Massachusetts Department of Public Health

Injured Drivers Identified as Speeding:

Driver and Crash Characteristics, Findings of Responsibility for Speeding, and Future At-fault Crashes

MA Crash-Related Injury Surveillance System Data



MA Traffic Safety Coalition Meeting
June 20th, 2024

Analysis by the Injury Surveillance Program, Office of Statistics and Evaluation,
Bureau of Community Health and Prevention, MA Department of Public Health

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Overview

- Background
- Objectives
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Background

- Speeding is a major risk factor for crash-related injuries and deaths.
- Between 2016 and 2020, 29% of traffic fatalities in Massachusetts (MA) were speed-related.[1]
- Serious injuries associated with speed-related crashes in MA increased by 78% between 2017 and 2021.[2]
- MA traffic safety partners identified speeding as a top priority for further analysis using MA Crash Related Injury Surveillance System (MA CRISS) data in a survey conducted in December 2022
- This analysis also aimed to address priorities in the 2023 MA Strategic Highway Safety Plan to reduce inequities in MV crash injuries and investigate the effectiveness of traffic safety countermeasures.

1. FFY 2023 Massachusetts Highway Safety Plan.
2. MassDOT Crash Impact Portal, Operations Dashboards, Special Emphasis Areas accessed 6/25/2023.

Objectives

This analysis had three main objectives.

Among all injured drivers[1]:

1. Identify driver and crash characteristics associated with being identified as speeding.

Among injured drivers identified as speeding:

2. Identify the percentage of drivers identified as speeding who were ultimately found responsible for speeding, and whether this differed by race/ethnicity.
3. Determine the percentage of drivers who had an at-fault crash in the following 3 years and whether this differed by whether the driver was found responsible for speeding.

1. Includes car and truck drivers and motorcycle operators.

Data: MA Crash-Related Injury Surveillance System

- We used data on drivers from FFY2017 – FFY2019[1] linked crash, hospital, and driver data from the MA Crash-Related Injury Surveillance System (MA CRISS)[2] for all analyses.
- Drivers included MA and out-of-state car/truck drivers and motorcycle (MC) operators who received care in an emergency department or hospital for nonfatal or fatal crash injuries, and whose hospital record linked with both a crash record and a MA driver record.[3]
- Unlicensed drivers, passengers, and non-motorists were excluded.

1. FFY = Federal fiscal year: October 1st to September 31st of the following year.
2. MA CRISS data do not include all MV crashes in MA. Hospital records may not link to a crash record if the crash occurred out-of-state, police were not involved, individuals sought treatment more than one day after the crash, or missing or inaccurate information prevented data linkage. Driver records may not have been linked to a crash record if the driver license number in crash data was not in a valid format or the license number was not in RMV driver license/history data.
3. Out-of-state drivers have a MA driver record if they have an at-fault crash or driving violation in MA.

The Crash Data System includes crash reports completed by law enforcement officers and is managed by the MA Registry of Motor Vehicles.

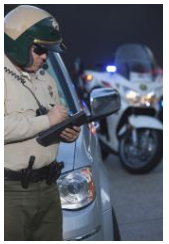
Hospital “case mix” data is managed by the Center for Health Information and Analysis (CHIA) and includes inpatient hospital discharge, outpatient observation stay, and emergency department discharge data from all MA acute care hospitals.

Driver license/history data is maintained by the MA Registry of Motor Vehicles and includes information on drivers’ licenses, violations for which drivers were found responsible, sanctions, and driver retraining programs.

These data sources were deterministically linked in the MA Crash-Related Injury Surveillance System and analyzed by the MA Department of Public Health Injury Surveillance Program.

Crash and hospital records were linked on date-of-birth, date of crash/date of hospital admission (+1 day to allow for admissions after midnight), person-type, and sex. Driver and crash records were linked on driver license number.

Definitions



Drivers were defined as "speeding" if they:

- Had one or more driver contributor codes of "Exceeded authorized speed limit" or "Driving too fast for conditions" in their crash report, or
- Had a complete violation code for speeding, racing, or driving too fast for conditions in their crash report[1], or
- Were held responsible for speeding, racing, or driving too fast for conditions on the date of their index crash in their driver record[2]

Index crash[3]: The crash in which a driver was classified as speeding or not in FFY2017 – FFY2019 MA CRISS data.

1. Violation codes in crash data were often incomplete because they did not include the code subsection. We may have missed some speeding violations if the violation code was incomplete and could not be distinguished from other types of violations.
2. Driver records only include violations for which the driver has been found responsible. We allowed the violation date to be one day after the index crash as well, in the event the crash occurred around midnight.
3. The term "index crash" distinguishes these crashes from other crashes drivers may have been involved in before or after the index crash. A driver may have been involved in more than one "index" crash during this three-year period.

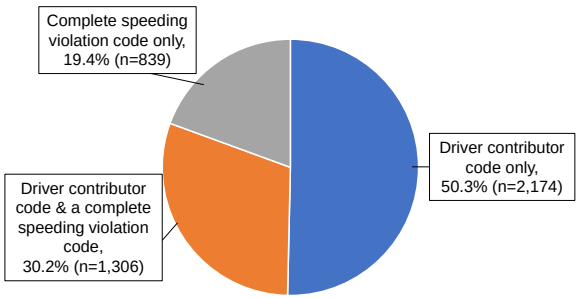
Law enforcement officers may have documented that a driver was speeding in the driver contributor codes but not have given the driver a speeding violation. This may occur if officers have some evidence of speeding, such as a witness statement or skid marks, but the evidence was not felt to be sufficient to issue a speeding violation. It is also possible that the officer issued the driver a citation with a speeding violation, but the officer did not document the full violation code on the crash report. (Citations, which include up to four violations, are separate documents from the crash report.)

Results - Objective 1

Identify driver and crash characteristics associated with being identified as speeding.

Percentage of Drivers Identified as Speeding

- **5.2% of injured drivers[1] (4,319 of 83,825 drivers) who crashed between Oct. 2016 – Sep. 2019 were identified as speeding by law enforcement.**



Crash Report Documentation Used to Identity Speeding[2]
(N = 4,319)

1. Drivers include car/truck drivers and motorcycle operators.
2. Percentages do not add to 100% due to rounding.

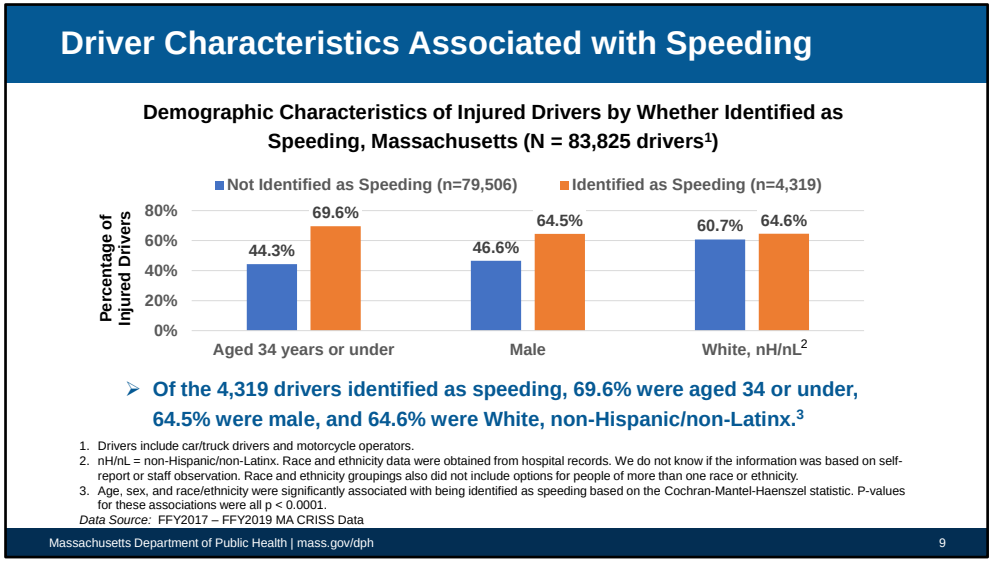
Data Source: FFY2017 – FFY2019 MA Crash-Related Injury Surveillance System

This analysis included car/truck drivers and MC operators fatally or nonfatally injured in a motor vehicle crash who received care in an ED, observation stay unit, or inpatient hospital unit, and whose hospital record linked to both a crash record and a driver record.

A driver was defined as speeding if law enforcement officers documented a driver contributor code in the crash report of “Exceeded authorized speed limit” or “Driving too fast for conditions”, or

the officer documented a complete violation code for speeding, racing, or driving too fast for conditions in the crash report.

In addition, if drivers were found responsible for speeding based on their driver records, we also defined them as having had a speeding violation, even if that violation was not fully documented in the crash report.



Driver age, sex, and race/ethnicity were obtained from hospital data.
Speeding information was obtained from crash data.

Drivers Identified as Speeding, By Race/Ethnicity (column percentages)

Race/ethnicity	Not Identified as Speeding	Identified as Speeding
White, nH/nL	60.7%	64.6%
Black, nH/nL	16.1%	12.9%
Hispanic/Latinx	14.2%	13.8%
Asian/P.I., nH/nL	3.2%	2.7%
Another race/ethnicity	3.5%	3.0%
Unknown race/ethnicity	2.3%	3.0%

Injury Severity Level and Speeding

Injury severity or treatment level for injured drivers was significantly associated[1] with being identified as speeding (N = 83,825 drivers[2]).

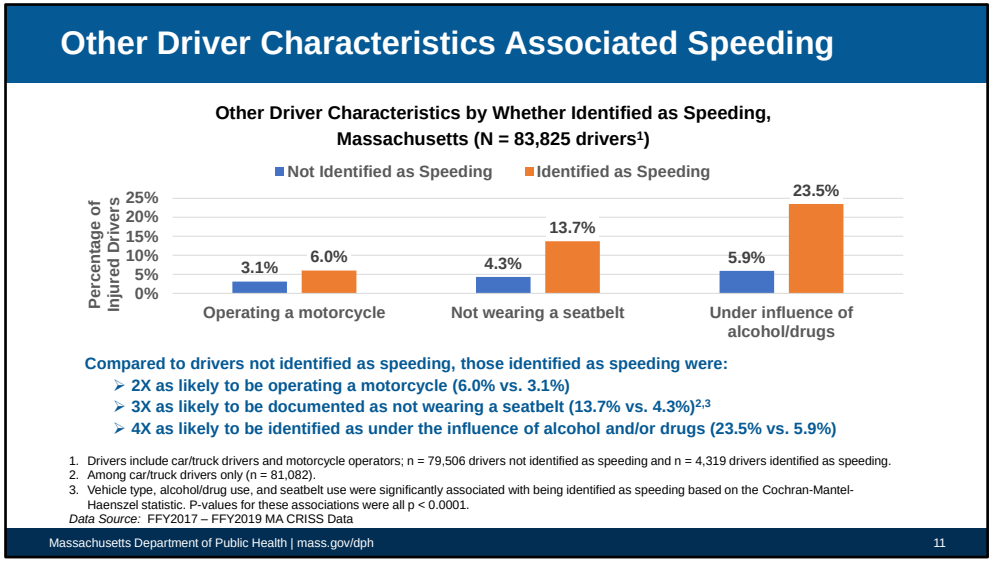
Compared to injured drivers not identified as speeding, those identified as speeding were:

- **3X as likely to have sustained a fatal injury (1.0% vs. 0.3%)**
- **Over 2X as likely to have required a hospital stay (15.9% vs. 7.3%)**

1. We used the Cochran-Mantel-Haenszel statistic to identify significant differences in treatment level: $p < 0.0001$.
2. Drivers include car/truck drivers and motorcycle operators; n = 79,506 drivers not identified as speeding and n = 4,319 drivers identified as speeding.

Data Source: FFY2017 – FFY2019 MA CRISS Data

Injury severity level was obtained from hospital data.
Speeding information was obtained from crash data.



Type of vehicle, seatbelt use, and speeding information were obtained from crash data.

Alcohol and drug use were derived from hospital and crash data. Substance use indicators in hospital data included diagnosis codes for alcohol and/or drug use that impacted patient management. Substance use indicators in crash data included documentation that alcohol or drug use was suspected by law enforcement and violation codes for operating under the influence (OUI). See Alcohol and Drug Intoxication among Drivers Hospitalized for Motor Vehicle Crash Injuries, 2016-2018 for specific indicators in ED/hospital and crash data used to identify alcohol and drug use.

Of car/truck drivers identified as speeding, 62.3% were documented as wearing a seatbelt and 24.0% were missing seatbelt use data. A similar percentage of car/truck drivers NOT identified as speeding were missing seatbelt use data (25.8%).

Driver History and Speeding

Driving on a suspended license and having speeding violations in the past 5 years were significantly associated with being identified as speeding[1] (N = 83,825 drivers[2]).

Compared to injured drivers not identified as speeding, drivers identified as speeding were:

- **2.6X as likely to be driving on a suspended license (4.6% vs. 1.8%)[3]**
- **60% more likely to have been found responsible for speeding in the past 5 years (25.5% vs. 15.9%)[4]**

1. We used the Cochran-Mantel-Haenszel statistic to test the significance of the association between speeding and both driver history factors. P-values for both associations were: $p < 0.0001$.
2. Drivers include car/truck drivers and motorcycle operators; n = 79,506 drivers not identified as speeding and n = 4,319 drivers identified as speeding.
3. About two-fifths of drivers identified as speeding and driving on a suspended license had indefinite license suspensions.
4. Of drivers identified as speeding, 17.1% had been found responsible for speeding one time and 8.4% had been found responsible for speeding two or more times in the past five years.

Data Source: FFY2017 – FFY2019 MA Crash-Related Injury Surveillance System

License suspension and speeding history in the past 5 years were obtained from driver data. Speeding at the time of the index crash was obtained from crash data.

Other Driver Characteristics Studied

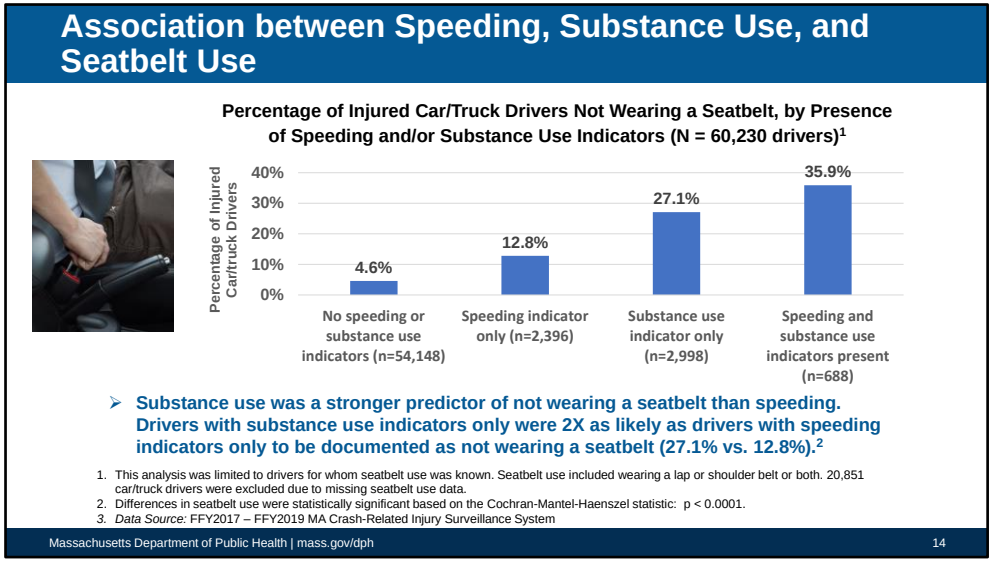
"Non-speeders" were significantly more likely to be identified as distracted (7.8% of "non-speeders" vs. 5.9% of "speeders" were identified as distracted or inattentive by law enforcement)[1]

Motorcycle helmet use was *not* significantly associated with being identified as speeding (82.7% of "speeders" and 81.4% of "non-speeders" were wearing a motorcycle helmet)[2]

1. Distracted driving was defined as having a driver contributor code of "distraction" or "inattention". This analysis included car/truck drivers and motorcycle operators (N = 83,825); n = 79,506 drivers not identified as speeding and n = 4,319 drivers identified as speeding. Differences in distracted driving were statistically significant based on the Cochran-Mantel-Haenszel statistic: $p < 0.0001$.
2. Among motorcycle operators (N = 2,743); 255 cases had unknown or missing helmet use.

Data Source: FFY2017 – FFY2019 MA Crash-Related Injury Surveillance System

Distracted driving and helmet use information were obtained from crash data.



Seatbelt use information was obtained from crash data.
Speeding information was based on information in crash and driver data.

Alcohol and drug use were derived from hospital and crash data. Substance use indicators in hospital data included diagnosis codes for alcohol and/or drug use that impacted patient management. Substance use indicators in crash data included documentation that alcohol or drug use was suspected by law enforcement and violation codes for operating under the influence (OUI). See Alcohol and Drug Intoxication among Drivers Hospitalized for Motor Vehicle Crash Injuries, 2016-2018 for specific indicators in ED/hospital and crash data used to identify alcohol and drug use.
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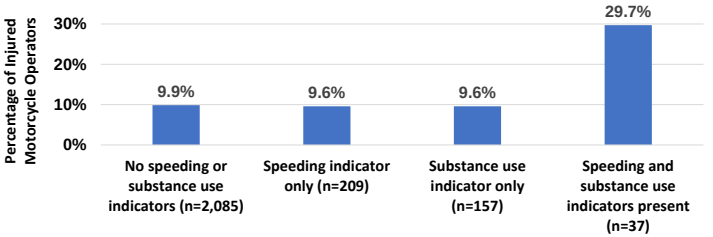
Association between Speeding, Substance Use, and Helmet Use

Percentage of Injured Motorcyclists Not Wearing a Helmet, by Presence of Speeding and/or Substance Use Indicators (N = 2,488 motorcycle operators)[1]



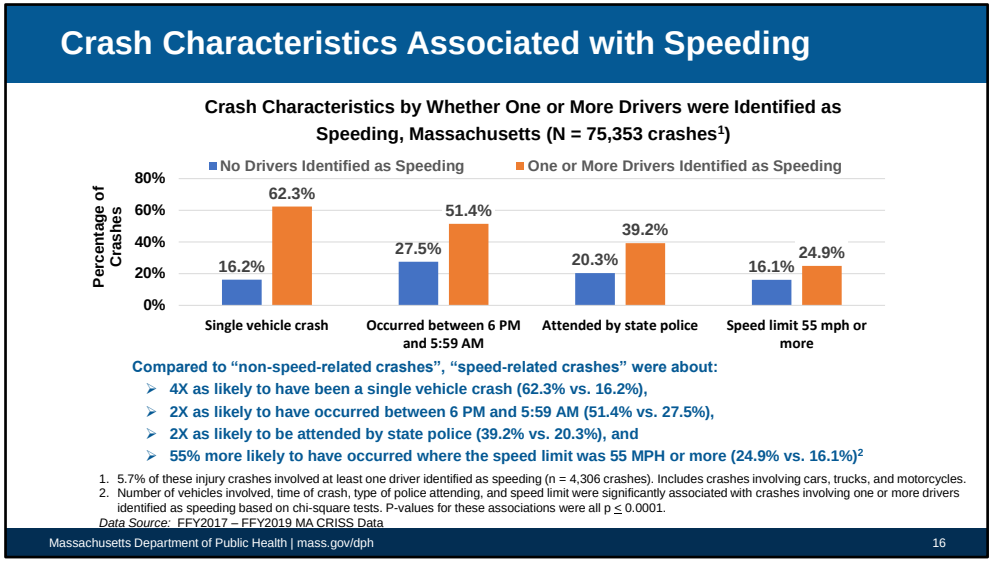
- **Motorcycle operators with indicators for both speeding and substance use were about 3X as likely as other motorcycle operators to not be wearing a helmet (29.7% vs. 9.6-9.9%).**

1. This analysis was limited to cases where helmet use was known. 255 motorcycle operators were excluded due to missing helmet use data.
2. Differences in helmet use were statistically significant based on the Cochran-Mantel-Haenszel statistic: p = 0.05.
3. *Data Source:* FFY2017 – FFY2019 MA Crash-Related Injury Surveillance System

As noted in an earlier slide, speeding alone was not significantly associated with helmet use.

Helmet use information was obtained from crash data.
Speeding information was based on information in crash and driver data.

Alcohol and drug use were derived from hospital and crash data. Substance use indicators in hospital data included diagnosis codes for alcohol and/or drug use that impacted patient management. Substance use indicators in crash data included documentation that alcohol or drug use was suspected by law enforcement and violation codes for operating under the influence (OUI). See Alcohol and Drug Intoxication among Drivers Hospitalized for Motor Vehicle Crash Injuries, 2016-2018 for specific indicators in ED/hospital and crash data used to identify alcohol and drug use. ding



We compared crashes in which one or more drivers were identified as speeding ("speed-related crashes") with those in which no drivers were identified as speeding ("non-speed-related crashes").

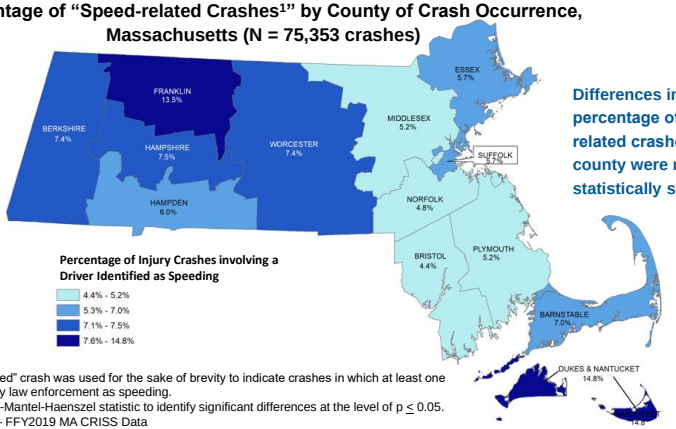
Data for all crash characteristics were obtained from crash data. Missing information was excluded from that characteristic's frequencies.

"Speed-related crashes" were 3X as likely to occur between midnight and 5:59 AM as "non-speed-related crashes".

In addition, "speed-related crashes" were significantly *less likely* to occur at an intersection than "non-speed-related crashes" (28.1% vs. 48.7%).

Speeding Rates by County of Crash Occurrence

Percentage of "Speed-related Crashes[1]" by County of Crash Occurrence, Massachusetts (N = 75,353 crashes)



Differences in the percentage of "speed-related crashes" by county were not statistically significant.[2]

1. The term "speed-related" crash was used for the sake of brevity to indicate crashes in which at least one driver was identified by law enforcement as speeding.
2. We used the Cochran-Mantel-Haenszel statistic to identify significant differences at the level of $p \leq 0.05$.

Data Source: FFY2017 – FFY2019 MA CRISS Data

Results - Objective 2

Identify the percentage of drivers identified as speeding who were ultimately found responsible for speeding, and whether this differed by driver's race and ethnicity.

This analysis was conducted only among injured drivers identified as speeding at the index crash for whom a driver's record was available[1] (N = 4,278).

1. Driver records were not available if the driver was unlicensed or the driver was from out-of-state driver and did not have a MA driver record because they had no prior traffic offenses or at-fault crashes in MA.

Percentage of Drivers Found Responsible for Speeding

- Of the 4,278 nonfatally injured drivers identified as speeding in the index crash by law enforcement, about 1 in 7 (14.4%) were found responsible for speeding.[1]
- Of drivers who had a complete speeding violation code[2], about 1 in 4 (27.7%) were found responsible for speeding.
- These percentages may be low in part due to the difficulty in obtaining evidence of speeding after a crash has occurred.

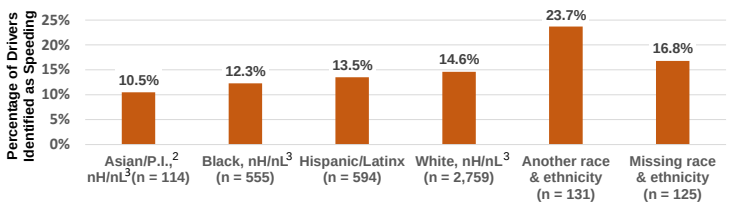
1. A driver was considered to have been found responsible for speeding if the driver paid the fine for the speeding ticket without going to court or the driver was found responsible after a court hearing. The date of the speeding violation had to be the same or one day after the index crash date.
2. Rather than a driver contributor code for speeding or racing and/or an incomplete violation code for which we could not determine whether the violation was for speeding or another moving offense.

Data source: FFY2017 – FFY2019 MA Crash-Related Injury Surveillance System

Findings of responsibility were obtained from driver records.

Percentage of Drivers Found Responsible for Speeding, by Driver's Race and Ethnicity

Percentage of Injured Drivers Identified as Speeding and Found Responsible[1], by Driver's Race and Ethnicity, Massachusetts, (N = 4,278 drivers)



Differences in the percentage of drivers found responsible for speeding by driver's race and ethnicity were not statistically significant.[4]

1. A driver was considered to have been found responsible for speeding if the driver paid the fine for the speeding ticket without going to court or the driver was found responsible after a court hearing. The date of the speeding violation had to be the same or one day after the index crash date.
2. P.I. = Pacific Islander
3. nH/nL = non-Hispanic/non-Latinx. Race and ethnicity data were obtained from hospital records. We do not know if the information was based on self-report or staff observation. Race and ethnicity groupings also did not include options for people of more than one race or ethnicity.
4. We used a Cochran-Mantel-Haenszel statistic to test for significant differences: p = 0.51. Low counts in several race and ethnicity groups may have contributed to the differences in percentages not being statistically significant.

Data source: FFY2017 – FFY2019 MA Crash-Related Injury Surveillance System

To further investigate drivers identified as "another race/ethnicity", we explored additional race and ethnicity variables in hospital data, but this investigation did not reveal any consistent patterns. Some of these drivers had additional ethnicity information, such as "American", "Brazilian", "Cape Verdean", or "Portuguese", but most had no additional ethnicity information.

Results - Objective 3

Among injured drivers identified as speeding, determine the percentage who had an at-fault crash in the following 3 years and whether this differed by whether the driver was found responsible for speeding.

This analysis was conducted only among injured drivers identified as speeding at the index crash for whom a driver's record was available[1] (N = 4,278).

1. Driver records were not available if the driver was unlicensed or the driver was from out-of-state driver and did not have a MA driver record because they had no prior traffic offenses or at-fault crashes in MA.

The purpose of this analysis was to assess the effectiveness of finding drivers responsible for speeding in deterring future at-fault crashes among drivers identified as speeding in the index crash.

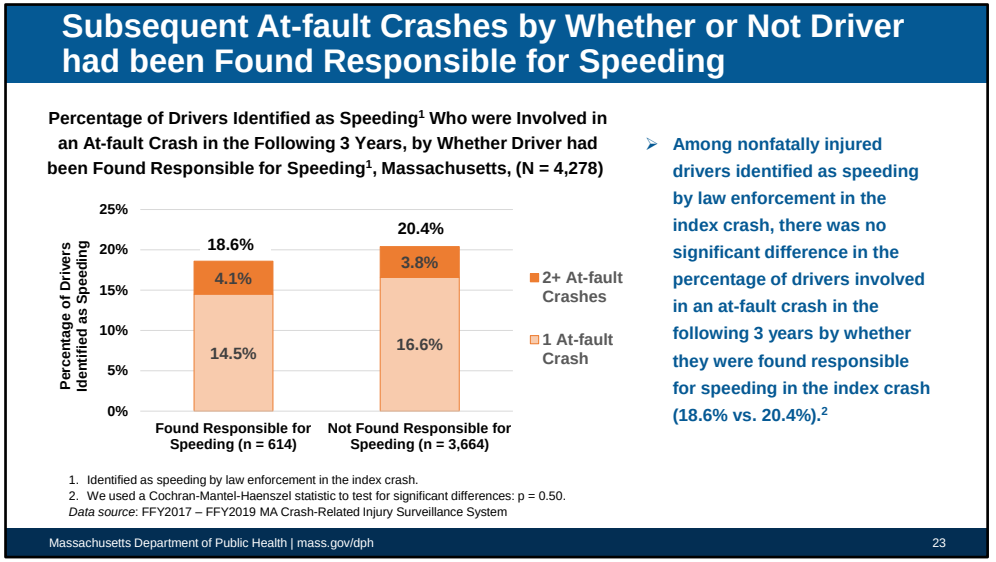
Percentage of Drivers Identified as Speeding Involved in an At-fault Crashes in the Following 3 Years

Of the 4,278 injured drivers identified as speeding in the index crash:

- One in five drivers (20.1%) were involved in at least one at-fault crash during the 3 years following their index crash (n = 860).
  - 16.3% of drivers were involved in just one at-fault crash during the 3-year follow-up period (n = 697), and
  - 3.8% of drivers (n = 163) were involved in 2 or more at-fault crashes during the 3-year follow-up period (n = 163).

Data source: FFY2017 – FFY2019 MA Crash-Related Injury Surveillance System

Responsibility for speeding and subsequent at-fault crashes were obtained from driver records. “At-fault” status for a crash is determined by the driver’s insurance carrier. Drivers were identified as at-fault if carriers determined they were at least 50% responsible for the crash.



The beginning of the follow-up period differed based on whether the driver was found responsible for speeding or not.

- For drivers NOT found responsible, the beginning of the follow-up period was their discharge date from the emergency department or hospital.

- For drivers found responsible for speeding, the beginning of the follow-up period was the finding date for their speeding violation, as we wanted to assess the potential impact of being found responsible for speeding on drivers' behavior.

On average, drivers found responsible for speeding had a start date that was 130 days farther from the index crash than drivers not found responsible for speeding. Due to this late start date and that we only had driver records through January 2022, a small number of drivers found responsible for speeding had follow-up periods of less than 3 years (n = 25). This may have contributed to an underestimation of subsequent at-fault crashes among these drivers.

Where race and ethnicity were known, we conducted similar analyses by driver race and ethnicity subgroups and found no significant differences in the rates of subsequent at-fault crashes by whether drivers were found responsible for speeding in the index crash.

Limitations

- Data only included drivers injured in a crash. Findings may not apply to drivers who were speeding but not involved in a crash.
- Unlicensed and out-of-state drivers without a MA driver records were not included in this analysis.[1]
- Speeding may be underestimated because it is difficult to identify speeding after a crash.[2]
- Drivers who were not speeding may have been misidentified as speeding.
- Race and ethnicity data may not be accurate.[3]

1. This study only included drivers whose driver records could be linked to crash data. Findings may not be representative of drivers without a valid license or out-of-state drivers with no driver record in MA.
2. We may also have missed drivers suspected of speeding if officers did not document a complete speeding violation code or driver contributor code for speeding.
3. Race and ethnicity data were obtained from hospital records. We do not know if the information was based on self-report or staff observation. Race and ethnicity groupings also did not include options for people of more than one race or ethnicity.

The MA RMV maintains driver records for out-of-state drivers who have been convicted of serious driving violations in other states or have had at-fault crashes in MA.

To identify speeding after a crash, law enforcement officers need to rely on roadway speed cameras, observation of skid marks or extent of vehicle damage, eyewitness accounts, or other indicators.

In addition to other limitations, race/ethnicity was unknown for about 2% of drivers in this study. These limitations, along with the exclusion of unlicensed drivers, may have decreased our ability to identify differences across racial/ethnic groups.

Limitations

- Protective device use and speed limit data were often missing.[1]
- Alcohol and/or drug use may be underestimated.[2]
- Vehicle miles traveled by drivers during the 3-year follow-up period was unknown.[3]
- We did not assess whether drivers were cited or found responsible for other moving violations.[4]
- Some drivers found responsible for speeding had a follow-up period shorter than 3 years.[5]
- Accuracy of at-fault crash determination is unknown.[6]

1. Seatbelt use was missing for 35% of car/truck drivers and helmet use was missing for 10% of motorcyclists. Speed limit was missing for 27% of crashes.
2. Alcohol and Drug Involvement in Massachusetts Motor Vehicle Crashes, 2012–2015 (PDF) | (DOCX)
3. Drivers who traveled more miles during the follow-up period may have a greater risk of being involved in a crash during that period.
4. Being cited or found responsible for other moving violations may have affected drivers' risk of a future at-fault crash.
5. 25 drivers found responsible for speeding had follow-up periods less than 3 years.
6. Fault for a crash is determined by the driver's insurance carrier. How fault is determined may vary between carriers.

Alcohol and/or drug use may be underestimated in crash data because drivers may refuse breath tests for alcohol and officers have limited ways to identify drug use at the roadside. Substance use may be underestimated in hospital data if healthcare providers do not test for or document substance use, or there is a significant delay between the time of the crash and when the driver is tested for substance use.

Drivers may have been cited for other violations that were either more serious or easier to prove than speeding. This may have contributed to the low percentage of drivers found responsible for speeding. Being found responsible for a different violation may have affected drivers' risk of a future at-fault crash. T

Key Findings: Associations with Speeding

- Compared to drivers not identified as speeding, drivers identified as speeding were significantly more likely to sustain fatal injuries or require a hospital stay for nonfatal injuries.
- Demographic characteristics significantly associated with being identified as speeding were being male, under age 35, and White, non-Hispanic.
- Other characteristics significantly associated with being identified as speeding were operating a motorcycle, driving on a suspended license, and having a history of speeding.
- Speed-related crashes were more likely than non-speed-related crashes to involve a single vehicle, occur between 6 PM and 5:59 AM, occur on a high-speed roadway, and be attended by state police.

Key Findings: Associations between Speeding, Substance Use, and Protective Device Use

- Alcohol and/or drug use was strongly associated with being identified as speeding.

- Among injured car/truck drivers, those with indicators for both substance use and speeding were the least likely to be wearing seatbelts compared to drivers with no indicators for speeding or substance use or with indicators for only one of these behaviors.

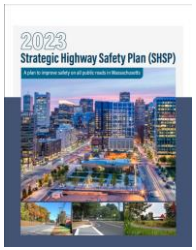
- Among injured motorcycle operators, those with indicators for both substance use and speeding were the least likely to be wearing helmets compared to operators with no indicators for speeding or substance use or with indicators for only one of these behaviors.

Key Findings: Responsibility for Speeding and Subsequent At-fault Crashes

- Of injured drivers identified as speeding, only 1 in 7 were found responsible for speeding. No significant differences were found in the frequency of injured drivers found responsible for speeding by race/ethnicity.
- Among injured drivers identified as speeding in this study, being found responsible for speeding did not decrease the occurrence of subsequent at-fault crashes in the following 3 years or increase the length of time until the first subsequent at-fault crash compared to drivers not found responsible for speeding.

Recommendation #1

Speed-related crashes were more likely to result in the driver's death or hospitalization than crashes not identified as speed-related.



Recommendation #1: These results support the implementation of speeding countermeasures as described in the 2023 MA Strategic Highway Safety Plan to reduce crash-related deaths and serious injuries. These countermeasures include speed management through roadway design, amending MA speed regulations, targeted enforcement, automated enforcement, and developing new approaches to behavioral change on speeding. New policies implementing these countermeasures should integrate concerns about current inequitable outcomes in the law enforcement and judicial systems, with processes put in place before the implementation of interventions to eliminate inequitable outcomes and regularly evaluate to measure and address disparate impacts.

Recommendation #2

In this sample of injured drivers, we found that drivers identified as speeding in the index crash were more likely to have been previously found responsible for speeding and driving on a suspended license than injured drivers not identified as speeding. Current speeding sanctions alone may not be effective in preventing future speed-related crashes among some drivers.

Recommendation #2: Further research is needed to determine if sanctions are the most effective way to reduce speeding. Identifying the types of sanctions (fines, license suspensions, driver retraining courses), their effectiveness, and the extent to which they exacerbate or reduce disparate impacts is crucial.

Recommendation #3

In this sample of injured drivers identified as speeding by law enforcement and treated for crash-related injuries, being found responsible for speeding did not appear to impact drivers' involvement in future at-fault crashes. This study did not look at whether drivers identified as speeding may have been cited or found responsible for other moving violations, however.

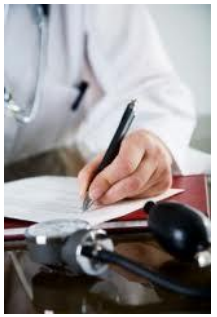
Recommendation #3: Further research is needed to explore, in drivers identified as speeding, the impact of being cited for different types of moving violations on future at-fault crashes.

Recommendation #4

This study found that crashes involving speeding increased drivers' risk of serious injury or death. Injured drivers identified as speeding sometimes had additional crash risk factors and many were involved in future at-fault crashes.

Recommendation #4: Health care providers may be able to reduce drivers' risk of future crash injuries by educating hospitalized drivers about their future crash risk and the importance of seat belt use, and conducting Screening, Brief Intervention, and Referral to local harm reduction and substance use Treatment (SBIRT) for substance use problems.

Recommendation #5



To our knowledge, no professional medical organizations have issued guidelines for healthcare providers on post-crash care for drivers to reduce the risk of future crashes and injuries. This may partly be due to the limited number of studies into the effectiveness of such secondary prevention measures.

Recommendation #5: Further research is needed to study the effectiveness of post-crash interventions by healthcare providers to inform the development of such clinical guidelines.

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