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TRAFFIC SAFETY FACTS
Research Note

NHTSA

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

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The National Highway Traffic Safety Administration (NHTSA) is continuing its exploration of traffic safety during the COVID-19 public health emergency. This work is crucial to furthering our understanding of changes in potentially dangerous driving behaviors, and allows us to expand or evolve countermeasures to meet current needs in States and across the country.

In October 2020, NHTSA released two reports related to COVID-19. The first was a synthesis of data on traffic safety during the second quarter (Q2) of the year, covering the months of April to June, providing context to understand changes in motor vehicle fatality rates in 2020. While traffic crash fatalities had declined to-date in 2020, the fatality rate had *increased*. The second was an interim report on research examining the presence of drugs and alcohol in road users who were seriously and fatally injured in crashes; it 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) released at the same time. NCSA provided initial data on motor vehicle fatality numbers in 2020. In the first half of 2020, NCSA estimated that the fatality rate per 100 million vehicle miles traveled (VMT) had risen year-over-year, from a rate of 1.06 in 2019 to a projected rate of 1.25 in 2020 (NCSA, 2020). In that report, NCSA also reported a reduction in VMT of 264.2 billion miles – about a 16.6% decrease – in the first 6 months of 2020.

Given the importance of the findings across these reports, NHTSA immediately convened a series of workshops with national partners, State highway safety professionals, and researchers. In these meetings, the agency began the conversation of how to address the increase in fatality rate, especially focusing on risky driving behaviors.

This Research Note provides an update on traffic safety during the COVID-19 public health emergency.

Background

During the early months of the national public health emergency, driving patterns and behaviors changed significantly (Wagner et al., 2020). Of the drivers who remained on the roads, some engaged in riskier behavior, including speeding, failing to wear seat belts, and driving under the influence of alcohol or other drugs. Traffic data indicated average speeds increased during the second quarter, and extreme speeds became more common. Other data suggested fewer people involved in crashes used their seat belts.

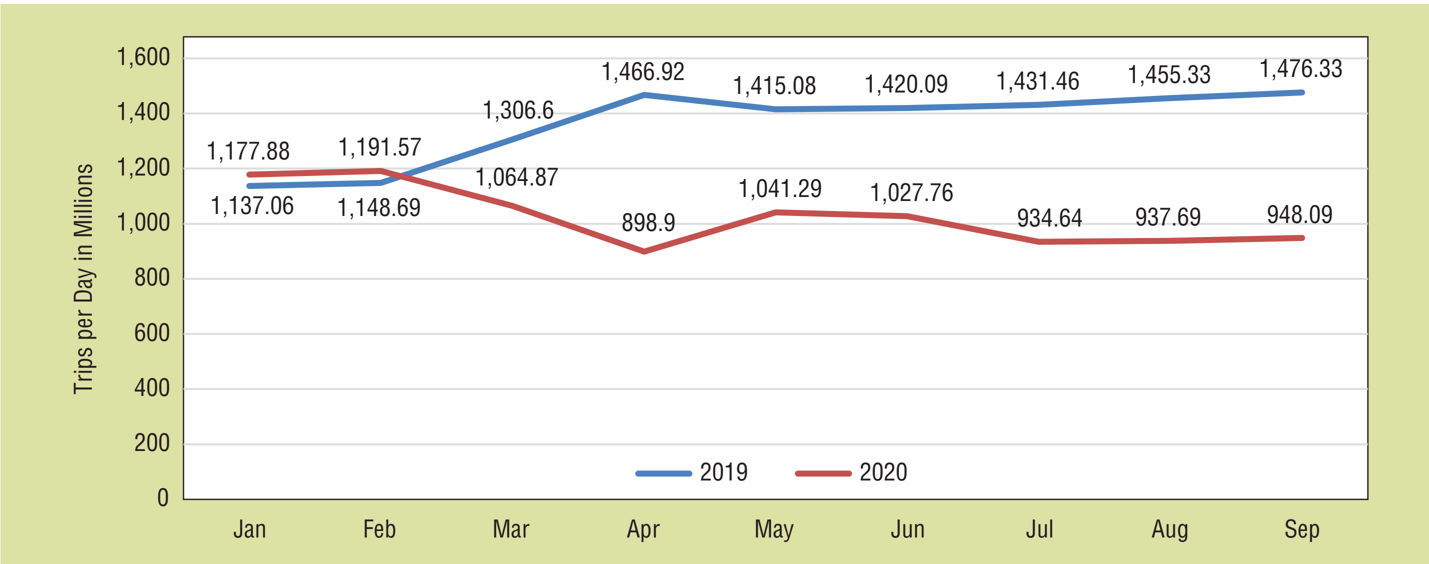
The study of seriously or fatally injured road users at five participating trauma centers (Thomas et al., 2020) found that, between mid-March and mid-July, almost two-thirds of drivers tested positive for at least one active drug, including alcohol, marijuana, or opioids. The proportion of such drivers testing positive for opioids nearly doubled after mid-March, as compared to the previous six months, while marijuana prevalence increased by about 50%.

This Research Note revisits key metrics from the recent NHTSA studies and provides updated data to examine the third quarter (Q3) of 2020 (July to September). Data limitations identified in the earlier reports also apply to the data reported here.

Travel Patterns

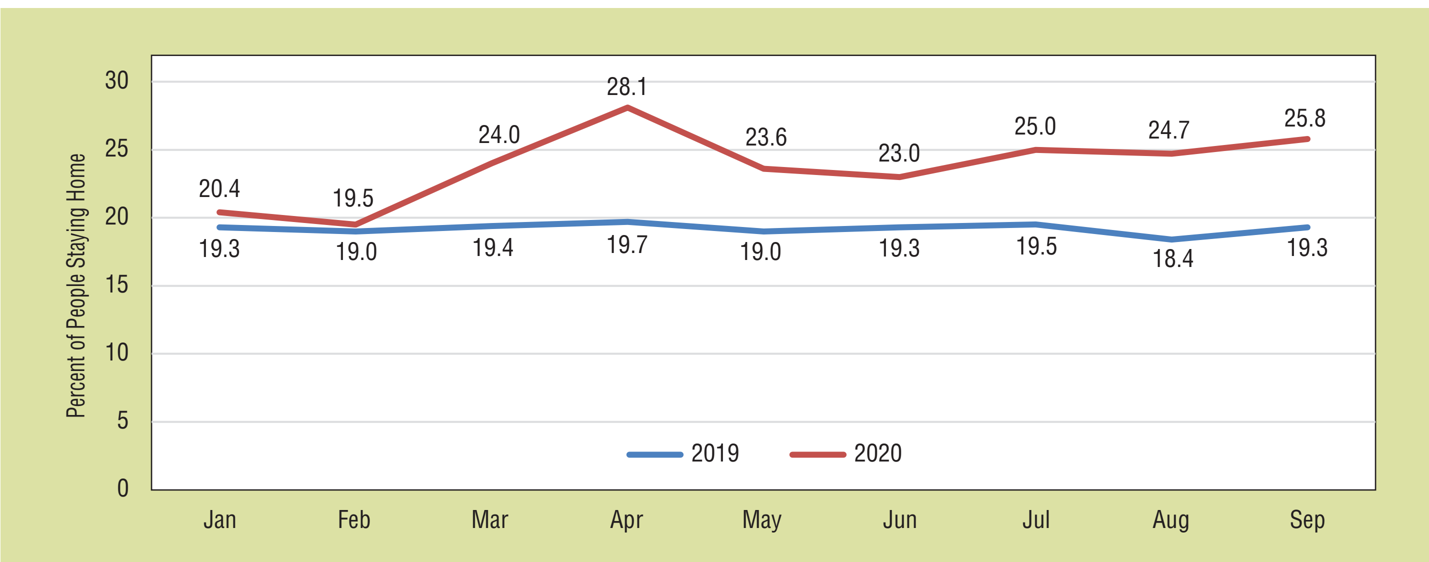
The Office of Behavioral Safety Research (OBSR) used the Bureau of Transportation Statistics' (2020) interactive data dashboard on travel during the COVID-19 public health emergency to explore travel patterns. The number of trips per day by month remained relatively steady throughout Q3. Compared to the same periods in 2019, there were approximately 31% fewer trips per day in Q2 2020 and 35% fewer trips per day in Q3 2020 (see Figure 1). The percentage of people staying home in 2020 increased from 2019 rates by approximately 6 percent in both Q2 and Q3 (see Figure 2).

Figure 1
Trips per day (millions), January-September, 2019 and 2020



Source: www.bts.gov/daily-travel

Figure 2
Percent of people staying home, January-September, 2019 and 2020



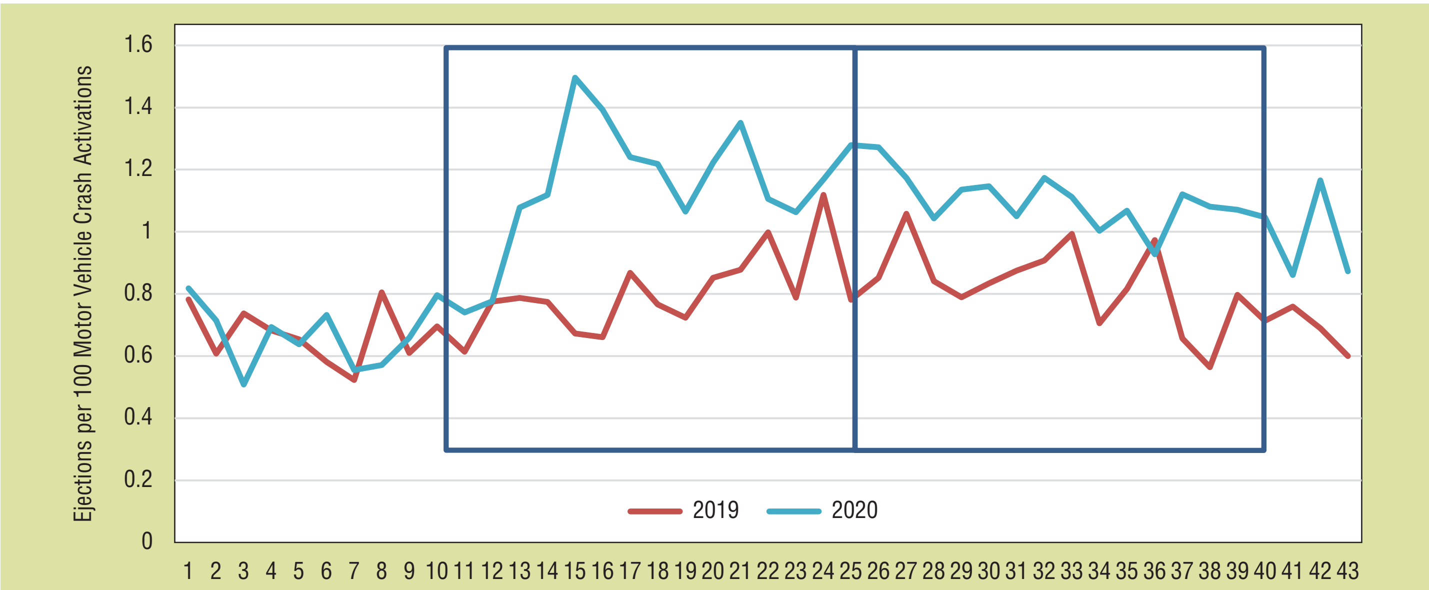
Source: www.bts.gov/daily-travel

Risky Behaviors

Seat Belt Use

Seat belts are among the most important safety features in vehicles because they keep occupants in place and mitigate injuries during a crash. Ejections from a vehicle are a surrogate measure of seat belt use because people using seat belts are less likely to be ejected from a vehicle. The number and rate of ejections per Emergency Medical Services (EMS) activation documenting EMS response to motor vehicle crashes is available in the National Emergency Medical Services Information System (NEMSIS) database (NHTSA, 2020). Figure 3 depicts the ejection rate, by week, for 2019 and 2020; it shows an increase in the ejection rate in Q2 2020 over Q2 of 2019. This elevated rate continued through Q3 until Week 36 (mid-September), which was the first week since Week 12 (early April) in which the rate of ejections was below 1 per 100 motor vehicle crash EMS activations.

Figure 3
Ejections per 100 motor vehicle crash EMS activations by week of year, 2019 and 2020



Note: Boxes delineate Q2 and Q3.
Source: NEMSIS

NHTSA's ongoing study of alcohol and drug prevalence in seriously or fatally injured road users also contains data on seat belt use of vehicle occupants (see Thomas et al., 2020 for earlier analysis and methodology). The researchers analyzed these cases to understand whether changes in occupant protection device use by drivers and passengers of motor vehicles took place during the COVID-19 public health emergency compared to before. The data was obtained from EMS providers and from medical examiners (MEs).

Data collection started on a rolling basis at each site. The dates of collection covered here are:

- Charlotte, North Carolina – September 16, 2019, to September 30, 2020;
- Jacksonville, Florida – September 10, 2019, to September 30, 2020;
- Miami, Florida – October 17, 2019, to September 30, 2020;
- Baltimore, Maryland – December 11, 2019, to September 30, 2020;
- Worcester, Massachusetts – January 27, 2020, to September 30, 2020.

For analysis purposes, the "Before" public health emergency period includes cases from September 10, 2019, to March 16, 2020. The "During 1" period of the COVID-19 public health emergency includes cases from March 17 to July 18, 2020; "During 2" includes cases from July 19 to September 30, 2020.

Cases were excluded from the analyses if seat belt status at time of crash was unknown. It is important to note the percentage of drivers with unknown seat belt use increased from 14.0% before the public health emergency to 19.0% in the During 1 period and 24.3% in the

During 2 period. It is not clear if the increases in cases with unknown seat belt use are an artifact of data collection difficulties during the public health emergency (e.g., study staff had reduced access to patient care areas to observe EMS reports; EMS personnel reported/recorded less information to reduce time in the hospital), or if EMS/ME personnel simply had more cases for which they could not determine seat belt use. Given these increases in cases with missing/unknown seat belt use, the results that follow should be interpreted with caution.

Table 1 shows EMS/ME-reported seat belt use among drivers excluding any cases with unknown seat belt use. The results show a decrease in seat belt use during both public health emergency time periods, but only the During 1 period change was significantly different ($p < .05$) than the Before period.

Table 1
Driver Seat Belt Use

	Before (N=809)		During 1 (N=388)		During 2 (N=356)	
Belt Use	n	%	n	%	n	%
Belted	632	78.1	278	**71.6**[A]	266	74.7
Unbelted	177	21.9	110	**28.4**[A]	90	25.3

[A] Significantly different than Before period, $p < .05$.
Before = 09/10/19 – 03/16/20
During 1 = 03/17/20 – 07/18/20
During 2 = 07/19/20 – 09/30/20

Similar to drivers, the percentage of passengers with unknown seat belt use increased from 9.6% before the public health emergency to 14.0% in the During 1 period and 19.8% in the During 2 period. Table 2 shows EMS/ME-reported seat belt use among passengers, excluding any cases with unknown seat belt use. Similar to the findings for drivers, passengers showed a decrease in seat belt use during both public health emergency time periods, but only the During 1 period change was significantly different ($p < .05$) than the Before period.

Table 2
Passenger Seat Belt Use

	Before (N=236)		During 1 (N=98)		During 2 (N=105)	
Belt Use	n	%	n	%	n	%
Belted	178	75.4	58	**59.2**[A]	70	66.7
Unbelted	58	24.6	40	**40.8**[A]	35	33.3

[A] Significantly different than Before period, $p < .05$.
Before = 09/10/19 – 03/16/20
During 1 = 03/17/20 – 07/18/20
During 2 = 07/19/20 – 09/30/20

The results above suggest there was an initial reduction in seat belt use among the seriously and fatally injured drivers and passengers at the five study sites during the first months of the public health emergency. There appears to have been a slight rebound in seat belt use in the later period studied. Belt use rates were still below those observed before the public health emergency began but did not reach the level of statistical significance.

Drug Prevalence and Seat Belt Use

Past research suggests that individuals often concurrently take traffic safety risks in more than one area (Wagner et al., 2020). The results that follow compare the seat belt use of those who were negative for all drugs versus those who tested positive for a given category of drugs. Seat belt use rates are based on cases where seat belt use status was known. Drivers and passengers who tested positive for more than one drug category are included in the seat belt use calculations for each drug category for which they tested positive. These results cover the entire study time period from September 10, 2019, to September 30, 2020. Table 3 shows that seat belt use was generally much lower when drivers tested positive for alcohol or other drugs versus when drivers did not have alcohol or drugs present.

Table 3
Driver Seat Belt Use by Drug-Positive Category

		Drug and Alcohol Negative	Alcohol	Cannabinoids	Stimulants	Sedatives	Opioids	Anti-depressants	Over-the-Counter	Other Drugs	At Least One Category	Multiple Categories
Belt Use		(N=680)	(N=370)	(N=375)	(N=155)	(N=131)	(N=181)	(N=27)	(N=31)	(N=21)	(N=873)	(N=335)
Belted	N	587	226	248	106	94	124	21	20	7	589	208
	%	86.3	**61.1**[A]	**66.1**[A]	**68.4**[A]	**71.8**[A]	**68.5**[A]	77.8	**64.5**[A]	**33.3**[A]	**67.5**[A]	**62.3**[A]
Unbelted	N	93	144	127	49	37	57	6	11	14	284	126
	%	13.7	**38.9**[A]	**33.9**[A]	**31.6**[A]	**28.2**[A]	**31.5**[A]	22.2	**35.5**[A]	**66.7**[A]	**32.5**[A]	**37.7**[A]

[A] Significantly different ($p < .05$) seat belt use rate compared to drug- and alcohol-negative drivers.

Table 4 shows the seat belt use of passengers who were positive for a category of drugs versus those who were negative. Passengers who tested positive for drugs tended to have lower seat belt use than those who tested negative. Small case counts for some drug categories limit the power and validity of the statistical comparisons.

Table 4
Passenger Seat Belt Use by Drug-Positive Category

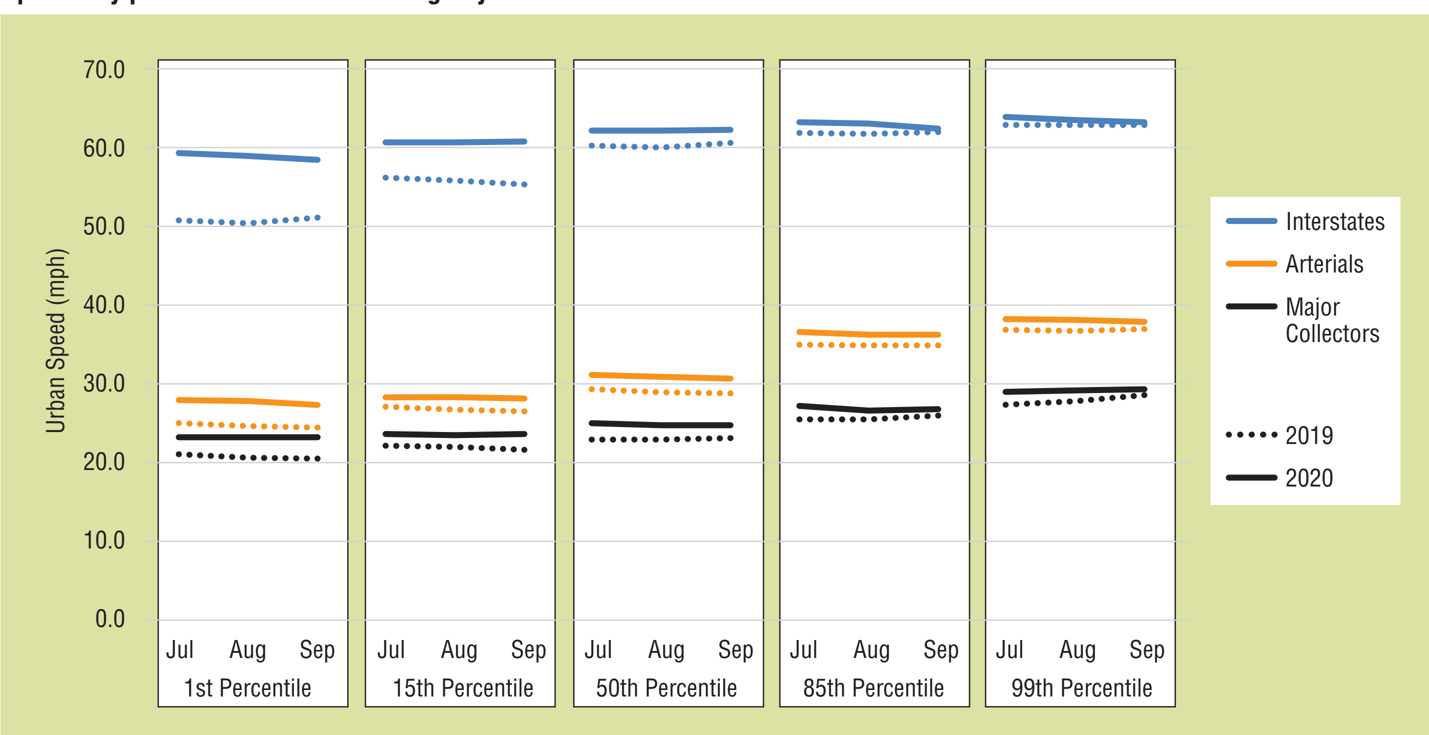
Belt Use		Drug and Alcohol Negative (N=210)	Alcohol (N=67)	Cannabinoids (N=129)	Stimulants (N=44)	Sedatives (N=32)	Opioids (N=42)	Anti-depressants (N=1)	Over-the-Counter (N=12)	Other Drugs (N=3)	At Least One Category (N=229)	Multiple Categories (N=79)
Belted	N	160	41	79	29	21	24	1	9	0	146	46
	%	76.2	**61.2**[A]	**61.2**[A]	65.9	65.6	**57.1**[A]	100.0	75.0	0.0	**63.8**[A]	**58.2**[A]
Unbelted	N	50	26	50	15	11	18	0	3	3	83	33
	%	23.8	**38.8**[A]	**38.8**[A]	34.1	34.4	**42.9**[A]	0.0	25.0	100.0	**36.2**[A]	**41.8**[A]

[A] Significantly different ($p < .05$) seat belt use rate compared to drug and alcohol negative passengers.

Speed

Earlier research by Wagner et al. (2020) noted increases in speeds across urban and rural environments through analysis of the Federal Highway Administration (FHWA) National Performance Management Research Data Set (NPMRDS). Similar analyses were conducted for Q3 2020 (Center for Advanced Transportation Technology, 2020). Figure 4 shows the urban year-over-year differences in speeds for Q3 across a range of percentile speeds. Across roadway classifications, the speeds observed in 2020 remain higher than those observed in 2019. In all cases, the 2020 speeds were higher than 2019 speeds in urban settings, except for the 99th percentile speeds on urban interstates. A recent report showed a median 22% increase in speeds in select metropolitan areas (Pishue, 2020). This presents a safety concern, as 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.

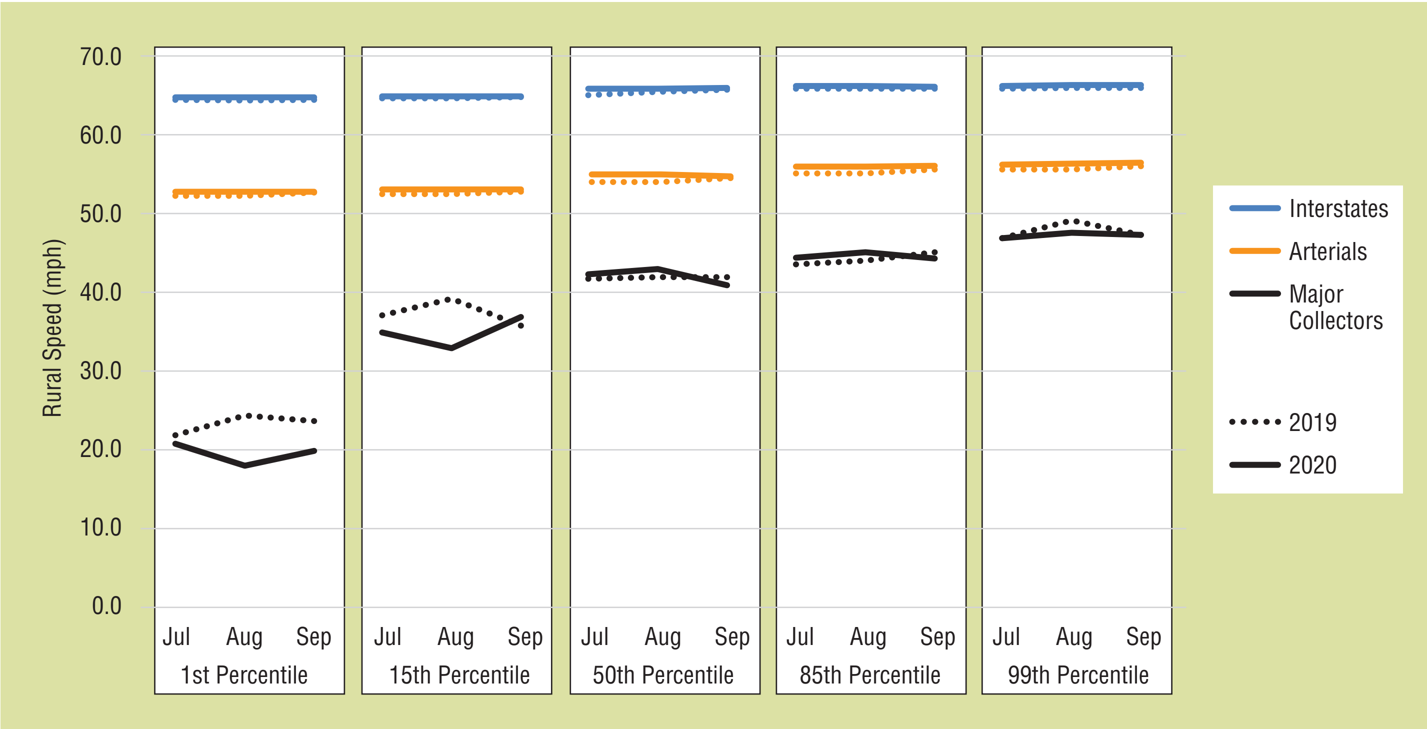
Figure 4
Speeds by percentile in urban settings by functional class



Source: NPMRDS

Figure 5 shows rural year-over-year differences in speeds for Q3 across a range of percentile speeds. For rural interstates and arterials, 2020 roadway speeds appear to be 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, 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.

Figure 5
Speeds by percentile in rural settings by functional class



Source: NPMRDS

Alcohol and Marijuana Sales

The Q2 report noted increases in sales and reported consumption of alcohol and other drugs. Compared to 2019, 2020 retail alcohol sales were 19.5% higher in July, 21.5% higher in August, and 20.6% higher in September (The FRED Blog, 2020). States that report their marijuana sales tax revenues reported significant year-over-year increases. The Colorado Department of Revenue (2020) reported a 38% increase in year-over-year marijuana sales tax revenue for Q3; Oregon Department of Revenue (2020) reported a 45% increase in year-over-year marijuana sales tax revenue for Q3. Although Illinois does not have a full year of data, the State announced that it had collected more than $100M in cannabis revenue between January and September 2020 (Illinois Department of Revenue, 2020). It must be noted that increased consumption of alcohol or other drugs does not mean that there were more users of these substances on the roads during Q3 than in previous years, nor does use of drugs necessarily indicate impairment.

Alcohol and Other Drug Use

Drawing from the same study of seriously and fatally injured road users described above (see Thomas et al., 2020), researchers gathered additional prevalence data through September 30, 2020. These results 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. Thomas et al. (2020) showed that alcohol, cannabinoid, and opioid prevalence all increased during Q2 as compared to the months prior to the public health emergency. The results in the tables below suggest the overall prevalence of alcohol, cannabinoids, and opioids continued to remain high in Q3 during the public health emergency compared to before. While cannabinoid prevalence appears to have decreased in the later period, it remained significantly higher ($p < .05$) than before the public health emergency. Males in particular continued to show high drug prevalence during the public health emergency.

Table 5
All Road Users: Drug-Positive Category

Drug Category	Before (N=1,880)		During 1 (N=1,123)		During 2 (N=1,054)	
	n	%	n	%	n	%
Alcohol	400	21.3	302	**26.9**[A]	293	**27.8**[A]
Cannabinoids	402	21.4	350	**31.2**[A]	280	**26.6**[A]
Stimulants	190	10.1	115	10.2	112	10.6
Sedatives	158	8.4	95	8.5	90	8.5
Opioids	142	7.6	145	**12.9**[A]	142	**13.5**[A]
Antidepressants	37	2.0	5	**0.4**[A]	8	**0.8**[A]
Over-the-Counter	43	2.3	18	1.6	15	1.4
Other Drugs	27	1.4	20	1.8	35	**3.3**[A]
At Least 1 Category	959	51.0	714	**63.6**[A]	642	**60.9**[A]
Multiple Categories	341	18.1	267	**23.8**[A]	259	**24.6**[A]

[A] Significantly different than "Before" period, $p < .05$.
Before = 09/10/19 – 03/16/20
During 1 = 03/17/20 – 07/18/20
During 2 = 07/19/20 – 09/30/20

Table 6
Drivers and Pedestrians: Drug-Positive Category

Drug Category	Drivers						Pedestrians					
	Before (N=1,157)		During 1 (N=699)		During 2 (N= 640)		Before (N=274)		During 1 (N=142)		During 2 (N=144)	
	n	%	n	%	n	%	n	%	n	%	n	%
Alcohol	252	21.8	198	**28.3**[A]	187	**29.2**[A]	67	24.5	43	30.3	41	28.5
Cannabinoids	241	20.8	227	**32.7**[A]	167	**26.1**[A,B]	51	18.6	44	**31.0**[A]	31	21.5
Stimulants	106	9.2	64	9.2	69	10.8	33	12.0	23	16.2	17	11.8
Sedatives	93	8.0	61	8.7	50	7.8	25	9.1	13	9.2	16	11.1
Opioids	87	7.5	97	**13.9**[A]	86	**13.4**[A]	22	8.0	17	12.0	22	15.3
Antidepressants	26	2.2	3	**0.4**[A]	6	0.9	5	1.8	1	0.7	2	1.4
Over-the-Counter	25	2.2	10	1.4	8	1.3	8	2.9	6	4.2	3	2.1
Other Drugs	17	1.5	15	2.1	22	**3.4**[A]	4	1.5	2	1.4	6	4.2
At Least 1 Category	588	50.8	452	**64.7**[A]	394	**61.6**[A]	139	50.7	94	**66.2**[A]	88	61.1
Multiple Categories	204	17.6	177	**25.3**[A]	158	**24.7**[A]	54	19.7	40	28.2	37	25.7

[A] Significantly different than "Before" period, $p < .05$.
[B] Significantly different than "During 1" period, $p < .05$.
Before = 09/10/19 – 03/16/20
During 1 = 03/17/20 – 07/18/20
During 2 = 07/19/20 – 09/30/20

Table 7
All Road Users: Drug-Positive Category by Sex

	Male						Female					
	Before (N=1,234)		During 1 (N=793)		During 2 (N=676)		Before (N=636)		During 1 (N=294)		During 2 (N=308)	
Drug Category	n	%	n	%	n	%	n	%	n	%	n	%
Alcohol	305	24.7	231	29.1	220	**32.5**[A]	91	14.3	60	20.4	55	17.9
Cannabinoids	285	23.1	262	**33.0**[A]	196	**29.0**[A]	113	17.8	74	**25.2**[A]	64	20.8
Stimulants	141	11.4	80	10.1	68	10.1	48	7.5	34	11.6	36	11.7
Sedatives	104	8.4	57	7.2	46	6.8	52	8.2	33	11.2	32	10.4
Opioids	96	7.8	109	**13.7**[A]	93	**13.8**[A]	45	7.1	32	10.9	37	**12.0**[A]
Antidepressants	17	1.4	3	0.4	4	0.6	20	3.1	2	0.7	3	1.0
Over-the-Counter	22	1.8	9	1.1	6	0.9	21	3.3	9	3.1	8	2.6
Other Drugs	17	1.4	16	2.0	24	**3.6**[A]	10	1.6	4	1.4	7	2.3
At Least 1 Category	675	54.7	519	**65.4**[A]	436	**64.5**[A]	277	43.6	169	**57.5**[A]	159	51.6
Multiple Categories	241	19.5	197	**24.8**[A]	177	**26.2**[A]	96	15.1	62	21.1	62	20.1

[A] Significantly different than "Before" period, $p < .05$.
Before = 09/10/19 – 03/16/20
During 1 = 03/17/20 – 07/18/20
During 2 = 07/19/20 – 09/30/20

Table 8 provides the prevalence of alcohol-positive road users in selected blood alcohol concentration (BAC) ranges before and during the public health emergency. The prevalence of high BACs (.15+ g/dL) increased during both of the public health emergency periods relative to before, and a corresponding drop in the rate of BAC-negative road users was observed.

Table 8
All Road Users BAC

	Before (N=1,880)			During 1 (N=1,123)			During 2 (N=1,054)		
BAC Range	n	%	95% CI	n	%	95% CI	n	%	95% CI
BAC Negative	1,480	78.7	[76.8, 80.5]	821	**73.1**[A]	[70.5, 75.6]	761	**72.2**[A]	[69.4, 74.8]
.02 – .049	25	1.3	[0.9, 2.0]	27	2.4	[1.6, 3.4]	24	2.3	[1.5, 3.3]
.05 – .079	38	2.0	[1.4, 2.8]	24	2.1	[1.4, 3.1]	18	1.7	[1.1, 2.6]
.08 – .149	97	5.2	[4.2, 6.3]	64	5.7	[4.5, 7.2]	77	7.3	[5.9, 9.0]
.15 +	240	12.8	[11.3, 14.4]	187	**16.7**[A]	[14.6, 18.9]	174	**16.5**[A]	[14.4, 18.8]

[A] Significantly different from "Before" period, $p < .05$.

Table 9 provides the prevalence of alcohol-positive drivers in selected BAC ranges before and during the public health emergency. The prevalence of high BACs (.15+ g/dL) increased during both of the public health emergency periods relative to before. There was a corresponding drop in the rate of BAC-negative drivers.

Table 9
Driver BAC

	Before (N=1,157)			During 1 (N=699)			During 2 (N=640)		
BAC Range	n	%	95% CI	n	%	95% CI	n	%	95% CI
BAC Negative	905	78.2	[75.8, 80.5]	501	**71.7**[A]	[68.2, 74.9]	453	**70.8**[A]	[67.2, 74.2]
.02 – .049	9	0.8	[0.4, 1.4]	14	2.0	[1.2, 3.2]	16	2.5A	[1.5, 3.9]
.05 – .079	22	1.9	[1.2, 2.8]	13	1.8	[1.0, 3.1]	7	1.1	[0.5, 2.1]
.08 – .149	64	5.5	[4.3, 7.0]	44	6.3	[4.7, 8.3]	45	7.0	[5.2, 9.2]
.15 +	157	13.6	[11.7, 15.6]	127	**18.2**[A]	[15.4, 21.2]	119	**18.6**[A]	[15.7, 21.7]

[A] Significantly different from "Before" period, $p < .05$.

Summary

To a large extent, the risky traffic safety behaviors observed in Q2 continued in Q3. Frequency of trip-taking continued to be lower, and a greater percentage of people stayed home in Q3 2020 compared to Q3 2019. Ejection rates remained elevated compared to the same period a year earlier. New data on seat belt use among seriously injured drivers and passengers suggests that the belt use rate among those in serious crashes decreased in the early phases of the public health emergency at the study sites, but that rate may now be rebounding. The data also suggested that alcohol- and other drug-positive drivers and passengers who were seriously or fatally injured were much less likely to wear a seat belt than their counterparts who tested negative for all the drugs included in the study.

Speed data from the NPMRDS shows higher speeds in urban roadways across roadway types in Q3 2020 compared to the same period in 2019. Further, the greater speed dispersion in rural areas observed in Q2 continued in Q3 2020 compared to the same period in 2019.

Regarding alcohol and other drug prevalence among seriously and fatally injured drivers at the five trauma center study sites, more than 29% in the most recent period (July 19 to September 30) had measurable alcohol in their systems, with over 26% testing positive for the presence of cannabinoids and over 13% positive for opioids. In the same period, the percentage of drivers testing positive for at least one category of drugs remained above 60%, with nearly 25% testing positive for multiple categories of drugs. These observed increases in alcohol and other drug prevalence relative to before the public health emergency are consistent with the reported data that showed increases in marijuana and alcohol sales and consumption during the public health emergency. Overall, these data sets continue to have great potential to improve our understanding of the prevalence of drugs and alcohol among different types of seriously and fatally injured road users, as well as how prevalence may be changing over time during the public health emergency.

References

Bureau of Transportation Statistics. (2020). Daily travel during the COVID-19 public health emergency. Available at www.bts.gov/daily-travel

Center for Advanced Transportation Technology. (2020, November). National performance management research data set. [Restricted website].

Colorado Department of Revenue (2020, October). Marijuana Tax and Fee Revenue Summary. Available at https://cdor.colorado.gov/data-and-reports/marijuana-data/marijuana-tax-reports

Elvik, R. (2005). Speed and road safety: Synthesis of evidence from evaluation studies. *Transportation Research Record, 1908*(1), 59–69. https://doi.org/10.1177/0361198105190800108

Illinois Department of Revenue (2020, October). Pritzker Administration Announces $100 Million Milestone in Cannabis Revenue Collected. Available at www2.illinois.gov/IISNews/22203-Pritzker_Administration_Announces_$100_Million_Milestone_in_Cannabis_Revenue_Collected.pdf

National Center for Statistics and Analysis. (2020, October). *Early estimate of motor vehicle traffic fatalities for the first half (Jan–Jun) of 2020* (Crash•Stats Brief Statistical Summary. Report No. DOT HS 813 004). National Highway Traffic Safety Administration. Available at https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813004

National Highway Traffic Safety Administration. (2020). National Emergency Medical Services Information System (Version 3) [EMS Data Cube]. https://nemsis.org/view-reports/public-reports/ems-data-cube/

Oregon Department of Revenue (2020, November). Oregon marijuana tax statistics. www.oregon.gov/dor/programs/gov-research/pages/research-marijuana.aspx

Pishue, B. (2020, December). *COVID-19 effect on collisions on interstates and highways in the US.* INRIX Research.

The FRED Blog, (2020, June). The lockdown's effect on the alcoholic beverage market. https://fredblog.stlouisfed.org/2020/06/the-lockdowns-effect-on-the-alcoholic-beverage-market/

Thomas, F. D., Berning, A., Darrah, J., Graham, L., Blomberg, R., Griggs, C., Crandall, M., Schulman, C., Kozar, R., Neavyn, M., Cunningham, K., Ehsani, J., Fell, J., Whitehill, J., Babu, K., Lai, J., and Rayner, M. (2020, October). *Drug and alcohol prevalence in seriously and fatally injured road users before and during the COVID-19 public health emergency* (Report No. DOT HS 813 018). National Highway Traffic Safety Administration. https://rosap.ntl.bts.gov/view/dot/50941

Wagner, E., Atkins, R., Berning, A., Robbins, A., Watson, C., & Anderle, J. (2020, October). *Examination of the traffic safety environment during the second quarter of 2020: Special report* (Report No. DOT HS 813 011). National Highway Traffic Safety Administration. Available at https://rosap.ntl.bts.gov/view/dot/50940

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