



## IN 2017:

- 3,131 collisions involving motorcycles occurred in Indiana, a 3 percent decrease from 2016.
- Fatal motorcycle collisions increased 43 percent, from 101 in 2016 to 144.
- 147 motorcycle riders and one non-motorist died in collisions involving motorcycles (47 percent increase from 2016).
- Motorcyclists aged 55 to 64 years experienced the highest fatality rates (per 100 involved) among collision-involved motorcyclists.
- Unhelmeted motorcyclists in collisions had higher fatality (5.5 percent) and injury rates (70.4 percent) than helmeted riders (3.5 percent and 66.3 percent, respectively).
- Highest helmet use in collisions was among riders over 64 years old (59.6 percent) and under 21 years (56.2 percent). Lowest rate was from riders 45 to 54 years old (26.4 percent).

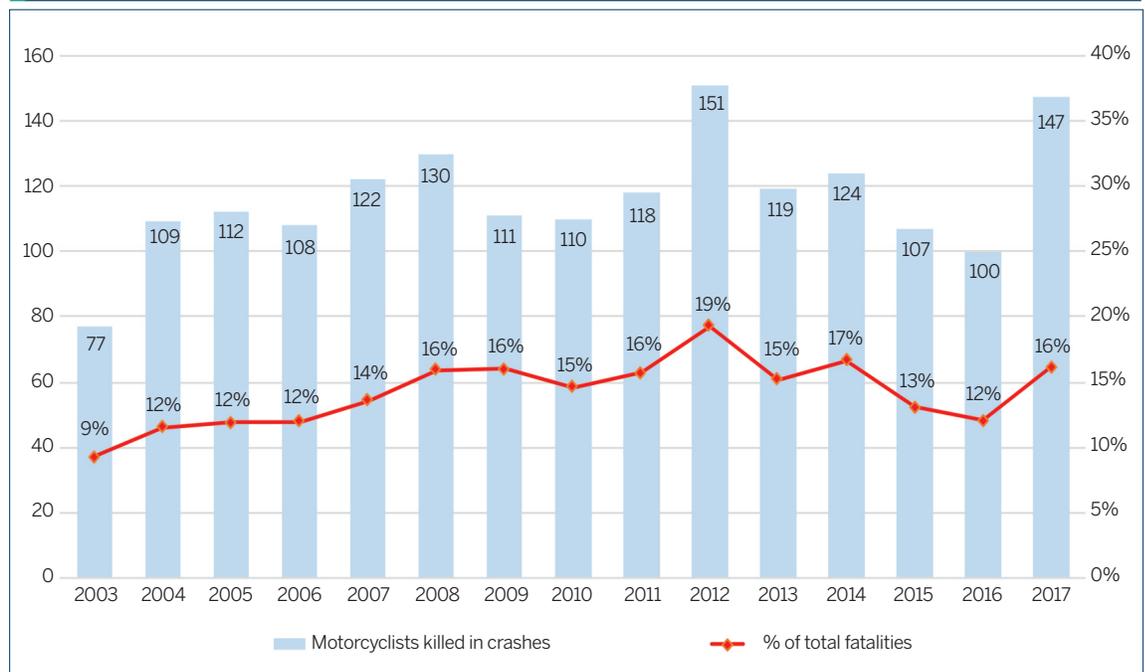
Based on data from the Indiana State Police Automated Reporting and Information Exchange System (ARIES) as of April 6, 2018, this fact sheet summarizes motorcycle collisions, demographic characteristics of persons involved, helmet use, rates of alcohol and drug testing and impairment, primary factors in motorcycle collisions, and motorcycle licensing within the state during calendar year 2017. Motorcycles include *motorcycles, class A and class B motor-driven cycles, and motorized bicycles.*

## MOTORCYCLISTS KILLED

In 2017, 147 motorcyclists and one non-motorist were killed in Indiana traffic collisions involving at least one

motorcycle, a 47 percent increase from 2016. This is the largest single year increase in the last fifteen years; previously, the highest was a 28 percent jump from 2011 to 2012. However, the number of motorcyclists killed in Indiana motor vehicle collisions has fluctuated the past 15 years, from a low of 77 in 2003 to a high of 151 in 2012 (Figure 1). Since 2012, the number of motorcyclists killed had generally declined, setting the stage for the big jump in 2017. Over the past fifteen years, motorcycle collisions have been a small fraction of all collisions (typically less than 2 percent), but produce disproportionate shares of Indiana traffic fatalities overall (16 percent in 2017).

Figure 1. Indiana motorcyclist fatalities as a percent of total traffic fatalities, 2003-2017



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of April 6, 2018

In partnership with:



# COLLISIONS INVOLVING MOTORCYCLES

From 2016 to 2017, while the number of fatal collisions *not* involving a motorcycle increased about 2 percent (from 675 to 690), fatal motorcycle collisions increased by 43 percent, from 101 to 144 (calculated from Tables 1 and 2). Fatal single-vehicle collisions experienced a 50 percent increase (from 34 to 51), while fatal multi-vehicle collisions went up 39 percent, from 67 to 93. Motorcycles are more likely to be part of single-vehicle crashes than are other types of vehicles. Single-vehicle motorcycle crashes have higher non-fatal injury rates than multi-vehicle collisions (calculated from Table 2). Motorcycle collisions generally had been declining about 3 percent annually from 2013 to 2017, and motorcyclist injuries had also dropped about 5 percent annually. The 2017 increase occurred only in fatal collisions. Multi-vehicle motorcycle crashes were especially lethal in 2017 (5 percent fatality rate).

In comparison to the increase in fatal collisions, motorcycle registrations dropped 12 percent in 2017. The 3 percent decrease in collisions, accompanied by the steep increase in fatalities, created a disproportionate impact on fatalities per 100,000 registered motorcycles. From 2013 to 2017, fatalities per 100,000 motorcycle registrations increased 6 percent annually, from 54 to 67, although from 2014 to 2016, that rate had dropped steeply (56 to 40). Injuries per 100,000 registrations had also been decreasing about 5 percent annually, but increased 12 percent, from 926 to 1,035 in 2017. From 2016 to 2017, fatalities per 100,000 motorcycle registrations increased 68 percent, from 40 to 67.

**Table 1. Motorcycle registrations and motorcyclist fatalities and injuries in Indiana collisions, 2013-2017**

	2013	2014	2015	2016	2017	Annual rate of change	
						2016-17	2013-17
<b>Motorcycle registrations</b>	<b>221,715</b>	<b>221,606</b>	<b>253,921</b>	<b>251,032</b>	<b>220,340</b>	<b>-12.2%</b>	<b>-0.2%</b>
Collisions	3,525	3,412	3,268	3,219	3,131	-2.7%	-2.9%
Fatal collisions	114	122	104	101	144	42.6%	6.0%
Fatalities	119	124	107	100	147	47.0%	5.4%
Injuries	2,757	2,676	2,414	2,324	2,280	-1.9%	-4.6%
<b>Per 100,000 motorcycle registrations</b>							
Collisions	1,589.9	1,539.7	1,287.0	1,282.3	1,421.0	10.8%	-2.8%
Fatal collisions	51.4	55.1	41.0	40.2	65.4	62.4%	6.2%
Fatalities	53.7	56.0	42.1	39.8	66.7	67.5%	5.6%
Injuries	1,243.5	1,207.5	950.7	925.8	1,034.8	11.8%	-4.5%

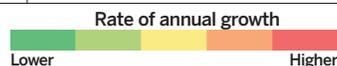
Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018; Indiana Bureau of Motor Vehicles, as of April 23, 2018

Notes:

- 1) *Injuries* include individuals with at least one *incapacitating, non-incapacitating, or other injury*.
- 2) *Motorcycles* include *motorcycles, class A and class B motor-driven cycles, and motorized bicycles*.

**Table 2. Indiana collisions with and without motorcycles by collision severity and vehicles involved, 2013-2017**

	2013	2014	2015	2016	2017	Annual rate of change	
						2016-17	2013-17
<b>Collision type/severity</b>							
<b>All collisions</b>	<b>193,236</b>	<b>205,769</b>	<b>216,492</b>	<b>223,905</b>	<b>219,112</b>	<b>-2.1%</b>	<b>3.2%</b>
<b>Non-motorcycle</b>	<b>189,711</b>	<b>202,357</b>	<b>213,224</b>	<b>220,686</b>	<b>215,981</b>	<b>-2.1%</b>	<b>3.3%</b>
<b>Single-vehicle</b>	<b>58,534</b>	<b>60,845</b>	<b>62,275</b>	<b>61,732</b>	<b>60,196</b>	<b>-2.5%</b>	<b>0.7%</b>
Fatal	327	305	364	362	371	2.5%	3.2%
Injury	10,141	10,221	10,148	10,172	9,493	-6.7%	-1.6%
Property damage	48,066	50,319	51,763	51,198	50,332	-1.7%	1.2%
<b>Multi-vehicle</b>	<b>131,177</b>	<b>141,512</b>	<b>150,949</b>	<b>158,954</b>	<b>155,785</b>	<b>-2.0%</b>	<b>4.4%</b>
Fatal	269	277	283	313	319	1.9%	4.4%
Injury	20,267	21,281	22,189	23,104	22,728	-1.6%	2.9%
Property damage	110,641	119,954	128,477	135,537	132,738	-2.1%	4.7%
<b>Motorcycle</b>	<b>3,525</b>	<b>3,412</b>	<b>3,268</b>	<b>3,219</b>	<b>3,131</b>	<b>-2.7%</b>	<b>-2.9%</b>
<b>Single-vehicle</b>	<b>1,494</b>	<b>1,465</b>	<b>1,345</b>	<b>1,391</b>	<b>1,338</b>	<b>-3.8%</b>	<b>-2.7%</b>
Fatal	52	48	43	34	51	50.0%	-0.5%
Injury	1,179	1,166	1,026	1,061	1,029	-3.0%	-3.3%
Property damage	263	251	276	296	258	-12.8%	-0.5%
<b>Multi-vehicle</b>	<b>2,031</b>	<b>1,947</b>	<b>1,923</b>	<b>1,828</b>	<b>1,793</b>	<b>-1.9%</b>	<b>-3.1%</b>
Fatal	62	74	61	67	93	38.8%	10.7%
Injury	1,265	1,192	1,105	999	969	-3.0%	-6.4%
Property damage	704	681	757	762	731	-4.1%	0.9%
<b>Motorcycle involved</b>							
Percent of all collisions:	1.8%	1.7%	1.5%	1.4%	1.4%		
Percent of all fatal collisions	16.1%	17.3%	13.8%	13.0%	17.3%		
<b>Fatal collision rates</b>							
No motorcycle involved	0.3%	0.3%	0.3%	0.3%	0.3%		
Motorcycle involved	3.2%	3.6%	3.2%	3.1%	4.6%		
Single-vehicle	3.5%	3.3%	3.2%	2.4%	3.8%		
Multi-vehicle	3.1%	3.8%	3.2%	3.7%	5.2%		
<b>Percent single-vehicle:</b>							
No motorcycle involved	30.9%	30.1%	29.2%	28.0%	27.9%		
Motorcycle involved	42.4%	42.9%	41.2%	43.2%	42.7%		



Source: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

Notes:

- 1) *Multi-vehicle* collisions include *other motor vehicles and non-motorists*.
- 2) *Injury* collisions include those with *incapacitating and non-incapacitating* injuries.

## PERSONS INVOLVED, FATALITIES, AND INJURIES IN MOTORCYCLE COLLISIONS

Although the counts of motorcycle operators and passengers involved in traffic collisions have declined 3 percent annually from 2013 to 2017 (Table 3), the number of fatalities has grown annually more than 5 percent (see Table 1). In 2017, there were 147 motorcyclist fatalities (and 1 non-motorist killed in a motorcycle collision, not shown in Table 3). By far, most fatalities were motorcycle operators, although the numbers of passengers killed or injured also increased in 2017. There were 2,280 motorcyclists with non-fatal injuries, a two percent decline from 2016 (see Table 1). Passengers injured increased 21 percent in 2017. Operators experienced higher fatality rates than passengers in 2017.

147 motorcyclists were killed in Indiana crashes in 2017.

**Table 3. Motorcyclists involved in Indiana collisions by person type and injury status, 2013-2017**

	2013	2014	2015	2016	2017	Annual rate of change	
						2016-17	2013-17
<b>All motorcyclists</b>	<b>3,796</b>	<b>3,690</b>	<b>3,496</b>	<b>3,406</b>	<b>3,390</b>	<b>-0.5%</b>	<b>-2.8%</b>
<b>Operators</b>	<b>3,438</b>	<b>3,309</b>	<b>3,162</b>	<b>3,114</b>	<b>3,047</b>	<b>-2.2%</b>	<b>-3.0%</b>
Fatal	105	110	98	89	134	50.6%	6.3%
Injured	2,423	2,320	2,115	2,061	1,961	-4.9%	-5.2%
Not injured	910	879	949	964	952	-1.2%	1.1%
<b>Passengers</b>	<b>358</b>	<b>381</b>	<b>334</b>	<b>292</b>	<b>343</b>	<b>17.5%</b>	<b>-1.1%</b>
Fatal	14	14	9	11	13	18.2%	-1.8%
Injured	334	356	299	263	319	21.3%	-1.1%
Not injured	10	11	26	18	11	-38.9%	2.4%
<b>Fatality rate</b>							
Operators	3.1%	3.3%	3.1%	2.9%	4.4%		
Passengers	3.9%	3.7%	2.7%	3.8%	3.8%		

Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

- 1) *Motorcyclists* include operators and passengers on *motorcycles*, *class A* and *class B motor-driven cycles*, and *motorized bicycles*.
- 2) *Injured* include individuals with at least one *incapacitating*, *non-incapacitating*, or *other* injury.
- 3) *Not injured* includes ALL individuals involved in collisions reported as NULL values in the injury status code field. Reporting officers are instructed to include all drivers in ARIES, but to include passengers in the crash report only if an injury occurs; therefore, not injured counts of passengers should be interpreted with caution.

## GENDER AND AGE

Far more males than females are involved as riders in Indiana motorcycle collisions, and males account for most motorcycle fatalities (Table 4). The number of male motorcycle *riders* killed in crashes increased nearly 52 percent in 2017, driven largely by a 51 percent increase in the number of male *operators* killed. The number of collision-involved female operators decreased 2 percent from 2016 to 2017, while the number of female operators killed increased slightly in 2017 (from 3 to 4). Female passengers killed increased 10 percent (10 to 11).

Table 4. Injury status of motorcyclists in Indiana collisions by gender and person type, 2013-2017

Person type, gender, and injury status	2013	2014	2015	2016	2017	Annual rate of change	
						2016-17	2013-17
<b>All riders</b>	<b>3,795</b>	<b>3,686</b>	<b>3,493</b>	<b>3,399</b>	<b>3,382</b>	<b>-0.5%</b>	<b>-2.8%</b>
Fatal	119	124	107	100	147	47.0%	5.4%
Injured	2,757	2,675	2,412	2,324	2,280	-1.9%	-4.6%
Not injured	919	887	974	975	955	-2.1%	1.0%
<b>Male</b>	<b>3,227</b>	<b>3,089</b>	<b>2,997</b>	<b>2,950</b>	<b>2,902</b>	<b>-1.6%</b>	<b>-2.6%</b>
Fatal	102	109	97	87	132	51.7%	6.7%
Injured	2,252	2,145	1,998	1,963	1,890	-3.7%	-4.3%
Not injured	873	835	902	900	880	-2.2%	0.2%
<b>Female</b>	<b>568</b>	<b>597</b>	<b>496</b>	<b>449</b>	<b>480</b>	<b>6.9%</b>	<b>-4.1%</b>
Fatal	17	15	10	13	15	15.4%	-3.1%
Injured	505	530	414	361	390	8.0%	-6.3%
Not injured	46	52	72	75	75	0.0%	13.0%
<b>Operators only</b>	<b>3,437</b>	<b>3,305</b>	<b>3,159</b>	<b>3,107</b>	<b>3,039</b>	<b>-2.2%</b>	<b>-3.0%</b>
<b>Male</b>	<b>3,154</b>	<b>3,007</b>	<b>2,909</b>	<b>2,883</b>	<b>2,819</b>	<b>-2.2%</b>	<b>-2.8%</b>
Fatal	101	108	97	86	130	51.2%	6.5%
Injured	2,188	2,070	1,926	1,907	1,817	-4.7%	-4.5%
Not injured	865	829	886	890	872	-2.0%	0.2%
<b>Female</b>	<b>283</b>	<b>298</b>	<b>250</b>	<b>224</b>	<b>220</b>	<b>-1.8%</b>	<b>-6.1%</b>
Fatal	4	2	1	3	4	33.3%	--
Injured	235	249	187	154	144	-6.5%	-11.5%
Not injured	44	47	62	67	72	7.5%	13.1%
<b>Passengers only</b>	<b>358</b>	<b>381</b>	<b>334</b>	<b>292</b>	<b>343</b>	<b>17.5%</b>	<b>-1.1%</b>
<b>Male</b>	<b>73</b>	<b>82</b>	<b>88</b>	<b>67</b>	<b>83</b>	<b>23.9%</b>	<b>3.3%</b>
Fatal	1	1	0	1	2	100.0%	18.9%
Injured	64	75	72	56	73	30.4%	3.3%
Not injured	8	6	16	10	8	-20.0%	0.0%
<b>Female</b>	<b>285</b>	<b>299</b>	<b>246</b>	<b>225</b>	<b>260</b>	<b>15.6%</b>	<b>-2.3%</b>
Fatal	13	13	9	10	11	10.0%	-4.1%
Injured	270	281	227	207	246	18.8%	-2.3%
Not injured	2	5	10	8	3	-62.5%	10.7%

Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

- 1) Excludes cases where *gender* or *injury status* are unknown.
- 2) *Injured* include individuals with at least one *incapacitating, non-incapacitating, or other injury*.
- 3) *Not injured* includes ALL individuals involved in collisions reported as NULL values in the injury status code field. Reporting officers are instructed to include all drivers in ARIES, but to include passengers in the crash report only if an injury occurs; therefore, not injured counts of passengers should be interpreted with caution. --

From 2013 to 2017, the highest numbers of motorcyclists killed were typically within three age groupings: 25-34, 35-44, and 45-54 years old. This varied somewhat in 2017, when the largest number killed was in the 55 to 64 year age category (Figure 2). From 2016 to 2017, five of the seven age groups experienced an increase in fatalities—those under 21 years, 25-34, 35-44, 45-54, and 55-64 years. The only declines in fatalities were for those aged 21-24 and older than 64 years, and both age groups had higher than average collision-involved helmet use—see Figure 4. As noted, the

largest 2016-17 jump in fatalities was for riders aged 55 to 64 years (from 21 to 37 killed, a 76 percent increase). The pattern of fatality rates per 100 motorcyclists involved in collisions differs among age groups. The likelihood of being killed in collisions rises slightly as age increases. During the past five years, motorcyclists under the age of 21 years had the lowest fatality rates, while collision-involved motorcyclists 65 years and older generally had higher rates than other age groups.

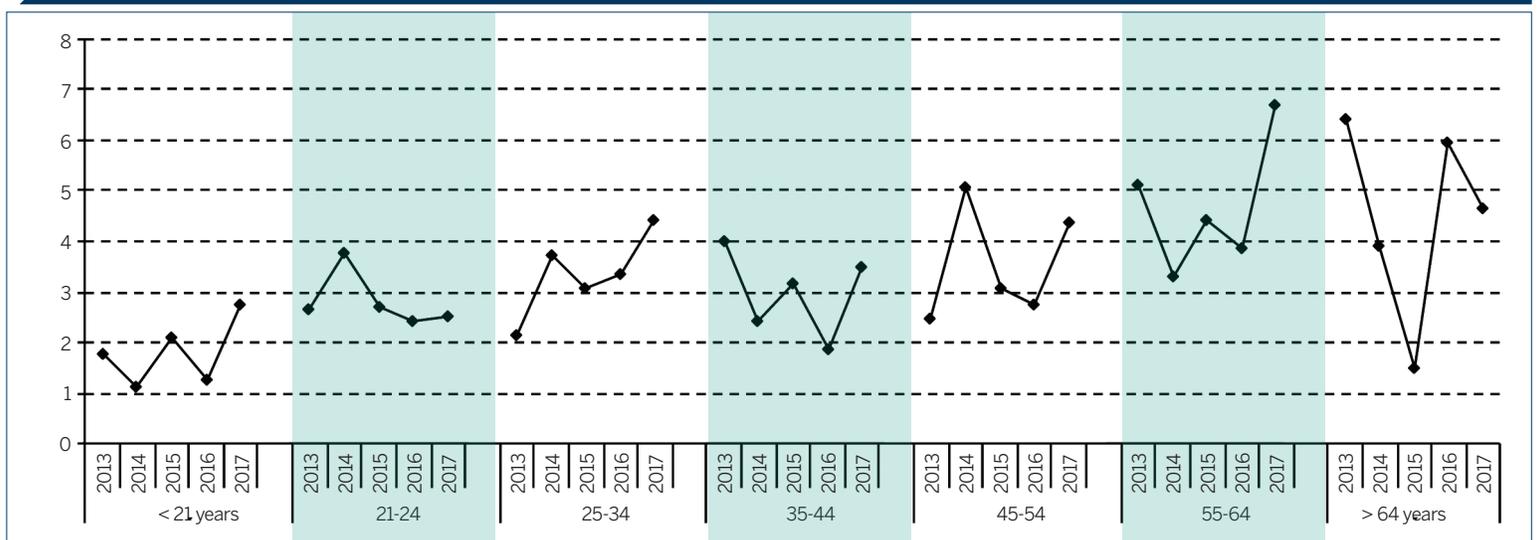
**Figure 2. Count of motorcyclists killed in Indiana collisions by age group, 2013-2017**



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of April 6, 2018

Note: Excludes unknown age group.

**Figure 3. Fatality rate per 100 motorcyclists involved in Indiana collisions by age group, 2013-2017**



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of April 6, 2018

Note: Excludes unknown age group.

## HELMET USE

Thirty-nine percent of Indiana *collision-involved* motorcyclists in 2017 were wearing helmets (Table 5). Excluding *unknown helmet use* from 2013 to 2017, the usage rate among collision-involved motorcycle riders ranged from about 29 percent to 39 percent in 2017 (Table 5). A significant part of the 2017 fatality increase was from the death of helmeted riders (from 23 to 40, a 74 percent increase), but unhelmeted riders still comprised more than two-thirds of riders killed, and increased by nearly half in 2017, from 66 to 98. Fatality and non-fatal injury rates for unhelmeted riders exceeded those of helmeted riders every year from 2013 to 2017. Further, helmet use in Indiana motorcycle collisions varies by age (Figure 4). The highest rate of helmet use among collision-involved motorcyclists in 2017 was for riders 65 years and older (60 percent), followed by those under 21 years of age (56 percent). In 2017 collisions, riders from 45 to 54 years of age exhibited lowest helmet use (26 percent).

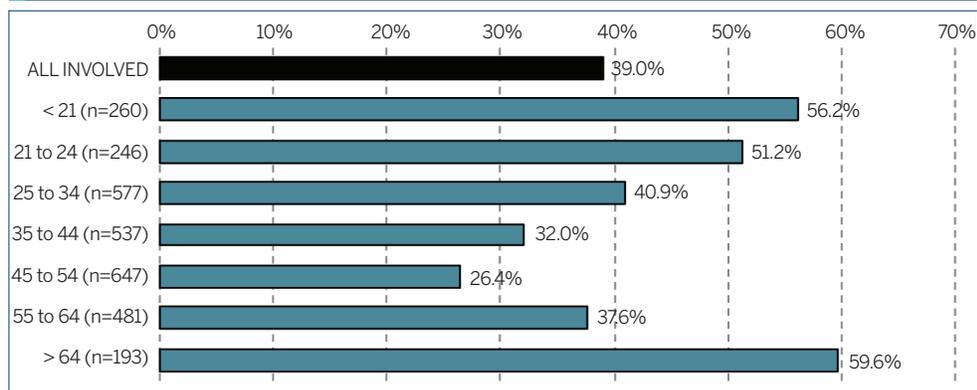
**Table 5. Helmet use by motorcyclists in Indiana collisions by individual injury status, 2013-2017**

Helmet use/injury status	2013	2014	2015	2016	2017	Annual rate of change	
						2015-16	2012-16
<b>All motorcyclists</b>	<b>3,796</b>	<b>3,690</b>	<b>3,496</b>	<b>3,406</b>	<b>3,390</b>	<b>-0.5%</b>	<b>-2.8%</b>
No helmet	2,505	2,358	1,858	1,820	1,794	-1.4%	-8.0%
Helmet	1,019	1,031	1,147	1,103	1,147	4.0%	3.0%
Not reported	272	301	491	483	449	-7.0%	13.3%
<b>Percent helmet use (known)</b>	<b>28.9%</b>	<b>30.4%</b>	<b>38.2%</b>	<b>37.7%</b>	<b>39.0%</b>	<b>3.4%</b>	<b>7.8%</b>
<b>Motorcyclists killed</b>	<b>119</b>	<b>124</b>	<b>107</b>	<b>100</b>	<b>147</b>	<b>47.0%</b>	<b>5.4%</b>
No helmet	84	87	78	66	98	48.5%	3.9%
Helmet	19	28	17	23	40	73.9%	20.5%
Not reported	16	9	12	11	9	-18.2%	-13.4%
<b>Percent helmet use (known)</b>	<b>18.4%</b>	<b>24.3%</b>	<b>17.9%</b>	<b>25.8%</b>	<b>29.0%</b>	<b>12.2%</b>	<b>12.0%</b>
<b>Motorcyclists injured</b>	<b>2,757</b>	<b>2,676</b>	<b>2,414</b>	<b>2,324</b>	<b>2,280</b>	<b>-1.9%</b>	<b>-4.6%</b>
No helmet	1,875	1,786	1,339	1,313	1,263	-3.8%	-9.4%
Helmet	718	691	772	713	761	6.7%	1.5%
Not reported	164	199	303	298	256	-14.1%	11.8%
<b>Percent helmet use (known)</b>	<b>27.7%</b>	<b>27.9%</b>	<b>36.6%</b>	<b>35.2%</b>	<b>37.6%</b>	<b>6.8%</b>	<b>7.9%</b>
<b>Percent fatal</b>							
No helmet	3.4%	3.7%	4.2%	3.6%	5.5%		
Helmet	1.9%	2.7%	1.5%	2.1%	3.5%		
Unknown helmet use	5.9%	3.0%	2.4%	2.3%	2.0%		
<b>Percent injured</b>							
No helmet	74.9%	75.7%	72.1%	72.1%	70.4%		
Helmet	70.5%	67.0%	67.3%	64.6%	66.3%		
Unknown helmet use	60.3%	66.1%	61.7%	61.7%	57.0%		

Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

Note: *Injured* includes *incapacitating, non-incapacitating, and other injury* categories.

**Figure 4. Percent helmet use reported for motorcyclists involved in Indiana collisions by age of rider, 2017**



Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

Note: Excludes unknown helmet use or unknown age.

# ALCOHOL AND DRUG TEST RESULTS

As reported in ARIES, the percent of operators involved in fatal motorcycle collisions who were tested for alcohol and/or drugs has dropped from 54 percent in 2013 to 45 percent in 2017, although the testing rate improved from 2016, when it was 36 percent (Table 6). The drop in reported drug test results from 2013 to 2017 is similar (45 percent to 22 percent). Reported BAC results declined from 47 percent in 2013 to 21 percent in 2017. Out of all 145 involved operators in 2017, 113 have no drug test results and 115 have no BAC results. For these reasons, Table 6 should be examined with caution. To partly counter incomplete reporting, test results can also be interpreted within the counts of only reported cases.

In 2017, there were 16 motorcycle operators with a reported BAC of 0.08 or higher killed in collisions. This was 11 percent of all 145 operators in fatal collisions, but 53 percent of those with reported results. Considering just reported test findings, the alcohol impairment rate (0.08 BAC or more) has climbed since 2013, from 26 percent to 53 percent in 2017. The average alcohol impairment rate from 2013 to 2017 for operators was 36 percent (calculated from Table 6). Drug test patterns are similar. Among operators with reported drug test results, percent positive dropped from 22 to 10 percent—but for only the reported tests, the average drug positive rate the past five years was 40 percent. In any event, the number of alcohol-impaired operators involved in fatal collisions from 2016 to 2017 more than doubled (from 7 to 16 operators). The number of drug positive operators in fatal motorcycle collisions also more than doubled, from 6 to 14.

**Table 6. Drug and alcohol testing of Indiana motorcycle operators involved in fatal collisions, 2013-2017**

						Annual rate of change	
<b>Total operators involved</b>	<b>116</b>	<b>124</b>	<b>105</b>	<b>107</b>	<b>145</b>	<b>35.5%</b>	<b>5.7%</b>
<b>Tests given</b>							
Alcohol and/or drug tested	63	71	49	39	65	66.7%	0.8%
Not tested or not reported	53	53	56	68	80	17.6%	10.8%
<i>Percent tested</i>	<i>54.3%</i>	<i>57.3%</i>	<i>46.7%</i>	<i>36.4%</i>	<i>44.8%</i>		
<b>Drug test results</b>							
Positive	25	17	16	6	14	133.3%	-13.5%
Negative	26	26	12	15	13	-13.3%	-15.9%
Pending	1	6	3	4	5	25.0%	49.5%
Not reported	64	75	74	82	113	37.8%	15.3%
<i>Percent reported</i>	<i>44.8%</i>	<i>39.5%</i>	<i>29.5%</i>	<i>23.4%</i>	<i>22.1%</i>	<i>-5.5%</i>	<i>-16.2%</i>
<i>Percent positive drug test (all involved in crashes)</i>	<i>21.6%</i>	<i>13.7%</i>	<i>15.2%</i>	<i>5.6%</i>	<i>9.7%</i>	<i>72.2%</i>	<i>-18.2%</i>
<i>Percent positive drug test (among reported results only)</i>	<i>48.1%</i>	<i>34.7%</i>	<i>51.6%</i>	<i>24.0%</i>	<i>43.8%</i>	<i>82.3%</i>	<i>-2.3%</i>
<b>BAC test results (g/dL)</b>							
0	34	27	16	14	12	-14.3%	-22.9%
0.01 < 0.08	7	3	2	3	2	-33.3%	-26.9%
0.08 < 0.15	2	4	4	3	7	133.3%	36.8%
0.15 < 0.60	12	11	7	4	9	125.0%	-6.9%
Not reported	61	79	76	83	115	38.6%	17.2%
<i>Percent reported</i>	<i>47.4%</i>	<i>36.3%</i>	<i>27.6%</i>	<i>22.4%</i>	<i>20.7%</i>	<i>-7.8%</i>	<i>-18.7%</i>
<i>Percent 0.08 or higher (all involved in crashes)</i>	<i>12.1%</i>	<i>12.1%</i>	<i>10.5%</i>	<i>6.5%</i>	<i>11.0%</i>	<i>68.7%</i>	<i>-2.2%</i>
<i>Percent 0.08 or higher (among reported results only)</i>	<i>25.5%</i>	<i>33.3%</i>	<i>37.9%</i>	<i>29.2%</i>	<i>53.3%</i>	<i>82.9%</i>	<i>20.3%</i>

Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

Notes:

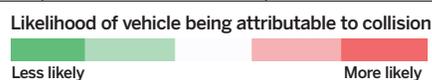
- 1) BAC and drug tests will not sum to tests given because some operators were tested for both.
- 2) Excludes BAC results greater than 0.59 g/dL.
- 3) g/dL = grams per deciliter.

## MOTORCYCLE COLLISIONS AND 'AT FAULT' DRIVERS OR OPERATORS

In multi-vehicle (MV) collisions involving motorcycles, there is a difference between the likelihood the motorcycle operator or the other vehicle operator was "at fault" (i.e., a vehicle's contributing *circumstance* matched the *primary factor* in the collision—referred to in Table 7 as being *attributable*). In 2017, Indiana MV collisions involving motorcycles most frequently involved some type of *unsafe* action by either or both the motorcyclist and the other vehicle driver. However, when an unsafe action was involved, the *other vehicle* was more likely than the motorcycle to be *attributable*. Considering all primary factors in motorcycle-involved MV collisions in 2017, other vehicles were more likely to be attributable (59 percent) than the *motorcycles* (38 percent). In contrast, certain collisions involving selected primary factors were more likely to be attributed to motorcyclists than to the other vehicle driver in 2017, including *unsafe speed*, *improper passing*, *loss of control*, and *vehicle-related* factors. The other vehicles in motorcycle collisions were attributable more often for *unsafe backing*, *failure to yield right of way*, and *improper turning*.

Table 7. Vehicles involved in Indiana multi-vehicle motorcycle collisions, by vehicle type, primary factor, and vehicle attributability to collision occurrence, 2017

Primary factor	Vehicles involved		Count of vehicles attributable		% attributable	
	Motorcycle	Other vehicles	Motorcycle	Other vehicles	Motorcycle	Other vehicles
<b>Unsafe actions</b>	<b>1,575</b>	<b>1,538</b>	<b>598</b>	<b>908</b>	<b>38.0%</b>	<b>59.0%</b>
Failure to yield right of way	661	667	112	536	16.9%	80.4%
Following too closely	343	302	188	124	54.8%	41.1%
Unsafe speed	88	95	74	12	84.1%	12.6%
Disregard signal/reg sign	85	87	46	38	54.1%	43.7%
Unsafe backing	88	83	8	75	9.1%	90.4%
Improper turning	68	70	26	41	38.2%	58.6%
Unsafe lane movement	65	69	28	31	43.1%	44.9%
Left of center	69	60	43	22	62.3%	36.7%
Improper lane usage	46	50	26	18	56.5%	36.0%
Improper passing	51	44	37	10	72.5%	22.7%
Speed too fast for weather conditions	6	6	6	0	100.0%	0.0%
Wrong way on one way	5	5	4	1	80.0%	20.0%
<b>Loss of control</b>	<b>40</b>	<b>34</b>	<b>27</b>	<b>4</b>	<b>67.5%</b>	<b>11.8%</b>
<b>Vehicle-related</b>	<b>35</b>	<b>35</b>	<b>23</b>	<b>11</b>	<b>65.7%</b>	<b>31.4%</b>
<b>Environmental</b>	<b>39</b>	<b>30</b>	<b>28</b>	<b>16</b>	<b>71.8%</b>	<b>53.3%</b>
<b>Distraction</b>	<b>34</b>	<b>30</b>	<b>17</b>	<b>13</b>	<b>50.0%</b>	<b>43.3%</b>
<b>Cognitive impairment</b>	<b>7</b>	<b>10</b>	<b>2</b>	<b>4</b>	<b>28.6%</b>	<b>40.0%</b>
<b>All other</b>	<b>135</b>	<b>135</b>	<b>72</b>	<b>67</b>	<b>53.3%</b>	<b>49.6%</b>
<b>Total</b>	<b>1,865</b>	<b>1,812</b>	<b>767</b>	<b>1,023</b>	<b>41.1%</b>	<b>56.5%</b>



Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

Notes:

- 1) A vehicle is *attributable* to the occurrence of a collision when the officer marks a *contributing circumstance* for that vehicle that also matches the collision *primary factor*. In multi-vehicle collisions, more than one vehicle can be classified as *attributable*.
- 2) Data exclude single-vehicle collisions involving motorcycles and collisions with unknown or unreported primary factor.
- 3) *Other vehicles* excludes *unknown unit type*, *pedestrians*, *bicycles*, and *animal-drawn vehicles*.
- 4) Due to reorganizations of primary factors and vehicle classifications, some numbers may not be comparable to previous publications.

# LICENSING AMONG COLLISION-INVOLVED MOTORCYCLISTS

In 2017, about 46 percent of motorcycle operators involved in traffic collisions were licensed with motorcycle endorsements; 42 percent were licensed without a motorcycle endorsement; and 12 percent were unlicensed or of unknown license status (Table 8). Similar percentages were in place for fatal motorcycle collision involvement (an even 45 percent split between operators with and without motorcycle endorsements). The large 2017 increase in fatal motorcycle collisions was driven by a 40 percent increase in involved operators with MC endorsements and a 62 percent increase in involved operators without MC endorsements. The number of unlicensed motorcycle operators involved in fatal collisions doubled (7 to 14).

**Table 8. Driver's license type reported by motorcycle operators involved in Indiana traffic collisions, 2013-2017**

All motorcycle collisions						Annual rate of change		% total involved
Type of driver's license reported	2013	2014	2015	2016	2017	2016-17	2013-17	2017
<b>All involved motorcycle (MC) operators</b>	<b>3,438</b>	<b>3,309</b>	<b>3,162</b>	<b>3,114</b>	<b>3,047</b>	<b>-2.2%</b>	<b>-3.0%</b>	<b>100.0%</b>
<b>Licensed, MC endorsement</b>	<b>1,565</b>	<b>1,416</b>	<b>1,546</b>	<b>1,523</b>	<b>1,395</b>	<b>-8.4%</b>	<b>-2.8%</b>	<b>45.8%</b>
Operators w/MC endorsement	1,117	994	1,081	1,035	984	-4.9%	-3.1%	32.3%
Chauffeur w/MC endorsement	181	163	182	211	164	-22.3%	-2.4%	5.4%
Motorcycle	118	132	131	139	132	-5.0%	2.8%	4.3%
Learner motorcycle	138	118	135	129	109	-15.5%	-5.7%	3.6%
Public passenger chauffeur w/MC endorsement	11	9	17	9	6	-33.3%	-14.1%	0.2%
<b>Licensed, no MC endorsement</b>	<b>1,296</b>	<b>1,323</b>	<b>1,297</b>	<b>1,245</b>	<b>1,274</b>	<b>2.3%</b>	<b>-0.4%</b>	<b>41.8%</b>
Operator	1,094	1,120	1,101	1,061	1,095	3.2%	0.0%	35.9%
Commercial driver	67	78	91	80	89	11.3%	7.4%	2.9%
Learners permit	94	88	68	61	59	-3.3%	-11.0%	1.9%
Chauffeur	33	28	31	32	27	-15.6%	-4.9%	0.9%
Public passenger chauffeur	4	3	5	5	0	-	-	0.0%
Drivers education learners permit	3	4	1	5	3	-40.0%	0.0%	0.1%
Probationary operator license	1	2	0	1	1	0.0%	0.0%	0.0%
<b>No license</b>	<b>523</b>	<b>507</b>	<b>286</b>	<b>312</b>	<b>340</b>	<b>9.0%</b>	<b>-10.2%</b>	<b>11.2%</b>
<b>Unknown license status</b>	<b>54</b>	<b>63</b>	<b>33</b>	<b>34</b>	<b>38</b>	<b>11.8%</b>	<b>-8.4%</b>	<b>1.2%</b>
Fatal motorcycle collisions								
<b>Motorcycle operators involved in fatal collisions</b>	<b>116</b>	<b>124</b>	<b>105</b>	<b>107</b>	<b>145</b>	<b>35.5%</b>	<b>5.7%</b>	<b>100.0%</b>
<b>Licensed, MC endorsement</b>	<b>56</b>	<b>61</b>	<b>46</b>	<b>58</b>	<b>65</b>	<b>12.1%</b>	<b>3.8%</b>	<b>44.8%</b>
Operators w/MC endorsement	40	50	28	37	52	40.5%	6.8%	35.9%
Chauffeur w/MC endorsement	7	4	7	10	5	-50.0%	-8.1%	3.4%
Learner motorcycle	1	2	8	7	4	-42.9%	41.4%	2.8%
Motorcycle	7	5	3	4	3	-25.0%	-19.1%	2.1%
Public passenger chauffeur w/MC endorsement	1	0	0	0	1	--	0.0%	0.7%
<b>Licensed, no MC endorsement</b>	<b>43</b>	<b>50</b>	<b>56</b>	<b>42</b>	<b>65</b>	<b>54.8%</b>	<b>10.9%</b>	<b>44.8%</b>
Operator	36	43	52	37	60	62.2%	13.6%	41.4%
Commercial driver	4	2	1	5	1	-80.0%	-29.3%	0.7%
Chauffeur	2	3	1	0	3	--	10.7%	2.1%
Learners permit	1	1	1	0	1	--	0.0%	0.7%
Public passenger chauffeur	0	1	1	0	0	100.0%	100.0%	0.0%
<b>No license</b>	<b>15</b>	<b>12</b>	<b>2</b>	<b>7</b>	<b>14</b>	<b>100.0%</b>	<b>-1.7%</b>	<b>9.7%</b>
<b>Unknown license status</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>--</b>	<b>-15.9%</b>	<b>0.7%</b>

Sources: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

## DEFINITIONS

**Alcohol-impaired** - A driver or operator is classified as *alcohol-impaired* when the driver has a blood alcohol content (BAC) test result at or above 0.08 g/dL. An *alcohol-impaired collision* involves at least one driver with 0.08 BAC or above.

**Annual rate of change (ARC)** - The rate that a beginning value must increase/decrease each period (e.g. month, quarter, year) in a time series to arrive at the ending value in the time series. ARC is a "smoothed" rate of change because it measures change in a variable as if the change occurred at a steady rate each period with compounding. For example, to measure change in a variable from 2013 to 2017, it is calculated as  $(\text{Value in 2017}/\text{Value in 2013})^{1/4} - 1$ .

**Motorcyclist** - includes the operators and passengers of *motorcycles, class A and class B motor-driven cycles, and motorized bicycles.*

## DATA SOURCES

Indiana State Police Automated Reporting Information Exchange System (ARIES), current as of April 6, 2018.

Indiana Bureau of Motor Vehicles, current as of April 23, 2018.

This publication was prepared on behalf of the Indiana Criminal Justice Institute (ICJI) by the Indiana University Public Policy Institute (PPI). Please direct any questions concerning data in this document to ICJI at 317-232-1233.

This publication is one of a series of publications that form the analytical foundation of traffic safety program planning and design in the state of Indiana. Funding for these publications is provided by ICJI and the National Highway Traffic Safety Administration.

An electronic copy of this document can be accessed via the PPI website (<http://trafficsafety.iupui.edu>), the ICJI website ([www.in.gov/cji/](http://www.in.gov/cji/)), or you may contact the PPI at 317-261-3000.

### **Traffic Safety Project**

Designing and implementing effective traffic safety policies requires data-driven analysis of traffic collisions. To help in the policy-making process, the Indiana University Public Policy Institute collaborates each year with the Indiana Criminal Justice Institute to analyze vehicle crash data from the Automated Reporting Information Exchange System (ARIES), maintained by the Indiana State Police. This marks the twelfth year of this partnership. Research findings are summarized in a series of publications on various aspects of traffic collisions, including alcohol-related crashes, commercial vehicles, dangerous driving, child passenger safety, motorcycles, occupant protection, and drivers. An additional publication provides detailed information for each county and municipality. These publications serve as the analytical foundation of traffic safety program planning and design in Indiana.

Indiana collision data are obtained from Indiana Crash Reports, as completed by law enforcement officers. Crash reports for all Indiana collisions are entered electronically through ARIES. Collision trends as reported in these publications incorporate the effects of changes to data elements on the Crash Report, agency-specific enforcement policy changes, re-engineered roadways, driver safety education programs, and other unspecified effects. A collision produces three levels of data: collision, unit (vehicles), and individual. For this reason, readers should pay particular attention to the wording of statements about the data to avoid misinterpretations. If you have questions regarding trends or unexpected results, please contact the Indiana Criminal Justice Institute, Traffic Safety Division for more information.

### **The Indiana Criminal Justice Institute**

Guided by a Board of Trustees representing all components of Indiana's criminal and juvenile justice systems, the Indiana Criminal Justice Institute serves as the state's planning agency for criminal justice, juvenile justice, traffic safety, and victim services. ICJI develops long-range strategies for the effective administration of Indiana's criminal and juvenile justice systems and administers federal and state funds to carry out these strategies.

### **Indiana University Public Policy Institute**

The IU Public Policy Institute delivers unbiased research and data-driven, objective, expert analysis to help public, private and nonprofit sectors make important decisions that directly impact quality of life in Indiana. Using the knowledge and expertise of our staff and faculty, we provide research and analysis that is free of political and ideological bias. A multidisciplinary institute within the Indiana University School of Public and Environmental Affairs (SPEA), our efforts also support the Indiana Advisory Commission on Intergovernmental Relations (IACIR).

### **The National Highway Traffic Safety Administration (NHTSA)**

NHTSA provides leadership to the motor vehicle and highway safety community through the development of innovative approaches to reducing motor vehicle crashes and injuries. The mission of NHTSA is to save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity.



INDIANA UNIVERSITY  
**PUBLIC POLICY INSTITUTE**

 SCHOOL OF  
**PUBLIC AND ENVIRONMENTAL AFFAIRS**  
Indiana University

**Author:** Samuel Nunn