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INDIANA TRAFFIC SAFETY FACTS

# ALCOHOL 2017

INDIANA UNIVERSITY
PUBLIC POLICY INSTITUTE

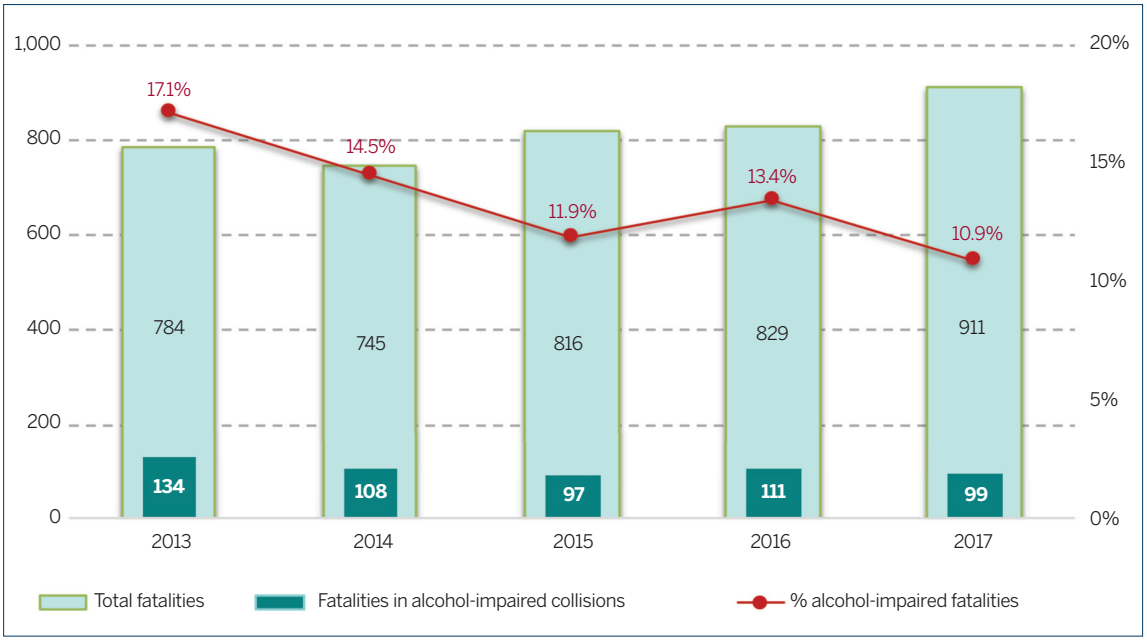
## IN 2017:

- 99 individuals were killed in Indiana alcohol-impaired collisions, representing 11 percent of Indiana traffic fatalities.
- Drivers represented three-quarters of all fatalities occurring in Indiana alcohol-impaired collisions.
- 74 percent of all drivers in 2017 Indiana fatal collisions were male, 8 percent of which were reported to be legally impaired.
- Passenger car occupants in alcohol-impaired collisions were 7 times more likely to be killed than passenger car occupants in non-impaired collisions.
- Rates of fatal and incapacitating injuries in crashes were highest on weekends between midnight and 4am, a time when rates of alcohol-impaired crashes were also at their highest.

In 2017, 99 fatalities occurred in Indiana collisions that involved one or more alcohol-impaired drivers, accounting for 11 percent (see note below) of all Indiana traffic fatalities (Figure 1). Across the nation, 10,497 fatalities occurred in 2016 crashes (latest data available) that involved at least one alcohol-impaired driver (see Definition on page X). This number represented 28 percent of all U.S. traffic fatalities (NHTSA, 2017). This fact sheet presents information and trends on alcohol-impaired traffic collisions in Indiana from 2013 to 2017 including driver demographics, the incidence of alcohol testing and BAC test results for involved drivers, and other attributes of alcohol-impaired collisions, injuries, and fatalities.

***Note: Data discrepancies may exist between the 2017 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. Trends related to Indiana alcohol-impaired fatal crashes and fatalities, as well as reported proportional differences between Indiana and U.S. alcohol-impaired fatalities, should be interpreted with caution. Please note that these numbers were current as of the April 6, 2018 Indiana State Police Automated Reporting Information Exchange System (ARIES) data extract and are likely to change as pending BAC test results are finalized and reported into the ARIES crash database. For example, in 2017, about 61 percent of drivers involved in Indiana fatal collisions were reported in ARIES to have been tested, while only 404 of the 1,288 drivers involved in fatal collisions (31 percent) had BAC results reported in ARIES as of April 6, 2018.***

**Figure 1. Indiana traffic fatalities, by alcohol impairment, 2013-2017**




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

Note: *Alcohol-impaired fatalities* occurred in collisions that involved at least one driver or non-motorist with a BAC of 0.08 g/dL or greater.

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# GENERAL TRENDS

Between 2013 to 2017, both the number of alcohol-impaired collisions and alcohol-impaired fatal collisions declined annually, while total fatal collisions increased 4 percent annually (Table 1). In 2017, 99 individuals were killed in 88 fatal alcohol-impaired collisions in the state. Total fatal collisions increased nearly 8 percent from 2016 to 2017, while fatal alcohol-impaired collisions decreased 10 percent. The percentage of crashes linked to alcohol-impaired driving was continually disproportionately high over the 5-year period. In 2017, alcohol-impaired crashes represented less than 2 percent of all Indiana property damage collisions, 4 percent of all non-fatal injury collisions, and 11 percent of all fatal collisions.

**Table 1. Indiana collisions, by driver alcohol impairment and collision severity, 2013-2017**

| Alcohol impairment / Collision severity | Count of collisions | | | | | Annual rate of change | |
|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2016-17 | 2013-17 |
| **Total collisions** | **193,236** | **205,769** | **216,492** | **223,905** | **219,112** | **-2.1%** | **3.2%** |
| Fatal | 710 | 704 | 751 | 776 | 834 | 7.5% | 4.1% |
| Non-fatal injury | 32,852 | 33,860 | 34,468 | 35,336 | 34,219 | -3.2% | 1.0% |
| Property damage | 159,674 | 171,205 | 181,273 | 187,793 | 184,059 | -2.0% | 3.6% |
| **All alcohol-impaired collisions** | **4,738** | **4,543** | **4,790** | **4,844** | **4,450** | **-8.1%** | **-1.6%** |
| Fatal | 122 | 101 | 90 | 98 | 88 | -10.2% | -7.8% |
| Non-fatal injury | 1,392 | 1,283 | 1,319 | 1,416 | 1,231 | -13.1% | -3.0% |
| Property damage | 3,224 | 3,159 | 3,381 | 3,330 | 3,131 | -6.0% | -0.7% |
| **Alcohol-impaired as % of total** | **2.5%** | **2.2%** | **2.2%** | **2.2%** | **2.0%** | **-6.1%** | **-4.6%** |
| Fatal | 17.2% | 14.3% | 12.0% | 12.6% | 10.6% | -16.4% | -11.5% |
| Non-fatal injury | 4.2% | 3.8% | 3.8% | 4.0% | 3.6% | -10.2% | -4.0% |
| Property damage | 2.0% | 1.8% | 1.9% | 1.8% | 1.7% | -4.1% | -4.2% |

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

Note: *Alcohol-impaired collisions* are defined as collisions that involved at least one driver or non-motorist with a BAC of 0.08 g/dL or greater.

# ALCOHOL AND DRUG TESTING RATES IN CRASHES

Indiana Code 9-30-7-3a states in part that a "law enforcement officer shall offer a portable breath test or chemical test to any person who the officer has reason to believe operated a vehicle that was involved in a fatal accident or an accident involving *serious bodily injury.*" Elsewhere, serious bodily injury is defined in IC 35-31.5-2-292 as "bodily injury that creates a substantial risk of death or that causes: (1) serious permanent disfigurement; (2) unconsciousness; (3) extreme pain; (4) permanent or protracted loss or impairment of the function of a bodily member or organ; or (5) loss of a fetus." However, ARIES personal injury classifications for drivers do not include an equivalent category (*incapacitating injury* is the closest), so it is difficult to precisely identify collisions resulting in "serious bodily injury." Therefore, testing rates below are measured only for drivers in fatal collisions.

From 2013 to 2017, substance test rates among drivers in fatal collisions vary significantly by whether or not the driver survived the crash (Table 2). Generally, *surviving* drivers are tested at higher rates than drivers who suffered a fatal injury. In 2017, three quarters of surviving drivers were tested, while fewer than half of drivers killed were tested. Overall, about 62 percent of drivers involved in 2017 fatal collisions were reported in ARIES to have been tested for alcohol and/or drugs, a number consistent with 2016 testing rates (calculated from Table 2). Rates of driver alcohol-impairment also varied by driver injury severity. Among drivers who were tested, surviving drivers had lower impairment rates than drivers who were killed at 5 percent and 21 percent, respectively. The rates of 'positive' drug test results were higher than alcohol-impairment rates for both surviving drivers and drivers killed. (Please note that ARIES does not specify the type of drug(s) indicated in a "positive" drug test result; furthermore, alcohol-impaired and drug-positive are not mutually exclusive—drivers can be one or the other or both).

**Table 2. Drivers involved in Indiana fatal collisions, by substance test given and findings, 2013-2017**

| | Surviving | | | | | Killed | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| **Drivers in fatal collisions** | **577** | **602** | **610** | **629** | **668** | **530** | **517** | **536** | **570** | **620** |
| **By test type given** | | | | | | | | | | |
| Alcohol and/or drug | 403 | 470 | 438 | 438 | 491 | 304 | 267 | 277 | 269 | 308 |
| None | 35 | 21 | 3 | 0 | 3 | 61 | 33 | 7 | 5 | 5 |
| Refused | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| Not reported | 139 | 110 | 168 | 189 | 173 | 165 | 217 | 252 | 296 | 307 |
| **Tested, as % all** | **69.8%** | **78.1%** | **71.8%** | **69.6%** | **73.5%** | **57.4%** | **51.6%** | **51.7%** | **47.2%** | **49.7%** |
| ***Alcohol-impaired, as % all*** | ***4.9%*** | ***4.5%*** | ***5.9%*** | ***5.1%*** | ***3.9%*** | ***24.5%*** | ***17.9%*** | ***14.5%*** | ***10.1%*** | ***9.3%*** |
| ***Drug-positive, as % all*** | ***10.7%*** | ***9.5%*** | ***7.5%*** | ***8.7%*** | ***7.4%*** | ***24.4%*** | ***18.1%*** | ***14.1%*** | ***13.2%*** | ***10.1%*** |
| ***Alcohol-impaired, as % tested*** | ***7.0%*** | ***5.8%*** | ***8.3%*** | ***7.0%*** | ***5.3%*** | ***31.2%*** | ***28.1%*** | ***19.2%*** | ***25.1%*** | ***20.6%*** |
| ***Drug-positive, as % tested*** | ***18.0%*** | ***13.3%*** | ***15.0%*** | ***19.7%*** | ***8.9%*** | ***34.1%*** | ***29.6%*** | ***27.6%*** | ***33.6%*** | ***24.7%*** |

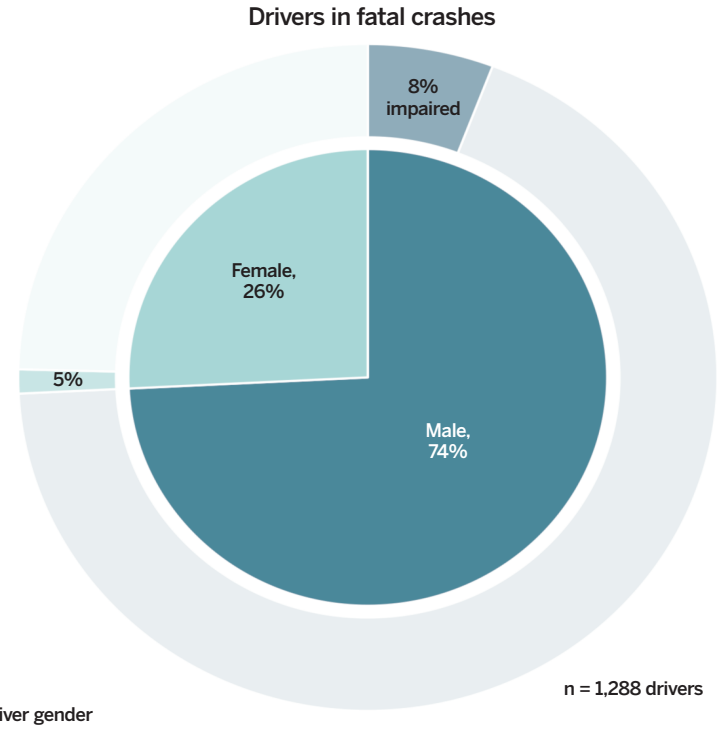
Source: Indiana State Police Automated Reporting Information Exchange System, as of April 6, 2018

Notes:
1) *Alcohol-impaired*: BAC of 0.08 g/dL or higher.
2) *Drug-positive*: ARIES reported "positive" under *drug test results.* ARIES does not specify drug(s) type(s).
3) *Alcohol-impaired* and *drug-positive* are not mutually exclusive (i.e., drivers can be one or the other or both).

# ALCOHOL-IMPAIRMENT, BY DRIVER GENDER

According to NHTSA, male drivers are consistently more likely to engage in risky driving behaviors than female drivers, including driving while impaired. In 2016, men were more likely than women to be driving drunk in U.S. fatal crashes at 21 percent and 14 percent, respectively (DOT HS 812 450). Figure 2 shows that 74 percent of all drivers in 2017 Indiana fatal collisions were male, while only 26 percent were female. Among male drivers in fatal crashes, 8 percent were reported as alcohol-impaired, while 5 percent of female drivers in fatal crashes were impaired.

**Figure 2. Alcohol impairment among drivers in Indiana fatal collisions, by gender, 2017**



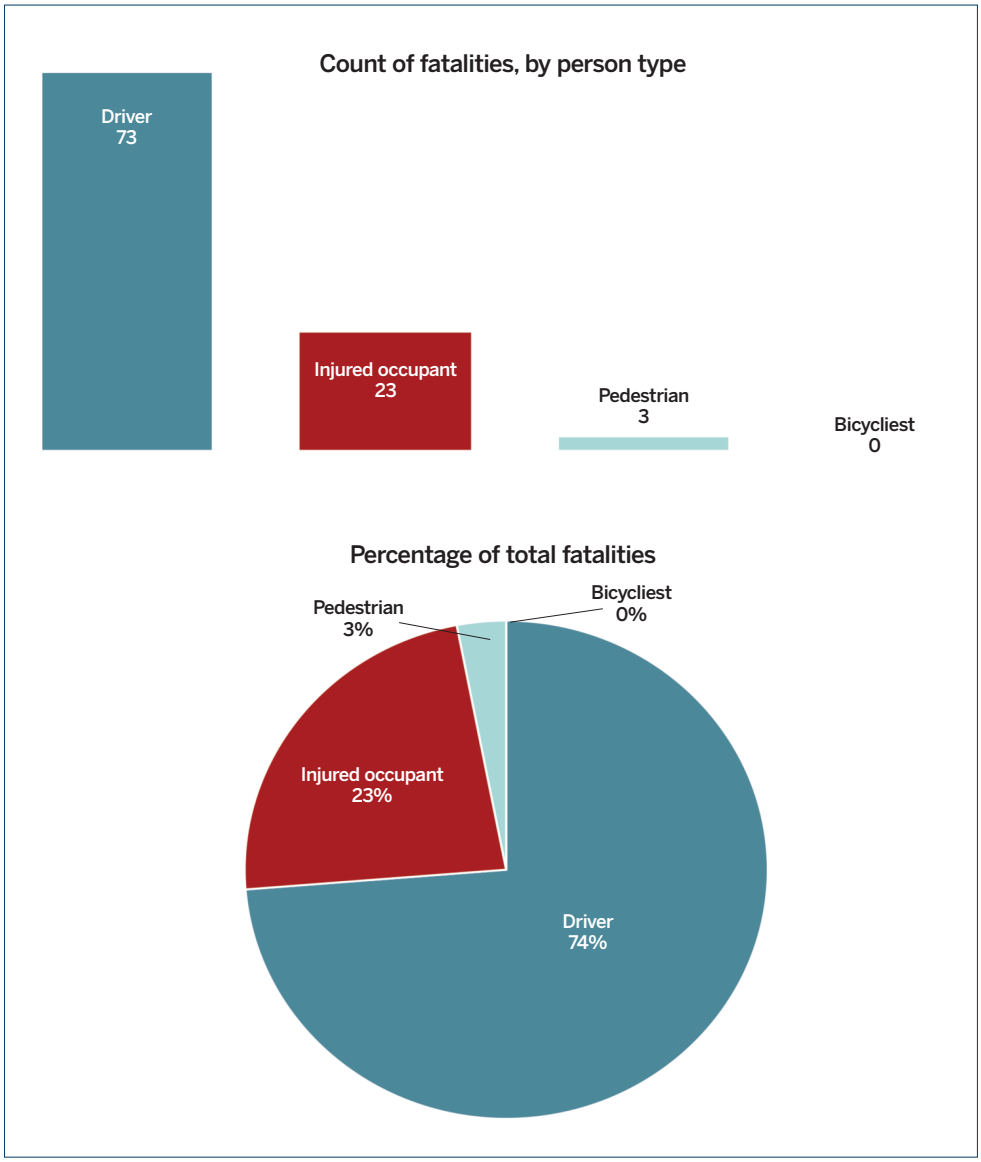

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of April 6, 2018

Note: *Alcohol-impaired* is a driver with a reported BAC of 0.08 g/dL or higher.

# ALCOHOL-IMPAIRED FATALITIES, BY PERSON TYPE

Among the 99 individuals killed in alcohol-impaired collisions, 73 were drivers, 23 were vehicle passengers, and 3 were pedestrians (Figure 3). In 2017, no bicyclists were killed in alcohol-impaired crashes. Drivers represented three-quarters of all fatalities occurring in Indiana alcohol-impaired collisions.

Figure 3. Indiana traffic fatalities in alcohol-impaired collisions, by person type, 2017




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

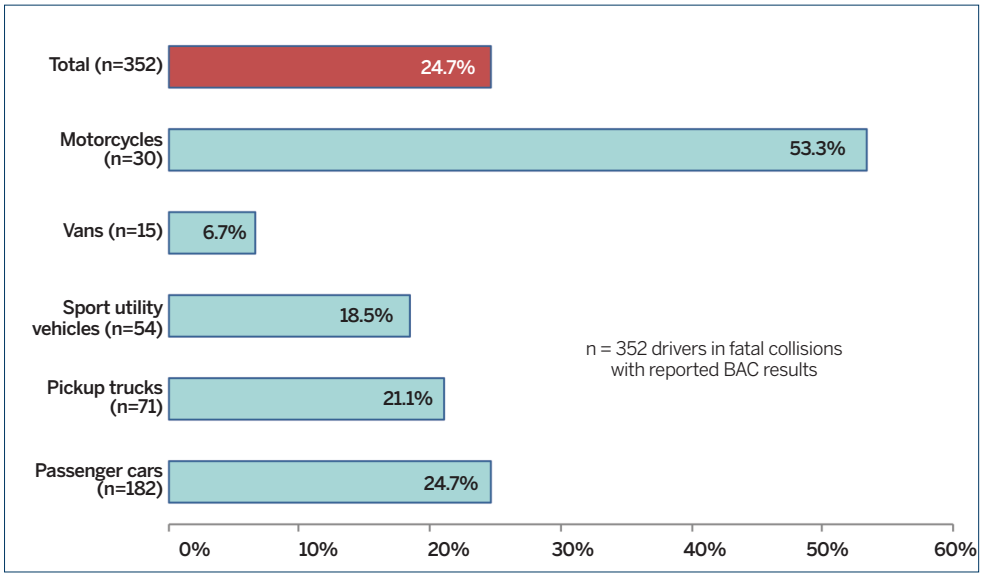
Note: *Alcohol-impaired* is a driver with a reported BAC of 0.08 g/dL or higher.

# VEHICLES IN ALCOHOL-IMPAIRED COLLISIONS

Rates of driver alcohol impairment vary by vehicle type. Figure 4 shows the percent of *drivers* tested in 2017 fatal collisions who were legally impaired. Vehicle types presented are limited to passenger vehicles and motorcycles. Among drivers tested, motorcycle operators (53 percent), drivers of passenger cars (25 percent), and pickup truck drivers (21 percent) had the highest percent of impaired driving.

Table 3 shows the relative risk of fatal injury was higher in both passenger vehicles and motorcycles when the crash involved one or more drivers who were legally impaired. For example, in 2017, less than one percent of SUV occupants were killed in crashes where alcohol was **not** involved, while 2 percent of SUV occupants in alcohol-impaired collisions were killed, making an individual 11 times more likely to be killed in an SUV when the crash involves an alcohol-impaired driver. Passenger car occupants in alcohol-impaired collisions were 7 times more likely to be killed than occupants in non-impaired collisions, and pickup truck occupants were 6 times more likely to be killed in collisions compared to occupants in non-impaired collisions. These relative risk ratios were all statistically significant ($p<0.01$).

**Figure 4. Percent of drivers involved in fatal collisions with reported BAC results who were legally impaired, by vehicle type, 2017**




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

Notes:
1) Includes only *passenger vehicles (passenger cars, pickup trucks, sport utility vehicles,* and *vans*) and *motorcycles*. *Non-motorists* and other vehicle types are excluded.
2) *Motorcycles* include *motorcycles, motor driven cycles Class A, mopeds, motorized bicycles,* and *motor driven cycles Class B.*
3) Drivers in fatal collisions with no reported BAC results are excluded.

**Table 3. Table 3. Vehicle occupants involved in Indiana collisions, by vehicle type, crash alcohol involvement, and injury status, 2017**

| Collision alcohol involvement and injury status | Passenger cars | | Pickup trucks | | SUVs | | Vans | | Motorcycles | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Count | % Total | Count | % Total | Count | % Total | Count | % Total | Count | % Total |
| **Not alcohol-impaired (NA)** | **227,341** | **100.0%** | **36,440** | **100.0%** | **46,994** | **100.0%** | **15,115** | **100.0%** | **3,254** | **100.0%** |
| Fatal | 382 | 0.2% | 61 | 0.2% | 70 | 0.1% | 21 | 0.1% | 128 | 3.9% |
| Incapacitating | 11,930 | 5.2% | 1,414 | 3.9% | 2,324 | 4.9% | 810 | 5.4% | 1,325 | 40.7% |
| Non-incapacitating | 19,104 | 8.4% | 2,414 | 6.6% | 4,112 | 8.8% | 1,330 | 8.8% | 860 | 26.4% |
| No injury | 195,925 | 86.2% | 32,551 | 89.3% | 40,488 | 86.2% | 12,954 | 85.7% | 941 | 28.9% |
| **Alcohol-impaired (A)** | **4,234** | **100.0%** | **871** | **100.0%** | **827** | **100.0%** | **180** | **100.0%** | **136** | **100.0%** |
| Fatal | 50 | 1.2% | 8 | 0.9% | 14 | 1.7% | 1 | 0.6% | 19 | 14.0% |
| Incapacitating | 521 | 12.3% | 127 | 14.6% | 110 | 13.3% | 14 | 7.8% | 57 | 41.9% |
| Non-incapacitating | 569 | 13.4% | 105 | 12.1% | 135 | 16.3% | 34 | 18.9% | 38 | 27.9% |
| No injury | 3,094 | 73.1% | 631 | 72.4% | 568 | 68.7% | 131 | 72.8% | 22 | 16.2% |
| **Relative risk of fatal injury** | **7.0** | | **5.5** | | **11.4** | | **4.0** | | **3.6** | |

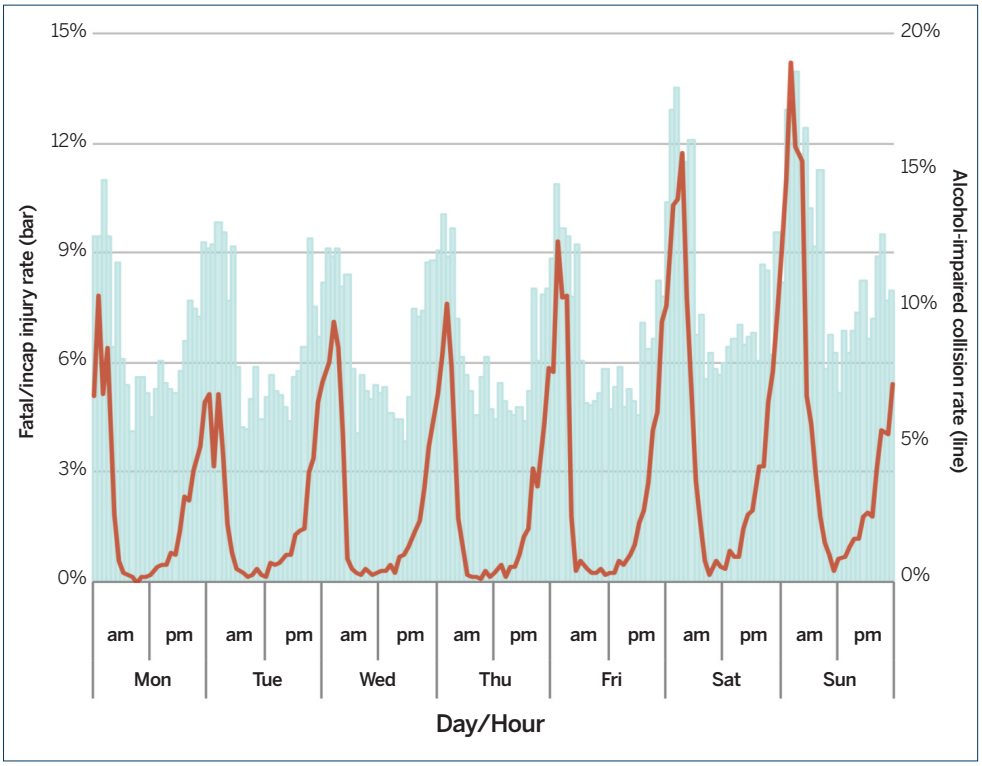
Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of April 6, 2018

Notes:
1) *Alcohol-impaired collisions* are defineds as collisions that involved at least one driver or non-motorist with a BAC of 0.08 g/dL or greater.
2) Relative risk of fatal injury is calculated as % A / % NA. All relative risk ratios are significant ($p<0.01$). Excludes NULL values.
3) Non-incapacitating injuries include those injuries reported as *non-incapacitating, possible, not reported, unknown,* and *refused (treatment)* injury status codes.
4) *Motorcycles* includes *motorcycles, class A* and *class B motor-driven cycles*, and *motorized bicycles.*
5) Excludes *non-motorists*.

# ALCOHOL-IMPAIRED DRIVING AND TIME OF DAY

In 2017, the highest percentage of hourly fatal and incapacitating injuries occurred during overnight hours (between 12am and 4am), particularly over the weekend (Figure 5). The highest hourly rates of alcohol-impaired crashes occurred during this same time period. The highest percentage of hourly fatal and incapacitating injuries in 2017 occurred on Saturdays between 2am and 3am (14 percent). The highest hourly rate of alcohol-impaired crashes occurred on Sundays between 2am and 3am (19 percent).

**Figure 5. Indiana fatal and incapacitating injuries in collisions, by alcohol-involvement, hour and day of week, 2017**




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

Notes:
1) *Fatal/incapacitating injury rate* is the percent of all hourly injuries in collisions reported as *fatal* or *incapacitating*.
2) *Alcohol-impaired collision rate* is the percent of all hourly collisions that involved one or more *alcohol-impaired* drivers.

# GEOGRAPHY OF ALCOHOL-IMPAIRED COLLISIONS

Map 1 illustrates county rates of alcohol-impaired drivers in Indiana collisions per 10,000 licensed drivers. The mean county rate (per 10,000 licensed) of alcohol-impaired drivers in collisions was 9.7, and the median rate was 9.4.

Counties with the highest rates of impaired drivers in collisions were clustered in the northern and southwestern regions of the state. LaGrange (18.7 per 10,000) and LaPorte (18.3 per 10,000) counties had the highest rates of alcohol-impaired drivers in collisions, and Martin (2.7 per 10,000), Switzerland (2.9 per 10,000), and Pulaski (3.2 per 10,000) had the lowest rates of alcohol-impaired drivers in collisions.

# DEFINITIONS

***Alcohol-impaired*** - The National Highway Traffic Safety Administration (NHTSA) defines drivers as alcohol-impaired "when their blood alcohol concentration (BAC) is 0.08 grams per deciliter (g/dL) or higher [and] any fatal crash involving a driver with a BAC of 0.08 or higher is considered to be an alcohol-impaired-driving crash, and fatalities occurring in those crashes are considered to be alcohol-impaired-driving fatalities" (NHTSA DOT HS 812 450, 2017, p. 1). Indiana drivers meeting this criterion should have at least received a Class C misdemeanor pursuant to IC 9-30-5-1. Drivers with BAC = 0.15 g/dL or greater should have received a Class A misdemeanor pursuant to IC 9-30-5-1. If the driver had a passenger under the age of 18 in the vehicle, a Class D felony could have been imposed. This fact sheet does not explicitly consider these cases but does include them in summary statistics.

***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 (Value in 2017/Value in 2013)$^{1/4}$ -1.

# REFERENCE

National Highway Traffic Safety Administration (NHTSA). (October 2017). Alcohol-impaired driving, *Traffic Safety Facts, 2016 Data,* DOT HS 812 450, National Center for Statistics and Analysis.

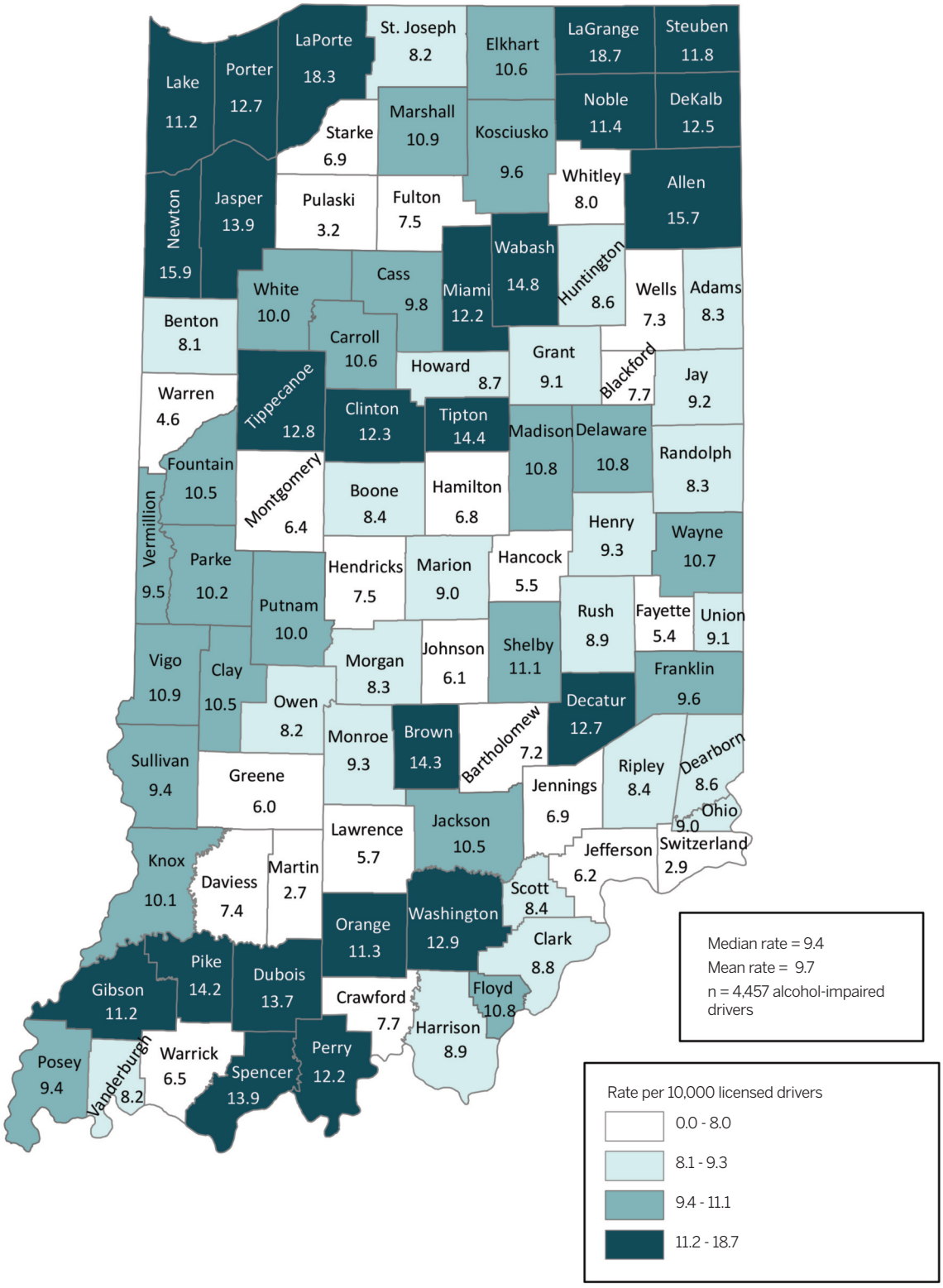
National Highway Traffic Safety Administration (NHTSA). *Drunk Driving Campaign.* https://www.nhtsa.gov/risky-driving/drunk-driving, accessed August 3, 2018.

# DATA SOURCES

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

Indiana Bureau of Motor Vehicles (BMV) licensing data, current as of April 23, 2018.

## Map 1. Alcohol-impaired drivers in Indiana collisions per 10,000 licensed drivers, by county, 2017




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

INDIANA TRAFFIC SAFETY FACTS

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/), or you may contact the PPI at 317-261-3000.

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## 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.

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