

Child Passenger Safety: 2016 Resource Guide



Motor vehicle crashes are a leading cause of death among children ages one through 14 (CDC, 2016). In 2013, an average of three children were killed and 470 were injured every day in motor vehicle crashes in the U.S. (NHTSA, 2015). Child passenger safety requires consistent use of correctly installed safety seats, booster seats, or seat belts that are appropriate for a child's size and age. Child safety seats, when used correctly, can reduce fatalities by 71% for infants and 54% for toddlers (NHTSA, 2013).

Strategies to improve child passenger safety include: child safety seat laws, which have been adopted by all states; child safety seat distribution and education; community-wide information and enhanced enforcement campaigns; incentive and education programs that provide rewards to parents or children for the purchase and proper use of child safety seats; and safety seat education that is provided by health care professionals in clinical settings.

Organizations
CSN Resources
Resources
Publications
Booster Seats/Car Seats
Disparities
Hyperthermia

This resource guide provides links to organizations, programs, publications, and resources focused on child passenger safety. It is divided into seven sections: (1) organizations, (2) CSN (Children's Safety Network) resources, (3) resources, (4) publications, (5) booster seats/car seats, (6) disparities, and (7) hyperthermia. Each item in this resource guide includes a short description and a link to the resource itself. Descriptions of reports, guides, toolkits, campaigns, websites, and initiatives are, in most cases, excerpted from the resources themselves while descriptions of research studies are excerpted from the study abstracts.

Organizations

AAA Foundation for Traffic Safety

The AAA Foundation for Traffic Safety conducts research on child passenger safety, teen driver safety, senior safety and mobility, road safety, and safety culture. Distracted, impaired, aggressive, and drowsy driving have been identified as priority research areas. The website contains a variety of briefs, reports, infographics, and press releases based on their research.

<http://www.aaafoundation.org>

Advocates for Highway and Auto Safety (Advocates)

Advocates for Highway and Auto Safety is comprised of consumer, public health, medical, safety groups, and insurance companies and agents focused on road safety. Advocates promotes federal and state laws, policies and programs aimed at reducing traffic injuries. The website provides access to resources for crash survivors, reports on highway safety, state-by-state driving laws, and information on federal safety programs.

<http://www.saferoads.org>

Association for the Advancement of Automotive Medicine (AAAM)

AAAM is an organization comprised of engineers, physicians, and researchers focused on the global reduction of traffic injuries. The website provides access to information on public policies regarding blood alcohol concentration limit, booster seats, and more.

<http://www.aaam.org>

Centers for Disease Control and Prevention

The CDC website provides links to publications, state and national data, strategies that work, cost data on a wide range of motor vehicle-related issues, including child passenger safety.

http://www.cdc.gov/motorvehiclesafety/child_passenger_safety/index.html

Governors Highway Safety Association (GHSA)

GHSA is a nonprofit organization that represents state and territorial highway safety offices. GHSA releases publications on a variety of highway safety topics, including distracted driving, occupant protection, child passenger safety, teen driving, and more. The website also includes state laws, state media campaigns, national campaigns, and safety tips.

<http://www.ghsa.org>

Insurance Institute for Highway Safety (IIHS) / Highway Loss Data Institute (HLDI)

IIHS/HLDI provides ratings on car safety and information on highway safety issues, such as child passenger safety, safety belts, teen driving safety, and more. The website offers legislation maps, fatality facts, and more.

<http://www.highwaysafety.org>

Kids and Cars

KidsAndCars.org, a nonprofit child safety organization dedicated to preventing injuries and death to children in or around motor vehicles researches how often children are injured, abducted, disabled, or killed because they are left unattended in or around vehicles. The website provides data and statistics on non-traffic automobile fatalities, the dangers of leaving children in or around vehicles, and information for parents. It also provides information on dangers such as backovers, frontovers, heat stroke, power windows, trunk entrapment, vehicles set in motion, and more.

<http://www.kidsandcars.org>

National Highway Traffic Safety Administration (NHTSA)

NHTSA was established by the Highway Safety Act of 1970 to prevent crashes and their attendant costs, both human and financial. The NHTSA website provides access to information on driving safety, vehicle safety, research, and laws and regulations related to vehicles and driving.

<http://www.nhtsa.gov>

NHTSA's Parents Central

On the Parents Central website, parents and caregivers can find information on selecting the right car seat and preventing injuries from backovers, heatstroke, power windows, seat belt entanglement, trunk entrapment, and vehicle rollaway.

<http://www.safercar.gov/parents/index.htm>

The National Child Passenger Safety Board

The National Child Passenger Safety Board, a program managed by the National Safety Council, provides input to NHTSA and Safe Kids Worldwide on the National Child Passenger Safety Certification Training Program.

<http://cpsboard.org>

Safe Kids Worldwide

Safe Kids Worldwide is a global non-profit working to prevent childhood injuries. The website includes fact sheets, tip sheets, blog posts, infographics, and research reports on a variety of topics. Safe Kids works with an extensive network of more than 400 state and local coalitions in the U.S. The Safe Kids Buckle Up program has four main components: (1) child passenger safety, (2) passenger education for preteens and teens, (3) prevention of frontovers and backovers, and (4) heatstroke prevention. In 2014, Safe Kids Worldwide released the report Buckle Up: Booster Seats.

<http://www.safekids.org>

CSN Resources

Injury Prevention: What Works? A Summary of Cost-outcome Analysis for Injury Prevention Programs (2014)

This publication summarizes the incidence and cost savings of interventions to prevent injuries due to motor vehicles, impaired driving, open-flame/burns, and violence. It includes cost-outcome analyses of child safety seat laws, child safety seat distribution, booster seat laws, and booster seat distribution.

<http://www.childrenssafetynetwork.org/publications/whatworks2014>

[Infographic] Disparities in Child Passenger Safety (2016)

Motor vehicle crashes are a leading cause of death for children, but some racial/ethnic groups experience higher child passenger fatality rates than others. For example, American Indian/Alaskan Native child passengers are 7.8 times more likely to die than Asian/Pacific Islander child passengers. The good news is that these deaths are preventable. Child passenger deaths are declining, and child safety seats can reduce fatalities. This infographic shows the disparities in child passenger deaths and provides prevention strategies that can close the gap.

<http://www.childrenssafetynetwork.org/infographics/cps-disparities>

[Infographic] Precious Cargo: Child Passenger Safety (2013)

Proper use of child restraints can significantly reduce the risk of injury and death for children. Unfortunately, many child restraints are used incorrectly. This infographic has information on risk factors, child restraint use and misuse, and more.

<http://www.childrensafetynetwork.org/infographics/child-passenger-safety-infographic>

[Blog] Why Car Seats Matter (2014)

Every day in the U.S., three children die in car crashes and 469 children are injured. Fortunately, child passenger fatalities have decreased 46% since 2002. This blog post discusses statistics and safety tips and emphasizes the importance of car seats.

<http://www.childrensafetynetwork.org/blog/why-car-seats-matter>

Resources

Child Passenger Safety Laws | GHSA

This webpage compiles the child passenger safety laws for each state.

http://www.ghsa.org/html/stateinfo/laws/childsafety_laws.html

Never Give Up Until They Buckle Up [Toolkit] | Parents Central

NHTSA launched a national advertising campaign aimed at parents of children ages 8-14 to make sure their kids are consistently and properly wearing their seat belt every time the car is moving.

<http://www.safercar.gov/parents/SeatBelts/Tweens-Seat-Belt-Safety.htm>

Roadway to Safer Tribal Communities Toolkit | CDC and Indian Health Services

American Indians and Alaska Natives (AI/AN) have the highest motor vehicle-related death rates of all racial and ethnic groups, with rates two to three times greater than all other Americans. The Roadway to Safer Tribal Communities Toolkit includes fact sheets, posters and a video aimed at reducing traffic injuries among the AI/AN population. The materials focus on increasing proper child safety seat and seat belt use and decreasing impaired driving.

<http://www.cdc.gov/motorvehiclesafety/native/toolkit.html>

Safety Belt and Child Restraint Laws | Insurance Institute for Highway Safety (IIHS)

This webpage from IIHS provides information on safety belt laws and child restraint laws, including state-by-state tables and interactive maps.

<http://www.iihs.org/iihs/topics/laws/safetybeltuse>

Traffic Safety Marketing Car Seat Safety Campaign

Traffic Safety Marketing is NHTSA's communications resource for states, partner organizations, and highway safety professionals. This toolkit has information and ideas on how to generate awareness about child passenger safety during Child Passenger Safety Week, National Seat Check Saturday, and throughout the year.

<http://www.trafficsafetymarketing.gov/CAMPAIGNS/Child+Car+Safety/Car+Seat+Safety>

Publications

Characteristics of Crashes Involving Injured Children in Side Impacts | International Journal of Crashworthiness (2012)

Andersson, M., Arbogast, K. B., Pipkorn, B., & Lövsund, P.

The objective of this study was to define the crash characteristics of near-side impact crashes in which children seated in the rear rows are injured. The crash characteristics included the direction of force, heading angle, horizontal impact location, vertical impact location, extent of deformation and intrusion at the child occupant's seating position. This review of the crashes revealed differences between the current side impact test procedures and the actual side impact crashes in which children were injured.

<http://www.tandfonline.com/doi/abs/10.1080/13588265.2011.593978>

Child Passenger Deaths Involving Alcohol-Impaired Drivers | Pediatrics (2014)

Quinlan, K., Shults, R. A., & Rudd, R. A.

Approximately 1 in 5 child passenger deaths in the U.S. involves an alcohol-impaired driver, most commonly the child's own driver. The objective of this study was to document recent trends and state-specific rates of these deaths. Alcohol-impaired driving remains a substantial threat to the safety of child passengers in the U.S., and typically involves children being driven by impaired drivers. This risk varies meaningfully among states. To make further progress, states and communities could consider increased use of effective interventions and efforts aimed specifically at protecting child passengers from impaired drivers.

<http://pediatrics.aappublications.org/content/early/2014/04/29/peds.2013-2318>

Child Passengers Injured in Motor Vehicle Crashes | Journal of Safety Research (2015)

Romano, E., & Kelley-Baker, T.

During 2010, 171,000 children aged 0–14 were injured in motor vehicle crashes. Despite the severity of the problem, research has been limited, and most of what is known about these children emanates from fatal crash databases. Using information from the General Estimates System, this effort examines the occurrence of non-fatal crashes among children aged 0–14 over the last decade. About 1% of the non-injured children had been driven by a driver who was reported as positive for alcohol. This percentage climbed to about 2% among children who had suffered injuries. The proportion of drivers with children who sped or failed to obey a traffic signal was higher than that positive for alcohol.

<http://www.sciencedirect.com/science/article/pii/S0022437514001005>

Child Passengers Killed In Reckless and Alcohol-Related Motor Vehicle Crashes | Journal of Safety Research (2014)

Kelley-Baker, T., & Romano, E.

About 20 years ago, concern was raised about the dangers that children face when driven by drinking drivers in the U.S. During the last decade, the pace of research on this topic subsided. Yet in 2010, every day three children younger than age 15 were killed, and 469 were injured in motor-vehicle crashes. The study found that, although driving a child seems to protect against the studied forms of risky driving, such protection varies sharply depending upon the drivers' and children's demographics and the crash type. There is no clear reason to explain the drivers' decision to endanger the children that they drive. The percent of children killed in speeding-related and red-light running motor-vehicle crashes has remained relatively stable during the last decade. Future research must examine the effectiveness of current child endangerment laws; examine crashes other than fatal; and be more targeted, looking at specific drivers' age and gender, specific children's ages, the time of the crash, and the type of crash.

<http://www.sciencedirect.com/science/article/pii/S0022437513001771>

Child Passenger Safety – Buckle Up Every Age, Every Trip | CDC Vital Signs (2014)

Motor vehicle crash deaths among children age 12 and younger decreased by 43 percent from 2002-2011; however, more than 9,000 children died in crashes during that period, according to a Vital Signs report from the Centers for Disease Control and Prevention. Research has shown that using age- and size-appropriate child restraints (car seats, booster seats, and seat belts) is the best way to save lives and reduce injuries in a crash. Yet the report found that almost half of all black (45 percent) and Hispanic (46 percent) children who died in crashes were not buckled up, compared to 26 percent of white children (2009-2010).

Vital Signs Fact Sheet: <http://www.cdc.gov/vitalsigns/pdf/2014-02-vitalsigns.pdf>

MMWR: <http://www.cdc.gov/mmwr/pdf/wk/mm63e0204.pdf>

Child Passenger Safety Laws in the U.S., 1978-2010: Policy Diffusion in the Absence of Strong Federal Intervention | Social Science & Medicine (2013)

Bae, J. Y., Anderson, E., Silver, D., & Macinko, J.

Study authors examined the adoption trend of three major child passenger safety laws in 50 states in the U.S. from 1978 to 2010. The results show that diffusion of child passenger safety policies occurred even without strong federal intervention. However, there is a long time lag between the publication of scientific knowledge and its incorporation into state laws. There is wide state-to-state variation in defining who should comply, what action is required and what the penalties are. Complexity of the science, changing guidelines, and the absence of coordinated federal action are potential explanations.

<http://www.sciencedirect.com/science/article/pii/S0277953613005832>

Child Passenger Safety Practices and Injury Risk In Crashes with Father Versus Mother Drivers | Injury Prevention (2013)

Kallan, M. J., Winston, F. K., & Zonfrillo, M. R.

In order to test stereotypes that mothers are more safety conscious than fathers, this study aimed to explore differences in restraint patterns, front-row seating and injury for children in crashes when driven by fathers versus mothers, both when driving alone and with other adults. From January 2003 to November 2007, data were collected via insurance claims records and telephone surveys on a weighted sample of 10,715 child passengers in crashes. When riding with children and no other adults, father drivers in crashes were more likely than mother drivers to transport children <9 years old unrestrained or suboptimally restrained (35.0% vs 26.1%) and to seat children <13 years old in the front row (23.7% vs 14.3%). For children <16 years, no statistically significant difference in injury risk was noted for father versus mother drivers, regardless of adult passenger presence. Further improvements in child passenger safety might be gained with campaigns directed at both fathers and mothers.

<http://injuryprevention.bmj.com/content/early/2013/12/09/injuryprev-2013-040990?paper=1>

Children – Traffic Safety Facts, 2013 Data | NHTSA (2015)

Motor vehicle traffic crashes were the leading cause of death for children age four and the second leading cause of death for children age three and every age five through 14 in 2013. In this NHTSA fact sheet, the 2013 information is presented in the following order: Overview, Restraint Use and Effectiveness, Pedestrians, Pedalcyclists, Children in Alcohol-Impaired Driving, Crashes, Children Traffic Fatalities by State, and Important Safety Reminders.

<http://www-nrd.nhtsa.dot.gov/Pubs/812154.pdf>



Countermeasures That Work: A Highway Safety Countermeasures Guide for State Highway Safety Offices, 8th Edition | NHTSA (2015)

The guide is a basic reference to assist State Highway Safety Offices (SHSOs) in selecting effective, evidence-based countermeasures for nine traffic safety problem areas: Alcohol- and Drug-Impaired Driving; Seat Belts and Child Restraints; Speeding and Speed Management; Distracted and Drowsy Driving; Motorcycle Safety; Young Drivers; Older Drivers; Pedestrians; and Bicycles. The guide describes major strategies and countermeasures that are relevant to SHSOs; summarizes strategy/countermeasure use, effectiveness, costs, and implementation time; and provides references to the most important research summaries and individual studies.

<http://www.nhtsa.gov/staticfiles/nti/pdf/812202-CountermeasuresThatWork8th.pdf> (download)

Developing Safer Passengers through a School-Based Injury Prevention Program | Safety Science (2012)

Chapman, R. L., Buckley, L., & Sheehan, M.

This study found that motor vehicle crashes are a leading cause of death among young people. Participants of the prevention program Skills for Preventing Injury in Youth (SPIY) reported fewer passenger risks. SPIY students were also more likely to protect their friends from underage driving. School-based, passenger-focused strategies may reduce passenger risk and injury.

<http://www.sciencedirect.com/science/article/pii/S0925753512001117>

Evaluating Just Get It Across: A Parent-Directed Demonstration Program to Increase Young Teen Seat Belt Use | NHTSA (2014)

Zakrajsek, J.S., Eby, D. W., Molnar, L. J., St. Louis, R., & Zanier, N.

The purpose of this NHTSA study was to conduct an independent evaluation to assess a demonstration seat belt program, Just Get It Across, which was developed by the Rainbow Babies and Children's Hospital in Cleveland, Ohio (Rainbow Babies) to increase seat belt use by 13- to 15-year-old teens through parental influence. Motor vehicle crashes are the leading cause of death for 13- to 15-year-old teens. While seat belt use has been an effective method to prevent injury from motor vehicle crashes, data from the National Occupant Protection Use Survey and Fatality Analysis Reporting System suggest that this period may be a critical time when safe occupant protection habits begin to decline and intervention to encourage belt use is needed. Most teens in the 13- to 15-year-old age group are not yet licensed to drive independently and rely on transportation provided by others, often parents or guardians. Recent research has also found that some parents find that there is a gap in messaging directed to them regarding seat belt safety after their children have outgrown their booster seats. This may contribute to a lost opportunity to help parents promote belt use by their young teen children in this critical period leading to the start of independent driving and progressively lower seat belt use rates during the early licensure years.

http://www.nhtsa.gov/staticfiles/nti/pdf/811893-Evaluating_Just_Get_It_Across_a_Parent-Directed_Demonstration_Program.pdf (download)

Examining the Relative Effectiveness of Different Message Framing Strategies for Child Passenger Safety: Recommendations for Increased Comprehension and Compliance | Accident Analysis and Prevention (2015)

Will, K. E., Decina, L. E., Maple, E. L., & Perkins, A. M.

Four child passenger safety (CPS) flyers using different emphasis frames were compared. Flyer frames emphasized seat types, premature graduation, risk reduction, or age. Parents completed pre-post surveys measuring knowledge, perceptions, and intentions. Emphasizing the risk-reducing reasons behind CPS recommendations was most effective. Using action-oriented headers instead of age-based headers is also recommended.

<http://www.sciencedirect.com/science/article/pii/S0001457515000822>

Grandparents Driving Grandchildren: An Evaluation of Child Passenger Safety and Injuries | Pediatrics (2011)

Henretig, F. M., Durbin, D. R., Kallan, M. J., & Winston, F. K.

This national study finds that children are less likely to suffer an injury in a motor vehicle crash when a grandparent is behind the wheel. Researchers examined crash data involving nearly 218,000 children during a five-year period. Although grandparents were the drivers in 9.5 percent of crashes, those crashes were responsible for only 6.6 percent of injuries overall. However, children were less likely to be “optimally restrained” when a grandparent was driving, even though nearly all children were reported to be placed in child restraints. The adjusted risk of injury was half as high when the vehicle was driven by a grandparent, as compared to a parent. The authors hypothesize that grandparents are more likely to drive carefully when children are in the car, but point out that many grandparents don’t adhere to current child-restraint guidelines.

<http://pediatrics.aappublications.org/content/early/2011/07/13/peds.2011-0046.full.pdf>

Injury Risk among Children in Motor Vehicle Crashes: Older Versus Younger Drivers | Journal of Paediatrics and Child Health (2014)

Bromfield, S. G., & McGwin, G.

The aim of this study was to explore the relationship between injury risk among child occupants involved in motor vehicle collisions according to the age of the vehicle driver. The study found that of the child occupants in motor vehicle collisions, 2.9% were driving with an older driver, and approximately 2.9% were injured while driving with a younger driver. After adjusting for child occupant age, gender, restraint use, seat position and vehicle type, there remained no significant association between the age of the driver (older vs. younger) and the risk of injury.

<http://onlinelibrary.wiley.com/doi/10.1111/jpc.12645/abstract>

Motor Vehicle Crashes, Medical Outcomes, and Hospital Charges Among Children Aged 1–12 Years — Crash Outcome Data Evaluation System, 11 States, 2005–2008 | CDC MMWR (2015)

Sauber-Schatz, E. K., Thomas, A. M., & Cook, L. J.

Motor vehicle crashes are a leading cause of death among children. Age- and size-appropriate restraint use is an effective way to prevent motor vehicle–related injuries and deaths. However, children are not always properly restrained while riding in a motor vehicle, and some are not restrained at all, which increases their risk for injury and death in a crash. Proper car seat, booster seat, and seat belt use among children in the back seat prevents injuries and deaths, as well as averts hospital charges. However, the number, severity, and cost of injuries among children in crashes who were not optimally restrained or who were seated in a front seat indicates the need for improvements in proper use of age- and size-appropriate car seats, booster seats, and seat belts in the back seat.

http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6408a1.htm?s_cid=ss6408a1_w

Potential Distractions and Unsafe Driving Behaviors Among Drivers of 1- to 12-Year-Old Children | Academic Pediatrics (2014)

Macy, M. L., Carter, P. M., Bingham, C. R., Cunningham, R. M., & Freed, G. L.

Driver distraction has been identified as a threat to individual drivers and public health. Motor vehicle collisions remain a leading cause of death for children, yet little is known about distractions among drivers of children. This study sought to characterize potential distractions among drivers of children. Distracted driving activities are common among drivers of child passengers and are associated with other unsafe driving behaviors. Child passenger safety may be improved by preventing crash events through the reduction or elimination of distractions among drivers of child passengers.

<http://www.sciencedirect.com/science/article/pii/S1876285914000771>

Booster Seats/Car Seats

Buckle Up: Booster Seats | Safe Kids Worldwide (2014)

Safe Kids Worldwide surveyed 1,000 parents of children ages four to 10 and found that an alarming number of parents are allowing kids to use a seat belt alone before they are big enough. Seven in 10 parents do not know that a child should be at least 57 inches (4'9") to ride in a car without a booster seat.

<http://www.safekids.org/research-report/buckle-booster-seats-september-2014>

Car Seats: Information for Families | American Academy of Pediatrics (2016)

This is an updated guide to car seats and car seat safety from the American Academy of Pediatrics.

<https://www.healthychildren.org/English/safety-prevention/on-the-go/Pages/Car-Safety-Seats-Information-for-Families.aspx>

Car Seat Inspection Among Children Older Than Three Years: Using Data to Drive Practice in Child Passenger Safety | Journal of Trauma and Acute Care Surgery (2015)

Kroeker, A. M., Teddy, A. J., & Macy, M. L.

Motor vehicle crashes are the leading cause of unintentional death and disability among children four years to 12 years of age in the United States. Despite the high risk of injury from motor vehicle crashes in this age group, parental awareness and child passenger safety programs in particular may lack focus on this age group. The study found that low proportions of parents use car seat inspections for children in the booster seat age group. The proportion of children departing the inspection in a more protective restraint increased with increasing age. This highlights an area of weakness in child passenger safety programs and signals an opportunity to strengthen efforts on booster seat use.

<http://journals.lww.com/jtrauma/pages/articleviewer.aspx?year=2015&issue=09001&article=00009&type=abstract>

Caregivers' Confidence in Performing Child Safety Seat Installations: What Matters Most? | Injury Prevention (2014)

Mirman, J. H., Curry, A. E., Zonfrillo, M. R., Corregano, L. M., Seifert, S., & Arbogast, K. B.

Although effective when used correctly, child restraint systems (CRS) are commonly misused. Caregivers must make accurate judgments about the quality of their CRS installations, but there is little research on the psychological, technological, or contextual factors that might influence these judgments. Seventy-five caregivers were observed installing a CRS into a vehicle and completed self-report surveys measuring risk appraisals, previous utilization of CRS resources, task difficulty, and confidence that the CRS was installed correctly. Approximately 30% of caregivers installed the CRS inaccurately and insecurely, but reported that it was correctly installed. An interdisciplinary approach is needed to understand factors influencing caregivers' judgments about their installations, optimize channels to connect caregivers to CRS resources, and to design safety technologies in light of these findings.

<http://injuryprevention.bmj.com/content/20/3/167?etoc>



Carpooling and Booster Seats: A National Survey of Parents | Pediatrics (2012)

Macy, M. L., Clark, S. J., Freed, G. L., Butchart, A. T., Singer, D. C., Sasson, C., & Davis, M. M.

Booster seat use improves seat belt fit and reduces risk of injury for children <57 inches tall. Booster seat use decreases between ages four and eight years. Children observed riding with other children frequently do not use booster seats. In this national survey of parents, *Pediatrics* found that a majority of parents of 4- to 8-year-old children carpool, and when they carpool booster seat use is inconsistent. Social norms and self-efficacy appear to influence booster seat use when carpooling.

<http://pediatrics.aappublications.org/content/129/2/290.full.pdf>

Effects of Booster Seat Laws on Injury Risk among Children in Crashes | Traffic Injury Prevention (2011)

Eichelberger, A. H., Chouinard, A. O., & Jermakian, J. S.

Booster seat laws that cover 7- and 8-year-olds reduce crash injuries, increase restraint use and increase the number of children placed in the backseat, finds a report released by the Insurance Institute for Highway Safety. Researchers examined data from five states with stricter laws governing child restraints and booster seats and found that the stricter laws reduced child injury of any severity by five percent and reduced fatal and incapacitating injuries by 17 percent. Children were three times more likely to be properly restrained following passage of the stricter laws, according to the study. Researchers warn that children who wear improperly fitted safety belts are at risk for “seat belt syndrome,” which can lead to hip and abdominal contusions, pelvic fractures, cervical and lumbar spine injuries, and internal organ injuries. Although all 50 states have child car seat restraint laws, they do not always match up with industry recommendations. In 2009, only 55 percent of 4- to 7-year-olds were appropriately restrained, according to a National Highway Traffic Safety Administration survey.

<http://www.tandfonline.com/doi/abs/10.1080/15389588.2012.660663?journalCode=gpci20#.Vjl8tFWrRhE>

How to Find the Right Seat | Parents Central

This webpage has information on car seat and booster seat basics, installation tips, how to secure your child, instructional videos, a pregnant woman’s guide to buckling up, and a toolkit which includes public service announcements, posters, and other materials.

<http://www.safercar.gov/parents/CarSeats/Car-Seat-Safety.htm>

A Look Inside American Family Vehicles: National Study of 79,000 Car Seats, 2009–2010 | Safe Kids (2011)

Although proper use of child safety seats has improved in recent years, improper or non-use of top tethers remains an area of concern, according to research released by Safe Kids USA. The top tether is a strap on the seat that hooks to an anchor in the vehicle to help reduce the forward movement of a child’s head in a crash. The study included data from 79,000 child safety seat inspections during a one-year period. Researchers found that less than one-third of the forward-facing seats inspected used the top tether. Among those that were using the top tether, only 59 percent were using it correctly. The study also found a need to educate parents on criteria for switching children from rear- to forward-facing car seats. Among study participants, 41 percent of children heavier than 20 pounds and 32 percent of children older than 1 year were still riding in rear-facing car seats.

<http://www.safekids.org/research-report/look-inside-american-family-vehicles-national-study-79000-car-seats-2009-2010>



Photo: CDC/Amanda Mills

Looking Back on Rear-Facing Car Seats: Surveying U.S. Parents in 2011 and 2013 | Academic Pediatrics (2015)

Macy, M. L., Butchart, A. T., Singer, D. C., Gebremariam, A., Clark, S. J., & Davis, M. M.

This study sought to determine the age at which U.S. parents first turned their child's car seat to face forward and information sources used to make that decision at the time of the release of the 2011 guidelines for child passenger safety and 30 months later. Delaying the transition to a forward-facing car seat still represents an opportunity to improve passenger safety in the U.S. As common sources of information, clinicians may be influential in a parent's decision to turn their child's car seat to face forward.

<http://www.sciencedirect.com/science/article/pii/S1876285914003805>

Observed Child Restraint Misuse in a Large, Urban Community: Results from Three Years of Inspection Events | Journal of Safety Research (2016)

Bachman, S. L., Salzman, G. A., Burke, R. V., Arbogast, H., Ruiz, P., & Upperman, J. S.

Child restraints (CRs) are vital for optimizing child passenger safety and reducing the risk of pediatric injury and fatality in motor vehicle crashes. However, most CRs are installed improperly. This study was an assessment of observed instances of child restraint (CR) misuse. Participants were recruited through advertisements for CR inspection events in Los Angeles County, California. Child Passenger Safety Technicians collected information about each child passenger, vehicle, and aspects of CR selection and installation. Ninety-six percent of inspected child restraints were installed incorrectly. Restraints in older cars were more likely to be installed in front of an airbag. Restraints in newer cars were more likely to have the seatbelt routed incorrectly. Older children were more likely to be prematurely restrained in the front seat. Child age and weight were positively associated with errors in lower anchor use.

<http://www.sciencedirect.com/science/article/pii/S0022437515001000>

Disparities

Are There Racial Disparities in the Use of Restraints and Outcomes in Children after Motor Vehicle Crashes? | Journal of Pediatric Surgery (2012)

Lee, S. L., Yaghoubian, A., Stark, R., Munoz, V., & Kaji, A. H.

This study determines whether racial/ethnic disparities exist with respect to restraint use and outcomes in pediatric motor vehicle crash passengers. A review of passengers (<16 years old) involved in motor vehicle crashes from the National Trauma Database from 2002 to 2006 was performed. Outcome measures were emergency surgery, morbidity, mortality, and length of stay. Less than half of pediatric passengers in this study were restrained. The use of restraints was associated with a lower ISS, whereas a higher ISS was associated with increased need for emergency surgery, morbidity, mortality, and LOS. These data emphasize the need for increased education in preventive measures to minimize the risk of death and injury.

<http://www.sciencedirect.com/science/article/pii/S002234681200262X>



Photo: CDC/Amanda Mills

Child Passenger Safety Practices in the U.S.: Disparities in Light of Updated Recommendations | American Journal of Preventative Medicine (2012)

Macy, M. L., & Freed, G. L.

This study found that in every age group, minority children had lower rates of age-appropriate car safety restraint use than white children. As children got older, child safety seat use decreased and the number of children not wearing seat belts increased. In vehicles where the driver was not wearing a seat belt, the odds were 23 times higher that child passengers would also not be wearing seat restraints.

<http://www.sciencedirect.com/science/article/pii/S0749379712003881>

Disparities in Age-Appropriate Child Passenger Restraint Use Among Children Aged One to 12 Years | Pediatrics (2014)

Macy, M. L., Cunningham, R. M., Resnicow, K., & Freed, G. L.

Observed racial disparities in child safety seat use have not accounted for socioeconomic factors. The authors hypothesized that racial differences in age-appropriate restraint use would be modified by socioeconomic status and child passenger safety information sources. Of the 744 eligible parents, 669 agreed to participate and 601 provided complete responses to key variables. White parents reported higher use of car seats for 1- to 3-year-olds and booster seats for 4- to 7-year-olds compared with nonwhite parents. Regardless of race, <30% of 8- to 12-year-old children who were ≤4 feet, 9 inches tall used a booster seat. White parents had higher adjusted odds of reporting age-appropriate restraint use compared with nonwhite parents, controlling for education, income, information sources, and site. There was substantial agreement between parent report of their child's usual restraint and the observed restraint at emergency department discharge.

<http://pediatrics.aappublications.org/content/early/2014/01/07/peds.2013-1908.abstract>

Providing Car Seat Checks with Well-Child Visits at an Urban Health Center: A Pilot Study | Injury Prevention (2007)

Quinlan, K. P., Holden, J., & Kresnow, M.J.

The objective of this study was to evaluate a pilot program of providing child restraint system (CRS) checks by certified technicians with well-child care in an urban health center serving a low-income community. During well-child care, nationally certified child passenger safety technicians assessed CRS use, educated care givers, corrected misuse, and provided a new CRS if necessary. The program's effect was assessed at a subsequent medical visit. The study found that this urban health center has high rates of CRS non-use and near-universal misuse. Providing CRS checks by certified technicians during well-child care is a promising means of promoting sustained and improved CRS use.

<http://injuryprevention.bmj.com/content/13/5/352>

Rural-Urban Differences in Health Care Provider Child Passenger Safety Anticipatory Guidance Provision | Journal of Transport and Health (2015)

Huseth-Zosel, A. L., & Orr, M.

Health care provider (HCP) child passenger safety (CPS) advice provision was gauged. HCPs in several upper Midwest states were surveyed about CPS advice provision. Rural HCPs were less likely than urban HCPs to provide CPS counseling to parents. Rural/urban differences exist in HCP confidence in ability to provide CPS counseling.

<http://www.sciencedirect.com/science/article/pii/S2214140515000183>

Hyperthermia

Traffic Safety Marketing Heatstroke Prevention Campaign

This toolkit provides a pledge, sample news releases, fact sheets, letters to the editor, PSAs, posters, and more.

<http://www.trafficsafetymarketing.gov/CAMPAIGNS/Child+Safety/Heatstroke+Prevention>

Where's Baby? Look Before You Lock [Toolkit] | Parents Central

This heatstroke prevention campaign from NHTSA reminds you never to leave a child alone in a car. The toolkit provides safety tips, quizzes, and ways to get involved.

<http://www.safercar.gov/parents/InandAroundtheCar/heatstroke.htm>

In and Around Cars | Safe Kids Worldwide

This resource from Safe Kids Worldwide provides information on car-related heat stroke in children.

<http://www.safekids.org/and-around-cars>

[Infographic] Heatstroke Deaths of Children in Vehicles (2013)

CSN created this infographic on vehicular heatstroke, which is filled with information and safety tips.

<http://www.childrenssafetynetwork.org/infographics/heatstrokeinfographic>



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Newsletter: go.edc.org/csn-newsletter

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www.ChildrensSafetyNetwork.org

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