

Young Drivers in Fatal Crashes

Motor vehicle crashes in 2016 were the leading cause of death for young people ages 16-25—both nationally and in Washington State.¹ In 2016, 7,711 motor vehicle occupants in the United States ages 16–25 died from injuries sustained in crashes.¹ Roughly 21 people ages 16–25 died each day in crashes. In 2013, young people ages 15-19 represented only 7 percent of the U.S. population. However, they accounted for 11 percent (\$10 billion) of the total costs of motor vehicle injuries.¹

Young drivers (ages 16-25) are a high-risk driver group in Washington State. Between 2014 and 2016, young drivers represented about 14 percent of all licensed drivers and about 30 percent of all fatal crashes.² About 430 fatal crashes involving young drivers resulted in 214 young driver fatalities along with 276 additional fatalities of various ages during this time.

This report intends to present an in-depth review of young driver-involved fatal crashes and young driver risk factors through the Washington Fatality Analysis Reporting System (WA-FARS). It illustrates Washington-specific fatal crash trends to support prevention efforts targeting young drivers in our state.

Major Risk Factors for Young Drivers

The risk of motor vehicle crashes is higher among 16-25 year-olds than any other age group. Per mile driven, teen drivers (ages 16-19) are nearly three times more likely to be in a fatal crash than drivers age 20 and older.³ Young males, teen drivers

Did you know?

- *Young drivers ages 16-25 represent about 13 percent of licensed drivers but about 30 percent of all drivers in fatal crashes in Washington.*
- *Young male drivers are more likely to be involved in fatal crashes than young female drivers.*
- *In fatal crashes, young male drivers are more likely to be impaired, speeding or not wearing a seat belt than young female drivers.*
- *In fatal crashes, young female drivers are more likely to be distracted than young male drivers.*
- *The recent rise in fatal crashes that involve young drivers is mostly propelled by young male drivers ages 21-25.*
- *Between 2014 and 2016, more fatal crashes involving young drivers occurred during evening and night hours than daytime.*
- *Between 2007 and 2016, 63 percent of lane departures by young drivers were in single vehicle crashes with no other road user(s) involved.*
- *Eighty-three percent of fatal crashes that involved young drivers between 2014 and 2016 occurred on wet road surfaces.*
- *Washington's fatal crash data show that nearly half of fatal crashes involving teen drivers included one or more teen passengers in the same vehicle.*

driving with teen passengers, and newly-licensed teens are at especially high risk for motor vehicle crashes.

In 2016, the U.S. death rate for teen male motor vehicle occupants was twice the teen female death rate.³ The presence of teen passengers increases the crash risk of unsupervised teen drivers, and increases exponentially with each additional teen passenger.^{4,5,6,7} Crash risk among teen drivers is highest during the first ten months of licensure.^{8,9}

Most studies show that young drivers are more likely than older drivers to underestimate dangerous situations and fail to recognize potential hazards.¹⁰ Young drivers are also more likely than older drivers (1) to make critical decision errors leading to serious crashes, and (2) to speed, and (3) to follow other vehicles too closely.¹¹ The presence of young male passengers increases the likelihood of these risky driving behaviors.¹²

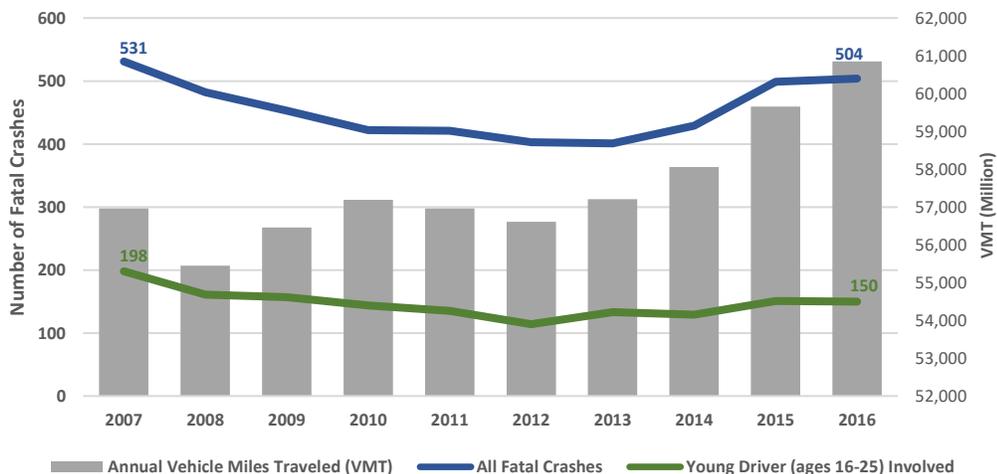
Young Driver Involved Fatal Crash Statistics

Fatal Crash Trends:

Washington’s young driver-involved fatal crashes total about 30 percent of all fatal crashes from 2014 to 2016. One in every three drivers involved in a fatal crash were ages 16-25. The good news is young driver-involved fatal crashes decreased 24 percent between 2007 and 2016—from 198 to 151.

We see a different trend emerging after 2012. Young driver-involved fatal crashes decreased from 198 in 2007 to 114 in 2012, fatal crashes from all causes decreased from 531 in 2007 to 403 in 2012.

Figure 1: Fatal Crash Trends, 2007-2016



However this downward trend was replaced by an upward trend in both young driver-involved and all-cause fatal crashes from 2013 on. We worry that the recent rise in young driver-involved fatal crashes will return us to pre-2007 numbers unless we take immediate action.

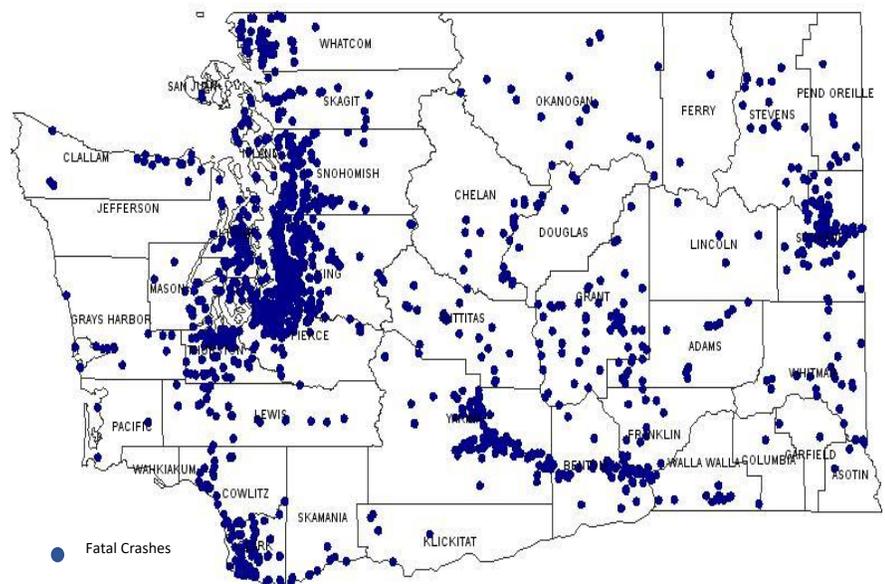
A combination of factors could be responsible for the rise in fatal crashes. We will investigate the causes contributing to this increase as we look at the young driver fatal crash data. That said, we have noticed that annual Vehicle Miles Travelled (VMT) also started rising in 2013 after the stable period following the 2007 Great Recession.¹³ Thus, the increase in fatal crashes is partially related to this VMT increase (shown in Figure 1).

Geographical Distribution:

Fatal crashes involving young drivers occurred in all Washington counties between 2007 and 2016 (Figure 2). Each blue dot on the map represents a fatal crash in which at least one driver was 16-25 years old. Blue dots are concentrated along state highways and in counties with large cities and dense populations.

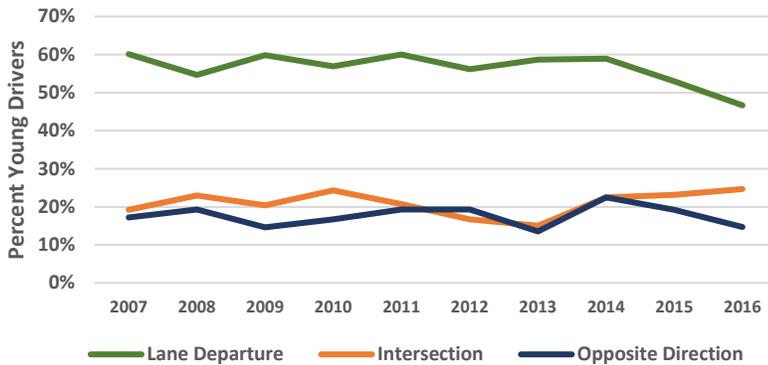
We calculated young driver-involved crash rates in each county compared to the state rate and found no major differences ($p < 0.05$).

Figure 2: Young Driver (Ages 16-25) Involved Traffic Crashes During 2007-2016



Crash Factors:

Figure 3: Young Driver (Ages 16-25) Involved Fatal Crashes by Crash Type, 2007-2016

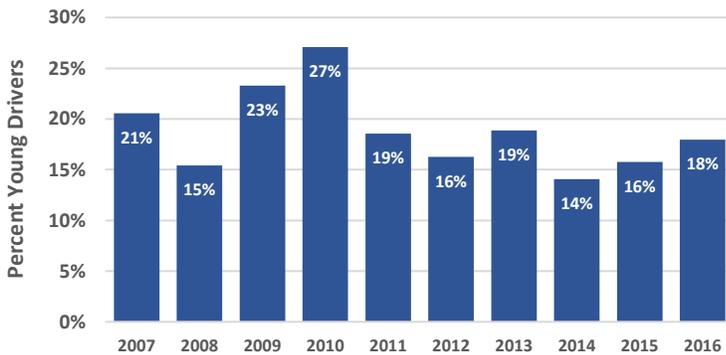


Over 50 percent of young driver-involved fatal crashes are lane departures, as shown in Figure 3. From 2007 to 2016, 63 percent of lane departures by young drivers were single vehicle crashes with no other road users involved. Examples include skidding off or leaving the road, overturning, hitting another object, or entering a ditch.

Other road users are more likely to be involved when the fatal crash is at an intersection, or when there is a collision with another vehicle coming from the opposite direction. From 2007 to 2016, 18 percent of young drivers involved in a fatal crash at an intersection struck a pedestrian.

Other road users are more likely to be involved when the fatal crash is

Figure 4a: The Percentage of Young (Ages 16-25) Driver Involved Fatal Crashes Occurring Between 1 AM and 4:59AM, 2007-2016

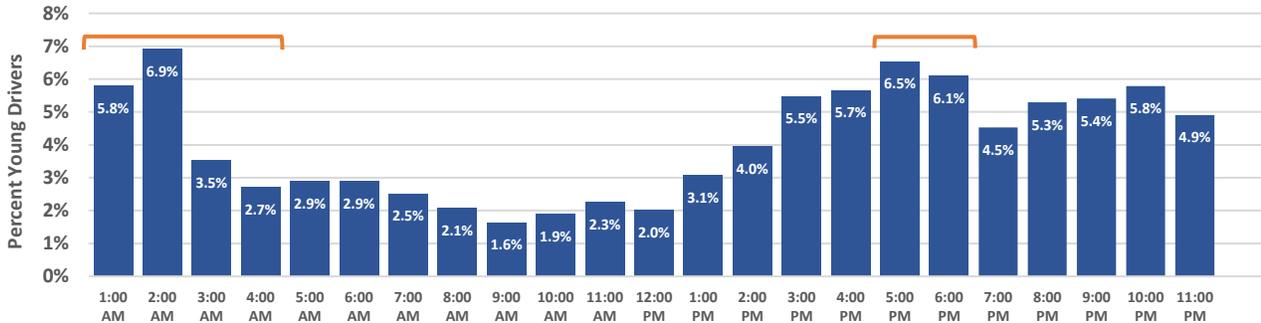


Inexperience and poor judgement in more difficult driving conditions (poor weather, poor visibility) are factors in most instances of young driver-involved fatal crashes. For that reason, both National Highway Traffic Safety Administration (NHTSA) and the Traffic Injury Research Foundation (TIRF) advocate for limited night time driving for young drivers. TIRF goes even further and recommends 9 p.m. as the start time for limited night driving.

In Washington, about one in five fatal crashes involving drivers ages 16-25 occur during the late night hours between 1 a.m. and 4:59 a.m. (Figure 4a). Fatal crashes occurring during late night driving is even lower among 16-17 year olds (12 percent in 2016) thanks to the state law that took effect in 2001. According to the law (RCW 46.20.075), drivers under age 18 cannot drive between the hours of 1 a.m. and 5 a.m. during their first year of driving. The only exception is if they are accompanied by a licensed driver who is at least 25 years old.

Washington’s young driver fatal crash data from 2014 to 2016 also indicates the evening rush-hour between 5 p.m. and 6 p.m. as another dangerous time period for young drivers ages 16-25. Rush-hour traffic usually occurs when visibility is relatively poor as daylight fades, and traffic is heavy with drivers eager to go home.

Figure 4b: Young (Ages 16-25) Driver Involved Fatal Crashes by Crash Time, 2014-2016



As shown in Figure 5, most young driver-involved crashes tend to happen on:

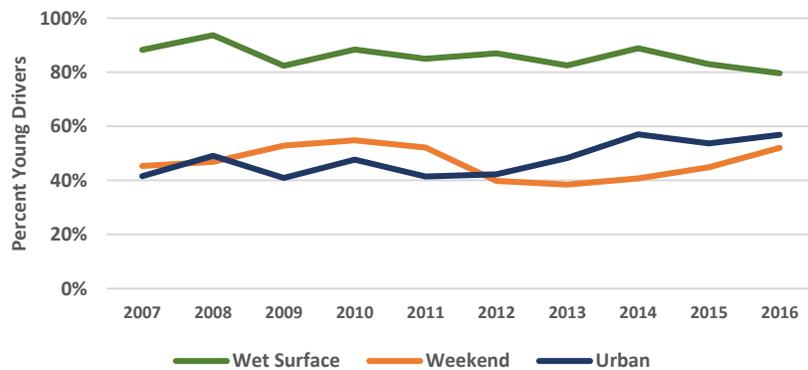
- Wet road surfaces,
- Weekends, and
- Urban roads.

From 2014 to 2016, eighty-three percent of fatal crashes involving young drivers occurred on wet road surfaces.

Surprisingly, this correlates to the high numbers of young

driver-involved fatal crashes due to lane departures. Washington drivers are more likely to have higher fatal crash rates than drivers in most other states when the weather is snowy or rainy or the road conditions are icy or wet.¹⁴ Due to their inexperience, young drivers are more susceptible to fatal crashes when the road conditions are difficult.

Figure 5: Young Driver (Ages 16-25) Involved Fatal Crashes by Various Crash Factors, 2007-2016



Young driver-involved fatal crashes follow a seasonal pattern, as seen in Figure 6a. These crashes are higher in summer months (July, August, and September) and lower in the winter and spring months (December, January, February, March, April).

Figure 6a: Young Driver (Ages 16-25) Involved Fatal Crashes, 2014-2016

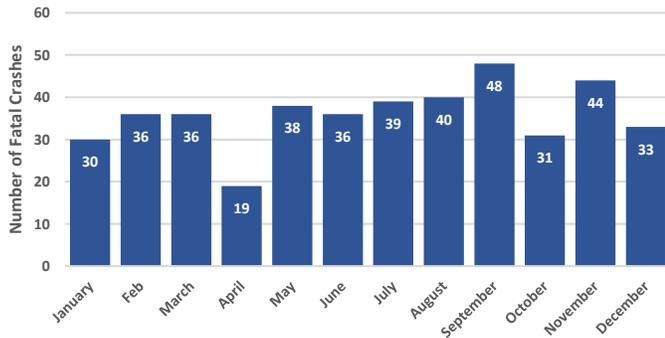
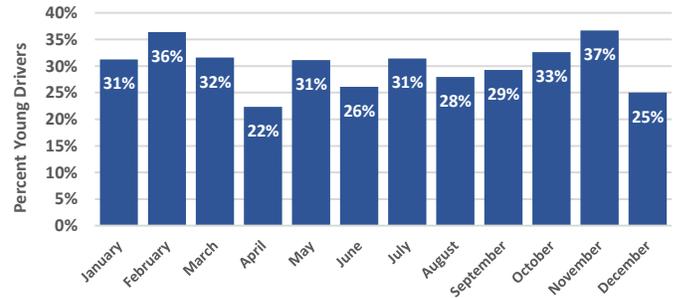


Figure 6b: The Percentage of Young Driver (Ages 16-25) Involved Fatal Crashes among All Crashes, 2014-2016



Fatal crash numbers tend to be higher during the summer months and holidays for all drivers, both nationally and in Washington State.¹⁵ However, a review of young driver-involved crashes relative to all crashes shows the winter months have a higher concentration of young driver-involved fatal crashes relative to all fatal crashes. February and November stand out as the months with highest rates for young driver-involved fatal crashes (shown in Figure 6b).

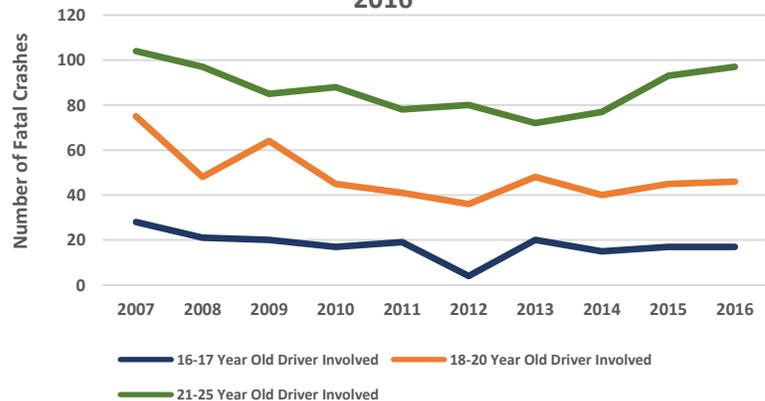
Demographic Factors:

Driver age, maturity, and experience level are important factors contributing to fatal crashes. The good news is the number of fatal crashes between 2007 and 2016 showed some decline for young drivers ages 16-17 and 18-20 (Figure 7):

- A 39 percent decline—from 28 fatal crashes in 2007 to 17 in 2016 for drivers ages 16-17, and
- A 39 percent decline—from 75 fatal crashes in 2007 to 46 in 2016 for drivers ages 18-20.

Unfortunately, the number of fatal crashes from 2007 to 2016 did not show the same downward trend for

Figure 7: Fatal Crash Trends by Age Groups, 2007-2016



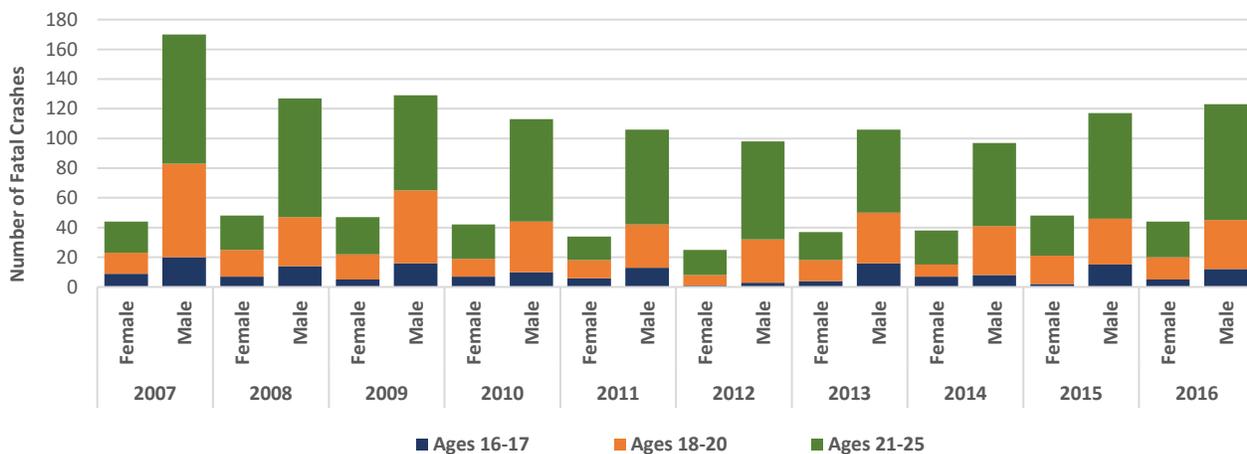
young drivers (ages 21-25). Since 2014, fatal crash numbers in this age group are increasing again after several years of decline:

- A 31 percent decline—from 104 fatal crashes in 2007 to 72 in 2013.
- A 26 percent increase—from 77 in 2014 to 97 in 2016.

The steady rise in the fatal crashes involving drivers ages 21-25 between 2014 and 2016 suggests that this age group could be the major driver behind the overall increase in young driver-involved crashes after 2012, as shown in Figure 1.

Gender is another risk factor in young driver-involved fatal crashes. Young male drivers are more likely to have fatal crashes than young female drivers in all young driver age groups: ages 16-17, 18-20, and 21-25.

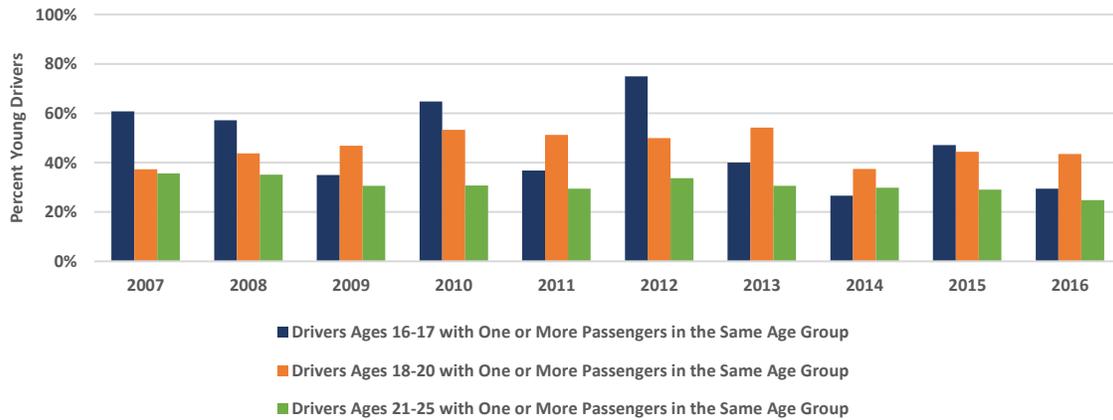
Figure 8: Fatal Crash Trends by Age and Gender, 2007-2016



The recent increase of young driver-involved fatal crashes since 2013 results from the 39 percent increase of young male (ages 21-25) driver-involved fatal crashes—from 56 in 2013 to 78 in 2016. The number of fatal crashes involving young females in all young driver age groups (shown in Figure 8) stayed relatively stable between 2007 and 2016.

Another well-known risk factor for fatal crashes by young drivers is the presence of other teens or young passengers in the vehicle.^{4,8} Washington’s data show that nearly half of teen drivers in fatal crashes from 2007 to 2016 were transporting teen passengers (shown in Figure 9).

Figure 9: Fatal Crash Involved Young Drivers Travelling with One or More Young Passengers, 2007-2016

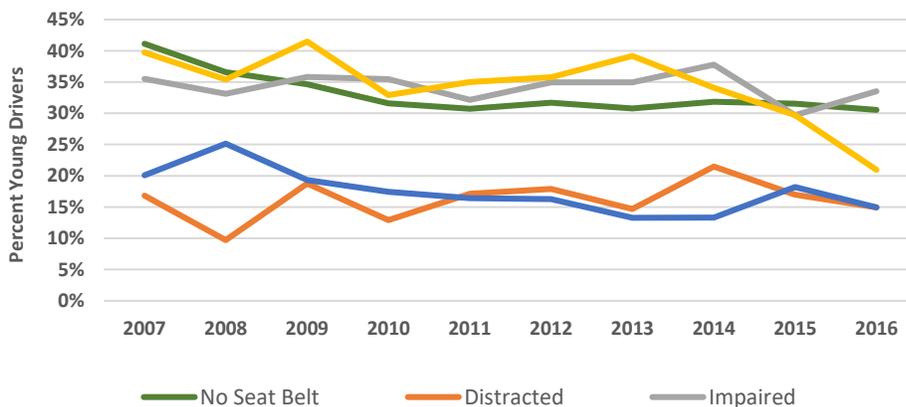


Risky Behaviors:

Seat Belt Use: Even though seat belt use is now a common practice among motor vehicle occupants of all ages,¹⁶ according to a national study, teen drivers have the lowest rates of continuous seat belt use when compared with other age groups. In 2015, only 61% of high school students reported they always wear seat belts when riding with someone else.¹⁷ The sporadic use of seat belts among some teens and young drivers in Washington may explain why so many young motor vehicle occupant fatalities are unbelted.

Young driver fatal crash data in Washington show that one in three young drivers in fatal crashes were not wearing a seat belt. Fortunately, the proportion of unbelted young drivers in fatal crashes has gone down from 41 percent in 2007 to 31 percent in 2016 (shown in Figure 10). From 2014 to 2016, lack of seat belt use was more common among young male drivers involved in fatal crashes (43 percent) than young female drivers (26 percent) as shown in Figure 11. Lack of seat belt use was the number one risky behavior in young male drivers ages 16-17 involving in fatal crashes from 2014 to 2016 (shown in Figure 12a).

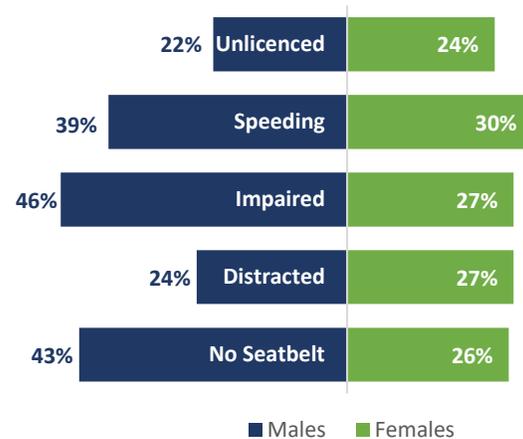
Figure 10: High Risk Behaviors of Young Drivers Ages 16-25 Involved in Fatal Crashes, 2007-2016



From 2014 to 2016, lack of seat belt use was more common among young male drivers involved in fatal crashes (43 percent) than young female drivers (26 percent) as shown in Figure 11. Lack of seat belt use was the number one risky behavior in young male drivers ages 16-17 involving in fatal crashes from 2014 to 2016 (shown in Figure 12a).

Distracted Driving: According to a 2016 survey of Washington’s adolescents, 57 percent of grade 10 students, and 60 percent of grade 12 students reported riding in a vehicle with someone who was texting or emailing while driving in the past 30 days. Among students who drove, 22 percent of grade 10 students and 59 percent of grade 12 students reported driving while texting or emailing in the past 30 days.¹⁸ In grades 10 and 12, females were more likely than males to ride with someone texting or emailing in 2016.¹⁸ Among young drivers involved in fatal crashes between 2014 and 2016 in Washington State, about 25 percent were distracted. Female drivers (27 percent) tended to drive distracted more often than male drivers (24 percent).

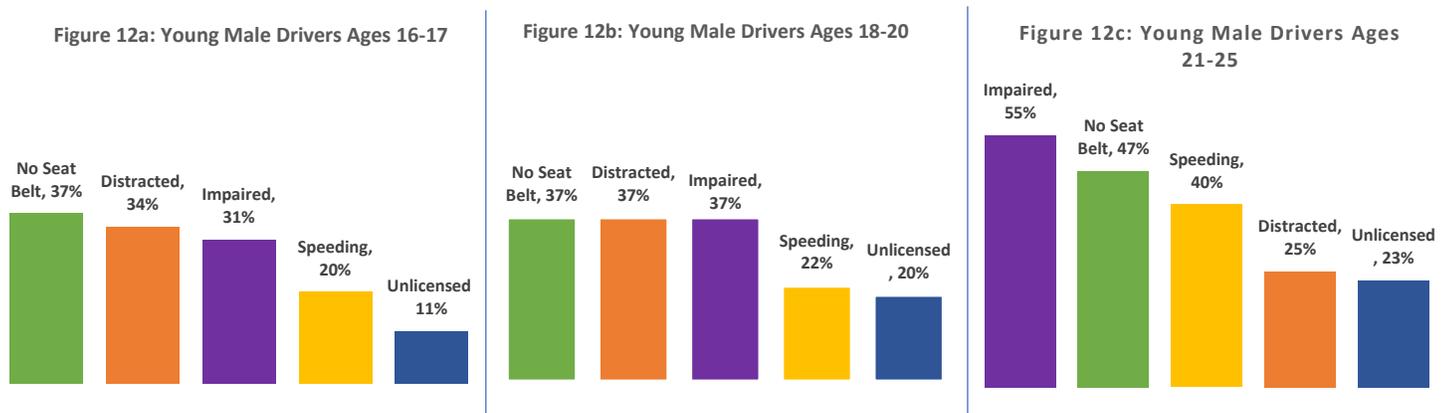
Figure 11: Gender Differences in Young Driver (Ages 16-25) Behaviors, 2014-2016



Impaired Driving: At all blood alcohol concentration (BAC) levels, the risk of involvement in a motor vehicle crash is greater for young drivers than for older drivers.¹⁹ According to a 2016 survey of adolescents in Washington, five percent of grade 10 students and nine percent of grade 12 students reported drinking alcohol and driving in the past 30 days.¹⁸ Among those who drank any alcohol in the past 30 days, 20 percent of grade 10 students and 17 percent of grade 12 students reported driving after drinking alcohol.¹⁸ Grade 10 and 12 students had similar experiences with marijuana. In 2016, nine percent of grade 10 students and 16 percent of grade 12 students reported driving within three hours after using marijuana. Among those who used marijuana in the past 30 days, 36 percent of grade 10 students and 51 percent of grade 12 students reported driving within three hours after using marijuana.¹⁸

Between 2007 and 2016, impairment either by alcohol or drugs (including marijuana) was common among one third of Washington’s young drivers (ages 16-25) involved in fatal crashes. Once again, impairment is more common among young male drivers involved in fatal crashes (46 percent) than young female drivers (27 percent) between 2014 and 2016. Figure 12 further illustrates how impairment becomes the most dominant crash factor in young male drivers as they get older. Between 2014 and 2016, impairment was the major fatal crash factor (55 percent) in males ages 21-25.

Figure 12: High Risk Behaviors of Young Male Drivers Involved in Fatal Crashes, 2014-2016



Drivers aged 21-25 years old involved in fatal crashes were more likely to be positive for poly drug use than younger drivers ages 16-20. Between 2014 and 2016, 17 percent of young drivers ages 21-25 in fatal crashes were positive for multiple drugs or drug(s) mixed with alcohol, compared to 14 percent between 2011 and 2013. The evidence suggests an upward trend in poly drug use among the 21-25 year-old drivers involved in fatal crashes.

Speeding: In 2015, nearly a third (32 percent) of U.S. male drivers ages 15-20 and 21-25 involved in fatal crashes were speeding at the time of the crash, compared to 20 and 18 percent, for female drivers in the same age groups.²⁰ In Washington from 2014 to 2016, speeding was also more common among young male drivers ages 16-25 who were involved in fatal crashes (39 percent) than young female drivers in the same age group (30 percent). The good news is the percentage of young drivers in fatal crashes from speeding dropped from 40 percent in 2007 to 21 percent in 2016.

Unlicensed Drivers: In Washington, about one in five young drivers involved in fatal crashes were unlicensed. Fortunately, there was a 33 percent decline of unlicensed drivers in fatal crashes between 2007 and 2016. The percentage of unlicensed drivers reduced from 20 percent in 2007 to 15 percent in 2016. In fatal crashes from 2014 to 2016, the number of young drivers without an active license is nearly identical for young male (22 percent) and young female drivers (24 percent).

Fatality Analysis Reporting System

The Fatality Analysis Reporting System (FARS) is the source of young driver data in this report. The Washington Traffic Safety Commission (WTSC) contracts with the NHTSA to provide FARS data for Washington State. FARS is a nationwide census of fatal traffic crashes that characterizes the crash, the vehicle, and the people in each reported crash. FARS contains more than 140 coded data elements collected from official documents, including Police Traffic Crash Reports (PTCR), state driver licensing and vehicle registration files, death certificates, toxicology reports, and Emergency Medical Services (EMS) reports. To be included in FARS, a crash must involve a motor vehicle

travelling on a road that is open and accessible to the public and result in the death of a person (either vehicle occupant or non-motorist) within 30 days of the crash.

Contact Information

For more information about this report, please contact the Washington Traffic Safety Commission, Research and Data Division at (360) 725-9860.

References

-
- ¹ Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS) [Online]. (2015). National Center for Injury Prevention and Control, Centers for Disease Control and Prevention (producer). [Cited 2018 June 20].
 - ² Washington Department of Licensing (DOL). Young Driver Licensing Trends [cited 2018 June 26]. http://leg.wa.gov/JTC/Documents/Studies/Driver%20Education_Beth/YD_JTCwkgrp_DataPres_Fin al6-4-2014.pdf. [Additional personal correspondence with the Senior Department of Licensing Research Analyst on 2018 July 3.]
 - ³ Insurance Institute for Highway Safety (IIHS). Fatality Facts: Teenagers 2015. Arlington (VA): The Institute; 2017 [cited 2018 June 4]. <http://www.iihs.org/iihs/topics/t/teenagers/fatalityfacts/teenagers>
 - ⁴ Chen L, Baker SP, Braver ER, Li G. Carrying passengers as a risk factor for crashes fatal to 16- and 17-year old drivers. *JAMA* 2000;283(12):1578–1582.
 - ⁵ Mayhew DR, Simpson HM, Pak A. Changes in Collision Rates Among Novice Drivers during the First Months of Driving. *Accident Analysis & Prevention* 2003;35:683-91.
 - ⁶ Buckley L, Chapman RL, and Sheehan M. Young Driver Distraction: State of the Evidence and Directions for Behavior Change Programs. *Journal of Adolescence Health*. 2013; 54: S16-S21.
 - ⁷ AAA Foundation for Traffic Safety. Teen Driver Risk in Relation to Age and Number of Passengers May 2012. [Cited 2018 July 13]. <https://exchange.aaa.com/wp-content/uploads/2012/05/2012TeenDriverRiskAgePassengers.pdf>.

-
- ⁸ Ouimet MC, Pradhan AK, Brooks-Russell A, et. al. Young drivers and their passengers: a systematic review of epidemiological studies on crash risk. *Journal of Adolescent Health* 2015; 57 (1 Suppl):S24-35.
- ⁹ McCartt AT, Shabanova VI, Leaf WA. Driving experiences, crashes, and teenage beginning drivers. *Accident Analysis & Prevention* 2003;35:311-320.
- ¹⁰ Jonah BA, Dawson NE. Youth and risk: age differences in risky driving, risk perception, and risk utility. *Alcohol, Drugs & Driving* 1987;3:13–29.
- ¹¹ McDonald CC, Curry AE, Kandadai V, et. al. Comparison of teen and adult driver crash scenarios in a nationally representative sample of serious crashes. *Accident Analysis & Prevention* 2014;72:302-308.
- ¹² Simons-Morton B, Lerner N, Singer J. The observed effects of teenage passengers on the risky driving behavior of teenage drivers. *Accident Analysis & Prevention* 2005;37(6):973-982.
- ¹³ Washington State Department of Transportation. Annual Mileage and Travel Information [Online]. (2016) Historic Public Roadway Vehicle Miles Travelled [Cited 2018 June 25].
<http://www.wsdot.wa.gov/mapsdata/travel/hpms/annualmileage.htm>
- ¹⁴ Saha S, Schramm P, Nolan A, and Hess J. Adverse Weather Conditions and Fatal Motor Vehicle Crashes in the United States, 1994-2012. *Environmental Health* 2016;15:104. [Cited 2018 July 2].
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5100176/>
- ¹⁵ National Highway Traffic Safety Administration. Trend and Pattern Analysis of Highway Crash Fatality by Month and Day: Technical Report. [Cited 2018 June 25].
<https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/809855>
- ¹⁶ National Highway Traffic Safety Administration (NHTSA). Seat Belt Use in 2016. [Cited 2018 July 13]. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812351>
- ¹⁷ Centers for Disease Control and Prevention (CDC). [Online] What Factors Put Teen Drivers at Risk? [Cited 2018 June 29].
- ¹⁸ Healthy Youth Survey 2016 Analytic Report. Washington State Department of Social and Health Services, Department of Health, Office of the Superintendent of Public Instruction, and Liquor and Cannabis Board, June 2017 [Cited 2018 June 26].
https://www.cdc.gov/motorvehiclesafety/teen_drivers/teendrivers_factsheet.html<https://www.doh.wa.gov/Portals/1/Documents/Pubs/160-193-HYS-AnalyticReport2016.pdf>

¹⁹ Voas RB, Torres P, Romano E, et. al. Alcohol-related risk of driver fatalities: an update using 2007 data. *J Stud Alcohol Drugs* 2012;73(3):341-350.

²⁰ National Highway Traffic Safety Administration (NHTSA), Dept. of Transportation (US). *Traffic safety facts 2015: Speeding*. Washington (DC): NHTSA; July 2017 [cited 2018 June 29]. <https://crashstats.nhtsa.dot.gov/Api/Public/Publication/812409>.