

MOTORCYCLES 2019



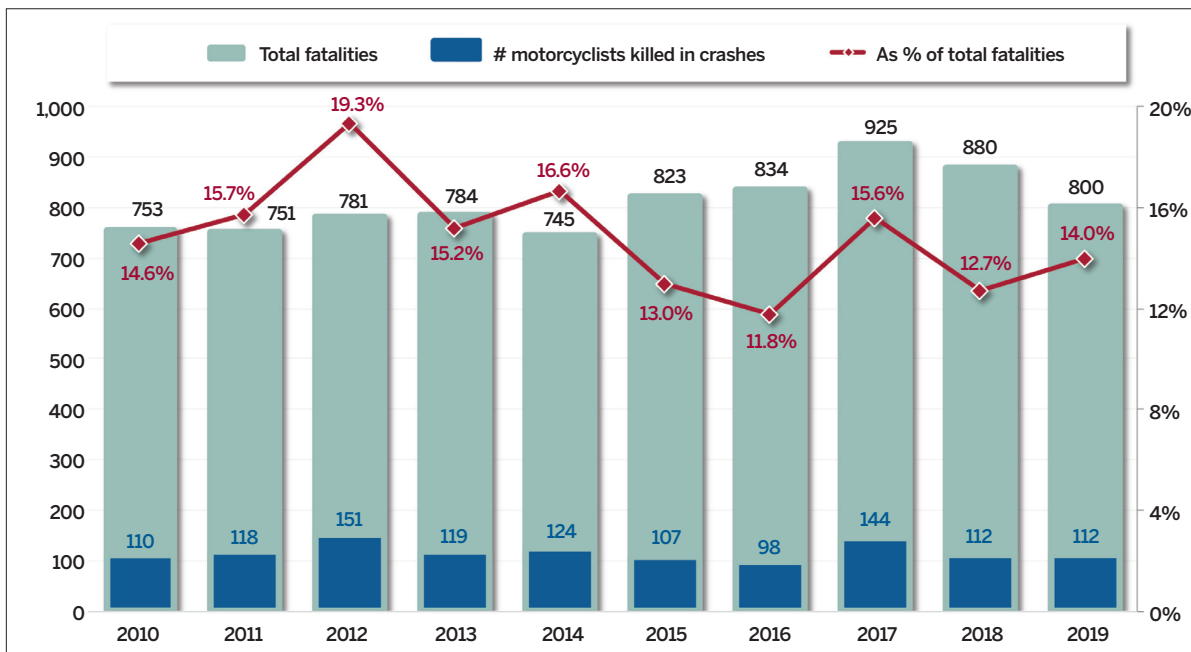
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This fact sheet contains information on motorcycle collisions, demographic characteristics of the people involved, helmet use, rates of alcohol impairment, primary factors in motorcycle collisions, and motorcycle licensing in Indiana during the 2019 calendar year. Analyses include data and definitions from sources listed on the last page of this report. Indiana collision data are collected by Indiana State Police officers and submitted to the Automated Reporting Information Exchange System (ARIES). ARIES data analyzed in this report were extracted March 17, 2020 and June 15, 2020 (2018 and 2019 impaired driving data).

MOTORCYCLISTS KILLED

In 2019, 112 motorcyclists died in Indiana traffic collisions, the same number as in 2018 (Figure 1). The number of motorcyclists killed in collisions has fluctuated during the past 10 years, from a high of 151 in 2012 to a low of 98 in 2016. The largest single-year increase happened between 2016 and 2017 with a 47 percent jump. During the 10-year timeframe, motorcycle collisions made up a small fraction of all collisions—typically less than 2 percent—but were responsible for a disproportionately high percentage of overall traffic fatalities (16 percent in 2017 and 14 percent in 2019).

Figure 1. Indiana motorcyclist fatalities as a percentage of total traffic fatalities, 2010–2019



Source: Indiana State Police Automated Reporting Information Exchange System, as of March 17, 2020

Notes:

- Motorcycles include motorcycles, Class A and Class B motor driven cycles, and motorized bicycles.
- A motorcycle operator is the person operating or driving the motorcycle; passenger is the person seated on, but not operating, the motorcycle; motorcyclist refers to either the operator or passenger.
- Data discrepancies may exist between the 2019 Indiana traffic safety reports and previous traffic safety publications due to updates to the Indiana State Police ARIES data since the original publication dates.

In 2019:

- 112 motorcyclists were killed in collisions, the same number as in 2018.
- The number of individuals injured (1,818) in motorcycle-related crashes declined by 7 percent from 2018 (1,932).
- Fatal motorcycle collisions increased 12 percent, from 101 in 2018 to 113 in 2019.
- Fatalities per 100,000 motorcycle registrations increased slightly (0.3 percent) from 2018.
- Seventy-three percent of motorcycle operators were involved in multi-vehicle collisions.
- Twenty-seven percent of motorcyclists who died in crashes were helmeted, compared to 33 percent who suffered non-fatal injuries.
- Helmet use in collisions was highest among motorcyclists under 21 years of age (57 percent). Only 25 percent of motorcyclists ages 35 to 44 involved in collisions were wearing a helmet.

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COLLISIONS INVOLVING MOTORCYCLES

Motorcycle collisions declined between 2018 (2,684) and 2019 (2,579), consistent with the five-year trend of about 2 percent decline annually. From 2018 to 2019, fatal motorcycle collisions increased by 12 percent, from 101 to 113 (Table 1). Non-fatal motorcyclist injuries dropped 7 percent annually between 2015 and 2019. Fatalities per 100,000 registrations have increased 4 percent annually, from 42 to 49. In 2019, non-fatal injuries per 100,000 registrations decreased 5 percent from 2018, while fatalities per 100,000 registrations dropped by slightly less than 1 percent.

PEOPLE INVOLVED, FATALITIES, AND INJURIES IN MOTORCYCLE COLLISIONS

The number of motorcyclists involved in collisions fell 6 percent between 2018 and 2019, consistent with the 2015-19 rate of decline (Table 2). The number of operators and passengers injured also declined between 2018 and 2019—by 5 percent and 12 percent, respectively. During the five-year period, the number of motorcyclists sustaining non-fatal injuries has declined annually with the exception of a bump in 2017 among passengers injured.

Operators accounted for 95 percent of 2019 fatalities, with a 4 percent fatality rate compared to a 3 percent rate for passengers. The number of operators killed dropped by 2 percent in the past five years, while passenger deaths decreased 10 percent during that time.

Indiana generally has experienced a decline in motorcycle collision-related injuries during the last five years. In 2019, 1,818 motorcyclists sustained non-fatal injuries during collisions, accounting for an overall decrease of 6 percent from 2018. The number of passengers injured in crashes dipped by 12 percent from 2018, while reports of injured operators dropped 5 percent.

Table 1. Motorcycle registrations and motorcyclist fatalities and injuries in Indiana collisions, 2015–2019

| | | | | | | Annual rate of change | |
|---|----------------|----------------|----------------|----------------|----------------|-----------------------|--------------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2018–19 | 2015–19 |
| Motorcycle registrations | 253,921 | 251,032 | 220,340 | 230,107 | 228,713 | -0.6% | -2.6% |
| Collisions | 3,270 | 3,220 | 3,141 | 2,684 | 2,579 | -3.9% | -5.8% |
| Fatal collisions | 104 | 99 | 141 | 101 | 113 | 11.9% | 2.1% |
| Fatalities | 107 | 98 | 144 | 112 | 112 | 0.0% | 1.1% |
| Non-fatal injuries | 2,417 | 2,326 | 2,288 | 1,932 | 1,818 | -5.9% | -6.9% |
| Per 100,000 motorcycle registrations | | | | | | | |
| Collisions | 1,287.8 | 1,282.7 | 1,425.5 | 1,166.4 | 1,127.6 | -3.3% | -3.3% |
| Fatal collisions | 41.0 | 39.4 | 64.0 | 43.9 | 49.4 | 12.6% | 4.8% |
| Fatalities | 42.1 | 39.0 | 65.4 | 48.7 | 49.0 | 0.6% | 3.8% |
| Non-fatal injuries | 951.9 | 926.6 | 1,038.4 | 839.6 | 794.9 | -5.3% | -4.4% |

Sources: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

Notes:

- 1) Fatal collisions are those with one or more fatalities. A fatal collision can involve a motorcycle, but the person who died in the crash may not have been a motorcyclist.
- 2) Non-fatal injuries include individuals with at least one incapacitating, non-incapacitating, or other injury.
- 3) Motorcycles include motorcycles, Class A and Class B motor-driven cycles, and motorized bicycles.

Table 2. Motorcyclists involved in Indiana collisions by person type and injury status, 2015–2019

| All motorcyclists | | | | | | Annual rate of change | |
|----------------------|--------------|--------------|--------------|--------------|--------------|-----------------------|--------------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2018–19 | 2015–19 |
| | 3,691 | 3,499 | 3,407 | 3,402 | 2,871 | -15.6% | -6.1% |
| Operators | 3,164 | 3,115 | 3,057 | 2,604 | 2,471 | -5.1% | -6.0% |
| Fatal | 98 | 87 | 131 | 95 | 106 | 11.6% | 2.0% |
| Non-fatal injuries | 2,117 | 2,063 | 1,967 | 1,692 | 1,607 | -5.0% | -6.7% |
| Not injured | 949 | 965 | 959 | 817 | 758 | -7.2% | -5.5% |
| Passengers | 335 | 292 | 346 | 271 | 227 | -16.2% | -9.3% |
| Fatal | 9 | 11 | 13 | 17 | 6 | -64.7% | -9.6% |
| Non-fatal injuries | 300 | 263 | 321 | 240 | 211 | -12.1% | -8.4% |
| Not injured | 26 | 18 | 12 | 14 | 10 | -28.6% | -21.2% |
| Fatality rate | | | | | | | |
| Operators | 3.1% | 2.8% | 4.3% | 3.6% | 4.3% | | |
| Passengers | 2.7% | 3.8% | 3.8% | 6.3% | 2.6% | | |

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

Notes:

- 1) Motorcyclists include operators and passengers on motorcycles, Class A and Class B motor-driven cycles, and motorized bicycles.
- 2) Non-fatal injuries 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.

The number of motorcyclists involved in collisions fell 6 percent between 2018 and 2019, consistent with the five-year rate of decline.

GENDER AND AGE

In 2019, far more male motorcyclists (2,375) were involved in motorcycle collisions than female motorcyclists (321) with males also accounting for most motorcycle fatalities (Table 3). Male motorcyclists accounted for the most fatalities (105), an increase of 8 percent from 2018 and 2019. The number of collision-involved female operators decreased 22 percent from 2018 to 2019. The number of female motorcycle operators killed also declined by 53 percent 2018 (from 15 to 7).

In 2019, 88 percent of motorcyclists involved in collisions were male.

Table 4 includes motorcycle operators involved in collisions by age group and by the number of vehicles involved—a single vehicle or multiple vehicles. In 2019, 73 percent of motorcycle drivers were involved in multi-vehicle collisions, and 27 percent were involved in single-vehicle collisions. Older drivers 65 years and older and young drivers ages 15 to 20 were consistently the most likely to be involved in multi-vehicle collisions from 2015 to 2019, with the exception of drivers ages 21 to 24 in 2018.

Table 3. Injury status of motorcyclists in Indiana collisions by gender and person type, 2015–2019

| Person type, gender, and injury status | | | | | | Annual rate of change | |
|--|--------------|--------------|--------------|--------------|--------------|-----------------------|---------------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2018–19 | 2015–19 |
| All riders | 3,499 | 3,407 | 3,403 | 2,875 | 2,698 | -6.2% | -6.3% |
| Fatal | 107 | 98 | 144 | 112 | 112 | 0.0% | 1.1% |
| Injured | 2,417 | 2,326 | 2,288 | 1,932 | 1,818 | -5.9% | -6.9% |
| Not injured | 975 | 983 | 971 | 831 | 768 | -7.6% | -5.8% |
| Male | 2,999 | 2,951 | 2,913 | 2,462 | 2,375 | -3.5% | -5.7% |
| Fatal | 97 | 85 | 129 | 97 | 105 | 8.2% | 2.0% |
| Injured | 2,000 | 1,965 | 1,896 | 1,608 | 1,554 | -3.4% | -6.1% |
| Not injured | 902 | 901 | 888 | 757 | 716 | -5.4% | -5.6% |
| Female | 497 | 449 | 482 | 409 | 321 | -21.5% | -10.4% |
| Fatal | 10 | 13 | 15 | 15 | 7 | -53.3% | -8.5% |
| Injured | 415 | 361 | 392 | 324 | 264 | -18.5% | -10.7% |
| Not injured | 72 | 75 | 75 | 70 | 50 | -28.6% | -8.7% |
| Operators only | 3,161 | 3,108 | 3,049 | 2,600 | 2,469 | -5.0% | -6.0% |
| Male | 2,911 | 2,884 | 2,829 | 2,394 | 2,315 | -3.3% | -5.6% |
| Fatal | 97 | 84 | 127 | 94 | 104 | 10.6% | 1.8% |
| Injured | 1,928 | 1,909 | 1,823 | 1,555 | 1,504 | -3.3% | -6.0% |
| Not injured | 886 | 891 | 879 | 745 | 707 | -5.1% | -5.5% |
| Female | 250 | 224 | 220 | 206 | 154 | -25.2% | -11.4% |
| Fatal | 1 | 3 | 4 | 1 | 2 | 100% | 18.9% |
| Injured | 187 | 154 | 144 | 137 | 103 | -24.8% | -13.9% |
| Not injured | 62 | 67 | 72 | 68 | 49 | -27.9% | -5.7% |

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

Notes:

- 1) Excludes cases where gender or injury status are unknown.
- 2) Non-fatal injuries 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. Motorcycle drivers involved in Indiana collisions, by age and vehicles involved, 2015–2019

| Age group | <div> <div>Low</div> <div><</div> <div><</div> <div>></div> <div>></div> <div>High</div> </div> | | | | | | | | | |
|-----------------|---|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|-------------------|
| | 2015 | | 2016 | | 2017 | | 2018 | | 2019 | |
| | Single vehicle | Multiple vehicles | Single vehicle | Multiple vehicles | Single vehicle | Multiple vehicles | Single vehicle | Multiple vehicles | Single vehicle | Multiple vehicles |
| 15–20 | 18.3% | 81.7% | 23.7% | 76.3% | 20.4% | 79.6% | 25.7% | 74.3% | 22.8% | 77.2% |
| 21–24 | 27.4% | 72.6% | 28.5% | 71.5% | 26.0% | 74.0% | 22.3% | 77.7% | 28.0% | 72.0% |
| 25–34 | 26.0% | 74.0% | 26.0% | 74.0% | 31.4% | 68.6% | 25.0% | 75.0% | 28.8% | 71.2% |
| 35–44 | 29.5% | 70.5% | 29.6% | 70.4% | 30.3% | 69.7% | 26.1% | 73.9% | 28.6% | 71.4% |
| 45–54 | 30.5% | 69.5% | 35.2% | 64.8% | 32.8% | 67.2% | 30.3% | 69.7% | 30.7% | 69.3% |
| 55–64 | 31.0% | 69.0% | 31.7% | 68.3% | 28.9% | 71.1% | 32.9% | 67.1% | 29.3% | 70.7% |
| 65+ | 20.6% | 79.4% | 21.4% | 78.6% | 17.9% | 82.1% | 23.6% | 76.4% | 21.9% | 78.1% |
| All ages | 27.1% | 72.9% | 28.9% | 71.1% | 28.4% | 71.6% | 27.2% | 72.8% | 27.8% | 72.2% |

Sources: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

Notes:

- 1) Data limited to operators with valid age reported.
- 2) Excludes operators under 15 years old.

HELMET USE

In Indiana, only operators and passengers younger than 18 and operators with a motorcycle learner's permit are required to wear a helmet. In 2019, data shows that 35 percent of motorcyclists in crashes were wearing helmets (Table 5). Twenty-seven percent of motorcyclists killed in crashes and 33 percent who suffered non-fatal injuries were helmeted.

As shown in Figure 2, 2019 helmet use in Indiana motorcycle collisions varies by age. Motorcyclists under 21 years of age (57 percent) had the highest rate of helmet use, followed by those ages 21 to 24 (48 percent). Motorcyclists 35 to 44 years old had the lowest rates of helmet use (25 percent). Male motorcyclists accounted for 88 percent of all motorcyclists in collisions and had a slightly higher rate of helmet use (35 percent) than their female counterparts (32 percent) (Figure 3).

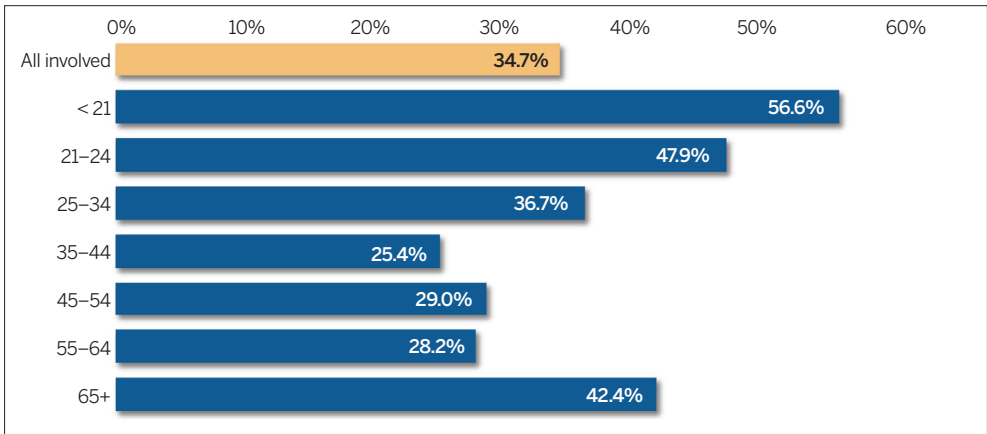
Only 25% of motorcyclists ages 35 to 44 involved in collisions were wearing a helmet.

Table 5. Helmet use by motorcyclists in Indiana collisions by individual injury status, 2015–2019

| Helmet use/injury status | | | | | | Annual rate of change | |
|--------------------------|-------|-------|-------|-------|-------|-----------------------|---------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2018–19 | 2015–19 |
| All motorcyclists | 3,499 | 3,407 | 3,403 | 2,875 | 2,698 | -6.2% | -6.3% |
| Helmeted | 1,125 | 1,081 | 1,120 | 882 | 937 | 6.2% | -4.5% |
| Helmet use rate | 32.2% | 31.7% | 32.9% | 30.7% | 34.7% | 13.2% | 1.9% |
| Fatalities | 107 | 98 | 144 | 112 | 112 | 0.0% | 1.1% |
| Helmeted | 17 | 23 | 38 | 20 | 30 | 50.0% | 15.3% |
| Helmet use rate | 15.9% | 23.5% | 26.4% | 17.9% | 26.8% | 50.0% | 13.9% |
| Non-fatal injuries | 2,417 | 2,326 | 2,288 | 1,932 | 1,818 | -5.9% | -6.9% |
| Helmeted | 765 | 707 | 751 | 561 | 605 | 7.8% | -5.7% |
| Helmet use rate | 31.7% | 30.4% | 32.8% | 29.0% | 33.3% | 14.6% | 1.3% |
| Not injured | 975 | 983 | 971 | 831 | 768 | -7.6% | -5.8% |
| Helmeted | 343 | 351 | 331 | 301 | 302 | 0.3% | -3.1% |
| Helmet use rate | 35.2% | 35.7% | 34.1% | 36.2% | 39.3% | 8.6% | 2.8% |

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

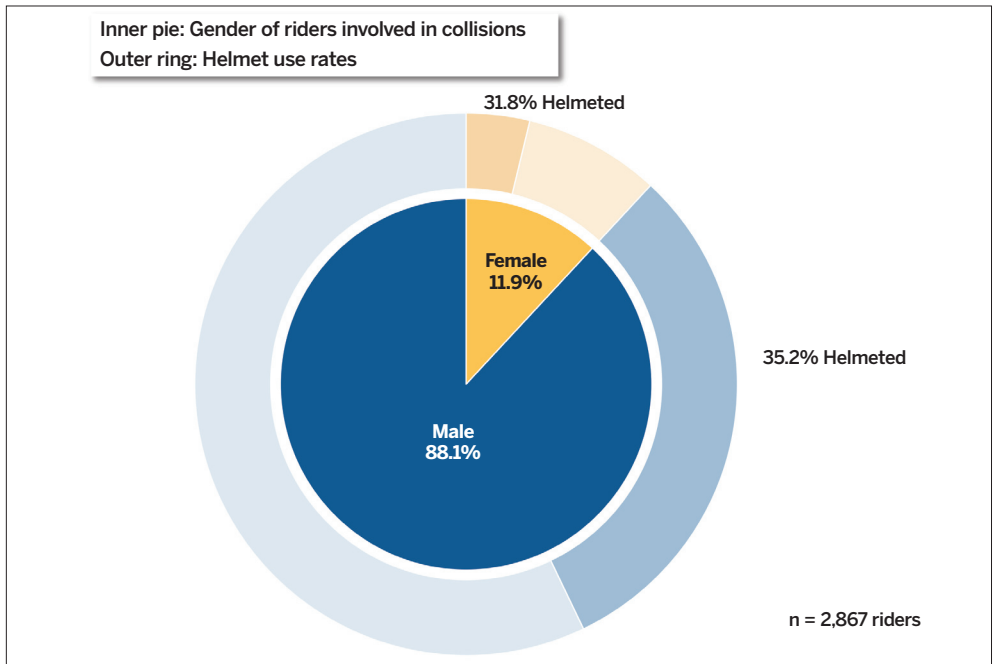
Figure 2. Percentage helmet use reported for motorcyclists involved in Indiana collisions by age of rider, 2019



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

Note: Excludes unknown age.

Figure 3. Helmet use among motorcycle riders in Indiana collisions, by gender, 2019



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

Note: Includes cases with valid gender reported.

ALCOHOL

The number of collisions involving motorcycle operators with a blood alcohol content (BAC) of 0.08 g/dL or more decreased from 97 in 2018 to 90 in 2019 (Table 6). From 2015 to 2019, the number of operators with 0.15 BAC and greater declined annually by roughly 11 percent. During that same five-year period, among reported BAC results each year, the percent of motorcycle operators with reported BAC higher than 0.08 declined from 62 percent in 2015 to 54 percent in 2019 (Table 6 and Figure 4).

From 2015 to 2019, the percent of motorcycle operators with reported BAC higher than 0.08 declined from 62% to 54%.

As shown in Table 7, the number of motorcycle operators killed who had a BAC of 0.08 g/dL or greater increased sharply from 12 in 2018 to 21 in 2019 (calculated from table). The percentage of fatalities with reported BAC results in ARIES increased from 27 percent in 2015 to 44 percent in 2019, with a five-year low of 23 percent in 2016. Considering only those with reported results, the percentage of impaired operators with a 0.08 BAC or greater who died in collisions has varied from 2015 to 2019—53 percent in 2017, which dropped to 31 percent in 2018.

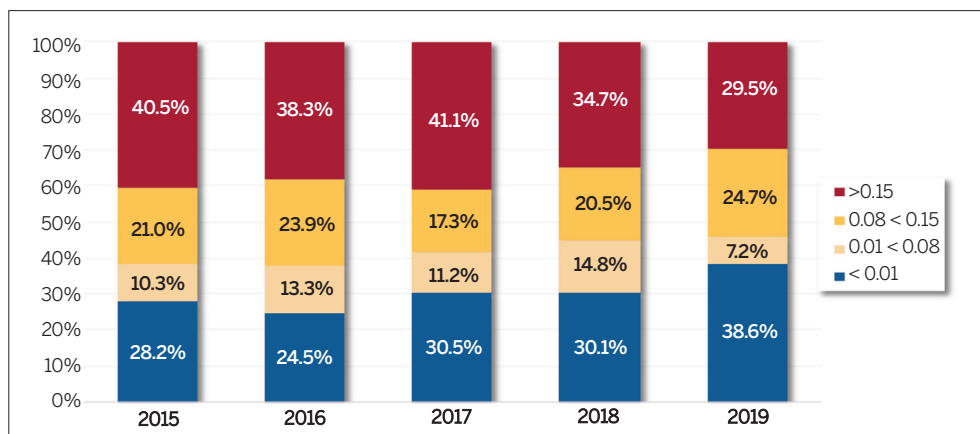
Table 6. Motorcycle operators in Indiana collisions, by blood alcohol content (BAC) (g/dL), 2015-2019

| BAC range, g/dL | Count of motorcycle operators | | | | | Annual rate of change | |
|-----------------------------------|-------------------------------|--------------|--------------|--------------|--------------|-----------------------|--------------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2018-19 | 2015-19 |
| Total motorcycle operators | 3,164 | 3,115 | 3,057 | 2,604 | 2,471 | -5.1% | -6.0% |
| No BAC reported | 2,969 | 2,927 | 2,860 | 2,428 | 2,305 | -5.1% | -6.1% |
| % total operators | 93.8% | 94.0% | 93.6% | 93.2% | 93.3% | | |
| < 0.01 | 55 | 46 | 60 | 53 | 64 | 20.8% | 3.9% |
| % total operators | 1.7% | 1.5% | 2.0% | 2.0% | 2.6% | | |
| 0.01 < 0.08 | 20 | 25 | 22 | 26 | 12 | -53.8% | -12.0% |
| % total operators | 0.6% | 0.8% | 0.7% | 1.0% | 0.5% | | |
| 0.08 < 0.15 | 41 | 45 | 34 | 36 | 41 | 13.9% | 0.0% |
| % total operators | 1.3% | 1.4% | 1.1% | 1.4% | 1.7% | | |
| 0.15 and greater | 79 | 72 | 81 | 61 | 49 | -19.7% | -11.3% |
| % total operators | 2.5% | 2.3% | 2.6% | 2.3% | 2.0% | | |
| As % of reported results | | | | | | | |
| < 0.01 | 28.2% | 24.5% | 30.5% | 30.1% | 38.6% | | |
| 0.01 < 0.08 | 10.3% | 13.3% | 11.2% | 14.8% | 7.2% | | |
| 0.08 < 0.15 | 21.0% | 23.9% | 17.3% | 20.5% | 24.7% | | |
| 0.15 and greater | 40.5% | 38.3% | 41.1% | 34.7% | 29.5% | | |

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020 and June 15, 2020 (2018 and 2019 BAC results)

Notes:
1) g/dL = grams per deciliter.
2) Excludes BAC > 0.59 g/dL.

Figure 4. Percentage of motorcycle operators in Indiana collisions, by blood alcohol content (BAC) (g/dL), 2015-2019



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020 and June 15, 2020 (2018 and 2019 impaired driving data)

Table 7. Motorcycle operators killed in collisions, by blood alcohol content, 2015-2019

| BAC range, g/dL | Count of operators | | | | | Annual rate of change | |
|---|--------------------|--------------|--------------|--------------|--------------|-----------------------|-------------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2018-19 | 2015-19 |
| Operators killed | 98 | 87 | 131 | 95 | 106 | 11.6% | 2.0% |
| Not reported or no test | 72 | 67 | 91 | 56 | 59 | 5.4% | -4.9% |
| 0 | 16 | 12 | 17 | 20 | 25 | 25.0% | 11.8% |
| 0.01 < 0.08 | 2 | 2 | 2 | 7 | 1 | -85.7% | -15.9% |
| 0.08 < 0.15 | 1 | 2 | 8 | 6 | 9 | 50.0% | 73.2% |
| 0.15 and greater | 7 | 4 | 13 | 6 | 12 | 100% | 14.4% |
| % with reported results | 26.5% | 23.0% | 30.5% | 41.1% | 44.3% | | |
| % 0.08 or higher (of all reported results) | 30.8% | 30.0% | 52.5% | 30.8% | 44.7% | | |

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020 and June 15, 2020 (2018 and 2019 BAC results)

Notes:
1) g/dL = grams per deciliter.
2) Excludes BAC > 0.59 g/dL.

MOTORCYCLE COLLISIONS AND AT FAULT DRIVERS OR OPERATORS

In multi-vehicle collisions involving motorcycles, there is a difference between the likelihood that the motorcycle operator or the other vehicle operator was deemed to be at fault (i.e., a vehicle’s contributing circumstance matched the primary factor in the collision—referred to in Table 8 as being attributable). In 2019, multi-vehicle collisions in Indiana involving motorcycles most frequently involved an unsafe action by either or both the motorcyclist and the other vehicle drivers. Generally, however when an unsafe action was involved, the driver of the other vehicle was more likely to be at fault (60 percent) than the motorcycle operator (38 percent). In contrast, certain collisions involving specific primary factors were more likely to be attributed to motorcyclists, including unsafe speed, improper passing, loss of control, and disregarding a signal. Drivers of the other vehicles in motorcycle collisions were found to be at fault more often for factors such as failure to yield right of way, unsafe backing, improper turning, and speed too fast for weather conditions.

Table 8. Vehicles involved in multi-vehicle motorcycle collisions in Indiana, by vehicle type, primary factor, and vehicle attributability to collision occurrence, 2019

Likelihood of vehicle being attributable to collision

Less likely

More likely

| | Vehicles involved | | Count of vehicles attributable | | % Attributable | |
|---------------------------------------|-------------------|----------------|--------------------------------|----------------|----------------|----------------|
| Primary factor | Motorcycle | Other vehicles | Motorcycle | Other vehicles | Motorcycle | Other vehicles |
| Unsafe actions | 1,290 | 1,267 | 484 | 763 | 37.5% | 60.2% |
| Disregard signal/reg sign | 57 | 60 | 35 | 22 | 61.4% | 36.7% |
| Failure to yield right of way | 567 | 570 | 98 | 461 | 17.3% | 80.9% |
| Following too closely | 269 | 252 | 144 | 105 | 53.5% | 41.7% |
| Improper lane usage | 46 | 41 | 25 | 18 | 54.3% | 43.9% |
| Improper passing | 50 | 50 | 41 | 10 | 82.0% | 20.0% |
| Improper turning | 42 | 39 | 16 | 25 | 38.1% | 64.1% |
| Left of center | 44 | 45 | 25 | 20 | 56.8% | 44.4% |
| Speed too fast for weather conditions | 8 | 8 | 2 | 5 | 25.0% | 62.5% |
| Unsafe backing | 76 | 73 | 11 | 59 | 14.5% | 80.8% |
| Unsafe lane movement | 65 | 62 | 31 | 30 | 47.7% | 48.4% |
| Unsafe speed | 61 | 62 | 52 | 7 | 85.2% | 11.3% |
| Wrong way on one way | 5 | 5 | 4 | 1 | 80.0% | 20.0% |
| Distraction | 48 | 39 | 25 | 18 | 52.1% | 46.2% |
| Vehicle-related | 25 | 25 | 15 | 4 | 60.0% | 16.0% |
| Loss of control | 33 | 24 | 24 | 5 | 72.7% | 20.8% |
| Environmental | 28 | 22 | 18 | 15 | 64.3% | 68.2% |
| Cognitive impairment | 2 | 4 | 0 | 2 | 0.0% | 50.0% |
| All other | 136 | 130 | 71 | 67 | 52.2% | 51.5% |
| Total | 1,562 | 1,511 | 637 | 874 | 40.8% | 57.8% |

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020

- 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 excludes single-vehicle collisions involving motorcycles and collisions with unknown or unreported primary factor.
 - 3) Other vehicles category 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.

In general, when an unsafe action was involved, the driver of the other vehicle was more likely to be at fault (60 percent) than the motorcycle operator (38 percent).

LICENSING AMONG COLLISION-INVOLVED MOTORCYCLISTS

In 2019, 47 percent of motorcycle operators involved in collisions were licensed with motorcycle endorsements, while 41 percent did not have the endorsement on their license (Table 9). However, 12 percent had no license at all or were of unknown license status. Similar percentages apply for fatal motorcycle collision involvement—51 percent of operators had a motorcycle endorsement and 36 percent did not. In 2019, 16 unlicensed motorcycle operators were involved in fatal collisions.

In 2019, 41 percent of motorcycle operators involved in collisions were not licensed with motorcycle endorsements.

Table 9. Driver's license type reported by motorcycle operators involved in Indiana traffic collisions, 2015–2019

| All motorcycle collisions | | | | | | Annual rate of change | | % total involved |
|---|--------------|--------------|--------------|--------------|--------------|-----------------------|--------------|------------------|
| Type of driver's license reported | 2015 | 2016 | 2017 | 2018 | 2019 | 2018–19 | 2015–19 | 2019 |
| All involved motorcycle (MC) operators | 3,164 | 3,115 | 3,057 | 2,604 | 2,471 | -5.1% | -6.0% | 100% |
| Licensed, MC endorsement | 1,548 | 1,524 | 1,399 | 1,228 | 1,159 | -5.6% | -7.0% | 46.9% |
| Operators w/MC endorsement | 1,083 | 1,035 | 988 | 861 | 836 | -2.9% | -6.3% | 33.8% |
| Chauffeur w/MC enforcement | 182 | 211 | 164 | 136 | 110 | -19.1% | -11.8% | 4.5% |
| Motorcycle | 131 | 140 | 132 | 137 | 110 | -19.7% | -4.3% | 4.5% |
| Motorcycle learner's permit | 135 | 129 | 109 | 86 | 99 | 15.1% | -7.5% | 4.0% |
| Public passenger chauffeur w/MC endorsement | 17 | 9 | 6 | 8 | 4 | -50.0% | -30.4% | 0.2% |
| Licensed, no MC endorsement | 1,297 | 1,246 | 1,279 | 1,020 | 1,006 | -1.4% | -6.2% | 40.7% |
| Operator | 1,101 | 1,062 | 1,099 | 903 | 883 | -2.2% | -5.4% | 35.7% |
| Commercial driver | 91 | 80 | 89 | 60 | 70 | 16.7% | -6.3% | 2.8% |
| Motorcycle learner's permit | 68 | 61 | 60 | 31 | 35 | 12.9% | -15.3% | 1.4% |
| Chauffeur | 31 | 32 | 27 | 19 | 14 | -26.3% | -18.0% | 0.6% |
| Public passenger chauffeur | 5 | 5 | 0 | 1 | 1 | 0% | -33.1% | 0.0% |
| Driver's education learner's permit | 1 | 5 | 3 | 3 | 0 | -100% | -100% | 0.0% |
| Probationary operator license | 0 | 1 | 1 | 3 | 3 | 0.0% | N/A | 0.1% |
| No license | 286 | 311 | 341 | 325 | 276 | -15.1% | -0.9% | 11.2% |
| Unknown license status | 33 | 34 | 38 | 31 | 30 | -3.2% | -2.4% | 1.2% |

| | | | | | | | | |
|--|------------|------------|------------|------------|------------|--------------|--------------|--------------|
| Fatal motorcycle collisions | | | | | | | | |
| Motorcycle operators involved in fatal collisions | 105 | 105 | 142 | 110 | 118 | 7.3% | 3.0% | 100% |
| Licensed, MC endorsement | 46 | 58 | 63 | 54 | 60 | 11.1% | 6.9% | 50.8% |
| Operators w/MC endorsement | 28 | 37 | 50 | 38 | 40 | 5.3% | 9.3% | 33.9% |
| Chauffeur w/MC endorsement | 7 | 10 | 5 | 4 | 6 | 50.0% | -3.8% | 5.1% |
| Motorcycle learner's permit | 8 | 7 | 4 | 5 | 7 | 40.0% | -3.3% | 5.9% |
| Motorcycle | 3 | 4 | 3 | 6 | 7 | 16.7% | 23.6% | 5.9% |
| Public passenger chauffeur w/MC endorsement | 0 | 0 | 1 | 1 | 0 | -100% | N/A | 0.0% |
| Licensed, no MC endorsement | 56 | 40 | 65 | 42 | 42 | 0.0% | -6.9% | 35.6% |
| Operator | 52 | 35 | 60 | 34 | 38 | 11.8% | -7.5% | 32.2% |
| Commercial driver | 1 | 5 | 1 | 3 | 2 | -33.3% | 18.9% | 1.7% |
| Chauffeur | 1 | 0 | 3 | 2 | 0 | -100% | -100% | 0.0% |
| Motorcycle learner's permit | 1 | 0 | 1 | 2 | 2 | 0.0% | 18.9% | 1.7% |
| Public passenger chauffeur | 1 | 0 | 0 | 1 | 0 | -100% | -100% | 0.0% |
| No license | 2 | 7 | 13 | 14 | 16 | 14.3% | 68.2% | 13.6% |
| Unknown license status | 1 | 0 | 1 | 0 | 0 | N/A | -100% | 0.0% |

Sources: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2020
Indiana Bureau of Motor Vehicles, as of April 3, 2020

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 or 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 2015 to 2019, it is calculated as $(\text{Value in 2019}/\text{Value in 2015})^{1/4} - 1$.
- **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 17, 2020 and June 15, 2020 (2018 and 2019 impaired driving data).

Indiana Bureau of Motor Vehicles, current as of April 3, 2020.

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 traffic safety research project site (<http://trafficsafety.iupui.edu>), the ICJI website (www.in.gov/cji/), or you may contact the PPI at 317-278-1305.

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 thirteenth 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. Collisions 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.

Indiana University Public Policy Institute

The Indiana University Public Policy Institute produces unbiased, high-quality research, analyses and policy guidance to promote positive change and improve the quality of life in communities across Indiana and the nation. Our clients use our research to enhance their programs and services, to develop strategies and policies, to evaluate the impact of their decisions—and ultimately to help the people they serve. Established in 1992, PPI is part of the IU O'Neill School of Public and Environmental Affairs.

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 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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