ITSMR Research Note

KEY FINDINGS

Fatal & Personal Injury Crashes (F&PI)

- Less than 1% of all F&PI crashes each year are drug-related. In comparison, 4% of all F&PI crashes are alcohol-related.
- 16% of all fatalities in 2011 were drug-related, down from 24% in 2007; 31% of all fatalities in 2011 were alcohol-related.
- 30% of the F&PI drug-related crashes occurred on weekends, compared to 46% of the alcohol-related crashes.
- Drug-related F&PI crashes were more likely to occur during the day (45% vs.16% from 9am-9pm), while alcohol-related crashes were more likely to occur at night (63% vs. 32% from 9pm-6am).

Drivers Involved in F&PI Crashes

- Drug-involved drivers in F&PI crashes were more likely than alcohol-involved drivers to be women (30% vs. 22%).
- 30%-32% of the drug-involved drivers were in the 21-29 year age group in 2009-2011, up from 22% in 2007. In comparison, 34%-35% of the alcohol-involved drivers were ages 21-29 in 2009-2011, up from 32% in 2007.
- 16% of the drug-involved drivers had "alcohol involvement" reported as a contributing factor in a F&PI crash; 3% of the alcohol-involved drivers had "drugs (illegal)" or "prescription medication" reported as a contributing factor.
- 18% of the drug-involved drivers had "unsafe speed" reported as a contributing factor, compared to 26% of the alcohol-involved drivers.
- 20% of the surviving drug-involved drivers were ticketed for DWAI/DWI; 3% of the surviving alcohol-involved drivers were ticketed for drugged driving.

CONCLUSIONS

- The involvement of drugs is a serious issue in fatal crashes, with one out of six fatalities (16%) being drug-related.
- A better understanding of the drugs that drivers have tested positive for and the extent to which such drugs impair a person's ability to drive safely is needed.
- Increased awareness of the combined effects of drugs and alcohol, as well as the effects of both over-the-counter and prescription drugs on driver behavior are also required.

Drug Involvement in Fatal and Personal Injury Crashes on New York Roadways

ABSTRACT

Over the past few decades, while a great deal of research and data have been compiled on the risks associated with driving under the influence of alcohol, far less attention has focused on the danger of driving under the influence of other drugs. The finding that one out of six fatally injured drivers on New York's roadways has tested positive for drugs annually for the past several years, together with an awareness that the use of both prescription drugs and illegal drugs continues to increase, is of concern to the NYS Governor's Traffic Safety Committee (GTSC) and the state's Advisory Council on Impaired Driving. To address this concern, the GTSC funded the Institute for Traffic Safety Management and Research (ITSMR) to conduct a study on drugs and driving to determine the extent to which driving under the influence of drugs is a problem on New York roadways. The study involved the analyses of fatal and personal injury crash data for the five-year period 2007-2011. Key findings from the crash analyses are noted in the box on the left.

INTRODUCTION

Over the past few decades, while a great deal of research and data have been compiled on the risks associated with driving under the influence of alcohol, far less attention has focused on the danger of driving under the influence of other drugs. In November 2010, the National Highway Traffic Safety Administration (NHTSA) reported that 18% of the 21,798 drivers killed in motor vehicle crashes in 2009 tested positive for drugs, up from 13% in 2005.[1] While testing positive for drugs means drugs were found in the driver's system but does not imply impairment, this upward trend indicates that driving under the influence of drugs is a prevalent driving behavior among motorists on the nation's roadways.

The evidence that the proportion of drivers operating under the influence of drugs is increasing together with an awareness that the use of both prescription drugs and illegal drugs continues to expand, is of concern to the NYS Governor's Traffic Safety Committee (GTSC) and the state's Advisory Council on Impaired Driving. To address this concern, the GTSC funded the Institute for Traffic Safety Management and Research (ITSMR) to conduct a study on drugs and driving to determine the extent to which driving under the influence of drugs is a problem on New York roadways.

RESEARCH METHODOLOGY

The primary objectives of the study were to determine the extent to which drugs play a role in traffic crashes on New York roadways and identify the key characteristics of the drug-involved drivers associated with these crashes. The study also sought to identify and examine differences between drug-related and alcohol-related driving events and the drivers involved. Based on these objectives, the study addressed the following key research questions:

- What proportions of motor vehicle crashes are drug-related? Have the proportions changed over the past five years? Are there identifiable differences in the proportions of crashes that are drug-related by the level of crash severity, i.e., fatal and personal injury (F&PI)?
- What are the characteristics (i.e., investigating police agency, day of week, time of day, manner of collision, region of the state) associated with drug-related F&PI crashes? Are there identifiable differences in these characteristics between drug-related and alcohol-related crashes?
- What characteristics (i.e., age and gender) are associated with the drug-involved driver involved in F&PI crashes? Have the characteristics of drug-involved drivers changed over the past five years? Are there identifiable differences in age and gender between drug-involved and alcohol-involved drivers?
- In addition to drugs, what other contributing factors are associated with drivers involved in drug-related F&PI crashes? To what extent are drug-involved drivers issued tickets for VTL violations as a result of a crash?

Definition of a Drug-Related Crash

The first step in developing the analysis plan for the study involved establishing a definition for a drug-related crash. New York's police accident report form captures information on 1) two contributing factors related to drugged driving, "drugs (illegal) "and "prescription medication" and 2) tickets issued to the drivers involved in the crash. In addition, the coroner's office or medical examiner report the results of any drug tests performed on drivers, pedestrians and bicyclists killed in crashes to the NYS Department of Motor Vehicles (DMV); this information is then entered into a data table in the DMV's Accident Information System (AIS). It is important to note that drug involvement as reported by the coroner or medical examiner means only that drugs were found in the person's system and does not imply impairment or indicate that drug use was the cause of the crash. As shown in Table 1 below, the proportion of fatally injured drivers in New York who were reported to have drugs in their system has remained relatively constant at 15%-16% (one out of six) each year from 2005 to 2010. This contrasts with the national pattern which showed an upward trend from 13% to 18% over the 2005-2009 time period.

TABLE 1
Drug Test Results for Fatally Injured Drivers in New York State

	2005 N=786	2006 N=822	2007 N=776	2008 N=684	2009 N=610	2010 N=652	U.S. 2009 N=21,798
Drivers Not Tested	**7.5%**	**4.1%**	**2.3%**	**3.7%**	**4.4%**	**0.8%**	**32.0%**
Drivers Tested	**53.8%**	**57.7%**	**68.3%**	**76.0%**	**79.0%**	**77.1%**	**64.0%**
No Drugs Reported	*33.1%*	*37.2%*	*51.8%*	*60.5%*	*61.6%*	*61.3%*	*37.0%*
Drugs Reported	***16.2%***	***16.2%***	***16.4%***	***14.9%***	***16.9%***	***15.8%***	***18.0%***
Results Unknown	*4.6%*	*4.3%*	*0.1%*	*0.6%*	*0.5%*	*0.0%*	*8.0%*
Unknown If Tested	**38.7%**	**38.2%**	**29.4%**	**20.3%**	**16.6%**	**22.1%**	**4.0%**

Source: FARS

Using the available data, the study defines a fatal crash as being drug-related if at least one of the following criteria is met:

1) Contributing factor of "drugs (illegal)" or "prescription medication" was reported.
2) Ticket was issued for one or more violations of 1192.4 (DWAI Drugs) or 1192.4A (DWAI Drugs & Alcohol) as a result of the crash.
3) Positive drug result is shown in the AIS drug table for a driver, pedestrian or bicyclist killed in the crash.

Since drug testing is generally conducted only on persons killed in crashes, a personal injury crash is defined as drug-related if it meets criterion 1 and/or 2 above.

Data Sources and Data Analyses

The primary data source for the study was the NYS Department of Motor Vehicles (DMV) Accident Information System (AIS). With few exceptions, the AIS file contains records of all police-reported crashes and all crashes reported to the DMV by motorists involved in crashes. To address the research questions noted above, the study involved two primary components: 1) analyses of police-reported fatal and personal injury (F&PI) crashes that occurred during the five years, 2007-2011, and 2) analyses of the characteristics associated with the drivers involved in these crashes. All of the data analyses were conducted by ITSMR project staff with the use of SAS and Excel software. The results of the analyses are presented below.

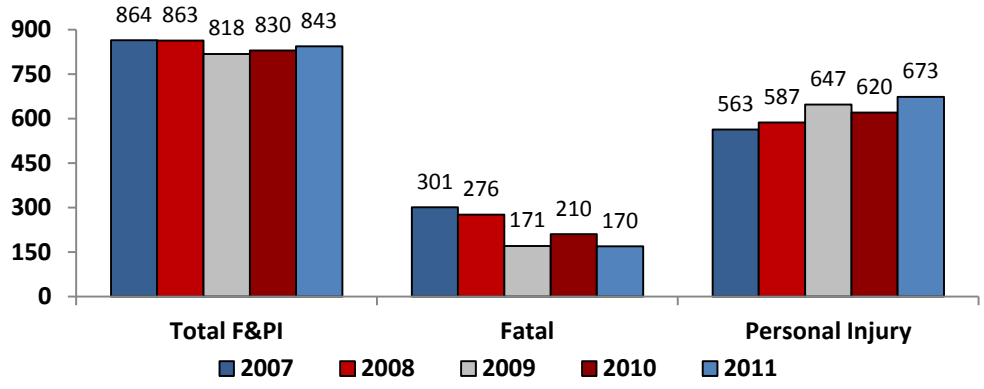
Focusing on F&PI crashes, two sets of analyses were conducted. The initial set of analyses was designed to 1) determine what proportion of F&PI crashes are drug-related, 2) examine changes in this proportion over the five years, and 3) explore differences in the proportion of drug-related crashes by the severity of the crash (fatal and personal injury). The initial set of analyses also sought to examine specific characteristics related to drug-related F&PI crashes, including investigating police agency, day of week, time of day, manner of collision (single vs. multiple vehicle involvement) and crash location (i.e., region of the state). Because drugs and alcohol are the two factors associated with impaired driving, analyses were also conducted to examine differences between drug-related and alcohol-related crashes.

The second set of analyses was designed to examine the characteristics of drug-involved drivers in F&PI crashes. These analyses examined the age and gender of the drug-involved driver at the time of the crash. Also examined were 1) other factors associated with the drug-involved driver that contributed to the crash, such as speeding and driver distraction, and 2) tickets issued to drug-involved drivers as a result of the crash. In addition, the analyses sought to identify changes over time with respect to these variables and examine differences between drug-involved drivers and alcohol-involved drivers.

Results of Crash Analyses

To address the research questions noted above, various analyses of the data on drug-related crashes were conducted for the five-year period, 2007-2011. Based on New York's definition of a drug-related crash as described above, Figure 1 shows a general downward trend in drug-related fatal crashes and a general upward trend in drug-related personal injury crashes. The number of drug-related fatal crashes dropped from 301 in 2007 to 170 in 2011, representing a decrease of 44%. In contrast, the number of drug-related personal injury crashes increased 20% between 2007 and 2011 (563 vs. 673). It should be noted that drug-related F&PI crashes comprised less than one percent of all F&PI crashes in each of the five years. In comparison, alcohol-related F&PI crashes comprised four percent of all F&PI crashes in each of the five years.

FIGURE 1
NYS Drug-Related Fatal & Personal Injury Crashes

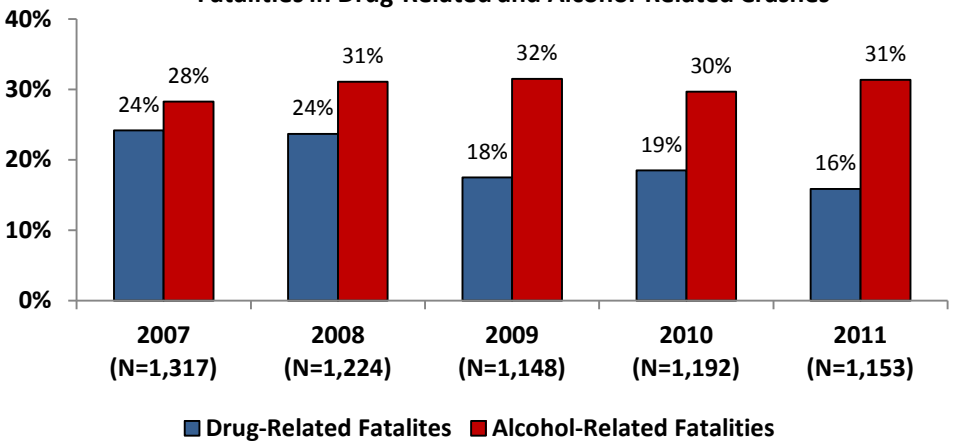


Source: NYS Accident Information System (AIS)

Fatalities in Drug-Related Crashes

As shown in Figure 2, the proportion of total fatalities that are drug-related is on a general downward trend, dropping from 24% in 2007 to 16% in 2011. In contrast, the proportion of fatalities that are alcohol-related increased from 28% in 2007 to 31% in 2008 and has remained at 30% or above through 2011.

FIGURE 2
Fatalities in Drug-Related and Alcohol-Related Crashes



Source: NYS Accident Information System (AIS)

As would be expected, Table 2 shows that the majority of fatalities in drug-crashes were the drivers involved. In 2011, 59% of the fatalities were drivers, down from 70% in 2007. Approximately 25% of the fatalities each year were pedestrians, while the proportions of passenger and bicyclist fatalities were both up in 2011, compared to 2007 (11% vs. 6% and 6% vs. 2%, respectively).

In comparison, while alcohol-related crashes showed a similar downward pattern with regard to driver fatalities between 2007 and 2011, these crashes generally involved a much higher proportion of passenger fatalities than drug-related crashes (20% vs. 11% in 2011). Table 2 also shows that the proportion of pedestrian fatalities in alcohol-related crashes increased over the five years, from 17% in 2007 to approximately 25% in 2009-2011, similar to the proportion of pedestrian fatalities in drug-related crashes.

TABLE 2
Fatalities in Fatal & Personal Injury Crashes: 2007-2011

	2007	2008	2009	2010	2011
Drug-Related Fatalities	**N=318**	**N=290**	**N=201**	**N=220**	**N=183**
Drivers	69.6%	66.2%	61.2%	62.7%	59.0%
Passengers	6.3%	5.2%	13.4%	5.5%	11.0%
Pedestrians	22.6%	25.2%	23.9%	28.7%	24.0%
Bicyclists	1.5%	3.4%	1.5%	3.2%	6.0%
Alcohol-Related Fatalities	**N=373**	**N=381**	**N=361**	**N=354**	**N=362**
Drivers	64.1%	55.6%	54.8%	58.2%	51.1%
Passengers	17.4%	20.2%	17.7%	18.1%	20.2%
Pedestrians	16.6%	21.5%	25.2%	22.3%	25.1%
Bicyclists	1.9%	2.6%	2.2%	1.4%	3.6%

Source: NYS Accident Information System (AIS)

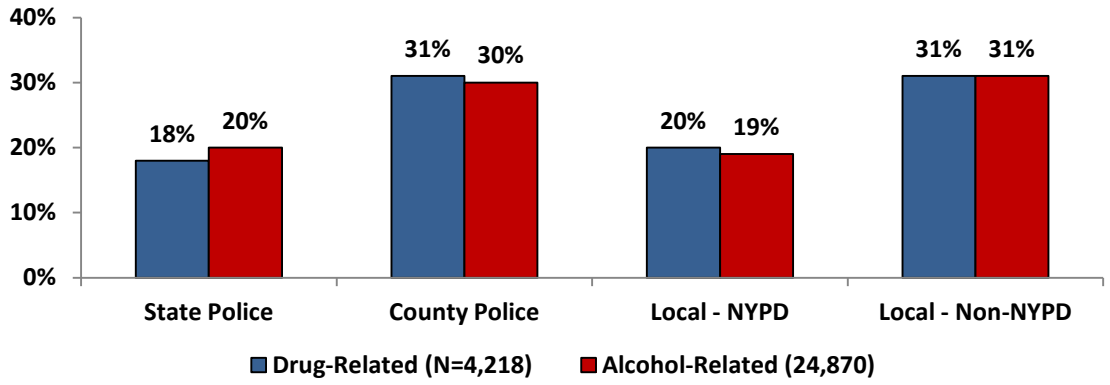
Drug-Related Fatal and Personal Injury Crashes

A series of analyses were conducted to examine various characteristics associated with drug-related F&PI crashes. The variables examined included: investigating police agency, day of week, time of day, manner of collision (single vs. multiple vehicle involvement) and crash location (i.e., region of the state). Since the analyses of the annual data for these variables showed little variation from year to year, the data were aggregated for the five years, 2007-2011. As noted above, since drugs and alcohol are the primary factors associated with impaired driving, analyses were also conducted to examine differences between drug-related and alcohol-related crashes. The results of these comparisons are included below.

Investigating Police Agency

Analyses by the investigating police agency show very little difference between drug-related and alcohol-related F&PI crashes (Figure 3). As shown in Figure 3, local police agencies, excluding the NYPD, and county police agencies conducted the largest proportions of both the drug-related and alcohol-related F&PI crashes that occurred in New York over the five-year period, 2007-2011.

FIGURE 3
Fatal and Personal Injury Crashes by Investigating Police Agency
Drug-Related vs. Alcohol-Related: 2007-2011

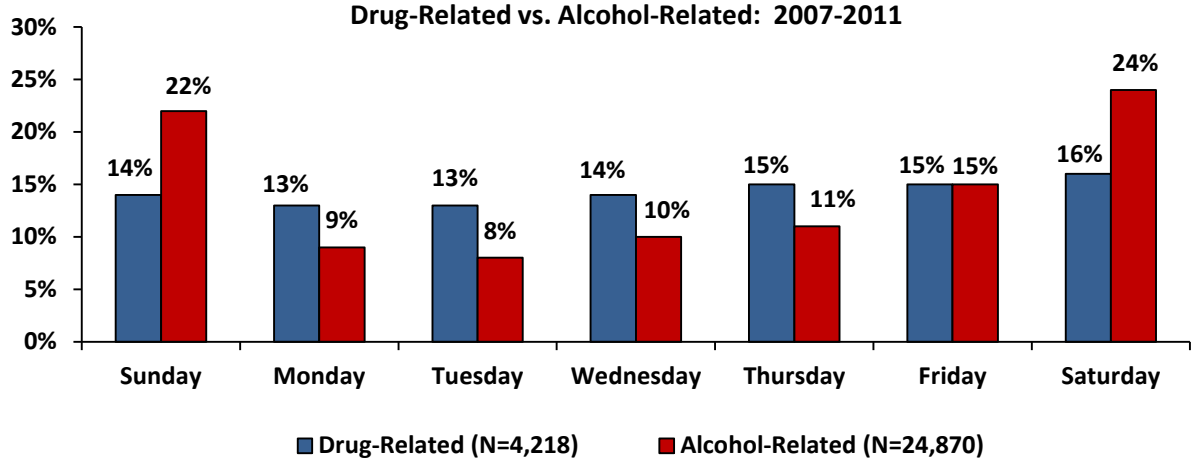


Source: NYS Accident Information System (AIS)

Day of Week and Time of Day

As shown in Figure 4, drug-related F&PI crashes were fairly evenly distributed over the days of the week (13%-16%). This pattern is significantly different from that of alcohol-related crashes, with alcohol-related F&PI crashes being much more likely than drug-related crashes to occur on weekends (46% vs. 30%) and much less likely to occur on weekdays (54% vs. 70%).

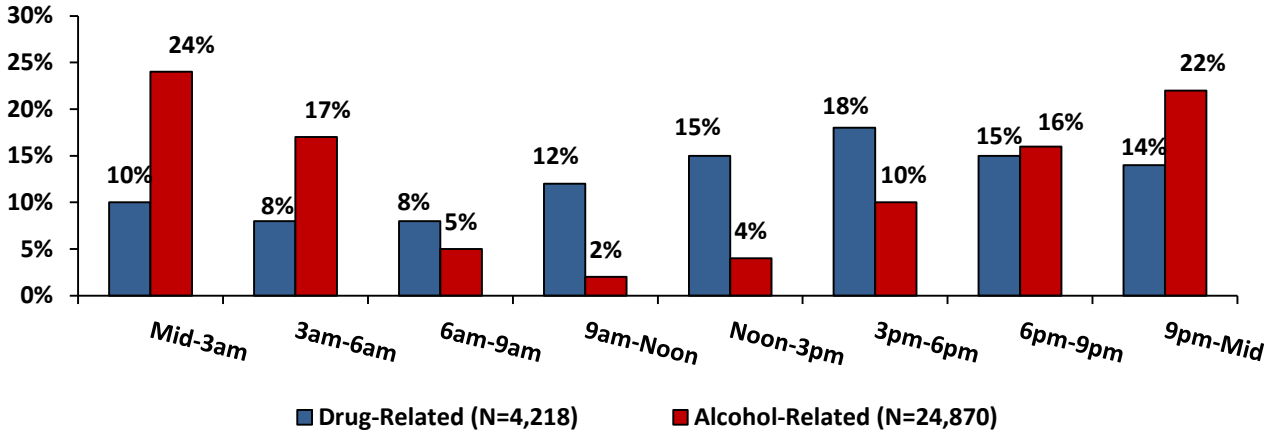
FIGURE 4
Fatal & Personal Injury Crashes by Day of Week
Drug-Related vs. Alcohol-Related: 2007-2011



Source: NYS Accident Information System (AIS)

With regard to time of day, Figure 5 shows that drug-related F&PI crashes also followed a different pattern than alcohol-related F&PI crashes. Forty-five percent of the drug-related crashes occurred during the day (9am-6pm) compared to 16% of the alcohol-related crashes, while 63% of the alcohol-related crashes occurred at night (9pm-6am) compared to 32% of the drug-related crashes.

FIGURE 5
Fatal & Personal Injury Crashes by Time of Day
Drug-Related vs. Alcohol-Related: 2007-2011



Source: NYS Accident Information System (AIS)

Manner of Collision

As indicated in Table 4, drug-related crashes were more likely than alcohol-related crashes to involve multiple vehicles (50% vs. 45%) and less likely to involve a single vehicle (38% vs. 44%). Approximately one out of ten of both drug-related and alcohol-related F&PI crashes involved a pedestrian or bicyclist (12% and 11%, respectively).

TABLE 4
Fatal & Personal Injury Crashes by Manner of Collision
Drug-Related vs. Alcohol-Related: 2007-2011

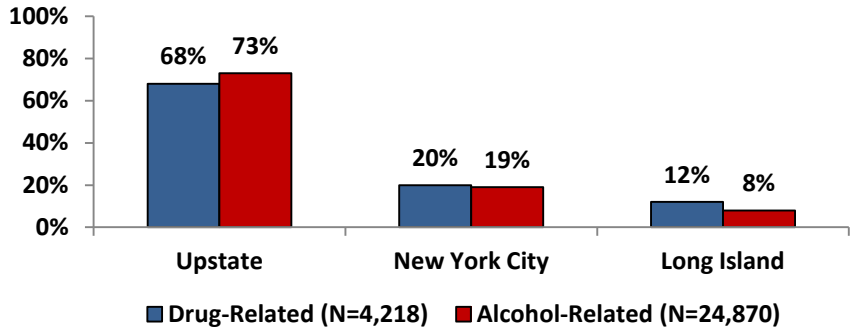
	Drug-Related Crashes (N=4,218)	Alcohol-Related Crashes (N=24,870)
Single Vehicle Involved	37.7%	44.3%
Multiple Vehicles Involved	49.9%	45.1%
Single/Multiple Vehicle w/Ped or Bicyclist	12.4%	10.7%

Source: NYS Accident Information System (AIS)

Region of the State

Analyses were also conducted to examine the distribution of drug-related F&PI crashes by area of the state. In analyzing crash data by area of the state, the state is typically divided into three regions: Upstate, Long Island and New York City. The Upstate region consists of the 55 counties north of New York City, the Long Island region includes the two counties of Nassau and Suffolk and the New York City region is comprised of five counties (Bronx, Kings, New York, Queens and Richmond). As shown in Figure 6, drug-related crashes were less likely than alcohol-related crashes to occur Upstate (68% vs. 73%) and more likely to occur on Long Island (12% vs. 8%). Similar proportions of drug-related and alcohol-related crashes occurred in New York City (20% and 19%, respectively).

FIGURE 6
Fatal & Personal Injury Crashes by Region of the State
Drug-Related vs. Alcohol-Related: 2007-2011



Source: NYS Accident Information System (AIS)

Drug-Impaired Drivers Involved in F&PI Crashes

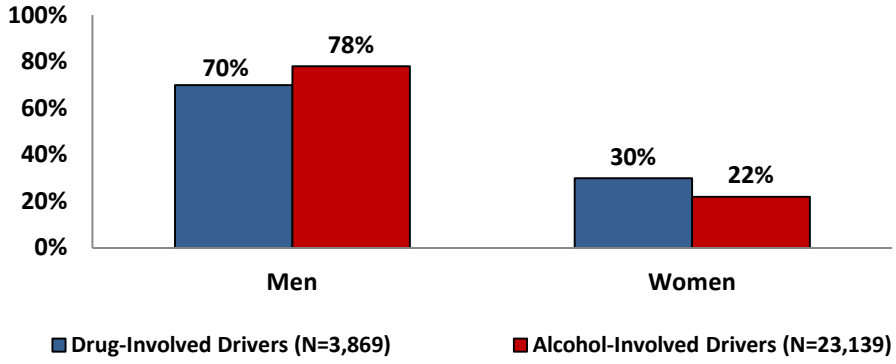
Similar to the numbers of drug-related and alcohol-related F&PI crashes, the number of drug-involved drivers in F&PI crashes is extremely small. In each of the years, 2007-2011, less than one percent (0.3%) of the total number of drivers involved in F&I crashes was drug-involved (i.e., met one or more of the criteria for a drug-related crash). Two percent of the drivers in F&PI crashes were alcohol-involved.

Analyses were conducted to examine the gender and age of drug-involved drivers involved in F&PI crashes. Since the analyses of the annual data by gender showed only small variations from year to year, the data were aggregated for the five years, 2007-2011. Because the analyses by age showed some interesting differences over the five-year period, 2007-2011, all five years of data are presented. Analyses were also conducted to examine the differences between drug-involved and alcohol-involved drivers.

Driver Gender

As shown in Figure 7, while the drivers involved in both drug-involved and alcohol-involved crashes were much more likely to be men than women, women accounted for a larger proportion of the drug-involved drivers in F&PI crashes than the alcohol-involved drivers (30% vs. 22%).

FIGURE 7
Drivers in F & PI Crashes By Gender
Drug-Involved vs. Alcohol-Involved: 2007-2011



Source: NYS Accident Information System (AIS)

Driver Age

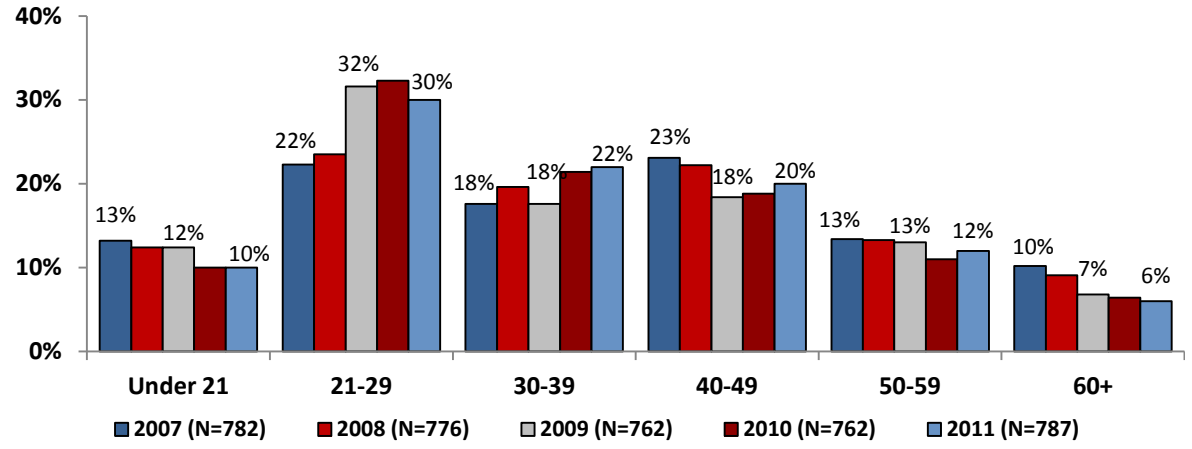
As indicated in Figures 8A and 8B, the largest proportions of drug-involved and alcohol-involved drivers each year were in the 21-29 age group. Figure 8A further shows that the proportion of drug-involved drivers in the 21-29 age group has been on a general upward trend, increasing from 22% in 2007 to 32% in 2009 and 2010, followed by a small drop to 30% in 2011. In comparison, the proportion of alcohol-involved drivers in the 21-29 age group increased from 32% in 2007 to 34%-35% in 2009-2011.

The proportion of drug-involved drivers in the 30-39 age group also rose over the five-year period, increasing from 18% in 2007 to 22% in 2011, while the proportion of drug-involved drivers in the 40-49 age group decreased (23% vs. 20%). In contrast, the proportion of alcohol-involved drivers in these two age groups remained constant (21% for the 30-39 age group and 19%-20% for the 40-49 age group).

The proportion of drivers in the under 21 age group decreased over the five years among both drug-involved (13% vs. 10%) and alcohol-involved drivers (12% vs. 8%).

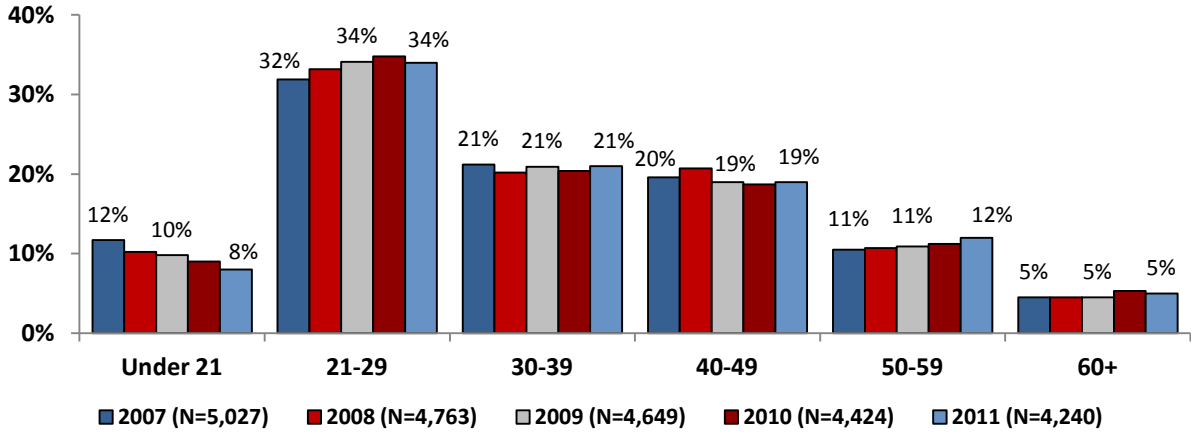
Among drivers in the age 60 and over age group, the proportion of alcohol-involved drivers remained constant at five percent. In comparison, the proportion of drug-involved drivers ages 60 and over was double that level in 2007 (10%), but then declined steadily, reaching 6% in 2011.

FIGURE 8A
Drug-Involved Drivers in F & PI Crashes By Age



Source: NYS Accident Information System (AIS)

FIGURE 8B
Alcohol-Involved Drivers in F & PI Crashes By Age



Source: NYS Accident Information System (AIS)

Other Contributing Factors

Factors associated with the drug-involved driver that contributed to F&PI crashes, such as speeding and driver distraction, were also examined. Analyses were also conducted to identify differences between the contributing factors associated with drug-involved and alcohol-involved drivers in F&PI crashes. With one exception, the analyses of the annual data related to contributing factors in crashes showed only small variations from year to year. As a result, the data for 2007-2011 were aggregated and the findings from the analyses are presented below.

Table 5 shows that after "drugs (illegal)/prescription medication", the next largest proportion of the drug-involved drivers in F&PI crashes had "unsafe speed" (18%) reported as a contributing factor. Similarly, after "alcohol involvement", the next largest proportion of alcohol-involved drivers also had "unsafe speed" (26%) reported as a contributing factor. Table 5 further shows that 16% of the drug-involved drivers had "alcohol involvement" reported as a contributing factor in a crash, and 3% of the alcohol-involved drivers had "drugs (illegal)/prescription medication" reported as a factor.

TABLE 5
Selected Contributing Factors Reported for
Drug-Involved and Alcohol-Involved Drivers in F & PI Crashes
2007 - 2011

Selected Contributing Factors	Drug-Involved Drivers (N=3,869)	Alcohol-Involved Drivers (N=23,139)
Drugs (Illegal)/Prescription Medication	73.6%	3.3%
Unsafe Speed	18.3%*	25.8%
Alcohol Involvement	15.9%	93.9%
Passing/Improper Lane Usage/Unsafe Lane Changing	8.0%	9.1%
Failure to Keep Right	7.1%	6.9%
Driver Inattention/Distraction	7.1%	6.1%
Following Too Closely	5.3%	5.9%

Source: NYS Accident Information System (AIS)

* While the 18.3% represents the average for the five-year period, it should be noted that the contributing factor of "unsafe speed" was the only contributing factor reported for drug-involved drivers that showed any definitive trend over the five years, 2007-2011. The proportion of drug-related drivers who had "unsafe speed" reported as a contributing factor dropped from 21% in 2007 to 16% in 2011.

Tickets Issued to Drivers in Drug-Related Crashes

In addition to capturing a plethora of data on the circumstances of the crash and the drivers involved, the police crash report form also indicates whether any tickets were issued for violations of the New York State Vehicle and Traffic Law (VTL) as a result of the crash. Analyses of the data related to tickets issued for VTL violations were conducted to determine the extent to which the surviving drivers were issued tickets in connection with the crash. The ticket analyses focused on the most recent crash year of 2011. Again, similar analyses were also conducted for tickets issued to the surviving drivers in alcohol-related crashes in 2011 and the results are included below.

As shown in Table 6, and as would be expected, the largest proportion of tickets issued to surviving drug-involved drivers was for drugged driving (52%), followed by drivers ticketed for passing/lane use-related violations (25%). One out of five drug-involved drivers (20%) was ticketed for DWAI/DWI, and a similar proportion (19%) was ticketed for speed-related violations.

In comparison, and not at all surprising, almost all (95%) of the surviving alcohol-involved drivers were ticketed for DWAI or DWI, with the next largest proportion (22%) of drivers being ticketed for passing/lane use-related violations. Table 6 also indicates that surviving alcohol-involved drivers were much less likely than surviving drug-involved drivers to be ticketed for speeding (11% vs. 19%). Three percent of the surviving alcohol-involved drivers were ticketed for drugged driving.

TABLE 6 Tickets Issued to Surviving Drug-Involved and Alcohol-Involved Drivers in F & PI Crashes: 2011		
Selected Violations	Surviving Drug-Involved Drivers (N=681)	Surviving Alcohol-Involved Drivers (N=4,070)
DWAI & DWI (1192.1-3)	20.0%	95.4%
Drugs & Drugs/Alc (1192.4 & 4a)	52.3%	2.6%
Passing/Improper Lane Usage/Unsafe Lane Changing	25.1%	21.7%
Speed-related	18.6%	10.6%
Failure to Keep Right	12.4%	10.0%
Unlicensed/Out of Class/Outside Restrictions	10.3%	9.4%
Aggravated Unlicensed Operation	8.9%	10.4%
Leaving Scene of PI Crash	6.1%	4.1%
Following Too Closely	4.9%	5.7%

SUMMARY AND CONCLUSIONS

In November 2010, the National Highway Traffic Safety Administration (NHTSA) reported that 18% of the 21,798 drivers killed in motor vehicle crashes in 2009 tested positive for drugs, up from 13% in 2005.[1] In New York State over the same five-year period, the proportion of fatally injured drivers testing positive for drugs remained relatively constant at 15%-16% each year. Although testing positive for drugs means drugs were found in the driver's system and does not imply impairment, the proportion of fatally injured drivers testing positive for drugs indicates that driving under the influence of drugs is a prevalent driving behavior among motorists on New York's roadways and nationwide.

To determine the extent to which driving under the influence of drugs is a problem on New York roadways, the GTSC funded the Institute for Traffic Safety Management and Research to conduct this study on drugs and driving. The overall findings of the study indicate that the involvement of drugs is a serious issue in fatal and personal injury crashes, albeit not at the same level as alcohol involvement in crashes. The study found that less than one percent (0.7%) of all fatal and personal injury crashes in New York were drug-related, and less than one percent (0.3%) of the total number of drivers in these crashes were drug-involved drivers. In comparison, four percent of all fatal and personal injury crashes in the state were alcohol-related and two percent of all drivers were alcohol-impaired.

The impact of drug involvement in crashes is more evident among the most serious crashes that occur. In 2011, 16% of all motor vehicle fatalities in New York State were drug-related. While alcohol continues to be involved in nearly twice as many fatalities, drug involvement in crashes may be underreported due to the difficulties of detecting drugs as the cause of driver impairment.

Because the data also show that one out of six fatally injured drivers on New York's roadways has tested positive for drugs annually for the past several years, the findings of the study further indicate the need for a better understanding of the drugs that drivers have tested positive for and the extent to which such drugs impair a person's ability to drive safely. In addressing drug-involved driving, more awareness of the combined effects of drugs and alcohol, as well as the effects of both over-the-counter and prescription drugs is also required. The differences in driving patterns between drug-involved and alcohol-involved drivers such as time of day and days of the week should also be useful information for developing enforcement strategies and other countermeasures. More complete information on these issues which is grounded in research would enhance the work of the GTSC and the Advisory Council on Impaired Driving. Better information would enhance efforts to address the problem of drug-impaired driving among motorists in New York State and improve the effectiveness of public awareness efforts to educate the motoring public on the dangers of driving under the influence of drugs.

REFERENCES

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