Alcohol and Drug Involvement in California Fatal Motor Vehicle Collisions by Travel Mode, 2016

INJURY DATA BRIEF

California strives for a sustainable, equitable, and safe transportation system. Active travel modes, including walking and biking, are integral to achieving sustainability and equity. Alcohol and drugs affect performance for all travel modes, with implications for safety. This brief describes alcohol and drug involvement among drivers, pedestrians, and cyclists involved in fatal motor vehicle collisions (MVCs). The California Highway Patrol reports fatal MVCs to the National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS). Fatal MVCs have more complete substance data than nonfatal MVCs because they include toxicology reports from coroners, medical examiners, or police investigations, when available. In this brief, alcohol involvement was defined as a blood alcohol content ≥0.01 g/dl. Drug involvement was defined as ≥1 positive drug test result. If no alcohol or drug test results were available, officer judgement as recorded on the police report was used. Alcohol or drug involvement does not necessarily mean the party was impaired during the MVC or was the party at fault.

In 2016, 3,837 people were killed in 3,540 fatal MVCs on California roadways. These fatal MVCs involved 5,293 drivers, 1,012 pedestrians, and 156 cyclists.[1] Among parties involved in fatal MVCs with a known alcohol and drug status, alcohol or drug involvement was more prevalent among pedestrians and cyclists than drivers (Figure 1, Table 1).

⇒ Almost a third of drivers involved in fatal MVCs were alcohol or drug involved, with alcohol and drugs contributing equally (12% alcohol only, 12% drug only, and 8% with combined alcohol and drug involvement).

⇒ More than half of pedestrians (54%) and cyclists (57%) involved in fatal MVCs were alcohol or drug involved. Involvement with drugs alone was the most prevalent alcohol and drug condition among pedestrians (22%), followed by alcohol alone (17%) and alcohol in combination with drugs (15%). Involvement with drugs alone was also the most prevalent condition among cyclists (38%).
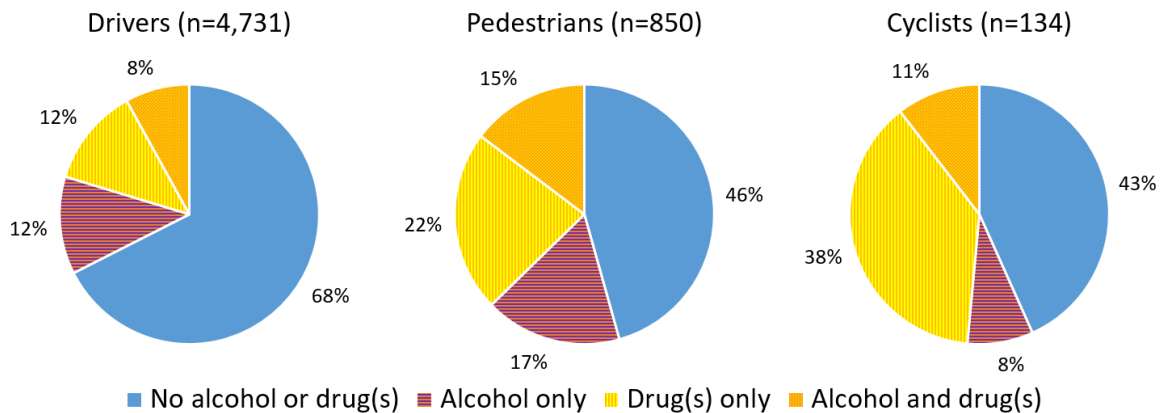

Figure 1: Alcohol and drug involvement among drivers, pedestrians, and cyclists in California fatal motor vehicle collisions, 2016.

Over the five years leading up to 2016, the number of parties involved in fatal MVCs increased by 33% for drivers (from 3,965 in 2012 to 5,293 in 2016), 44% for pedestrians (from 701 to 1,012), and 14% for cyclists (from 137 to 156) (Table 1). When stratified by substance involvement, drug involved parties (alone and in combination with alcohol) increased the most across all travel modes. Alcohol-only involved parties had the lowest percent changes across all travel modes, including a decline for cyclists (Figure 2).
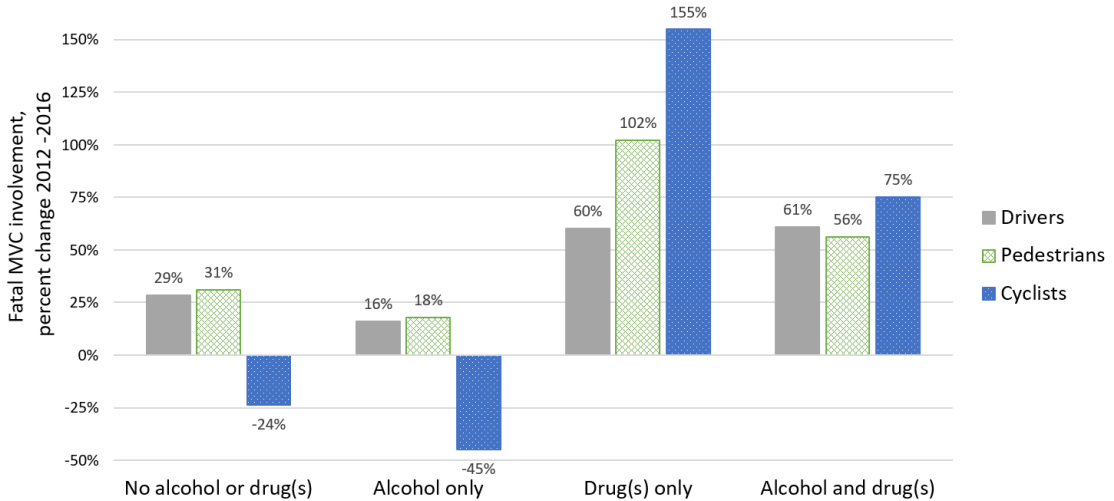

Figure 2: Percent change in parties involved in California fatal motor vehicle collisions from 2012 to 2016 by party type and alcohol and drug involvement.

Cannabinoids (e.g., marijuana, and THC) and stimulants (e.g., amphetamine and cocaine) were the most common drug types[2] detected among all parties who were involved in fatal MVCs in 2016 and tested for drugs (Figure 3, Table 2).

⇒ Among drivers, cannabinoids (22%) were slightly more prevalent than stimulants (17%) whereas the reverse was true for pedestrians (16% cannabinoids, 24% stimulants) and cyclists (27% cannabinoids, 34% stimulants).

⇒ The prevalence of cannabinoids and stimulants increased from 2012 to 2016 among all parties. The increase was greatest among cyclists, where cannabinoids and stimulants each increased by 19% percentage points.
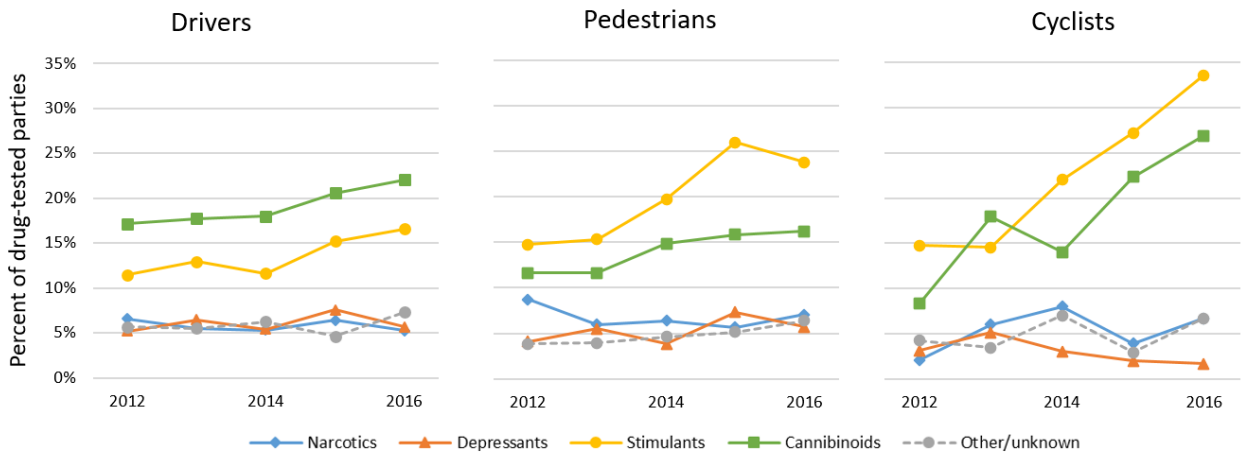

Figure 3: Drug types detected among parties involved in a California fatal motor vehicle collisions who were tested for drugs, 2012-2016.

Conclusion

Fatal MVC data from FARS are an important source of information for traffic safety planning and implementation of counter measures to prevent fatalities and serious injuries. Although FARS data have limitations, these findings highlight the under-recognized role that alcohol and drug involvement may play among pedestrians and cyclists involved in fatal MVCs. In 2016, alcohol or drug involvement was more prevalent among pedestrians and cyclists than among drivers. Fifty four percent of pedestrians and 57% of cyclists involved in fatal MVCs were alcohol or drug involved, compared to 32% of drivers. During the 2012 to 2016 time period, drug involved MVCs (alone and in combination with alcohol) increased the most for both pedestrians and cyclists, with stimulants and cannabinoids accounting for the largest increases.

Supplemental tables

The following tables contain the number of parties involved in fatal MVCs on California roadways per year from 2012 to 2016 by alcohol and drug status (Table 1) and by drug types detected (Table 2).

Table 1: Number of parties involved in a California fatal motor vehicle collision from 2012-2016 by travel mode and alcohol and drug involvement.

	2012	**2013**	**2014**	**2015**	**2016**
Drivers	3,965	4,222	4,259	4,679	5,293
Unknown alcohol or drug status	384	612	519	501	562
Known alcohol and drug status	3,581	3,610	3,740	4,178	4,731
No alcohol or drugs	2,486	2,452	2,573	2,873	3,195
Alcohol only	496	506	507	499	575
Drug only	363	405	390	526	581
Alcohol and drug	236	247	270	280	380
Pedestrians	701	804	794	871	1012
Unknown alcohol or drug status	107	138	127	116	162
Known alcohol and drug status	594	666	667	755	850
No alcohol or drugs	296	333	346	329	388
Alcohol only	123	138	104	128	145
Drug only	95	108	129	192	192
Alcohol and drug	80	87	88	106	125
Cyclists	137	156	130	140	156
Unknown alcohol or drug status	13	20	14	20	22
Known alcohol and drug status	124	136	116	120	134
No alcohol or drugs	76	79	66	56	58
Alcohol only	20	15	9	16	11
Drug only	20	32	32	31	51
Alcohol and drug	8	10	9	17	14

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Table 2: Number of drug-tested parties involved in a California fatal motor vehicle collision from 2012-2016 by travel mode and drug type detected. A single party may test positive for more than one drug type.

	2012	2013	2014	2015	2016
Drivers drug tested	1,709	1,776	1,828	1,967	2,266
Narcotics	112	98	97	126	119
Depressants	89	115	99	149	128
Stimulants	196	230	212	299	376
Cannabinoids	293	315	329	405	500
Other drugs	97	98	114	91	165
Pedestrians drug tested	515	574	565	662	739
Narcotics	45	34	36	37	52
Depressants	21	32	22	48	42
Stimulants	76	88	112	172	176
Cannabinoids	60	67	84	105	120
Other drugs	20	23	26	34	47
Cyclists drug tested	95	117	100	103	119
Narcotics	2	7	8	4	8
Depressants	3	6	3	2	2
Stimulants	14	17	22	28	40
Cannabinoids	8	21	14	23	32
Other drugs	4	4	7	3	8

Endnotes

[1] Drivers include persons operating a motor vehicle in transport, including motorcycles and commercial vehicles. Pedestrians include persons outside transport devices, including those pushing vehicles or being carried by another pedestrian. Pedestrians exclude persons in/on buildings (n=30 from 2012 to 2016) or in/on personal conveyances such as scooters, skateboards, Segway-style devices, and wheelchairs (n=181 from 2012 to 2016). Cyclists include persons travelling on a non-motorized unicycle, bicycle, or tricycle. Cyclists include all operators and passengers, including persons being pulled by a cycle (e.g., in a wagon or bike trailer).

[2] For a complete list of specific drugs included in each drug type, see page 657 of the National highway Traffic Safety Administration's *2017 FARS/CRSS Coding and Validation Manual. (DOT HS 812 559).* Accessed September 10, 2019 from https://crashstats.nhtsa.dot.gov/Api/Public/Publication/812559.

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