



Alarming Dangers in School Zones

October 2016



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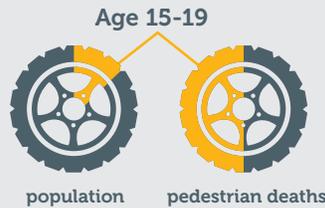


The Facts About Teen Pedestrians

5  /week

There are 5 teen pedestrian deaths every week in the United States.

13% 
 There has been a 13% increase in the pedestrian death rate for 12-19 year olds since 2013.



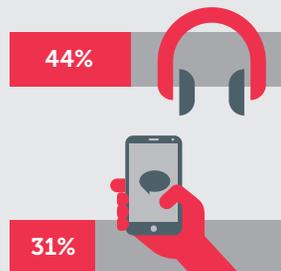
In 2015, while teens ages 15-19 made up 26 percent of all children ages 0-19 years, they made up about half of the pedestrian fatalities.

We observed 39,000 middle and high school students and 56,000 drivers in school zones in 2016.

Distracted walking is on the rise. We observed it in 1 in 4 high school students and 1 in 6 middle school students.



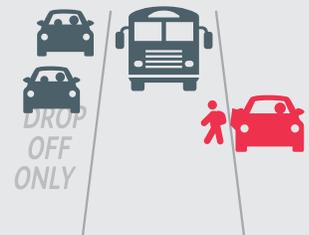
Distracted teens were most likely to be wearing headphones or texting.



Unsafe street crossing behavior was observed in about 80% of students.



Unsafe drop-off or pick-up behavior was observed in nearly 1 in 3 drivers.



What Communities Can Do to Protect Kids on the Move

Install proven interventions, like crosswalks, speed limits, visible signs and traffic lights.

Marked crosswalks were missing in 3 out of 10 observed crossings.



Set and enforce speed limits in school zones at no more than 20 mph.

Low speed limits (≤ 20 mph) were observed in only about 4 out of 10 school zones.



Educate parents and students about dangerous walking and driving habits (e.g., crossing mid-block, texting or talking on the phone.)

Implement and enforce school drop-off/pick-up policies.



Executive Summary

In 2015, 284 teens ages 12-19 were killed while walking; that's more than 5 pedestrian deaths every week. Overall, the pedestrian death rate in children ages 19 and under has decreased in the last 20 years. While this is good news, the rate for teens ages 12-19 has not dropped as quickly as that for younger children. Despite the historic 20-year downward trend, in the past two years there has actually been a 13 percent increase in the pedestrian death rate for 12-19 year olds,¹ presenting a renewed challenge for protecting kids on the move.

With the support of FedEx, Safe Kids Worldwide set out in spring 2016 to revisit the issue of pedestrian distraction in teens. We observed the street crossing behavior of more than 39,000 middle and high school students walking to and from school, with a focus on unsafe walking behaviors and distraction by mobile devices. We also made more than 56,000 driver observations during student drop-off/pick-up to assess for distraction and other unsafe driving behaviors. Schools were surveyed regarding policies addressing cell phone and headphone use and driver drop-off/pick-up procedures. Finally, we explored the impact of two simple, inexpensive, real-time ways to increase awareness of the risks and decrease unsafe behavior – road stencils for pedestrians and lawn signs for drivers.

We found that distraction and other forms of unsafe street crossing behavior are persistent risks for students traveling within school zones. Seventeen percent of middle school students and 27 percent of high school students observed were distracted by mobile devices. Distracted teens were wearing headphones (44 percent), texting (31 percent), talking on the phone (18 percent) or a combination of the three (7 percent). Assuming comparability of the 2016 results with our previous study from 2013 "Teens And Distraction: An In-Depth Look at Teens' Walking Behaviors," distracted walking increased from 1 in 5 to more than 1 in 4 among high school students and from 1 in 8 to 1 in 6 for middle school students.²

Beyond distraction, we observed that many school zones are not as safe as they could be and that there was a lot of other risky street crossing behavior observed. Only about 4 out of 10 school zones had speed limits of 20 miles per hour (mph) or less and marked crosswalks were missing in 3 out of 10 crossings. Students were observed crossing against the lights, not looking before crossing or not crossing at a designated crossing. In all, 83 percent of middle school students and 76 percent of high school students were observed engaging in at least one of these unsafe street crossing behaviors, suggesting the need to ensure safe crossing environments and continued education regarding the risks of unsafe pedestrian behavior in these age groups.

We found that distraction by mobile devices and other unsafe driving behaviors were also an issue among drivers during student drop-off/pick-up. Approximately 1 in 10 drivers were distracted by mobile devices while arriving or departing from the school and nearly 1 in 3 displayed other unsafe behaviors, such as double parking or stopping in the middle of a crosswalk while dropping off students. We found that school policies governing drop-off/pick-up make a difference in unsafe driving behavior, but only when policies were reported to be enforced. Lower speed limits also reduced the likelihood of unsafe driver behavior.



Finally, while further evaluation is needed, we found that both the road stencils and lawn signs encouraging “Heads Up Phones Down” reduced distracted behavior among pedestrians and drivers.

With child pedestrian deaths on the rise, Safe Kids is asking communities to take action to protect kids on the move.

Communities Can:

- Identify high risk school zones and aggressively pursue proven interventions, like crosswalks, appropriate speed limits, visible signs, crossing guards and traffic lights.
- Educate parents and students about dangerous walking and driving habits, e.g., crossing mid-block, texting or talking on the phone.
- Set and enforce speed limits in school zones at no more than 20 miles per hour.
- Implement and enforce school policies regarding drop-off and pick-up of students.

To take action, reach out to your school officials and local elected officials. For more information, visit safekids.org.



Trends in Mobile Device Use

Research has shown that walking while distracted by technology, like a phone or headphones, is common for teens ages 12-19 and is an important factor in many pedestrian injuries.²⁻¹² Increases in mobile device ownership and the many things they can be used for, like texting, music, social media and gaming, mean that teens are using their devices more and more, and this may be impacting distracted walking levels and contributing to the increase in pedestrian injuries for this age group.^{8,11,13-14}

Consider this – when you are walking, are you using a mobile device? Are other walkers around you more engaged in their mobile devices than their surroundings? It seems that even though the issue of pedestrian distraction has gained national attention, mobile device use is up and walking while distracted has become commonplace. The proportion of American teens who own a cell phone has almost doubled, going from 45 percent in 2004 to 88 percent in 2015.¹²⁻¹³ A majority of teens with cell phones (91 percent) send text messages and studies estimate that the typical teen sends and receives 30 to 50 text messages a day, with the highest levels of texting among girls ages 15 to 17.¹⁴ Talking on the phone, on the other hand, has become far less common. In 2009, a third of teens used a cell phone to talk to their friends daily, but by 2011 only a quarter did so.¹³

Today mobile devices are used for much more than talking and texting; recent polls suggest that 91 percent of teens use a mobile device to access the internet, with more than half doing so several times a day and a quarter going online “almost constantly.”¹⁴ Eight out of 10 older teens and nearly 7 out of 10 younger teens regularly use social media networks like Facebook, Instagram and Snapchat to share pictures and videos, exchange messages, post status updates and participate in online discussions.¹⁴⁻¹⁵ New services which allow different ways to access music and video online are another example of how advancements in technology affect daily life. Music streaming almost tripled in a two-year period from 2013 to 2015, going from 106 billion to 317 billion streams.¹⁶

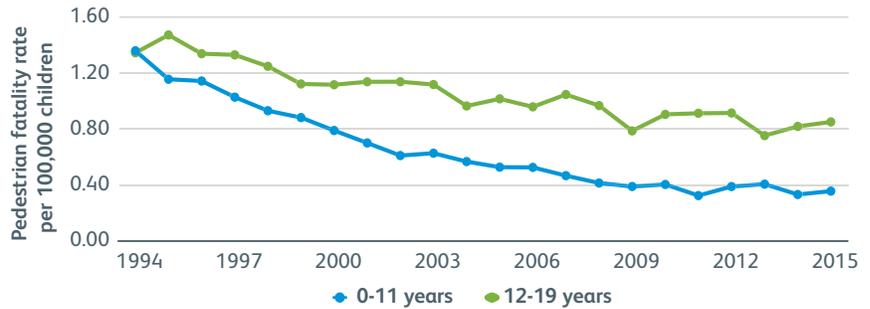
In 2013, Safe Kids Worldwide, with support from FedEx, carried out a major observational study exploring pedestrian distraction in teens. Given the increasing levels of ownership and use of mobile devices by teens, we thought it timely to take another look at the issue, as well as to explore other pedestrian safety factors. In spring 2016, we teamed up with FedEx again to assess the current state of technological distraction among teen pedestrians. We also looked at driver behavior during student drop-off/pick-up in school zones and explored the impact of two simple, inexpensive, real-time strategies to make walking near schools safer.



What We Know about Pedestrian Injuries

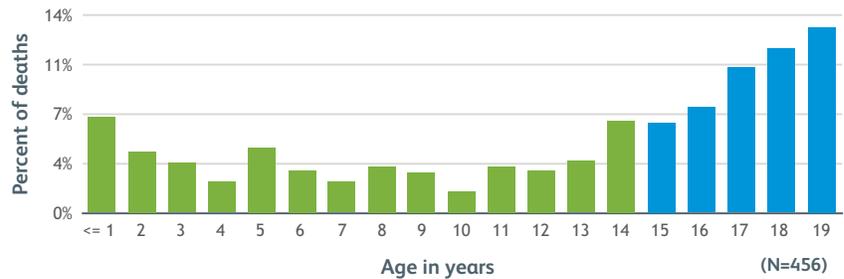
Overall, the rate of fatal pedestrian injuries in children has dropped dramatically in the United States in the last 20 years, but the reduction has differed with age. The fatality rates in children under age 12 have dropped by 74 percent since 1995. Older children are a different story. For teens ages 12-19, the fatality rate has only dropped 37 percent in the last 20 years. While this is good progress, a look into the death rate in the last few years shows an increase. Between 2013 and 2015 there was actually a 13 percent increase in the death rate for teens ages 12-19.¹

Figure 1. Rates of fatal pedestrian injury have not fallen as quickly for teens as they have for younger children¹



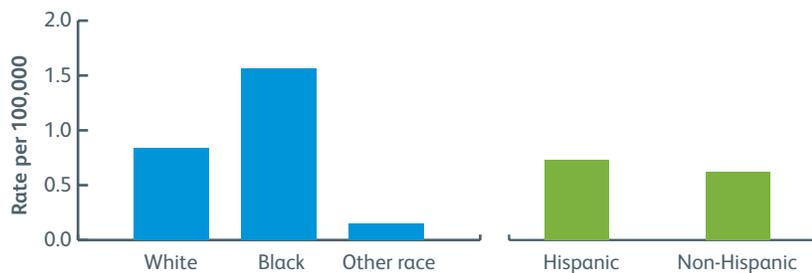
In 2015, while teens ages 15-19 made up 26 percent of all children ages 0-19 years, they made up about half of the pedestrian fatalities (Figure 2). The fatality rate for boys was more than 1.5 times higher than the rate for girls.¹

Figure 2. Teens at greatest risk of fatal pedestrian injury in 2015¹



When we examined available data on race and ethnicity, we found that while greater numbers of white children were involved with fatal pedestrian crashes, black children and those of Hispanic ethnicity had higher fatality rates (Figure 3).¹

Figure 3. Black children and those of Hispanic ethnicity had higher pedestrian fatality rates in 2015¹

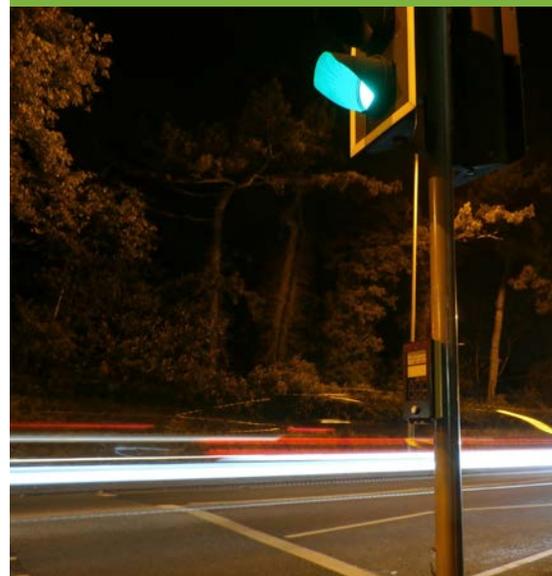


Older teens ages 15-19 were three times more likely to be killed at night than during the day, probably because older teens are more likely than younger kids to be active outside the home in the evening (Figure 4). When the day of the week was also considered, no pattern was observed for younger teens, but for older teens fatal pedestrian deaths were at least two times more frequent on Thursday, Friday, Saturday and Sunday nights than any day or other night. Less than 1 in 10 fatal pedestrian injuries in this age group involved a vehicle driving above the posted speed limit.¹

Figure 4. Older teens ages 15-19 are 3 times more likely to be killed at night¹



While only 19 percent of the U.S. population lives in rural areas, a majority of pedestrian fatalities of 12-19 year olds occur in that setting (64 percent compared to 25 percent in urban areas).^{1,17} Previous research has indicated lack of sidewalks and traffic control devices, higher speed limits, poor lighting and impaired driving are contributing factors to rural fatalities.¹⁸⁻²⁰ In addition, it takes longer for emergency medical services to reach injured pedestrians in rural areas.²⁰



Pedestrian Behavior

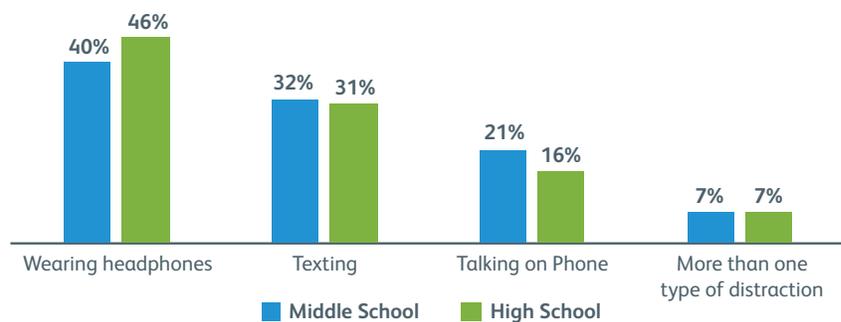
With the help of 20 Safe Kids coalitions in 15 states, we observed more than 39,000 teens crossing streets within school zones at middle and high schools during two periods in the spring of 2016. Observers noted physical characteristics of the crossings as well as unsafe crossing behavior and distraction, which was defined as texting (typing) on the phone, talking on the phone or using headphones or other mobile devices while walking. This excluded individuals distracted by things other than mobile devices, such as talking with friends, fooling around or reading a book. We also surveyed participating schools to ask about policies related to cell phone and headphone use on school property. Data from various sources were used to describe the socio-demographic make-up of participating schools (e.g., the proportion of students receiving free or reduced lunches was used as proxy measure of school economic status).²¹

Pedestrian Distraction

We found that among the 18,194 teens observed during the first observation period, pedestrian distraction varied by a number of characteristics, including type of school, student gender, the physical school crossing environment and the presence of school policies related to distraction.

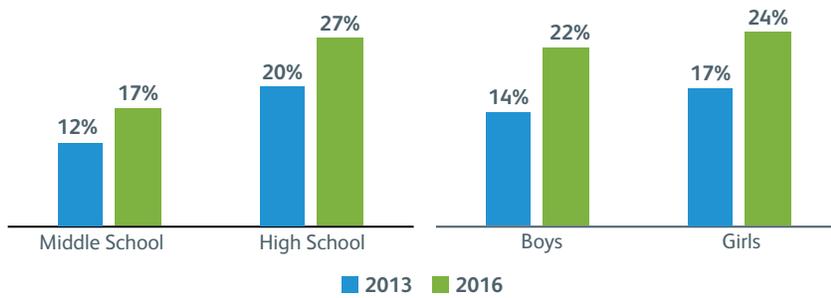
The overall prevalence of distraction was 17 percent for the 33 participating middle schools (range 0-30 percent) and 27 percent for the 34 participating high schools (range 6-100 percent). Distracted teens were most likely to be wearing headphones or texting regardless of the type of school, while 7 percent were observed engaging in more than one type of distraction (e.g., wearing headphones and texting) (Figure 5).

Figure 5. Distracted teens were most likely to be wearing headphones or texting



When compared to our 2013 observational study, we found significant increases in the level of observed pedestrian distraction in 2016 for both middle and high school students and for boys and girls (Figure 6). Assuming comparability of the 2013 and 2016 results, distracted walking increased from 1 in 5 in 2013 to more than 1 in 4 in 2016 among high school students, and from 1 in 8 in 2013 to 1 in 6 in 2016 for middle school students.²

Figure 6. Kids in 2016 were significantly more likely to be walking while distracted than those in 2013 regardless of school type or gender

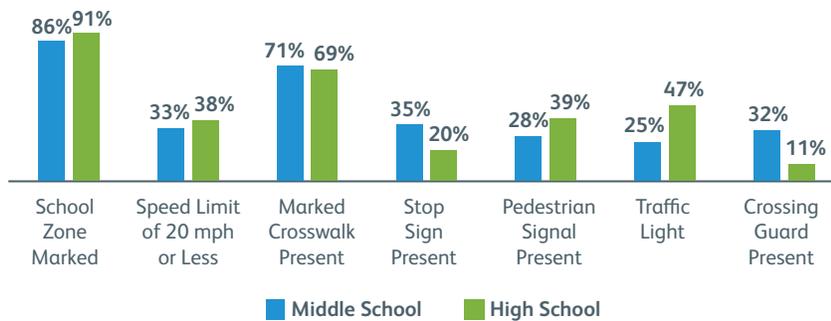


School Crossing Environment

We found a mix of different strategies were in place to foster safe school crossing environments (Figure 7). While the school zone was clearly marked in about 9 out of 10 schools, school zone speed limits of 20 mph or less were present in only 33 and 38 percent of middle and high schools, respectively. This is of great concern because higher vehicle speed is related to increased risk for severe pedestrian injury or death, particularly for children.^{18,22-23}

We observed that three-quarters of pedestrian crossings at high schools had at least one traffic control device (e.g., traffic light or pedestrian signal), a strategy that has been found to decrease pedestrian crashes by 15 percent.^{18,25} However, only 56 percent of middle schools had traffic lights or signals. Marked crosswalks were missing for crossings at 3 out of 10 schools. Finally, crossing guards, another recommended way to control traffic at pedestrian crossings,²⁶⁻²⁷ were present at 3 out of 10 middle schools and only 1 out of 10 high schools.

Figure 7. Infrastructure improvements to support pedestrian safety appear to be warranted – for example, crosswalks are needed at 3 out of 10 schools

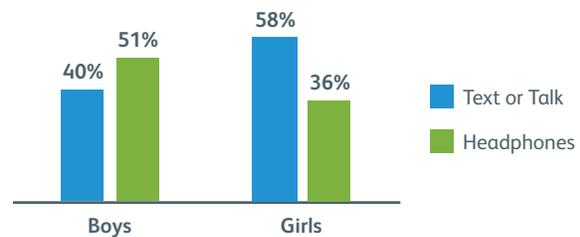


What Impacts Distraction

We looked at a variety of factors including the school crossing environment, day of the week, morning versus afternoon, gender, presence of a school policy and a number of sociodemographic variables. We found that a number of these variables were associated with increased likelihood of distraction.

Consistent with our 2013 study and other research,^{2,30} we found that despite the fact that boys are at greater risk for pedestrian injuries, girls were 1.2 times more likely to cross the street distracted than boys. Girls were also more likely to be talking or texting on the phone, whereas boys were more likely to be wearing headphones, also supported by previous studies (Figure 8).⁵ Distracted students were also more likely to be from high schools, suggesting that age is also a risk factor.

Figure 8. Among distracted walkers, girls are more likely to be talking or texting than boys



We found that the odds of a student being distracted were slightly lower if there was some form of traffic control at the crossing site (stop sign or pedestrian signal). This differs from our study in 2013, which found that the presence of a pedestrian crossing signal increased the odds of distracted walking. It may be this change reflects the impact of educational efforts to have teens put their phones down and pay attention at pedestrian crossings.

School Policies

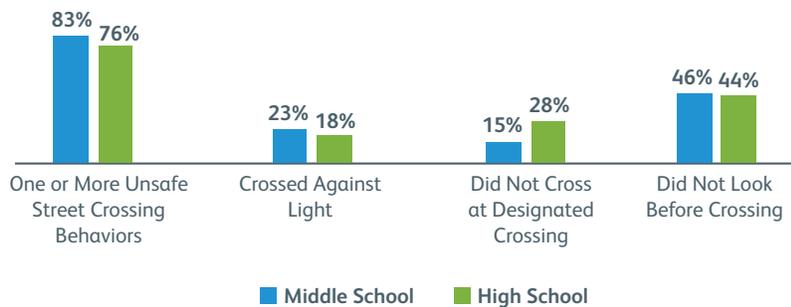
We asked administrators from participating schools if they had policies banning cell phones or headphones on the school campus. While the intent of these policies is not directly related to pedestrian behavior, we were curious to assess whether these bans affected student distraction on the way to and from school. Slightly more than half of the schools reported having a policy banning the use of cellular phones on school property (67 percent of middle schools and 55 percent of high schools). A headphone ban was very common among middle schools (82 percent), but less so among high schools (51 percent). The association between these bans and distraction varied by type of school.

Among middle school students, the presence of a cell phone ban actually increased the likelihood of distraction by 50 percent. A headphone ban, on the other hand, did not impact the likelihood of distraction. High school students were significantly less likely to cross the street distracted if there was either type of ban in place at their school. The differences between schools may reflect that there has been pushback on school policies from middle school parents, particularly those concerned about their younger children walking alone.²⁸⁻²⁹ Some want to check in with their children on the way to school to monitor their safety, and this may explain the increased distraction at middle schools.

Other Unsafe Pedestrian Behaviors

In addition to distracted walking, we looked at other pedestrian street crossing behaviors. Students were deemed to be unsafe if they displayed one or more unsafe crossing behaviors: not looking before crossing, not crossing with the light or not crossing at a designated crossing. We observed that 8 out of 10 students were walking in an unsafe manner, and it is of concern that middle school students were significantly more likely to display unsafe pedestrian behaviors than high school students (Figure 9).

Figure 9. Overall about 8 out of 10 students displayed at least one unsafe street crossing behavior



We found no differences by gender, but students from schools in lower-income areas were more likely to engage in at least one unsafe pedestrian behavior. While previous research indicates that lower household income and increasing ethnic diversity are significant predictors of unsafe pedestrian behavior, the rationale for these relationships is not clear.^{20,30} One possible explanation is that children of lower socio-economic status typically live in more densely populated areas with poor infrastructure and walkability.³⁰

We did find differences by type of school. Unsafe pedestrian behavior was almost 4.5 times more likely among middle school students crossing at a crosswalk; however, the presence of a pedestrian crossing signal or traffic light decreased unsafe behavior. For high school students, crosswalks and traffic lights both decreased the odds of unsafe behavior. This difference may just reflect that the ability to safely cross the street and recognize the potential protection provided by traffic control devices increases with age.³



Driver Drop-off and Pick-Up Behavior

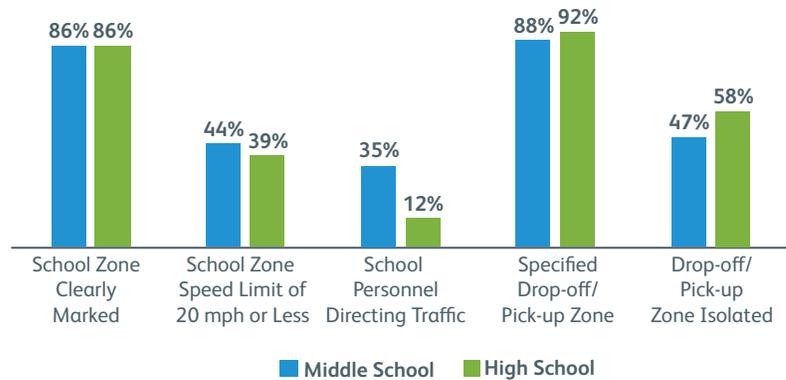


Driver behavior in school zones typically has been considered to be more of a risk for elementary school-age children because they are less skilled at judging when it is safe to cross the street.³ For teens, we hypothesized that because they are at greater risk of walking distracted, that they may be at even greater risk from unsafe driver behavior. We therefore observed driver behavior at both student drop-off/pick-up times and locations at the same middle and high schools. We looked for distraction by mobile devices and other unsafe driving behaviors within the school zone (e.g., double parking).

For this part of the study, 21 coalitions in 14 states gathered about 56,000 observations of drivers as they arrived at and departed from the school. Half of the observations were made prior to implementing an awareness campaign and the other half were made beginning two weeks after the campaign began. Again, data from various sources were used to describe the socio-demographic make-up of participating schools.

To describe driver behavior, we used the 27,521 observations from the pre-intervention period, which were made up of 13,641 observations at middle schools and 13,880 observations at high schools. Observations included capturing information about school zone characteristics (Figure 10). Most concerning was the finding that only about 2 in 5 schools where driver behavior was observed had speed limits of 20 mph or less.

Figure 10. School zone characteristics that may impact drop-off/pick-up behavior



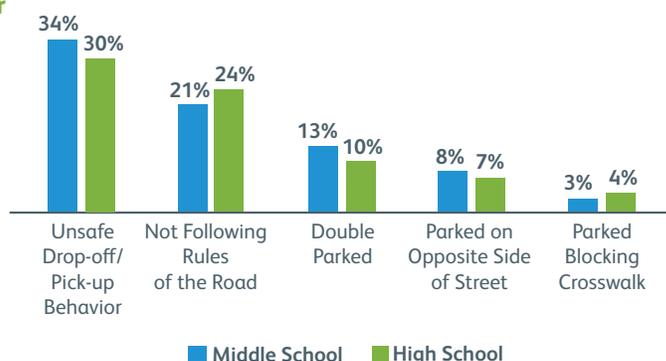
Unsafe Drop-off/Pick-up Behavior

We found that just more than 1 in 10 drivers were distracted by mobile devices as they arrived or left drop-off/pick-up areas in school zones. When type of distraction was examined, drivers were most likely to be talking on the phone and this was more common at middle schools than high schools. Of note, 3 percent of distracted drivers were using more than one mobile device at the same time (e.g., wearing headphones while texting). This is particularly concerning given the increased risk for crashes when drivers engage in secondary tasks that divert attention away from the road and divide their focus.³¹⁻³²

Drivers dropping off or picking up students at schools in disadvantaged areas were twice as likely to be distracted. We also found that the smaller and less densely populated the locale of the school, the greater the odds of distracted behavior. This is concerning given there are often fewer traffic-calming strategies in place in smaller rural locations compared to larger centers with congested traffic.¹⁸ Other significant factors were gender, time of day and speed limit. We found that female drivers were more likely to be distracted than male drivers and that distraction was more likely during afternoon pick-up and in school zones where the speed limit was more than 20 mph.

We also looked at other driver behavior in student drop-off/pick-up zones that might increase the risk for pedestrians. We found that nearly 1 in 3 drivers displayed at least one unsafe drop-off or pick-up behavior (Figure 11). Having a specified drop-off/pick-up area decreased the likelihood of unsafe driving by almost 50 percent. However, speed limits greater than 20 mph resulted in increased odds of unsafe behavior.

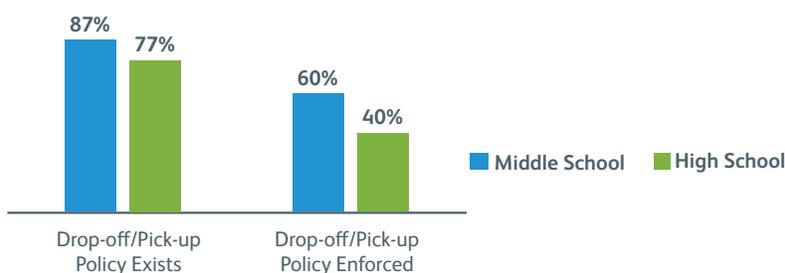
Figure 11. Nearly 1 in 3 drivers displayed unsafe drop-off or pick-up behavior



Drop-off/Pick-up Policies

We found that 87 percent of middle schools and 77 percent of high schools had some sort of school policy related to drop-off/pick-up zones. However, 4 out of 10 middle schools and 6 out of 10 high schools did not enforce the existing policy (Figure 12). When we looked at the impact of these policies on driver behavior, we found that the mere presence of a policy did not affect behavior. However, drivers at schools where the policy was reported to be enforced were significantly less likely to engage in unsafe behavior compared to schools where the policy was not enforced. This suggests that having a policy is not enough, and schools need to look at ways to enforce them.

Figure 12. While the majority of schools had a driver drop-off/pick-up policy, only 2 in 5 were enforced



Heads Up Phones Down

Following the initial set of observations, we tested out two simple, inexpensive, real-time interventions designed to increase awareness of the risks of distraction and decrease unsafe behavior. For pedestrians, a message was laid down on the curb with paint using a reusable stencil at key intersections within the school zone. The message read “Heads Up Phones Down.” To address driver behavior, lawn signs with the same message were placed around the drop-off/pick-up areas (a minimum of five signs per school). For this analysis we examined behavior at schools that participated in both the pre- and post-observation periods and implemented the intervention. This involved 35,009 pedestrian observations and 55,989 driver observations.

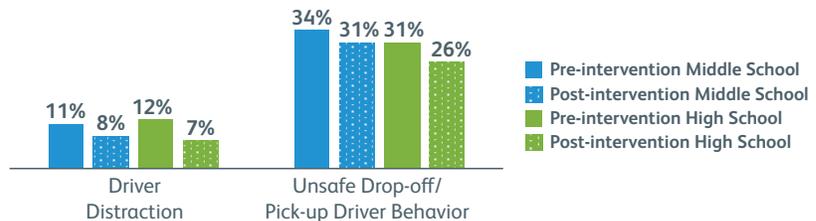
For pedestrians, the intervention was associated with a significant decrease in distracted walking, such that the odds of crossing the street distracted were 30 percent lower after the intervention after controlling for other factors. Interestingly, when pedestrian distraction decreased, other unsafe pedestrian behavior, such as crossing mid-block or against the light, increased (Figure 13).

Figure 13. The ‘Heads Up Phones Down’ street messaging reduced distracted walking



The lawn signs were also significantly associated with a decrease in driver distraction at both middle and high schools (Figure 14). There was also significantly less unsafe drop-off/pick-up behavior among the post-intervention observations. Given that distracted drivers were 1.5 times more likely to also display other unsafe behaviors, it may be that the decreased distraction after the intervention resulted in more attention to the traffic situation, thereby reducing other unsafe behavior.

Figure 14. The ‘Heads Up Phones Down’ signs reduced distracted driving and other unsafe drop-off/pick-up behaviors



Without control schools, however, it is not possible to definitively state that the interventions impacted pedestrian and driver behavior, and we have no indication of how long the observed impact would be maintained. Post-intervention observations took place two to four weeks after the initial observations and the intervention was still in place at some schools during that set of observations. However, the two interventions were very inexpensive, with the stencil being reusable for multiple schools; thus these results suggest that further evaluation of these ‘at the scene’ reminders is warranted.

Advocacy

Slowing Down Traffic

We need to protect kids on the move by adopting a culture of slowing down cars in school zones. Ideally, laws should say that school zone speed limits are no higher than 20 mph and are preferably 15 mph.

Other key school zone speeding best practices supported by Safe Kids include:

- Speed limits in school zones should be clearly marked and in place when a school is in session, including during hours when before- and after-school events are taking place in significant numbers. Schools, local departments of transportation and parents need to work together to set speed limits in a flexible, sensible and enforceable way based on what's happening at a particular school.
- Speed and red-light cameras are controversial, but they have been found to be effective and, at the least, cities should be encouraged to use them in school zones.³³⁻³⁴
- Fines for violating the school zone speed limit should be substantial to deter this conduct, and enforcement should be vigilant.
- Similarly, sanctions and enforcement for speeding by school buses must be strong. Rear view cameras on buses have been found to be effective in discouraging school bus passing.
- Finally, crossing guards are essential personnel in school zones; their presence can help enforce slower speed limits.

Why is reducing speed in school zones so important?

Small increases in speed = large increases in risk. When a car is going 35 mph and hits a pedestrian, the risk of death is 30% and of significant injury 64%. However, keep the speed limit at 15 mph and the risk is reduced to 5% for death and 10% for severe injury.³⁵⁻³⁶



Using a number of the best practices above, the Safe School Zone project, which Safe Kids and program sponsor FedEx have implemented in Memphis, Washington, D.C., Philadelphia and many other locations to improve infrastructure and walkability in school zones, is a success story for public/private partnerships.

Safe Routes to School

Safe Routes to School (SRTS) is a low dollar, high return-on-investment federal program that encourages states and local governments to assess schools with high numbers of child-related crashes and determine the best ways to make them safer.²⁴ Many of the strategies are low cost, such as marked crosswalks, speed bumps and speed limit flashing signs. Unfortunately, Congress has lowered the SRTS program on its list of road safety priorities. Despite this setback, the policy makers behind SRTS are more effective than ever, and Safe Kids Worldwide strongly supports the program and its high value status.

Taking Action to Increase Pedestrian Safety

With child pedestrian deaths on the rise, Safe Kids is asking communities to take action to protect kids on the move.

Communities Can:

- Identify high risk school zones and pursue proven interventions, like crosswalks, appropriate speed limits, visible signs, crossing guards and traffic lights.
- Educate parents and students about dangerous walking and driving habits, e.g., crossing mid-block, texting and talking on the phone.
- Set and enforce speed limits in school zones at no more than 20 miles per hour.
- Implement and enforce school policies regarding drop-off and pick-up of students.

To take action, reach out to your school officials and local elected officials. For more information, visit safekids.org.



Methodology

Twenty-two Safe Kids coalitions in 15 states observed pre-teens and teens walking to and from school and/or driver behavior during student drop-off/pick-up at school in spring 2016 (exact number of coalitions and schools participating varied by observation type). Coalitions were asked to each select two middle and two high schools with at least 30 percent of students walking to school and coalition coordinators were given an in-service on the data collection process.

Pedestrian and Driver Observations

Safe Kids coalition coordinators worked with schools to select two busy locations where pedestrian observations could be collected in a safe manner that did not attract attention, as well as to identify the drop-off/pick-up zone at the school (whether an official zone or just where drivers used). At least four adults participated in each observational session. For the pedestrian behavior observations, two observers watched pedestrian behavior at two different street crossing locations. For the driver portion, one observer was positioned at the entrance and observed behavior as the driver entered the zone and one was positioned at the exit and observed behavior as the driver exited the zone.

Observers conducted two morning and two afternoon sessions, on different days but held at the same time of day, on regular school days in good weather. Each observation period was 45 minutes, around the morning and afternoon bells. The definition of distracted walking used was dividing one's attention or focus because of use of a mobile device (such as a cell phone, tablet or mp3 player). This excluded individuals distracted by things other than mobile devices, such as talking with friends, fooling around or reading a book. For driver distraction, observers looked for drivers talking on the phone, looking down and texting and those wearing headphones. Observations were recorded on standardized forms. The pedestrian observation form also collected information about the pedestrian road crossing environment, while the driver observation form also collected information on the drop-off/pick-up area. Collected data were transcribed onto an Adobe form and submitted to Safe Kids Worldwide electronically.

School Policies

Coalition coordinators worked with administrators from schools to complete a brief survey developed for the study, which collected information on policies around drop-off/pick-up and cellphone and headphone use on school premises.

Data Analysis

Data from all participating schools were combined, cleaned and assessed for validity. Separate datasets were created for each phase and portion of the study, with the datasets for the interventions only including schools where the intervention was implemented and observations were available for both phases. Information from the U.S. Census Bureau and the National Institute of Education Statistics (Title 1) were used to create proxy variables for school socio-demographic status including average household income and household education (percent of people with bachelor's degree or higher), locale and level of school economic status (percent of students receiving free/reduced lunches). Variables for 'unsafe behavior' were created using information collected by observers (e.g., unsafe pedestrian behavior involved at least one of crossing against the light, failing to look before crossing or crossing mid-block where there was no crosswalk). Responses from the school policies survey were used to create variables for policies related to cell phone use, head phone use, and driver drop-off/pick-up. Univariate, bivariate and multi-variate analyses were conducted using STATA version 14.1. Potential confounders (demographic variable, gender, school type, environment) were identified and included in the regression analysis. Multiple logistic regression models were fitted, one for each outcome (walking while distracted, talking, texting, wearing headphones, unsafe walking, driving distracted, unsafe driving) and for the comparison of distracted walking and driving pre- and post-intervention. Forward and backward stepwise regression were utilized, adding and removing variables significant at the 0.05 level until the final model was identified. Chi-square statistics were used to compare the proportions of distraction between 2013 and 2016 by school type, gender and type of distraction.

For the secondary data analysis, the (FARS) query database was used to obtain pedestrian injury and death statistics, and population numbers were obtained from the U.S. Census. Graphics were created using Microsoft Excel.

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