada, 2007, by age group and sex, rates/100,000 persons



Source: Public Health Agency of Canada analysis of Statistics Canada (mortality) data.

FIGURE 3

Unintentional motor vehicle traffic-related hospitalizations in Canada, 1994/95-2008/09, by age group and sex, standardized rates/100,000 persons



Source: Public Health Agency of Canada analysis of Canadian Institute for Health Information (hospitalization) data.
Notes: (1) Rates are standardized to the 1991 Canadian population.

Off-highway vehicle-related injuries

Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)⁴ data for 2008/2009 indicated that the proportion of young Canadians (0-24 years of age) admitted to hospital for off-highway vehicle (OHV)-related injuries was almost twice that of motor vehicle traffic-related injuries. The number of injuries reported in CHIRPP increased by almost 3-fold for all-terrain vehicles (ATV) from 1990/91 to 2008/09.

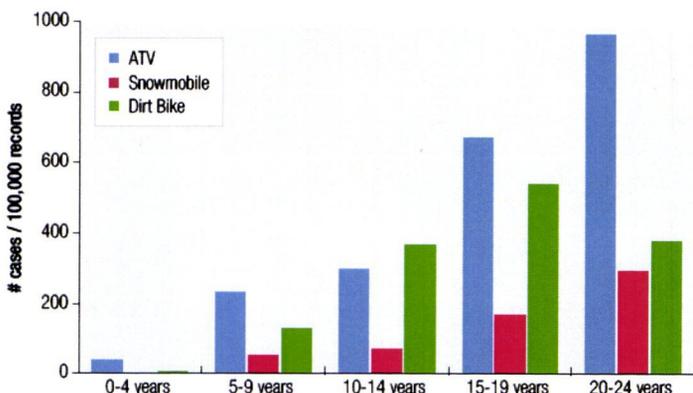
Of the OHV-related cases involving children and youth below the legal driving age (less than 16 years), 60% were in the driver seating position for ATVs, 48% for snowmobiles, and 92% for dirt bikes. Among 20-24 year olds, there were more than twice as many persons with ATV-related injuries than dirt bike-related injuries (Figure 4).

Figure 5 illustrates the types of injuries associated with OHV-related collisions for 0-24 year olds; almost half were fractures. Table 1 lists the mechanisms of OHV-related injuries.

Spotlight on Road and Transport Safety

FIGURE 4

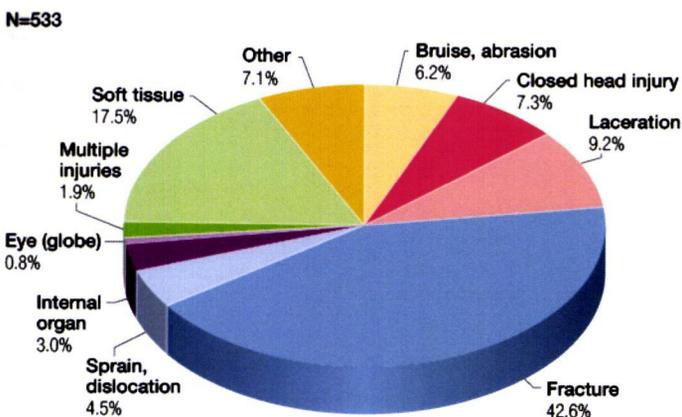
Age distribution of off-highway vehicle-related injuries, CHIRPP, 2008/09, per 100,000 records



Source: Canadian Hospitals Injury Reporting and Prevention Program of the Public Health Agency of Canada. Note: Rates are not calculated as per population numbers, but rather as per 100,000 CHIRPP records.

FIGURE 5

Injury distribution of off-highway vehicle-related injuries, CHIRPP, 2008/09, 0-24 years, percentage of cases



Source: Canadian Hospitals Injury Reporting and Prevention Program of the Public Health Agency of Canada.

TABLE 1

Mechanism of off-highway vehicle-related injuries, CHIRPP, 2008/09, 0-24 years, percentage of cases by vehicle type

Mechanism	Off-Highway Vehicle (OHV) Type		
	ATV	Snowmobile	Dirt Bike
Ejection	38.5	35.5	70.1
Rolled/tipped	30.4	14.5	5.1
Crashed into fixed structure	12.1	17.7	10.3
Injured on OHV	5.8	6.5	5.6
Injured with any other motor vehicle	4.7	12.9	6.5
Being towed	3.9	6.5	0.5
Foot pedestrian struck by OHV	0.8	3.2	0.0
Other/unknown	3.9	3.2	1.9
Total	100.0	100.0	100.0

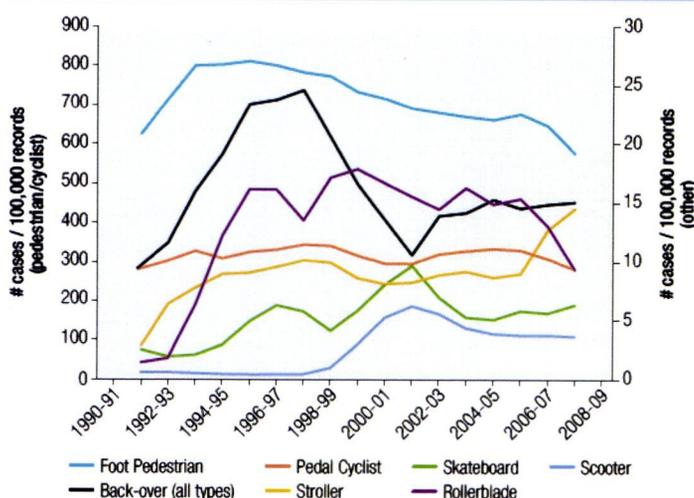
Source: Canadian Hospitals Injury Reporting and Prevention Program of the Public Health Agency of Canada.

Vulnerable road users

Vulnerable road users (VRU) are defined as roadway users who are unprotected by any vehicle structure, and in the event of a crash are susceptible to injury or death due to mass differential. They can be classified into powered and non-powered VRUs. See Figure 6 for annual proportion of non-powered VRU cases reporting to CHIRPP.

FIGURE 6

Injuries to non-powered VRUs from traffic collisions with motorized vehicles, CHIRPP, 1990/91-2008/09, 0-24 years, per 100,000 records



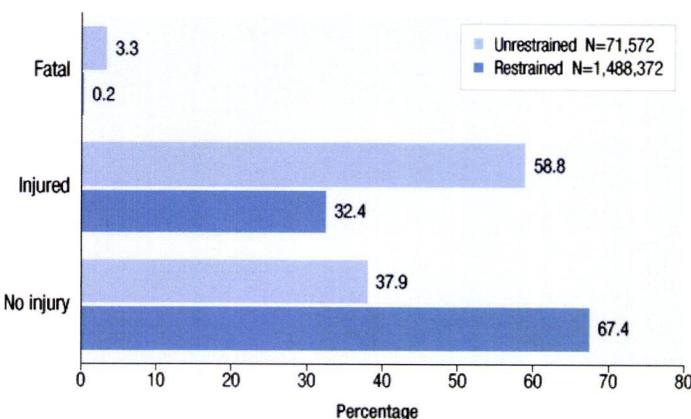
Source: Canadian Hospitals Injury Reporting and Prevention Program of the Public Health Agency of Canada. Notes: (1) The foot pedestrian and pedal cyclist categories relate to the left axis data range, and the other VRU categories relate to the right axis data range. (2) The back-over (all types) category represents injuries involving any VRU with a motorized vehicle moving backwards. (3) The annual number of cases was first adjusted with the annual total number of CHIRPP records, and then a three-point central moving average was applied to the adjusted data.

Restraint use for motor-vehicle occupants

Unrestrained occupants of light duty vehicles involved in collisions have a 3 times greater likelihood of being injured and 16 times greater likelihood of injury resulting in mortality, when compared with occupants using restraints; odds ratios of 3.4 and 15.7, respectively (Figure 7).

FIGURE 7

Injury outcome of unrestrained and restrained occupants of light duty vehicles involved in collisions, Canada, 1998-2008, 0-24 years, percentage by restraint use



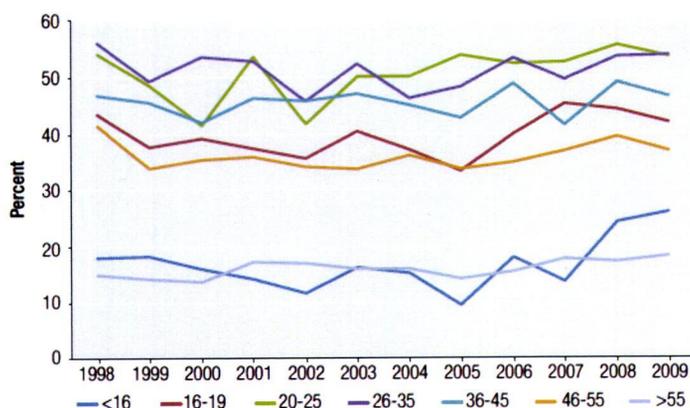
Source: Public Health Agency of Canada analysis of Transport Canada's National Collision Database. Notes: (1) The unrestrained cases include occupants of those vehicles not equipped with restraints. (2) The restrained cases include occupants using either: seat belt, child restraint, or other device. (3) Light duty vehicles include passenger cars, light trucks, vans and SUVs.

Alcohol-related mortality

For 2009, the Traffic Injury Research Foundation's Fatality Database⁵ indicated that 38% of motor vehicle fatalities involved alcohol use,⁶ with males having two times greater the likelihood of mortality from alcohol-related collisions as compared to females (odds ratio of 2.3). From 1998 to 2009, there was no significant decrease in the proportion of alcohol-related mortality in Canada, demonstrating the need to further develop prevention capacity (Figure 8). The means of transportation also played an important role in the proportion of alcohol-related mortality (Figure 9).

FIGURE 8

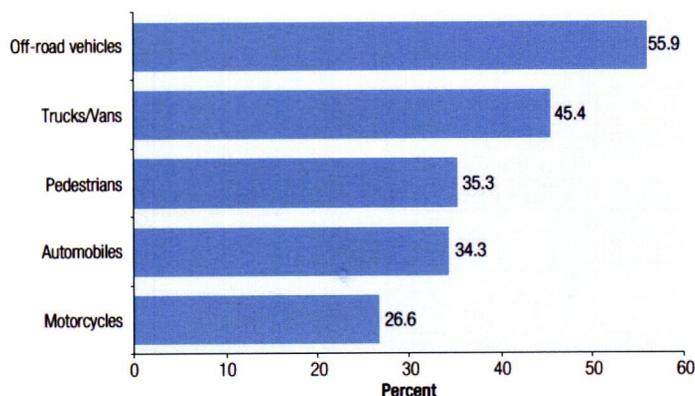
Proportion of alcohol-related mortality in Canada, 1998-2009, by age group



Source: Public Health Agency of Canada analysis of the Traffic Injury Research Foundation's Fatality Database.⁵

FIGURE 9

Proportion of alcohol-related mortality in Canada, 2009, by means of transportation



Source: Public Health Agency of Canada analysis of the Traffic Injury Research Foundation's Fatality Database.⁵

Next steps

Additional surveillance statistics as well as prevention information on unintentional road- and transport-related injuries in Canada for children, youth and young adults up to 24 year of age, are available in the *Injury in Review 2012 Edition* report. The Public Health Agency of Canada continues to collaborate with Health Canada, Safe Kids Canada,⁷ the Traffic Injury Research Foundation and other government and non-government organizations, to further advance knowledge, research, and road safety policies and programs. Together we are contributing to making Canada a safer place for road users.

End Notes

- 1 Health Canada. *The economic burden of illness in Canada*, 1998. Ottawa, ON: Health Canada; 2002.
- 2 SMARTRISK. *The Economic Burden of Injury in Canada*. Toronto, ON: SMARTRISK; 2009.
- 3 All causes of injury (intentional and unintentional), excluding adverse effects due to medical or surgical care.
- 4 Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) is a computerized information system that collects and analyzes data on injuries to people (mainly children) who are seen at the emergency rooms of the 11 paediatric hospitals and 4 general hospitals in Canada. CHIRPP is a unique, richly detailed database of injury information.
- 5 The Traffic Injury Research Foundation's Fatality Database was co-sponsored by Health Canada (1973-1982) and the Canadian Council of Motor Transport Administrators and Transport Canada (1984-2010).
- 6 Fatalities were considered to be alcohol-involved if there was at least one drinking driver or one drinking pedestrian in the fatal crash. The percentage is calculated from the number testing positive among those tested for alcohol.
- 7 Safe Kids Canada is now part of Parachute, a national charitable organization dedicated to preventing injuries and saving lives.

Contact information

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