

## Who Crashes?

### Introduction

A quick look at driving records is sufficient to convince the casual researcher that there is a large variation in the ability of licensed drivers to operate their vehicles in a safe and orderly manner. The majority of drivers (63%) over age 26 have no crashes on their 10-year driver record, while a small number (1.3%) have four or more crashes recorded. Some drivers also have a chronic pattern of involvement with the driver improvement program, a series of suspension actions, and a file full of assorted driving-related convictions. Is it possible to link high crash-rate drivers with patterns of driving behavior or simple personal statistics? Such a link could be useful in early intervention and driver education programs.

The driver population examined in this study was limited to those aged 26 and above to fairly compare 10-year driver records. Drivers under 26 years of age would have fewer than ten full years of driving history and could not be directly compared to older drivers.

### Demographics

Table 1 shows a comparison of basic demographic information for the group of highest crash-rate drivers versus the entire driving population.

*Table 1: Demographics of Crash-prone Drivers*

	Crash-prone Drivers	All Drivers
Male	62%	55%
Age	45.7	46.1
Organ Donor	50.6%	53.2%
Motorcycle	10.2%	8.3%
Height	68.1"	67.8"
Weight	171	166
Corrective Lenses	32%	35%
Number of Crashes	4.44	0.86

The most crash-prone drivers are more likely to be male than the general driving population. The age difference is statistically insignificant. All other differences between the two groups may be explained by this greater percentage of males, which tend to be less likely to be organ donors or require corrective lenses, more likely to have a motorcycle endorsement, and on average are taller and heavier than females.

Attempting to use these demographic variables to predict crash rates via a multiple regression technique explains less than 0.5% of the variation in actual crashes. There is no help in identifying a particular group of problem drivers here!

### Driving Behavior

The number of “undesirable” events recorded on the 10-year driver record (convictions, suspensions, and actions taken by the driver improvement program) might be expected to provide a good indication of the number of crashes a driver is involved in. The actual results are counterintuitive.

- ◆ Drivers with one or more suspensions actually average fewer crashes on their records (0.72 to 0.91) than drivers with no suspensions. This may be partially due to decreased driving time due to the suspensions.

---

*This issue of Policy Notes was written by Mark Joerger, Transportation Analyst, ODOT Policy Section, and does not necessarily reflect the views of the Oregon Department of Transportation or the Policy Section. Author can be reached at (503) 986-3464 or by email at Mark.D.JOERGER@odot.state.or.us.*

### Oregon Department of Transportation, Policy Section

John Merriss, Policy Section Manager  
Mill Creek Office Building, Suite 2 - 555 13th Street NE  
Salem, Oregon 97301-4178 - (503) 986-3466

- ◆ Drivers with one or more convictions actually average fewer crashes on their records (0.66 to 1.12) than drivers with no convictions.
- ◆ Drivers with one or more driver improvement actions have a statistically similar number of crashes (0.91 to 0.85) compared to drivers with no driver improvement actions.
- ◆ Drivers with one or more crashes on their record average fewer convictions (0.80 to 1.34), fewer suspensions (0.76 to 1.16), and a similar number of driver improvement actions (0.20 to 0.24) on their records compared to drivers with no crashes.

### Novice Drivers

Perhaps a crash very early in the career of a driver is an indication of a future filled with more crashes. Sixteen year-old drivers are rather crash-prone; 10.8% have a crash. Does this predict more accidents to come? According to the driver records no. Drivers who had a crash when they were sixteen averaged no more crashes in the following nine years (0.84%) than did drivers who did not have a crash when sixteen (0.87%).

### Residence Location

The insurance companies base their auto insurance rates, in part, on the home address of the owner. This is in large part due to increased crime incidence, such as vehicle theft and vandalism, in specific areas. The driver record shows that certain zip codes are linked to higher crash rates as well.

For example, drivers in Portland Metro area zip codes average a significantly higher number of crashes on their 10-year driver record than the average Oregon driver (0.95 versus 0.83). A statewide examination shows that a greater number of registered drivers within a given zip code correlates with an increased incidence of crashes. This “driver density” within a zip code explains more than 13% of the total variability in crash rates.

### Conclusion

Basic personal demographic data, as available in the Oregon driver record, cannot be used to successfully identify groups of drivers that are at increased risk for a high incidence of crashes. The location of the driver’s residence is a much more important factor in predicting group crash rates than is the personal data.