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

TRAFFIC SAFETY FACTS
Crash • Stats

NHTSA

DOT HS 812 388 A Brief Statistical Summary June 2017

Lives and Costs Saved by Motorcycle Helmets, 2015

Findings

In 2015, the use of motorcycle helmets saved an estimated 1,772 lives. An additional 740 lives would have been saved if all motorcyclists had been wearing helmets. More than $3 billion in economic costs and over $19 billion in comprehensive costs were saved by the use of motorcycle helmets. If all motorcyclists had been wearing helmets, an additional $1.4 billion in economic costs and $8.3 billion in comprehensive costs could have been saved. Economic costs include lost productivity, medical costs, legal and court costs, emergency service costs (EMS), insurance administration costs, congestion costs, property damage, and workplace losses. Comprehensive costs include economic costs, plus the valuation for lost quality of life.

Methodology

The National Highway Traffic Safety Administration's (NHTSA) 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% for operators and 41% for passengers) and injuries (8% for minor and 13% for serious injury). Information on the methodology of estimating the lives and costs saved, as well as injury details, is 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 who have been injured. They are estimated from national and State totals of motorcyclist fatalities from the Fatality Analysis Reporting System (FARS) and from 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 5 years is used to account for annual sample variance. Because the number and types of injuries motorcyclists experience depends greatly on the 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 each of the most recent 5 years of available data, along with the 5-year-average ratio values for helmeted and unhelmeted motorcyclists. Note that these average 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). The 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, 2015) to the base year (2010). These values, taken from the Bureau of Labor Statistics website at www.bls.gov/cpi/data.htm, are 218.056 for 2010, and 237.017 for 2015. The dollar values are multiplied by 237.017/218.056, or 1.087, to get current year dollars.

Table 2 provides, for 2015, for each State as well as the Nation, the number of motorcyclist fatalities (total and 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.

Table 3 provides 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 been wearing 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
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	2,733	1,717	53,597	32,434	19.61	18.89
2015	2,922	1,938	55,160	26,104	18.88	13.47
Average					**19.87**	**15.13**

Source: FARS 2011–2014 Final Files; 2015 Annual Report File (ARF). GES 2011–2015.

Table 2: Motorcyclist Fatalities by Helmet Use, Helmet Use Rates, Lives Saved, and Additional Lives Savable at 100-Percent Helmet Use, by State, 2015

State	Motorcyclists Fatalities				Helmet Use Rate in Fatal Crashes (Known)	Number of Lives Saved	Additional Lives Savable at 100% Helmet Use
	Total Motorcyclist Fatalities	Helmet Used	Helmet Not Used	Helmet Use Unknown			
Alabama	67	57	9	1	86%	34	3
Alaska	11	6	4	1	60%	4	2
Arizona	136	55	74	7	43%	34	29
Arkansas	79	29	48	2	38%	18	18
California	462	432	22	8	95%	259	8
Colorado	106	39	67	0	37%	23	25
Connecticut	53	20	31	2	39%	12	12
Delaware	19	13	6	0	68%	8	2
District of Columbia	3	2	1	0	67%	1	0
Florida	616	316	283	17	53%	193	109
Georgia	152	138	10	4	93%	84	4
Hawaii	26	10	16	0	38%	6	6
Idaho	31	10	21	0	32%	6	8
Illinois	147	40	105	2	28%	24	40
Indiana	108	17	79	12	18%	11	33
Iowa	41	9	31	1	23%	5	12
Kansas	44	15	28	1	35%	9	11
Kentucky	91	30	61	0	33%	18	23
Louisiana	91	78	12	1	87%	47	5
Maine	32	8	24	0	25%	5	9
Maryland	75	69	6	0	92%	41	2
Massachusetts	46	39	7	0	85%	23	3
Michigan	141	75	57	9	57%	48	23
Minnesota	61	18	38	5	32%	12	16
Mississippi	37	29	8	0	78%	17	3
Missouri	97	86	7	4	92%	53	3
Montana	24	5	18	1	22%	3	7
Nebraska	25	18	4	3	82%	12	2
Nevada	55	41	11	3	79%	26	4
New Hampshire	26	10	16	0	38%	6	6
New Jersey	50	43	7	0	86%	25	3
New Mexico	38	19	18	1	51%	12	7
New York	160	143	14	3	91%	87	5
North Carolina	192	176	14	2	93%	105	5
North Dakota	8	5	3	0	63%	3	1
Ohio	168	55	112	1	33%	33	42
Oklahoma	89	26	62	1	30%	15	23
Oregon	61	55	3	3	95%	34	1
Pennsylvania	178	87	89	2	49%	52	33
Rhode Island	9	5	4	0	56%	3	1
South Carolina	184	55	129	0	30%	33	48
South Dakota	31	9	22	0	29%	5	8
Tennessee	123	109	12	2	90%	65	5
Texas	443	201	231	11	47%	122	88
Utah	36	15	18	3	45%	10	7
Vermont	11	11	0	0	100%	7	0
Virginia	79	75	3	1	96%	45	1
Washington	77	72	4	1	95%	43	1
West Virginia	32	25	7	0	78%	15	3
Wisconsin	81	15	65	1	19%	9	25
Wyoming	24	7	17	0	29%	4	6
National	**4,976**	**2,922**	**1,938**	**116**	**60%**	**1,772**	**740**

Source: FARS 2015 Annual Report File (ARF).
Shaded States are those with laws requiring helmet use for all motorcyclists, at the time of publication.

Table 3: Economic and Comprehensive Costs Saved by Helmet Use, and Costs Savable by 100-Percent Helmet Use, by State, 2015

State	*Economic Costs Saved	*Additional Economic Costs Savable at 100% Use	**Comprehensive Costs Saved	**Additional Comprehensive Costs Savable at 100% Use
Alabama	$51,728,874	$5,348,042	$317,988,809	$32,549,687
Alaska	$7,788,406	$3,378,807	$47,649,265	$20,449,114
Arizona	$53,833,889	$47,334,525	$329,825,984	$287,060,230
Arkansas	$26,050,881	$28,064,696	$160,130,562	$170,871,256
California	$501,416,739	$16,638,567	$3,073,614,879	$101,018,409
Colorado	$43,825,384	$48,496,322	$270,244,138	$296,182,907
Connecticut	$29,660,566	$29,901,946	$183,262,566	$183,211,001
Delaware	$13,572,694	$4,068,227	$83,433,026	$24,753,037
District of Columbia	$3,534,474	$1,143,011	$21,935,284	$7,029,797
Florida	$333,898,677	$193,947,455	$2,055,638,048	$1,182,748,462
Georgia	$132,829,860	$6,214,122	$816,552,615	$37,788,784
Hawaii	$11,152,154	$11,807,621	$67,779,060	$71,147,958
Idaho	$8,827,642	$11,790,995	$54,176,777	$71,536,724
Illinois	$45,159,386	$77,075,187	$278,699,065	$471,506,153
Indiana	$17,339,738	$53,465,461	$106,518,911	$325,583,099
Iowa	$9,163,963	$20,585,647	$56,436,065	$125,675,085
Kansas	$15,993,480	$19,152,123	$98,770,970	$117,130,430
Kentucky	$26,222,109	$34,818,817	$161,052,809	$211,848,474
Louisiana	$78,975,964	$7,980,039	$486,438,198	$48,703,490
Maine	$8,103,900	$15,625,908	$49,662,258	$94,716,700
Maryland	$87,271,506	$4,889,370	$538,300,363	$29,848,365
Massachusetts	$51,805,184	$5,979,603	$320,042,774	$36,565,719
Michigan	$75,059,617	$36,871,436	$461,807,658	$224,553,305
Minnesota	$22,196,838	$30,073,843	$136,973,146	$183,814,731
Mississippi	$24,152,056	$4,310,918	$147,994,703	$26,125,172
Missouri	$87,062,692	$4,594,015	$536,050,871	$28,037,543
Montana	$4,907,517	$11,538,159	$30,088,302	$70,159,531
Nebraska	$20,770,501	$2,992,763	$128,157,737	$18,286,163
Nevada	$42,535,456	$7,384,957	$261,177,878	$44,851,864
New Hampshire	$11,654,824	$12,043,571	$71,757,903	$73,450,654
New Jersey	$56,322,125	$5,926,822	$347,171,720	$36,163,259
New Mexico	$17,642,135	$10,830,313	$108,154,985	$65,707,139
New York	$190,064,712	$11,966,647	$1,166,451,774	$72,665,674
North Carolina	$167,806,162	$8,633,752	$1,030,158,744	$52,432,153
North Dakota	$5,406,021	$2,041,512	$33,375,865	$12,453,776
Ohio	$53,033,052	$69,702,736	$326,374,509	$424,654,378
Oklahoma	$24,915,238	$38,813,841	$153,351,616	$236,811,088
Oregon	$57,591,837	$2,052,066	$352,612,942	$12,482,686
Pennsylvania	$94,244,254	$62,357,826	$580,515,769	$380,315,668
Rhode Island	$5,764,646	$2,908,924	$35,441,685	$17,660,064
South Carolina	$49,148,023	$74,369,032	$301,261,885	$451,011,033
South Dakota	$9,259,413	$14,606,082	$57,022,497	$89,103,807
Tennessee	$102,274,639	$7,358,216	$629,249,765	$44,902,650
Texas	$210,754,034	$156,900,245	$1,300,225,336	$958,930,842
Utah	$14,141,777	$11,025,648	$86,683,138	$66,920,490
Vermont	$12,005,401	$0	$73,732,338	$0
Virginia	$87,737,490	$2,253,432	$542,342,115	$13,786,768
Washington	$82,768,434	$2,978,618	$509,615,233	$18,153,484
West Virginia	$21,977,231	$3,929,822	$134,870,576	$23,830,900
Wisconsin	$15,263,643	$43,123,993	$93,848,622	$262,676,975
Wyoming	$8,674,498	$13,475,495	$53,740,807	$82,710,172
National	**$3,163,996,030**	**$1,360,407,608**	**$19,496,058,104**	**$8,303,850,132**

*Economic costs include lost productivity, medical costs, legal and court costs, emergency service costs (EMS), insurance administration costs, congestion costs, property damage, and workplace losses.
**Comprehensive costs include economic costs, plus valuation for lost quality of life.
Cost data from from Blincoe, Miller, Zaloshnja, & Lawrence.
Sources: FARS 2015 Annual Report File (ARF); Bureau of Labor Statistics; Blincoe et al., 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, May). *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, October). *Estimating lives and costs saved by motorcycle helmets with updated economic cost information* (Traffic Safety Facts Research Note. 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, March). *Determining estimates of lives and costs saved by motorcycle helmets* (Traffic Safety Facts Research Note. Report No. DOT HS 811 433). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/811433.pdf.

Suggested APA format citation for this document:

National Center for Statistics and Analysis. (2017, June). *Lives and costs saved by motorcycle helmets, 2015* (Report No. DOT HS 812 388). Washington, DC: National Highway Traffic Safety Administration.

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