



## IN 2016:

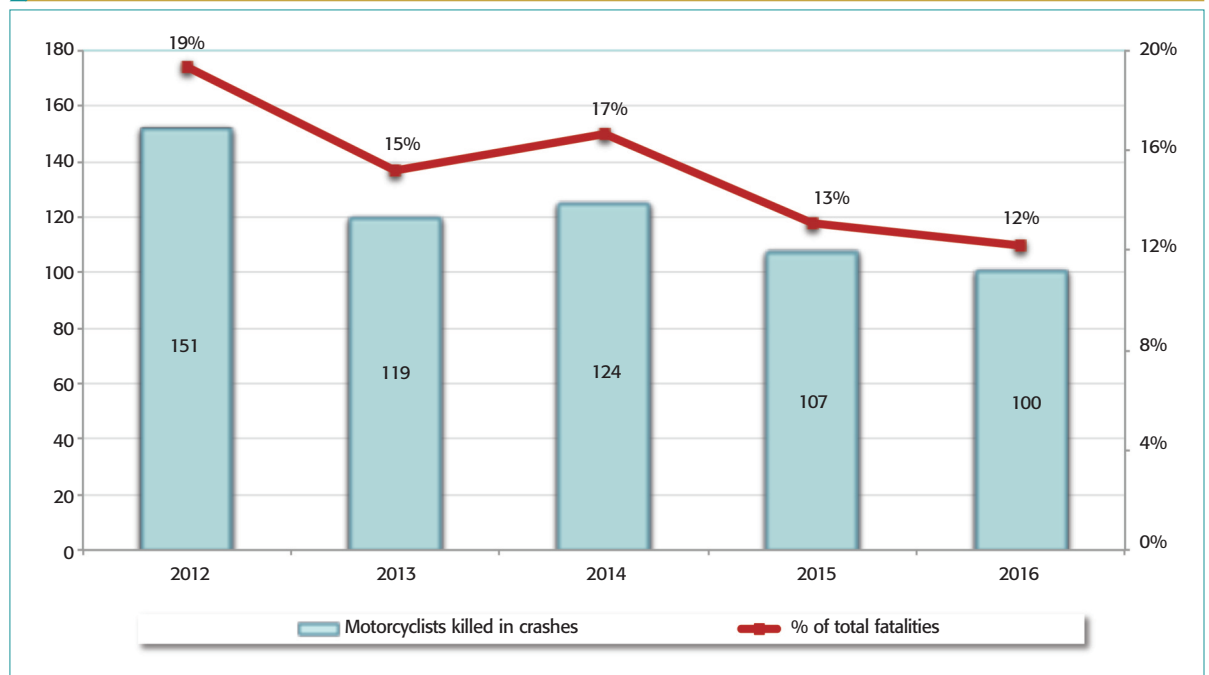
- 3,216 collisions involving motorcycles occurred in Indiana, a 1.7 percent decrease from 2015.
- The number of fatal motorcycle collisions decreased 2.9 percent, from 107 in 2015 to 101.
- A total of 100 motorcycle riders and one non-motorcyclist died in collisions (5.6 percent decrease from 2015), while 2,505 were injured (down 4.1 percent).
- Unhelmeted collision-involved motorcyclists had higher fatality (3.7 percent) and injury rates (72.1 percent) than helmeted riders (2.1 percent and 65.3 percent, respectively).
- The highest helmet use in collisions was among riders aged under 21 years (51.4 percent) and over 64 years (50.2 percent). The lowest rate was for riders 45 to 54 years old (25.3 percent).

# MOTORCYCLES 2016

In 2016, 100 motorcyclists were killed in Indiana collisions, representing 12 percent of all Indiana traffic fatalities (Figure 1). Based on data from the Indiana State Police Automated Reporting and Information Exchange System (ARIES) as of March 16, 2017, this fact sheet summarizes aspects of motorcycle collisions, demographic characteristics of persons involved, helmet use, and alcohol impairment in Indiana during calendar year 2016. From 2012 to 2016, fatalities per 100,000 motorcycle registrations decreased from 67 to 40. Injuries per 100,000 registrations dropped from 1,557 to 998. Motorcyclists aged 64 years and older generally experienced the highest fatality rates (per 100 involved) among collision-involved motorcyclists during the 2012-2016 period. Motorcycles include *motorcycles, class A* and *class B motor-driven cycles*, and *motorized bicycles*.

**Note: Data discrepancies may exist between the 2016 Indiana traffic safety reports and previous traffic safety publications due to updates to the Indiana State Police ARIES data that have occurred since the original publication dates.**

Figure 1. Indiana motorcyclist fatalities as a percent of total traffic fatalities, 2012-2016



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 16, 2017

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# COLLISIONS INVOLVING MOTORCYCLES

Motorcycle collisions have been declining six percent annually during the 2012 to 2016 period. From 2015 to 2016, fatalities per 100,000 motorcycle registrations decreased slightly from 41 to 40.2, while injuries per 100,000 registrations dropped from 1,029.1 to 997.9 (Table 1). From 2015 to 2016, the number of fatal motorcycle collisions decreased 2.9 percent (Table 2). Fatal single-vehicle collisions experienced a 20.9 percent decrease from 2015 to 2016, while fatal multi-vehicle collisions increased 9.8 percent, from 61 to 67. Single-vehicle motorcycle crashes have higher non-fatal injury rates than multi-vehicle collisions (in part because non-motorcyclists in vehicles are less likely to be injured in such collisions). Single-vehicle fatal and injury collisions involving motorcyclists declined during the 2012-2016 period.

**Table 1. Fatalities and injuries in Indiana collisions involving motorcycles, 2012-2016**

	Counts					Per 100,000 motorcycle registrations			
	Collisions	Fatal collisions	Fatalities	Injuries	Motorcycle registrations	Collisions	Fatal collisions	Fatalities	Injuries
2012	4,112	146	151	3,487	223,989	1,835.8	65.2	67.4	1,556.8
2013	3,525	114	119	2,965	221,715	1,589.9	51.4	53.7	1,337.3
2014	3,412	122	128	2,858	221,606	1,539.7	55.1	57.8	1,289.7
2015	3,270	104	107	2,613	253,921	1,287.8	41.0	42.1	1,029.1
2016	3,216	101	101	2,505	251,032	1,281.1	40.2	40.2	997.9

Sources: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017; Indiana Bureau of Motor Vehicles, as of March 7, 2017

Notes:

- 1) *Injuries* include individuals with at least one *incapacitating, non-incapacitating, or other injury*.
- 2) *Fatalities* in 2016 include the driver of a passenger car involved in a motorcycle collision.
- 3) *Fatalities* in 2014 include two non-motorists, and two non-motorcyclists (driver and vehicle occupant).
- 4) *Motorcycles* include *motorcycles, class A and class B motor-driven cycles, and motorized bicycles*.

**Table 2. Indiana collisions involving motorcycles by collision severity and vehicles involved, 2012-2016**

Collision type and severity	2012	2013	2014	2015	2016	Annual rate of change	
	2012	2013	2014	2015	2016	2015-16	2012-16
<b>All collisions</b>	<b>4,112</b>	<b>3,525</b>	<b>3,412</b>	<b>3,270</b>	<b>3,216</b>	<b>-1.7%</b>	<b>-6.0%</b>
Fatal	146	114	122	104	101	-2.9%	-8.8%
Injury	2,899	2,444	2,358	2,132	2,058	-3.5%	-8.2%
Property damage	1,067	967	932	1,034	1,057	2.2%	-0.2%
<b>Single-vehicle</b>	<b>1,771</b>	<b>1,494</b>	<b>1,465</b>	<b>1,345</b>	<b>1,391</b>	<b>3.4%</b>	<b>-5.9%</b>
Fatal	63	52	48	43	34	-20.9%	-14.3%
Injury	1,430	1,179	1,166	1,026	1,061	3.4%	-7.2%
Property damage	278	263	251	276	296	7.2%	1.6%
<b>Multi-vehicle</b>	<b>2,341</b>	<b>2,031</b>	<b>1,947</b>	<b>1,925</b>	<b>1,825</b>	<b>-5.2%</b>	<b>-6.0%</b>
Fatal	83	62	74	61	67	9.8%	-5.2%
Injury	1,469	1,265	1,192	1,106	997	-9.9%	-9.2%
Property damage	789	704	681	758	761	0.4%	-0.9%
<b>Fatal collision as % total</b>							
Single-vehicle	3.6%	3.5%	3.3%	3.2%	2.4%		
Multi-vehicle	3.5%	3.1%	3.8%	3.2%	3.7%		
<b>Injury collision as % total</b>							
Single-vehicle	80.7%	78.9%	79.6%	76.3%	76.3%		
Multi-vehicle	62.8%	62.3%	61.2%	57.5%	54.6%		

Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

Notes:

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

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

There was a 2.7 percent decrease in the number of motorcyclists involved in collisions in 2016 (Table 3). There were 100 motorcyclist fatalities (and 1 non-motorcyclist killed in motorcycle collisions, not shown in Table 3). There were 2,322 motorcyclists with non-fatal injuries, a 3.9 percent decline from 2015 (calculated from Table 3). From 2012 to 2016, motorcycle operator involvement in collisions dropped, and deaths and injuries to motorcycle operators have generally declined.

## GENDER AND AGE

Far more males than females are involved as riders in Indiana motorcycle collisions (Table 4). Overall, the number of male motorcycle riders killed in crashes decreased 10.3 percent in 2016, driven largely by an 11.3 percent decline in the number of male operators killed. The number of collision-involved female operators decreased 10.4 percent from 2015 to 2016, although the number of female passengers killed increased slightly in 2016 (from 9 to 10).

Table 3. Motorcyclists involved in Indiana collisions by person type and injury status, 2012-2016

	2012	2013	2014	2015	2016	Annual rate of change	
						2015-16	2012-16
<b>All motorcyclists</b>	<b>4,466</b>	<b>3,796</b>	<b>3,690</b>	<b>3,499</b>	<b>3,405</b>	<b>-2.7%</b>	<b>-6.6%</b>
<b>Operators</b>	<b>4,029</b>	<b>3,438</b>	<b>3,309</b>	<b>3,164</b>	<b>3,113</b>	<b>-1.6%</b>	<b>-6.2%</b>
Fatal	135	105	110	98	89	-9.2%	-9.9%
Injured	2,878	2,423	2,320	2,117	2,059	-2.7%	-8.0%
Not injured	1,016	910	879	949	965	1.7%	-1.3%
<b>Passengers</b>	<b>437</b>	<b>358</b>	<b>381</b>	<b>335</b>	<b>292</b>	<b>-12.8%</b>	<b>-9.6%</b>
Fatal	16	14	14	9	11	22.2%	-8.9%
Injured	408	334	356	300	263	-12.3%	-10.4%
Not injured	13	10	11	26	18	-30.8%	8.5%
<b>Fatality rate</b>							
Operators	3.4%	3.1%	3.3%	3.1%	2.9%		
Passengers	3.7%	3.9%	3.7%	2.7%	3.8%		

Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

Notes:

- 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.

Table 4. Injury status of Indiana motorcyclists in collisions by gender and person type, 2012-2016

Person type, gender and injury status	2012	2013	2014	2015	2016	Annual rate of change	
						2015-16	2012-16
<b>All riders</b>	<b>4,459</b>	<b>3,795</b>	<b>3,686</b>	<b>3,496</b>	<b>3,398</b>	<b>-2.8%</b>	<b>-6.6%</b>
Fatal	151	119	124	107	100	-6.5%	-9.8%
Injured	3,283	2,757	2,675	2,415	2,322	-3.9%	-8.3%
Not injured	1,025	919	887	974	976	0.2%	-1.2%
<b>Male</b>	<b>3,810</b>	<b>3,227</b>	<b>3,089</b>	<b>2,999</b>	<b>2,949</b>	<b>-1.7%</b>	<b>-6.2%</b>
Fatal	135	102	109	97	87	-10.3%	-10.4%
Injured	2,721	2,252	2,145	2,000	1,961	-2.0%	-7.9%
Not injured	954	873	835	902	901	-0.1%	-1.4%
<b>Female</b>	<b>649</b>	<b>568</b>	<b>597</b>	<b>497</b>	<b>449</b>	<b>-9.7%</b>	<b>-8.8%</b>
Fatal	16	17	15	10	13	30.0%	-5.1%
Injured	562	505	530	415	361	-13.0%	-10.5%
Not injured	71	46	52	72	75	4.2%	1.4%
<b>Operators only</b>	<b>4,024</b>	<b>3,437</b>	<b>3,305</b>	<b>3,161</b>	<b>3,106</b>	<b>-1.7%</b>	<b>-6.3%</b>
<b>Male</b>	<b>3,710</b>	<b>3,154</b>	<b>3,007</b>	<b>2,911</b>	<b>2,882</b>	<b>-1.0%</b>	<b>-6.1%</b>
Fatal	135	101	108	97	86	-11.3%	-10.7%
Injured	2,627	2,188	2,070	1,928	1,905	-1.2%	-7.7%
Not injured	948	865	829	886	891	0.6%	-1.5%
<b>Female</b>	<b>314</b>	<b>283</b>	<b>298</b>	<b>250</b>	<b>224</b>	<b>-10.4%</b>	<b>-8.1%</b>
Fatal	0	4	2	1	3	200.0%	-
Injured	250	235	249	187	154	-17.6%	-11.4%
Not injured	64	44	47	62	67	8.1%	1.2%
<b>Passengers only</b>	<b>435</b>	<b>358</b>	<b>381</b>	<b>335</b>	<b>292</b>	<b>-12.8%</b>	<b>-9.5%</b>
<b>Male</b>	<b>100</b>	<b>73</b>	<b>82</b>	<b>88</b>	<b>67</b>	<b>-23.9%</b>	<b>-9.5%</b>
Fatal	0	1	1	0	1	-	-
Injured	94	64	75	72	56	-22.2%	-12.1%
Not injured	6	8	6	16	10	-37.5%	13.6%
<b>Female</b>	<b>335</b>	<b>285</b>	<b>299</b>	<b>247</b>	<b>225</b>	<b>-8.9%</b>	<b>-9.5%</b>
Fatal	16	13	13	9	10	11.1%	-11.1%
Injured	312	270	281	228	207	-9.2%	-9.7%
Not injured	7	2	5	10	8	-20.0%	3.4%

Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

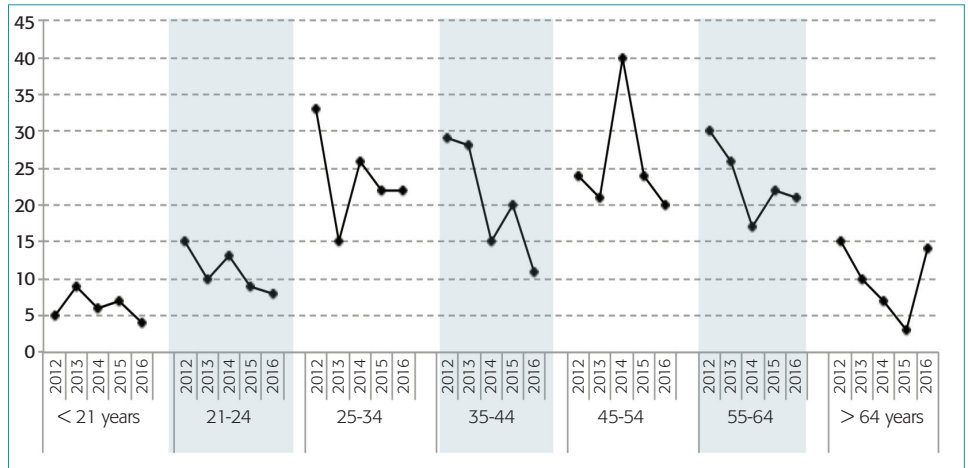
Notes:

- 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 2012 to 2016, the largest numbers of motorcyclists killed were typically within three age groupings: 25-34, 35-44, and 45-54 years (Figure 2). From 2015 to 2016, only one age group experienced an increase in fatalities—those aged 65 years and older (from 3 killed in 2015 to 14 in 2016) (calculated from Figure 2).

The pattern of fatality rates per 100 motorcyclists involved in collisions differs among age groups. Given a collision, the likelihood of being killed rises slightly as age increases (Figure 3). During the 2012 to 2016 period, motorcyclists under the age of 21 years had the lowest fatality rates, while collision-involved motorcyclists 65 years and older generally had higher (and somewhat more volatile) rates than other age groups.

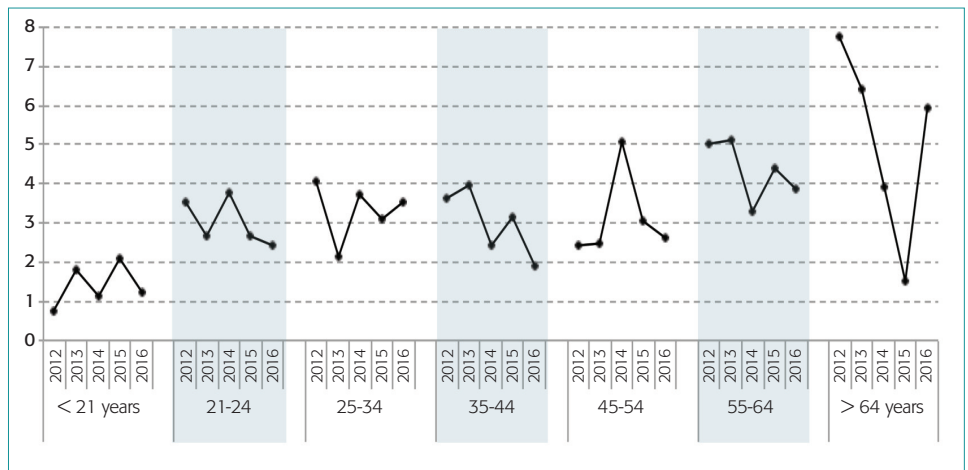
**Figure 2. Count of motorcyclists killed in Indiana collisions by age group, 2012-2016**



Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

Note: Excludes *unknown* age group.

**Figure 3. Fatality rate per 100 motorcyclists involved in Indiana collisions by age group, 2012-2016**



Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

Note: Excludes *unknown* age group.

# HELMET USE

More than half (53.6 percent) of Indiana *collision-involved* motorcyclists in 2016 were not wearing helmets (calculated from Table 5) and, considering *known helmet use* from 2012 to 2016, the usage rate among collision-involved motorcycle riders ranged from about 27 percent to 37 percent (Table 5). Fatality rates for unhelmeted riders exceed those of helmeted riders every year from 2012 to 2016. Similarly, helmeted riders had lower non-fatal injury rates than unhelmeted riders. However, helmet use in Indiana motorcycle collisions varies by age (Figure 4). The highest rate of helmet use among collision-involved motorcyclists in 2016 (51.4 percent) was for riders under 21 years of age. Riders from 45 to 54 years of age had the lowest rate (25.3 percent).

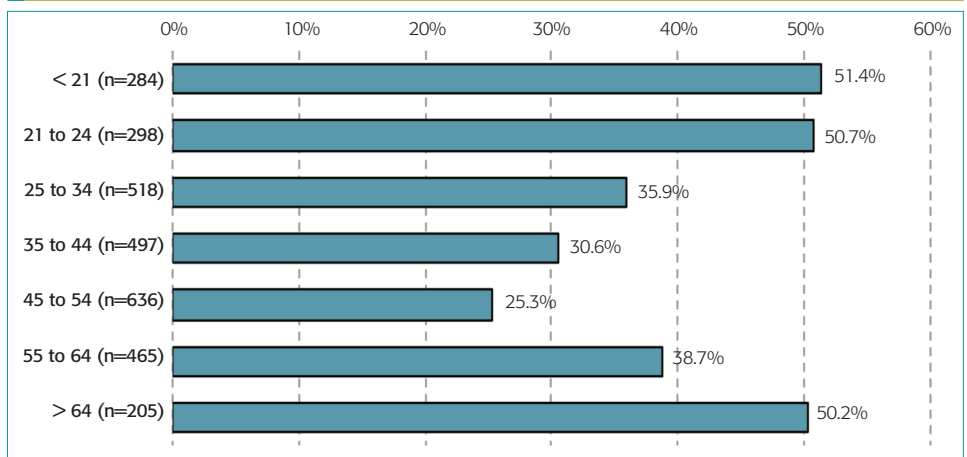
**Table 5. Helmet use by motorcyclists in Indiana collisions by individual injury status, 2012-2016**

Helmet use/ injury status						Annual rate of change	
	2012	2013	2014	2015	2016	2015-16	2012-16
<b>All motorcyclists</b>	<b>4,466</b>	<b>3,796</b>	<b>3,690</b>	<b>3,499</b>	<b>3,405</b>	<b>-2.7%</b>	<b>-6.6%</b>
No helmet	2,965	2,505	2,358	1,860	1,824	-1.9%	-11.4%
Helmet	1,103	977	978	1,123	1,079	-3.9%	-0.5%
Not reported	398	314	354	516	502	-2.7%	6.0%
Percent helmet use (known)	27.1%	28.1%	29.3%	37.6%	37.2%	-1.3%	8.2%
<b>No helmet</b>	<b>2,965</b>	<b>2,505</b>	<b>2,358</b>	<b>1,860</b>	<b>1,824</b>	<b>-1.9%</b>	<b>-11.4%</b>
Fatal	116	84	87	78	67	-14.1%	-12.8%
Injured	2,231	1,875	1,786	1,341	1,315	-1.9%	-12.4%
Not injured	618	546	485	441	442	0.2%	-8.0%
<b>Helmet</b>	<b>1,103</b>	<b>977</b>	<b>978</b>	<b>1,123</b>	<b>1,079</b>	<b>-3.9%</b>	<b>-0.5%</b>
Fatal	29	19	27	17	23	35.3%	-5.6%
Injured	803	703	671	763	705	-7.6%	-3.2%
Not injured	271	255	280	343	351	2.3%	6.7%
<b>Unknown helmet use</b>	<b>398</b>	<b>314</b>	<b>354</b>	<b>516</b>	<b>502</b>	<b>-2.7%</b>	<b>6.0%</b>
Fatal	6	16	10	12	10	-16.7%	13.6%
Injured	252	179	219	313	302	-3.5%	4.6%
Not injured	140	119	125	191	190	-0.5%	7.9%
<b>Percent fatal</b>							
No helmet	3.9%	3.4%	3.7%	4.2%	3.7%		
Helmet	2.6%	1.9%	2.8%	1.5%	2.1%		
Unknown helmet use	1.5%	5.1%	2.8%	2.3%	2.0%		
<b>Percent injured</b>							
No helmet	75.2%	74.9%	75.7%	72.1%	72.1%		
Helmet	72.8%	72.0%	68.6%	67.9%	65.3%		
Unknown helmet use	63.3%	57.0%	61.9%	60.7%	60.2%		

Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

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, 2016**



Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

Note: Excludes individuals with *unknown* helmet use or age.

# ALCOHOL INVOLVEMENT

Incomplete reporting of BAC and drug test results in ARIES continues to bedevil interpretation of alcohol and drug involvement in motorcycle collisions. As reported within ARIES, the percent of operators involved in fatal motorcycle collisions who were tested for alcohol or drugs has dropped from 75.8 percent in 2012 to 37.4 percent in 2016 (Table 6). The drop in reported drug test results from 2012 to 2016 is similar (71.8 percent to 18.7 percent). Reported BAC results declined from 73.2 percent in 2012 to 14 percent in 2016. For these reasons, the numbers in Table 6 should be interpreted with caution.

With respect to the level of impairment among motorcycle operators involved in fatal collisions from 2012 to 2016, the numbers generally declined. Operators involved who were classified with a BAC of 0.08 g/dL or greater dropped from 28.2 percent 2012 to 5.6 percent in 2016. However, in 2016 there were 92 involved operators without reported results.

Therefore, to partly counter incomplete reporting, test results can be interpreted within the counts of only reported cases. Considering just reported test findings, the alcohol impairment rate (0.08 BAC or more) has been climbing since 2013, from 25.5 percent up to 40 percent in 2016. Among those operators with reported drug test results, the percent positive generally increased from 2012 to 2015 (40.2 percent to 51.6 percent), then dropped to 20 percent in 2016.

**Table 6. Drug and alcohol testing of Indiana motorcycle operators involved in fatal collisions, 2012-2016**

	2012	2013	2014	2015	2016	Annual rate of change	
						2015-16	2012-16
<b>Total operators involved</b>	<b>149</b>	<b>116</b>	<b>124</b>	<b>105</b>	<b>107</b>	<b>1.9%</b>	<b>-7.9%</b>
<b>Tests given</b>							
Alc and/or drug tested	113	63	71	49	40	-18.4%	-22.9%
Not tested or not reported	36	53	53	56	67	19.6%	16.8%
<i>Percent tested</i>	<i>75.8%</i>	<i>54.3%</i>	<i>57.3%</i>	<i>46.7%</i>	<i>37.4%</i>		
<b>Drug test results</b>							
Positive	43	25	17	16	4	-75.0%	-44.8%
Negative	62	26	26	12	6	-50.0%	-44.2%
Pending	2	1	6	3	10	233.3%	49.5%
Not reported	42	64	75	74	87	17.6%	20.0%
<i>Percent reported</i>	<i>71.8%</i>	<i>44.8%</i>	<i>39.5%</i>	<i>29.5%</i>	<i>18.7%</i>		
<i>Percent positive drug test</i>	<i>28.9%</i>	<i>21.6%</i>	<i>13.7%</i>	<i>15.2%</i>	<i>3.7%</i>		
<i>Among reported results only</i>	<i>40.2%</i>	<i>48.1%</i>	<i>34.7%</i>	<i>51.6%</i>	<i>20.0%</i>		
<b>BAC test results (g/dL)</b>							
0	59	34	27	16	6	-62.5%	-43.5%
0.01 < 0.08	8	7	3	2	3	50.0%	-21.7%
0.08 < 0.15	15	2	4	4	4	0.0%	-28.1%
0.15 < 0.60	27	12	11	7	2	-71.4%	-47.8%
Not reported	40	61	79	76	92	21.1%	23.1%
<i>Percent reported</i>	<i>73.2%</i>	<i>47.4%</i>	<i>36.3%</i>	<i>27.6%</i>	<i>14.0%</i>		
<i>Percent 0.08 or higher</i>	<i>28.2%</i>	<i>12.1%</i>	<i>12.1%</i>	<i>10.5%</i>	<i>5.6%</i>		
<i>Among reported results only</i>	<i>38.5%</i>	<i>25.5%</i>	<i>33.3%</i>	<i>37.9%</i>	<i>40.0%</i>		

Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

**Notes:**

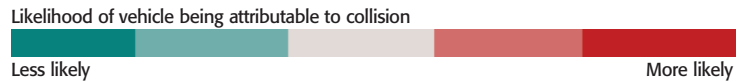
- 1) BAC and drug tests will not sum to tests given because some operators were tested for both.
- 2) Excludes BAC results greater than 0.59 g/dL.
- 3) g/dL = grams per deciliter.
- 4) When interpreting reported testing rates, as well as rates of alcohol- and drug-impaired crashes and injuries, it is important to note that these numbers are likely to change once BAC and drug test results reported after the March 16, 2017 extract are analyzed.

# 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 driver of another vehicle 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 2016, Indiana MV collisions involving motorcycles most frequently involved some type of unsafe action by the motorcyclist and/or the other vehicle driver. When an unsafe action was involved, the other vehicle was more likely than the motorcycle to be attributable. Considering all primary factors in MV motorcycle-involved collisions in 2016, *other vehicles* were somewhat more likely to be *attributable* (57 percent) than the *motorcycles* (40 percent). However, collisions involving select primary factors were more likely to be attributed to motorcyclists than to the other vehicle driver in 2016, including *unsafe speed*, *improper passing*, *disregarding a signal or regulatory sign*, and *speed too fast for weather conditions*.

**Table 7. Vehicles involved in Indiana multi-vehicle motorcycle collisions, by vehicle type, primary factor, and vehicle attributability to collision occurrence, 2016**

Primary factor	Vehicles involved		Count of vehicles Attributable		% Attributable	
	Motor-cycle	Other vehicles	Motor-cycle	Other vehicles	Motor-cycle	Other vehicles
<b>Unsafe actions</b>	<b>1,593</b>	<b>1,557</b>	<b>590</b>	<b>929</b>	<b>37.0%</b>	<b>59.7%</b>
Failure to yield right of way	661	670	116	536	17.5%	80.0%
Following too closely	351	300	197	122	56.1%	40.7%
Unsafe lane movement	97	102	44	43	45.4%	42.2%
Unsafe backing	99	98	7	86	7.1%	87.8%
Disregard signal/reg sign	79	85	53	26	67.1%	30.6%
Unsafe speed	66	62	50	11	75.8%	17.7%
Improper turning	64	59	17	45	26.6%	76.3%
Left of center	59	63	33	22	55.9%	34.9%
Improper passing	56	57	42	12	75.0%	21.1%
Improper lane usage	52	51	27	21	51.9%	41.2%
Speed too fast for weather conditions	6	6	4	2	66.7%	33.3%
Wrong way on one way	3	4	0	3	0.0%	75.0%
<b>Loss of control</b>	<b>46</b>	<b>54</b>	<b>34</b>	<b>10</b>	<b>73.9%</b>	<b>18.5%</b>
<b>Distraction</b>	<b>49</b>	<b>48</b>	<b>18</b>	<b>27</b>	<b>36.7%</b>	<b>56.3%</b>
<b>Environmental</b>	<b>42</b>	<b>28</b>	<b>30</b>	<b>16</b>	<b>71.4%</b>	<b>57.1%</b>
<b>Vehicle-related</b>	<b>35</b>	<b>33</b>	<b>21</b>	<b>8</b>	<b>60.0%</b>	<b>24.2%</b>
<b>Cognitive impairment</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>3</b>	<b>0.0%</b>	<b>75.0%</b>
<b>All other</b>	<b>145</b>	<b>154</b>	<b>81</b>	<b>81</b>	<b>55.9%</b>	<b>52.6%</b>
<b>Total</b>	<b>1,914</b>	<b>1,878</b>	<b>774</b>	<b>1,074</b>	<b>40.4%</b>	<b>57.2%</b>



Source: Indiana State Police Automated Reporting Information Exchange System, as of March 16, 2017

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.

## 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 2012 to 2016, it is calculated as  $(\text{Value in 2016}/\text{Value in 2012})^{1/4} - 1$ .
- **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 March 16, 2017.

Indiana Bureau of Motor Vehicles, current as of March 7, 2017.

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 ([www.policyinstitute.iu.edu](http://www.policyinstitute.iu.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 eleventh 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 on county and municipality data. 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.

## **The Governor's Council on Impaired & Dangerous Driving**

The Governor's Council on Impaired & Dangerous Driving, a division of the Indiana Criminal Justice Institute, serves as the public opinion catalyst and the implementing body for statewide action to reduce death and injury on Indiana roadways. The Council provides grant funding, training, coordination, and ongoing support to state and local traffic safety advocates.

## **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.

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