Deaths and Injuries to Young Canadians from Road Crashes

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Deaths and Injuries to Young Canadians from Road Crashes

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Executive Summary

This report examines the magnitude and characteristics of, and trends in, the problem of road crashes involving young people age 15-19 and 20-24 in Canada.

The objective of the report is to provide background information for a companion TIRF report, "The Road Safety Monitor 2004: Young Drivers", which describes the results of a national public opinion poll. The current backgrounder is also the first of a series of reports emerging from a major investigation on youth and road crashes, under funding from Toyota Canada Inc.

Magnitude of the Problem

- In 2002, 331 teenagers (ages 15-19) and 365 young adults (age 20-24) died in road crashes; a further 29,236 teenagers and 30,073 young adults were injured.

- Road crashes are the leading cause of death among young people – in 2001, road crashes accounted for 35% of all the deaths among 15-19 year olds, and 30% of the deaths among those age 20-24. Road crashes are a major public health problem.

- Young people are also a significant road safety problem because they have the highest per-capita death and injury rates of all road users, and are overrepresented in collisions.

Trends in the Problem

- Although road crashes involving young people remain significant public health and safety problems, there have been substantial improvements over the past two decades:

- the numbers of road deaths and injuries among young people age 15-19 and age 20-24 have shown major decreases as has the relative contribution of young people to the overall road death and injury toll;
- since 1991, these positive changes have also occurred against a backdrop of increases in the youth population;
- however, much of the gains occurred in the 1980s, as the rate of progress has stalled in recent years.

Young Drivers

- Young drivers age 16-19 and those age 20-24 have elevated fatality rates compared to older drivers, whether the number of road deaths for the various age groups are standardized in terms of their numbers in the licensed driver population or the amount they drive.

- The highest per-driver and per-distance fatality rates are found among teenage drivers age 16-19.

Introduction

This report provides background information for a companion TIRF report, “The Road Safety Monitor 2004: Young Drivers” (Beirness et al. 2004), which describes the results of a national public opinion poll on young drivers. The current backgrounder is part of a major ongoing investigation focusing on youth and road crashes, under funding from Toyota Canada Inc.

The report examines the magnitude and characteristics of, and trends in, the problem of road crashes involving young people. To provide a context for understanding the significance of the overall problem from both a public health and road safety perspective, the report initially focuses on youth age 15-19 and 20-24 as road users – i.e., as drivers, passengers, bicyclists and pedestrians. It then focuses on young *drivers* because they have historically been the road user of greatest concern for traffic safety.

Most of the data for the analyses were drawn from Federal government sources (Transport Canada, Statistics Canada), and from the Traffic Injury Research Foundation’s “Fatality Database”, which is jointly funded by Transport Canada and the Canadian Council of Motor Transport Administrators (CCMTA).

Magnitude of the Problem

Recent figures from the Federal government (Transport Canada 2004a) show that 331 teenagers (age 15-19) and 365 young adults (age 20-24) died in motor vehicle crashes in Canada during 2002 (the most recent year for which data are available). A further 29,236 teenagers and 30,073 young adults were injured in motor vehicle crashes that same year. These road deaths and injuries are tragic and preventable and the statistics underscore the need for preventative action.

Public Health Issue

Road crashes are an important public health issue because they are the leading cause of death among youth. This is clearly illustrated in Table 1, which shows the leading causes of death among males and females in Canada for 15-19 and 20-24 year olds in 1999 (most recent year detailed data available; Statistics Canada, 2002). Of the 1,064 15-19 year olds that died in Canada that year, 37% of them were killed in a motor vehicle collision -- 34.4% for males and 41.7% for females. Of the 1,285 20-24 year olds that died, 29% were killed in a road crash -- 30.6% for males and 25.4% females. Motor vehicle collisions are clearly the leading cause of death for both males and females age 15-19 and 20-24.

More recent numbers from Statistics Canada show that this unacceptable situation has not changed. In 2001, road crashes accounted for 35% of all the deaths among 15-19 year olds and 30% of the deaths among those aged 20-24. Road crashes remain the leading cause of death among young people (Statistics Canada 2003).

Table 1
Leading Causes of Death: Canada, 1999

Cause	15-19				20-24			
	Males		Females		Males		Females	
	Rank	%	Rank	%	Rank	%	Rank	%
Motor Vehicle Collisions	1	34.4	1	41.7	1	30.6	1	25.4
Suicide	2	28.1	2	14.2	2	27.1	4	13.5
Other External Causes (poisoning, etc.)	3	18.5	3	12.1	3	22.4	2	15.8
Cancer	4	4.7	4	8.3	4	6.1	3	14.5
Diseases of the Nervous System	5	3.0	5	3.8	6	2.8	6	5.5
Diseases of the Circulatory System	6	2.9	6	3.8	5	3.1	5	5.8

Road Safety Issue

Road crashes are a significant road safety issue because so many of the injuries and fatalities that occur each year on the roads involve young people. In 2002, a total of 2,936 people were killed in road crashes in Canada – of these, 11% (331) and 12% (365) were young people age 15-19 and 20-24, respectively. Taken together, these two age groups also accounted for one quarter (26%) of all the people injured in road crashes in Canada – young people age 15-19 and those age 20-24 accounted for 29,236 (13%) and 30,073 (13%) of the 227,768 people who were injured on our roads that year.

Young people also constitute a road safety problem because they are overrepresented in crashes, relative to the rest of the population, and they have higher per-capita death

and injury rates than any other age group. This is illustrated in Figures 1 and 2, which show the per-capita death rate and per-capita injury rate from motor vehicle crashes for various age groups in 2001[1]. As can be seen, the highest death and injury rates are for young people age 15-19 and 20-24 – death rates of 16.3 and 17.3 are more than twice that of persons age 35-44 (7.7); and injury rates of 1,397 and 1,378 are more than three times that of the oldest age group (408).

Figure 1
Motor Vehicle Death Rates: Canada, 2001

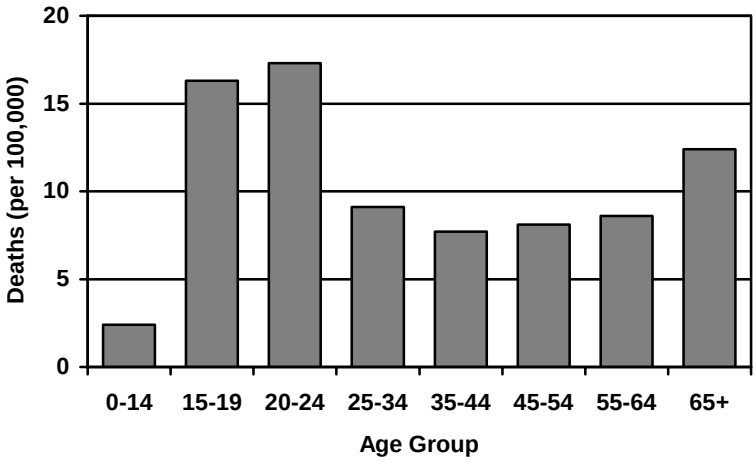
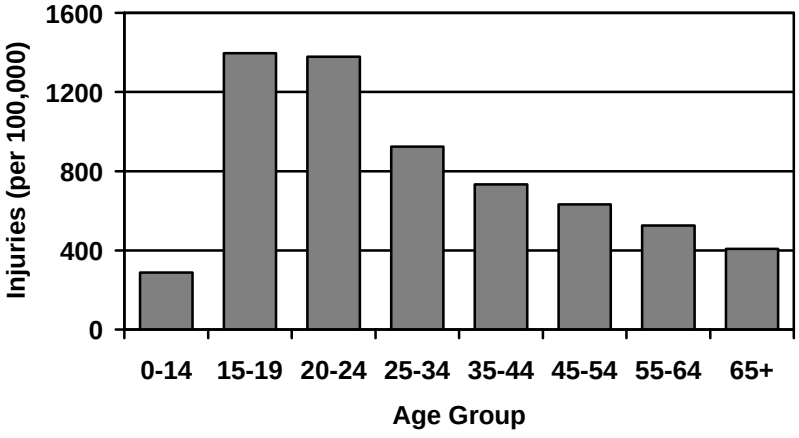


Figure 2
Motor Vehicle Injury Rates: Canada, 2001



[1] Data are provided in different years (2001 and 2002) in this section as well as in other sections because the availability of requisite data makes it impossible to provide statistics from a single common year.

Summary

Road crashes are the leading cause of death among young people – in 2001, they accounted for 35% of all deaths among 15-19 year olds and 30% of all deaths among those age 20-24. For this reason, road crashes are a significant public health problem. Young people are also a significant road safety problem because they have the highest death and injury rates of all road users and are overrepresented in collisions.

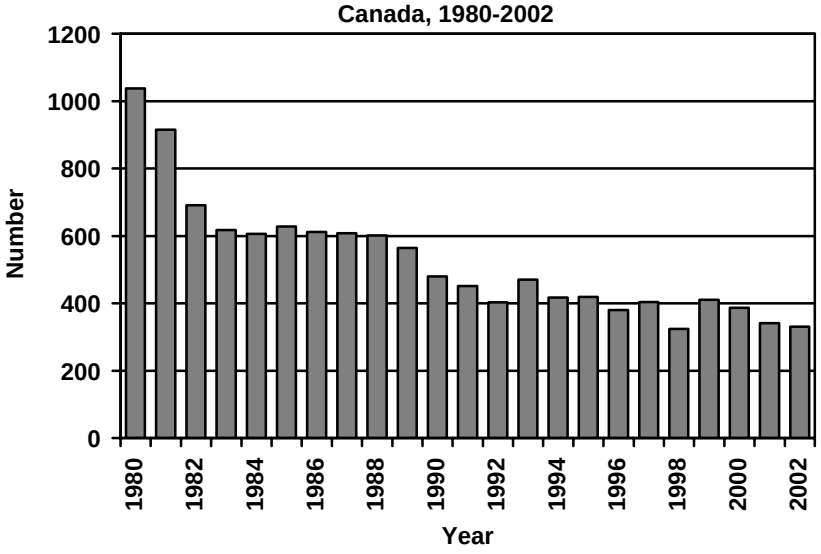
Trends in the Problem

As shown in the previous section, road crashes involving young people age 15-19 and 20-24 are both a public health and a traffic safety concern. Importantly, however, there have been major improvements over the past two decades. Improvements have occurred not only in the number of road deaths and injuries among young people but also in the contribution of young people to the overall road death and injury toll. These positive changes have occurred despite recent increases in the youth population.

Number of Road Deaths and Injuries

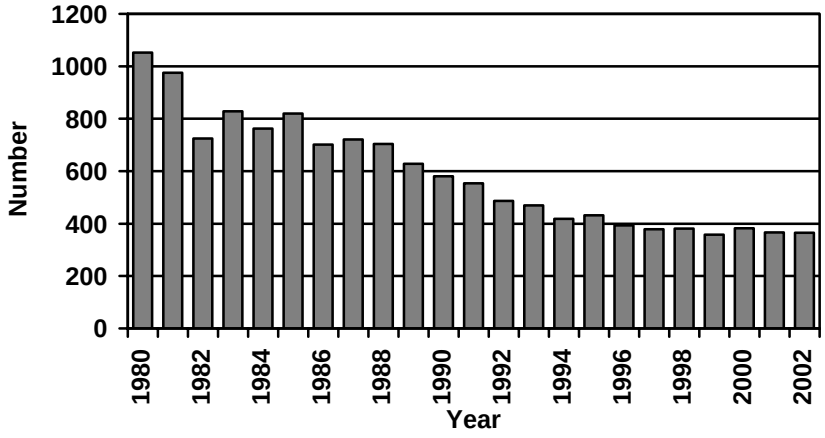
The number of road deaths and injuries among youth age 15-19 and 20-24 has decreased considerably in the past two decades. As shown in Figure 3, in 2002, there were 331 deaths among young people age 15-19, compared to 1,038 in 1980 -- a decrease of 68%. However, much of this improvement occurred in the 1980s -- since the early 1990s, the number of road deaths has fluctuated, and there was little change from 2001 to 2002.

Figure 3
Number of Road Deaths Among 15-19 Year Olds:
Canada, 1980-2002



As shown in Figure 4, road deaths have also decreased dramatically among youth age 20-24 -- 365 deaths in 2002, compared to 1,052 in 1980, a 65% decrease. However, since 1996, there has been little annual change in the number of road deaths.

Figure 4
Number of Road Deaths Among 20-24 Year Olds:
Canada, 1980-2002



In the same period, there has been a substantial decrease in the number of road injuries among young people age 15-19 and 20-24 – see Figures 5 and 6. For the youngest age group, the number of road injuries dropped by 46% -- from 54,000 in 1980 to 29,236 in 2002. A similar decline of 41% is apparent for those age 20-24 – from 51,364 in 1980 to 30,073 in 2002. Again, however, there has been very little improvement in more recent years.

Figure 5
Number of Road Injuries Among 15-19 Year Olds:
Canada, 1980-2002

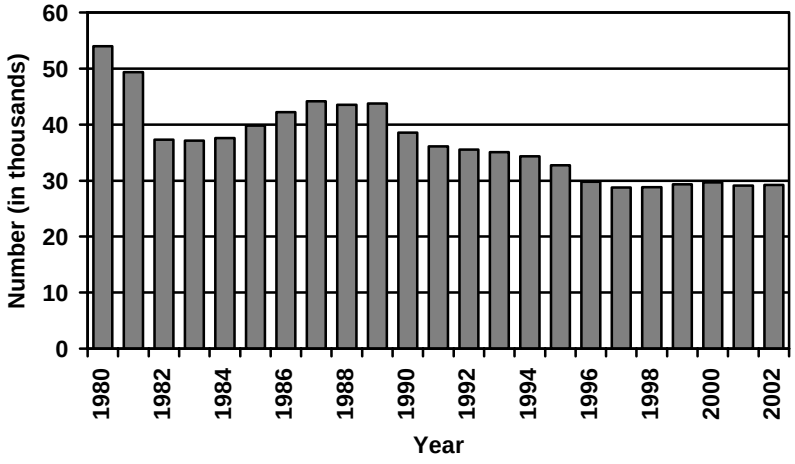
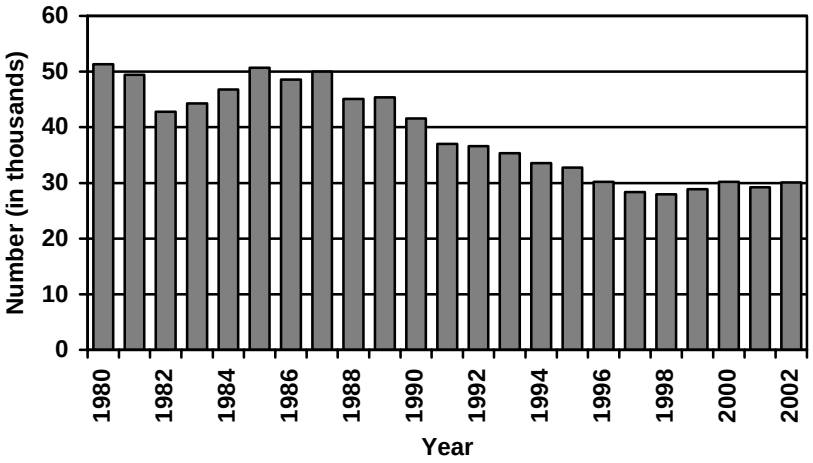


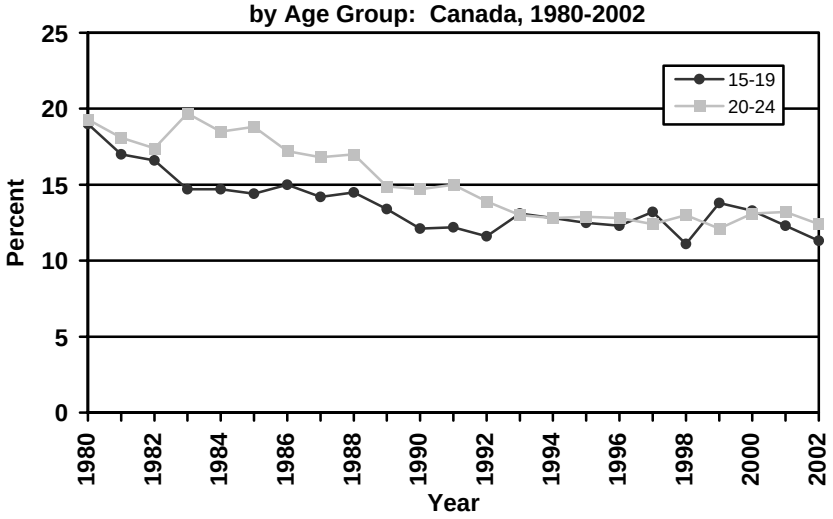
Figure 6
Number of Road Injuries Among 20-24 Year Olds:
Canada, 1980-2002



Contribution to the Overall Road Death and Injury Toll

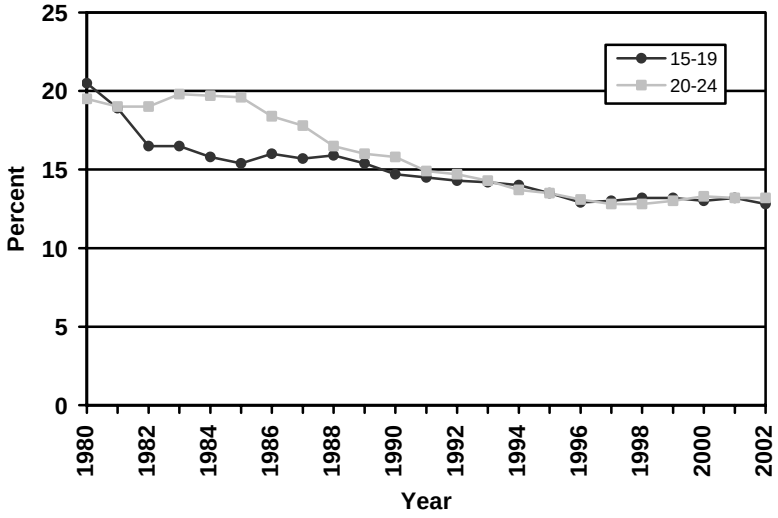
A positive change has also occurred in the relative contribution of 15-19 and 20-24 year olds to the overall death and injury toll. Figure 7 shows the percent of all road deaths represented by 15-19 and 20-24 year olds. In 1980, among all those killed on the roads, 19% were age 15-19 and 19.3% were age 20-24. By 2002, 15-19 and 20-24 year olds accounted for 11.3% and 12.4% of all road deaths – this represents a decrease of 41% and 36%, respectively. Most of this decline, however, occurred in the 1980s with little change in the percent of road deaths accounted for by young people since then.

Figure 7
Percent of Road Deaths Accounted for
by Age Group: Canada, 1980-2002



A similar pattern is apparent for road injuries and this is illustrated in Figure 8. From 1980 to 2002, the percentage of road injuries accounted for by 15-19 year olds and 20-24 year olds has declined by 38% (from 20.5 to 12.8) and 32% (from 19.5 to 13.2), respectively. As in the case of road deaths, the declines in the relative contribution of youth to the total number of road injuries was most pronounced in the 1980s; little improvement is evident in recent years.

Figure 8
Percent of Road Injuries Accounted for by Age Group: Canada, 1980-2002



Population Changes and Per Capita Death and Injury Rates

The positive trends in road deaths and injuries occurred against a backdrop of dramatic changes in the youth population. As shown in Figure 9, from 1980 to 1991 the youth population (15-19 years of age) experienced a dramatic 20% decrease. However, since then, the youth population has been increasing and is expected to continue increasing to the year 2009. Not surprisingly, the population of young people age 20-24, follow a similar trend to 15-19 year olds, except that the trend lags by 4 years (figure not shown).

The increase in young people since 1991 might have been expected to translate into an increase in the number of their road deaths and injuries. The findings described in previous sections clearly demonstrate that this has not happened. This is further

illustrated in Figures 10 thru 13, which display the number of deaths and injuries among 15-19 year olds and 20-24 year olds standardized by their numbers in the population – i.e., per-capita death and per-capita injury rates from 1980 to 2002.

Figure 9
Youth Population (Age 15-19): Canada, 1980-2020

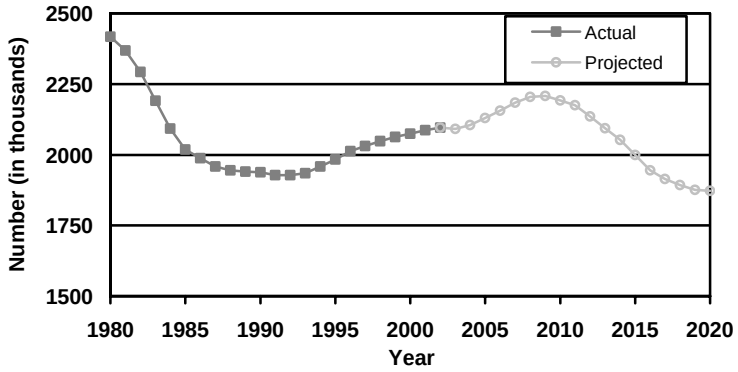


Figure 10
Road Fatalities for 15-19 Year Olds: Canada, 1980-2002

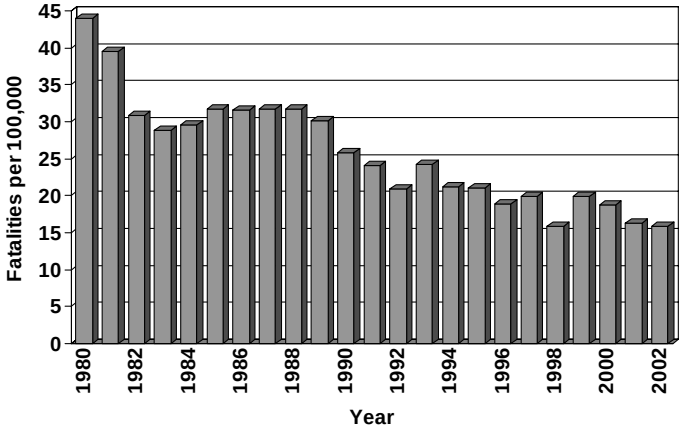


Figure 11
Road Fatalities for 20-24 Year Olds: Canada, 1980-2002

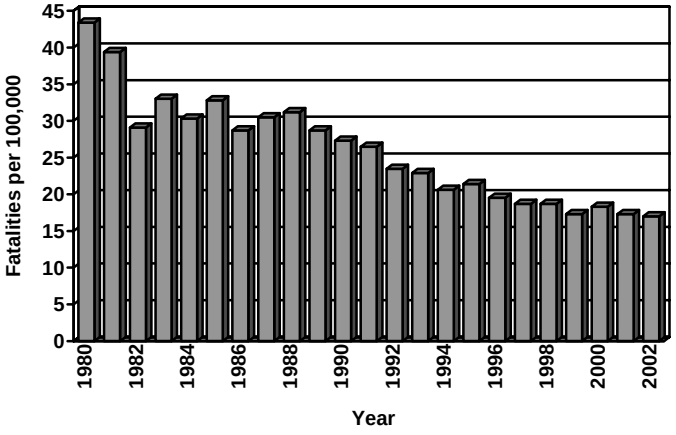


Figure 12
Road Injuries for 15-19 Year Olds:
Canada, 1980-2002

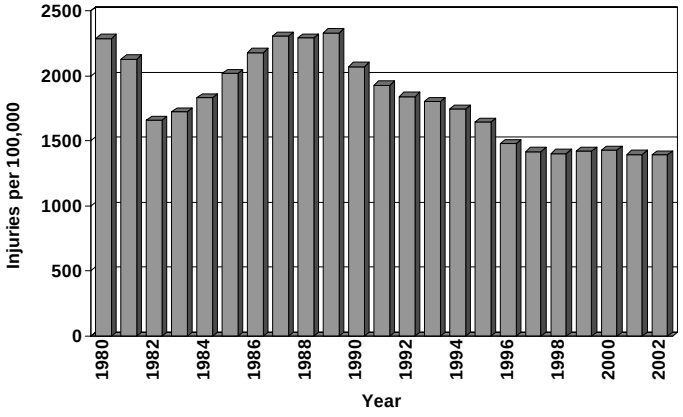
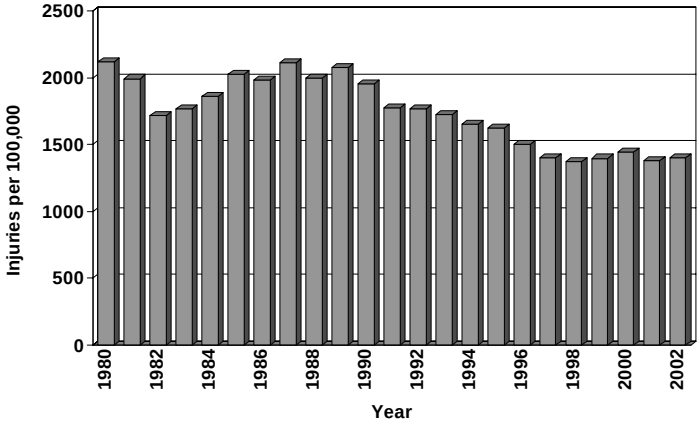


Figure 13
Road Injuries for 20-24 Year Olds:
Canada, 1980-2002



As can be seen, the death rate for young people age 15-19 and 20-24 has declined dramatically over the past two decades, with the changes in the early 1980s being particularly pronounced. The injury rates for young people age 15-19 and 20-24 also declined, at least initially, during the early 1980s but then increased rapidly until the end of that decade. Since then there have been fairly systematic annual decreases in the injury rates of both groups of young people, but similar to the case for annual death rates, the declines have slowed with little change in recent years.

Summary

Although road crashes involving young people remain significant public health and safety problems, there have been improvements over the past two decades. The numbers of road deaths and injuries among young people age 15-19 and age 20-24 have shown major decreases as have the relative contributions of young people to the overall road death and injury toll. Since 1991, these positive changes have also occurred against a backdrop of increases in the youth population. However, much of the gains occurred in the 1980s or early 1990s, as the rate of progress has stalled in recent years.

Young Drivers

This section focuses exclusively on young drivers because they have historically been the type of young road user of greatest concern for road safety. This is not surprising because the majority of deaths and injuries to young people in road crashes occur when they are drivers or passengers, and most of the deaths to young passengers take place when they are travelling in vehicles driven by young drivers (Mayhew and Simpson 1999). In 2001, there were 401 young drivers age 16 to 24 killed and 33,750 injured; a further 207 young passengers were killed and 21,651 injured.

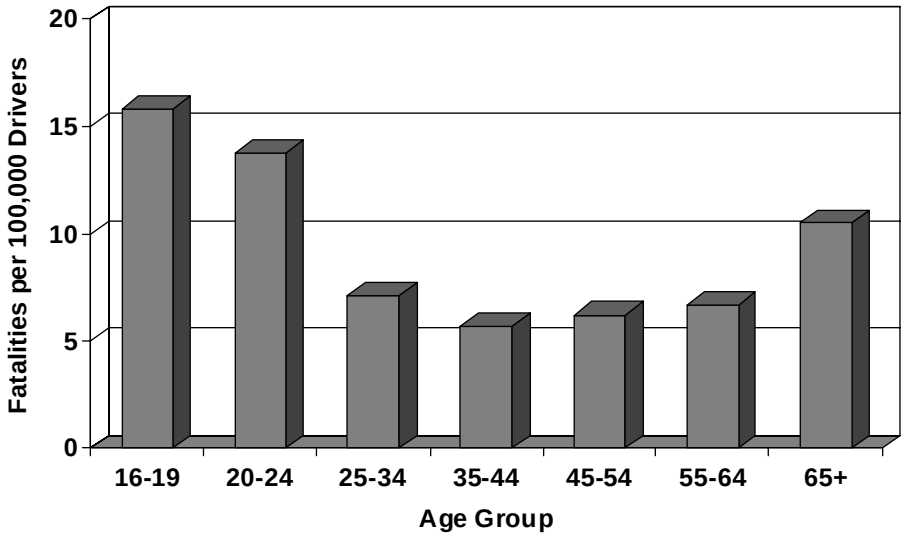
Moreover, young drivers are overrepresented in serious collisions -- deaths and serious injuries to young drivers age 16-19 and 20-24 account for about 25% of all driver deaths and serious injuries in Canada, but these young drivers represent about 13% of all licensed drivers in Canada (Transport Canada 2004a). The extent of the overrepresentation (i.e., rates) of young drivers in road crashes can be quantified in several ways. One is to calculate *per-driver* death rates by dividing the number of drivers killed in road crashes by the corresponding number of licensed drivers. Another is to calculate *per-distance* driver death rates by dividing the number of driver deaths by the annual number of kilometres driven by each age group. These two procedures reveal whether young drivers have higher numbers of deaths than other age groups of drivers after taking into account their numbers in the licensed driver population and the distances they drive annually.

Per-Driver Death Rates

Young drivers age 16-19 and 20-24 have the highest fatality rates of all age groups. The driver fatality rates (i.e., number of deaths per 100,000 drivers) for these young drivers and older ones are shown in Figure 14. As can be seen, 16-19 year old drivers have a fatality rate that is more than double that of drivers age 25-34 (15.8 compared to 7.1 fatalities per 100,000 drivers, respectively). It is also clear that young drivers age 20-24

have a driver fatality rate that exceeds the rates of middle age and senior drivers – a death rate of 13.8 for 20-24 year olds, compared to a rate of 5.7 for drivers age 35-44, and a rate of 10.5 for those age 65 and over.

Figure 14
Per-Driver Fatality Rates: Canada, 2001

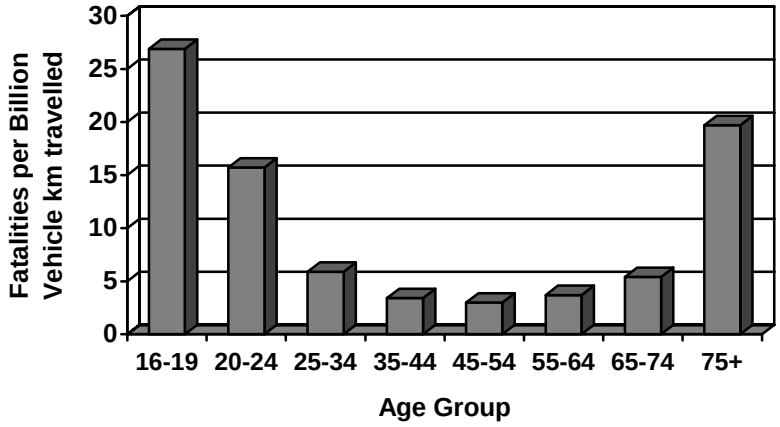


Per-Distance Death Rate

Young drivers may have such high crash rates because they drive more than older drivers. An examination of per-distance death rates (the number of fatalities per billion vehicle kilometres travelled) provides a strong test of this possibility. As shown in Figure 15, when the amount of driving is taken into consideration, the elevated fatality rate of young drivers is even more pronounced (Transport Canada 2004b). Drivers age 16-19 years of age have a fatality rate that is four times that of drivers age 25-34, and nine times that of 45-54 year olds (a fatality rate of 27 per billion vehicle kilometres travelled for 16-19 year olds, compared to a rate of 6 for driver age 25-34, and 3 for those between 45-54 years of age).

Drivers age 20-24 also have a higher fatality rate than all other groups of older drivers with the exception of the very elderly.

Figure 15
Per-Distance Driver Fatality Rates:
Canada, 2001



Summary

Young drivers age 16-19 and those age 20-24 have elevated fatality rates compared to older drivers whether the number of road deaths for the various age groups are standardized in terms of their numbers in the licensed driver population or in terms of the amount they drive. The highest per-driver and per-distance fatality rates are clearly found among teenage drivers age 16-19.

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