U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Research Note

NHTSA

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Update to Special Reports on Traffic Safety During the COVID-19 Public Health Emergency: Fourth Quarter Data

The National Highway Traffic Safety Administration continues to explore traffic safety during the COVID-19 public health emergency. This work is crucial to further understanding changes in dangerous driving behaviors and letting us expand or evolve countermeasures to meet current needs in States and across the country. This Research Note updates traffic safety during the COVID-19 public health emergency through the end of the 2020 calendar year with a focus on the fourth quarter (Q4) of 2020.

To date, NHTSA has released two reports synthesizing traffic safety data in the second and third quarters of 2020, and an interim report on research examining changes in the prevalence of drugs and alcohol in seriously or fatally injured road users, which noted increased prevalence of alcohol and some other drugs among these individuals. These reports provided context to data from NHTSA's National Center for Statistics and Analysis (NCSA) that showed increases in the number and rate of fatalities through the third quarter of 2020. Given the importance of these findings, NHTSA immediately convened workshops and meetings with national partners, State highway safety professionals, and researchers. In these meetings, NHTSA led conversations on how to address these increases in traffic fatalities, especially focusing on risky driving behaviors. NHTSA then continued to collect and synthesize data throughout Q4 of 2020, including alcohol and drug prevalence for road users admitted to participating trauma centers. Data sources not previously identified were sought. New findings where the research team identified additional confirmatory evidence are described below. Data limitations identified in the earlier reports also apply to the data reported here.

Background

During the first 9 months of 2020, driving patterns and behaviors in the United States changed significantly (Wagner et al., 2020; Office of Behavioral Safety Research, 2021). Of the drivers who remained on the roads, some engaged in riskier behavior, including speeding, failure to wear seat belts, and driving under the influence of alcohol or other drugs. Traffic data cited in those reports showed average speeds increased during the Q2 and Q3, and extreme speeds became more common. Other data suggested fewer people in crashes used their seat belts. NHTSA's study of seriously or fatally injured road users at five participating trauma centers (Thomas et al., 2020) found that almost two-thirds of drivers tested positive for at least one active drug, including alcohol, marijuana, or opioids between mid-March and mid-July. The proportion of drivers testing positive for opioids nearly doubled after mid-March, compared to the previous 6 months, while marijuana prevalence increased by about 50%.

This Research Note includes analyses from the Bureau of Transportation Statistics (BTS) and the Federal Highway Administration's (FHWA) National Performance Management Research Dataset (NPMRDS). These sources use telematic data that captures large volumes of information but does not permit analysis of individual performance. To address this limitation, researchers sought other data sources through traditional literature as well as "gray literature" such as blog posts to identify potential emerging behavioral safety trends that occurred during the public health emergency. They identified limited research reports documenting changes in distracted driving (Zendrive, 2020) and pedestrian travel patterns (StreetLight Data, 2021). These data sources use promising techniques to explore behavior; however, additional confirma-

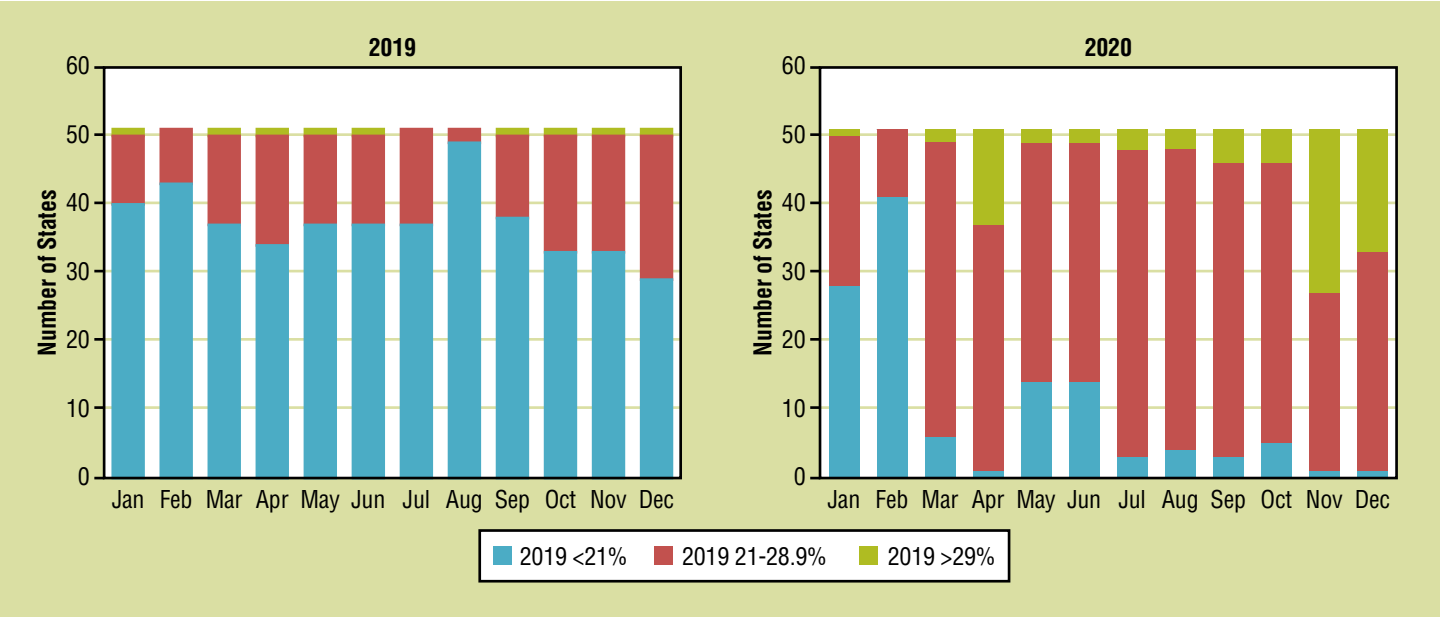
tory reports and analyses were not found. Data from the National Emergency Medical Services Information System (NEMSIS) are also included in this Research Note. NEMSIS data are derived from responding agencies in States and Territories. While the database does not contain every EMS dispatch, it does include millions of motor vehicle crash-related cases every year. This Research Note also includes a continuation of the landmark study of alcohol and drug prevalence for road users admitted to participating trauma centers. Because the study was in progress before the pandemic, it was not designed specifically to address changes in alcohol and drug prevalence before and throughout the pandemic. It is limited with its use of a convenience sample, the participating trauma centers are not geographically representative, and the presence of a drug does not necessarily indicate user impairment. However, the study does yield unique data not previously obtained, an important perspective of traffic safety during 2020.

Travel Patterns

Researchers using the BTS (2021) interactive data dashboard on travel (see www.bts.gov/daily-travel) determined that in 2019 and early 2020 (before the pandemic) around 19% of the national population stayed home on any given day. During the pandemic that percentage shifted to around 25%. There were considerable differences among States in the numbers of people who stayed home per day throughout the pandemic. Gulf Coast States regularly had the lowest percentages of people staying home since March 2020. Washington, DC, New York, and then West Coast States had the highest percentages of people staying home. Figure 1 shows the change by month in number of States that experienced less than 21%, 21 to 28.9%, or more than 29% of their populations staying home each day in 2019 and 2020. These percentage ranges were selected to illustrate changes at the extremes from March to December 2020. In 2019 only the District of Columbia saw 29% or more of its population stay home on a given day. From March 2020 forward, 2 rising to 24 States experienced that rate.

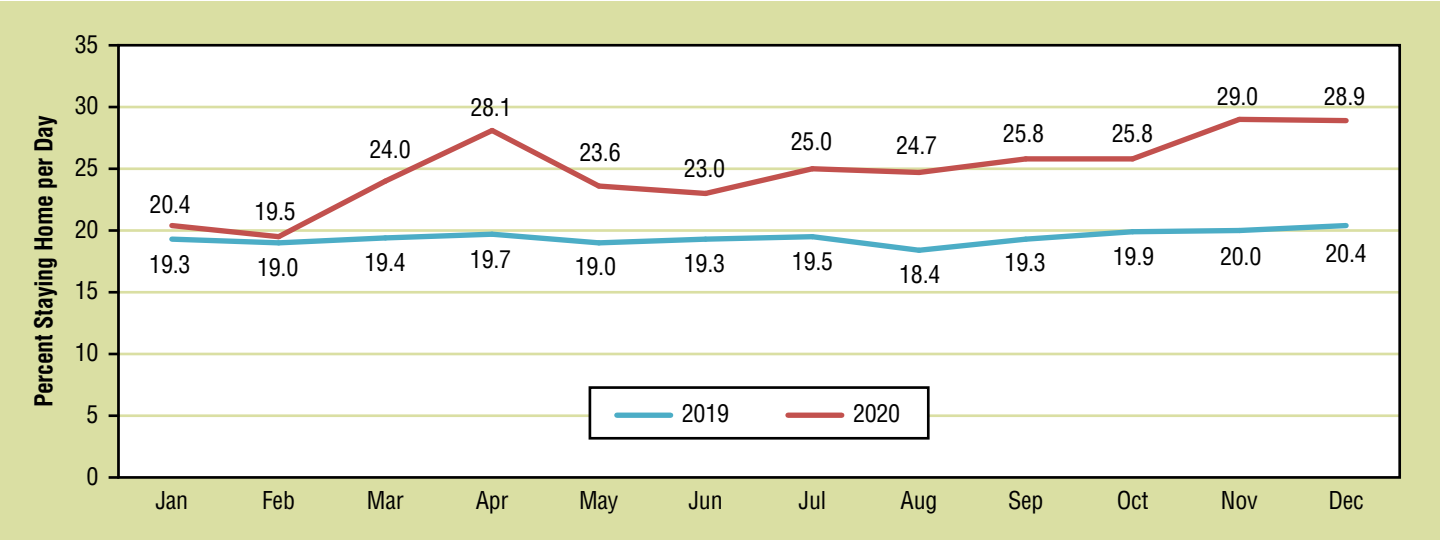
National Q4 data showed an increase in the proportion of the population who stayed home, with highest marks for the year of 29% in November and 28.9% in December (see Figure 2). Capasso da Silva et al. (2020) reported people on the road in the early part of the pandemic tended to be men and tended to be younger than those staying home. They also found that 57% of those who disagreed or strongly disagreed with the statement, "Everybody should just stay home as much as possible until the coronavirus has subsided" recorded traveling by car 6 or 7 days per week. By comparison only 35% of those who agreed or strongly agreed with that statement traveled by car 6 or 7 days per week. This suggests differences in willingness and ability to limit travel during the survey.

Figure 1
Number of States in Which Different Percentages of the Population Stayed Home per Day



Source: www.bts.gov/daily-travel

Figure 2
Percentage of People Staying Home per Day by Month, 2019 and 2020



Source: www.bts.gov/daily-travel

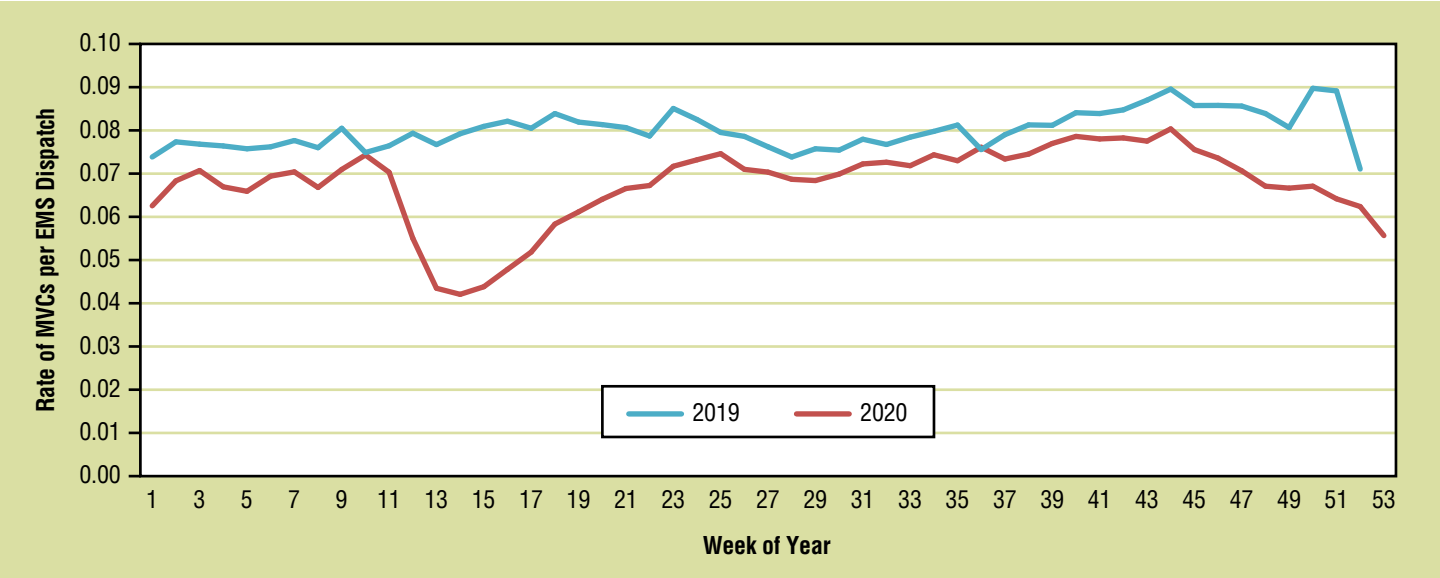
Changes in Crash Rates

NHTSA used the NEMSIS database that includes EMS activations from 49 States and U.S. Territories to explore changes in a range of crash-related metrics that occurred between 2019[1] and 2020. NHTSA uses rates partly because the number of agencies contributing data increases each year. Therefore, counts of incidents compared across years could be misleading due to increases in the number of participating entities. The first metric is the rate of motor vehicle crashes per emergency medical services (EMS) activation (Figure 3),[2] perhaps a leading indicator of roadway fatalities (one would expect EMS activation decreases compared to the previous year to be associated with decreases in fatalities). Further analysis is required to determine what factors contributed to the decreased rate that counterintuitively occurred as road fatalities increased. Preliminary analysis conducted by the NEMSIS Technical Assistance Center (Mann, 2021) suggests the rates per EMS activation for influenza-like illness (which includes COVID symptoms), cardiac arrest, scene of death, opioid-related, and mental/behavioral-related activations all increased in 2020 compared to 2019. These increases could mask changes in crash rates, especially in the severity of crashes, as hypothesized by their associations with increased alcohol use, speed increases, and ejections from vehicles. These are seen in other data presented later in this Research Note.

[1] Interested readers can explore earlier years' NEMSIS data at https://nemsis.org/view-reports/public-reports/ems-data-cube/.

[2] In 2020 the NEMSIS database analysis year was 53 weeks.

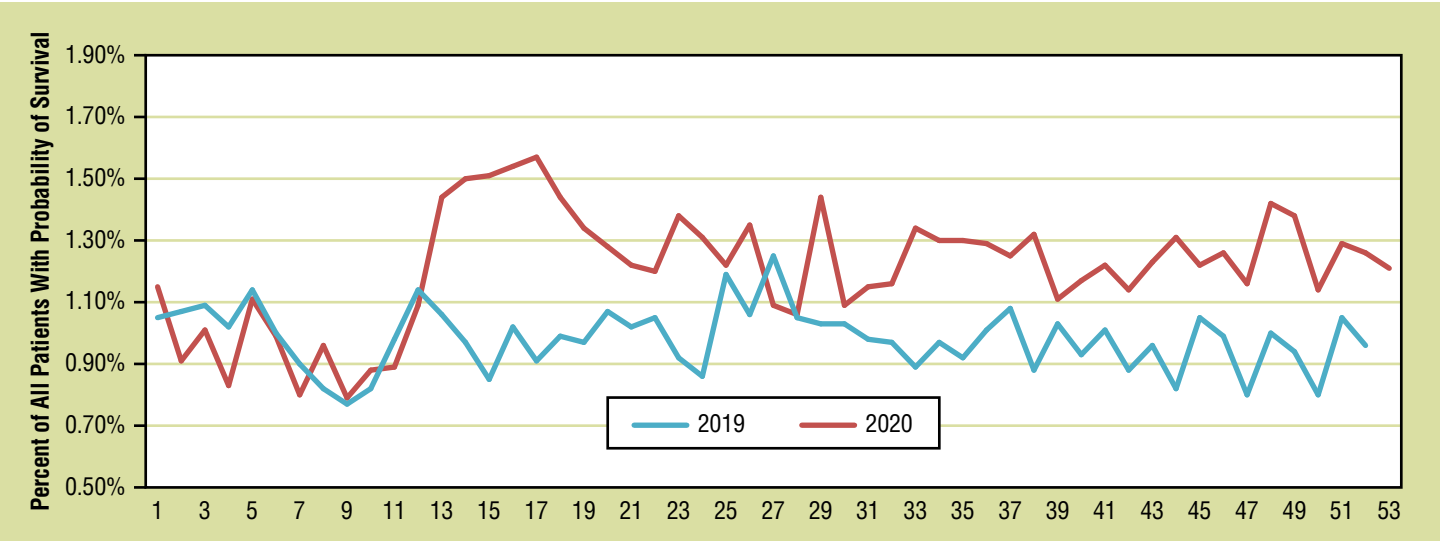
Figure 3
Rate of Motor Vehicle Crashes per EMS Dispatch by Week of Year, 2019 and 2020



Source: NEMSIS

The NEMSIS data include metrics on crash severity. For people treated at the scenes of motor vehicle crashes, EMS professionals use an injury scoring system called the Revised Trauma Score (RTS) to determine the level of care needed to save the lives of the injured. Under RTS, patients who present with a probability of survival of 36.1% or less are considered severely injured and are often transported to Level 1 or Level 2 trauma centers that provide higher levels of critical care to the most severely injured. Figure 4 shows the percentage of patients in crashes whose probability of survival was in this range for 2019 and 2020. Beginning in Week 12 of 2020, the percentage of those injured with a probability of survival of 36.1% or less never dropped below 1%, suggesting an increase in the severity of crashes.

Figure 4
Percentage of All Patients in Motor Vehicle Crashes With Probabilities of Survival 36.1% or Less (Severely Injured; Transport to Higher Level Trauma Center Recommended)

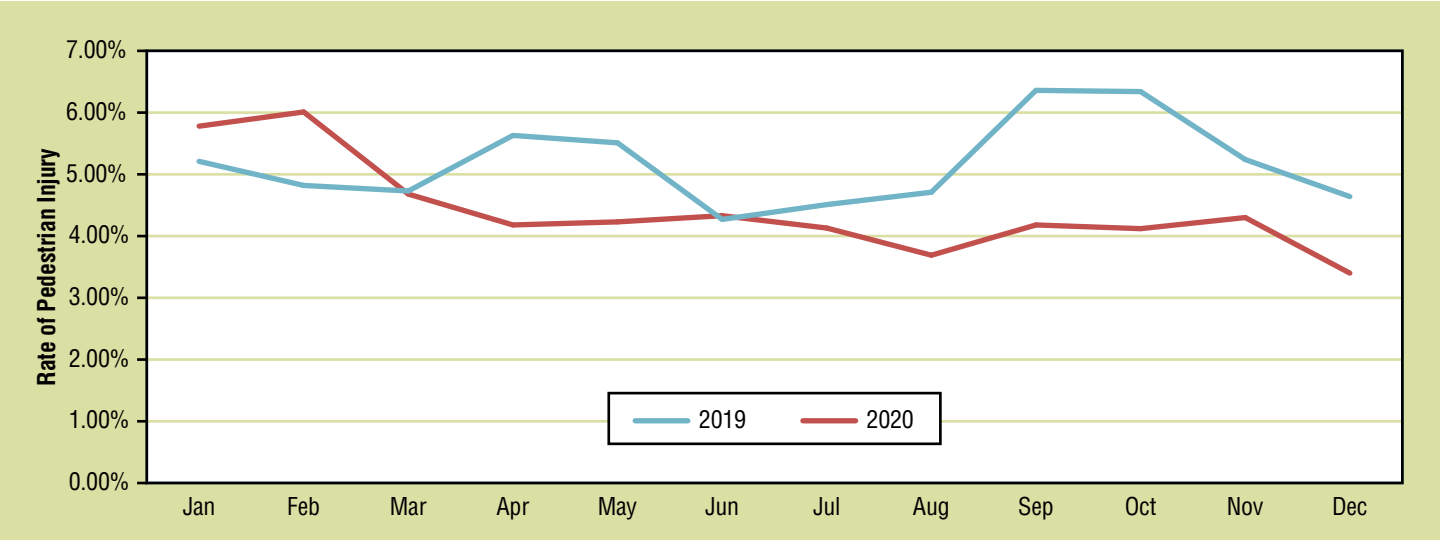


Source: NEMSIS

Understanding the changes in risks among different road user types is an important element for identifying appropriate countermeasures. To explore this, researchers examined NEMSIS data related to pedestrian crashes in 2019 and 2020. Figure 5 shows the pedestrian injury rate per EMS motor vehicle crash activation by

month in 2019 and 2020. For the entire year, pedestrians represented 5.2% of those injured in crashes that EMS responded to in 2019; in 2020, that rate was 4.4%. Comparing differences between the rates of pedestrian injuries in the months of Q4 from 2019 and 2020, rates were 2.2% lower in October 2020, 0.9% lower in November 2020, and 1.2% lower in December 2020.

Figure 5
Pedestrian Injury Rate per EMS Motor Vehicle Crash Activation by Month, 2019 and 2020



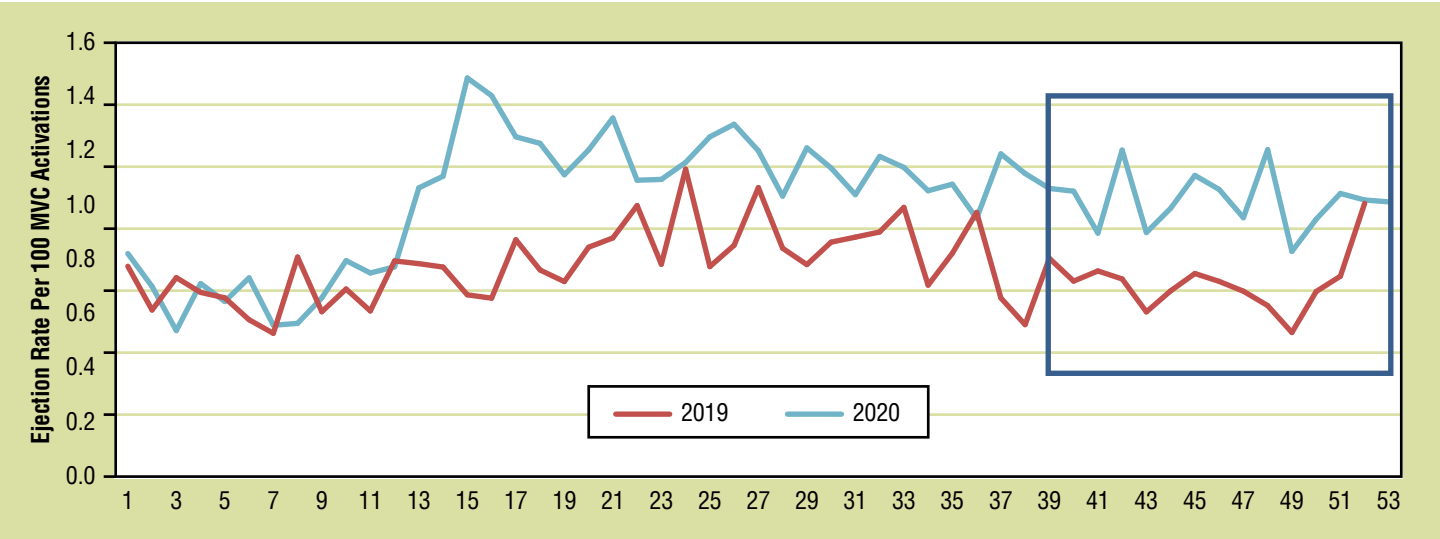
Source: NEMSIS

Changes in Risky Behaviors

Seat Belt Use

Seat belts are among the most important safety features in a vehicle because they keep occupants in place and mitigate injuries during a crash. Ejections from vehicles are a surrogate measure of seat belt use because people using seat belts are less likely to be ejected. The number and rate of ejections per EMS activation in response to motor vehicle crashes is available in the NEMSIS database (NHTSA, 2021). Figure 6 shows the ejection rate by week for 2019 and 2020; it shows an increase in the ejection rate in most of 2020 after week 10, when the COVID-19 public health emergency was declared. The box in Figure 6 highlights Q4.

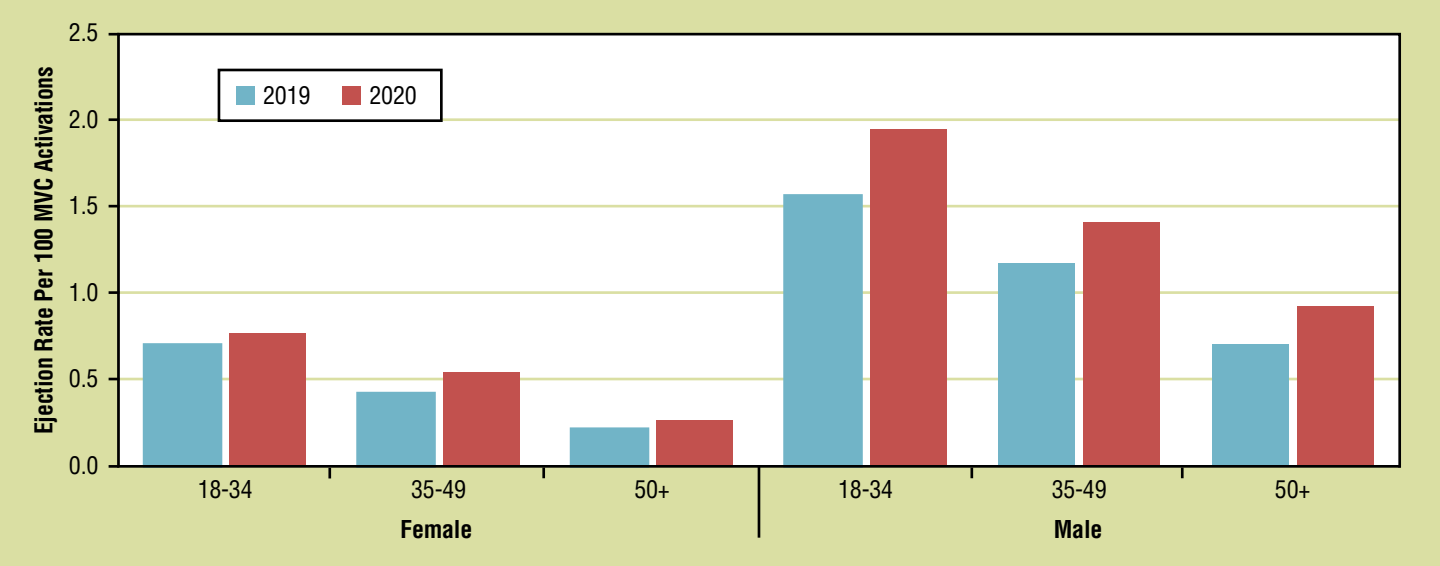
Figure 6
Ejections per 100 Motor Vehicle Crash EMS Activations by Week of Year, 2019 and 2020



Source: NEMSIS

NHTSA queried the NEMSIS data related to the age groups and sex of those who were ejected to determine whether different groups might comprise the changes in the ejection profile in 2020 (see Figure 7). The majority of increases in ejections occurred in males, with the largest increases occurring among those 18 to 34 years old.

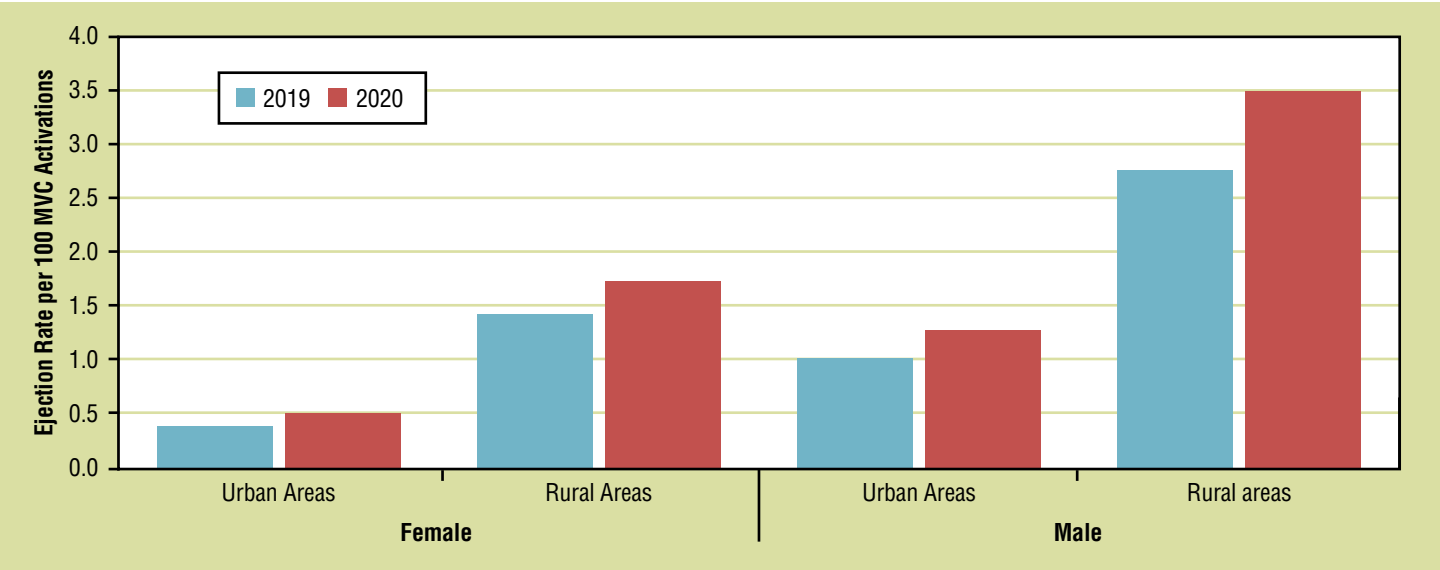
Figure 7
Ejection Rate per 100 MVC Activations by Age Group and Sex



Source: NEMSIS

NEMSIS data on urbanicity uses USDA Urban Influence Codes (NEMSIS, 2021). This analysis collapses the 12 categories in that system to urban and rural. The analysis of NEMSIS data regarding the urbanicity of those ejected shown in Figure 8 reveals that while there were increases in ejections in both urban and rural areas, ejections increased more in rural areas, particularly among males.

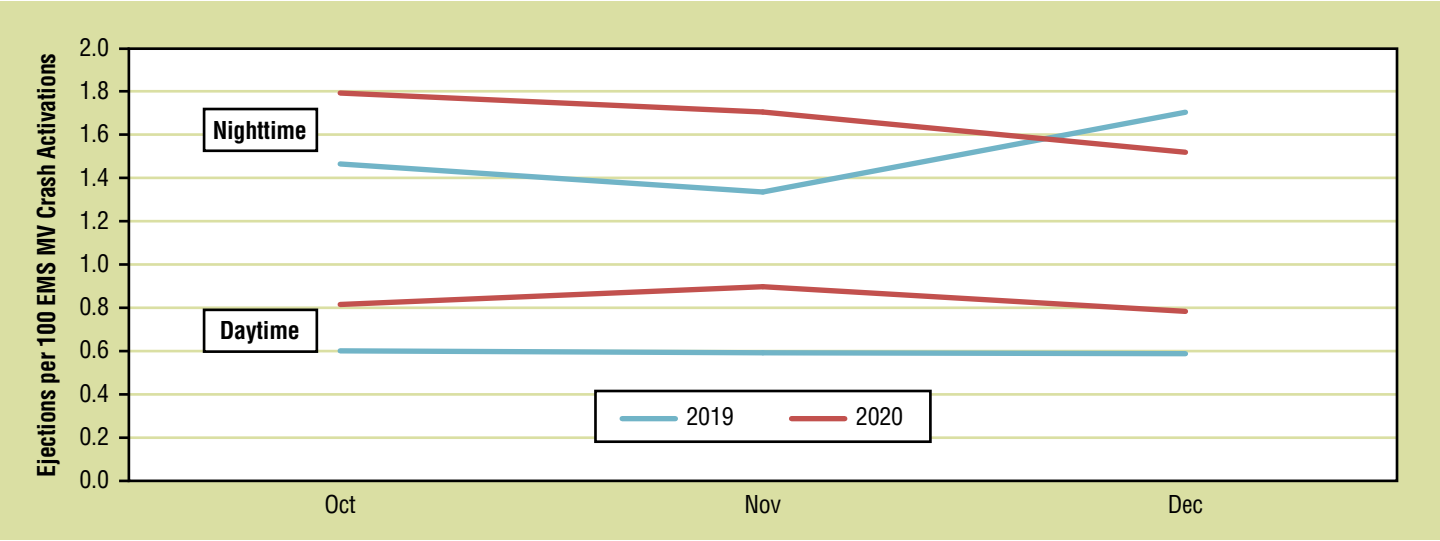
Figure 8
Ejection Rate per 100 MVC Activations by Urbanicity and Sex



Source: NEMSIS

To better understand the ejections in the fourth quarter (Q4) of 2019 and 2020, researchers examined NEMSIS data on the times of day when ejections occurred in October to December. Figure 9 depicts the daytime and nighttime ejection rate per 100 EMS crash activations by month in Q4 for both 2019 and 2020.

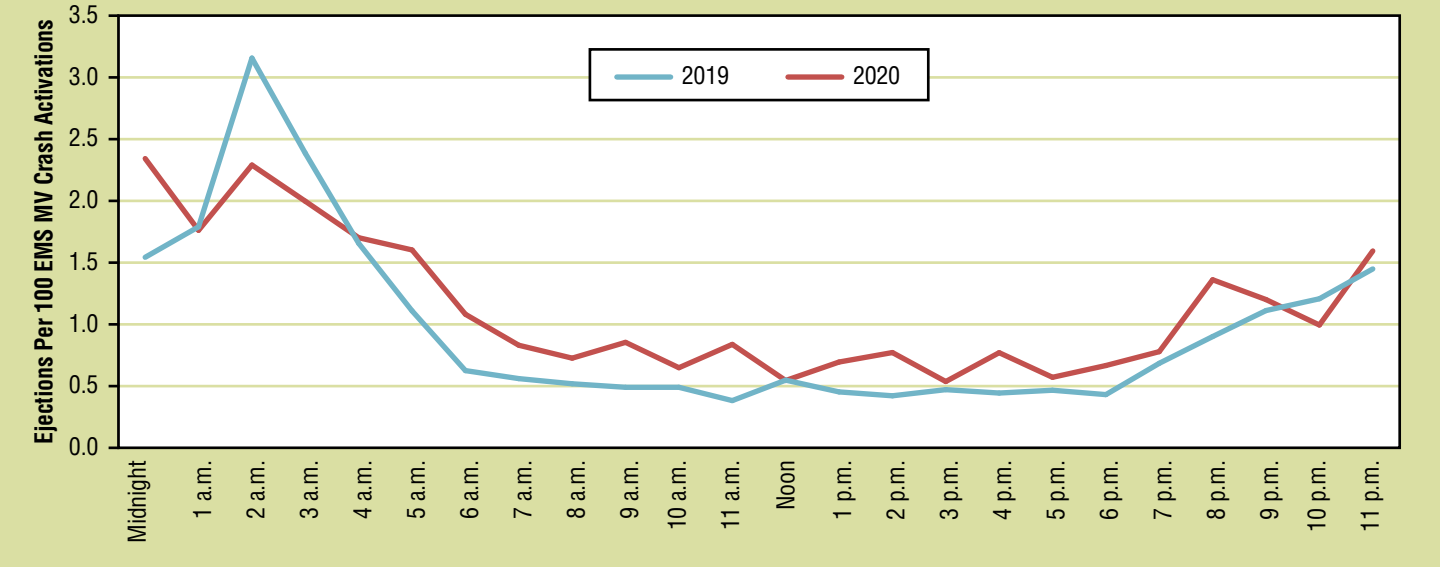
Figure 9
Ejection Rate by Time of Day by Month in Q4, 2019 and 2020



Source: NEMSIS

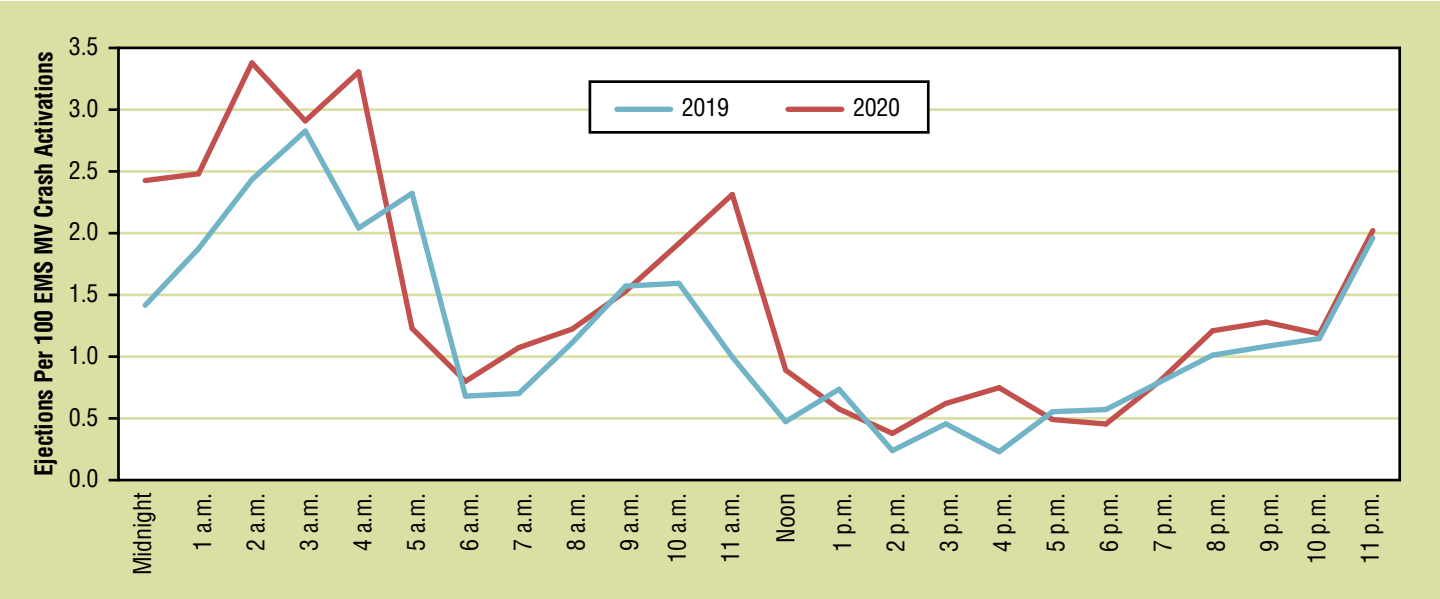
Throughout Q4 in 2020, the daytime ejection rate per 100 EMS crash activations was 0.83, compared to 0.59 in 2019, a 40% increase year over year. The Q4 nighttime ejection rate in 2020 was 1.67, compared to 1.50 in 2019, an 11% increase year over year. While the Q4 nighttime ejection rate was double the daytime rate, the change in ejections in daytime raises many concerns. The observed daytime seat belt use rate in 2019 was 90.1% (NCSA, 2019). The increase in daytime ejections in Q4 2020 could indicate a change in daytime seat belt use. Because observed weekday and weekend belt use rates are not the same, researchers reviewed the Q4 ejection rates by hour of day for weekday (Figure 10) and weekend (Figure 11). These figures suggest that much of the Q4 year over year change in ejections occurred during weekdays and early-morning and mid-day on weekends.

Figure 10
Q4 Ejection Rate by Hour of Day for Weekdays, 2019 and 2020



Source: NEMSIS

Figure 11
Q4 Ejection Rate by Hour of Day for Weekends, 2019 and 2020



Source: NEMSIS

Alcohol and Drug Use

NHTSA's ongoing study of alcohol and drug prevalence in seriously or fatally injured road users contains data on drivers, motorcyclists, and pedestrians, as well as other road users (see Thomas et al., 2020, for earlier analysis and methodology). The researchers analyzed these cases to understand whether changes in alcohol and drug use took place during the COVID-19 emergency compared to before. The data were obtained from selected trauma centers and medical examiners (MEs).

Data collection started on a rolling basis at each site. The start dates of collection covered by each participating trauma center[3] are the following.

- Charlotte, North Carolina – September 16, 2019
- Jacksonville, Florida – September 10, 2019
- Miami, Florida – October 17, 2019
- Baltimore, Maryland – December 11, 2019
- Worcester, Massachusetts – January 27, 2020

This analysis represents a shift from previous analyses, which collapsed data covering the entire period before the public health emergency (September 2019 – March 16, 2020). Date ranges in the current analyses conform to the quarters of the year (e.g., Q4 2019, Q1 2020) through the end of 2020. These analyses show potential changes in risk-taking behavior from before the pandemic (Q4 2019), to the earliest stages (Q1 2020), to the initial broad-scale public health emergency (Q2 2020), to the lifting of restrictions (Q3 2020), and the re-imposition of restrictions and concerns about rising COVID-19 caseloads (Q4 2020). As the study is still underway, data are considered preliminary. The study's final report will also include summary data on two additional trauma centers that joined later in the study, Iowa City, Iowa, and Sacramento, California.

The results shown below represent cases with a confirmed positive result for an active parent drug or active metabolite in the drug categories. For example, mentions of cannabinoids in the tables refer to active THC (Δ-9-THC and/or 11-OH-THC present) unless otherwise specified. A person could test positive for multiple drugs within a category (e.g., fentanyl, morphine, hydrocodone within the opioids category) but would only be counted once in the results. The drugs for which the research team tested were selected because of their impairing properties. The presence of the drug does not necessarily indicate impairment.

Thomas et al. (2020) showed that alcohol, cannabinoid, and opioid prevalence increased among all drivers of motor vehicles during Q2 compared to the months prior to the public health emergency. The results in the

[3] Trauma centers in Iowa City and Sacramento are participating in the broader prevalence study. Because they started collecting data in late 2020, data from these centers is not included in this longitudinal analysis.

tables below show a different perspective by separating motorcyclists out from drivers of other vehicle types.

Table 1 shows the drug positivity by quarter for drivers (excluding motorcyclists) seriously injured or killed in crashes and whose blood was collected at one of the participating trauma centers or by MEs. Compared to Q4 2019, prevalence of cannabinoids in seriously or fatally injured drivers was significantly higher in Q2 and Q4 2020, and the prevalence of opioids was significantly higher in Q2 and Q3 2020. The prevalence of at least one category of substance was significantly higher in Q2 and Q3 2020 than in Q4 2019. The prevalence of multiple categories of substances was significantly higher in Q3 2020 compared to Q4 2019. Similarly, compared to Q1 2020, the prevalence of cannabinoids, and at least one category of substance was significantly higher in Q2 2020.

Table 1
Drivers (Excluding Motorcyclists): Positive for Drug Category by Quarter

	Q4 2019 (N=409)		Q1 2020 (N=536)		Q2 2020 (N=404)		Q3 2020 (N=603)		Q4 2020 (N=474)	
Drug Category	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Alcohol	90	22.0	137	25.6	102	25.2	166	27.5	127	26.8
Cannabinoids	78	19.1	118	22.0	133	**32.9**[A,B]	155	25.7	130	**27.4**[A]
Opioids	28	6.8	52	9.7	60	**14.9**[A]	88	**14.6**[A]	44	9.3
Stimulants	36	8.8	60	11.2	41	10.1	64	10.6	42	8.9
Sedatives	42	10.3	35	6.5	34	8.4	48	8.0	33	7.0
Antidepressants	11	2.7	12	2.2	1	**0.2**[A]	4	0.7	4	0.8
Over-the-Counter	4	1.0	22	4.1	6	1.5	10	1.7	8	1.7
Other Drugs	7	1.7	9	1.7	3	0.7	17	2.8	10	2.1
At Least 1 Category	211	51.6	292	54.5	260	**64.4**[A,B]	366	**60.7**[A]	266	56.1
Multiple Categories	69	16.9	120	22.4	92	22.8	150	**24.9**[A]	108	22.8

[A] Significantly different ($p < .05$) compared to Q4 2019 period.
[B] Significantly different ($p < .05$) compared to Q1 2020 period.

Alcohol and drug prevalence among motorcyclists who were seriously or fatally injured and treated at the participating sites is shown in Table 2. It is important to note the sample size of motorcyclists included in the study each quarter was relatively low, which affected the statistical power of the analyses. Alcohol and cannabinoid prevalence among motorcyclists increased during Q2 and Q3 of 2020 compared to the earlier periods but the increases did not reach statistical significance ($p > .05$). However, in Q3 2020 significantly more motorcyclists (63.4%) had at least one category of drugs in their systems compared to Q1 2020 (45.9%). There were also increases in the prevalence of multiple categories of drugs for Q2 and Q3 2020 compared to the earlier quarters, but the increases did not reach statistical significance.

Table 2
Motorcyclists: Positive for Drug Category by Quarter

Drug Category	Q4 2019 (N=61)		Q1 2020 (N=111)		Q2 2020 (N= 137)		Q3 2020 (N= 213)		Q4 2020 (N=125)	
	n	%	n	%	n	%	n	%	n	%
Alcohol	11	18.0	21	18.9	42	30.7	63	29.6	31	24.8
Cannabinoids	14	23.0	30	27.0	50	36.5	61	28.6	35	28.0
Sedatives	2	3.3	7	6.3	7	5.1	22	10.3	6	4.8
Stimulants	6	9.8	5	4.5	8	5.8	19	8.9	11	8.8
Opioids	2	3.3	4	3.6	7	5.1	19	8.9	7	5.6
Antidepressants	0	0.0	0	0.0	1	0.7	3	1.4	1	0.8
Over-the-Counter	0	0.0	1	0.9	0	0.0	0	0.0	0	0.0
Other Drugs	2	3.3	0	0.0	4	2.9	8	3.8	5	4.0
At Least 1 Category	27	44.3	51	45.9	85	62.0	135	**63.4**[B]	72	57.6
Multiple Categories	7	11.5	15	13.5	28	20.4	49	23.0	18	14.4

[B] Significantly different ($p < .05$) compared to Q1 2020.

When known, EMS responders reported motorcyclist helmet use to treating trauma center staff. Medical examiners also recorded helmet use for fatalities as part of their normal documentation procedures. Helmet use was known for 606 out of the 647 motorcyclists (93.7%) included in this analysis. Table 3 shows reported helmet use among seriously or fatally injured motorcyclists at the study sites for each of the studied quarters. Overall, 68.5% of riders wore helmets. While helmet use fluctuated over time, only 58.1% of motorcyclists in Q4 2020 wore helmets, which was significantly lower ($p < .05$) than the 76.2% helmet use observed in Q2 2020. The comparisons over time should be interpreted with caution given the small samples sizes each quarter.

Table 3
Motorcyclists: Helmet Use by Quarter

	Q4 2019 (N=57)		Q1 2020 (N=105)		Q2 2020 (N=122)		Q3 2020 (N=205)		Q4 2020 (N=117)	
	n	%	n	%	n	%	n	%	n	%
Helmet	44	77.2	69	65.7	93	76.2	141	68.8	68	**58.1**[C]
No Helmet	13	22.8	36	34.3	29	23.8	64	31.2	49	**41.9**[C]

[C] Significantly different ($p < .05$) from Q2 2020.
Note: Cases with unknown helmet use are excluded from this table and analysis.

Table 4 shows drug prevalence among seriously or fatally injured pedestrians who presented at the participating trauma centers or at ME offices across the quarters of interest. While a number of drugs showed fluctuations in prevalence over time, the small numbers of pedestrians in the study each quarter limited the statistical power of the analyses. Most notably, the prevalence of opioids among the injured pedestrians in Q4 2020 (17.4%) was significantly higher ($p < .05$) than it was in Q1 2020 (6.2%).

Table 4
Pedestrians: Positive for Drug Category by Quarter

Drug Category	Q4 2019 (N=106)		Q1 2020 (N=162)		Q2 2020 (N=105)		Q3 2020 (N=172)		Q4 2020 (N=144)	
	n	%	n	%	n	%	n	%	n	%
Alcohol	20	18.9	46	28.4	31	29.5	53	30.8	36	25.0
Cannabinoids	23	21.7	27	16.7	31	29.5	38	22.1	34	23.6
Stimulants	10	9.4	23	14.2	16	15.2	21	12.2	14	9.7
Sedatives	9	8.5	14	8.6	10	9.5	19	11.0	14	9.7
Opioids	9	8.5	10	6.2	13	12.4	23	13.4	25	**17.4**[B]
Antidepressants	3	2.8	2	1.2	1	1.0	2	1.2	1	0.7
Over-the-Counter	2	1.9	6	3.7	4	3.8	4	2.3	2	1.4
Other Drugs	4	3.8	1	0.6	1	1.0	6	3.5	4	2.8
At Least 1 Category	52	49.1	86	53.1	68	64.8	108	62.8	88	61.1
Multiple Categories	16	15.1	35	21.6	29	27.6	44	25.6	34	23.6

[B] Significantly different ($p < .05$) compared to Q1 2020 period.

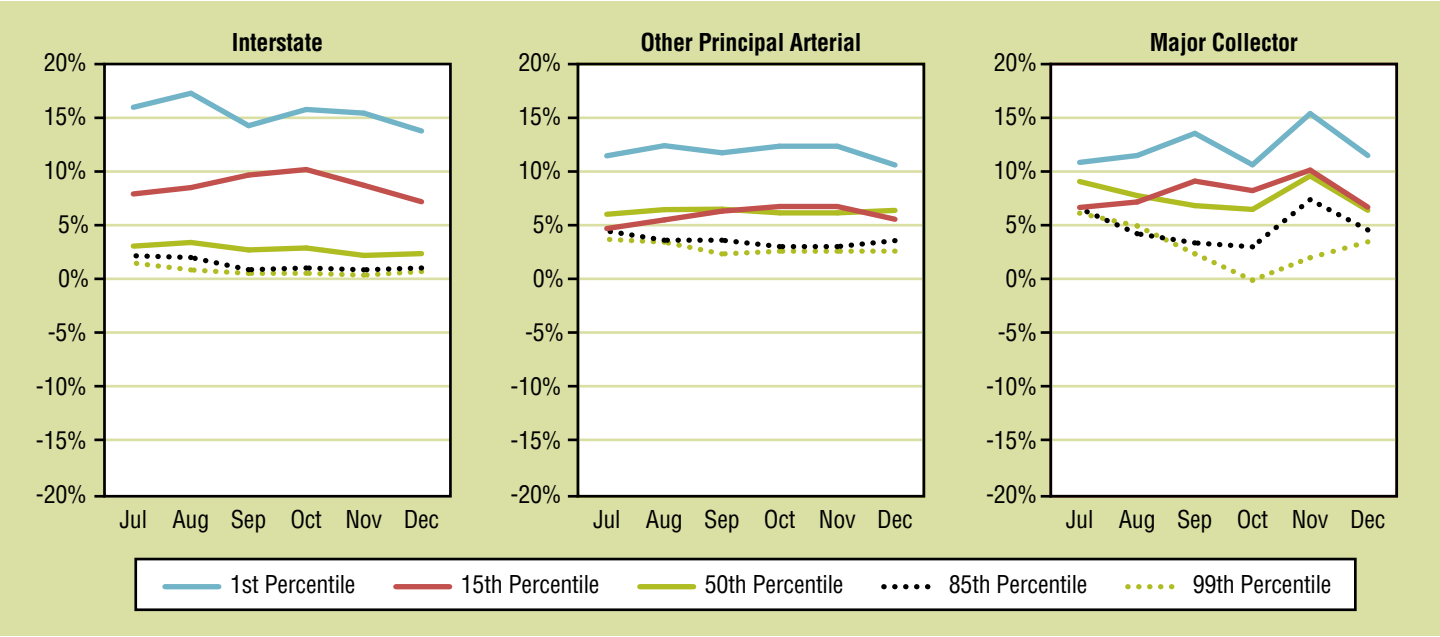
Additional data collection is underway at the participating trauma centers and MEs that will help determine if drug prevalence among seriously injured roadway users drops as the public health emergency begins to subside and travel patterns start to return to more normal pre-pandemic levels.

Speed

Earlier research released by NHTSA (Office of Behavioral Safety Research, 2020) noted increases in speeds across urban and rural environments through the FHWA's analysis of the NPMRDS. Similar analyses were conducted for Q3 and Q4 2020 (Center for Advanced Transportation Technology, 2021). Figure 12 shows the percentage change in speeds between 2019 and 2020 by month on urban interstates, other principal arterials, and major collectors across a range of percentiles.[4] For example, there was roughly a 15% increase in speeds among the slowest (1st percentile) vehicles on those roads through the last half of 2020. While the real change in speeds might have been a few miles per hour, this is still a safety concern. In a meta-analysis, Elvik (2005) found a 10% change in the mean speed of traffic was likely to have a greater impact on traffic fatalities than a 10% change in traffic volume, and that increased driving speed increased the risk of crashes and the severity of injuries resulting from those crashes. Further, crash test research by Kim et al. (2021) showed that speeds 10 mph above the 40 mph baseline exceeded the capacity handled by the vehicle's energy-absorbing structures, and survival likelihood (as measured through crash test dummies) was significantly reduced. Across roadway classifications in urban areas, the speeds observed in 2020 were higher than those observed in 2019, although the 85th and 99th percentile changes on interstates were negligible in Q4.

[4] The range of speeds at which n% of vehicles travel or more slowly. For example, 15th percentile speeds represent the speeds at which the slowest 15% of vehicles are traveling.

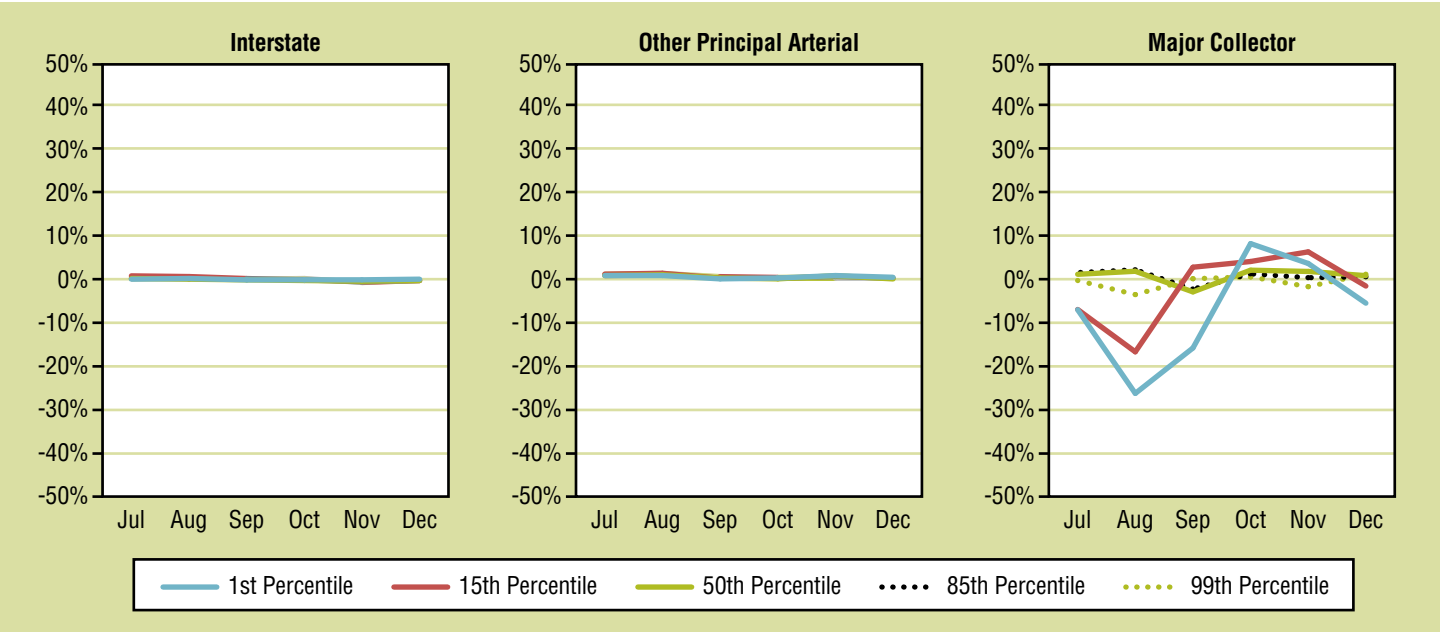
Figure 12
Percentage Change in Speeds in Urban Settings (2019 Versus 2020; Percentile by Functional Classification)



Source: NPMRDS

Figure 13 shows the percent change in speeds between 2019 and 2020 by month on rural interstates, other principal arterials, and major collectors across a range of percentiles. For rural interstates and arterials, 2020 roadway speeds appear to be approximately the same as those observed in 2019. However, the speeds on major collectors show more dispersion – the difference between the slowest and the fastest vehicles – in 2020 than in 2019 throughout Q3, with lower speeds observed in the first and 15th percentiles. The concern with speed dispersion is that it has the potential to introduce traffic conflicts that could lead to crashes. However, the differences among the lower percentiles between 2020 and 2019 speeds in Q4 reflect faster travel by the slowest drivers on major collectors. This could mean that the speed dispersions observed in Q3 and earlier were mitigated in Q4.

Figure 13
Percent Change in Speeds in Rural Settings by Month (2019 Versus 2020; Percentile by Functional Classification)



Source: NPMRDS

FHWA (2021) reported vehicle miles traveled (VMT) on different roadway types in the second half of 2020, which indicates that compared to 2019, VMT on urban interstates decreased by 13% and VMT on urban arterials decreased by 10.9%. The VMT on rural interstates in the second half of 2020 decreased 9.2% and VMT on rural arterials decreased 7.5% compared to 2019. It is possible that less congestion in urban areas compared to rural areas contributed to higher year-over-year speeds in those areas.

Summary

To a large extent, the increases in risky traffic safety behaviors observed in Q2 and Q3 continued in Q4. Frequency of trip-taking continued to be lower. A greater percentage of people stayed home in Q4 2020 compared to Q3 2020 and Q4 2019. Ejection rates remained elevated compared to the same period a year earlier. Closer review of the data suggested time of day, geographic, and demographic differences in the increased ejection rates. In particular, the daytime increases in ejections in mid-day on weekends appear alarming and were unexpected. The increase in severe injury rates throughout the latter part of 2020 is a disturbing trend.

Addressing the needs of vulnerable road users requires that we understand how their risks might have changed during 2020. Compared to 2019, the rate of pedestrian injury among all MVC EMS activations decreased in 2020. The prevalence of drugs and alcohol among pedestrians and motorcyclists did not increase in the ways they did for drivers. Helmet use among injured motorcyclists at the participating trauma centers did decrease in Q4 2020 compared to Q2. However, the data presented here do not provide insights on mode shifts and changes in exposure among these groups that may have occurred due to the pandemic.

The changes in prevalence of drugs and alcohol among drivers in Q4 are cause for cautious optimism. While the prevalence is still unacceptably high and cause for concern, it does appear to be reverting to pre-pandemic levels. Similarly, the changes in speeds on rural collectors in Q4 appear to be smaller than in the previous quarter, suggesting a potential for less speed dispersion and fewer conflicts between faster and slower vehicle speeds. The optimism is tempered by the review of urban speeds presented here, which suggests a continued increase in speeds in these settings throughout Q4. For example, on the major collectors, only the 99th percentile speed in October was unchanged year over year, with other percentile speeds up as high as 15%. In particular, concern for the safety of pedestrians and bicyclists in these conditions brings attention to the need to address vehicle speeds.

The past year has provided strong impetus for NHTSA and partner organizations to focus on known, observable problems, such as the risky driving behaviors discussed here. This Research Note provides further evidence that driving after alcohol or drug use, speeding, and not using seat belts all increased during 2020. However, another key issue to consider is how short-term approaches to studying observable changes in behavior or crash outcomes are limited by the data available to researchers. For example, the NPMRDS and the Bureau of Transportation Statistics COVID dashboards depend on telemetry data, but neither resource is appropriate for understanding challenging issues such as driver distraction. Other innovative analyses in non-traditional literature can teach us about behavior, and can promote consideration of new countermeasures. This type of analysis could hold promise for traffic safety professionals by helping to identify emerging problems and quickly respond to changes in the traffic safety environment. If we are only looking at the data we can see right now, we are almost certainly missing important insights that can help us save lives. There is a clear need to have access to more and better data and to improve data linkages in the future.

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