THE ROLE OF DRIVER AGE IN FATALLY INJURED DRIVERS IN CANADA, 2000-2013

Traffic Injury Research Foundation, October 2016

Introduction

The role of driver age has been investigated in relation to many road safety issues. Studies show that, notably, younger drivers have been subject to considerable scrutiny due to their inexperience managing unexpected events on the road as well as risk-taking behaviour. Drivers aged 16-19 are over-represented in fatal crashes in terms of fatalities per population and number of licensed drivers (TIRF, 2013). Similarly, drivers aged 65 and older are over-represented in crashes, particularly drivers aged 80 and older, partly because they are more fragile (susceptible to injury) than younger drivers and less likely to survive a serious collision (Li et al. 2003). Drivers aged 65 and older are also more susceptible to age-related declines in reaction time and mobility, and can be affected by factors such as heart disease, visual impairment, stroke, dementia, and impairment due to prescription medication use (Vanlaar et al. 2008).

This fact sheet contains a review of the magnitude and trends of drivers, in four age groups, involved in fatal crashes in Canada using different indicators. These age groups include ages 16-19, 20-34, 35-64, and 65 and older.

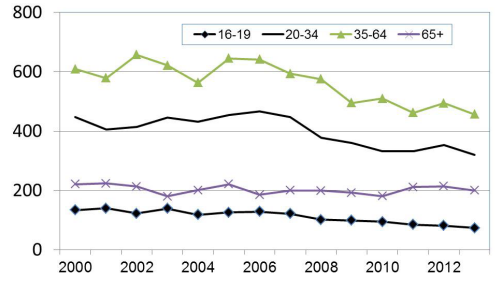
This fact sheet, sponsored by State Farm®, summarizes the characteristics of fatally injured drivers according to age who were involved in collisions in Canada from 2000 to 2013. Data for this fact sheet are derived from TIRF's National Fatality Database which is jointly funded by the Public Health Agency of Canada and State Farm®. Fatality data from British Columbia from 2011 to 2013 were not available at the time that this fact sheet was prepared. As a result, Canadian data presented have been re-calculated to exclude this jurisdiction and make equitable comparisons.

Trends in fatal crashes by driver age groups

The number of fatally injured drivers by age group in Canada from 2000 to 2013 is shown in Figure 1. Fatally injured drivers aged 16-19 represented the smallest population group and this age group had the fewest fatally injured drivers throughout the 14-year period. In 2000, 134 drivers in this age group were fatally injured, rising to 140 in 2001 before deceasing to a low of 74 in 2013. Among drivers aged 20-34, there were 447 that were killed in 2000, peaking at 467 in 2006, before decreasing to a low of 321 in 2013. The age group that has consistently accounted for the most fatally injured drivers is the 35-64 year old group. There were 609 of these drivers in 2000, peaking at 656 in 2005, before decreasing to 457 in 2013. The second smallest age group in terms of both population and fatally injured drivers was the oldest age group, 65 and older. In 2000, there were 221 fatally injured

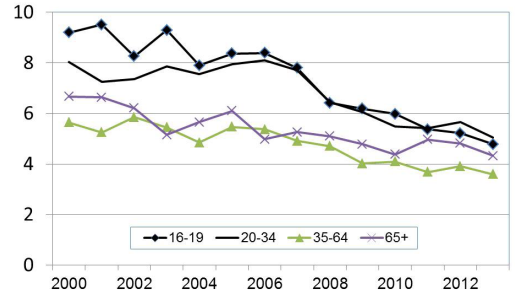
drivers aged 65 and older, rising slightly to 224 in 2001. In the past four years, the number of fatally injured drivers in this age group has generally risen from 181 in 2010 to 200 in 2013.

Figure 1: Fatally injured drivers by age group, Canada, 2000-2013



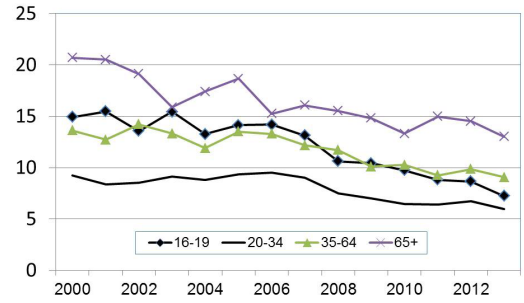
Fatalities per 100,000 population for each of the four age groups, shown from 2000 to 2013 in Figure 2, reveal fairly consistent declines. Fatally injured drivers aged 16-19 had the highest fatality rate of the four age groups in 2000 at 9.2 persons per 100,000 population. For the next seven years, 16-19 year old drivers continued to have the highest fatality rate but there was a steady decline to 4.8 in 2013. The fatality rate for drivers aged 20-34 was 8.0 in 2000, peaked at 8.1 in 2006, and declined to a low of 5.1 in 2013. In 2000, the fatality rate was 5.6 for drivers aged 35-64. For most of the 14 years, this age group had the lowest fatality rate, and it dropped to a low of 3.6 in 2013. For drivers aged 65 and older, the fatality rate was 6.7 in 2000, dropped to 5.2 in 2003, fluctuated until 2011, and fell to a low of 4.3 in 2013.

Figure 2: Fatally injured drivers by age group per 100,000 population, Canada, 2000-2013



The rate of fatally injured drivers by age group per 100,000 licensed drivers from 2000 to 2013, shown in Figure 3, equally suggests a declining trend. The rate of fatally injured 16-19 year old drivers was 14.9 persons in 2000. This remained stable until 2006, and generally declined to a rate of 7.2 in 2013. Drivers aged 20-34 have accounted for the age group with the lowest rate of fatalities per 100,000 licensed drivers throughout the 14-year period. Their rate was 9.2 in 2000, which remained stable until 2006, then declined to 6.0 in 2013. Among fatally injured 35-64 year old drivers, the rate was 13.6 in 2000, which eventually decreased to 9.1 in 2013. Lastly, among drivers aged 65 and older, 20.7 died per 100,000 drivers in 2000. This rate decreased to 13.0 in 2013.

Figure 3: Fatally injured drivers by age group per 100,000 licensed drivers, Canada, 2000-2013



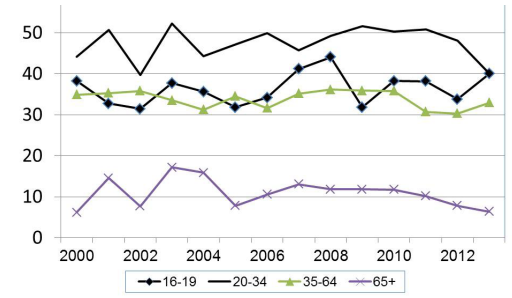
Contributing factors in collisions involving fatally injured drivers by age group

This section compares the magnitude and contributing factors in collisions involving drivers from the four age groups. The contributing factors include alcohol, drugs, distraction, speed, and fatigue. Trends between 2000 and 2013 are shown for these factors for each age group.

Alcohol. The percentage of fatally injured drivers from each age group who had been drinking is shown in Figure 4. In 2000, 38.3% of fatally injured 16-19 year old drivers tested positive for alcohol, this peaked at 44.1% in 2008, decreased to 33.8% in 2012, and rose again to 40.0% in 2013. Among those fatally injured drivers aged 20-34, 44.2% tested positive for alcohol in 2000, peaking at 52.3% in 2003, before decreasing to 40.1% in 2013. One-third (34.9%) of fatally injured 35-64 year old drivers tested positive for alcohol in 2000 and this percentage remained

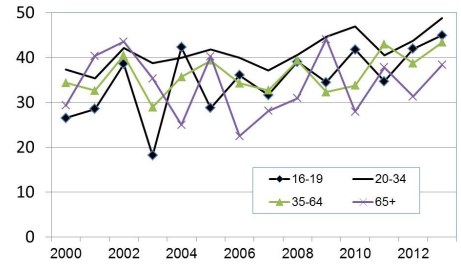
relatively stable until 2013 (32.9%). Finally, among fatally injured drivers who were 65 and older, only 6.2% had been drinking in 2000. The percentage peaked at 17.2% in 2003 but decreased to 6.4% in 2013.

Figure 4: Percent of fatally injured drivers testing positive for alcohol by age group, Canada, 2000-2013



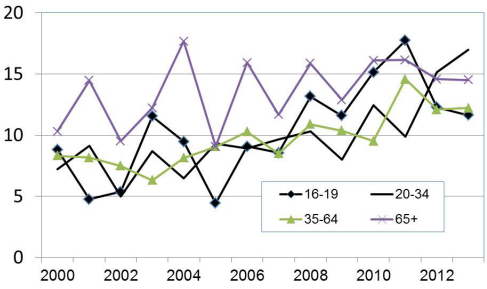
Drugs. Drivers testing positive for drug use include those who tested positive for illicit drugs as well as those who tested positive for prescription and over the counter drugs, since many different drug types can compromise one's driving ability (Brown et al. 2015). The percentage of fatally injured drivers from each age group who tested positive for drugs is shown in Figure 5. Although there are some annual variations, a similar percentage of drivers from each age group have positive drug test results from 2000 to 2013. Among fatally injured drivers aged 16-19, 26.5% tested positive for drugs in 2000. This percentage fell to a low in 2003 (18.3%), and eventually peaked in 2013 (44.9%). In 2000, 37.4% of fatally injured 20-34 year old drivers were positive for drugs. This percentage remained relatively stable until 2007, then reached its highest level in 2013 (48.7%). One-third of fatally injured 35-64 year old drivers tested positive for drugs in 2000 (34.4%), decreasing to 28.9% in 2003 before peaking at 43.4% in 2013. Among the oldest age group of fatally injured drivers (aged 65 and older), 29.3% tested positive for drugs in 2000. This percentage peaked in 2009 (44.1%), and fluctuated until 2013 (38.3%). Although the various drug categories are not included in this figure, 16-19 year old drivers who were positive for drugs were more likely to have consumed marijuana while those aged 65 and older were more likely to have tested positive for prescription drugs.

Figure 5: Percent of fatally injured drivers testing positive for drugs by age group, Canada, 2000-2013



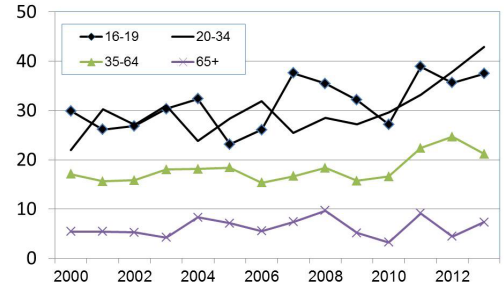
Distraction. The percentage of fatally injured drivers within each age group who were distracted is shown in Figure 6. In 2000, 8.8% of fatally injured drivers aged 16-19 were distracted and this level declined to 4.4% in 2005. Fatally injured drivers aged 16-19 were the most likely to be distracted in 2011 (17.7%). By 2013, this percentage decreased again (11.6%). Among fatally injured 20-34 year old drivers, 7.2% were distracted in 2000, decreasing to 5.0% in 2002. In 2013, this age group of drivers was the most likely to be distracted (17.0%). The percentage of fatally injured 35-64 year old drivers who were distracted generally rose from 8.3% in 2000 to 14.6% in 2011, and decreased to 12.2% in 2013. Among fatally injured drivers aged 65 and older, 10.3% were distracted in 2000. The percentage for the oldest age group of drivers fluctuated until 2010 before stabilizing to a level of 14.5% in 2013. It can be seen that there is a general upward trend in the percentage of fatally injured drivers of all four age groups who were distracted during the 14-period. However, the number of fatally injured distracted drivers has fluctuated from year to year.

Figure 6: Percent of fatally injured drivers who were distracted by age group, Canada, 2000-2013



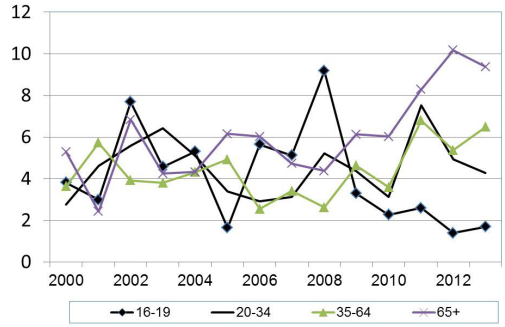
Speed. The percentage of fatally injured drivers in each age group, who were speeding or driving too fast for conditions in crashes from 2000 to 2013, is shown in Figure 7. Among fatally injured drivers aged 16-19, 29.9% were speeding in 2000. This percentage fell to a low of 23.1% in 2005, peaked at 38.9% in 2011, and settled at 37.5% in 2013. In 2000, 22.0% of fatally injured 20-34 year old drivers were speeding and this percentage generally rose to its highest level (42.9%) in 2013. The percentage of fatally injured 35-64 year old drivers who were speeding was 17.1% in 2000, remained stable until 2010, peaked at 24.7% in 2012, and decreased to 21.2% in 2013. The oldest age group, those aged 65 and older, had the lowest percentage of fatally injured drivers that were speeding during the 14-year period. In 2000, 5.4% had been speeding. This percentage peaked at 9.7% in 2008, fell to 3.2% in 2010, and rose again to 7.3% in 2013.

Figure 7: Percent of fatally injured drivers who who were speeding by age group, Canada, 2000-2013



Fatigue. The role of fatigue among fatally injured drivers is shown in Figure 8. Among fatally injured drivers aged 16-19, 3.8% were fatigued in 2000. This percentage peaked in 2008 (9.2%) before generally decreasing to 1.7% in 2013. Among fatally injured drivers aged 20-34, 2.8% were fatigued in 2000. In 2011, this percentage rose to 7.5% before decreasing to 4.3% in 2013. In 2000, 3.6% of fatally injured 35-64 year old drivers were fatigued, the percentage fluctuated until 2010, then eventually rose to 6.5% in 2013. The percentage of fatally injured drivers aged 65 and older who were fatigued rose from a low of 2.4% in 2001 to 10.2% in 2012 and then decreased to 9.4% in 2013. It is worth noting that fatally injured drivers aged 65 and older have accounted for the highest percentage of fatigued drivers for the past five years.

Figure 8: Percent of fatally injured drivers who were fatigued by age group, Canada, 2000-2013



Conclusions

Young drivers aged 16-19 have had the highest fatality rates per population for many years. More recently, data from TIRF's National Fatality Database show that fatality rates per population for the youngest drivers have been more similar to the fatality rates for the other three age groups. In terms of fatality rates per licensed drivers, drivers aged 20-34 consistently had lower results than the other three age groups.

Fatally injured drivers aged 65 and older have had a lower percentage of drivers who tested positive for alcohol. On the contrary, drivers aged 20-34 have had the highest percentage who tested positive for alcohol between 2000 and 2013. There is more volatility in the trendlines for fatally injured drivers who tested positive for drugs in all of the age groups. This may be due, in part, to a historically lower percentage of fatally injured drivers who were tested for the presence of drugs. With increased testing rates across Canada from 2011 to 2013, future data may provide clearer insight regarding trends.

Early in the 2000-2013 study period, fatally injured drivers aged 65 and older accounted for the largest percentage of distracted drivers. Perhaps the role of distraction for these drivers was based on cognitive deficits rather than the use of electronic devices in the vehicle, a practice associated with younger drivers. As anticipated, fatally injured drivers aged 16-19 and 20-34 were the age groups with the highest percentage who were considered to have been speeding while drivers aged 65 and older accounted for the lowest percentage.

In terms of fatigue, drivers aged 65 and older had the highest percentage for most of the 14 year period. On the contrary, drivers aged 16-19 had the lowest percentage of fatally injured drivers who were fatigued, particularly in recent years.

In conclusion, since some contributing factors in fatal crashes are more common among one age group than others (e.g., speeding among younger drivers), public education and information campaigns to reduce these behaviours have to be tailored to a target audience. The age of the target audience may also influence the types of strategies and countermeasures that are employed to produce the greatest behaviour change. Further monitoring of the role of contributing factors in fatal crashes for all age groups is needed to inform efforts to reduce crashes.

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