Status Report

Insurance Institute for Highway Safety | Highway Loss Data Institute

On the road again

Higher driver death rate is a downside of economic recovery

ALSO IN THIS ISSUE

- Death rates by make and model
- Traffic deaths spike in summer

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The risk of dying in a crash in a late-model vehicle has gone up slightly, as a stronger economy has led drivers to take to the road more often and in more dangerous ways. Meanwhile, a new study predicts traffic deaths will fall only slightly over the coming years, given current expectations for the economy.

The overall rate of driver deaths for 2014 models is 30 per million registered vehicle years, up from 28 for 2011 models (see *Status Report*, Jan. 29, 2015, at iihs.org). The death rate for individual vehicles varies widely, from 0 for 11 vehicles to 104 per million registered vehicle years for the Hyundai Accent, a minicar.

The last time IIHS calculated driver death rates, the overall rate had fallen by more than a third over three years. Researchers found that the drop was driven largely by improved vehicle designs and safety technology. Such improvements have continued, but the new results show that, by themselves, they won't be enough to eliminate traffic deaths.

Economic recovery brings more driving and also riskier types of driving. The result is more crash deaths.

"Vehicles continue to improve, performing better and better in crash tests," says David Zuby, IIHS executive vice president and chief research officer. "The latest driver death rates show there is a limit to how much these changes can accomplish without other kinds of efforts."

The new driver death rates are based on deaths that occurred during 2012-15. The increase in the overall driver death rate for 2014 models is likely connected to the increased number of fatalities toward the end of that period.

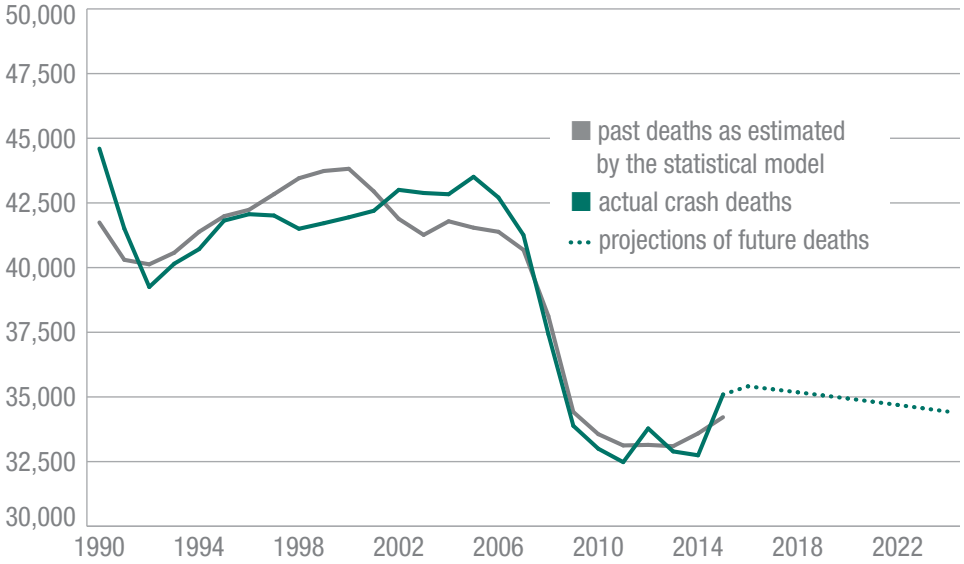
Falling unemployment, rising crash deaths

Road deaths have been trending downward since the early 1970s, with an especially large dip beginning in 2008. However, that changed in 2015, with deaths increasing 7 percent over the previous year. Preliminary data indicate the toll increased in 2016 as well. In the new study, Charles Farmer, IIHS vice president for research and statistical services, looked at what economic forecasts can tell us about traffic fatalities over the coming years.

An increase in traffic deaths is a predictable downside to an improving economy. As unemployment falls, both vehicle miles traveled and crash deaths increase (see *Status Report*, Dec. 10, 2015). In a stronger economy, people tend to drive more. Riskier, discretionary driving — for example, going out to dinner or traveling for vacation — is affected by economic fluctuations even more than day-to-day commuting. Economic conditions also affect how fast people drive.

To estimate how the annual death toll might change in the coming years, Farmer designed a statistical model based on the connection between traffic deaths and unemployment since 1990. The model also includes calendar year, thereby (» *page 6)*

U.S. crash deaths and predictions of model based on unemployment, 1990-2024



Driver death rates by vehicle style and size
2014 and equivalent earlier models, 2012-15

		Overall	MV	SV	SV roll
CARS		**39**	**24**	**15**	**5**
4-DOOR	mini	87	59	27	11
	small	43	29	13	4
	midsize	39	24	14	5
	large	38	19	20	7
2-DOOR	mini	36	20	17	13
	small	48	26	22	12
	midsize	31	15	17	4
	large	80	45	34	15
SPORTS	midsize	54	24	31	12
	large	49	23	26	10
LUXURY	midsize	17	7	10	2
	large	19	9	11	6
	very large	20	13	7	0
STATION WAGONS	mini	61	38	23	11
	small	38	24	15	4
	midsize	16	12	3	1
MINIVANS		**19**	**13**	**6**	**2**
SUVs		**21**	**12**	**8**	**4**
4-WHEEL DRIVE	small	22	14	7	3
	midsize	16	7	9	5
	large	21	11	9	2
	very large	30	18	11	5
2-WHEEL DRIVE	small	29	18	10	4
	midsize	29	20	9	4
	large	22	11	12	6
	very large	16	16	0	0
4-WHEEL DRIVE LUXURY	small	8	8	0	0
	midsize	7	5	2	1
	large	6	5	1	1
	very large	18	9	9	0
2-WHEEL DRIVE LUXURY	midsize	13	9	4	1
PICKUPS		**26**	**14**	**13**	**6**
4-WHEEL DRIVE	small	22	8	14	5
	large	27	15	13	5
	very large	27	12	16	9
2-WHEEL DRIVE	small	24	14	11	4
	large	25	16	9	3
	very large	28	17	12	9

KEY:
overall: driver deaths per million registered vehicle years
mv: driver death rate in multiple-vehicle crashes
sv: driver death rate in single-vehicle crashes of all types
sv roll: driver death rate in single-vehicle rollovers (subset of sv)

Models with the highest and lowest rates of driver deaths

Lowest rates of driver deaths

Fewer than 8 driver deaths per million registered vehicle years, 2014 and equivalent earlier models, 2012-15

			Overall	MV	SV	SV roll
Audi A6 4WD	luxury car	large	0	0	0	0
Audi Q7 4WD	luxury SUV	large	0	0	0	0
BMW 535i/is 2WD	luxury car	large	0	0	0	0
BMW 535xi 4WD	luxury car	large	0	0	0	0
Jeep Cherokee 4WD	SUV	midsize	0	0	0	0
Lexus CT 200h	luxury car	midsize	0	0	0	0
Lexus RX 350 2WD	luxury SUV	midsize	0	0	0	0
Mazda CX-9 2WD	SUV	midsize	0	0	0	0
Mercedes-Benz M-Class 4WD	luxury SUV	midsize	0	0	0	0
Toyota Tacoma Double Cab long bed 4WD	pickup	small	0	0	0	0
Volkswagen Tiguan 2WD	SUV	small	0	0	0	0
Lexus RX 350 4WD	luxury SUV	midsize	2	2	0	0
Ford Explorer 4WD	SUV	midsize	4	3	1	0
Mercedes-Benz E-Class sedan 2WD	luxury car	large	4	0	4	4
Mercedes-Benz E-Class sedan 4WD	luxury car	large	5	5	0	0
Audi Q5 4WD	luxury SUV	midsize	7	4	4	0
Chevrolet Suburban 1500 2WD	SUV	very large	7	7	0	0
Chevrolet Volt	4-door car	small	7	7	0	0
Mercedes-Benz GLK-Class 4WD	luxury SUV	midsize	7	7	0	0
Nissan Pathfinder 4WD	luxury SUV	midsize	7	0	7	7
Toyota Venza 4WD	SUV	midsize	7	7	0	0

Highest rates of driver deaths

More than 58 driver deaths per million registered vehicle years, 2014 and equivalent earlier models, 2012-15

			Overall	MV	SV	SV roll
Hyundai Accent sedan	4-door car	mini	104	71	33	22
Kia Rio sedan	4-door car	mini	102	80	16	5
Scion tC	2-door car	small	101	46	58	27
Chevrolet Spark	4-door car	mini	96	69	27	18
Nissan Versa	4-door car	mini	95	61	35	14
Ford Fiesta sedan	4-door car	mini	83	57	25	4
Kia Soul	station wagon	small	82	58	26	17
Dodge Challenger	2-door car	large	81	51	29	7
Nissan Titan Crew Cab short bed 4WD	pickup	large	73	15	62	30
Nissan Sentra	4-door car	small	72	45	25	9
Ford Focus sedan	4-door car	small	68	50	15	5
Chrysler 200	4-door car	midsize	67	42	24	11
Hyundai Genesis coupe	2-door car	midsize	67	19	49	12
Ford Fiesta	station wagon	mini	63	36	30	10
Hyundai Accent	station wagon	mini	63	47	14	14
Mitsubishi Lancer 2WD	4-door car	small	63	53	6	6
Volkswagen Golf	4-door car	small	63	63	0	0
Chevrolet Impala	4-door car	large	60	38	21	7
Dodge Avenger 2WD	4-door car	midsize	60	41	20	7
Ford Mustang convertible	sports car	midsize	60	50	6	0
Nissan Maxima	4-door car	midsize	59	40	17	5

KEY:

overall: driver deaths per million registered vehicle years
mv: driver death rate in multiple-vehicle crashes
sv: driver death rate in single-vehicle crashes of all types
sv roll: driver death rate in single-vehicle rollovers (subset of sv)
2WD: 2-wheel drive | **4WD:** 4-wheel drive

Death rates by make and model

Driver deaths per million registered vehicle years

These rates are for 2014 models, but results are included for earlier model years as far back as 2011 if the vehicle wasn't substantially redesigned during that time. A change in electronic stability control from not available or optional to standard is treated as a redesign.

Exposure is the number of registered vehicle years. A registered vehicle year is one vehicle registered for one year.

Rates are adjusted for driver age and gender.

Information on deaths is from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System. Data on vehicle registrations come from IHS Automotive.

KEY:
overall: all crash types; numbers in parentheses are 95 percent confidence bounds
mv: driver deaths in multiple-vehicle crashes
sv: driver deaths in single-vehicle crashes
sv roll: driver deaths in single-vehicle rollovers (subset of sv)
2WD: 2-wheel drive | **4WD:** 4-wheel drive

	Death rates				Model	
	Overall	MV	SV	SV roll	years	Exposure
ALL PASSENGER VEHICLES	30 (29-32)	18	12	5	2011-14	92,639,411
4-DOOR CARS						
mini						
Mazda 2	40 (12-68)	20	20	5	2011-14	151,772
Ford Fiesta	83 (49-118)	57	25	4	2011-14	364,429
Nissan Versa	95 (58-132)	61	35	14	2012-14	405,264
Chevrolet Spark	96 (28-164)	69	27	18	2013-14	119,409
Kia Rio	102 (36-168)	80	16	5	2012-14	139,545
Hyundai Accent	104 (53-155)	71	33	22	2012-14	264,546
small						
Chevrolet Volt	7 (0-39)	7	0	0	2011-14	143,042
Nissan Leaf	8 (0-44)	0	8	8	2011-14	126,702
Nissan Juke 2WD	15 (0-31)	8	8	8	2011-14	195,060
Hyundai Elantra GT	28 (6-82)	9	19	0	2013-14	107,488
Toyota Prius	31 (21-42)	23	8	0	2011-14	1,290,605
Dodge Dart	36 (14-59)	14	25	11	2013-14	283,729
Nissan Juke 4WD	37 (14-61)	19	19	7	2011-14	203,122
Honda Civic	39 (28-49)	27	11	2	2012-14	1,875,054
Chevrolet Cruze	42 (32-52)	29	13	4	2011-14	2,220,302
Toyota Corolla	43 (16-70)	26	17	2	2014	316,941
Hyundai Elantra	44 (32-56)	31	13	5	2011-14	1,509,235
Toyota Prius c	44 (18-71)	32	12	3	2012-14	250,577
Chevrolet Sonic	48 (20-76)	34	15	12	2012-14	314,416
Subaru Impreza 4WD	54 (0-109)	13	48	0	2012-14	117,068
Mitsubishi Lancer 2WD	63 (9-116)	53	6	6	2011-14	125,834
Volkswagen Golf	63 (2-125)	63	0	0	2011-14	120,918
Ford Focus	68 (48-88)	50	15	5	2012-14	1,000,942
Nissan Sentra	72 (41-102)	45	25	9	2013-14	494,802
midsize						
Acura TSX	10 (1-36)	10	0	0	2011-14	200,904
Subaru Legacy 4WD	20 (4-36)	14	5	4	2011-14	428,322
Volkswagen CC 2WD	22 (0-46)	13	8	0	2011-14	198,345
Toyota Camry hybrid	25 (4-46)	22	3	0	2012-14	262,129
Volkswagen Jetta	26 (17-36)	14	12	3	2011-14	1,334,499
Ford Fusion 2WD	27 (13-42)	22	5	1	2013-14	663,035
Buick Verano	33 (5-61)	22	10	0	2012-14	237,674
Hyundai Sonata	33 (25-42)	19	14	4	2011-14	2,313,273
Chevrolet Malibu	36 (19-53)	25	11	3	2013-14	566,300
Honda Accord	36 (22-50)	21	16	9	2013-14	1,001,344
Toyota Camry	39 (29-49)	23	17	6	2012-14	2,256,106
Volkswagen Passat 2WD	42 (23-61)	26	16	4	2012-14	628,643
Kia Optima	45 (30-60)	29	16	7	2011-14	993,563
Hyundai Sonata hybrid	49 (13-85)	28	24	13	2011-14	164,396
Nissan Altima	52 (35-68)	32	19	2	2013-14	978,651
Nissan Maxima	59 (37-80)	40	17	5	2011-14	586,342
Dodge Avenger 2WD	60 (38-83)	41	20	7	2011-14	686,377
Chrysler 200	67 (46-88)	42	24	11	2011-14	834,766
large						
Toyota Avalon	18 (4-54)	12	6	6	2013-14	162,859
Buick Lacrosse 2WD	25 (12-38)	11	14	3	2011-14	538,306
Dodge Charger Hemi 2WD	35 (6-63)	12	23	12	2011-14	130,623
Buick Regal 2WD	40 (21-59)	21	19	9	2011-14	322,208
Dodge Charger 2WD	40 (20-59)	15	26	4	2011-14	513,315
Ford Taurus 2WD	42 (23-60)	22	20	4	2011-14	547,352
Chrysler 300 2WD	45 (17-73)	27	18	9	2011-14	306,891
Chevrolet Impala	60 (10-110)	38	21	7	2014	109,920
2-DOOR CARS						
mini						
Fiat 500	13 (0-26)	7	7	3	2012-14	231,029
small						
Honda Civic	10 (2-31)	7	3	0	2012-14	286,756
Hyundai Veloster	28 (5-50)	14	14	9	2012-14	162,984
Volkswagen New Beetle	37 (3-71)	31	5	5	2012-14	157,088
Scion tC	101 (51-151)	46	58	27	2011-14	188,473
midsize						
Honda Accord	20 (2-71)	20	0	0	2013-14	101,516
Hyundai Genesis coupe	67 (27-107)	19	49	12	2011-14	123,899
large						
Dodge Challenger	81 (45-116)	51	29	7	2011-14	323,863
SPORTS CARS						
midsize						
Ford Mustang GT coupe	49 (22-76)	19	30	4	2011-14	201,892
Ford Mustang coupe	58 (28-87)	19	42	28	2011-14	315,790
Ford Mustang convertible	60 (5-115)	50	6	0	2011-14	118,810
large						
Chevrolet Camaro convertible	51 (19-83)	21	31	10	2011-14	148,566
Chevrolet Camaro coupe	55 (36-74)	26	28	11	2011-14	682,257
LUXURY CARS						
midsize						
Lexus CT 200h	0 (0-25)	0	0	0	2011-14	149,224
Mercedes-Benz C-Class sedan 2WD	11 (1-20)	9	2	0	2011-14	357,417
Audi A4 4WD	15 (3-43)	10	5	5	2011-14	202,470
Volvo S60 2WD	16 (2-56)	0	16	0	2012-14	128,950
BMW 328i	17 (3-49)	11	6	0	2012-14	178,276
Acura TL 2WD	21 (0-45)	17	4	0	2011-14	202,930
Mercedes-Benz C-Class sedan 4WD	25 (2-48)	3	25	0	2011-14	285,137
Lexus ES 350	31 (3-59)	18	12	4	2013-14	188,390
large						
Audi A6 4WD	0 (0-36)	0	0	0	2012-14	101,164
BMW 535i/is 2WD	0 (0-28)	0	0	0	2011-14	132,902
BMW 535xi 4WD	0 (0-30)	0	0	0	2011-14	123,121
Mercedes-Benz E-Class sedan 2WD	4 (0-22)	0	4	4	2011-14	255,357
Mercedes-Benz E-Class sedan 4WD	5 (0-26)	5	0	0	2011-14	217,563
Hyundai Genesis sedan	15 (3-44)	10	5	0	2011-14	198,610
BMW 528i 2WD	20 (4-60)	20	0	0	2011-14	146,689
STATION WAGONS						
mini						
Ford Fiesta	63 (31-95)	36	30	10	2011-14	289,281
Hyundai Accent	63 (18-108)	47	14	14	2012-14	160,157
small						
Mini Countryman 2WD	10 (0-53)	10	0	0	2011-14	104,350
Subaru Impreza 4WD	12 (3-36)	8	4	0	2012-14	245,970
Subaru XV Crosstrek 4WD	17 (4-51)	6	12	0	2013-14	173,380
Ford Focus	45 (26-64)	26	19	3	2012-14	658,354
Scion xB	51 (21-82)	37	14	7	2011-14	217,535
Chevrolet Sonic	54 (20-88)	46	8	4	2012-14	191,015
Kia Soul	82 (24-140)	58	26	17	2014	123,895

	Death rates				Model	
	Overall	MV	SV	SV roll	years	Exposure
midsize						
Subaru Outback 4WD	12 (5-20)	8	3	1	2011-14	1,116,891
Volkswagen Jetta	20 (0-41)	20	0	0	2011-14	249,277
Mazda 5	23 (5-66)	15	8	8	2012-14	132,386
Toyota Prius v	29 (2-56)	29	0	0	2012-14	245,905
MINIVANS						
very large						
Honda Odyssey	8 (1-15)	6	2	2	2011-14	1,155,445
Toyota Sienna 2WD	9 (2-16)	6	3	2	2011-14	1,175,091
Toyota Sienna 4WD	10 (1-37)	10	0	0	2011-14	194,536
Chrysler Town & Country	22 (11-33)	13	10	2	2011-14	931,363
Dodge Grand Caravan	35 (21-48)	24	10	2	2011-14	1,014,124
Nissan Quest	53 (4-101)	44	6	0	2011-14	134,849
SUVs						
small						
Volkswagen Tiguan 2WD	0 (0-25)	0	0	0	2011-14	145,927
Kia Sportage 4WD	13 (2-46)	6	6	6	2011-14	158,604
Toyota RAV4 2WD	13 (3-39)	9	4	0	2013-14	224,604
Honda CR-V 4WD	14 (6-22)	10	4	0	2012-14	1,047,803
Ford Escape 4WD	19 (3-34)	12	5	5	2013-14	423,524
Honda CR-V 2WD	22 (8-36)	17	4	1	2012-14	563,737
Jeep Compass 4WD	22 (0-43)	18	3	0	2011-14	234,326
Toyota RAV4 4WD	25 (7-43)	19	6	2	2013-14	402,072
Hyundai Tucson 2WD	26 (7-45)	21	5	2	2011-14	309,732
Subaru Forester 4WD	28 (3-53)	17	11	0	2014	134,402
Mazda CX-5 2WD	29 (6-84)	19	10	0	2013-14	104,574
Mitsubishi Outlander Sport 2WD	29 (6-86)	0	29	20	2011-14	101,759
Ford Escape 2WD	30 (13-48)	19	12	4	2013-14	545,121
Volkswagen Tiguan 4WD	30 (3-56)	24	6	0	2011-14	127,539
Jeep Wrangler 2-door 4WD	35 (18-51)	14	20	13	2011-14	452,036
Kia Sportage 2WD	37 (6-69)	24	13	0	2011-14	246,232
Jeep Compass 2WD	39 (3-75)	19	22	16	2011-14	180,908
Hyundai Tucson 4WD	41 (0-82)	33	5	0	2011-14	155,813
midsize						
Jeep Cherokee 4WD	0 (0-36)	0	0	0	2014	101,931
Mazda CX-9 2WD	0 (0-30)	0	0	0	2011-14	123,616
Ford Explorer 4WD	4 (0-9)	3	1	0	2011-14	675,504
Nissan Pathfinder 4WD	7 (0-41)	0	7	7	2013-14	136,701
Toyota Venza 4WD	7 (0-36)	7	0	0	2011-14	153,115
Toyota 4Runner 4WD	9 (2-26)	0	9	3	2011-14	342,568
Jeep Grand Cherokee 2WD	10 (2-31)	7	3	0	2011-14	287,385
Nissan Murano 4WD	10 (2-29)	7	3	0	2011-14	300,485
Toyota Venza 2WD	11 (1-38)	5	5	0	2011-14	190,237
Dodge Journey 4WD	13 (2-48)	13	0	0	2011-14	151,962
Nissan Xterra 4WD	14 (2-50)	14	0	0	2011-14	144,660
Honda Pilot 4WD	15 (5-25)	8	8	2	2011-14	893,584
Jeep Grand Cherokee 4WD	16 (7-24)	5	12	8	2011-14	1,120,459
Honda Pilot 2WD	17 (3-32)	11	7	6	2011-14	462,277
Toyota FJ Cruiser 4WD	17 (2-63)	0	17	17	2011-14	115,212
Nissan Pathfinder 2WD	18 (2-66)	0	18	9	2013-14	109,722
Toyota 4Runner 2WD	19 (4-56)	0	19	6	2011-14	155,946
Mazda CX-9 4WD	20 (4-59)	7	13	0	2011-14	148,505
Dodge Journey 2WD	21 (7-35)	14	7	3	2011-14	452,035
Chevrolet Equinox 4WD	23 (10-35)	14	8	3	2011-14	685,118
Hyundai Santa Fe Sport 2WD	23 (2-44)	23	0	0	2013-14	161,600
Ford Edge 4WD	24 (5-43)	14	10	2	2011-14	460,562
Ford Edge 2WD	26 (13-39)	24	1	0	2011-14	844,465
Ford Explorer 2WD	27 (9-45)	22	4	4	2011-14	545,537
Jeep Wrangler 4-door 4WD	27 (14-41)	7	22	17	2011-14	813,929
GMC Terrain 4WD	32 (7-57)	14	18	0	2011-14	310,334
Chevrolet Equinox 2WD	33 (22-44)	22	10	7	2011-14	1,424,478
Chevrolet Captiva Sport 2WD	39 (9-69)	26	12	8	2012-14	188,622
Nissan Murano 2WD	43 (17-69)	28	16	4	2011-14	191,985
Ford Flex 2WD	45 (3-86)	37	4	4	2011-14	200,337
GMC Terrain 2WD	53 (31-75)	32	20	9	2011-14	613,984
large						
Ford Expedition 2WD	8 (0-47)	8	0	0	2011-14	119,233
Chevrolet Tahoe 2WD	9 (2-27)	0	9	9	2011-14	330,512
Buick Enclave 4WD	12 (2-35)	4	8	0	2011-14	249,114
Dodge Durango 2WD	16 (3-46)	0	16	10	2011-14	191,274
Dodge Durango 4WD	16 (3-28)	5	11	8	2011-14	289,996
GMC Acadia 2WD	19 (2-37)	6	15	5	2011-14	434,282
Chevrolet Traverse 4WD	20 (3-38)	7	14	2	2011-14	448,853
GMC Acadia 4WD	22 (2-43)	15	6	0	2011-14	405,229
Ford Expedition 4WD	23 (0-46)	12	12	6	2011-14	132,011
GMC Yukon 4WD	24 (4-44)	8	16	4	2011-14	185,222
Chevrolet Traverse 2WD	25 (9-41)	11	15	8	2011-14	620,808
GMC Yukon 2WD	29 (0-58)	29	0	0	2011-14	103,804
Buick Enclave 2WD	30 (7-54)	30	0	0	2011-14	369,165
Chevrolet Tahoe 4WD	32 (10-54)	25	6	0	2011-14	378,597
very large						
Chevrolet Suburban 1500 2WD	7 (0-38)	7	0	0	2011-14	147,811
GMC Yukon XL 1500 4WD	11 (1-41)	11	0	0	2011-14	174,363
Chevrolet Suburban 1500 4WD	39 (11-67)	23	16	10	2011-14	293,380
LUXURY SUVs						
midsize						
Lexus RX 350 2WD	0 (0-12)	0	0	0	2011-14	303,285
Mercedes-Benz M-Class 4WD	0 (0-19)	0	0	0	2012-14	193,245
Lexus RX 350 4WD	2 (0-14)	2	0	0	2011-14	403,447
Audi Q5 4WD	7 (1-26)	4	4	0	2011-14	276,860
Mercedes-Benz GLK-Class 4WD	7 (0-38)	7	0	0	2011-14	146,073
BMW X3 4WD	9 (1-31)	4	4	4	2011-14	233,924
Mercedes-Benz GLK-Class 2WD	9 (0-51)	0	9	9	2011-14	109,665
Volvo XC60 4WD	10 (0-55)	0	10	10	2011-14	101,896
Lincoln MKX 4WD	15 (2-55)	15	0	0	2011-14	131,103
Cadillac SRX 2WD	20 (3-37)	15	6	0	2011-14	390,912
Cadillac SRX 4WD	23 (0-49)	14	8	4	2011-14	186,617
Lincoln MKX 2WD	49 (4-94)	35	13	0	2011-14	118,254
large						
Audi Q7 4WD	0 (0-36)	0	0	0	2011-14	102,362
Lexus GX 460 4WD	8 (0-47)	8	0	0	2011-14	118,181
Porsche Cayenne 4WD	9 (0-48)	0	9	9	2011-14	115,877
PICKUPS						
small						
Toyota Tacoma Double Cab long bed 4WD	0 (0-30)	0	0	0	2011-14	123,290
Toyota Tacoma Double Cab short bed 2WD	13 (1-24)	5	8	3	2011-14	297,521
Nissan Frontier Crew Cab short bed 4WD	16 (0-31)	0	16	0	2011-14	192,115
Toyota Tacoma Access Cab 4WD	17 (0-33)	8	8	0	2011-14	182,034
Toyota Tacoma Double Cab short bed 4WD	29 (6-52)	12	18	8	2011-14	344,811
Toyota Tacoma Access Cab 2WD	30 (0-63)	18	10	5	2011-14	145,880
Nissan Frontier Crew Cab short bed 2WD	42 (9-76)	22	23	4	2011-14	172,697
large						
Toyota Tundra Double Cab short bed 4WD	17 (4-30)	10	7	0	2011-14	309,785
Toyota Tundra Double Cab short bed 2WD	19 (2-36)	15	4	0	2011-14	199,742
Ford F-150 SuperCab 2WD	20 (7-32)	12	8	0	2011-14	384,618
Ford F-150 Regular Cab 2WD	22 (4-40)	14	8	3	2011-14	299,709
Ford F-150 SuperCrew 2WD	22 (10-34)	13	9	5	2011-14	752,314
Ford F-150 SuperCrew 4WD	24 (17-31)	14	10	4	2011-14	2,062,582
Toyota Tundra CrewMax 4WD	24 (8-40)	11	13	5	2011-14	284,798
Honda Ridgeline 4WD	26 (3-49)	16	10	0	2011-14	145,910
Chevrolet Silverado 1500 Double Cab 4WD	27 (6-79)	27	0	0	2014	110,928
Ford F-150 SuperCab 4WD	28 (17-39)	18	10	3	2011-14	680,506
Toyota Tundra CrewMax 2WD	28 (3-53)	17	11	0	2011-14	135,943
Ram 1500 Quad Cab 2WD	29 (0-57)	7	22	7	2013-14	105,525
Chevrolet Silverado 1500 Crew Cab 4WD	35 (12-59)	12	24	8	2014	191,713
Ram 1500 Quad Cab 4WD	39 (6-72)	20	18	4	2013-14	168,944
Ram 1500 Crew Cab short bed 4WD	55 (21-90)	18	38	23	2013-14	223,776
Nissan Titan Crew Cab short bed 4WD	73 (16-130)	15	62	30	2011-14	100,450
very large						
Ford F-350 Crew Cab 4WD	13 (3-23)	6	7	6	2011-14	407,086
GMC Sierra 2500 Crew Cab 4WD	27 (7-48)	16	12	4	2011-14	194,228
Ford F-250 SuperCab 4WD	31 (9-53)	20	12	0	2011-14	196,337
Chevrolet Silverado 3500 Crew Cab 4WD	33 (4-63)	0	33	20	2011-14	113,065
Chevrolet Silverado 2500 Crew Cab 4WD	34 (18-51)	14	21	15	2011-14	394,849
Ford F-250 Crew Cab 4WD	35 (22-47)	12	23	16	2011-14	633,436
Ram 2500 Crew Cab short bed 4WD	44 (8-81)	38	7	7	2013-14	102,118

Summer road trips mean more traffic deaths

The summer and early fall are the most dangerous times of year on the nation's roads, an updated IIHS analysis confirms. Fatalities also are higher on weekends and in the late afternoon and evenings, while Independence Day and New Year's Day have the highest average toll of any single date.

The trends reflect the fact that Americans drive the most miles during the warm summer months. Weekends and certain holidays with increased alcohol consumption also see spikes in deaths.

An analysis of fatal crashes between 1998 and 2014 found that summer and early fall are the most dangerous times of the year. Weekends are deadlier than weekdays, and the highest number of deaths occur between 3 p.m. and 7 p.m.

To find out when crashes are most likely to occur, IIHS researchers examined federal fatal crash data from 1998 to 2014. They chose that period because each day of the week occurred the same number of times, and every date except Feb. 29 fell on each day of the week at least twice. The study confirms many of the trends identified in an earlier IIHS analysis of traffic deaths during 1986-2002 (see *Status Report*, July 3, 2004, at iihs.org).

"Roadway deaths have declined since our original study, but the pattern of deaths is unchanged," says Charles Farmer, IIHS vice president for research and statistical services. "The riskiest times remain risky."

Annual traffic deaths fell during the new study period, with most of the drop occurring between 2007 and 2010. The number of fatalities averaged 106 per day during the 17-year period.

As in the earlier analysis, weekends were deadlier than weekdays. There were an average of 139 deaths on Saturdays, compared with 89 on Tuesdays. The highest number of deaths occurred between 3 p.m. and 7 p.m. and the lowest between 3 a.m. and 6 a.m.

July and August were the deadliest months, with an average daily toll of 116. They were followed by June, October and September.

January and February had the lowest daily tolls and, not coincidentally, the lowest number of vehicle miles traveled.

Among January days, New Year's Day was an exception, with an average of 135 deaths. That's the second-highest after July 4, which had an average of 141 deaths.

The two holidays also were among the highest-fatality days in the previous study. Many communities conduct impaired-driving enforcement initiatives at those times of years, and the average number of fatalities has dropped on both days. However, Independence Day saw more progress, with fatalities falling 13 percent. In contrast, New Year's Day fatalities fell only 5 percent.

Pedestrian deaths, which comprised 12 percent of all traffic deaths during the study period, were generally highest in late November and early December, when days are getting shorter. Jan. 1 was the worst single day for pedestrian deaths.

Motorcyclist deaths accounted for 10 percent of fatalities. July 4 had the highest number of motorcyclist fatalities, and the other dates in the top 10 also were in warm-weather months.

For a copy of "Temporal factors in motor vehicle crashes — 10 years later" by R. Weast, email publications@iihs.org. ■

(« *from page 2)* accounting for safer vehicle designs and other highway safety improvements that have taken hold over time.

Farmer found that a decline in the unemployment rate from 6 percent to 5 percent is associated with a 2 percent increase in vehicle miles traveled. That jump in exposure leads to an equivalent 2 percent jump in fatalities. However, after accounting for the change in miles traveled, the decline in the unemployment rate is associated with an additional 2 percent increase in road deaths. In other words, only half of the effect of an improved economy on traffic deaths is due to increased driving.

Given the U.S. Bureau of Labor Statistics' forecast of a 1.7 percent annual reduction in unemployment from 2014 to 2024, he predicts that the recent increase in deaths will have peaked in 2016 and estimates there will be approximately 34,400 traffic deaths in 2024, compared with 35,092 in 2015.

If unemployment doesn't change as predicted but remains steady at the 2016 rate of 4.9 percent, there will be 33,600 traffic deaths, Farmer estimates. In either case, the projected number of crash deaths for 2024 is still higher than the 32,744 deaths seen in 2014.

The recent surge in crash avoidance technologies, along with the development of autonomous vehicles that in theory could eliminate all crashes, has the potential to bring down crash rates. However, it will take decades before such technologies are present in all new vehicles. Vehicles with varying degrees of automation will be sharing the road with conventional vehicles for some time (see *Status Report* special issue: autonomous vehicles, Nov. 10, 2016).

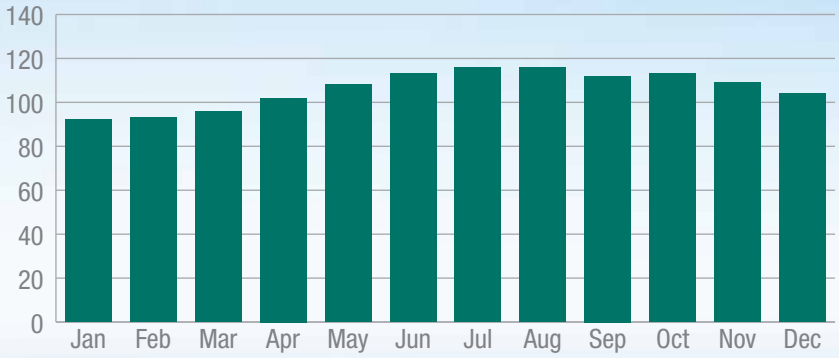
"Improvements in vehicle technology are important, but we also need to address old problems such as speeding and driving while impaired," Farmer points out.

Tiny vehicles, high death rates

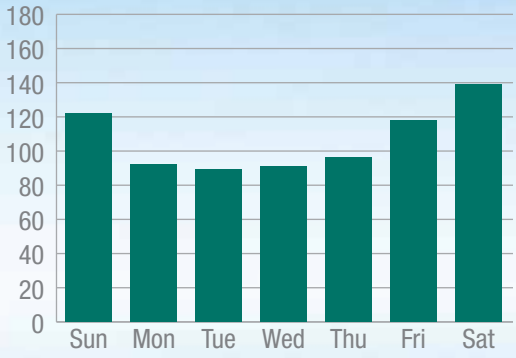
As in the past, the driver death rates show that the smallest vehicles are the most dangerous ones. Among the 10 vehicles with the highest rates, five are minicars and three are small cars. These vehicles don't protect occupants as well as larger ones, so their presence at the top of the "worst" list isn't surprising.

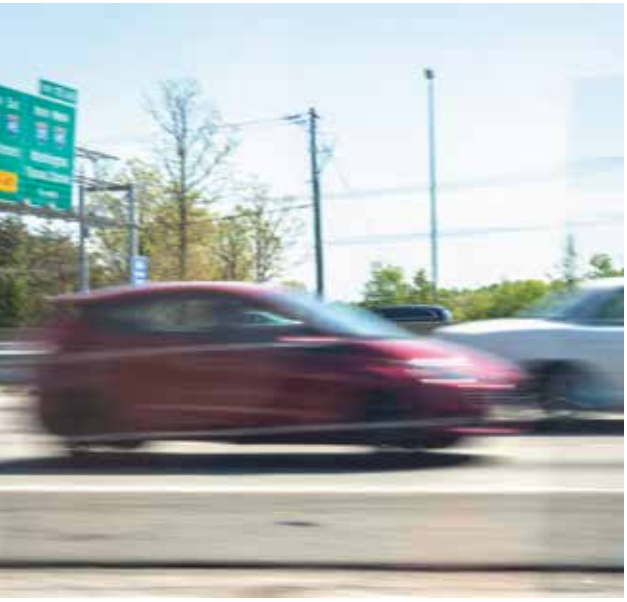
Among vehicle categories, 4-door minicars have the highest overall death rate of 87, while 4-wheel-drive large luxury SUVs have the lowest with 6.

Deaths by month
Average number of deaths per day, 1998-2014



Deaths by day of the week
Average number of deaths per day, 1998-2014





Despite the increase in the overall rate, the worst vehicles actually saw some improvement. The 2014 Hyundai Accent's death rate of 104 compares with 120 for the 2011 Accent. The worst vehicle among the 2011 models was the Kia Rio with a rate of 149. The 2014 Rio's death rate is 102. Both models were redesigned in 2012, and their lower death rates may reflect the better crash-test performance of the newer designs.

IIHS has been publishing death rates per registered vehicle year by make and model since 1989 (see *Status Report*, Nov. 25, 1989). The rates include only driver deaths because all vehicles on the road have drivers, while not all of them have passengers or the same number of passengers. Fatality counts are taken from the federal Fatality Analysis Reporting System, and registration data are from IHS Automotive. The calculated rates are adjusted for driver age and gender.

Although the numbers reflect 2014 models, data from earlier models as far back as 2011 are included if the vehicles weren't substantially redesigned before 2014. Including older, equivalent vehicles increases the exposure and thus the reliability of the results. To be included, a vehicle must have had at least 100,000 registered vehicle years of exposure during 2012-15 or at least 20 deaths.

For a copy of "A projection of United States traffic fatality counts in 2024" by C.M. Farmer, email publications@iihs.org. ■

Insurance Institute for Highway Safety
Highway Loss Data Institute

Status Report

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HLDI shares and supports this mission through scientific studies of insurance data representing the human and economic losses resulting from the ownership and operation of different types of vehicles and by publishing insurance loss results by vehicle make and model.

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