



## *Mature Drivers in Casualty Motor Vehicle Collisions, 1988-1998*

### **Introduction**

This document focuses on mature drivers who were involved in fatal and injury-producing motor vehicle traffic collisions between 1988 and 1998<sup>1</sup>. The report reviews trends in the number of casualty collisions involving mature drivers and the number of mature driver fatalities and injuries. Statistics such as the gender and age group distributions of involved mature drivers are compared for the years 1988 and 1998.

Collisions that occurred during 1998 are examined in more detail. Collision characteristics such as time of day, day of the week, month, posted speed limit at the collision site, road conditions, traffic controls, number of vehicles involved, and collision configuration are used to describe the circumstances that were most commonly associated with collisions involving mature drivers. Driver and vehicle characteristics, which include vehicle type, safety restraint use, vehicle maneuver, and vehicle event, are also revealed. Although the cause of a collision cannot be determined from the Traffic Accident Information Database (TRAID), driver action was reviewed as a contributing factor.

Unless otherwise stated, the term “mature driver” refers to drivers 65 years of age or older, and “younger driver” refers to those aged 16 to 64 years.

### **Summary Findings**

Over the eleven-year period from 1988 to 1998:

- The number of persons 65 years of age and older grew 1.8 times as fast as the total population.
- Even though casualty-producing collisions have decreased over the period, mature driver involvement has increased.
- In 1988, 10.5 percent of all fatal collisions involved at least one mature driver. By 1998, that number increased to 15.5 percent. The same situation occurred with injury-producing collisions involving a mature driver, which increased from 8.1 percent of total injury collisions in 1988 to 11.5 percent in 1998.
- The average age of mature drivers in fatal collisions increased from 73 in 1988 to 74.2 by the end of the period. Similarly, in injury-producing collisions, the average age increased from 71.6 to 72.8 years old.
- The number of mature drivers involved in collisions increased by 12.2 percent. The proportion of mature drivers killed remained unchanged at 1.4 percent of all mature drivers involved in casualty collisions, while the number that were injured increased from 42.9 to 46.6 percent of mature drivers involved.

In 1998,

- 3.7 million Canadians, or 12.3 percent of the population, were 65 years of age or older. Approximately 2.5 million or 70 percent of people in this age group are licensed to drive on public roads.
- 61.5 percent of mature drivers in fatal crashes were killed and 23 percent suffered non-fatal injuries in those collisions.
- Although mature drivers accounted for 7 percent of all drivers in casualty-producing collisions, they represented 15.6 percent of all driver fatalities.
- Almost 75 percent of mature drivers involved in fatal collisions were driving an automobile.
- Of the fatal collisions involving mature drivers, 30.6 percent were single-vehicle crashes and 56.5 percent involved two vehicles. By comparison, about 50 percent of all fatal collisions were single-vehicle crashes.

## Detailed Findings

### *Trends, 1988 - 1998*

#### **Collisions**

Even though fatal and injury collisions have decreased between 1988 and 1998, mature driver involvement has grown both in terms of percentage and in real numbers. For example, in 1988 only 10.5 percent of fatal collisions (378) involved at least one mature driver. Ten years later, 15.5 percent of fatal collisions (402) included at least one mature driver. Similarly, injury collisions involving one or more mature drivers rose from 8.1 percent of all injury collisions in 1988 to 11.5 percent in 1998.

**Table 1. Casualty Collisions Involving Mature Drivers, 1988 - 1998**

Year	Fatal Collisions		Injury Collisions	
	Total	Involving Drivers 65+	Total	Involving Drivers 65+
<b>1988</b>	3,610	378	190,094	15,466
<b>1989</b>	3,526	427	183,147	14,899
<b>1990</b>	3,445	416	178,515	15,678
<b>1991</b>	3,228	395	170,693	15,692
<b>1992</b>	3,073	371	169,640	16,092
<b>1993</b>	3,121	376	168,106	16,701
<b>1994</b>	2,869	408	166,780	17,131
<b>1995</b>	2,854	391	164,190	17,272
<b>1996</b>	2,708	414	156,282	17,042
<b>1997</b>	2,647	377	150,118	16,541
<b>1998</b>	2,598	402	148,376	17,120

#### **Drivers**

In 1998, 426 drivers in fatal crashes (10.5 percent of all drivers in fatal crashes) were aged 65 or older. This was an increase over 1988, when 394 mature drivers involved in fatality collisions (7.1 percent of total) were 65 years of age or older. Mature drivers also accounted for 7.0 percent (18,010) of all drivers implicated in injury crashes during 1998, compared to 4.9 percent (16,042) in 1988. (Some collisions involved more than one mature driver.)

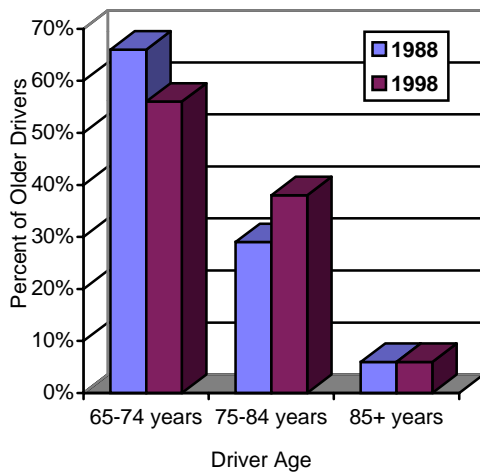
#### **Female Drivers**

Between 1988 and 1998, women made up an expanding share of crash-involved mature drivers, a trend consistent with the gender shift that occurred among drivers under 65 years. For example, 22.5 percent of mature drivers in fatal crashes during 1998 were female, up from 18.8 percent in 1988. (By comparison, females comprised 21.5 percent of younger drivers involved in fatal crashes, an increase from 16.8 percent in 1988.) Injury crashes showed the same pattern, with females comprising 30.9 percent of mature drivers involved in 1998, compared to 26.7 percent in 1988. (This compares to younger female drivers, who made up 30.0 percent of involved drivers in 1988 and 36.1 percent in 1998.)

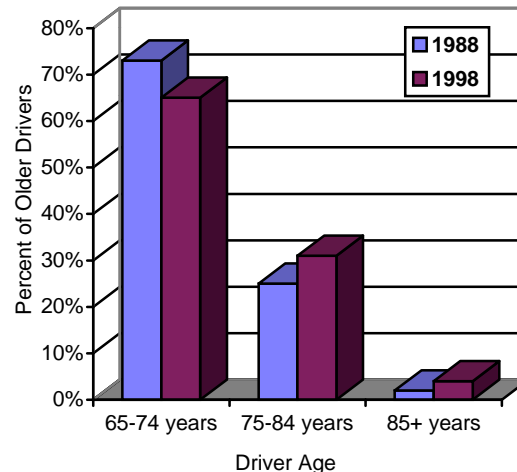
### Age of Mature Drivers

The average age of mature drivers involved in fatal crashes during 1988 was 73.0 years. By 1998, the average age had risen to 74.2 years. With respect to injury crashes, the average age of mature drivers rose from 71.6 to 72.8 years during the same time period. Figures 1 and 2 compare the age distribution of mature drivers and reveal the basis for the change.

**Figure 1. Age Distribution of Mature Drivers in Fatal Crashes, 1988 & 1998**



**Figure 2. Age Distribution of Mature Drivers in Injury Crashes, 1988 & 1998**



The age distribution of mature drivers involved in fatal collisions during 1988, as seen in Figure 1, reveals that 65.7 percent were aged 65 to 74 years, 28.7 percent aged 75 to 84 years, and 5.6 percent aged 85 and older. By 1998, a shift in age distribution was obvious, with 55.7 percent of mature drivers between 65 and 74 years, 38.0 percent between 75 and 84 years, and 6.3 percent of the drivers 85 years or older.

Figure 2 shows the same type of change happening for mature drivers in injury crashes. During 1988, 72.7 percent of mature drivers were aged 65 to 74 (decreasing to 64.7 percent in 1998), 25.3 percent were 75 to 84 (rising to 31.1 percent in 1998), and 2.0 percent were 85 years or older (rising to 4.2 percent in 1998).

### Driver Casualties

Between 1988 and 1998, the number of mature drivers killed in crashes rose from 232 to 262, an increase of almost 13 percent, while the number injured increased by about 21.6 percent, from 7,066 to 8,591 drivers.

**Table 2. Mature Drivers Killed and Injured in Collisions, 1988 - 1998**

Year	Mature Drivers Involved in Casualty Collisions		
	Killed	Injured	Total Involved
1988	232	7,066	16,436
1989	257	7,028	15,910
1990	241	7,296	16,745
1991	234	7,314	16,771
1992	233	7,669	17,178
1993	248	7,966	17,900
1994	255	8,244	18,345
1995	249	8,470	18,510
1996	251	8,532	18,283
1997	246	8,367	17,745
1998	262	8,591	18,436

During 1998, 61.5 percent of mature drivers involved in fatal crashes were killed in those collisions (up from 58.9 percent in 1988), and another 23.0 percent were injured (down slightly from 25.1 percent in 1988). In contrast, 39.7 percent of younger drivers were killed and 32.6 percent suffered injuries in fatal collisions. Furthermore, injury-only collisions resulted in injuries to 47.2 percent of mature drivers involved, rising from 43.4 percent in 1988.

Although mature drivers made up 7.0 percent of total drivers involved in casualty collisions during 1998, they accounted for 15.6 percent of all drivers killed and 6.8 percent of all drivers injured. This is a noticeable change from 1988, when mature drivers comprised 4.9 percent of drivers involved, while making up 10.2 percent of those killed and 4.5 percent of those injured.

## 1998 Detail

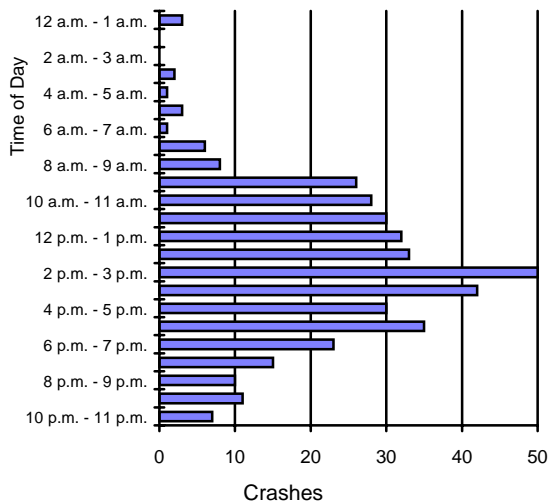
### Crash Characteristics

#### Time

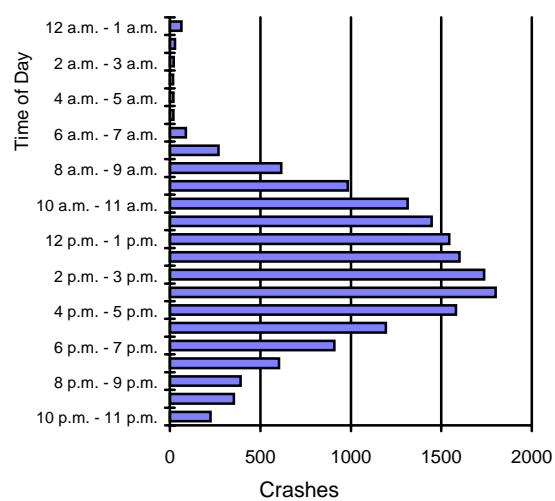
Casualty collisions involving mature drivers were most likely to occur between 2 p.m. and 4 p.m., with 22.9 percent of fatal crashes and 20.7 percent of injury crashes taking place then. This compares to collisions involving all ages of drivers, of which 11.8 percent of fatality crashes and 14.8 percent of injury-producing crashes happened during those two hours of the day.

Over 76 percent of fatal crashes and 77 percent of injury crashes involving mature drivers occurred between 9 a.m. and 6 p.m. By comparison, 41.9 percent of fatal collisions and 56.4 percent of injury collisions involving all ages of mature drivers occurred within that time period.

**Figure 3. Fatal Crashes Involving Mature Drivers by Time of Day**



**Figure 4. Injury Crashes Involving Mature Drivers by Time of Day**



#### Day

Friday was the most common day for both fatal and injury collisions involving mature drivers, with Tuesday a close second for fatal crashes and Thursday a close second for injury crashes.

#### Month

Fatal crashes involving mature drivers were more likely to occur in August than any other month, as were fatal collisions of all ages of drivers. October was the peak month for injury crashes involving mature drivers, and July the peak month for all injury-producing crashes.

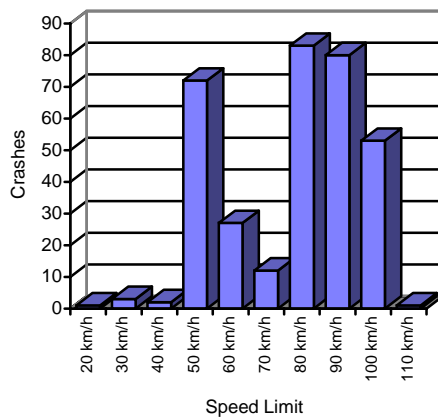
## Location

Fatal and injury crashes occurring in “good” driving environments, such as on straight and level roads, or under dry, normal road conditions, were associated with an increased mature driver involvement. For example, 63.4 percent of fatal and 72.9 percent of injury crashes involving mature drivers took place on straight and level roads. Dry, normal road surface conditions were present in over 72 percent of both fatal and injury collisions experienced by mature drivers.

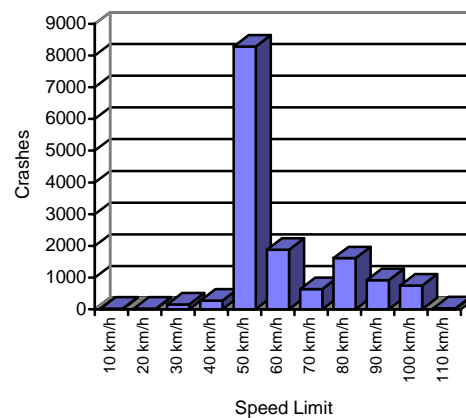
A majority of fatality collisions implicating mature drivers took place on rural roads (61.4 percent). Conversely, most injury collisions took place on urban roads (74.2 percent).<sup>2</sup>

Fatal collisions related to mature drivers happened most frequently where the speed limit was 80 km/h or higher (62 percent of collisions), while most injury crashes (69.6 percent) took place in speed zones of 50 km/h to 70 km/h.<sup>2</sup>

**Figure 5. Fatal Crashes Involving Mature Drivers, by Speed Limit**



**Figure 6. Injury Crashes Involving Mature Drivers, by Speed Limit**



About 42 percent of fatality crashes involving mature drivers occurred at public intersections with or without traffic controls, as opposed to 26.8 percent of fatal collisions in general. Another 39.3 percent of those crashes took place at a non-intersection site, compared to 53.1 percent of all fatal crashes.

## Traffic Control

Fatal crashes involving mature drivers were more likely to occur in the proximity of traffic signals than fatal crashes in general (8.0 percent compared to 6.7 percent). Stop signs were also more prevalent, present in 13.4 percent of mature driver crashes, compared to 7.3 percent of all fatal crashes. Injury collisions showed the same type of variation: 25.8 percent of mature driver crashes took place with traffic signals available, compared to 21.3 percent of all crashes. Another 14.7 percent took place near stop signs, compared to 10.1 percent of all injury crashes.

## Crash Types

Drivers aged 65 years and older are more likely to be in two-vehicle collisions than the driver population in general. For example, 30.6 percent of fatal collisions involving mature drivers involved one vehicle, while 56.5 percent involved two vehicles. By comparison, 49.7 percent of all collisions involved one vehicle and 42.6 percent involved two vehicles. The statement holds true for injury crashes of mature drivers as well, where 16.1 percent involved one vehicle and 68.5 percent involved two vehicles (compared to the entire collision population, of which 30.0 percent involved one vehicle and 59.4 percent involved two vehicles).

The type of crash configurations experienced by mature drivers show variations from crashes in general. Among mature drivers, the incidence of fatality crashes in which two vehicles collide as a result of a left or right turn conflict is twice as high as the incidence among drivers in general (26.6 percent vs. 13.2 percent). However, fatal crashes that involve one vehicle hitting an object or person are less likely among mature drivers (14.2 percent of crashes) than among all drivers in general (23.9 percent of crashes).

**Driver and Vehicle Characteristics**

**Safety Restraint Use**

Safety restraints were used by 69.0 percent of mature drivers in fatal collisions and 76.0 percent in injury collisions, in comparison to younger drivers whose use of safety restraints was 55.5 percent and 74.3 percent respectively.

**Contributing Factors**

Failing to yield or disobeying traffic controls was a contributing factor for 7.1 percent of mature drivers in fatal crashes.

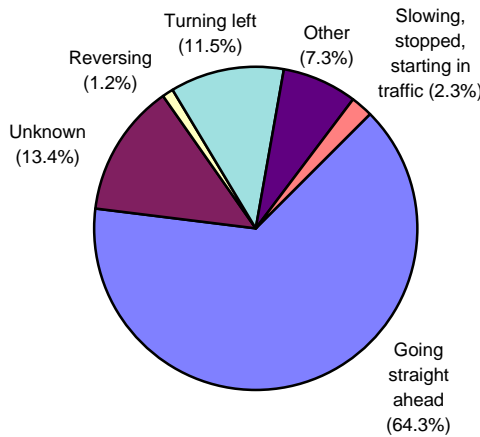
**Vehicle Types**

Almost 75 percent of mature drivers involved in fatal crashes were driving an automobile, while 18.3 percent were driving a light truck or van. By contrast, 51.1 percent of the younger drivers were driving an automobile, and 21.9 percent drove a light truck or van.

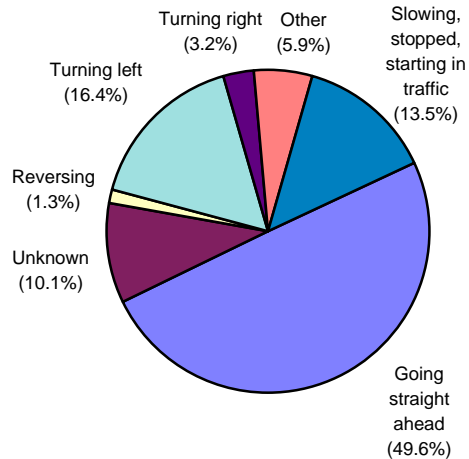
**Vehicle Maneuvers and Events**

Going straight ahead was the most common vehicle maneuver of mature drivers prior to a fatal crash, performed by 73.8 percent of the drivers. Another 13.2 percent were turning left just before the crash. On the other hand, 79.8 percent of younger drivers were travelling straight ahead just prior to the fatal collision, and only 4.2 percent were turning left. Travelling straight and turning left were also the most common maneuvers preceding injury crashes, performed by 54.7 percent and 18.0 percent of mature drivers, respectively. By comparison, 57.8 percent of younger drivers involved in injury crashes were going straight ahead and 10.5 percent were turning left.<sup>2</sup>

**Figure 5. Vehicle Maneuvers of Mature Drivers Preceding Fatal Crashes**



**Figure 6. Vehicle Maneuvers of Mature Drivers Preceding Injury Crashes**



Considering two-vehicle fatal collisions involving one mature driver and one younger driver, the older driver was turning left while the younger driver was going straight ahead in 22.6 percent of the crashes. For 4.5 percent of collisions, the younger driver was turning left as the mature driver was going straight, whereas in 56.8 percent of the crashes, both drivers were travelling straight ahead. (Percentages are based on cases for which vehicle maneuver was reported.)<sup>2</sup>

With regard to two-vehicle injury collisions, the mature driver was turning left while the younger driver was going straight ahead in 23.1 percent of crashes. Both vehicles were travelling straight ahead in 30.7 percent of crashes, and younger driver was turning left while the mature driver was going straight in 9.3 percent of collisions. (Percentages are based on cases for which vehicle maneuver was reported.)<sup>2</sup>

The first vehicle event for mature drivers in fatal collisions was described as: hit other vehicle (53.1 percent of older drivers), run off roadway (10.0 percent), hit non-moving object (9.7 percent) hit pedestrian (7.3 percent), and other or unknown event (19.9 percent).<sup>2</sup>

## **Summary**

Between 1988 and 1998, fatal crashes involving mature drivers increased by 6.3 percent while injury crashes increased by 10.7 percent. The average age of mature drivers involved in casualty collisions rose by 1.2 years over the same period. In 1998, mature drivers were more likely to be involved in collisions during the day (9 a.m. to 6 p.m.), on straight and level roads, and on dry, normal road surfaces. They were over-represented in crashes in the proximity of traffic signals and stop signs. Mature drivers were also more likely to get into two-vehicle collisions and collisions involving turn conflicts than the general driving population.

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### **Sources:**

Transport Canada, Traffic Accident Information Database (TRAID).  
Statistics Canada, 91-002-XIB Quarterly Demographic Statistics.

### **Notes:**

- <sup>1</sup> Manitoba 1989 data are not included in analysis.
- <sup>2</sup> Alberta does not report the data item and is excluded from these calculations.

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