



Child Pedestrian Safety in the U.S.

Trends and Implications for Prevention

September 2020

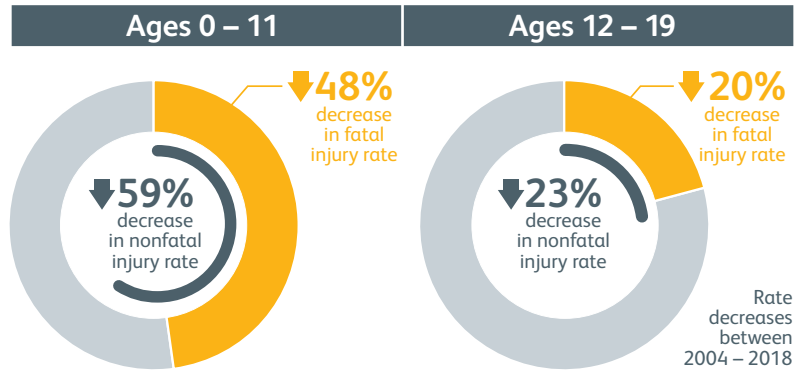


Trends in Child Pedestrian Injuries

Every hour, about two children age 19 and under are injured or killed after being struck by a vehicle while walking.



While pedestrian injury rates among children have decreased, older teens continue to be at the greatest risk.



Of teens surveyed . . .



90% said they have a mobile phone



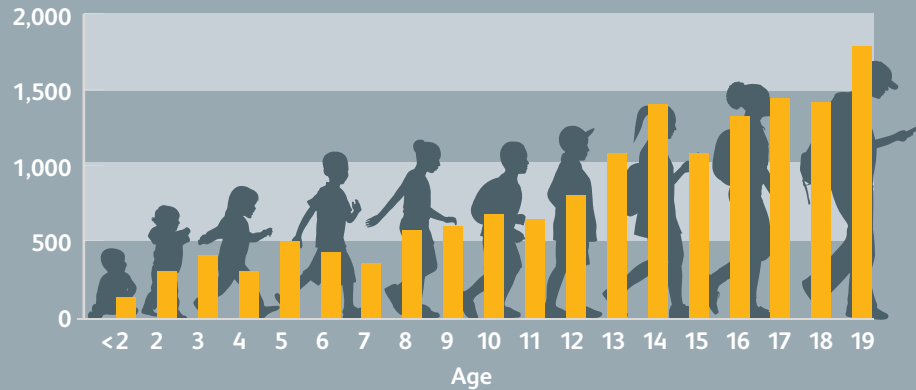
54% said they'd crossed the street while wearing headphones



33% said they'd crossed the street while texting

The risk of nonfatal injury increases by **74%** between ages 12 and 14.

Number of Nonfatal Pedestrian Injuries by Age in 2017/2018



Although they perceive being hit by a car to be less likely, teens are **192 times** more likely to be struck by a car than by lightning.



Safe Practices for Parents to Teach and Model

- Cross the street at the corner or a designated crosswalk.
- Look left, right and left again when crossing the street.
- Make eye contact with drivers before crossing.
- When possible, walk on sidewalks or paths.
- Remember *Heads Up, Phones Down* when crossing the street.
- Be visible to drivers after dark.

For more pedestrian safety tips visit safekids.org



Executive Summary

More than 15,000 children ages 19 and under were struck and injured by a vehicle as pedestrians in 2018 — an alarming average of about two children hit every hour. Tragically, 408 of those children died of their injuries, and nearly 5,000 children have been killed as pedestrians in the 10 years between 2009 and 2018.

With the support of FedEx, Safe Kids Worldwide undertook a review of pedestrian injury trends and conducted a survey of teens ages 13-17 around risk-taking behavior. We examined the last 15 years of available data on children ages 0 to 19 and are encouraged to report that, overall, rates for fatal and nonfatal pedestrian injury decreased by 32 percent and 40 percent, respectively, in the years between 2004 and 2018. However, a closer look at those trends reveals large age differences. While fatal and nonfatal pedestrian injury rates for younger children have reduced by 48 percent and 59 percent, respectively, the decreases for those ages 12 to 19 have only been 20 percent and 23 percent for fatal and nonfatal injuries, respectively.

Thus, while all children are at risk of pedestrian injury, those ages 12 to 19 are at greater risk. In fact, analysis of 2017/2018 data (two-year averaged data) reveals that the risk of fatal and nonfatal injury significantly increases with age beginning at about age 12, an age that coincides with several other factors important to preventing pedestrian injuries in children. First, research indicates that by age 12 children have begun to develop the cognitive and physical abilities needed to safely navigate roadways as pedestrians, which means they are often given more independence and are less frequently accompanied by an adult when walking and crossing streets. Increased independence also often means they are receiving mobile phones at around the same time so parents can keep in touch with them. Of teens we surveyed, 9 in 10 indicated that they have a mobile phone and 7 in 10 indicated they are on theirs almost constantly. So, at a time when they are beginning to rely on their own judgment as pedestrians, they are also beginning to use devices that can and do distract them. Among the teens we surveyed, about 1 in 4 indicated they'd fallen or stepped off a step, sidewalk or curb and 1 in 3 indicated they'd walked or bumped into something while using their phone. Even more concerning, 1 in 3 indicated they'd crossed the street while texting and more than half (54 percent) responded they'd crossed the street while wearing headphones in the last six months.

The pedestrian injury profile for children ages 0 to 11 therefore looks different from children ages 12 to 19. While younger children are more often fatally injured during what are typically after school hours (3 PM to 6 PM), older kids are most frequently fatally injured during nighttime hours (9 PM to 12 AM). When looking at fatal and nonfatal injuries combined, younger children are most often struck at mid-block locations (56 percent), whether crossing or dashing into the street, while older kids are about as likely to be struck mid-block (38 percent) as they are crossing at an intersection where a crosswalk is present (39 percent). Thus, while basic pedestrian safety and safety in school zones remain important issues that deserve education and attention, the trends and patterns for older teens suggest more work is needed to understand how we can more effectively intervene to reduce their risk. And this is underscored by the fact that the majority of teens surveyed (58 percent) do not perceive crossing the street while using their phone as putting them at risk for a pedestrian injury.

Introduction

Roads are busier today than they've ever been. According to the National Highway Traffic Safety Administration (NHTSA), there were 227.5 million licensed drivers in the U.S. in 2018, a two-fold increase since 1970.¹ Further, the number of annual highway miles traveled by vehicles over that same time quadrupled to 3.2 trillion, the highest number yet.²

As roadway traffic continues to increase, it is easy to feel that walking — one of the first skills we master as children — can be one of the most dangerous activities we do in a day. Take a walk to school with your child and you are likely to encounter unsafe driver or pedestrian behavior. It could be a driver speeding or rolling through a stop sign. It could be a teen staring down at his phone while stepping off the curb to cross the street. It could be a driver passing a school bus which has its stop arm activated because it's picking up or dropping off kids. If you walk near traffic often, these behaviors may have even become normal to you.

If you're a parent, the thought of your child navigating such busy streets may cause you some anxiety. According to current statistics, that worry isn't misguided. The number of Americans killed as pedestrians has reached the highest level in decades.³ One in 5 children ages 14 and under and 1 in 10 ages 15–19 that are killed in a motor vehicle crash are pedestrians.⁴

While this certainly warrants concern, it's important to remember the numerous benefits children gain from walking outdoors, including increasing physical activity and developing a sense of independence and responsibility. Given those benefits, it is important that walking be encouraged. However, that also requires investment in pedestrian safety. The prevention of pedestrian fatalities requires a "Safe Systems" approach that accounts for all types of road users and spreads the share of responsibility between those on the road, transport planners, those designing the road environment, policy and law makers and enforcement. And while progress is being made across the U.S., in the absence of a Safe Systems approach in all areas where children walk, pedestrian safety education and modeling of safe behaviors by adults remain key strategies to reducing child pedestrian risk.

In 2012, Safe Kids Worldwide released a report entitled, "Walking Safely: A Report to the Nation,"⁵ that highlighted trends in pedestrian injuries among children ages 19 and under in the U. S. for the years 1995–2010. In that report we noted that teens were emerging as the age group at greater risk and hypothesized that, in addition to unsafe crossing behavior, increasing distraction from the use of mobile devices was likely a major factor. Acting on these findings and existing research at the time that also evidenced that distraction is an issue for this age group,^{6–9} Safe Kids developed the "Take Action Against Distraction" Program.

The findings in our 2012 report are particularly alarming considering that today's teens have even greater access to mobile technology.^{10–12} With the support of FedEx, this report updates the trends in fatal and nonfatal pedestrian injuries and explores the factors that increase risk, including the results of a survey of teens ages 13-17 around risk-taking behavior related to pedestrian safety.





National Trends in Pedestrian Injury

In total, 7,565 children were fatally injured as a result of being struck by a motor vehicle as a pedestrian between 2004 and 2018.¹³ Further, it is estimated that there were about 290,540 additional nonfatal injuries.^{14–16}

Trends by Age: Overall, the combined efforts to prevent fatal child pedestrian injuries over the past 15 years appear to be having a positive impact. Since 2004, the pedestrian fatality rate among children ages 19 and under in the U.S. has decreased by 32 percent from 0.73 per 100,000 in 2004 to 0.50 per 100,000 in 2018 (Figure 1).^{13,17} Thus, the reported increases in pedestrian deaths in the U.S. in recent years is primarily driven by incidents involving adults.

Likewise, the rate of nonfatal injury (i.e., child pedestrians who sustained bodily harm when struck by a motor vehicle but did not die) decreased by 40 percent from 30.03 per 100,000 in 2004 to 18.01 per 100,000 in 2018 (Figure 2). It is unknown how much of the reduction in injury rates is related to educational efforts and the safety enhancements made in school zones by Safe Kids, Safe Routes to School and others, as opposed to the fact that fewer children today walk to and from school.^{18,19} However, it is likely that a combination of both prevention efforts and a decline in exposure to traffic is responsible for some of the reduction.

The overall reduction for this age group is encouraging, particularly given that pedestrian injury rates among adults are increasing.³ However, a closer look reveals that the trends for kids are not consistent across ages (Figures 1 and 2), and that the percentage rate reduction has been greater among children under age 12 compared to 12- to 19-year-olds. In fact, the percentage rate reduction for both fatal and nonfatal injuries in children under age 12 was more than twice that of 12- to 19-year-olds from 2004 to 2018 (48 percent vs. 20 percent for fatal and 59 percent vs. 23 percent for nonfatal, respectively).

Figure 1. The fatal pedestrian injury rate for children ages 12 to 19 has fallen by only 20 percent since 2004 compared to 48 percent for children under age 12

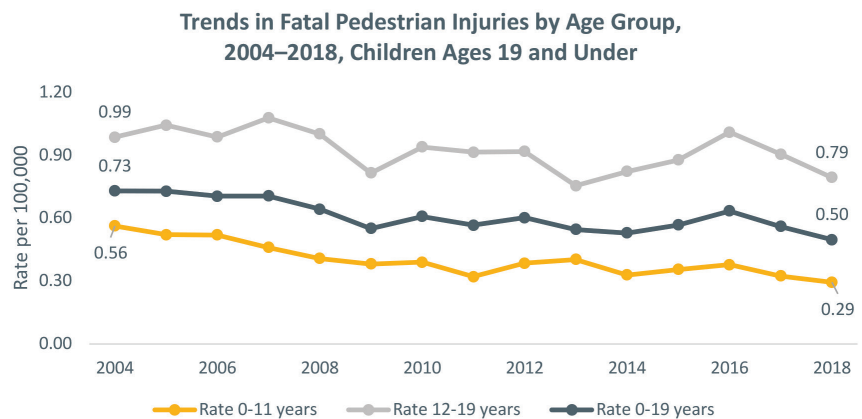
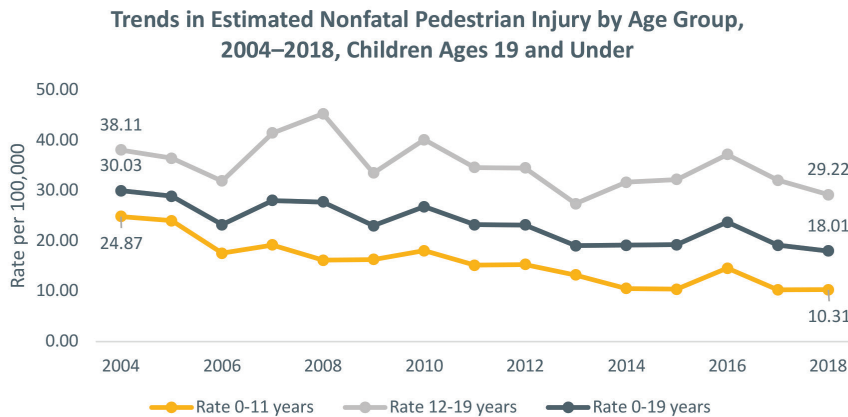


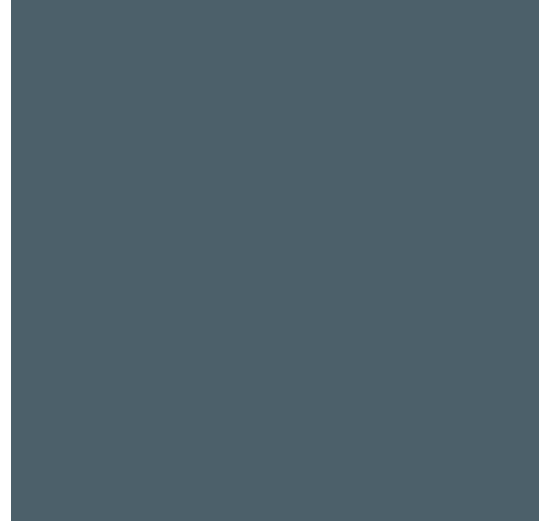
Figure 2. The nonfatal pedestrian injury rate for children ages 12 to 19 has only fallen by 23 percent since 2004 compared to 59 percent for children under age 12



Thus, while the rate decrease in both fatal and nonfatal injury is encouraging, the differences in rate reductions between 0- to 11-year-olds and 12- to 19-year-olds are noteworthy, particularly given they are increasing. Likely contributing to this trend is a combination of environmental, behavioral and psychosocial factors, including a disconnect between how teens perceive risk and their actual risk. Nearly 6 in 10 teens surveyed by Safe Kids indicated they were unlikely to be struck by a vehicle while crossing the street and using their phones, even though 3 in 4 (74 percent) indicated they are likely to use their phones while walking. Even when asked to compare the likelihood of several less-probable scenarios, teens felt their risk of being struck as distracted pedestrians while crossing the street was lower — for instance, nearly half (46 percent) indicated they were as likely or more likely to be injured in a school shooting, and about 3 in 10 (29 percent) indicated they were as likely or more likely to be struck by lightning. This is interesting, given that the odds of a 12- to 19-year-old being struck by a vehicle as a pedestrian were 32 in 100,000 in 2017, while the odds of being shot in a school shooting or struck by lightning were 1 in 600,000*, and 1 in 700,000, respectively.^{20–23} So, while teens are 192 times more likely to be struck by a car than by lightning, and 224 times more likely to be hit by a car than be shot at school, they perceive being hit by a car to be less likely.

Trends by Gender: The rate of fatal and nonfatal pedestrian injury among children ages 19 and under is highest among boys, although to a lesser degree in recent years. Between 2004 and 2018, the fatality rate among boys decreased by 35 percent compared to 25 percent among girls (Figure 3). However, in terms of nonfatal pedestrian injuries, the percentage rate decrease was nearly equal among boys and girls (41 percent and 40 percent, respectively) (Figure 4).

* Calculation based on number of students killed or injured in school shootings in 2017 divided by the number of students enrolled in schools in 2017 (including elementary schools, secondary schools, and college campuses).^{22–23}





It is interesting that the fatal injury rate for girls is decreasing more slowly than it is for boys. A possible explanation may be gender differences in pedestrian distraction resulting from mobile phone use. One recent nationally representative survey of teens found that while mobile phone access was proportionately similar among girls and boys (97 percent vs. 93 percent), teen girls were more likely to say they were on their phone “almost constantly” than were teen boys (50 percent vs. 39 percent, respectively).¹¹ Other research suggests that girls may be more likely to exhibit pedestrian distraction, including texting and talking on the phone while crossing the street, crossing more slowly when using a device and being less likely to look both ways when crossing while on a smart phone device.^{6,7,24} Teen girls surveyed by Safe Kids were also more likely than teen boys to respond they had walked or bumped into something while walking and using their phone (43 percent vs. 30 percent, respectively) and to have fallen off of a step, sidewalk or curb while using their phone (27 percent vs. 19 percent, respectively).

Figure 3. Fatal pedestrian injury rates have declined over time for both male and female children ages 19 and under

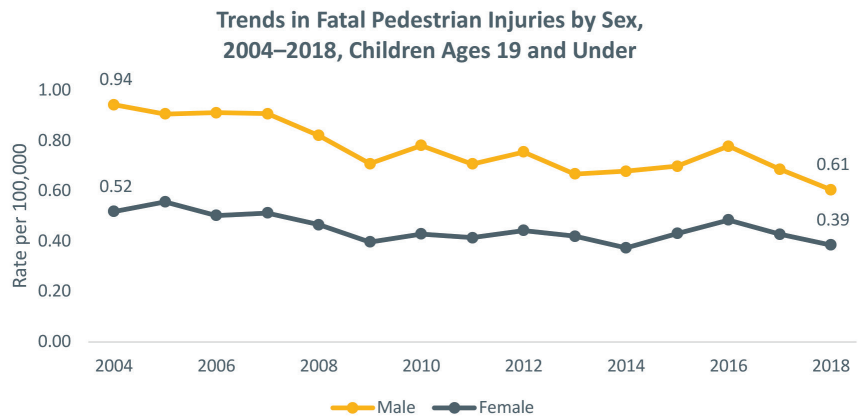
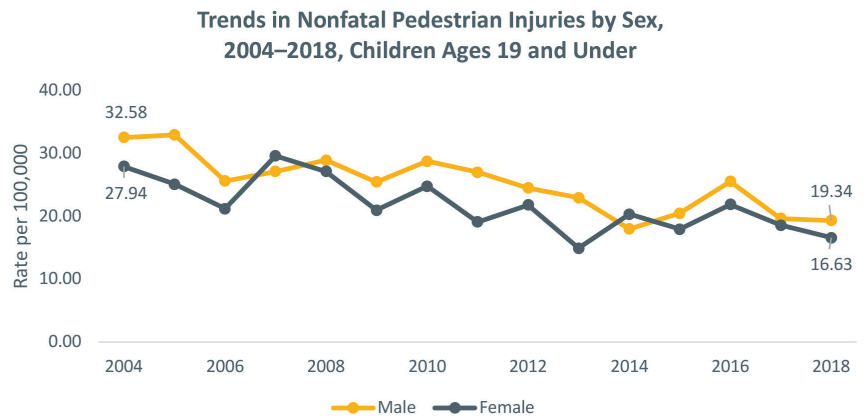


Figure 4. Nonfatal pedestrian injury rates have declined over time for both male and female children ages 19 and under



The nonfatal pedestrian injury rate for children ages 12 to 19 has only fallen by 23 percent since 2004 compared to 59 percent for children under age 12.

2017/2018 Snapshot for Fatal and Nonfatal Pedestrian Injuries in Children

Tragically, an average of 434 children suffered fatal injuries in 2017/2018 as the result of being struck by a motor vehicle as pedestrians.¹³ Further, for every child killed there were about 36 more who suffered nonfatal injuries (N=15,425).⁴ This equates to about two children being struck and injured or killed by a vehicle as a pedestrian every hour in the U.S.

By Age: Analysis of 2017/2018 data reveals that 12- to 19-year-olds made up 6 in 10 of both fatal and nonfatal pedestrian injuries among children ages 19 and under. In fact, the rate of both fatal and nonfatal pedestrian injury was nearly 3 times higher for 12- to 19-year-olds compared to children under 12 (0.85 per 100,000 vs 0.31 per 100,000 and 31.05 per 100,000 vs 10.47 per 100,000, respectively).

Risk was positively correlated with age. Notably, the number of fatal injuries begins to increase starting at age 12 and increases by 50 percent between ages 17 and 19 (Figure 5). The risk of nonfatal injury steadily increases from ages 0 to 12, before substantially increasing by 74 percent between the ages of 12 and 14 (Figure 6). In fact, children ages 13 to 19 accounted for 64 percent of nonfatal injuries among children under age 19 in 2017/2018.

Figure 5. Starting at age 12, the number of pedestrian fatality increases with each year of age

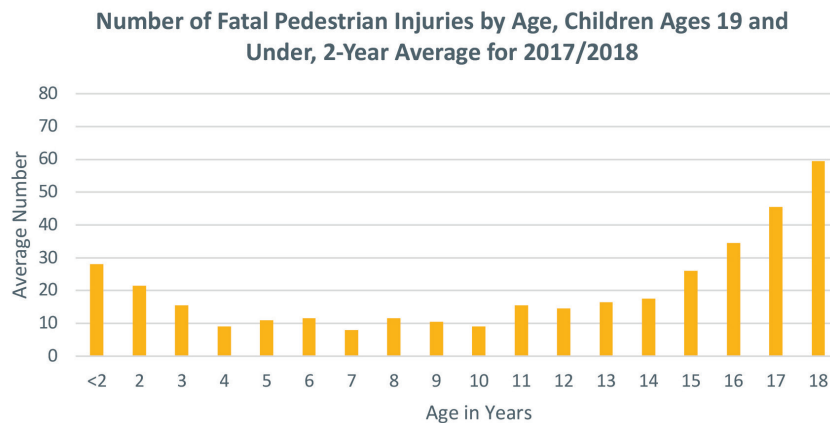
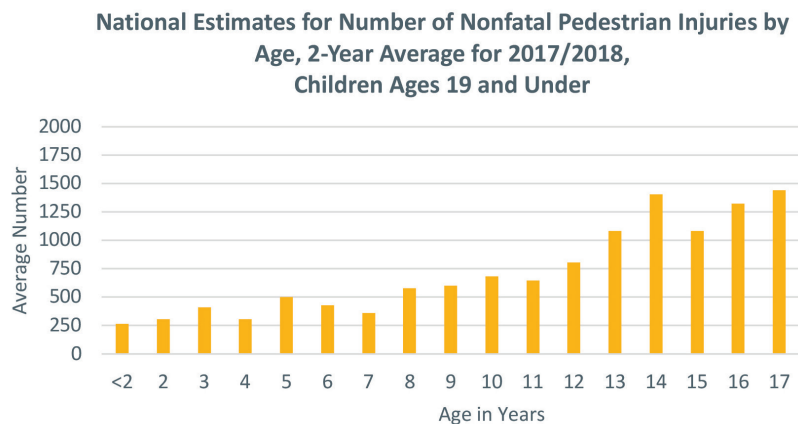


Figure 6. The number of nonfatal injury increases steadily up to age 11 before increasing by 74 percent between the ages of 12 and 14



Every hour, about two children age 19 and under are injured or killed after being struck by a vehicle while walking.



The increased risk among older children is consistent with previous Safe Kids findings and other research.^{5,24–26} Up until around age 10, children do not have the ability to judge speed and distance of oncoming traffic accurately enough to safely cross the street alone,²⁷ which is why safety experts recommend that younger children always be accompanied by an adult when walking near roadways. Between ages 11 and 19, children not only grow in height, becoming more visible to drivers, but they also continue to develop and master the skills that are critical to pedestrian safety, including sharpening their processing speed, attention, reaction speed and decision-making.^{28–31} Yet, the injury data suggest that even as they grow and develop in ways that should mitigate their risk of pedestrian injury, they are actually at an increasing risk for pedestrian injury with each year of age. Given that developmentally they are more able to correctly judge traffic, other factors must be at play. The literature suggests that key among these factors is a correlation between age, independence and risk-taking behavior.^{5,24–26,32} For example, one study observed nearly 3,000 children as they crossed urban intersections and found that after age 9 the likelihood of walking without an adult increased with age, as did the likelihood of engaging in an array of risky behaviors, including crossing at red lights, crossing outside of the crosswalk area, not stopping to look before crossing and crossing while distracted.³² The study also found that older children were far more likely to cross intersections while using a phone or other digital device than were younger children.³²

This is especially troubling considering the unprecedented access to mobile phones among teens today, in addition to the enhanced functionality and thus distracting features of smartphones.^{10,11,33} On average, children today are receiving their first mobile phone at the age of 10,³⁴ and 93 percent of kids in our recent survey of 13- to 17-year-olds indicated that they have a mobile phone.³³ Our finding that 74 percent of teens surveyed indicated they are likely to use a mobile phone when walking down the street suggests that smartphone use may be counteracting the cognitive advancements that would otherwise help them be safer pedestrians.

Safe Kids has always recommended that parents start pedestrian safety education of their children from an early age and model safe pedestrian practices.^{26,35} However, given the increasing risk for children as they get older, and particularly around age 12, a time when they have more independence and may receive their first mobile phone, the end of elementary school may signal an important transitional time for children to receive additional pedestrian safety education. In a series of focus groups with middle schoolers in 2018, Safe Kids researchers heard from participants that their parents first started allowing them to walk outdoors without adult supervision around 6th grade. For many, it was the summer before they began 6th grade.³⁶ It is important for parents to understand the increased risk during this transitional stage, to review and continue to model safe pedestrian behavior with their children and to set an expectation of safe pedestrian behavior when allowing a child to have a mobile phone.

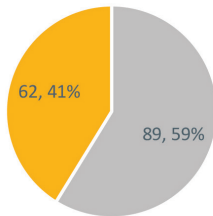
By Gender: Boys made up most pedestrian fatalities (62 percent) among 0- to 19-year-olds in 2017/2018 and the proportion of boys killed was higher among 12- to 19-year-olds compared to younger children (Figure 7.) These results are consistent with research findings indicating that boys experience more frequent injuries and engage in greater risk-taking than girls.^{5,8,26,37–39}

The period between elementary and middle school signals an important transitional period for parents to talk to children about expectations for safe pedestrian behavior, especially when allowing them to have a mobile phone.

Boys made up a slightly larger proportion of nonfatal pedestrian injuries among 0- to 19-year-olds in 2017/2018. This difference was driven primarily by the younger age group — boys accounted for 60 percent of nonfatal pedestrian injuries among the 0 to 11 age group, whereas the difference was evenly split among the 12 to 19 age group (50 percent boys and 50 percent girls).

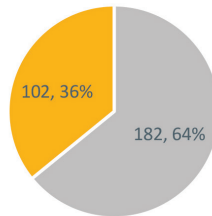
Figure 7: Males accounted for nearly two-thirds of fatal pedestrian injuries in the 12 to 19 age group, 2017

Child Pedestrian Fatalities by Sex, 2-Year Average for 2017/2018, Children Ages 0 to 11



■ Male ■ Female

Child Pedestrian Fatalities by Sex, 2-Year Average for 2017/2018, Children Ages 12 to 19



■ Male ■ Female

By Race and Ethnicity: The child pedestrian fatality rate in 2017/2018 was highest among non-Hispanic Black children (0.98 per 100,000) followed by Hispanic children (0.47 per 100,000) and non-Hispanic White children (0.38 per 100,000)*. When age is taken into account, non-Hispanic Black children under age 12 are at three times greater risk than their non-Hispanic White counterparts and non-Hispanic Black children ages 12 to 19 years are at more than twice the risk than their non-Hispanic White counterparts (Figure 8).

Black/African American and Hispanic or Latino households continue to have the lowest annual income in the U.S.,⁴⁰ which may help explain some of the increased risk among non-Hispanic Black/African American and Hispanic children. Research suggests that children from neighborhoods of low socioeconomic status are at greater risk of pedestrian injury.⁴¹ Low-income neighborhoods are significantly less likely than higher-income neighborhoods to have marked crosswalks, sidewalks, street lighting and streets designed to promote lower vehicle speeds.^{42,43} They also often have fewer parks and playgrounds and more major roadways with increased traffic volume, curbside parking and street vendors that attract children to roadways.^{5,26,44–46} Low socioeconomic status can also negatively impact parent and or caregiver ability to supervise children and result in lower access to pedestrian safety information.^{47,48} These disparities can be addressed by the adoption of initiatives like the National Complete Streets Coalition and Vision Zero, which operate on the basis that all pedestrians — regardless of their age, ability, income, race or ethnicity — ought to have safe and convenient access to community destinations and public places.^{49,50} Safe Kids is also working to address disparities by supporting environmental modifications in school zones in higher need, low income neighborhoods through our Safe Kids Safe School Zone initiative (see sidebar).

*Stable rates could not be calculated for other races due to having <20 deaths each.

Addressing Inequities in Pedestrian Safety One School at a Time

Beginning in 2011, with the support of FedEx, Safe Kids Worldwide and local Safe Kids coalitions have been working with a few communities each year to address inequities for pedestrian safety around local schools through school zone modification projects. One of the first communities was Memphis, TN where we worked with Safe Kids Mid-South to improve the pedestrian safety of children attending Treadwell Elementary and Middle Schools. The two schools are co-located in a less-affluent neighborhood of the city whose congressional district is the 22nd most dangerous for people on foot out of 435 districts in the U.S. Between 2003 and 2011, the school zone had experienced 16 pedestrian crashes, with 10 involving children under 15, and five resulting in fatal or serious injury. The few crosswalk features present around the school had become faded over time and two major crosswalks connecting the schools to a nearby neighborhood across a busy four-lane roadway were in poor condition. In addition, vegetation had built up so that school zone signage was not always visible to drivers.

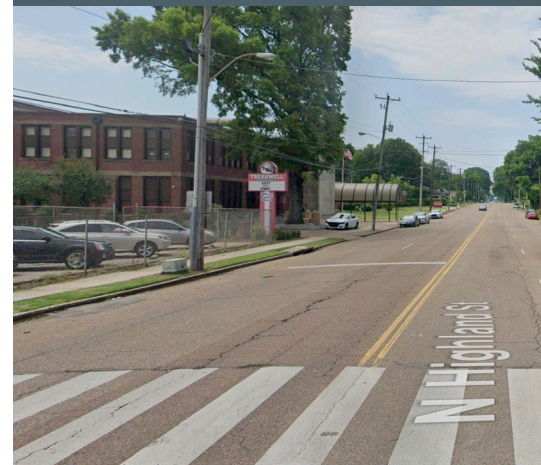
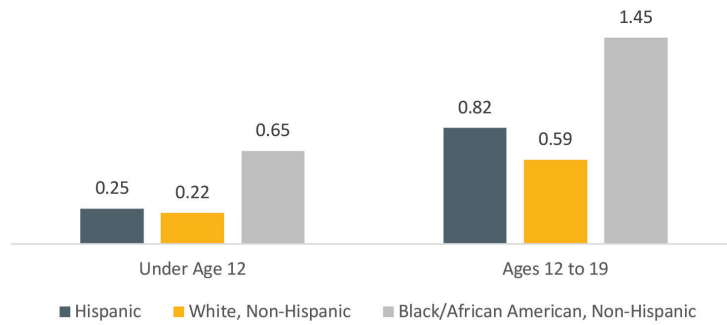




Figure 8. Non-Hispanic Black/African American children were at greatest risk of child pedestrian death in 2017/2018

Fatal Pedestrian Injury Rates per 100,000 by Age Group and Race/Ethnicity, 2-Year Average for 2017/2018, Children Ages 19 and Under

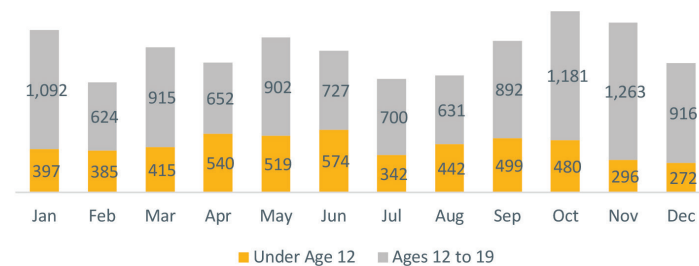


By Month: There is no clear pattern for fatal and nonfatal pedestrian injuries by month for 2017/2018 (Figure 9). The number of injuries for children under age 12 was highest in April, May and June, possibly reflecting increasing walking again when temperatures start to warm in states with cooler climates (April). For teens, the months with the highest number of injuries were October, November and January. Given these are months with less daylight, the increase may be related to reduced visibility.

What is clear is that the overall numbers are lower from July to August when most schools are closed, suggesting the lower number in those months may relate to changes in exposure, such as lower levels of walking and school-related traffic during summer break months. As such, the month before school starts back and children begin walking more often to bus stops and school may be a critical time for children to receive pedestrian safety education.

Figure 9. The number of fatal and nonfatal child pedestrian injuries are highest in June for younger children and November for teens

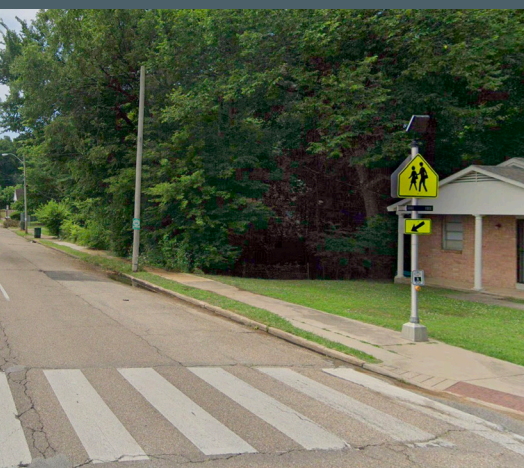
Number of Fatal and Nonfatal Pedestrian Injuries Combined by Month, 2-Year Average for 2017/2018, Children Ages 19 and Under



Working with a local task force that included the City of Memphis, the project aimed to enhance school zone safety through the following improvements:

- Installation of push-button-activated pedestrian cross signals at the two major crosswalks
- Upgraded intersection markings including new high-visibility pavement markings requiring drivers to stop ahead of pedestrian crossings
- Refreshed or new zebra crossings at multiple locations around the schools
- Efforts to ensure school zone signs were visible to drivers

The schools also worked with FedEx to reassess the patterns for student pick-up and drop-off procedures. These improvements increased the pedestrian safety for Treadwell students and in the eight years since the intervention, there have been no serious pedestrian crashes.



By Time of Day: The times of day when children are most at risk of a fatal pedestrian injury also differed by age group in 2017/2018 (Figure 10). For instance, nearly 1 in 3 children under age 12 who were fatally injured were struck during what are typically after school hours (3 PM to 6 PM) compared to 1 in 10 children ages 12 to 19 during the same period.

Conversely, the data show that older children are at greater risk at nighttime, with 1 in 4 fatal pedestrian injuries among children ages 12 to 19 occurring between the hours of 9 PM to midnight, compared to 1 in 10 fatal injuries among children under 12. The pattern becomes even more distinctive for late night hours, with 1 in 5 children ages 12 to 19 fatally injured between the hours of midnight to 6 AM compared to only 3 percent of fatalities among children under age 12 occurring during this time period. This is likely related to differences in exposure; older teens are more likely than younger kids to be active outside the home after dusk. In addition, risky pedestrian behaviors such as distracted walking and mid-block crossing (crossings at non-intersections where a crosswalk was not present) may interact with other nighttime factors such as increased drunk driving, increased teen drug and alcohol use, lower visibility, and reduced depth perception of drivers to increase teens' risk.^{8,51}

When we examined nonfatal pedestrian injuries, most children in both age groups were injured in the hours between 3 PM to 6 PM (Figure 11). Relative to fatal incidents, a higher proportion of nonfatal injuries occurred between the hours of 6 AM to 9 AM among both age groups.

Figure 10. Children under age 12 are at greatest risk of a fatal pedestrian injury between 3 PM to 6 PM, whereas 12- to 19-year-olds are at greatest risk between 9 PM to midnight

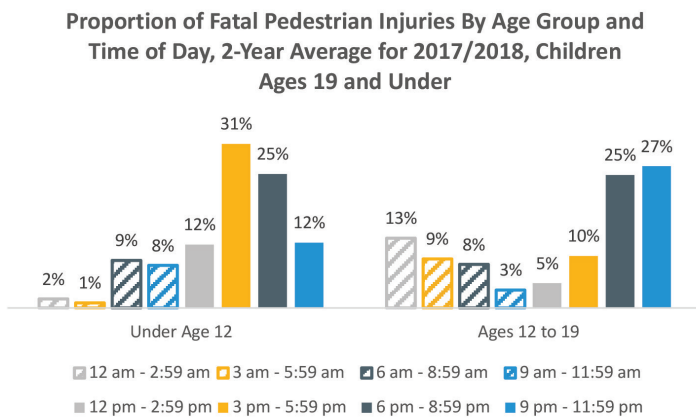
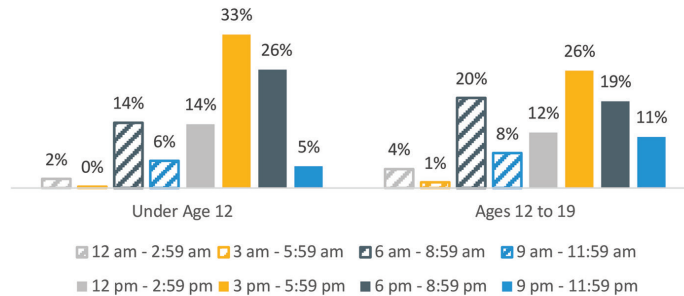




Figure 11. One in three children under 12 and nearly one in four 12- to 19-year-olds who suffered nonfatal injuries as pedestrians were injured between the hours of 3 PM to 6 PM

Proportion of Nonfatal Pedestrian Injuries By Age Group and Time of Day, 2-Year Average for 2017/2018, Children Ages 19 and Under



Comparing fatal and nonfatal injuries reveals a higher proportion of 12- to 19-year-olds were killed between the hours of 9 PM to 6 AM than were nonfatally injured, perhaps because incidents at night are more likely to be fatal due to reduced driver reaction time in lower light situations. As stated earlier, the months with the highest number of fatalities among 12- to 19-year-olds also happen to be months with less daylight. According to NHTSA, a motorist's visibility is limited when driving in the dark to about 500 feet with high beams on and 250 feet with low beams on.⁵² This allows for less time to react to a pedestrian, especially if the vehicle is moving at higher speeds. It is therefore important that children walking during dark or low-light hours do something to increase their visibility to drivers. We learned in focus groups with middle schoolers that this is not something kids are thinking about and that the suggestion to wear reflective or bright colored clothing is unreasonable for some.³⁶ The design of clothing and accessories with incorporated reflective material that is acceptable to this age group would help address this issue, and some manufacturers have taken up this challenge. Safe Kids recommends that parents look for backpacks, bags and outerwear that have reflective materials built in, and consider accessories with reflectors.

By Road Type: Data indicating the type of road in which the pedestrian was struck was available for 97 percent of the child pedestrian fatalities. The majority of fatal injuries among pedestrians ages 19 and under (74 percent) occurred on urban roads in 2017/2018. This is consistent with previous findings and likely relates in part to the fact that children living in low income, densely-populated, urban residential areas are at a significantly higher risk of being struck by a motor vehicle as pedestrians.^{5,26,53,54} A study of 30 years of crash data in six American cities found that the risk of child pedestrian fatality in urban settings is highest in areas near schools and parks, and that city residents were often required to walk across several lanes of traffic to access parks.⁵⁵

One in three children under 12 and nearly one in four 12- to 19-year-olds who suffered nonfatal injuries as pedestrians were injured between the hours of 3 PM to 6 PM.

However, while only 19 percent of children in the U.S. live in a rural area,⁵⁶ 24 percent of deaths in 2017/2018 occurred on rural roads. In contrast to urban roadways, rural roads have certain characteristics that may make them uniquely hazardous to child pedestrians. Because rural roads have less vehicular traffic and are more sparsely populated than urban roads, drivers may be encouraged to drive at dangerously fast speeds.⁵⁷ Making matters worse, rural roads often lack the sidewalks, street lighting and the marked crosswalks more commonly found in urban settings.^{57,58} Taken together, these factors place a child walking along rural roadways at higher risk of being struck by a motorist who may not expect a pedestrian to be in the roadway.^{57,59} Further, once injured, they are often further away from emergency services, which can lead to more severe outcomes.⁶⁰

By Location of Incident: Looking at both fatal and nonfatal pedestrian injuries combined in 2017/2018, the highest proportion of children ages 0–19 were injured while crossing mid-block (44 percent), followed by intersections where a crosswalk was present (39 percent). Other locations included driveways, roadway shoulders, sidewalks and parking lanes or zones, although these locations accounted for far fewer instances (3 percent, 3 percent, 2 percent, and 1 percent, respectively). Six percent were crossing at an intersection where they were either not using an available crosswalk or there was no crosswalk. For 5 percent of the incidents, the child was crossing mid-block, but it was unknown if there was a crosswalk.

When age was considered, children under age 12 were more likely to be struck and injured while crossing mid-block than were 12- to 19-year-olds (56 percent vs. 38 percent, respectively). This may be due to motorists not expecting a pedestrian outside of a crosswalk and the fact that younger children are more likely to dart out into traffic and have a more difficult time judging distance and speed. Further, children under 12 were most often struck by a light truck, which includes SUVs, minivans, and pickup trucks, which have higher clearances that make it potentially more difficult for drivers to detect smaller children.[†]

Children ages 12 to 19 were more often struck while crossing at an intersection where a crosswalk was present compared to younger children (39 percent vs. 21 percent, respectively), possibly due to their increased likelihood of being distracted by mobile devices while crossing the road.^{24–26} In fact, more than half (54 percent) of teens surveyed by Safe Kids indicated that they have crossed the street with headphones in during the past 6 months and 1 in 3 (34 percent) indicated they've crossed while texting.

† NHTSA codes “light trucks” to include truck-based utility vehicles, light duty pickup trucks, standard pickup trucks, vans, mini vans, van-based station wagons, van-based buses, van derivatives, and truck-based station wagons.

1 in 3 teens surveyed by Safe Kids indicated that they've crossed the street while texting in the past 6 months.





By Driver Factors: Dangerous roadway conditions and driver behaviors, such as driver distraction, speeding and intoxication are known to be high risk factors in motor vehicle crashes. However, the NHTSA data suggest that these factors did not play a large role in fatal and nonfatal child pedestrian injuries in 2017/2018. For instance, road conditions were dry in more than 8 in 10 incidents (84 percent), driver distraction was reported as involved in fewer than 1 in 10 incidents (9 percent) and driver drug or alcohol use was only reported as a contributing factor in fewer than 1 percent of incidents. Finally, while it is important to note that children are often killed at speeds below posted speed limits, driver speed in excess of the posted speed limit was only reported in 3 percent of incidents. These results illustrate the complexity of pedestrian safety and the importance of infrastructure design and underline why a Safe Systems approach is so important. We know there are many other factors that influence child pedestrian injury risk, including driver behavior, speed limits and access to safe sidewalks and crosswalks. However, until communities develop systems to take each of these factors head on, the key to preventing child pedestrian injury may lie in safety education and awareness building, in addition to advocacy work to make pedestrian environments safe for all walkers.



Key Implications for Pedestrian Safety Education

Walking, whether to school or other destinations, is an effective way for children to meet the daily recommended amounts of physical activity and to have a sense of independence. Though there are inherent risks to walking near traffic, research suggests that educating children on how to safely cross the street when they are walking can help mitigate the risks.^{61,62}

By talking to their children about pedestrian safety from an early age, parents and caregivers can help to ensure that their children know how to navigate pedestrian spaces safely by the time they start to walk outside more independently. Safe Kids has always encouraged that parents educate and model safe pedestrian practices to children starting when they are young, and the findings of this report strongly suggest that the transition from elementary to middle school is a key moment in time for parents to revisit pedestrian safety with their children. While the data in this report indicate that this is around the age when risk of pedestrian injury significantly increases, it is also around the time that many children today are receiving their first mobile phone.³⁴ As such, it becomes critically important that parents start the discussion about the risks associated with crossing the street while distracted before children receive their first mobile phone – and that they keep talking about it.





What Parents Can Do to Help Kids Stay Safe While Walking

Parents play an invaluable role as both teachers and role models when it comes to keeping kids safe. Here are some safe practices for you to teach and model.

- **Cross the street at the corner or a designated crosswalk**, making sure to follow traffic signals and signage. Most injuries happen mid-block or someplace other than intersections.
- **Look left, right and left again before crossing the street and continue to scan as you cross the street.** Never run or dart out into the street or cross between parked cars.
- **Make eye contact with drivers before crossing in front of them and watch for cars that are turning or backing up.**
- **When possible, walk on sidewalks or paths.** If there are no sidewalks, walk facing traffic as far to the left as possible.

As children approach the transitional period between elementary and middle school and are increasingly independent as they walk or when they are getting their first cell phone, take the time to review expectations around pedestrian safety and start talking to children about the dangers of distracted walking. When teaching and modeling pedestrian behavior to children in this transitional age group, remember the following:

- **Heads Up, Phones Down when crossing the street.** It is dangerous to text, watch a video, or do anything else distracting on your phone when crossing the street.
- **Remove your headphones or wear only one earbud when crossing the street.** If you can't hear, you're less able to quickly react.

Once kids hit their teen years, they are at much greater risk of being hit by a car, particularly after dark. We suggest having another chat to reinforce expectations and talk about the **importance of being visible to drivers after dark**. Consider purchasing outerwear, backpacks and accessories that have reflective materials built in so that they are more visible to drivers.

Advocacy

It's proven that smart policy and effective laws save the lives of children on the road, as well as in and around motor vehicles. Safe Kids supports several initiatives to make streets safer for children.

Complete Streets is a set of policies and federal legislation which would require that streets be designed and maintained to ensure safe roadway access for all users, including pedestrians, bicyclists and motorists. This policy, and others such as Vision Zero, are vital today. That's because, despite the findings of this report that overall child pedestrian fatalities have declined since 2004, pedestrian fatalities across children *and adults* combined have increased by 53 percent between 2009 and 2018.³ The pedestrian fatality rate for all ages in the U.S. is the highest since 1990 and pedestrian fatalities now account for 17 percent of all traffic deaths, compared to 12 percent in 2009.³

A Complete Street is one in which motor vehicles and freight vehicles share the roads with people on foot, on bicycles and those using public transportation, rather than one which has historically favored cars and drivers. A Complete Street makes vulnerable road users safer, including people with disabilities, senior citizens and especially children.

Today, our outdated transportation infrastructure is designed almost solely for motor vehicles, making roads dangerous for pedestrians and bicyclists while, at the same time, frustrating drivers stuck in congested traffic. As this report states, parents are anxious about sending their kids off to school on foot or on bikes. Complete Streets can reduce that anxiety so that kids can return to walking and bike riding. It would help kids stay healthier by promoting exercise, better health and a cleaner environment.

Today, too many drivers speed through school zones, where speed limits are too high or where violating reasonable speed limits is all too commonplace. Further, areas frequented by kids—near schools, parks and libraries—often lack adequate signage or other interventions to calm streets and slow down traffic.

Today, many children in rural areas walk or bike to school along fast-moving roads without sidewalks. They wait for school buses on the sides of roads, uncovered and unprotected. These rural roads can be much more perilous and need improvements.

The Complete Streets Act, HR1663 and SB2077, strives to improve these conditions.⁶³ The legislation would require states to develop a Complete Streets plan and provide resources to build safe street projects such as sidewalks, bike lanes, crosswalks, signage and safe bus stops. There should be universal support for this policy because congested traffic is not a good environment for anyone — including those behind the wheel. The primary sponsors are Senator Edward Markey (D-MA) and Representative Steve Cohen (D-TN). Representative Cohen was successful in including Complete Streets in the Moving Forward Act, H.R.2 which passed the U.S. House in June 2020. This bill still must be reconciled with U.S. Senate legislation.⁷² Safe Kids coalitions joined together in support of the Complete Streets Act.[†]

† Safe Kids letter in support of Complete Streets, October 1, 2019, available at https://a3f81f198a260bc434c5-8f8af7b10ac8f957b05556159de44bb7.ssl.cf5.rackcdn.com/2019/Complete_Streets_LOS_FINAL_10.01.2019.pdf

Other Programs Making an Impact

Vision Zero: Complete Streets is consistent with the Vision Zero effort which has been successful in numerous communities making cities and towns safer as they reach for the goal of zero road fatalities.

Safe Routes to School: Safe Routes to School (SRTS) has been making school zones safer for several decades. Safe Kids supports bipartisan legislation that would improve the program that funds SRTS by shifting more power to local governments which are much more in touch with what's needed in a locality.⁶⁴ The Moving Forward Act, which passed the U.S. House in June 2020, doubled the amount of funds SRTS is eligible for under the Transportation Alternatives Program. The Chairman of the House Transportation and Infrastructure Committee, Representative Peter DeFazio (D-OR), has been a long-time supporter of SRTS.[†]

Autonomous Vehicle (AV) Pedestrian Safety Technology: Safe Kids supports legislation at the federal and state levels to regulate the development and deployment of autonomous vehicles by requiring technology to prevent pedestrian crashes.

School Zone Safety Measures: Safe Kids supports state legislation that would establish a statewide school zone speed limit of no greater than 20 mph. Safe Kids also supports authorizing counties and school districts to use video technology on school buses to deter and catch drivers who pass school buses as they stop to load and unload students with their drop-arms activated.



[†] Committee on Transportation and Infrastructure, June 2020, available at <https://transportation.house.gov/imo/media/doc/BILLS-116HR2-RCP116-54.pdf>

Methodology

Trend Analysis: This report examines motor vehicle-related pedestrian injuries among children ages 19 and under in the U.S. All data were obtained from the National Highway Traffic Safety Administration (NHTSA), both by written request and through the Fatality and Injury Reporting System Tool (FIRST) online query tool. Fatality data were obtained from NHTSA's Fatality Analysis Reporting System (FARS) database which is a compilation of annual nationwide databases of traffic fatalities. Nonfatal injury data for the years 2004 to 2015 were obtained from NHTSA's National Automotive Sampling System General Estimates System (NASS GES), which is based upon a nationally representative sample of motor vehicle crash police records. Nonfatal injury data for the years 2016 to 2018 were obtained from NHTSA's Crash Report Sampling System (CRSS), which replaced NASS GES in 2016. Population data were obtained from the U.S. Census Bureau's Current Population Survey (CPS) and combined with NHTSA's data to calculate rates.

Teen Survey: Safe Kids surveyed a national sample that reflects the U.S. Census demographics for teenagers between the ages of 13 to 17 who self-report walking as pedestrians. Five-hundred teens were asked questions related to their mobile phone ownership, usage and behaviors, and asked a series of scenario-based questions to gauge their perceived risk of being struck by a motor vehicle as a pedestrian. Questions were presented online and were asked as part of a larger omnibus survey covering multiple injury topics.

References

1. National Highway Traffic Safety Administration. National Statistics. Available from: [https://cdan.nhtsa.gov/tsftables/National Statistics.pdf](https://cdan.nhtsa.gov/tsftables/National%20Statistics.pdf). Accessed July 14, 2020.
2. Bureau of Transportation Statistics, U.S. Department of Transportation. U.S. Vehicle-Miles. Available from: <https://www.bts.gov/content/us-vehicle-miles>. Accessed July 14, 2020.
3. Insurance Institute for Highway Safety. Fatality Facts 2018 - Pedestrians. Available from: <https://www.iihs.org/topics/fatality-statistics/detail/pedestrians#yearly-snapshot>. Accessed August 31, 2020.
4. National Highway Traffic Safety Administration. Traffic Safety Facts: Pedestrians (2017). Available from: <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812681>. Accessed July 12, 2019.
5. Mickalide AD, Rosenthal KM, Green A, Baker JM. *Walking Safely: A Report to the Nation*. Washington, DC: Safe Kids Worldwide, August 2012. Available from: <https://www.safekids.org/walkingsafely>.
6. Hatfield J, Murphy S. The effects of mobile phone use on pedestrian crossing behaviour at signalised and unsignalised intersections. *Accid Anal Prev*. 2007. doi:10.1016/j.aap.2006.07.001
7. Cooper JF, Schneider RJ, Ryan S, Co S. Documenting targeted behaviors associated with pedestrian safety. *Transp Res Rec J Transp Res Board*. 2012;2299(1):1-10. doi:10.3141/2299-01
8. Lichtenstein R, Smith DC, Ambrose JL, et al. Headphone use and pedestrian injury and death in the United States: 2004-2011. *Inj Prev*. 2012;18(5):287-290. doi:10.1136/injuryprev-2011-040161
9. Schwebel DC, Stavrinou D, Byington KW, Davis T, O'Neal EE, De Jong D. Distraction and pedestrian safety: How talking on the phone, texting, and listening to music impact crossing the street. *Accid Anal Prev*. 2012. doi:10.1016/j.aap.2011.07.011
10. Lenhart A. *Teens, Smartphones & Texting*. Washington, DC: Pew Research Center's Internet & American Life Project, March 2012. Available from: <http://pewinternet.org/Reports/2012/Teens-and-smartphones.aspx>. Accessed June 26, 2019.
11. Anderson M, Jiang J. *Teens, Social Media & Technology 2018*. Washington, DC: Pew Research Center. Available from: <https://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018/>. Accessed July 12, 2019.
12. Common Sense Media. Common Sense Research Reveals Everything You Need to Know About Teens' Use of Social Media in 2018. Available from: <https://www.commonsensemedia.org/about-us/news/press-releases/common-sense-research-reveals-everything-you-need-to-know-about-teens>. Accessed August 7, 2019.
13. National Highway Traffic Safety Administration. 19 and Under Pedestrian Fatalities in Motor Vehicle Traffic Fatalities by Year and Age: Fatality Analysis Reporting System (FARS) [Years 2003 to 2017, Ages 0-19].
14. National Highway Traffic Safety Administration. 19 and Under Pedestrian Estimated Injuries in Motor Vehicle Traffic Fatalities by Year and Age: Crash Report Sampling System (CRSS) [Year 2017, Ages 0-19].
15. National Highway Traffic Safety Administration. 19 and Under Pedestrian Estimated Injuries in Motor Vehicle Traffic Fatalities by Year and Age: Crash Report Sampling System (CRSS) [Year 2016, Ages 0-19].
16. National Highway Traffic Safety Administration. 19 and Under Pedestrian Estimated Injuries in Motor Vehicle Traffic Fatalities by Year and Age: NASS General Estimates System (GES) [Years 2003 to 2015, Ages 0-19].
17. U.S. Census Bureau. Current Population Survey (CPS), Annual Social and Economic Supplement [Years 2003-2017, All persons, Ages 0-19]. Available from: <https://www.census.gov/cps/data/cpstablecreator.html>. Accessed June 21, 2019.
18. Pedestrian and Bicycle Information Center in collaboration with Safe Routes to School. The Decline of Walking and Bicycling. Available from: http://guide.saferoutesinfo.org/introduction/the_decline_of_walking_and_bicycling.cfm. Accessed July 12, 2019.
19. Planetizen, Inc. Kids Still Aren't Walking to School. Available from: <https://www.planetizen.com/news/2019/03/103353-kids-still-arent-walking-school>. Accessed July 12, 2019.
20. National Geographic. Flash Facts About Lightning. Available from: <https://news.nationalgeographic.com/news/2004/06/flash-facts-about-lightning>. Accessed July 31, 2019.
21. Gun Violence Archive. Teens Killed or Injured in 2017. Available from: <https://www.gunviolencearchive.org/reports/teens-injured-killed?year=2017>. Accessed July 31, 2019.
22. New York Times. After Sandy Hook, More Than 400 People Have Been Shot in Over 200 School Shootings. Available from: <https://www.nytimes.com/interactive/2018/02/15/us/school-shootings-sandy-hook-parkland.html>. Accessed July 31, 2019.
23. U.S. Census Bureau. More Than 76 Million Students Enrolled in U.S. Schools. Available from: <https://www.census.gov/newsroom/press-releases/2018/school-enrollment.html>. Accessed July 31, 2019.

24. Russo BJ, James E, Aguilar CY, Smaglik EJ. Pedestrian behavior at signalized intersection crosswalks: Observational study of factors associated with distracted walking, pedestrian violations, and walking speed. *Transp Res Rec J Transp Res Board*. 2018;2672(35):1-12. doi:10.1177/0361198118759949
25. Schwebel DC, Stavrinou D, Byington KW, Davis T, O'Neal EE, De Jong D. Distraction and pedestrian safety: How talking on the phone, texting, and listening to music impact crossing the street. *Accid Anal Prev*. 2012. doi:10.1016/j.aap.2011.07.011
26. Schwebel DC, Davis AL, O'Neal EE. Child Pedestrian injury: A review of behavioral risks and preventive strategies. *Am J Lifestyle Med*. 2012. doi:10.1177/0885066611404876
27. Manning C, Aagten-Murphy D, Pellicano E. The development of speed discrimination abilities. *Vision Res*. 2012;70:27-33. doi:10.1016/j.visres.2012.08.004
28. Alberson B, Huebner JL, Lim E, Walton L, Percer J, Weiss J. Teaching Children to Walk Safely as They Grow and Develop: A Guide for Parents and Caregivers. Chapel Hill, NC: National Center for Safe Routes to School, July 2008. Available From: <http://guide.saferoutesinfo.org/pdf/TeachingChildrenToWalkSafely.pdf>. Accessed July 12, 2019.
29. Vinje MP. Children as pedestrians: Abilities and limitations. *Accid Anal Prev*. 1981;13(3):225-240. doi:https://doi.org/10.1016/0001-4575(81)90006-3
30. Pearson DA, Lane DM. Auditory attention switching: A developmental study. *J Exp Child Psychol*. 1991;51(2):320-334. doi:10.1016/0022-0965(91)90039-U
31. Ridderinkhof KR, van der Molen MW, Band GPH, Bashore TR. Sources of interference from irrelevant information: A developmental study. *J Exp Child Psychol*. 1997;65(3):315-341. doi:10.1006/jecp.1997.2367
32. Gitelman V, Levi S, Carmel R, Korchatov A, Hakkert S. Exploring patterns of child pedestrian behaviors at urban intersections. *Accid Anal Prev*. 2019. doi:10.1016/j.aap.2018.09.031
33. Safe Kids Teen Pedestrian Survey. Washington, DC: Safe Kids Worldwide, July 2019.
34. Influence Central, Inc. Kids & Tech: The Evolution of Today's Digital Natives. Available from: <http://influence-central.com/kids-tech-the-evolution-of-todays-digital-natives>. Accessed July 12, 2019.
35. Safe Kids Worldwide. Pedestrian Safety. <https://www.safekids.org/walkingsafelytips?page=3>. Accessed March 4, 2020.
36. Safe Kids Focus Groups with Middle Schoolers Regarding Pedestrian Safety. Washington, DC: Safe Kids Worldwide, October 2018.
37. Borse NN, Julie Gilchrist M, Dellinger AM, et al. Borse N, Gilchrist J, Dellinger A, Rudd R, Ballesteros M, Sleet D. *CDC Childhood Injury Report: Patterns of Unintentional Injuries among 0-19 Year Olds in the United States, 2000-2006*. Atlanta, GA; Centers for Disease Control and Prevention, December 2008. Available from: <https://www.cdc.gov/safekids/pdf/cdc-childhoodinjury.pdf>. Published 2008. Accessed July 12, 2019.
38. Morrongiello BA, Lasenby-Lessard J. Psychological determinants of risk taking by children: an integrative model and implications for interventions. *Inj Prev*. 2007;13(1):20-25. doi:10.1136/ip.2005.011296
39. Nasar JL, Troyer D. Pedestrian injuries due to mobile phone use in public places. *Accid Anal Prev*. 2013;57:91-95. doi:10.1016/j.aap.2013.03.021
40. Noël R. Race, Economics, And Social Status. Washington, DC: U.S. Bureau of Labor Statistics, May 2018. Available from: <https://www.bls.gov/spotlight/2018/race-economics-and-social-status/pdf/race-economics-and-social-status.pdf>. Published 2018. Accessed July 12, 2019.
41. Yiannakoulis N, Scott DM, Rowe BH, Voaklander DC. Child pedestrian injuries and urban change. *Inj Prev*. 2011;17(1):9-14. doi:10.1136/ip.2010.028225
42. Gibbs K, Slater SJ, Nicholson N, Barker DC and CF. Gibbs K, Slater SJ, Nicholson N, Barker DC, and Chaloupka FJ. *Income Disparities in Street Features that Encourage Walking – A BTG Research Brief*. Chicago, IL: Bridging the Gap Program, Institute for Health Research and Policy, March 2012. Available from: www.bridgingthegapresearch.org. Accessed August 7, 2019.
43. Smart Growth America. *Dangerous by Design 2019*. Available from: <https://smartgrowthamerica.org/resources/dangerous-by-design-2019>. Accessed July 31, 2019.
44. Rothman L, Buliung R, Macarthur C, To T, Howard A. Walking and child pedestrian injury: A systematic review of built environment correlates of safe walking. *Inj Prev*. 2014. doi:10.1136/injuryprev-2012-040701
45. DiMaggio C, Li G. Roadway Characteristics and Pediatric Pedestrian Injury. *Epidemiol Rev*. 2012;34(1):46-56. doi:10.1093/epirev/mxr021
46. Moudon AV, Lin L, Jiao J, Hurvitz P, Reeves P. The risk of pedestrian injury and fatality in collisions with motor vehicles, a social ecological study of state routes and city streets in King County, Washington. *Accid Anal Prev*. 2011;43(1):11-24. doi:10.1016/j.aap.2009.12.008

47. Sethi D, Towner E, Vincenten J, Segui-Gomez M, Racioppi F. *European Report on Child Injury Prevention*. Geneva, Switzerland: World Health Organization; 2008.
48. Towner EML, Dowswell T, Errington G, Burkes M, Towner J. Towner EML, Dowswell T, Errington G, Burkes M, Towner J. *Injuries in children aged 0–14 years and inequalities*. London, England: Health Development Agency, 2005.
49. Smart Growth America. National Complete Streets Coalition. Available from: <https://smartgrowthamerica.org/program/national-complete-streets-coalition>. Accessed August 4, 2019.
50. Vision Zero Network. Core Elements for Vision Zero Communities. Available from: https://visionzeronetwork.org/wp-content/uploads/2018/11/VZN_CoreElements_FINAL.pdf. Accessed August 4, 2019.
51. Sleet DA, Ballesteros MF, Borse NN. A Review of unintentional injuries in adolescents. *Annu Rev Public Health*. 2010;31(1):195-212. doi:10.1146/annurev.publhealth.012809.103616
52. National Highway Traffic Safety Administration. Driving at Night. Available from: <https://www.nsc.org/road-safety/safety-topics/night-driving>. Accessed July 19, 2019.
53. Stoker P, Garfinkel-Castro A, Khayesi M, et al. Pedestrian safety and the built environment. *J Plan Lit*. 2015;30(4):377-392. doi:10.1177/0885412215595438
54. Barton BK, Schwebel DC. The influences of demographics and individual differences on children's selection of risky pedestrian routes. *J Pediatr Psychol*. 2006;32(3):343-353. doi:10.1093/jpepsy/jsl009
55. Ferenchak NN, Marshall WE. Redefining the child pedestrian safety paradigm: identifying high fatality concentrations in urban areas. *Inj Prev*. 2017;23(6):364-369. doi:10.1136/injuryprev-2016-042115
56. As cited on kidsdata.org, U.S. Census Bureau. American Community Survey (Sept. 2018). Available from: <https://www.kidsdata.org/topic/557/childrenruralurban/pie>. Accessed July 8, 2019.
57. Safe Routes Partnership. Rural Communities: Best Practices and Promising Approaches for Safe Routes. Available from: https://www.saferoutespartnership.org/sites/default/files/resource_files/rural_communities_best_practices_and_promising_approaches_for_safe_routes.pdf. Accessed July 31, 2019.
58. Moore JB, Jilcott SB, Shores KA, Evenson KR, Brownson RC, Novick LF. A qualitative examination of perceived barriers and facilitators of physical activity for urban and rural youth. *Health Educ Res*. 2010;25(2):355-367. doi:10.1093/her/cyq004
59. Federal Highway Administration. Making Local and Rural Roads Safer for Pedestrians and Bicycles. Available from: <http://safety.fhwa.dot.gov>. Accessed July 31, 2019.
60. Jarman MP, Castillo RC, Carlini AR, Kodadek LM, Haider AH. Rural risk: Geographic disparities in trauma mortality. *Surgery*. 2016;160(6):1551-1559. doi:10.1016/j.surg.2016.06.020
61. Hotz G, de Marcilla AG, Lutfi K, Kennedy A, Castellon P, Duncan R. The WalkSafe Program: developing and evaluating the educational component. *J Trauma Inj Infect Crit Care*. 2009;66(Supplement):S3-S9. doi:10.1097/TA.0b013e3181937f62
62. Bovis SE, Harden T, Hotz G. Pilot study: A pediatric pedestrian safety curriculum for preschool children. *J Trauma Nurs*. 2016;23(5):247-256. doi:10.1097/JTN.0000000000000228
63. Complete Streets Act of 2019, H.R. 1663 or S. 2077, 116th Cong (2019).
64. Transportation Alternatives Enhancements Act, S.1098, introduced April 9, 2019. Accessed July 26, 2019. Available from: <https://www.congress.gov/bill/116th-congress/senate-bill/1098?q=%7B%22search%22%3A%5B%22S1098%22%5D%7D&s=1&r=1>.

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