U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Crash • Stats

NHTSA

DOT HS 812 295 A Brief Statistical Summary July 2016

Lives and Costs Saved by Motorcycle Helmets, 2014

Findings

In 2014 the use of motorcycle helmets saved an estimated 1,669 lives. An additional 660 lives would have been saved in 2014 if all motorcyclists had worn helmets. Nearly $3 billion in economic costs and more than $18 billion in comprehensive costs were saved in 2014 by the use of motorcycle helmets. If all motorcyclists had worn helmets in 2014, an additional $1 billion in economic costs and $7 billion in comprehensive costs could have been saved. Economic costs include lost productivity, medical costs, legal and court costs, emergency medical service costs, insurance administration costs, congestion costs, property damage, and workplace losses. Comprehensive costs include these economic costs plus the valuation for lost quality of life.

Methodology

NHTSA's National Center for Statistics and Analysis provides annual estimates of lives saved by motorcycle helmets, as well as the costs saved by injuries and fatalities that were prevented by the use of motorcycle helmets. The estimates are obtained using the effectiveness of motorcycle helmets in preventing death (37 percent for operators and 41 percent for passengers) and injuries (8 percent for minor and 13 percent for serious injury). Information on the methodology of estimating the lives and costs saved estimates as well as injury details are available in the NHTSA documents listed in the references

The estimated number of lives saved is based on the number of helmeted motorcyclist fatalities, while the estimate of additional lives that could have been saved is based on the number of unhelmeted motorcyclist fatalities. Therefore, in years when there are fewer applicable motorcyclist fatalities the corresponding estimates are lower.

NHTSA does not have State-level data on motorcyclists injured. We estimate them from national and State totals of motorcyclist fatalities from the Fatality Analysis Reporting System (FARS) and national estimates of motorcyclists injured from the General Estimates System (GES). The number of injured motorcyclists in a State is estimated by using the national ratio of motorcyclists injured to motorcyclists killed. The average ratio over the most recent five years is used to account for annual sample variance. Because the number and types of injuries motorcyclists experience depends greatly on use of helmets, injury counts are estimated separately by helmet use status. Table 1 shows the national fatality and injured counts, and the ratios derived from them, for the most recent five years of available data, along with the average ratio values for helmeted and unhelmeted motorcyclists. Note that these ratios will vary somewhat each time a new year of data replaces the oldest year.

Costs are adjusted using the Department of Labor's Consumer Price Index (CPI). A report by Blincoe, Miller, Zaloshnja, and Lawrence (2015) provides cost data for 2010. These costs are multiplied by the CPI ratio of the current data year (in this case 2014) to the base year (2010). These values taken from the Bureau of Labor Statistics website at http://data.bls.gov/cgi-bin/surveymost?cu are 218.056 for 2010, and 236.736 for 2014. So the dollar values are multiplied by 236.736/218.056, or 1.086, to get current year dollars.

Table 2 provides for each State as well as the Nation, the number of motorcyclist fatalities by helmet use, the helmet use rate in fatal crashes, the number of lives saved by motorcycle helmets, and the number of additional lives that could have been saved at 100 percent helmet use in 2014. Table 3 shows the economic and comprehensive costs saved due to the lives saved and injuries prevented by the use of motorcycle helmets, as well as how much additional could have been saved if all motorcyclists had worn helmets.

Table 1: National Annual Motorcyclists Killed and Injured, Known Helmet Use, and Injury-to-Fatality Ratios

Year	Fatalities		Injured		Injury-to-Fatality Ratio	
	Known Helmeted	Known Unhelmeted	Known Helmeted	Known Unhelmeted	Helmeted	Unhelmeted
2010	2,614	1,904	54,708	27,740	20.93	14.57
2011	2,737	1,893	54,669	26,730	19.98	14.12
2012	2,813	2,039	58,365	29,324	20.75	14.38
2013	2,679	1,861	53,934	27,482	20.13	14.77
2014	2,728	1,716	53,597	32,434	19.65	18.90
Average					**20.29**	**15.35**

Source: FARS 2010–2013 Final Files; 2014 Annual Report File (ARF). GES 2010–2014.

Table 2: Motorcyclist Fatalities, Helmet Use, Lives Saved, and Additional Lives Savable at 100 Percent Helmet Use, By State, 2014

State	Motorcyclists			Helmet Use Rate in Fatal Crashes (Known)	Total Fatalities	Number of Lives Saved	Additional Lives Savable at 100% Helmet Use
	Helmet Used	Helmet Not Used	Helmet Use Unknown				
Alabama	53	10	2	84%	65	33	4
Alaska	5	3	0	63%	8	3	1
Arizona	56	69	5	45%	130	35	26
Arkansas	24	36	1	40%	61	15	14
California	488	24	7	95%	519	293	9
Colorado	33	61	0	35%	94	19	22
Connecticut	20	32	3	38%	55	13	13
Delaware	7	7	1	50%	15	5	3
District of Columbia	2	1	0	67%	3	1	0
Florida	240	223	15	52%	478	147	85
Georgia	124	8	5	94%	137	76	3
Hawaii	12	12	1	50%	25	7	5
Idaho	9	15	1	38%	25	6	6
Illinois	34	81	3	30%	118	21	31
Indiana	26	89	9	23%	124	17	36
Iowa	15	37	0	29%	52	9	14
Kansas	18	28	2	39%	48	11	11
Kentucky	38	48	0	44%	86	22	18
Louisiana	67	10	6	87%	83	43	4
Maine	7	4	0	64%	11	4	1
Maryland	58	8	3	88%	69	36	3
Massachusetts	36	4	3	90%	43	23	2
Michigan	50	52	10	49%	112	33	21
Minnesota	9	29	8	24%	46	6	13
Mississippi	34	6	1	85%	41	21	2
Missouri	79	7	5	92%	91	50	3
Montana	10	12	1	45%	23	6	5
Nebraska	18	1	1	95%	20	11	0
Nevada	52	8	3	87%	63	32	3
New Hampshire	3	14	0	18%	17	2	5
New Jersey	52	5	5	91%	62	34	2
New Mexico	9	35	2	20%	46	6	14
New York	124	21	3	86%	148	76	8
North Carolina	175	15	0	92%	190	105	6
North Dakota	1	9	0	10%	10	1	3
Ohio	42	91	3	32%	136	26	35
Oklahoma	13	44	0	23%	57	8	16
Oregon	41	4	1	91%	46	25	2
Pennsylvania	75	100	10	43%	185	47	39
Rhode Island	3	7	0	30%	10	2	3
South Carolina	25	95	1	21%	121	15	36
South Dakota	5	11	1	31%	17	3	4
Tennessee	109	10	1	92%	120	65	4
Texas	201	234	15	46%	450	124	90
Utah	19	26	0	42%	45	11	10
Vermont	6	1	0	86%	7	3	1
Virginia	89	1	0	99%	90	53	0
Washington	69	0	0	100%	69	41	0
West Virginia	17	7	2	71%	26	11	3
Wisconsin	20	51	2	28%	73	12	23
Wyoming	6	10	0	38%	16	4	2
National	**2,728**	**1,716**	**142**	**61%**	**4,586**	**1,669**	**660**

Source: Fatality Analysis Reporting System 2014 ARF.
Shaded States are those with laws requiring helmet use for all motorcyclists, at the time of publication.

Table 3: Economic Costs Saved by Helmet Use, and Economic Costs Savable at 100 Percent Helmet Use, by State, 2014

State	*Economic Costs Saved	*Additional Economic Costs Savable at 100% Use	**Comprehensive Costs Saved	**Additional Comp Costs Savable at 100% Use
Alabama	$49,335,363	$6,316,924	$303,538,464	$38,513,707
Alaska	$5,951,334	$2,399,571	$36,437,900	$14,528,466
Arizona	$55,266,494	$44,982,742	$339,030,985	$272,785,767
Arkansas	$21,871,905	$21,653,375	$134,679,861	$131,873,395
California	$569,971,178	$18,730,753	$3,497,058,828	$113,620,626
Colorado	$36,809,924	$45,595,565	$226,940,398	$278,204,039
Connecticut	$30,564,972	$32,592,607	$189,114,014	$199,630,319
Delaware	$8,056,912	$5,342,943	$49,638,997	$32,581,780
District of Columbia	$3,562,541	$1,189,907	$22,131,227	$7,322,370
Florida	$256,485,659	$159,293,378	$1,580,316,224	$971,425,975
Georgia	$121,295,920	$5,231,106	$746,123,836	$31,825,284
Hawaii	$14,065,260	$9,477,454	$85,540,962	$56,956,724
Idaho	$8,115,770	$9,098,286	$49,737,767	$55,195,004
Illinois	$39,377,839	$62,643,038	$243,317,886	$383,459,174
Indiana	$26,329,620	$59,906,242	$162,065,396	$364,953,805
Iowa	$14,995,119	$24,878,786	$92,426,807	$151,868,598
Kansas	$19,579,905	$20,351,501	$120,934,024	$124,625,645
Kentucky	$33,629,697	$28,504,003	$206,778,869	$173,489,958
Louisiana	$72,714,652	$7,258,599	$448,099,315	$44,313,629
Maine	$7,019,492	$2,695,170	$42,989,888	$16,323,293
Maryland	$77,187,114	$7,106,567	$476,469,116	$43,405,041
Massachusetts	$52,196,011	$3,854,292	$322,920,878	$23,581,239
Michigan	$51,827,360	$35,963,960	$319,051,192	$219,232,686
Minnesota	$12,109,943	$26,531,676	$74,676,675	$162,224,006
Mississippi	$29,631,960	$3,483,994	$181,879,025	$21,170,312
Missouri	$81,815,818	$4,833,715	$504,200,432	$29,458,396
Montana	$10,016,834	$8,011,259	$61,527,970	$48,728,967
Nebraska	$19,019,286	$1,051,946	$117,490,108	$6,457,747
Nevada	$54,039,948	$5,575,763	$332,054,577	$33,988,739
New Hampshire	$3,472,532	$10,969,969	$21,375,630	$66,944,557
New Jersey	$74,815,830	$4,809,095	$461,630,747	$29,357,528
New Mexico	$8,540,264	$22,334,113	$52,367,307	$135,604,320
New York	$165,850,022	$18,706,350	$1,018,405,325	$113,589,674
North Carolina	$167,826,684	$9,530,565	$1,031,711,323	$57,903,727
North Dakota	$1,057,588	$6,425,770	$6,521,815	$39,274,585
Ohio	$41,452,567	$60,207,789	$255,330,920	$367,275,315
Oklahoma	$12,410,314	$28,372,058	$76,449,894	$173,215,770
Oregon	$42,428,776	$2,748,191	$260,155,299	$16,646,163
Pennsylvania	$85,994,474	$76,352,643	$530,327,081	$466,010,285
Rhode Island	$3,385,154	$5,301,833	$20,784,546	$32,201,372
South Carolina	$22,474,061	$57,608,713	$137,795,898	$349,605,999
South Dakota	$5,570,101	$8,088,643	$34,359,570	$49,385,642
Tennessee	$102,424,843	$6,267,806	$630,771,643	$38,179,429
Texas	$215,622,551	$166,844,764	$1,332,005,402	$1,020,132,491
Utah	$16,649,187	$15,253,279	$102,193,641	$92,649,187
Vermont	$6,426,969	$719,260	$39,425,309	$4,364,113
Virginia	$102,949,428	$771,534	$636,680,094	$4,722,757
Washington	$79,477,058	$0	$490,000,625	$0
West Virginia	$15,920,815	$4,574,926	$97,682,270	$27,779,323
Wisconsin	$21,234,851	$35,794,851	$130,830,638	$218,207,368
Wyoming	$7,332,237	$8,174,078	$45,404,790	$50,121,900
National	**$2,986,160,134**	**$1,214,411,352**	**$18,379,381,389**	**$7,404,916,196**

*Economic costs include lost productivity, medical costs, legal and court costs, emergency medical service costs, insurance administration costs, congestion costs, property damage, and workplace losses.

**Comprehensive costs include economic costs plus valuation for lost quality-of-life (QoL).

Cost data from Blincoe, Miller, Zaloshnja, and Lawrence (2015), *The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (Revised),* Report No. DOT HS 812 013, May 2015.

Source: Fatality Analysis Reporting System 2014 ARF; Bureau of Labor Statistics; Blincoe, Miller, Zaloshnja, and Lawrence, 2015.

Shaded States are those with laws requiring helmet use for all motorcyclists, at the time of publication.

State costs are adjusted for relative per-capita income; dollar amounts for the Nation will not equal the sum of the States.

References

Blincoe, L. J., Miller, T. R., Zaloshnja, E., & Lawrence, B. A. (2015). *The economic and societal impact of motor vehicle crashes, 2010* (Revised) (Report No. DOT HS 812 013). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/812013.pdf.

National Center for Statistics and Analysis. (2015). *Estimating lives and costs saved by motorcycle helmets with updated economic cost information* (Report No. DOT HS 812 206). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/812206.pdf.

National Center for Statistics and Analysis. (2011). *Determining estimates of lives and costs saved by motorcycle helmets* (Report No. DOT HS 811 433). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811433.

Suggested APA Citation for This Document:

National Center for Statistics and Analysis. (2016, July). *Lives and costs saved by motorcycle helmets, 2014* (Report No. DOT HS 812 295). Washington, DC: National Highway Traffic Safety Administration.

U.S. Department of Transportation

National Highway Traffic Safety Administration

For questions regarding the information presented in this document, please contact NCSAWEB@dot.gov. This Crash•Stats and general information on highway traffic safety can be found at www.nhtsa.gov/NCSA. To report a safety-related problem or to inquire about motor vehicle safety information, contact the Vehicle Safety Hotline at 888-327-4236.

Published by NHTSA's National Center for Statistics and Analysis

1200 New Jersey Avenue SE., Washington, DC 20590

12289-071216-v3