

# STATUS REPORT

INSURANCE INSTITUTE  
FOR HIGHWAY SAFETY

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## DRIVER DEATHS

**BY MAKE & MODEL: FATALITY RISK  
IN ONE VEHICLE VERSUS ANOTHER**

More than 125,000 occupants of passenger vehicles died in crashes during 2002-05. Most were drivers. The impacts varied from single-vehicle rollovers on rural roads to multiple-vehicle pileups in urban traffic. Something else that varied was the risk of dying in one vehicle versus another. Some



cars, minivans, SUVs, and pickup trucks have much higher driver death rates than others. The average rate in 2001-04 models during 2002-05 was 79 per million registered vehicle years. But the rates in some models were more than twice as high, while rates in other vehicles were only a fraction of the average.

Chevrolet models take prizes for both best and worst. The lowest death rate among more than 200 vehicles is the Astro minivan's 7 per million registered vehicle years. The highest is 232 per million in the 2-door, 2-wheel-drive version of the Chevrolet Blazer, a midsize SUV.

"This range from best to worst has been the pattern since we began comparing deaths by make and model in the late 1980s," says Anne McCartt, Institute senior vice president for research. "The rates vary not only among groups of vehicles by type, size, and weight but also among individual models within the groups of similar vehicles."

As high as death rates are in some models, the average rate for all vehicles is going down over time. The average driver death rate in 1989-93 models during 1990-94 was 110 per million registered vehicle years (see *Status Report*, Oct. 14, 1995). When the Institute later computed the rates in 1999-2002 models, the average was 87 per million (see *Status Report*, March 19, 2005; on the web at [iihs.org](http://iihs.org)), and now it's down to 79.

"This is a big improvement over time. The rates have gone down about 30 percent since the mid-1990s," McCartt points out. The Institute computes death rates for drivers only, not passengers, because varying numbers of passengers in crashes of one vehicle versus another would affect the rates.

"Though the focus is on drivers, the rates reflect the relative fatality risk for all occupants," McCartt adds.

**Death rates by vehicle size and weight:** Characteristics that influence vehicles' death rates include type and body style (2-door car, 4-door SUV, etc.). Another important factor is size. The smallest vehicles in any type/body style group generally have the highest rates.

None of the 15 vehicles with the lowest driver death rates is a small model. In contrast, 11 of the 16 vehicles with the highest death rates are mini or small models, and none is large or very large.

# MODELS WITH HIGHEST & LOWEST DEATH RATES

Model	Vehicle Type	Size
Chevrolet Astro	minivan	very large
Infiniti G35	luxury car	midsize
BMW 7 series	luxury car	very large
Toyota 4Runner	4WD SUV	midsize
Audi A4/S4 Quattro	4dr car	midsize
Mercedes E class	luxury car	large
Toyota Highlander	4WD SUV	midsize
Mercedes M class	4WD SUV	midsize
Toyota Sienna	minivan	very large
Honda Odyssey	minivan	very large
Lexus ES 330	luxury car	midsize
Lexus RX 330	2WD SUV	midsize
Toyota Sequoia	2WD SUV	large
Honda Pilot	4WD SUV	midsize
BMW X5	4WD SUV	midsize

**LOWEST RATES**  
Fewer than 20 driver deaths per million  
2001-04 models during 2002-05



Among all types and sizes of cars, the smallest 4-door models have the highest driver death rate at 148 per million registered vehicle years. Next highest among cars is 137 in mini 2-door models. Midsize (33) and very large (34) luxury cars have the lowest rates.

There are exceptions to the general rule that bigger is safer. For example, the driver death rate is higher in midsize sports cars (115 per million) than in mini (107) or small (71) ones.

Another exception is very large 4-wheel-drive SUVs. This group is mostly Ford Excursions, which have a driver death rate of 115

per million — higher than the death rates in large 4-wheel-drive SUVs and higher than in all but 4 of the midsize and small counterparts.

Excursions so dominate the group of very large 4-wheel-drive SUVs that they push up this group's average death rate to 76 per million compared with 47 in large counterpart vehicles and 59 in midsize ones. About half of the deaths in 2001-04 model Excursions during 2002-05 occurred in rollover crashes.

Vehicle size and weight are strongly related, so it's not surprising that driver death rates generally are higher in lighter vehicles. For example, the rate in (continues on p. 6)

## RATES OF DRIVER DEATH

on registered vehicle years,  
ing calendar years 2002-05

overall	mv	sv	roll
7	4	4	4
11	7	3	0
11	4	7	0
13	4	8	8
14	9	4	4
14	5	9	5
14	9	5	5
14	10	5	0
17	4	13	4
17	8	8	4
18	8	11	6
18	15	3	0
18	7	11	0
19	7	14	6
19	8	11	9

## HIGHEST RATES OF DRIVER DEATH

More than 140 driver deaths per million registered vehicle years,  
2001-04 models during calendar years 2002-05

				overall	mv	sv	roll
	Chevrolet Blazer 2dr	2WD SUV	midsize	232	83	151	134
	Acura RSX	2dr car	small	202	80	113	65
	Nissan 350Z	sports car	midsize	193	65	123	74
	Kia Spectra hatchback	4dr car	small	191	128	57	41
	Pontiac Sunfire	2dr car	small	179	100	77	40
	Kia Rio	4dr car	mini	175	105	68	35
	Chevrolet Cavalier	2dr car	small	171	93	76	45
	Mitsubishi Eclipse	2dr car	small	169	76	94	37
	Dodge Neon	4dr car	small	161	107	49	26
	Pontiac Grand Am	2dr car	midsize	160	89	65	35
	Chevrolet Cavalier	4dr car	small	150	82	68	35
	Ford Mustang	sports car	midsize	150	67	83	42
	Ford Ranger	4WD pickup	small	150	42	106	77
	Mazda B series	2WD pickup	small	147	48	95	78
	Mitsubishi Eclipse convertible	sports car	small	146	53	93	33
	Mitsubishi Montero Sport	2WD SUV	midsize	146	40	112	75

## BODY STYLE AND SIZE

Driver death rates by size  
and body style group

overall	mv	sv	roll	
				<b>CARS</b>
				4-DOOR
148	92	55	32	mini
103	61	42	20	small
71	41	30	14	midsize
81	53	27	13	large
61	43	19	3	very large
				2-DOOR
137	75	61	48	mini
134	65	68	37	small
103	50	52	26	midsize
				<b>SPORTS</b>
107	54	54	26	mini
71	23	48	15	small
115	51	64	31	midsize
41	13	28	16	large
				<b>LUXURY</b>
33	17	16	6	midsize
41	24	17	4	large
34	15	19	10	very large
				<b>SPECIALTY</b>
50	37	11	6	small
				<b>STATION WAGONS</b>
87	48	38	23	small
51	24	28	12	midsize
99	83	11	4	large
				<b>MINIVANS</b>
66	44	21	9	large
39	25	14	8	very large
				<b>SUVs</b>
				4 WHEEL DRIVE
77	34	43	29	small
59	20	40	28	midsize
47	16	33	23	large
76	21	57	47	very large
				2 WHEEL DRIVE
76	40	37	23	small
81	32	51	38	midsize
57	20	39	34	large
				<b>PICKUP TRUCKS</b>
				4 WHEEL DRIVE
97	33	64	42	small
83	27	57	38	large
89	19	70	53	very large
				2 WHEEL DRIVE
110	50	59	37	small
102	38	66	40	large
60	23	37	24	very large



### BIGGER USUALLY IS BETTER, BUT NOT IN STATION WAGONS

Death rates generally are lower in bigger vehicles. An exception is large station wagons with a driver death rate (99) that's higher than in small (87) or midsize (51) wagons. The Ford Taurus accounts for most vehicles in the large group, and the rest are Mercury Sables. Their high death rates drive up the group's rate. Driver age might be a factor. The woman who died in this Taurus (above) was 77 years old, and about half of the drivers who died in Taurus station wagons during 2002-05 were older people. Institute researchers adjust the rates for driver demographics, but this adjustment doesn't eliminate all driver effects, and older people have high death rates by some measures (see *Status Report*, March 15, 2003; on the web at [iihs.org](http://iihs.org)).



### DEATH RATE IN FORD PICKUP MATCHES ITS PERFORMANCE IN CRASH TESTS

The purpose of Institute crash tests is to pressure automakers to improve the crashworthiness of poor performers, and the Ford F-150 is a good example. The 2001 model was one of the worst performers ever in the 40 mph frontal offset test. When the Institute later tested a redesigned 2004 F-150, the performance improved dramatically (see *Status Report*, Jan. 3, 2004; on the web at [iihs.org](http://iihs.org)). The death rate also has improved. The old F-150's rate of 118 during 2002-05 was much worse than average. In contrast is the rate of 58 in the new F-150. The crash of a 2004 model (above) demonstrates the point. This impact was serious, but the driver's injuries weren't. The outcome might not have been the same in the old model.

#### KEY TO TABLES

overall: driver death rate per million registered vehicle years  
mv: driver death rate in multiple-vehicle crashes  
sv: driver death rate in single-vehicle crashes  
roll: driver death rate in single-vehicle rollovers





(continued from p. 2) the lightest SUVs is much higher than in the heaviest ones — 131 per million versus 47.

Pound for pound across vehicle types, cars almost always have lower death rates than pickups or SUVs. An exception is that the rate in pickups weighing 2,500-3,000 pounds is lower than in cars or SUVs weighing about the same.

“There’s no ready explanation for this,” McCartt says. “It probably has to do with how light pickups are driven and use patterns compared with heavier pickups.”

**Similar vehicles but different rates:**

Besides death rate differences across vehicle groups, the rates vary within groups of vehicles similar in both body style and size. In almost every size group of 2- and 4-door cars, for example, the rate in the worst car is at least twice as high as the rate in the best one.

Among midsize 4-door cars, the spread is much wider — a rate of 14 per million in the Audi A4/S4 Quattro versus 130 in the Mitsubishi Diamante. The upper confidence bound for the Audi’s death rate is well below the lower bound for the Mitsubishi, which means the lower death rate in the A4/S4 is unlikely to be due to chance.

**Rollovers and importance of ESC:** Nine vehicles, all SUVs and pickups, have more than 75 driver deaths per million vehicles in single-vehicle rollover crashes, compared with an average of 24 in all 2001-04 vehicles during 2002-05. This higher rate is largely because of their relatively high centers of gravity.

The vehicle with the very highest death rate in rollovers is the 2-door, 2-wheel-drive Chevrolet Blazer (this SUV also has the worst overall driver death rate). Its 134 deaths per million registered years in rollovers compare with an average of 38 in all midsize 2-wheel-drive SUVs and 28 in 4-wheel-drive versions.

Not all midsize SUVs have high death rates in single-vehicle rollovers. No driver deaths were recorded in the 2-wheel-drive Lexus RX 330, for example, nor were any recorded in this vehicle the last time the Institute computed model-by-model death rates. This doesn’t mean its rate will be zero every year, but it does mean very low rates can be expected.

The RX 330 and increasing numbers of other passenger vehicles, especially SUVs, are be-



**INFLUENCE OF VEHICLE WEIGHT**  
Driver deaths per million registered vehicle years, 2001-04 models during 2002-05

vehicle weight:	CARS			SUVS				PICKUP TRUCKS			
	overall	mv / sv /roll		overall	mv / sv /roll			overall	mv / sv /roll		
2,500 lbs. or less	<b>94</b>	55 38 17		—	— — —			—	—	—	
2,501-3,000 lbs.	<b>115</b>	64 50 26		<b>131</b>	72 59 41			<b>96</b>	45 50 35		
3,001-3,500 lbs.	<b>77</b>	43 33 16		<b>74</b>	34 41 27			<b>115</b>	47 69 44		
3,501-4,000 lbs.	<b>55</b>	35 19 7		<b>67</b>	28 39 28			<b>104</b>	37 69 44		
4,001-4,500 lbs.	<b>38</b>	22 16 8		<b>65</b>	21 47 35			<b>93</b>	33 60 38		
4,501-5,000 lbs.	<b>34</b>	18 15 4		<b>65</b>	23 44 32			<b>55</b>	24 32 21		
more than 5,000 lbs.	—	— — —		<b>47</b>	15 34 25			<b>81</b>	20 61 45		

overall driver death rate per million registered vehicle years  
 mv driver death rate in multiple-vehicle crashes  
 sv driver death rate in single-vehicle crashes  
 roll driver death rate in single-vehicle rollover crashes  
 — no exposure or insufficient exposure





ing equipped with standard or optional electronic stability control (ESC). This feature has been shown to significantly reduce the risk of fatal single-vehicle crashes including rollovers (see *Status Report*, June 16, 2006; on the web at [iihs.org](http://iihs.org)).

More evidence of ESC effectiveness is that all but 3 of the 15 vehicles with the lowest overall death rates have this feature, usually standard (the Chevrolet Astro, Honda Odyssey, and Honda Pilot don't). In contrast ESC isn't standard on any of the 16 vehicles with the highest death rates, and it's optional on only 1 (the Nissan 350Z).

**How the rates are computed:** Institute researchers computed driver death rates in all crashes and in multiple-vehicle, single-vehicle, and single-vehicle rollover crashes for 202 passenger vehicle models (2001-04) with at least 120,000 registered years or 20 driver deaths during the study years (2002-05).

Each model's rate represents the reported number of driver deaths divided by the model's number of registered years. Data are from the federal government's Fatality Analysis Reporting System and registration counts from The Polk Company.

Exposure varies considerably among the vehicles. For example, the number of registered years for midsize 4-door cars exceeds 11 million. This compares with about 550,000 for very large 4-door cars. Because of this variability, researchers computed 95 percent confidence intervals with upper and lower bounds indicating the precision of the computed rates.

The rates reflect the influences of both vehicle design and patterns of use. Rates are displayed by market group because of the influence of driver demographics and the increased likelihood of similarity among drivers of similar vehicles.

Researchers adjusted each of the 202 vehicles' rates according to the proportion of deaths of women 25-64 years old (drivers in this group are in fewer fatal crashes per licensed driver). For most vehicles the rates changed by less than 20 percent. These adjustments take away most of the differences among vehicles caused by driver gender, though other demographics still influence the rates.

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## Special issue

### STATISTICS ARE ONE THING, INDIVIDUALS ANOTHER

This *Status Report* presents a wide view of deaths in crashes, reporting fatality rates by vehicle make and model. The next *Status Report* will profile people who were killed in crashes on a single day in 2005, homing in on how and why their crashes occurred.



Emily Lopes-Fontes Silveira  
June 4, 1975-June 7, 2005

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