

Drug Involved Fatal Motor Vehicle Crashes in California by Travel Mode, 2015-2020

Introduction

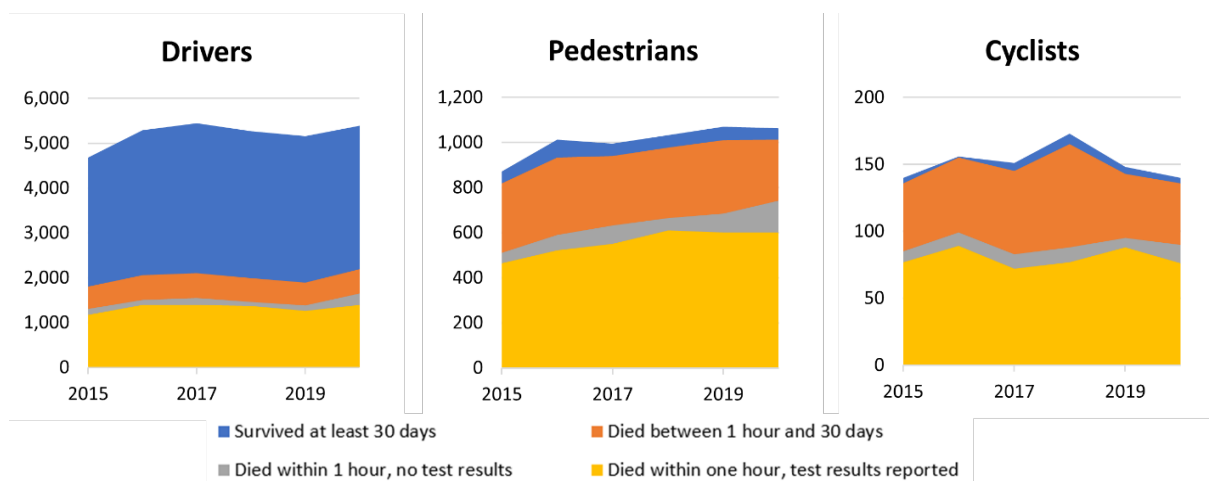
California strives for a transportation system that fosters health and safety. The safety of all travel modes can be compromised by drug use. This brief describes drug testing and drug involvement among drivers, pedestrians, and cyclists who died in California fatal motor vehicle crashes (MVCs), with a focus on change between 2015 and 2020. Monitoring drug testing and drug involvement helps promote traffic safety. The information presented in this brief is intended to identify trends and prevalence of specific types of drugs involved in fatal MVCs so traffic safety practitioners can focus efforts to prevent fatal MVCs that involve drugs.

Drug Testing in Fatal MVCs – Variation by Travel Mode between 2015 and 2020

In 2020, there were 3,673 fatal MVCs on California roadways. These fatal MVCs involved 5,393 drivers, 1,064 pedestrians, and 140 cyclists, of whom 2,192 (40.6%), 1,013 (95.2%), and 136 (97.1%), respectively, died within 30 days (Table 1).¹ Among the drivers, pedestrians, and cyclists who died within one hour of the crash, the proportions that were tested for drugs in 2015 and 2020 were 90% and 84%, 91% and 81%, and 91% and 84% respectively. These percentages were calculated by dividing the number of individuals who died within one hour of the crash with test results reported by the total number of individuals who died within one hour of the crash (regardless of whether or not they had test results).

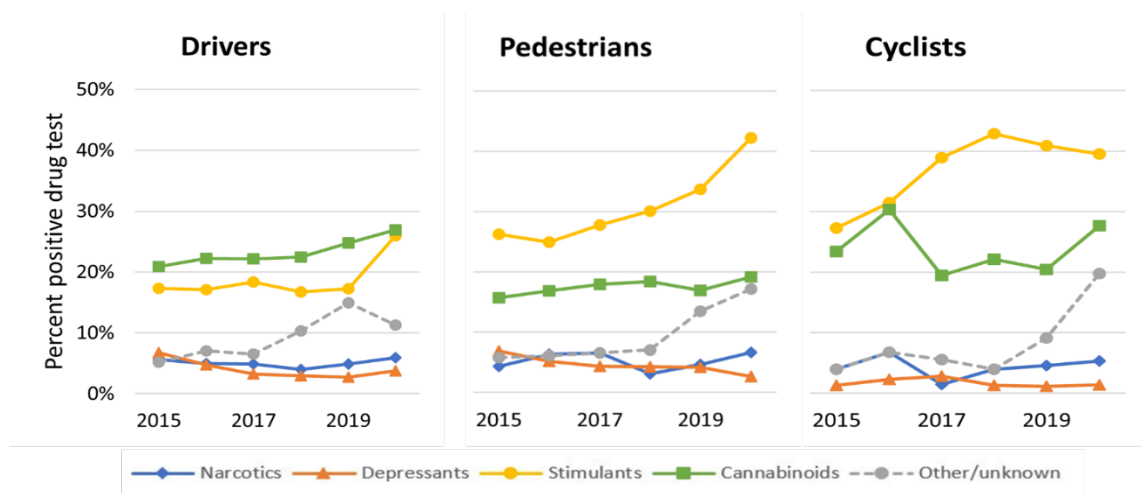
Figure 1 presents trends in MVC fatalities and drug test reporting by travel mode from 2015 to 2020. The graphs below represent all California FARS cases for these periods. This brief will focus on MVC fatalities where the decedent died within one hour of the crash. As can be seen in the gray areas within the graphs, the number of cases where no drug test was available for those who died within one hour of the crash was low and relatively consistent across modes and years. As such, this paper focuses on those who died within 1 hour and had drug tests available (see yellow segments of graphs in Figure 1 below).

Figure 1. All CA FARS Cases for 2015-2020: Drivers, Pedestrians, and Cyclists Who Survived at Least 30 Days, Died between 1 Hour and 30 Days, Died within 1 Hour of Crash, and Were Tested for Drugs with Results Reported.



Drug Involvement² in Fatal MVCs – Variation by Travel Mode, 2015-2020

Figure 2: Drug types detected among parties involved in a California fatal motor vehicle collision who died within one hour and were tested for drugs, 2015-2020 by travel mode.



- From 2015 to 2020, percentages of positive drug tests for cannabinoids and stimulants remained higher than all other drugs for all three travel modes. However, positive tests for cannabinoids were highest among drivers, whereas positive tests for stimulants were highest for pedestrians and cyclists.
 - Efforts designed to prevent drug related fatal MVCs may benefit from a focus on preventing cannabinoid and stimulant use particularly, although it may be useful to determine the extent to which stimulant use is recreational versus for medical use (i.e., prescribed), which is not indicated within the data described herein.
- Positive tests for depressants and narcotics remained low from 2015 to 2020 across all travel modes.
- Positive tests for other/unknown drugs increased from 2015 to 2020 across all travel modes and continued to increase from 2019 to 2020 among pedestrians and cyclists.
- Cannabis for recreational purposes was legalized in California in 2017. Positive drug tests for cannabinoids did not increase substantially from 2015 to 2019 but increased from 2019 to 2020 across all three travel modalities, especially among cyclists.
- The percent of positive tests for stimulants generally increased from 2015 to 2020 among pedestrians and cyclists. From 2019 to 2020, this increase was especially striking among drivers and pedestrians.
 - There is a difference between the medical use of stimulants (in therapeutic doses) and drug abuse of stimulants.³ Stimulants are generally safe for driving when taken alone at regular doses for medical purposes, but stimulant effects are less safe when taken in combination with sleep deprivation or alcohol intoxication.³

Table 1: Number of drug-tested parties involved in a California fatal motor vehicle crash who died within one hour from 2015-2020 by travel mode and drug type detected. A single party may test positive for more than one drug type (up to three).

	2015	2016	2017	2018*	2019*	2020*
Number of Fatal MVCs	3,123	3,540	3,569	3,485	3,427	3,673
Drivers Involved in Fatal MVC	4,679	5,293	5,443	5,273	5,162	5,393
Died in Fatal MVC	1,799	2,064	2,099	1,996	1,889	2,192
Died Within One Hour	1,309	1,505	1,549	1,464	1,389	1,655
Tested for Drugs (Results Reported)	1,175	1,394	1,392	1,369	1,265	1,396
Narcotics+	66	69	68	54	62	83
Depressants+	79	66	45	40	34	52
Stimulants+	203	238	255	229	218	362
Cannabinoids+	245	310	308	307	313	376
Other/Unknown Drugs+	61	98	91	141	189	157
Pedestrians Involved in Fatal MVC	871	1,012	995	1,033	1,069	1,064
Died in Fatal MVC	819	933	940	978	1,011	1,013
Died Within One Hour	511	590	632	665	684	742
Tested for Drugs (Results Reported)	465	522	551	609	602	601
Narcotics+	20	33	36	19	28	40
Depressants+	32	27	24	26	25	16
Stimulants+	122	130	153	183	203	254
Cannabinoids+	73	88	99	112	102	115
Other/Unknown Drugs+	27	32	36	43	81	103
Cyclists Involved in Fatal MVC	140	156	151	173	148	140
Died in Fatal MVC	136	155	145	165	143	136
Died Within One Hour	85	99	83	88	95	90
Tested for Drugs	77	89	72	77	88	76
Narcotics+	3	6	1	3	4	4
Depressants+	1	2	2	1	1	1
Stimulants+	21	28	28	33	36	30
Cannabinoids+	18	27	14	17	18	21
Other/Unknown Drugs+	3	6	4	3	8	15

* In 2018, FARS data were changed to allow reporting of an unlimited number of drug test results. For this brief, 2018-2020 data were limited to the first three drug test results listed for each party to match the 2015-2017 data.

+ This symbol represents testing positive for a specific drug type.

Conclusions

A substantial number of drivers, pedestrians, and cyclists who were involved in fatal MVCs and died within one hour of the crash were tested for possible drug use in California between 2015 and 2020. Overall, the percentage of drug tests administered remained stable over that time period, with a slight drop in 2020. It is possible the decrease in percentage of drivers, pedestrians, and cyclists tested for drugs who died within one hour of the crash from 2019 to 2020 is due to coroners being overwhelmed during the COVID-19 pandemic. However, even in 2020, drug test results were more than 80% complete for parties who died within an hour across all modes.

In 2015-2020, positive drug test results for stimulants and cannabinoids were the highest drug types across all travel modes. The trends over time for positive drug test results were comparable across travel modes. However, positive drug test results between pedestrians and cyclists were most similar, whereas trends for drivers were less comparable with those for drivers and cyclists.

Drivers, cyclists, and pedestrians place themselves and others at risk when they are impaired from drug use. Although substance involvement does not equal impairment or fault, these findings highlight the role that drug involvement may play in fatal MVCs. Percentages of those individuals who tested positive for drug use varied based on the type of drug, with positive tests from cannabinoids and stimulants being highest across all travel modes. Drug prevention efforts are necessary to reduce fatal MVCs among drivers, pedestrians, and cyclists. The National Highway Traffic Safety Administration (NHTSA) describes strategies to prevent impaired driving and raise awareness regarding cyclist and pedestrian safety on its webpage focused on [Drug-Impaired Driving](#)⁴ and its fact sheet on [Bicyclist and Pedestrian Safety](#).⁵

Technical Notes

The California Highway Patrol reports MVCs in which one or more person died within 30 days to the National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS). FARS data were analyzed for this brief and include toxicology results from coroners, medical examiners, or police investigations, when available. In this brief, "drug involvement" is defined as having one or more positive drug test results within a drug type category. Drug involvement does not necessarily mean the individual was impaired during the MVC or was at fault.

The 2015-2020 Final FARS Files were used to produce this report.

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=47 from 2015 to 2020) or in/on personal conveyances such as scooters, skateboards, Segway-style devices, and wheelchairs (n=175 from 2015 to 2020). 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 824 of the National Highway Traffic Safety Administration’s 2020 FARS/CRSS Coding and Validation Manual. (DOT HS 813 251). Accessed April 2023 from <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813251>.

³ Ramaekers, J. G., K. P. Kuypers, W. M. Bosker, K. A. Brookhuis, J. A. Veldstra, R. Simons, M. Martens, M. Hjalmdahl, Å. Forsman, and A. Knoche. “Effects of Stimulant Drugs on Actual and Simulated Driving: Perspectives from Four Experimental Studies Conducted as Part of the Druid Research Consortium.” *Psychopharmacology* 222, no. 3 (June 15, 2012): 413–18. <https://doi.org/10.1007/s00213-012-2766-1>.

⁴ <https://www.nhtsa.gov/risky-driving/drug-impaired-driving>, accessed April 12, 2023.

⁵ https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/14046-pedestrian_bicyclist_safety_resources_030519_v2_tag.pdf, accessed April 12, 2023.

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Source Files: National Highway Traffic Safety Administration
Fatality Analysis Reporting System (FARS)
2015-2020 Final Files. Data retrieved April 2023
from <https://www.nhtsa.gov/node/97996/251>.

