



March 2004



Vulnerable Road User Safety: A Global Concern

Background

World Health Day 2004 is an unprecedented event for road safety advocates around the world. For the first time since its inception in 1946, the World Health Organization (WHO) is using its annual health message to target road safety. The slogan – *Road safety is no accident* – was chosen to focus the world's attention on this growing transportation and public health problem and to highlight the fact that traffic fatalities and injuries can be avoided if governments and other key stakeholders implement the measures necessary to prevent them. On April 7, 2004, road safety stakeholders are being asked to promote awareness, understanding and discussion of road safety issues and to initiate or implement actions to address these concerns.

At present, an estimated 1.2 million road users are killed in traffic collisions each year throughout the world, and many millions more are seriously injured. A global epidemiological study,⁽¹⁾ which assessed mortality and disability from diseases and injuries in 1990 and projected these same risk factors to 2020, estimated that the annual number of deaths and disabilities due to traffic collisions would increase by more than 60% by that date if current trends continued. In 1990, road traffic injuries ranked as the ninth leading contributor to the global burden of disease and injury. By 2020, they are expected to be ranked third, if measures are not introduced to curtail these trends.

The main reason for this growing global problem is the projected increase in traffic fatalities and injuries among “vulnerable” road users in developing countries, where an estimated 90% of all traffic-related casualties currently occur. “Vulnerable” road users are pedestrians and riders of bicycles, motorcycles and mopeds.

In Canada, the outlook is considerably more positive. Fatalities and serious injuries resulting from traffic collisions are at or near historical lows, despite steady increases in the numbers of vehicles and drivers on our roads. Still, in 2001, 2,778 road users were killed in Canada in traffic collisions. More than 220,000 were injured, including almost 17,000 who sustained serious injuries. Annual estimates of costs associated with these crashes and casualties are as high as \$25 billion.

Vulnerable Road Users – The Canadian Perspective

Issues such as poor roads and high population densities are often cited as factors that contribute to the casualty rate among vulnerable road users in developed and underdeveloped countries alike. These factors are not really a problem in Canada. As an extremely large and highly developed country, Canada has one of the highest per capita vehicle ownership rates in the world. Not surprisingly, almost 80% of all road user casualties are motor vehicle occupants.

Vulnerable road users make up the remaining 20% of road users killed and seriously injured each year in traffic crashes. In 2001, 556 vulnerable road users were killed and 3,603 were seriously injured. Pedestrians comprised the largest group of victims among vulnerable road user casualties, accounting for 61% of fatally injured victims and 52% of those with serious injuries. Motorcycle or moped riders accounted for 28% of fatalities and 33% of seriously injured victims, and cyclists comprised the remaining 11% of fatally injured and 15% of seriously injured crash victims.

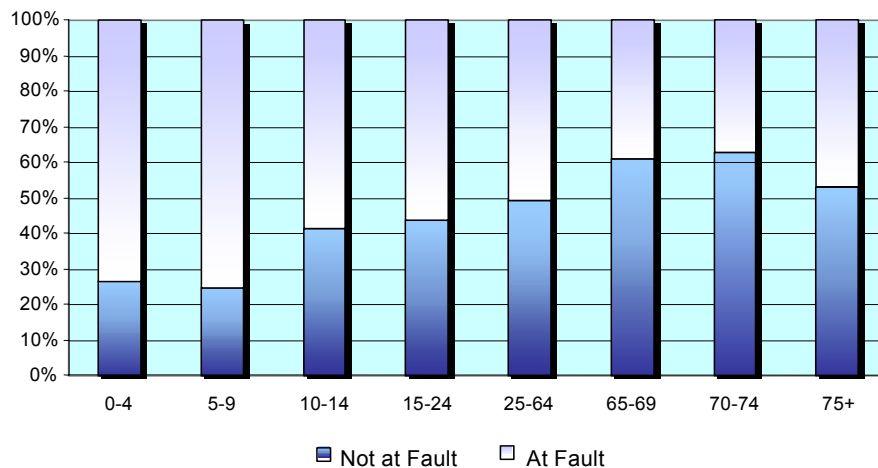
Pedestrians:⁽²⁾

Major risk factors for pedestrians include:

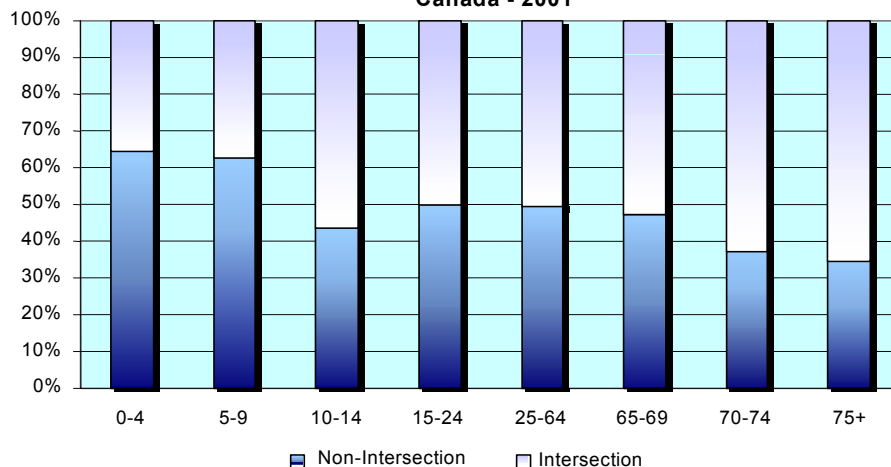
- *Alcohol Use* – approximately 25% of all fatally injured pedestrians had been drinking prior to being struck and killed by motor vehicles.⁽³⁾ Among fatally injured pedestrians who had been drinking, 74% had blood alcohol concentration levels that were twice the legal limit to drive a vehicle.
- *Time of Day* – 20% of pedestrians were killed and 17% were seriously injured between 5 p.m. and 7 p.m.
- *Location* – almost 40% were killed and more than 50% were seriously injured at intersections. By the same token, approximately 60% were killed and 45% were seriously injured at non-intersection locations.
- *Conspicuity* – more than 55% were killed and almost 40% were seriously injured at night or in artificial lighting conditions.
- *Urban Areas* – almost 70% of pedestrians were killed and more than 90% were seriously injured in urban areas with posted speed limits of 70 km/h or less. Slightly more pedestrians were killed at non-intersection locations (53%) than at intersections (47%) in urban areas. The pattern for seriously injured pedestrians was reversed (43% at non-intersection locations and 57% at intersections).
- *Traffic Controls* – almost 20% of pedestrians were killed and almost 40% were seriously injured at road locations with traffic signals or road signs. In urban areas, more than one in four pedestrians were killed and almost 45% were seriously injured at signalized road locations.

- *Rural Roads and Highways* – slightly more than 30% of pedestrian fatalities occurred on roads with posted speed limits of 80 km/h or higher. Of these, 85% were killed at non-intersection locations while crossing the road or walking along the roadside.
- *Age* – younger pedestrians (14 years or younger) were most often at fault prior to being struck by motorists and killed or seriously injured. Overall, 50% of all pedestrians killed or seriously injured were deemed to have been at fault. Being at fault includes such pedestrian actions as crossing the intersection without the right-of-way, crossing between intersections, coming from behind a parked vehicle and running into a roadway. Age is also highly correlated to the locations where pedestrians are killed or seriously injured. The youngest victims (9 years or younger) were most often struck at non-intersection locations (e.g. darting out into traffic between parked vehicles), while the oldest (70 years of age or older) were most often struck at intersections (e.g. crossing against a red light). Pedestrians aged 70 years or older were over three times more likely than the national average to be killed and almost twice as likely to be seriously injured.

**Pedestrians Killed / Seriously Injured in Crashes by Pedestrian Action
Canada - 2001**

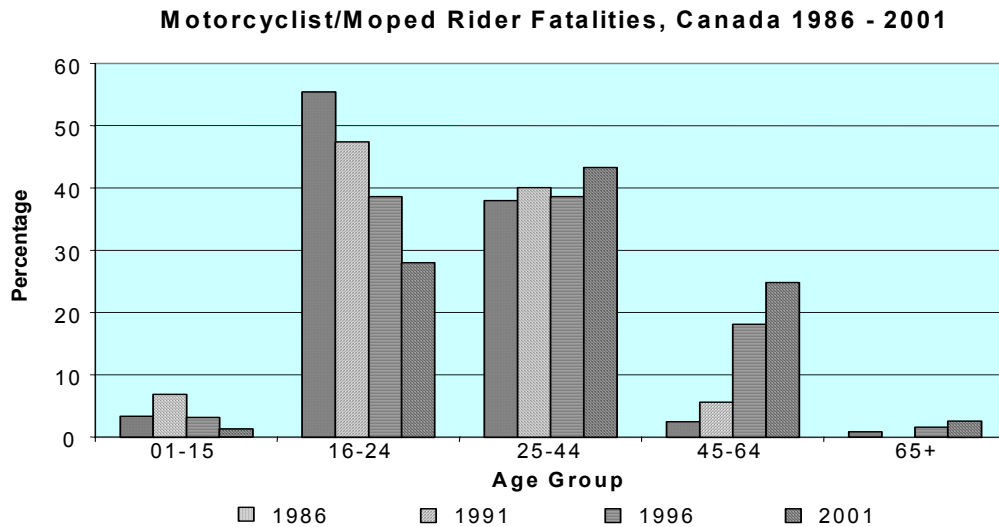


**Pedestrians Killed / Seriously Injured in Crashes by Road Configuration
Canada - 2001**



Motorcyclists:

Major risk factors for motorcyclists include:

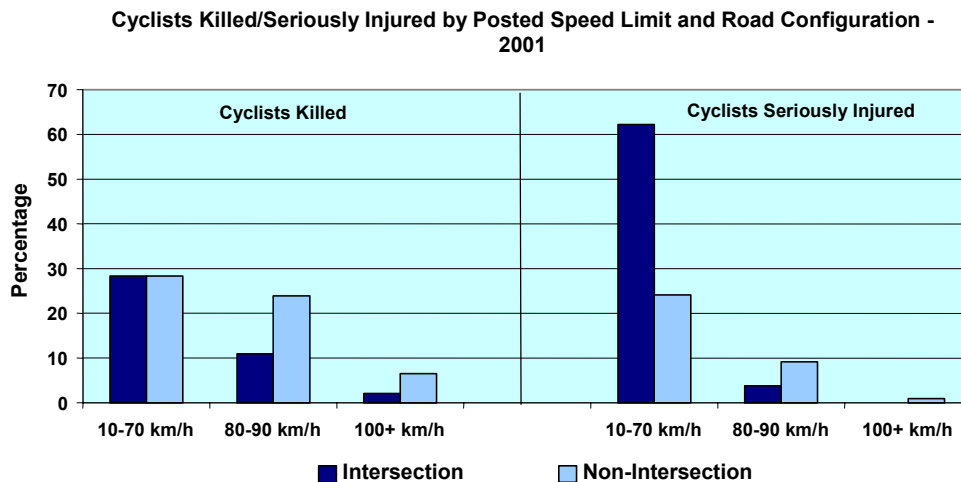


- *Age* – during the past 15 years, riding motorcycles has become increasingly popular among middle-aged Canadians (45-64 years). The changes in the distribution of motorcyclists killed according to broad age categories during this period reflect this increased use.
- *Alcohol Use* – almost 45% of fatally injured motorcycle operators had been drinking prior to being killed in crashes, which is greater than the percentage for passenger vehicle drivers.⁽³⁾
- *Time of Day* – more than 30% of motorcyclists were killed or seriously injured in crashes occurring between 4 p.m. and 8 p.m.
- *Location* – almost 40% of motorcyclists were killed and more than 45% were seriously injured in crashes at intersections. Approximately 58% of motorcyclists were killed and more than half (52%) were seriously injured at non-intersection locations.
- *Traffic Controls* – one in six motorcyclists were killed and more than one in five were seriously injured at road locations with traffic signals or traffic control signs. In urban areas, 20% of fatally injured motorcyclists and 34% of victims who were seriously injured were involved in crashes at road locations with traffic signals or traffic control signs.
- *Urban Areas* – almost half (46%) of motorcyclists who were killed and more than half (57%) who were seriously injured sustained their injuries in crashes that occurred in urban areas (posted speed limit of 70 km/h or lower). Of these, half were killed at intersections and half at non-intersection locations. Sixty-two percent of motorcyclists who suffered serious injuries in crashes in urban areas were struck at intersections.

- *Rural Roads* – 40% of motorcyclists who were killed in crashes on rural roads (posted speed limits of 80-90 km/h) and 38% of those who were seriously injured on these roads were involved in crashes at intersections. The remaining victims were struck by other vehicles or lost control and ran off the road at non-intersection locations.

Cyclists:

Major risk factors for cyclists include:



- *Time of Day* – 17% of cyclists who were killed and almost 23% of those who were seriously injured were struck during the afternoon rush hour period (4 p.m. to 6 p.m.).
- *Location* – 39% of cyclists who were killed and 64% of those who suffered serious injuries incurred their injuries in crashes at intersections.
- *Traffic Controls* – 30% of cyclists who were killed and almost 38% who sustained serious injuries were involved in crashes at road locations with traffic signals or other traffic control signs.
- *Urban Areas* – 56% of cyclists who were killed and 85% who suffered serious injuries incurred their injuries in urban areas. An identical proportion of cyclists were killed at intersection and non-intersection locations in urban areas; however, 72% of cyclists who suffered serious injuries in urban areas were struck at intersections. More than 46% of cyclists who were hit and killed in urban areas and almost 45% who were seriously injured were struck at road locations with traffic controls.
- *Rural Roads and Highways* – 44% of cyclist fatalities occurred on roads with posted speed limits of 80 km/h or higher.

- *Conspicuity* – 30% of cyclist fatalities occurred at night or in artificial lighting conditions.
- Age – younger cyclists (24 years of age or younger) have considerably higher fatality rates (+ 39%) and serious injury rates (+ 99%) than the average death and serious injury rates for the entire population.

Canada's National Road Safety Plan

Canada's road safety stakeholders have a long-term national road safety plan called Road Safety Vision 2010. Our vision is for Canada to have the safest roads in the world. Our national target is that 30% fewer road users will be killed or seriously injured in traffic collisions by 2010. Road Safety Vision 2010 also contains a number of sub-targets that focus on the major road safety issues in Canada – occupant restraints, drinking and driving, high-risk road use and vulnerable road user safety. The specific target for vulnerable road users is that 30% fewer pedestrians, motorcyclists and cyclists will be killed or seriously injured in traffic collisions by 2010 than during the 1996-2001 period.

Canadian Initiatives to Improve Vulnerable Road User Safety

The World Health Organization's focus on road safety – and, in particular, its concerns for vulnerable road user safety in the world's underdeveloped countries – served as a catalyst for Canadian road safety stakeholders to take concrete action to make roads safer for pedestrians, motorcyclists and cyclists.

A national task force, comprising road safety professionals from a number of provinces and Transport Canada, was created in early 2004 under the auspices of the Canadian Council of Motor Transport Administrators. As a starting point, this task force will identify the extent and nature of the vulnerable road user problem in Canada, report on successful strategies currently in place, and develop and promote national strategies and initiatives.

Transport Canada is undertaking a pilot study of crashes involving vulnerable road users. The findings from this pilot study are intended to be used to contribute to the design of motor vehicles that will be "friendlier" to vulnerable road users, and in particular to pedestrians, in the event of a collision. The findings will also be used to identify potential prevention measures to reduce the incidence of such collisions.

Transport Canada researchers are also involved in a working group of the United Nations' Economic Commission for Europe, which is developing motor vehicle requirements that will lead to changes in vehicle design. The changes are intended to reduce injuries to pedestrians, and to a lesser degree to cyclists, in the event of a collision. The European Union has already adopted vehicle regulations, to provide improved protection for pedestrians, which will be gradually introduced during the 2005-2012 period. Transport Canada researchers are currently assessing the viability of these regulations in the Canadian environment.

Tips to Make Road Use Safer for Pedestrians, Motorcyclists and Cyclists

Clearly, many risk factors still exist. All road users must do their part to reduce these risks. Motorists and vulnerable road users must walk, ride, cycle and drive more defensively in order to make road travel safer for everyone.

Pedestrians should:

- Obey the rules of the road: cross at intersections or in pedestrian safety zones.
- Be vigilant at both intersection and non-intersection locations, especially in urban areas.
- Never run into the roadway from behind stopped or parked vehicles.
- Walk against traffic along roadsides without sidewalks or on rural roadways.
- Wear bright or reflective clothing when walking, especially at night.
- Never assume that motorists will yield, even if you have the right-of-way.

Motorcyclists should:

- Never drink and ride.
- Be vigilant at both intersection and non-intersection locations, on both urban and rural roadways.
- Always obey posted speed limits.
- Always wear safety helmets.

Cyclists should:

- Always wear cycling helmets.
- Always obey the rules of the road.
- Use a light (front and back) at night.
- Wear bright or reflective clothing when riding, especially at night.
- Be vigilant at both intersection and non-intersection locations, especially in urban areas.
- Never assume that motorists will yield, even if you have the right-of-way.

Motorists should:

- Always be on the lookout for and yield to vulnerable road users, even if they don't have the right-of-way.
- Always obey traffic signals and traffic control signs.
- Pay particular attention to younger children playing on streets and to senior citizens crossing at intersections.
- Pay particular attention to workers in temporary work zones.
- Be prepared for vulnerable road users to appear unexpectedly at both intersection and non-intersection locations, on both urban and rural roadways.

References

- (1) C.J.L. Murray and A.D. Lopez, eds. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020*. Boston, Harvard University Press, 1996.
- (2) Traffic Information Data File (TRAID), Transport Canada. With the exception of the chart illustrating fatality trends among motorcyclists over time, all Canadian victim information cited in this fact sheet was derived from Transport Canada's 2001 national traffic collision data file.
- (3) D.R. Mayhew, S.W. Brown and H.M. Simpson. *The Alcohol-Crash Problem in Canada: 2001*. The Traffic Injury Research Foundation of Canada, 2003.

© Her Majesty the Queen in Right of Canada, represented by the Minister of Transport, 2004

© Copyright, World Health Organization 2004. All rights reserved (for logo on cover page).

This publication may be reproduced without permission provided that its use is solely for the purposes of private study, research, criticism, review or newspaper summary and the source is fully acknowledged.

To find out more about national road safety programs and initiatives, call Transport Canada toll free at 1-800-333-0371, or e-mail comments or questions to roadsafetywebmail@tc.gc.ca. You can also visit the Transport Canada web site at www.tc.gc.ca/roadsafety/.