Federal Office of Road Safety

OLDER DRIVERS: CALCULATING THE RISK OF INVOLVEMENT IN FATAL CRASHES

In the last decade, Australia's road toll has fallen by about 30 per cent across all groups of road users: drivers, passengers, pedestrians and cyclists. Older drivers have contributed relatively little to this total decrease and the number of older drivers killed has remained almost static since 1986.

The apparent increase in older driver fatalities compared with those of other road users has led to public concern over the ability of older people to continue driving. In Europe, cars with special features to help older drivers are coming onto the market. In Australia, there has been debate over re-testing older drivers, and various programs of self-assessment of fitness to continue driving have been recommended.

Projected age profiles of Australian driver fatalities in 2005 and 2115

Age	1994*		2005		2015	
	Number	Share	Number	Share	Number	Share
15-24	260	30%	211	27%	222	26%
25-39	244	28%	189	24%	189	22%
40-59	185	22%	190	24%	205	24%
60-69	78	9%	80	10%	114	13%
70+	90	10%	111	14%	136	16%
All drivers	856	100%	781	100%	866	100%

** Average annual fatalities for July 1993 - June 1995*

But how at risk are older drivers?

This monograph considers trends in driver fatalities against issues such as the ageing population, travel patterns of drivers of different ages and the ability of older people to survive crashes.

The number of driver deaths by age for the last 10 years is given in the following table. The number of drivers killed over the age of 60 has remained nearly unchanged since 1986. The number killed in other age groups has declined significantly.

Driver fatalities and age

	under 25 yrs	25-39 yrs	40-59 yrs	60 yrs & over
1986	404	329	234	163
1987	379	326	220	170
1988	486	332	248	168
1989	397	341	232	152
1990	318	251	199	167
1991	293	252	197	168
1992	267	236	180	132
1993	270	251	189	149
1994	255	200	178	178
1995	294	237	180	166
% change 1986-94	-27.2	-28.0	-23.1	1.8

The failure to reduce road deaths among older drivers is in part due to the substantial population increase and more widespread ownership of drivers' licences in this age group. There has also been relatively less benefit from road safety measures that have tended to have greater effect on fatalities associated with high-risk road use such as speeding and drink driving - more common among younger drivers.

Demographic change will lead to additional increase in the representation of older people among driver fatalities. This is projected to happen fairly slowly, and even two decades from now the contribution to driver fatalities from people aged 60 years and over is likely to be no more than 30 per cent compared with 19 per cent at present. In the same period, the representation of young drivers (under 25 years) will fall slightly from 30 per cent to 26 per cent of drivers killed.

Driver deaths by distance travelled

To form a better idea of how older drivers performed, an analysis of driver age by distance travelled was conducted. It is fairly obvious that the more one drives, the greater the likelihood of being involved in a crash. This analysis was made solely in terms of kilometres driven with no attempt to take account of age differences in characteristics such as the time of day of travel, roads used, and vehicle driven.

Figure 1 examines age differences in Australian driver fatalities by distance driven for each age group (ie driver fatalities per million kms). These values are presented relative to a value of 1 for drivers aged 45 to 49, which is the "safest" group. The use of relative risk allows a comparison of other driver age groups against the safest group. For example, the figure of 6.7 for 17-20 year old drivers means that these drivers are 6.7 times more likely to be killed than a driver aged 45-49 for every kilometre travelled.

Figure 1 depicts trends for 1991, the most recent year when the Australian Bureau of Statistics undertook a survey of motor vehicle travel in Australia.

Figure 1 shows that, when adjusted for kilometres driven, the incidence of fatality among Australian drivers in 1991 was highest for young and old drivers when compared with those aged 45-49:

- those aged 30-44 years and 50-64 years were relatively safe;
- those aged 21-29 years and 65-74 years were much less safe;
- those aged 17-20 years and 75-79 years had high levels of involvement in a fatal crash; and
- those aged above 80 faced very high risk.

This raises the issue of how old is an older driver. Drivers aged 60-64 are statistically safer for every kilometre driven than those aged 30-34. Similarly, those aged 65-69 are safer than drivers aged 21-25; and 70-74 year old drivers are much safer than drivers younger than 21. Admittedly, the rate of death for drivers climbs steeply after 80 years of age.

Adjustment for vulnerability

However, the ability to survive a crash also influences the number of people killed in each age group. In general, the young are more robust than the old, and an older person is therefore less likely to survive the same magnitude of crash as a young person. Research in the USA by Evans suggests that males are 2.3 per cent more likely to die in the same severity crash for each year above 20, while this likelihood for females rises by 2.0 per cent.

Figure 1 also depicts age differences in 1991 driver fatalities after adjustment for vulnerability to death from injuries sustained in a crash. These values are relative to a value of 1 for drivers aged 45-49.

When young drivers' fatality rates are adjusted to take account of relatively greater ability to survive crash injuries, their road safety performance appears even poorer. For example, propensity for serious crash involvement among those aged 17-20 is 12.5 times that of drivers aged 45- 49.

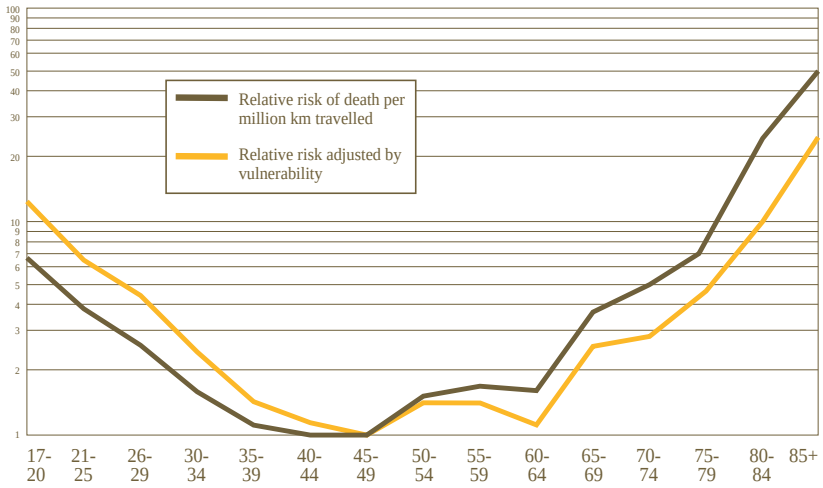

Figure 1 Relative risk of driver fatality per million kilometres travelled

In contrast, when older drivers' fatality rates are discounted by their relatively greater vulnerability to death from crash injuries, it is evident that the road safety of drivers up to about age 80 compares favourably with most other drivers.

For example, the likelihood of serious crash involvement among those aged 65-69 is 2.5 times that of drivers aged 45-49 and about the same as for those aged 30-34. The propensity for serious crash involvement among drivers aged 75-79 is 4.6 times that of the safest group and about the same as for those aged 26-29.

Again, the rate for those above the age of 80 years remains high, although those aged 80-84 have a lower adjusted rate than drivers aged 17-20.

Conclusion

The number of deaths of older drivers is significant and is likely to increase. Much of this increase is due to changes in the population and has little to do with the skills of older drivers. When allowance is made for distance travelled, drivers aged up to 80 years have similar fatality rates to much younger drivers. This is even more the case when allowance is made for the greater vulnerability of older drivers. After that adjustment, 80-84 year old drivers have a lower rate of involvement than drivers younger than 21.

The results do underline, however, the need for increased occupant protection for older drivers. Older drivers are much more likely than younger drivers to die in a severe crash. Despite the earlier analysis, there can be very little comfort in grieving relatives reflecting that a deceased elderly driver would indeed have survived the crash had they been 20 years younger.

Modern vehicles have enhanced safety protection in the form of airbags and improved seat belt systems which can help protect older people. There is every reason to expect that further improvements in occupant safety through new technology will continue in the future.

Finally, there is another important consideration for older drivers: when to stop driving. In many ways, older drivers are the best assessors of their own abilities. As drivers age, they should constantly review, with the support of family, friends and their doctor, their need to continue driving. They should also plan for the day when they no longer drive.

Further Reading

Wylie J. *Variation in relative safety of Australian drivers with age*, OR19, Federal Office of Road Safety, 1996.

Evans L. *Traffic safety and the driver*, New York: Van Nostrand Reinhold Company, 1991.

Evans L. *How safe were today's older drivers when they were younger?* American Journal of Epidemiology 137: 769-775; 1993.