

ITSMR Research Note

KEY FINDINGS

DRUG-IMPAIRED DRIVING ON NEW YORK ROADWAYS: 2018-2020

- The number of drivers arrested for drug-impaired driving decreased 11% between 2018 and 2020.
- In 2019-2020, there were 285-290 certified DREs, up from 240 in 2018.
- In 2020, 2,559 drivers were evaluated by a DRE, down from 2,772 in 2019 but up from 2,431 in 2018.

DRIVERS EVALUATED & TESTED

- 23% of the drivers refused to submit to a chem test in 2020, up from 18% in 2018.
- 92%-94% of the drivers tested each year were found to have drugs in their system.
- Cannabis was the most common drug found each year: 61%-64% of the drivers tested positive for it.

CANNABIS VS. NON-CANNABIS DRUGGED DRIVERS: 2018-2020

- Cannabis drivers were more likely than Non-Cannabis drugged drivers to have multiple drugs in their system (61% vs. 51% in 2020, up from 53% and 41%, respectively, in 2018).
- 25% of the cannabis drivers were women, compared to 37% of the Non-Cannabis drivers.
- 56% of the cannabis drivers were under the age of 30, compared to 23% of the Non-Cannabis drivers.
- 24% of the Cannabis drivers were involved in a crash, compared to 34% of the Non-Cannabis drivers.
- 54% of the Cannabis driving events occurred between 8pm and 4am, while 52% of the Non-Cannabis events occurred 8am - 8pm.

CONCLUSIONS

- The large proportion of drivers evaluated by a DRE that are found to have Cannabis in their system, together with the recent legislation legalizing recreational adult-use of Cannabis, is cause for great concern.
- These findings should provide valuable information to NY's traffic safety community for developing effective enforcement and public awareness strategies to address the problem of drug-impaired driving, especially the use of cannabis, among motorists in New York State. Further research on a number of issues related to the findings presented in this study is warranted.

CANNABIS AND DRIVING ON NEW YORK ROADWAYS: WHAT DO WE KNOW?

INTRODUCTION

Effective March 31, 2021, New York State enacted legislation legalizing adult-use cannabis. The bill contains a number of provisions, including:

- Establishment of the Office of Cannabis Management to implement a regulatory framework that covers medical, adult-use and cannabinoid hemp
- Expansion of New York State's existing medical marijuana and cannabinoid hemp programs
- Licensing for marijuana producers, distributors, retailers, and other players in the cannabis market
- Creation of a social and economic equity program to assist individuals disproportionately impacted by cannabis enforcement who want to participate in the industry

With particular regard to traffic safety, the bill calls for the New York State Department of Health to work with institutions of higher education to conduct a controlled research study designed to evaluate methodologies and technologies for the detection of cannabis-impaired driving. After completion of the research study, DOH may create and implement rules and regulations to approve and certify a test for the presence of cannabis in drivers.

To help determine the eventual effect of this legislation on traffic safety, the Governor's Traffic Safety Committee recently funded the Institute for Traffic Safety Management and Research (ITSMR) to conduct a study that examined the pre-law data with regard to drivers found to be driving with Cannabis in their system. Focusing on the three-year "pre-law" period of 2018-2020, this research note presents the following information on cannabis use and driving on New York's roadways:

- Overview
- Drivers Evaluated and Tested
- Drivers Testing Positive for Cannabis
- Characteristics of Cannabis-Positive Drivers
- Characteristics of Cannabis-Positive Driving Events

The primary data source for the study was the NYS DRE (Drug Recognition Expert) database maintained by ITSMR.

OVERVIEW

New York State DRE Program

The International Drug Evaluation & Classification Program, commonly known as the Drug Recognition Expert program (DRE), was established by the Los Angeles Police Department in 1979 to assist police officers in identifying drivers who are under the influence of drugs and therefore pose a danger to themselves and the safety of other roadway users. Operating under the direction of the International Association of Chiefs of Police (IACP), the DRE program is supported by the National Highway Traffic Safety Administration (NHTSA). Today all 50 states, the District of Columbia, Canada, and the United Kingdom participate in the program. New York has been participating in the DRE program since 1987.

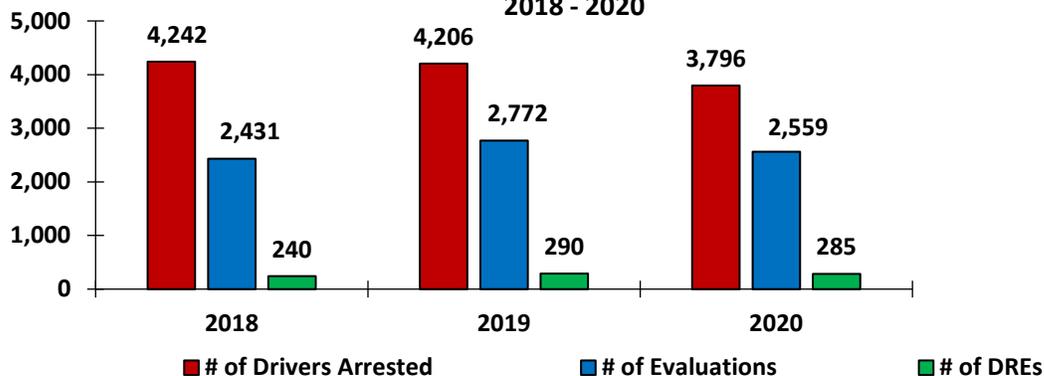
While New York's new legislation legalizes the recreational use of cannabis by adults, the use of cannabis by drivers continues to be prohibited and to carry the same penalties as before. Furthermore, the new legislation includes additional funding for drug recognitions experts (DREs) and law enforcement to maintain safety on the state's highways.

The police officers participating in the DRE program are trained to observe the signs of drug and/or alcohol impairment by drivers. The training program has been approved by NHTSA and the IACP. After successfully completing the training, DRE officers are certified for two years and are expected to meet certain requirements to be considered for re-certification at the end of this period.

Drug-Impaired Driving on New York Roadways

An overview of the drug-impaired driving problem on New York's roadways during the three years 2018-2020 is presented below in Figure 1. Using data obtained from the state's Traffic Safety Law Enforcement and Disposition (TSLED) system, Figure 1 shows that the number of drivers arrested for drug-impaired driving dropped from 4,242 in 2018 to 3,796 in 2020, representing a decrease of 11%. Based on data obtained from the state's DRE database, Figure 1 also shows that the number of DREs increased between 2018 and 2019 (240 vs. 290), then dropped slightly to 285 in 2020, while the number of evaluations increased from 2,431 in 2018 to 2,772 in 2019, followed by a drop to 2,559 in 2020. These decreases in 2020 most likely reflect the impact of the Covid-19 pandemic which caused enforcement agencies to shift priorities and resources to support the transport and protection of health care providers, equipment and supplies.

FIGURE 1
Drivers Arrested for Drug-Impaired Driving*, DRE Evaluations Conducted & Number of DREs
2018 - 2020



* TSLED data only; data were not available from the NYPD; a drug-impaired driving arrest is defined as one in which the driver is charged with a violation of VTL Section 1192.4 (DWAI Drugs) or 1192.4a (DWAI Drugs & Alcohol).

DRIVERS EVALUATED AND TESTED

A DRE officer is typically called out to conduct a drug evaluation by an enforcement officer if impaired driving is suspected but the driver does not have a measurable BAC according to the breathalyzer test administered. Over the three-year period, 2018-2020, the average time lapse between when the driver was stopped and the DRE arrived was 75 minutes.

Each driver evaluated is asked to submit a specimen for testing by one of the state's seven forensic labs. The labs are responsible for sending the test results back to the DRE for input into the DRE database. For the drivers evaluated each year, 2018-2020, Table 1 indicates the number and proportion of drivers evaluated who submitted to a chemical test and the results of those tests.

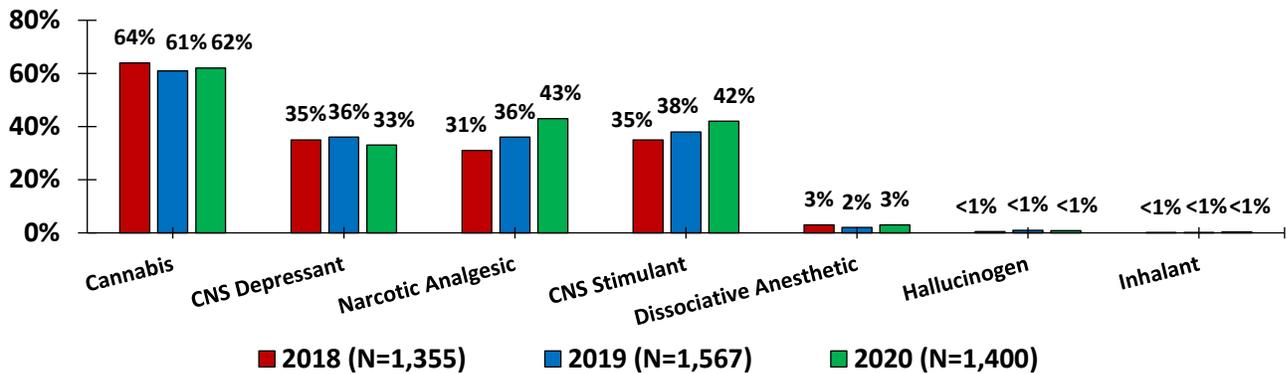
Table 1 shows a potentially disturbing upward trend in the percentage of drivers refusing to submit to a chem test, increasing from 18% in 2018 to 23% in 2020. It is also concerning that the results for approximately one in five of the tests conducted had not yet been received or entered into the DRE database as of April 2021. Of the test results reported, drugs were found in 92%-94% of the drivers tested in each of the three years. As also indicated in Table 1, of the drivers who were found to have drugs in their system, the percentage who had drugs from more than one drug category in their system rose from 49% in 2018 to 52% in 2019 and then to 57% in 2020, reflecting another disturbing upward trend in drug use among drivers on New York's roadways.

TABLE 1 Drivers Evaluated and Tested						
Drivers Evaluated	2018 (N=2,431)		2019 (N=2,772)		2020 (N=2,559)	
Chem Tests - No	433	17.8%	577	20.8%	596	23.3%
Chem Tests - Pending	521	21.4%	498	18.0%	477	18.6%
Chem Tests - Conducted	1,477	60.8%	1,697	61.2%	1,486	58.1%
Chem Tests Conducted	1,477		1,697		1,486	
Drugs Not Found	122	8.3%	130	7.7%	86	5.8%
Drugs Found	1,355	91.7%	1,567	92.3%	1,400	94.2%
<i>Single drug category</i>	695	51%	748	48%	602	43%
<i>Multiple drug categories</i>	660	49%	819	52%	798	57%

DRIVERS TESTING POSITIVE FOR DRUGS

As shown in Figure 2, of the drivers who tested positive for drugs, the most common drug found each year was cannabis. Between 2018 and 2020, the proportion of drivers found with cannabis in their system remained fairly constant at 61-64%, while the proportion of drivers found with a CNS depressant in their system also remained fairly constant at 33%-36%. In contrast, the proportion of drivers found with a narcotic analgesic in their system rose steadily from 31% in 2018 to 43% in 2020. Similarly, the proportion of drivers found with a CNS stimulant in their system rose steadily from 35% in 2018 to 42% in 2020.

**FIGURE 2
Drugs Found**



CHARACTERISTICS OF CANNABIS-POSITIVE DRIVERS

As shown above in Figure 2, in each of the three years, 2018-2020, of the drivers who tested positive for drugs, 61%-64% were found to have Cannabis in their system. The remaining 36%-39% of the drivers tested positive for a Non-Cannabis drug.

Table 2 below shows that of the drivers who tested positive for Cannabis each year, the proportion who had only Cannabis in their system dropped from 47% in 2018 to 39% in 2020, while the proportion who had Cannabis plus at least one other type of drug in their system rose from 53% to 61%. For the Non-Cannabis drivers, Table 2 also shows that the proportion who tested positive for a single drug category dropped from 59% in 2018 to less than 50% in 2020, while the proportion who tested positive for multiple drug categories rose from 41% to 51%. These findings further support the observation that the proportion of drivers stopped, tested and found to have multiple drugs in their system is on the rise.

TABLE 2 Drivers Testing Positive for Drugs						
Cannabis - Positive	2018 (N=861)		2019 (N=956)		2020 (N=861)	
Only cannabis	403	46.8%	433	45.3%	335	38.9%
Cannabis + Other Drug Category	458	53.2%	523	54.7%	526	61.1%
Non-Cannabis	2018 (N=494)		2019 (N=611)		2020 (N=539)	
Single drug category	292	59.1%	315	51.6%	267	49.5%
Multiple drug category	202	40.9%	296	48.4%	272	50.5%

Analyses examined various characteristics associated with the drivers found to have Cannabis in their system, including driver gender and age and their involvement in a crash. Since the data fluctuated by these three variables over the three years, the data for the three-year period 2018-2020 were aggregated for analysis purposes. In addition, to determine the extent to which Cannabis-positive drivers may be different than other drivers testing positive for drugs, comparison analyses between Cannabis-positive drivers and Non-Cannabis drivers were conducted. The findings are presented below.

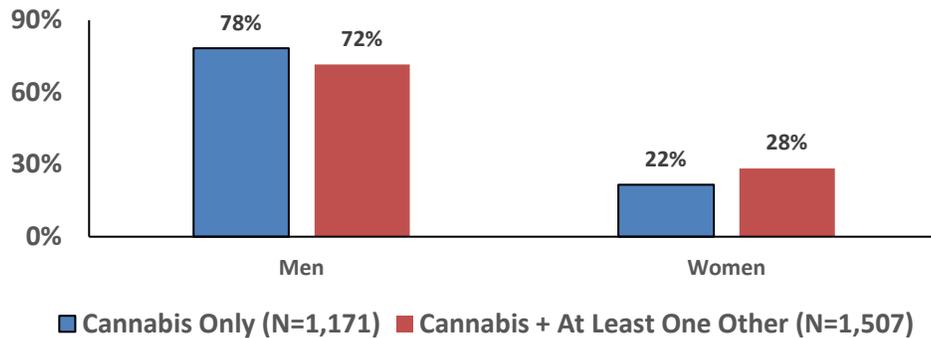
Driver Gender

As indicated in Table 3, men comprised the majority of drivers who tested positive for drugs, either Cannabis (75%) or another drug (63%). Women accounted for a larger proportion of the drivers who tested positive for a Non-Cannabis drug (37% vs. 25% who tested positive for Cannabis).

TABLE 3 Drivers Testing Positive for Drugs by Gender 2018-2020		
	Cannabis-Positive	Non-Cannabis
	N=2,678	N=1,644
Men	74.6%	63.0%
Women	25.4%	37.0%

Further analyses of the Cannabis-positive drivers were conducted to determine whether differences existed by gender between those drivers who had only Cannabis in their system and those who had Cannabis and at least one other drug from a different drug category in their system. As shown in Figure 3, men were more likely to have only Cannabis in their system than Cannabis and another drug. In contrast, women were more likely to have a combination of Cannabis and another drug in their system than to have only Cannabis.

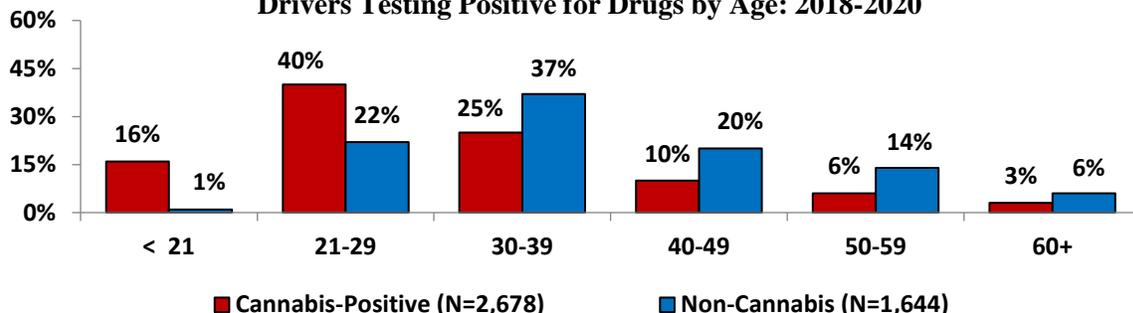
FIGURE 3
Cannabis Positive Drivers by Gender: 2018-2020



Driver Age

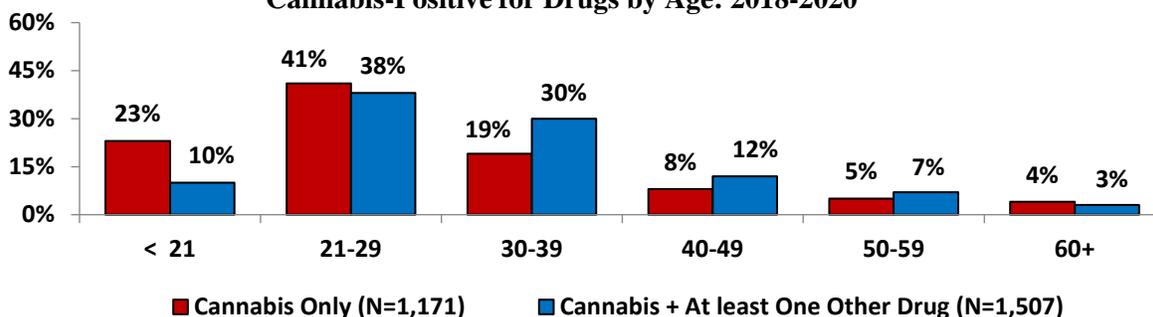
The analyses by driver age also showed marked differences between the Cannabis-positive drivers and the Non-Cannabis drivers for the three-year period, 2018-2020. As seen in Figure 4, the largest proportion (40%) of the Cannabis-positive drivers were in the 21-29 age group, while the largest proportion (37%) of the Non-Cannabis drivers were in the 30-39 age group. Figure 4 also shows a significant difference with regard to the under 21 age group; 16% of the Cannabis-positive drivers were in this age group compared to only 1% of the Non-Cannabis drivers. In sum, Cannabis-positive drivers are almost two and a half times more likely than Non-Cannabis drivers to be under the age of 30 (56% vs. 23%).

FIGURE 4
Drivers Testing Positive for Drugs by Age: 2018-2020



Similar to the analyses by gender, additional analyses of the Cannabis-positive drivers were conducted to determine whether differences existed by age between those drivers who had only Cannabis in their system and those who had Cannabis and at least one other drug from a different drug category in their system. As shown in Figure 5, sizeable differences were noted among drivers under age 21 and drivers ages 30-39. Drivers under 21 were more than twice as likely to have only Cannabis in their system as they were to have Cannabis and another drug in their system (23% vs, 10%). The opposite pattern is seen among driver ages 30-39, with far more of these drivers having Cannabis and another drug in their system than only Cannabis (30% vs. 19%).

FIGURE 5
Cannabis-Positive for Drugs by Age: 2018-2020

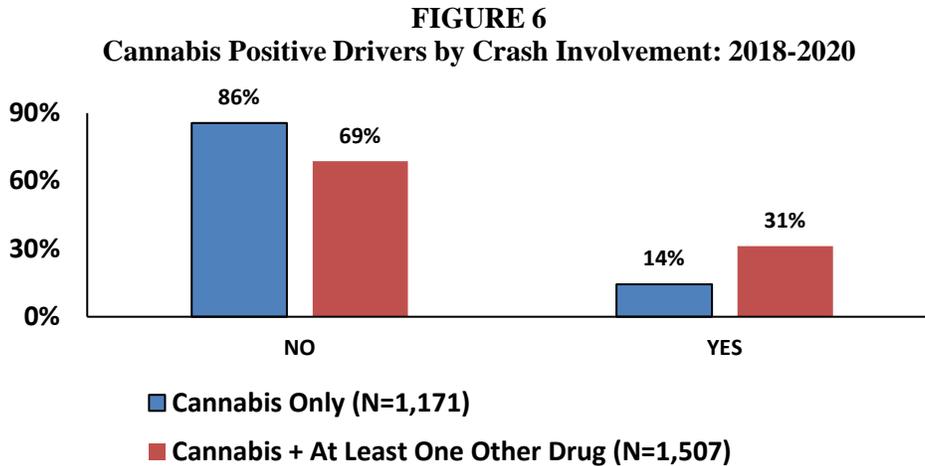


Crash Involvement

As indicated in Table 4, during the three-year period, 2018-2020, the Cannabis-positive drivers were much less likely than the Non-Cannabis positive drivers to be involved in a crash (24% vs. 34%). Further analyses of crash involvement by the level of severity showed only small variations between the Cannabis-positive drivers and the Non-Cannabis drivers (Table 4). As the table indicates, 20% of the Cannabis-positive drivers and 18% of the Non-Cannabis drivers were involved in fatal and personal injury crashes during the three-years, 2018-2020.

TABLE 4				
Drivers Testing Positive for Drugs				
by Crash Involvement				
2018-2020				
	Cannabis-Positive		Non-Cannabis	
Crash	N=2,678		N=1,644	
No	2,039	76.1%	1,093	66.5%
Yes	639	23.9%	551	33.5%
Crash Severity	N=639		N=551	
Fatal	2.0%		0.9%	
Personal injury	17.7%		17.4%	
Property damage	80.3%		81.3%	
Unknown	0.00%		0.4%	

Additional analyses of the Cannabis-positive drivers were conducted to determine whether differences existed by crash involvement between those drivers who had only Cannabis in their system and those who had Cannabis and at least one other drug from a different drug category. As shown in Figure 6, drivers with Cannabis and at least one other drug in their system were more than twice as likely as the Cannabis only drivers to be involved in a crash. (31% vs. 14%).

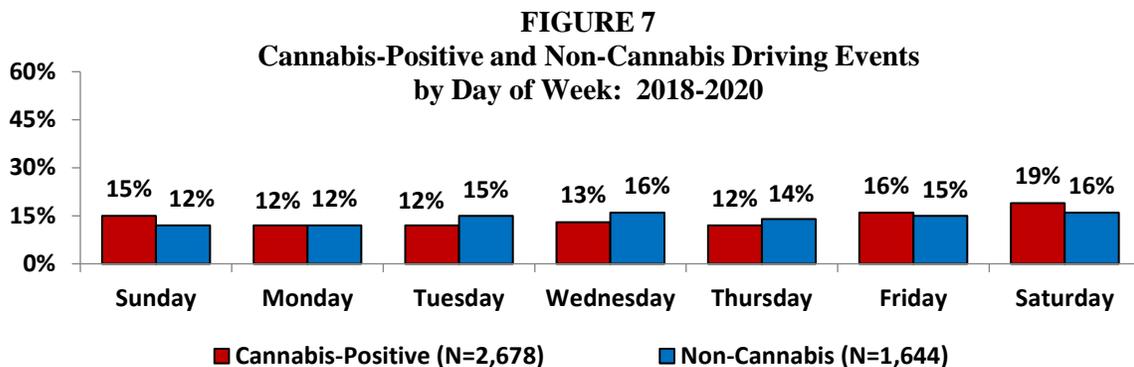


CHARACTERISTICS OF CANNABIS-POSITIVE DRIVING EVENTS

Analyses were also conducted to examine a number of variables related to the traffic stop that resulted in a DRE being called to conduct an evaluation. Those variables included the day of week, time of day and location. Because only small variations occurred in the data during the three-year period, 2018-2020, the three years were aggregated for analysis purposes. In addition, to determine the extent to which Cannabis-positive driving events may be different than Non-Cannabis driving events, comparison analyses between Cannabis-positive events and Non-Cannabis events were conducted. The findings are summarized below.

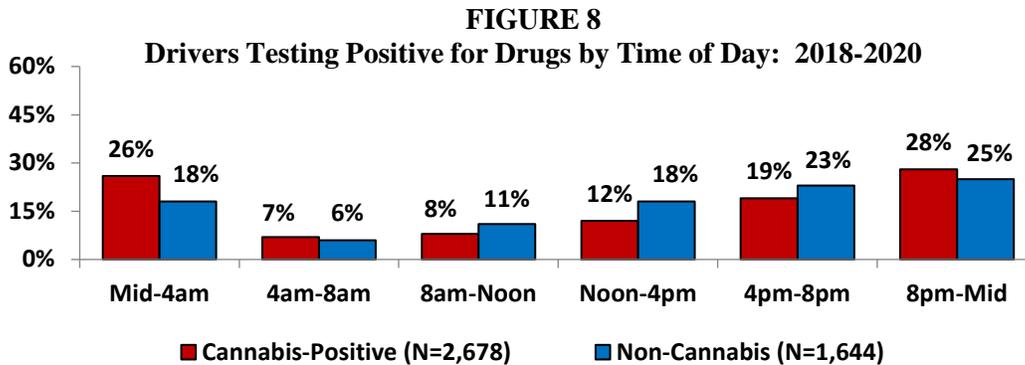
Day of Week

As shown in Figure 7, 34% of the Cannabis-positive driving events occurred on the weekend, compared to 28% of the Non-Cannabis driving events. The distribution of these events for the two groups was fairly evenly distributed over the five weekdays (12%-16%).



Time of Day

Figure 8 indicates that more than half (54%) of drivers who tested positive for Cannabis were evaluated following an enforcement stop or other driving event that occurred between 8pm and 4am. In contrast, more than half (52%) of the drivers testing positive for a drug other than Cannabis were evaluated following an enforcement stop or other driving event that occurred between 8am and 8pm.



Location

To determine whether the Cannabis-positive driving events differed from the Non-Cannabis driving events by geographic location, analyses were conducted by the state’s three main geographic regions: the Upstate region consisting of the 55 counties north of New York City; the Long Island region which includes the counties of Nassau and Suffolk and the New York City region comprised of five counties (Bronx, Kings, New York, Queens and Richmond). As shown in Table 5, the vast majority of drug-impaired driver evaluations conducted by DREs during the three years, 2018-2020, occurred in the Upstate region (92%), followed by Long Island (6%) and New York City (2%). Table 5 further shows that there were only small differences between the proportions of drivers testing positive for Cannabis and the drivers testing positive for other drugs within the three geographic regions.

TABLE 5 Drug-Impaired Drivers Evaluated by DREs by Location: 2018-2020			
	Cannabis-Positive (N=2,678)	Non-Cannabis (N=1,644)	Total (N=4,322)
Upstate	92.3%	91.9%	92.1%
Long Island	5.3%	6.4%	5.7%
New York City	2.4%	1.7%	2.2%

SUMMARY AND CONCLUSIONS

Key findings from the analyses are summarized below in Table 6. Although the number of drivers arrested for drug-impaired driving dropped 11% between 2018 and 2020, the number of certified DREs and the number of evaluations they conducted rose by 19% and 5%, respectively. As Table 6 shows, of the evaluations conducted for which the tests results were available, 94% of the drivers tested were found to have drugs in their system. Of those drivers, more than six out of ten (62%-64%) had Cannabis in their system.

Table 6 also presents the key findings from a comparison of Cannabis and Non-Cannabis drugged drivers. As indicated in the table, Cannabis drivers were less likely than Non-Cannabis drugged drivers to be women (25% vs. 37%) and much more likely than Non-Cannabis drivers to be under the age of 30 (56% vs. 23%). With regard to crash involvement, Cannabis drivers were less likely than Non-Cannabis drivers to be involved in a crash (24% vs. 34%).

**TABLE 6
Drug-Impaired Drivers**

	2018	2020	% Change
Number of			
Drivers Arrested for Drug-Impaired Driving	4,242	3,796	-10.5%
DREs	240	285	18.7%
Evaluations Conducted by DRE	2,431	2,559	5.3%
Number of Evals with Available Test Results	1,477	1,486	0.6%
% Drugs found	92%	94%	
% Cannabis-Positive	64%	62%	
Cannabis vs. Non-Cannabis Drugged Drivers: 2018-2020	Cannabis Drivers	Non-Cannabis Drivers	
Women	25%	37%	
Under age 30	56%	23%	
Crash Involvement	24%	34%	

The findings of this study should provide valuable information to NY’s traffic safety community, especially the state’s Advisory Council on Impaired Driving and the NYS Governor’s Traffic Safety Committee (GTSC), for developing effective enforcement and public awareness strategies to address the problem of drug-impaired driving among motorists in New York State. This study should be especially useful in any future efforts designed to assess the effect of New York’s recent legislation that legalized the use of recreational adult-use Cannabis as it provides a snapshot of the issue of Cannabis use while driving before the law was implemented.

Overall, the study findings are both interesting and some cause for concern. Although they provide valuable information, albeit limited, about the use of Cannabis while driving, they raise a critical question: Since the data available for analysis purposes are based on the toxicology results from approximately 60% of the drivers evaluated by a DRE, are these results generalizable to the larger population of drivers evaluated by a DRE and tested drug use or is there some inherent bias associated with the data? To effectively conduct any future research to examine the effect of the new legislation that legalizes the recreational adult-use of Cannabis on highway safety, efforts should be undertaken to address this critical question.

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