Berkeley SafeTREC
SAFE TRANSPORTATION RESEARCH AND EDUCATION CENTER

OTS CALIFORNIA OFFICE OF TRAFFIC SAFETY

TRAFFIC SAFETY FACTS

# Alcohol-Impaired Driving

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## PROBLEM IDENTIFICATION AND DATA ANALYSIS

While alcohol-impaired driving fatalities have fallen significantly in the last three decades, NHTSA reports that alcohol-impaired driving still comprises a large percentage of traffic injuries and fatalities. On average in 2020, someone died from an alcohol-impaired driving crash every 45 minutes. There was an increase in the number of alcohol-impaired driving fatalities and rate per 100 million Vehicle Miles Traveled (VMT) in the United States between 2019 and 2020.

The United States Department of Transportation uses the Safe System Approach to work towards zero roadway fatalities and serious injuries . With alcohol-impaired driving accounting for 30.0 percent of all traffic fatalities, designing streets to protect people even when they make unsafe decisions is critical. The Safe System Approach recognizes human mistakes and vulnerabilities, and designs a system with many redundancies in place to protect everyone. The Federal Highway Administration names safe road users, safe vehicles, safe speeds, safe roads, and post-crash care as key elements of a Safe System. These elements together create multiple layers of protection to improve safety.

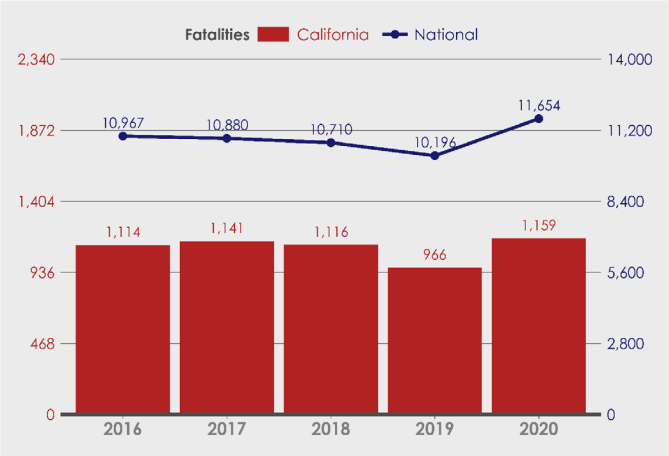
To identify crashes involving alcohol-impaired drivers in FARS, SafeTREC applied the multiple imputation method outlined in DOT HS 809 403. Analyses from FARS presented for this program area are derived from crashes with a driver, pedestrian, or bicyclist with a blood alcohol concentration (BAC) of .08 or greater. Analyses from SWITRS presented in this program area refer to alcohol involvement and include fatalities and serious injuries where law enforcement reported a driver, pedestrian, or bicyclist to have been drinking. Crashes in the program area are defined as one where one or more drivers, pedestrians, or bicyclists is alcohol-impaired or had been drinking (alcohol-involved) depending on which data set is used.

## KEY FINDINGS

### NATIONAL DATA

- In the United States, there were 11,654 people killed in alcohol-impaired crashes in 2020, a 14.3 percent increase from 10,196 in 2019 (see Figure 1).
- Alcohol-impaired driving fatality rate per 100 million VMT increased 29.0 percent from 0.31 in 2019 to 0.40 in 2020.
- All 50 states have laws that make it illegal to drive with a BAC of .08 grams per deciliter (g/dL) or higher; in 2019, Utah lowered its BAC limit to .05 g/dL. Testing standards for when to administer a BAC test vary considerably between states and local jurisdictions which affect the accuracy and reliability of BAC estimates.
- Drivers of all vehicle types, except people driving vans, experienced an increase in the number of alcohol-impaired drivers involved in fatal crashes from 2019 to 2020.
- Of the 53,890 drivers involved in fatal crashes nationally in 2020, only 21,408 drivers, or 39.7 percent, had known BAC test results. Across all states, the percentage of drivers with known BAC test results ranged from 7.3 in Massachusetts to 86.2 percent in South Dakota.

**Figure 1: Alcohol-Impaired Fatality Trends, Nationwide and California, 2016-2020**




Source: FARS 2016-2019, Final File, 2020 ARF

- In the United States in 2020, alcohol-impaired driving fatalities as a proportion of all traffic fatalities increased from 28.1 percent in 2019 to 30.0 percent in 2020.

## CALIFORNIA DATA

- In California, there were 1,159 people killed in alcohol-impaired crashes in 2020, a 20.0 percent increase from 966 in 2019.
- In California, of the 3,847 motor vehicle fatalities in 2020, 30.1 percent involved a driver with a BAC of .08 or higher. This is slightly higher than the national average of 30.0 percent.
- California only reported BAC results for 35.5 percent of drivers involved in a fatal crash in 2020, which is lower than the national average of 39.7 percent. Testing rates were higher for drivers who died than drivers who survived, but testing rates in California for both groups were lower than the national average. Of drivers who died, 56.3 percent had known BAC test results compared to only 21.1 percent of drivers that survived. The comparable national figures were 59.2 percent and 23.1 percent, respectively.
- In 2021, Californians were asked about their top traffic safety concerns in the Traffic Safety Survey sponsored by the Office of Traffic Safety. The third-most frequently cited safety problem was "Drunk Driving," reported by 68.7 percent of the drivers and accounting for 17.5 percent of responses, a slight decrease from 17.9 percent of responses in 2020 and an increase from 9.2 percent of responses in 2019.

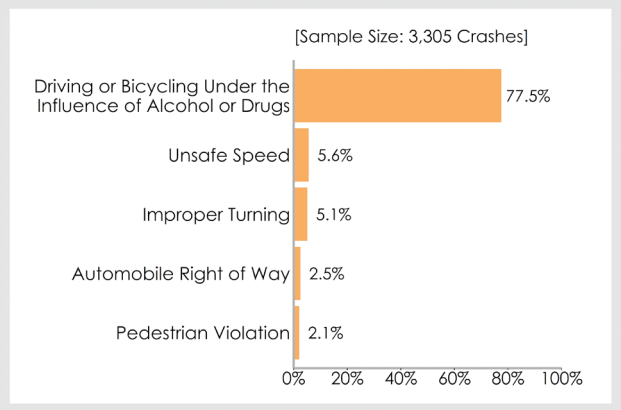
### State-level Analysis

- The figures in this section refer to drivers, passengers, bicyclists, and pedestrians fatally injured in an alcohol-impaired crash and fatally or seriously injured in an alcohol-involved crash in California in 2020. These numbers are the products of UCB SafeTREC analysis.

### Fatal Alcohol-Impaired and Serious Injury Alcohol-Involved Crashes by County

- Kern, Los Angeles, Orange, Riverside, Sacramento, San Bernardino, and San Diego counties had the highest number of alcohol-impaired fatal injuries. These same seven counties, with the inclusion of San Joaquin, also had the highest number of alcohol-involved serious injuries (see Figure 3).
- Alpine, Amador, Colusa, Modoc, Plumas, Sierra, Tehama, and Trinity counties had the highest rate of alcohol-impaired fatal injuries per 100k population. Similarly, Alpine, Sierra, and Trinity counties also had high alcohol-involved serious injury rates per 100k population. Other counties with high rates of alcohol-involved serious injuries were Calaveras, Inyo, Mendocino, Siskiyou, and Tuolumne counties.

**Figure 2: Top Five Primary Crash Factors for Alcohol-Impaired Driving Fatal and Serious Injury Crashes, California, 2020**




Source: Provisional SWITRS 2020

### Primary Crash Factors of Alcohol-Involved Fatal and Serious Injury Crashes

- Expectedly, the vast majority, 77.5 percent, of the primary crash factors (PCF) for alcohol-involved crashes were classified as driving or bicycling under the influence of alcohol or drugs. Following that PCF, unsafe speed (5.6 percent) and improper turning (5.1 percent) were the most frequent PCFs recorded (see Figure 2).

### Crash Types for Alcohol-Involved Fatal and Serious Injury Crashes

- Hit object was the most prevalent type of alcohol-involved crash at 37.3 percent. This was followed by rear end crashes at 14.9 percent, broadside at 13.3 percent, and head-on at 11.6 percent.

## Time and Day of Alcohol-Impaired Fatal and Alcohol-Involved Serious Injuries

- The number of alcohol-impaired fatalities was highest from 3 PM to 9 PM, with 44.8% of fatalities occurring during this period. The day with the most alcohol-impaired fatalities was Friday, with 22.8 percent, followed by Sunday, with 18.7 percent. The peak period was at the intersection of these two patterns: 68 fatalities, 5.9 percent of the total, occurred between 6PM and 9PM on Friday.
- The pattern of alcohol-involved serious injuries was somewhat different. The time of day with the highest numbers was 9PM to midnight with 25.3 percent of serious injuries, followed by 6PM to 9 PM and midnight to 3 AM, with 21.5 percent and 21.2 percent respectively. Together they comprised 68.0 percent of all alcohol-involved serious injuries. The days with the most alcohol-involved serious injuries were Sunday and Saturday, with 23.7 percent and 21.7 percent, respectively. The peak period was on Sunday from midnight to 3 AM, with 230 serious injuries, or 7.2 percent of the total.

## Alcohol-Impaired Fatal and Alcohol-Involved Serious Injury Victim Demographics

- Alcohol-impaired fatal and alcohol-involved serious injury victims were predominantly male. The largest demographic of fatalities was male victims age 15 to 24, with 22.9 percent of fatally-injured victims, while the largest demographic of serious injuries was males 25 to 34, who comprised 21.5 percent of seriously-injured victims.
- Race was not reported for 39.4 percent of the alcohol-impaired driving fatalities. Of the 704 fatalities with a known race, 80.2 percent (or 564) were white.

## Crash Location for Fatal Alcohol-Impaired Victims

- About two-thirds (68.7 percent) of alcohol-impaired fatalities occurred in urban areas compared to 31.1 percent on rural roads. However only about 18.5 percent of travel took place on rural roads in 2019.
- The type of roadway with the greatest share of alcohol-impaired fatalities was non-interstate principal arterials at 38.4 percent, followed by non-interstate minor arterials at 23.5 percent and non-interstate collectors at 15.4 percent.

## Vehicle Type for Fatally Injured Victims of Alcohol-Impaired Crashes

- In 2020, passenger cars were involved in 48.1 percent of alcohol-impaired fatalities followed by non-motor vehicle occupants at 16.1 percent, motorcycles at 12.6 percent, and utility vehicles at 10.5 percent.

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## COUNTY TABLE: ALCOHOL-IMPAIRED ROAD USERS

### Figure 3: Alcohol-Involved Fatalities and Serious Injuries, by Number and Rate, 2020

| County | Population | Fatalities | Serious Injuries | Fatal & Serious Injuries (FSI) | FSI per 100K Population |
|---|---|---|---|---|---|
| Alameda | 1,681,700 | 27 | 79 | 106 | 6.30 |
| Alpine | 1,199 | 1 | 2 | 3 | 250.21 |
| Amador | 40,506 | 5 | 13 | 18 | 44.44 |
| Butte | 211,216 | 12 | 36 | 48 | 22.73 |
| Calaveras | 45,277 | 2 | 18 | 20 | 44.17 |
| Colusa | 21,826 | 2 | 5 | 7 | 32.07 |
| Contra Costa | 1,166,669 | 34 | 66 | 100 | 8.57 |
| Del Norte | 27,745 | 2 | 9 | 11 | 39.65 |
| El Dorado | 191,282 | 8 | 28 | 36 | 18.82 |
| Fresno | 1,008,860 | 42 | 77 | 119 | 11.80 |
| Glenn | 28,822 | 1 | 11 | 12 | 41.64 |
| Humboldt | 136,514 | 5 | 26 | 31 | 22.71 |
| Imperial | 178,537 | 4 | 19 | 23 | 12.88 |
| Inyo | 18,977 | 1 | 12 | 13 | 68.50 |
| Kern | 907,021 | 70 | 132 | 202 | 22.27 |
| Kings | 153,085 | 9 | 23 | 32 | 20.90 |
| Lake | 68,099 | 2 | 25 | 27 | 39.65 |
| Lassen | 32,025 | 2 | 8 | 10 | 31.23 |
| Los Angeles | 10,012,474 | 216 | 549 | 765 | 7.64 |
| Madera | 156,519 | 9 | 15 | 24 | 15.33 |
| Marin | 262,410 | 0 | 16 | 16 | 6.10 |
| Mariposa | 17,123 | 1 | 6 | 7 | 40.88 |
| Mendocino | 91,602 | 4 | 37 | 41 | 44.76 |
| Merced | 280,873 | 14 | 72 | 86 | 30.62 |
| Modoc | 8,703 | 1 | 3 | 4 | 45.96 |
| Mono | 13,185 | 1 | 1 | 2 | 15.17 |
| Monterey | 439,008 | 19 | 49 | 68 | 15.49 |
| Napa | 138,433 | 4 | 16 | 20 | 14.45 |
| Nevada | 102,392 | 6 | 17 | 23 | 22.46 |
| Orange | 3,184,513 | 50 | 118 | 168 | 5.28 |
| Placer | 405,308 | 10 | 57 | 67 | 16.53 |
| Plumas | 19,666 | 2 | 6 | 8 | 40.68 |
| Riverside | 2,421,480 | 94 | 221 | 315 | 13.01 |
| Sacramento | 1,585,666 | 43 | 161 | 204 | 12.87 |
| San Benito | 64,110 | 4 | 10 | 14 | 21.84 |
| San Bernardino | 2,181,983 | 114 | 214 | 328 | 15.03 |
| San Diego | 3,303,736 | 74 | 246 | 320 | 9.69 |
| San Francisco | 870,985 | 6 | 19 | 25 | 2.87 |
| San Joaquin | 780,676 | 42 | 113 | 155 | 19.86 |
| San Luis Obispo | 282,996 | 7 | 30 | 37 | 13.07 |
| San Mateo | 763,497 | 14 | 32 | 46 | 6.03 |
| Santa Barbara | 448,659 | 16 | 44 | 60 | 13.37 |
| Santa Clara | 1,933,516 | 35 | 91 | 126 | 6.52 |
| Santa Cruz | 272,360 | 5 | 25 | 30 | 11.02 |
| Shasta | 181,881 | 15 | 33 | 48 | 26.39 |
| Sierra | 3,233 | 1 | 3 | 4 | 123.72 |
| Siskiyou | 44,091 | 1 | 18 | 19 | 43.09 |
| Solano | 453,405 | 10 | 34 | 44 | 9.70 |
| Sonoma | 489,880 | 8 | 52 | 60 | 12.25 |
| Stanislaus | 553,995 | 18 | 75 | 93 | 16.79 |
| Sutter | 100,751 | 5 | 16 | 21 | 20.84 |
| Tehama | 65,643 | 9 | 17 | 26 | 39.61 |
| Trinity | 16,135 | 3 | 8 | 11 | 68.18 |
| Tulare | 473,482 | 35 | 78 | 113 | 23.87 |
| Tuolumne | 55,500 | 0 | 28 | 28 | 50.45 |
| Ventura | 844,545 | 21 | 52 | 73 | 8.64 |
| Yolo | 216,544 | 12 | 21 | 33 | 15.24 |
| Yuba | 81,468 | 2 | 15 | 17 | 20.87 |
| **Total** | **39,541,786** | **1,160** | **3,207** | **4,367** | **11.04** |

Source: FARS ARF 2020; Provisional SWITRS 2020; California Department of Finance 2021.

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