

**Teenage Passengers in Motor  
Vehicle Crashes: A Summary  
of Current Research**

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Most studies of motor vehicle crashes involving young people focus on drivers. However, much of the problem involves young people traveling as passengers. This report summarizes the current state of knowledge concerning teenage passengers and motor vehicle crashes. Topics covered are the contribution of teenage passengers to the overall problem, the heightened risk when teenage passengers are transported by teenage drivers, characteristics of crashes involving teenage drivers and passengers, and the effects of passenger restrictions in graduated licensing systems.

### Contribution to the Problem

Table 1 lists the numbers of young drivers and passengers killed when traveling in passenger vehicles in 2000. These data are based on the Fatality Analysis Reporting System (FARS), a census of fatal motor vehicle crashes on U.S. public roads. Considering all the teenage years 13-19, 53 percent of the deaths were drivers, 47 percent were passengers. Based only on the driving-age population 16-19, 60 percent were drivers, 40 percent were passengers. At ages 13-15, more young people were killed as passengers than as drivers.

**Table 1**  
**Numbers of Fatally Injured Drivers and Passengers, United States 2000**

Age	Drivers			Passengers		
	Male	Female	Total	Male	Female	Total
13	4	4	8	58	57	115
14	12	10	22	76	95	171
15	38	27	65	165	136	301
16	262	169	431	225	145	371
17	375	184	559	259	177	436
18	533	210	743	284	173	457
19	566	209	775	279	148	427
Total	1,790	813	2,603	1,346	931	2,278

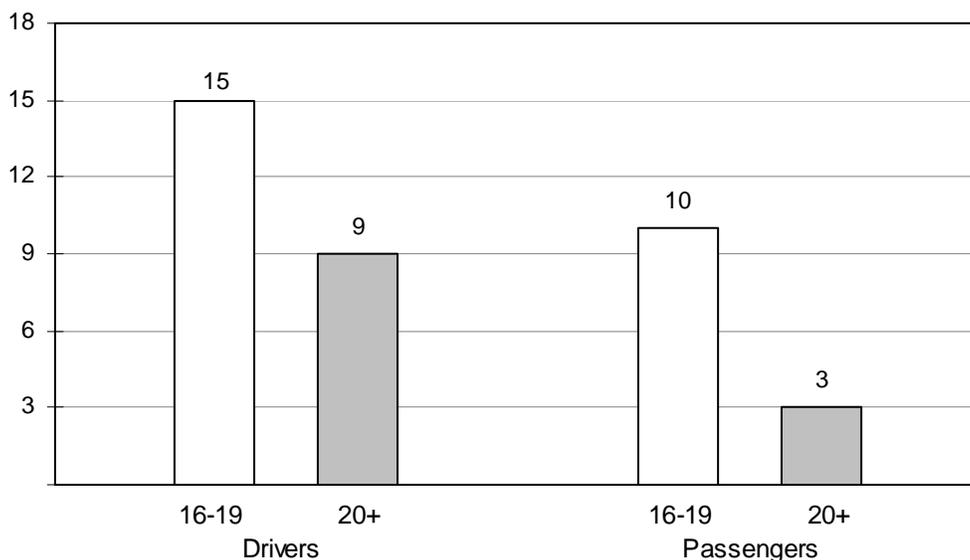
As shown in Figure 1, the relative increase in death rates for 16-19-year-old occupants compared with those ages 20 and older is much greater for passengers (10 vs. 3 per 100,000 population) than for drivers (15 vs. 9)

### Reasons for the Problem

One important factor elevating the death rate of teenage passengers is their frequent travel with teenage drivers. This situation increases the already high crash risk of teenage drivers.

FARS data indicated that in 2000 63 percent of the deaths of 13-19-year-old passengers (64 percent for males, 61 percent for females) occurred when other teenagers were driving. The highest proportions of teenage passengers killed in vehicles with teenage drivers were at ages 16 (73 percent), 15 (72 percent), and 17 (68 percent).

**Figure 1**  
**Death Rates per 100,000 Population, Drivers and Passengers by Age, 2000**

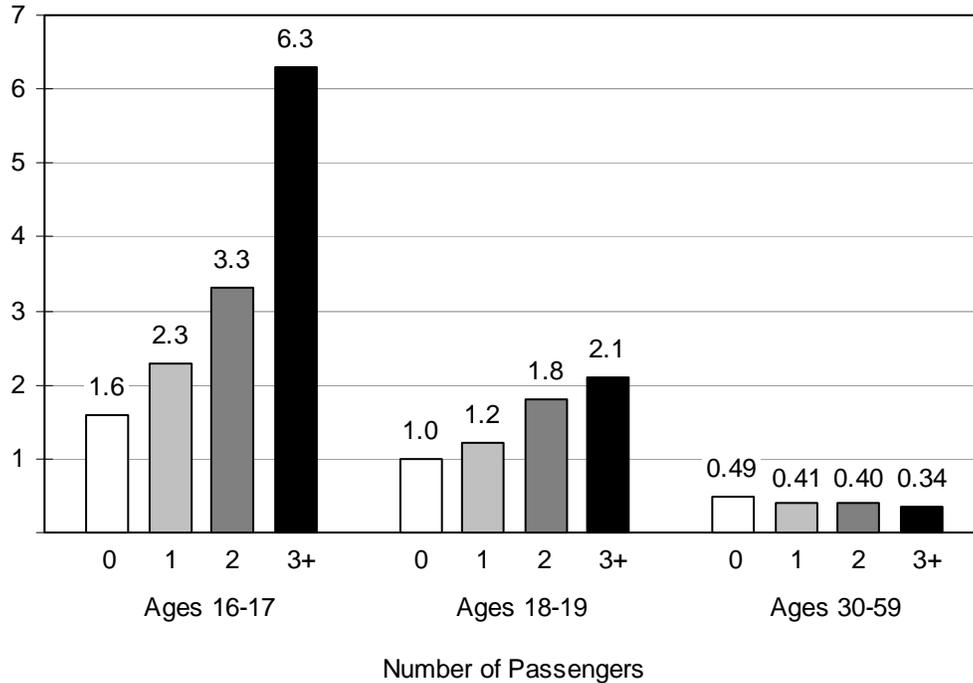


Four recent North American studies have quantified the crash risk associated with teenage drivers transporting teenage passengers (Aldridge et al., 1999; Chen et al., 2000; Doherty et al., 1998; Preusser et al., 1998). Collectively, findings from these studies indicate that the presence of passengers strongly increases crash risk for teenage drivers; the more passengers the greater the risk. For example, in one study the presence of one passenger almost doubled the fatal crash risk compared with driving alone. With two or more passengers, the fatal crash risk was five times as high as driving alone (Doherty et al., 1998). Results were similar for male and female teenage drivers. There is excess risk for young drivers with passengers both day and night. For older drivers, on the other hand, passengers either have no effect on crash risk or a beneficial effect, with drivers less likely to crash if there are passengers in the vehicle.

Part of the increased injury risk with passengers present could be because higher vehicle occupancy by itself increases the opportunity for injury in a crash. However, there is increased risk for young drivers with passengers present in studies that are based on involvement in crashes (Doherty et al., 1998) or deaths to drivers per million trips (Chen et al., 2000), where the influence of high vehicle occupancy on the likelihood of injury is not a factor.

Figure 2 presents data from the 1990 Nationwide Personal Transportation Survey and from the 1988-94 General Estimates System, a probability sample of police-reported crashes on public roads that result in property damage, injury, or death. Figure 2 indicates the high rate of crash involvement for teenage drivers when alone relative to older drivers, the increasing risk as passengers are added — especially for 16-17-year-old drivers — and the beneficial effect of passengers for older drivers.

**Figure 2**  
**Crash Rates by Driver Age and Passenger Presence per 10,000 Trips**



The increased risk with passengers present is thought to be largely the result of distraction and risk-taking factors. In vehicles with several young occupants, there is often considerable verbal interaction, music playing, and sometimes physical interactions. Young people are in the beginning stages of driving, and inattentiveness to the task can have serious consequences. There is much anecdotal evidence of inducements to risk taking or showing off in multiple-occupancy crashes involving young people. In police reports of fatal crashes in which two or more teenagers were in the vehicle, there is in some cases evidence of distraction (e.g., turning around to talk to someone in the rear seat), physical interference (e.g., passenger grabbing the steering wheel), or inducements to risk taking (e.g., trying to get the driver to overtake another vehicle) (Williams, Preusser, et al., 1998). In a survey of teenagers asked to describe all the dangerous driving situations in which they had participated during the past 6 months, 85 percent of the reported incidents involved one or more peers as passengers in the vehicle (Farrow, 1987).

As further evidence of increased risk taking when passengers are present, a study of on-road driving behavior in England found that young drivers with young male passengers drove more dangerously than drivers without passengers — that is, they drove faster and accepted smaller gaps at intersections (McKenna et al., 1998).

## Are Some Driver-Passenger Combinations More Dangerous?

In both the study of on-road driving (McKenna et al., 1998) and the study of driver fatality rates per trip with and without passengers (Chen et al., 2000), certain combinations of occupants had extra high risks while others did not increase risk or reduced it. In both studies, the high-risk combinations were male or female drivers with male passengers. In the study based on driver death rates (Chen et al., 2000), the presence of one male passenger almost doubled the death rate per 1,000 crashes for both male and female drivers, and two or more male passengers more than doubled it.

The lower risk situation involves a male driver and a female passenger. In the study of on-road driving (McKenna et al., 1998), males with a female passenger drove slower and did not follow vehicles as closely as did males driving alone. In the study based on driver death rates (Chen et al., 2000), there was no increased risk with one female passenger, but there was with two or more. The driver death rates study found some increased risk when young females transported other young females, although the on-road study indicated no difference in driving risk compared with driving alone.

## Crash Characteristics

The crashes of youthful drivers are more likely to involve a single vehicle, driver error, and speeding (Williams et al., 1995). Analysis of 1999 FARS data indicated that the crashes involving multiple passengers were even more likely to have these characteristics (Table 2). For example, 57 percent of the fatal crashes of 16-17-year-old drivers with three or more passengers were single vehicle compared with 30 percent of fatal crashes where the driver was alone; 88 vs. 76 percent involved driver error, and 48 vs. 24 percent involved speeding. A slightly higher proportion of crashes with multiple occupants involved alcohol, although crashes involving alcohol are a rare feature of 16-17-year-old driver crashes in general.

**Table 2**  
**Percent of Fatal Crashes of 16-17-Year-Old Drivers with Certain Characteristics by Number of Passengers, United States 2000**

<b>Crash Characteristics</b>	<b>Driver Alone</b>	<b>Driver and 1 Teenage Passenger</b>	<b>Driver and 2 Teenage Passengers</b>	<b>Driver and 3+ Teenage Passengers</b>
Single vehicle	34	39	40	57
Driver error	76	79	79	88
Speeding	24	33	38	48
Driver with positive blood alcohol concentration	12	13	14	15

## Passenger Restrictions

New Zealand's graduated licensing system, adopted in 1987, includes a passenger restriction for initial license holders. Some U.S. states are now including passenger restrictions in their graduated licensing systems. As of October 2001, 18 states and the District of Columbia had passenger restrictions in the initial licensing phase. The restrictions vary in terms of number and ages of passengers allowed, whether or not family members are exempted, and the duration of the restriction. Some jurisdictions with passenger restrictions allow such travel if there is an adult in the vehicle. Licensing laws for all 50 states and the District of Columbia, including detailed information on passenger restrictions, can be found at the Insurance Institute for Highway Safety's website ([www.highwaysafety.org](http://www.highwaysafety.org)).

Passenger restrictions have great potential to reduce crashes and injuries. For example, FARS data showed that in 1995 (prior to the graduated licensing movement) 53 percent of the deaths in crashes of 16-17-year-old drivers occurred when they were transporting other teenagers without an adult present, and 68 percent of these deaths happened during the daytime hours 5 a.m.–9 p.m. Passenger restrictions potentially prevent many more deaths than night driving restrictions, especially nighttime restrictions that start late, and add to the effect of nighttime restrictions. Table 3 indicates the numbers of deaths potentially prevented by passenger and night driving restrictions, by themselves and in combination.

**Table 3**  
**Deaths Potentially Prevented by Nighttime and Teenage**  
**Passenger Restrictions, United States, 1995**

Nighttime Restriction	Teenage Passenger Restriction	
	No	Yes
No	0	1,691
Midnight–5 a.m.	347	1,807
9 p.m.–5 a.m.	856	1,998

## Effects of Passenger Restrictions

It is too early to tell what the effect of passenger restrictions will be in the United States. However, New Zealand's restriction was found to reduce crashes involving passengers among newly licensed drivers (Begg et al., 1999). Survey data from New Zealand also suggest that compliance will be more of an issue with passenger restrictions than in the case of night driving restrictions. For example, in one survey, 65 percent of males and 70 percent of females reported violating the passenger restriction at least sometimes, compared with 52 percent of males and 45 percent of females who said they at least sometimes violated the nighttime restriction (Harre et al., 1996).

Concern has been expressed that many young people will not comply with the passenger restriction, or that compliance will result in more young drivers on the road, increasing crash risk. Although the actual effects of passenger restrictions are yet to be established, the crash risk for alternative

forms of travel is known, and a recent study estimated the effect of 12-month passenger restrictions under varying degrees and types of compliance (Chen et al., 2001). Under a high-compliance scenario (10 percent violate the restriction and continue to travel with young drivers, 10 percent drive themselves, 20 percent forgo the trip, 60 percent go with older drivers) an estimated 345 of the 1,180 yearly deaths associated with young drivers traveling with passengers would be prevented. Because the risk of traveling with passengers is so high, even under a low-compliance scenario (80 percent continue to travel with young drivers, 10 percent drive themselves, 10 percent go with older drivers) about 60 deaths would be averted. There is such a major increase in crash risk when young drivers transport teenage passengers that even if all passengers ages 16-19 were to comply by driving themselves, an estimated 290 yearly deaths would be prevented. Thus although the magnitude of the effect of passenger restrictions is not presently known, it is expected to be strongly positive.

Various other concerns have been expressed about passenger restrictions, including personal safety if young women are forced to travel alone and that activities such as double-dating and having a designated driver would be prohibited.

Parents support passenger restrictions but not as strongly as they support night driving restrictions. In a 1995 national survey of U.S. parents, 74 percent supported a nighttime restriction compared with 43 percent who supported a passenger restriction (Ferguson and Williams, 1996). In most surveys, however, the majority support passenger restrictions. In four states in which parents of graduating seniors were interviewed, 54 percent in Connecticut, 72 percent in Delaware, 54 percent in New Jersey, and 63 percent in New York supported passenger restrictions (Williams, Ferguson, et al., 1998). In Connecticut and Florida, where the same parents were interviewed before and after their teenagers were licensed, support for a passenger restriction increased from 56 to 69 percent in Florida and from 58 to 72 percent in Connecticut, even though neither state has one (Ferguson et al., 2001).

Initial reports on the effects of passenger restrictions in graduated licensing systems are expected to be available in 2002 and will be added to this paper. California had the first meaningful passenger restriction, not allowing passengers younger than 20 to be transported without an adult present for the first 6 months of licensure. Preliminary results indicate that in 1999 teenage passenger deaths and injuries when traveling with 16-year-old drivers declined by 23 percent compared with the 5 prior years (Automobile Club of Southern California, 2000).

A major study on how young people accommodate to passenger restrictions was conducted in California (Williams et al., in press). In this study, young people and their parents, before and after graduated licensing, were interviewed multiple times about passenger restrictions and other aspects of the graduated system. Most parents approved of the passenger restriction, but the majority of teenagers did not. However, transportation of teenage passenger decreased. Prior to graduated licensing, few parents

were restricting who their children transported, but there was a substantial increase in restricting teenage passengers when the graduated system was introduced, even though compliance was by no means universal.

Teenagers said the passenger restriction impacted their social activities, but most (89 percent) said they could find ways to do their activities anyway, and 74 percent said the restriction did not affect them very much. The majority of parents said there was no inconvenience caused by the passenger and night driving restrictions. Only 8 percent said there was inconvenience that was frequent or major. Thus, the strong California restrictions on transporting young passengers appears to be well tolerated by teenagers and their parents and should produce reductions in crashes and injuries.

For the full report of this study, "Responses of teenagers and their parents to California's graduated licensing system" by Williams et al., e-mail [awilliams@ihs.org](mailto:awilliams@ihs.org) or write: Publications, Insurance Institute for Highway Safety, 1005 North Glebe Road, Arlington, VA 22201.

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