



Road Safety in Canada

An Overview

World Health Day 2004 is dedicated to road safety — a recognition of the burden of injuries and deaths to road users worldwide, and the need for collective action to address this problem. This fact sheet presents an overview of injuries and deaths caused by motor vehicle traffic collisions in Canada, prepared by the injury surveillance program in **Health Canada** and the road safety program in **Transport Canada**.

Although Canada is one of the largest countries in the world, its population density is among the lowest. Geographical expanse combined with limited public transportation in many parts of the country leads Canadians to rely heavily on private motor vehicles. With almost 19 million vehicles on our roads and over 21 million drivers operating vehicles across more than 900,000 kilometres of roads, road transportation is important to virtually every Canadian.¹ Unfortunately, motor vehicle traffic collisions are associated with a large number of deaths and serious injuries each year.

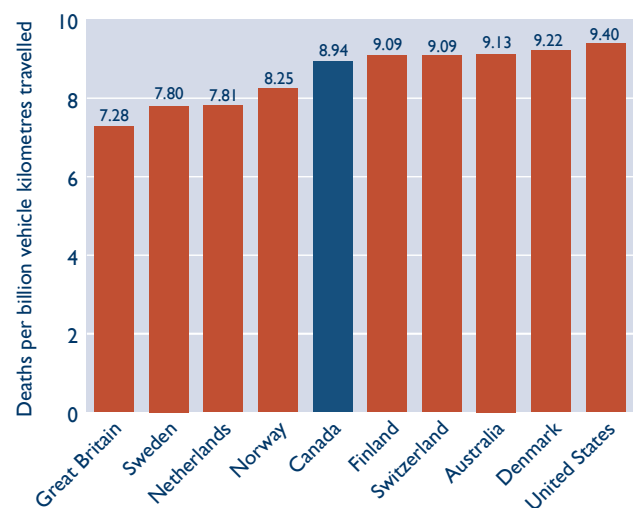
Profile of the Problem

There were 2,778 deaths due to motor vehicle traffic collisions in the year 2001 — a rate of 8.9 deaths per 100,000 population.^{1,2} In 2000-2001 there were 24,403 hospital admissions for traffic-related injuries, corresponding to a rate of 79 hospitalizations per 100,000 population.³ Many victims are young and traffic collisions are a leading cause of premature death and long term disability.

Since Canada has one of the highest per capita vehicle ownership rates in the world, it is not surprising that vehicle occupants account for approximately three quarters of all road users killed and seriously injured each year. The remaining victims are vulnerable road users: pedestrians, motorcyclists and bicyclists.¹ When health care costs, property losses and other factors are considered, the economic cost of traffic collisions to Canadians is as high as \$25 billion annually.

In a recent comparison of traffic fatality rates among the 30 Organisation for Economic Cooperation and Development (OECD) member-countries, Canada had the fifth lowest rate on the basis of traffic deaths per billion vehicle kilometres travelled and the thirteenth lowest rate when measured as deaths per 100,000 population.⁴ While Canada's traffic injury statistics are comparable to those of other developed countries there remains room for improvement. Fatality rates for selected countries are shown in Figure 1.

Figure 1: Traffic deaths per billion vehicle kilometres travelled, OECD, selected countries, 2001

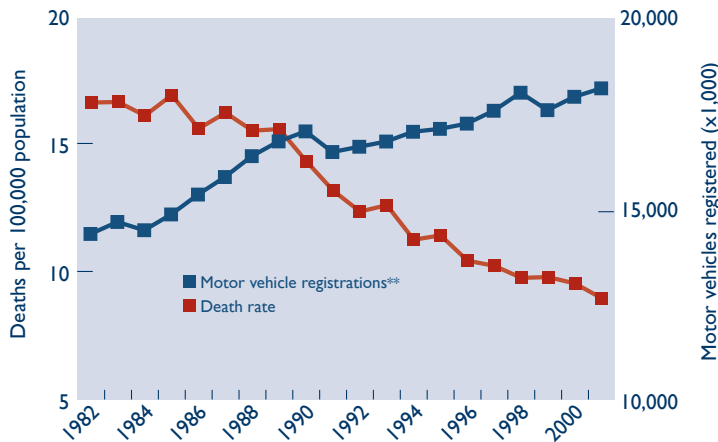


Source: International Road Traffic and Accident Database, OECD, 2001.

Road Safety in Canada

In recent decades, deaths and hospitalizations due to motor vehicle traffic collisions have declined markedly in Canada. For example, since 1982 the road traffic death rate has declined by almost 50%.^{1,2} This decrease has occurred despite increasing numbers of vehicles and licensed drivers on our roads (see Figure 2).

Figure 2: Motor vehicle traffic collision death rate* (all ages, both sexes), Canada, 1982-2001



Source: Canadian Motor Vehicle Traffic Collision Statistics, Transport Canada and Analysis by Injury and Child Maltreatment Section, Health Canada.

*Crude rate based on death data from the Traffic Accident Information Database, Transport Canada and population data from Statistics Canada.

**Includes all vehicles registered for use on public roadways.

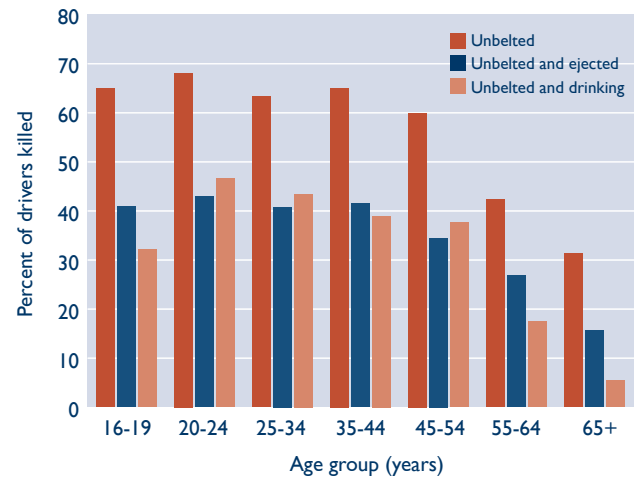
Government interventions such as laws mandating the use of seat belts and child restraints, as well as more stringent drinking and driving sanctions, public education and enforcement campaigns, safer vehicles and road infrastructure enhancements have all contributed to the increased safety of Canadian road users. Improvements in emergency medical response and trauma care have also helped to reduce fatalities.

In spite of these impressive advances in road safety in Canada, many serious problems still exist and the rates of death and hospitalization associated with traffic collisions remain unacceptably high.

Risk Factors and Preventive Measures

Drivers account for more than half of all road users killed.¹ Driver inexperience, and health limitations common among elderly drivers increase risk. Other factors often associated with fatalities are single-vehicle

Figure 3: Drivers fatally injured in single vehicle crashes on rural roads and undivided highways, Canada, 1993-1997 average



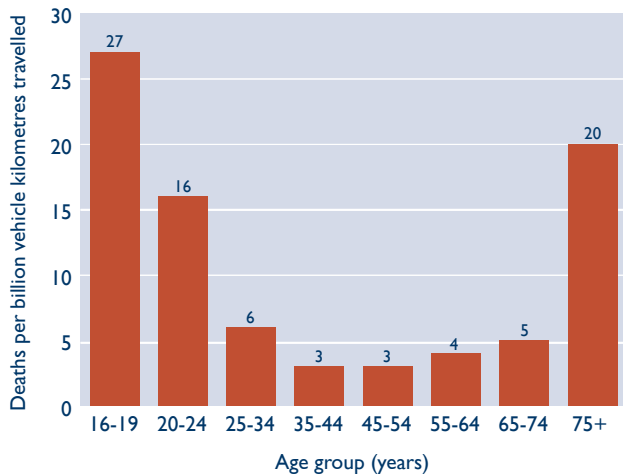
Source: Unbelted Fatally and Seriously Injured Drivers, 1993-1997, Transport Canada.

crashes on undivided rural roads, drinking and driving, and non-use of seat belts often resulting in ejection (see Figure 3). Approximately 40% of all fatally injured occupants are unrestrained and, of these, almost half are ejected from their vehicles.⁵ Alcohol and excessive speed are recognized as important contributing factors in many collisions and emerging factors such as driver distraction (e.g., use of cellular telephones) are also of concern. Canadian road users also face increased risks associated with driver fatigue and winter road conditions. Multiple risk factors are simultaneously in play in many fatal traffic collisions.

Young drivers, aged 16-19 years, and elderly drivers, 75 years and older, have the highest risk of being killed in a traffic collision, at 27 deaths and 20 deaths per billion vehicle kilometres travelled, respectively⁶ (see Figure 4). With regard to young drivers, seven provinces and one territory in Canada have instituted graduated licensing programs, which have proven effective in reducing collisions causing injury among novice drivers.⁷

Although surveys estimate current use of seat belts at almost 90% in mainly urban areas,⁸ promotion of seat belt use and appropriate child restraint systems remains important in prevention efforts. Ejection from a vehicle during a collision greatly increases the risk of severe injury

Figure 4: Drivers fatally injured per billion vehicle kilometres travelled*, by age, Canada, 2001



Source: Traffic Accident Information Database, Canadian Vehicle Survey 2001, Transport Canada, Statistics Canada.

*Includes fatally injured drivers of light-duty vehicles.

or death. The combination of seat belt use and air bag deployment during collision remains the best protection for adults. For children, correctly installed and size appropriate restraint systems (rear facing infant car seats, front facing car seats, booster seats and lap belts) are required. Children under 13 years of age should not be restrained in front seats equipped with air bags.

In the year 2001, 38% of fatally injured drivers who were tested had been drinking alcohol, and of these almost 85% had blood alcohol levels in excess of the Criminal Code legal limit of 80 mg%. Although alcohol use among drivers killed in collisions is less than what was seen even a decade ago, current levels of impaired driving remain unacceptably high.¹ Increased enforcement, tougher sanctions and innovative approaches such as administrative license suspensions, alcohol ignition interlocks and assessment/rehabilitation programs have been introduced in many jurisdictions to further reduce impaired driving.

Other preventive efforts should also be encouraged. Use of bicycle helmets is now mandated in six provinces. A recent study showed a reduction in serious head injuries among cyclists after introduction of this legislation. These findings may lead to similar legislation in other jurisdictions.⁹ The automotive industry

continues to enhance vehicle safety features. As older vehicles are replaced with ones equipped with crumple zones, anti-lock brakes and air bags, our motor vehicle fleet becomes progressively safer. Similarly, enhanced road infrastructure design and maintenance contribute to safety. Creative approaches such as pedestrian countdown signals, pedestrian islands, shoulder widening and pedestrian/cyclist pathways are being used to improve separation of motor vehicle traffic from more vulnerable pedestrians and bicyclists, especially in urban settings.

The Vision

Under the auspices of the Canadian Council of Motor Transport Administrators, the nation's principal road safety stakeholders have developed a national plan of action *Road Safety Vision 2010 – Making Canada's Roads the Safest in the World*. This plan is supported by a number of strategic objectives and quantitative targets including some associated with increased seat belt wearing, proper use of child restraints, and reduced fatalities and serious injuries associated with drinking drivers and excessive speed. In order to have the safest roads in the world by 2010, Canada needs to reduce fatalities and serious injuries by 30%.

Road safety is the responsibility of both the transportation and health sectors. Once a traffic injury occurs the health sector has responsibilities in emergency response, trauma care and rehabilitation. Public health and transportation experts work together to increase public awareness, to promote safe behaviours on the road, and to establish road safety programs. They engage in partnerships and receive support from the automotive and insurance industries, legislators and law enforcement agencies, and other sectors. This important work is carried out at all levels of government: federal, provincial/territorial and municipal. The dramatic reductions in traffic fatalities already achieved in Canada are the result of the engagement, cooperation and sustained efforts of all road safety stakeholders. This joint engagement must be strengthened and sustained in order to achieve much needed further reductions in traffic related deaths and injuries.

References

1. Canadian Motor Vehicle Traffic Collision Statistics, 2001. Transport Canada. URL: <<http://www.tc.gc.ca/roadsafety/tp/tp3322/2001/en/menu.htm>>.
2. Population Data, Statistics Canada. Analysis by Injury and Child Maltreatment Section, Health Surveillance and Epidemiology Division, Population and Public Health Branch, Health Canada, 2004.
3. Hospitalization Data, Canadian Institute for Health Information (CIHI). Analysis by Injury and Child Maltreatment Section, Health Surveillance and Epidemiology Division, Population and Public Health Branch, Health Canada, 2004.
4. International Road Traffic and Accident Database, 2001. OECD. URL: <<http://www.oecd.org>>.
5. Unbelted Fatally and Seriously Injured Drivers, 1993-1997. Transport Canada.
6. Traffic Accident Information Database, Canadian Vehicle Survey 2001. Transport Canada, Statistics Canada.
7. Simpson H. The Evolution and Effectiveness of Graduated Licensing. *Journal of Safety Research* 2003: 34(1); p 25-34.
8. Seatbelt Use in Canada Survey, 2001. Transport Canada. URL: <<http://www.tc.gc.ca/roadsafety/tp2436/rs200107/en/menu.htm>>.
9. Macpherson A, To T, Macarthur C, et al. Impact of Mandatory Helmet Legislation on Bicycle-Related Head Injuries in Children: a Population-Based Study. *Pediatrics* 2002: 110(5); e60. URL: <<http://www.pediatrics.org/content/full/110/5/e60>>.

Resources

1. Transport Canada. URL: <<http://www.tc.gc.ca/roadsafety>>.
2. Health Canada. URL: <<http://www.hc-sc.gc.ca/pphb-dgspsp/injury-bles>>.

Cat. No. H39-4/32-2004E-PDF
ISBN 0-662-36440-6
Publication No. 4117