

A young girl with dark hair is smiling and sitting in a car seat. She is wearing a light-colored, long-sleeved top and pants. The car seat is dark-colored with a patterned fabric. The background shows the interior of a car, including the window and door panel. The overall lighting is warm and golden.

Improving the Safety of Older-Child Passengers

A Progress Report on Reducing Deaths and Injuries
Among 4- to 8-Year Old Child Passengers

November 2005

Table of Contents

| | |
|---|---------|
| “4 Steps for Kids” Program Description | Page 3 |
| Booster Seat Safety Historical Timeline | Page 4 |
| Background | Page 6 |
| Reformulated 2006 Goals | Page 8 |
| The Problem: Older-Child Passengers Are at Unacceptably High Risk | Page 9 |
| Good News and Bad News for Older-Child Passengers | Page 12 |
| Recent Research Findings | Page 13 |
| State Legislative Activities | Page 16 |
| NHTSA-Led Programs to Increase Booster Seat Use | Page 18 |
| Future Program Efforts | Page 22 |
| Partner Activities | Page 23 |
| Online Resources to Promote Older-Child Passenger Safety | Page 25 |
| References | Page 26 |

“4 Steps for Kids” Program Description



Traffic crashes are the leading cause of death for children from age 3 through 19, due in part to the nonuse or improper use of child safety seats and safety belts.

NHTSA's **4 Steps for Kids** program promotes the correct use of child safety seats at different stages in a child's development, as shown in the “4 Steps” logo. This publication focuses on the third stage: booster seats.

When children outgrow their forward-facing child safety seats -- at about 4 years old and approximately 40 pounds -- they should ride in belt-positioning booster seats for optimal protection. To ensure their safety, older children should remain in booster seats until they are at least 8 years old, unless they are 4' 9" tall.

NHTSA's **4 Steps for Kids** guidelines help parents choose the correct restraint for each stage of their child's development. The 4 Steps are:

1. Rear-facing infant seats from birth to at least 1 year old and at least 20 pounds.
2. Forward-facing toddler seats from age 1 and at least 20 pounds to about age 4 and at least 40 pounds.
3. Booster seats from about age 4 and 40 pounds to at least age 8, unless 4'9" tall.
4. Lap and shoulder safety belts at age 8 or older or taller than 4' 9".

All children 12 and younger should ride in the back seat.

Booster Seat Safety Historical Timeline

1996:

- The *Blue Ribbon Panel on Incompatibility* is formed and issues its recommendations for decreasing the widespread incompatibility between child restraints and vehicle occupant restraint systems.

1997:

- Rule is proposed for universal child restraint anchorage system to reduce the high incidence of child restraint misuse.

1998:

- The *Blue Ribbon Panel on “Forgotten Children”* (ages 5-16) is formed. In 1998, more than 60 percent of children killed in crashes were completely unrestrained. At the time, only Alaska required all children from birth to 16 to be properly restrained in all seating positions, and use among children 4 to 16 nationally was only 64 percent (use among infants was at 85 percent).

1999:

- The *Blue Ribbon Panel on “Forgotten Children”* issues its recommendations for better protection of older-child passengers.

2000:

- The Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act is signed into law by President Clinton, with many provisions to better protect booster-age and booster-sized children.
- For Child Passenger Safety Week, NHTSA launches the “Don’t Skip a Step” program, emphasizing the need to increase booster seat use.
- Washington Governor Gary Locke signs “Anton’s Law” – the Nation’s first mandatory State booster seat use requirement – into law.
- Ford Motor Company launches the “Boost America” program, including the donation of one million booster seats.

2001:

- The Association for the Advancement of Automotive Medicine conducts an international conference to promote the establishment of a scientifically sound public policy on booster seats.
- NHTSA holds public hearing on booster seat education plan mandated by Congress.
- For Child Passenger Safety Week, NHTSA unveils the “4 Steps for Kids” theme, again emphasizing the need to increase booster seat use.
- NHTSA awards series of hospital-based demonstration projects to identify and test community strategies to increase booster seat use. A best-practices guide based on these activities was published in June 2004 -- see “References,” page 27.

2002:

- The Federal version of Anton's Law is signed into law by President Bush, with additional measures to better protect booster-aged/-sized children.
- NHTSA updates its booster seat recommendation, emphasizing age and height and de-emphasizing weight.
- NHTSA and the National Automobile Dealers Association (NADA) establish a five-year occupant protection partnership, emphasizing efforts to increase booster seat use.
- NHTSA proposes major revisions to Federal Motor Vehicle Safety Standard 213, the primary Federal standard governing the design, labeling, and performance requirements for child restraints.
- The LATCH (Lower Anchors and Tethers for Children) universal child restraint anchorage system becomes mandatory on most passenger vehicles and child restraint systems manufactured on or after September 1, 2002.
- First annual compilation of new TREAD-mandated child safety seat ratings is finalized.

2003:

- Child safety seat use rises to record levels (99 percent and 94 percent for infants and toddlers, respectively). Among children 4 to 8, however, use is only 83 percent, and 29 percent of these children are riding in front seating positions.
- NHTSA awards follow-up demonstration project to the Think First Foundation to conduct replicable community activities to increase the number of correctly restrained booster-age child passengers.
- The 2003 highway fatality rate is found to be the lowest ever recorded.
- The 2003 NHTSA Motor Vehicle Occupant Safety Survey (MVOSS) telephone survey finds booster seat use at only 21 percent.
- Study by the Children's Hospital of Philadelphia in the *Journal of the American Medical Association* estimates that booster seats reduce the risk of injury by 59 percent, compared to the use of an adult safety belt alone.

2004:

- New NHTSA study finds "critical misuse" of child safety seats and booster seats is at nearly 73 percent; misuse is determined to be common among children using boosters.
- NHTSA and the Ad Council unveil a new three-year booster seat public service advertising campaign, including the launch of www.boosterseat.gov.
- NADA conducts first "Booster Seat Safety Month" in October.
- Final rule mandated by Anton's Law is issued requiring lap-shoulder belts to be installed in passenger vehicle rear-center seating positions; will be fully phased in by 2008, and is expected to help improve safety among older-child passengers.

2005:

- As of November 1, 2005, 33 States and the District of Columbia had upgraded their child restraint laws to require the use of a booster seats or other appropriate child restraint device by children up to as old as 9.
- Child safety seat use remains at record levels (98 percent of infants and 93 percent of toddlers, respectively). In contrast, however, only 73 percent of children 4 to 7 are restrained, down from 83 percent in 2002.

Background

Great strides have been made in recent years in protecting child passengers. Among infants and toddlers, restraint use is at the highest levels ever recorded (98 percent for infants and 93 percent for toddlers), and crash-related child fatalities have dropped steadily to the lowest number since record keeping began in 1975.

Unfortunately, similar progress has not been achieved where older-child passengers are concerned. Booster seat use -- estimated at only 10 to 20 percent nationwide -- remains unacceptably low. According to NHTSA's Fatality Analysis Reporting System (FARS), in 2003 there were 331 fatalities among child passengers age 4 to 8 (a 4 percent increase from 2002) as well as 53,000 injuries in this age group. Only 73 percent of children 4 to 8 were restrained in 2004, a 10 percent drop since 2002, according to NHTSA's National Occupant Protection Usage Survey (NOPUS). In addition, among child passengers 8 to 15, there were nearly 1,100 fatalities and 153,000 injuries in 2003.

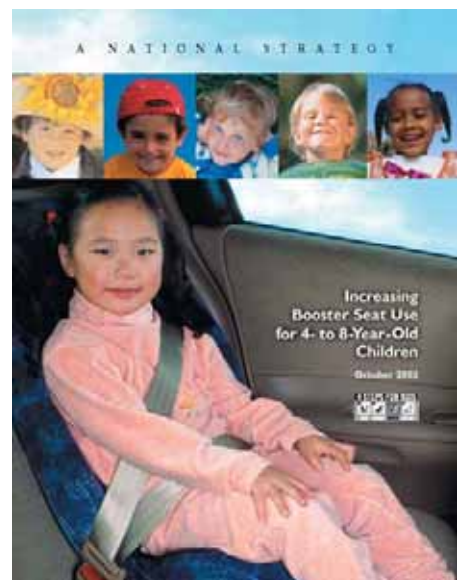
In the TREAD Act and Anton's Law, NHTSA was directed to conduct a range of initiatives, including rulemaking, compliance testing, and consumer education programs, to enhance the safety of older-child passengers. These actions and recent research have spurred legislatures, the private sector, national not-for-profit organizations, parents and caregivers to make booster seat use a greater priority. To date, for example, 33 States and the District of Columbia have enacted mandatory booster seat use provisions in their State child restraint laws. Much more must be done, however, to ensure the safety of older-child passengers.

TREAD Act Provides Program Direction

On November 1, 2000, Congress enacted the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act, Public Law 106-414, which contains provisions on improving the performance of child restraints.

Under Section 14(i) of the Act -- "Improving the Safety of Child Restraints -- Booster Seat Education Program" -- the Secretary of Transportation was directed to develop within one year of the date of the enactment of the act a five-year strategic plan to reduce deaths and injuries caused by failure to use the appropriate booster seat in the 4- to 8-year-old age group by 25 percent.

NHTSA, as the designated agency of the Department of Transportation, developed a national strategy to satisfy this requirement.



Strategic Plan Developed, Follows *Buckle Up America* Model

The strategic plan, formally submitted to Congress in the spring of 2002, was developed with the input received in public meetings and written comments from organizations and citizens from across the country. The plan provided a blueprint for decreasing the number of children who ride unrestrained and for increasing the use of booster seats.

To provide a context for increased activities, the plan highlighted the broad base of support for child passenger safety that exists across the country. NHTSA's public and private sector partners have incorporated messages and best practices information about the lifesaving benefits of booster seats throughout their wide-ranging child passenger safety programming and communications activities. States and communities have received funding for some of these programs and activities through a number of highway safety grants funded under the Transportation Equity Act for the 21st Century (TEA-21).

NHTSA determined that for a number of reasons, the 25 percent fatality reduction goal contained in the TREAD Act was not practicable, and submitted a number of reformulated goals designed to measure similar lifesaving impact.

The framework of the strategic plan is modeled on NHTSA's Buckle Up America (BUA) campaign, which has been extremely successful in increasing the use of child safety seats and reducing fatalities and injuries among children from birth through 4 years of age. The core elements of the BUA campaign are public-private partnerships; enactment of strong laws; high-visibility law enforcement activities; and effective public education programs.

The plan contains specific activities that individuals representing a variety of public and private sector organizations can undertake. These activities range from the conduct of public information and awareness programs about restraint use and booster seats, to the upgrading of child passenger safety laws.

They address the need for training, technical assistance, and outreach, as well as the need for enforcement and resource allocation in support of child occupant restraint use.

Specific activities are identified for groups in the following categories:

- Congress
- Federal Government agencies
- State and local agencies and organizations
- National organizations and coalitions
- Health and medical providers
- Child safety seat manufacturers and retailers
- Child passenger safety technicians
- Media
- Educators
- Law enforcement
- Businesses
- Private citizens

Reformulated 2006 Goals

As mentioned previously, to accurately measure the progress made in increasing overall restraint use by 4- to 8-year-olds, while promoting booster seat use, the strategic plan contained the following reformulated, measurable goals to be achieved by 2006. An assessment of the progress made to date in meeting and/or exceeding each of the 2006 reformulated goals also appears below.

2006 Goal # 1: Increase Restraint Use (of Any Type) by 4- to 8-Year-Old Passenger Vehicle Occupants to 85 Percent (from 63 Percent in 1999)

Outcome: The 2002 National Occupant Protection Usage Survey found that 83 percent of 4- to 8-year-old passengers were riding restrained, nearly achieving the 2006 goal of 85 percent. At the same time, however, a variety of physical constraints prevented the observers from distinguishing whether these children were riding in booster seats or were using adult safety belts instead, a far less desirable practice.

As mentioned previously, however, the 2004 NOPUS survey found that only 73 percent of children 4 to 7 were restrained, down from 83 percent in 2002. NHTSA will craft programs and devote resources accordingly once the factors responsible for this development have been identified and analyzed appropriately. Ongoing programs led by or supported by NHTSA that should be helpful in reversing this unanticipated development are detailed later in this report.

2006 Goal # 2: Reduce the Percentage of Unrestrained 4- to 8-Year-Old Passenger Vehicle Occupant Fatalities to 39 percent (from 63 percent in 1999)

Outcome: From 2000 to 2003, the percentage of children 4 to 8 who died while traveling unrestrained in passenger vehicles dropped by 2 percentage points (from 51percent to 49 percent) -- from 187 to 163 child passengers (see table below). While this trend is clearly a positive one, much work remains to be done -- and is being undertaken by NHTSA, the States, and the many local and national partner organizations (see succeeding pages for details) -- to reduce these tragic incidents by an additional 10 percent to reach the goal of 39 percent by 2006.

Child Passenger Fatalities, By Restraint Use, Age 4 to 8, 2000-2003

| Year | Restraint Used | | Restraint Not Used | | Total |
|--|----------------|---------|--------------------|---------|-------|
| | Number | Percent | Number | Percent | |
| 2000 | 180 | 49 | 187 | 51 | 367 |
| 2001 | 186 | 50 | 184 | 50 | 370 |
| 2002 | 155 | 49 | 163 | 51 | 318 |
| 2003 | 168 | 51 | 163 | 49 | 331 |
| Unknown restraint use distributed proportionally across known use. | | | | | |

2006 Goal # 3: Reduce the Number of Moderate to Severe Injuries per 100,000 4- to 8-Year-Old Passenger Vehicle Occupants to 1,050 (From 1,509 in 1999), as Measured by the National Automotive Sampling System (NASS) Crashworthiness Data System (CDS)

Outcome: The incidence of moderate to severe injuries among booster-aged child passengers has not yet shown demonstrable improvement despite concerted efforts by the States, NHTSA and the many national and local organizations allied in this effort. Hopefully, additional activities led or supported by NHTSA to increase overall restraint, increase the use of booster seats, and ensure the optimal positioning of children in rear-seating positions will positively impact the number of moderate to severe injuries suffered by older child passengers in the very near future.

2006 Goal # 4: Reduce the Number of Incapacitating Injuries per 100,000 4- to 8-Year-Old Passenger Vehicle Occupants to 5,700 (from 6,540 in 1999), As Measured by the NASS System General Estimate System (GES)

Outcome: The number of incapacitating injuries befalling 4- to 8-year-old child passengers continued a steady decline to 4,930 such injuries in 2003, from the baseline of 6,540 children in 1999, meeting and exceeding the 2006 goal of 5,700 per 100,000. The agency is proud of this progress achieved with the involvement of so many partners and the States, but is far from complacent, given the scope of the remaining problem.

**The Problem:
Older Child Passengers Are at Unacceptably High Risk**

**Progress Made Among Infants and Toddlers, Less So Among Older Children;
Use of Child Restraints Evolves**

Restraint use by young children reached record levels in 2002, and those gains were sustained in 2004. NHTSA's 2004 National Occupant Protection Use Survey showed that 98 percent of infants (children under age 1) and 93 percent of toddlers (age 1 to 3) were restrained.

In contrast, in 2004, only 73 percent of children age 4 to 7 were restrained, down from 83 percent in 2002. NHTSA is analyzing the study findings to determine the factors responsible for this unexpected decline.

At the same, however, in 2004, there was marked improvement in placing child passengers age 4 to 8 in the rear seat away from the possible harm of a front-seat air bag. Eighty-six percent of these children were in the back seat in 2004, compared to only 71 percent in 2002. Older children continue to be in the front seat far too often, however, with 14 percent of children age 4 to 8 observed in the front seat.

Child Passenger Fatalities Picture Mixed from Year to Year

The 2003 report from NHTSA's Fatality Analysis Reporting System determined that the overall number of fatalities among children from birth through 3 remained at historically low levels, and declined among children 4 to 8. This continued decrease in the number of child deaths is in large part due to the significant increase in child restraint use since the *Buckle Up America* campaign began. In 1996, just before the campaign began, restraint use among infants was 85 percent and only about 60 percent of toddlers were restrained while riding in vehicles.

Unfortunately, older-child passengers did not fare as well in 2003 as their younger counterparts. Although overall crash-related fatalities among children 4 to 8 decreased in 2003 (including children who died while cycling, riding in cars, crossing streets and in other venues), fatalities among child passengers 4 to 8 increased by 5.1 percent.

Premature Graduation to Adult Safety Belts Poses Great Risks

Moving a child to a safety belt too early greatly increases risk of injury. Children 2 to 5 who are prematurely graduated to safety belts are four times more likely to suffer a serious head injury in a crash than those restrained in child safety seats or booster seats ("The Danger of Premature Graduation to Safety Belts for Young Children," *Pediatrics*, June 2000).

Research from Children's Hospital of Philadelphia and other entities confirms a continuing and disturbing nationwide trend in which the incidence of incorrectly restrained children increases steadily with age. Of the four stages of child restraint (rear-facing infant seat, forward-facing child safety seat, booster seat, and adult safety belt), the stage in which the appropriate restraint device is the most frequently underused is the booster seat stage.

At around age 4, when most children outgrow their forward-facing harness restraints, they do not yet have the physical stature or maturity to correctly use the adult safety belt system. These children are frequently moved prematurely to vehicle safety belt systems designed for adult passengers, not for children.

Adult safety belts do not fit small children correctly; a child placed in one prematurely is at grave risk for abdominal, spinal, head, facial, neck, and other injuries. A booster seat offers optimal protection for children until they are large enough to use vehicle safety belts properly.

Defining Correct Safety Belt Fit

Booster seats raise children up to a height at which the adult lap-and-shoulder belt system fits them properly, and prevents them from being ejected or partially ejected from the vehicle in the event of a crash. Booster seats secure child passengers in the vehicle, and correctly position the shoulder belt to provide optimal upper torso protection, and the lap belt to prevent abdominal injuries.

A child is ready for a safety belt when the shoulder belt crosses the child's chest and rests snugly on the shoulder, and the lap belt rests low across the pelvis or hips -- never across the stomach. The shoulder belt must never touch the child's neck, and children must never place the shoulder belts behind their backs or under their arms, which they often do to minimize the discomfort of ill-fitting shoulder belts. The child should sit all the way back against the vehicle seat-back cushion, and the child's knees should bend comfortably at the edge of the auto seat.

For optimal protection, booster seats must never be used with the vehicle lap belts only; they must always be used with both the vehicle lap and shoulder belts.

Booster Seat Use Is Still Far Too Low

Estimates of booster seat use in the United States (see page 14) range from only 10 to 20 percent, leaving the vast majority of booster-age children at risk, even in the most optimistic scenario. While booster seat use has increased in recent years, due in part to efforts led by the States and NHTSA, and by improvements in child restraint laws, NHTSA estimates that at least 4 out of 5 children who should ride in booster seats do not do so.

Many parents and caregivers turn to State laws for guidance on which child restraint to use as their children grow. As of November 1, 2005, 33 States and the District of Columbia had enacted provisions in their child restraint laws requiring booster seat use (see pages 16-17).

Due to a number of factors, including lack of education, economic barriers, and insufficient provisions in State child restraint laws, many consumers incorrectly assume their children are ready to use safety belts once they have outgrown their forward-facing seats (usually at around 4 years old and 40 pounds).

Booster seats are now widely available for purchase, but this was not the case until relatively recently. For these and other reasons, NHTSA and its many partners are reaching out to parents, retailers, auto dealers, educators, and child care providers to make sure parents and caregivers take advantage of the lifesaving benefits of booster seats for the children in their care.

SIDEBAR:

Good News, Bad News for Older-Child Passengers

The 2003 report from NHTSA's Fatality Analysis Reporting System includes the following findings; comparisons made are from calendar year 2002 to 2003:

Children Age 4–8 (Booster Seats)

- Overall crash-related fatalities declined by 1.7 percent (from 480 to 472).
 - Passenger vehicle occupant fatalities increased by 4.1 percent (from 318 to 331).
 - Unrestrained fatalities: 49 percent of the 331 children who died (163) were completely unrestrained (a 2-percentage-point decrease from 2002).

Children Age 8–15 (Booster Seats or Safety Belts)

- Overall crash-related fatalities increased by 1.8 percent (from 1,576 to 1,604).
 - Passenger vehicle occupant fatalities decreased by 1.5 percent (from 1,092 to 1,081).
 - Unrestrained fatalities: 61 percent of the 1,081 children who died (663) were completely unrestrained (a 6-percentage-point increase from 2002).

Recent Research Findings

Child Restraint Misuse Study Finds Alarming Trends for Older Child Passengers -- Rates of Nonuse and Misuse of Child Safety Seats Remains Too High

The incorrect use of child restraints can lead to serious injury to a child in the event of a crash. A study conducted for NHTSA in the mid-1990s found that four out of five child restraints were being used incorrectly. A NHTSA-sponsored study published in March 2004 updated that research. Key findings relevant to booster-aged children follow.

The purpose of the 2004 study was to obtain a measure of the misuse of child restraints among the general public. The study focused on forms of misuse that could reasonably be expected to raise the risk of injury to a child in the event of a crash.

The study, conducted by TransAnalytics, LLC, collected data on 5,527 children less than 80 pounds in 4,126 vehicles. The study, which was initiated in 2001, examined children by weight – rather than by height, such as in the NHTSA 4’ 9” recommendation – because weight was the guiding determinant at the time the study was designed and awarded.

Most children (62.3 percent) were restrained in a child restraint, but 25.9 percent (more than one in four) were using safety belts, and another 11.8 percent were completely unrestrained. Only about 22 percent of booster-age children (4 through 8) were in booster seats. Child safety seat use was very high among infants and toddlers, but fell sharply among children who should be in booster seats: children from 4 to 8, and weighing 40 to 59 pounds (41.7 percent), and 60 to 79 pounds (10.9 percent). Many of these children were using the vehicle safety belts prematurely.

The data confirmed that children riding unrestrained remain a serious problem. Nearly one in four children weighing 60 to 79 pounds (24.2 percent) and nearly one in six children weighing 40 to 59 pounds (15.2 percent) were not using any type of restraint.

While misuse occurred at lesser levels among children riding in booster seats than among children riding in infant and toddler seats, misuse was still observed among all types of booster seats, in spite of their comparative ease of installation and use. Misuse rates for booster seats observed in the study were: belt-positioning booster seats: 39.5 percent; shield booster seats: 60.5 percent; integrated (built-in) booster seats: 42.9 percent; and other booster seats: 20 percent.

Widespread Incidence of Improperly Fitting Safety Belts Found

About one-fourth of the observed children under 80 pounds (25.9 percent%) were not using child restraints but were wearing safety belts. In most cases, the safety belts did not fit them correctly. Improper fit was observed for 69 percent of the children in lap/shoulder belt combinations, 70 percent of the children in lap-belt-only systems, and 88 percent of the children in shoulder-belt-only systems.

Booster Seat Use Has Increased, But Remains Far Too Low

NHTSA repeated its large-sample national telephone survey on occupant protection -- the Motor Vehicle Occupant Safety Survey (MVOSS) -- during the first quarter of 2003. Findings from the survey indicated that just 21 percent of children 4 to 8 ride in booster seats "at least on occasion" while traveling in passenger vehicles. The MVOSS found that another 19 percent of children in this age range were restrained "at least on occasion" in front-facing child safety seats. About two-in-five (39 percent) of those who had used booster seats said they had started using the booster seats with their children before age 4.

These findings were derived from two telephone questionnaires, each administered to a randomly selected sample of about 6,000 people 16 and older. The interviewing was conducted between January and March 2003. According to the survey, 85 percent of the parents and caregivers of young children had heard of booster seats. Among those who were aware of booster seats, 60 percent said they had used them "at some time."

Parents and caregivers of children under 9, including children who were not using child restraints, were asked a series of questions about booster seats. Among the parents and caregivers who had seen or heard of booster seats, 22 percent had concerns about their children's safety. These parents/caregivers described booster seats as loose-fitting and perceived them to be unstable systems that would not adequately restrain their children in a crash.

In addition, Children's Hospital of Philadelphia (CHOP) researchers found that in 2002, nearly two-thirds (62 percent) of 4- to 8-year-olds were riding inappropriately restrained in only a safety belt. Later CHOP research concluded that booster seat use rose from 3.4 percent in 1998 to 16 percent by the end of 2002.

Children's Hospital of Philadelphia Conducts Landmark Booster Seat Research

According to another important study conducted at CHOP, transitioning children from child safety seats to belt-positioning booster seats instead of vehicle safety belts provides significant safety benefits for children at least through age 7.

CHOP found that the use of belt-positioning booster seats lowers the risk of injury to children in crashes by 59 percent compared to the use of vehicle safety belts alone. The finding comes from a study of children 4 to 8 by Partners for Child Passenger Safety (PCPS), a long-term research project based at CHOP and funded by State Farm Mutual Automobile Insurance Company.

The study -- "Belt-Positioning Booster Seats and Reduction in Risk of Injury Among Children in Vehicle Crashes" -- was published in the June 4, 2003, issue of the *Journal of the American Medical Association*, and provided the first real-world evidence of the added safety benefits of belt-positioning booster seats over safety belts alone.

In addition, the study demonstrated that proper positioning of the safety belt by the booster seat virtually eliminates injuries associated with safety belt syndrome, including injuries to the abdomen, neck, spine, and back, as well as lower extremity injuries. In contrast, children in the study who were restrained in safety belts alone suffered injuries to every body region.

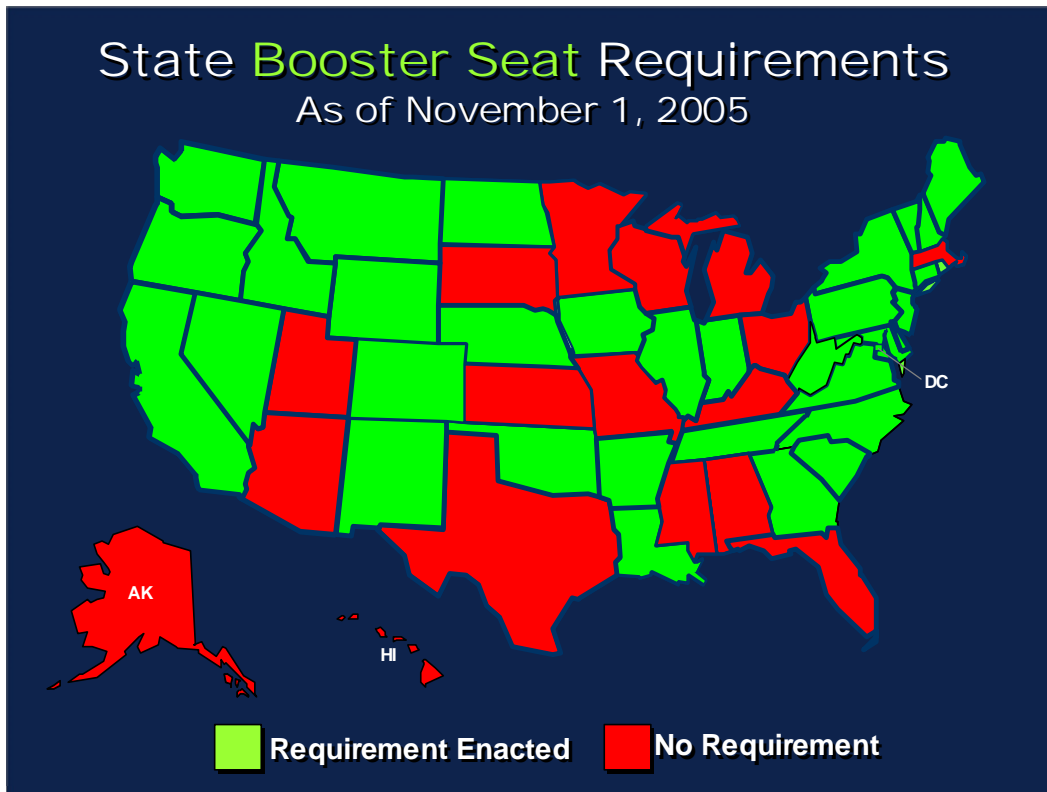
CHOP/PCPS conducted in-depth analyses on 4,243 children 4 through 7 who were in crashes reported to State Farm from 1998 through 2002. The PCPS data demonstrates that booster seat use, while on the rise, remains quite low. Only 16 percent of 4-year-olds, 13 percent of 5-year-olds, and 4 percent of 6- and 7-year-olds were using booster seats.

State Legislative Activities: Thirty-Three States Require Booster Seat Use

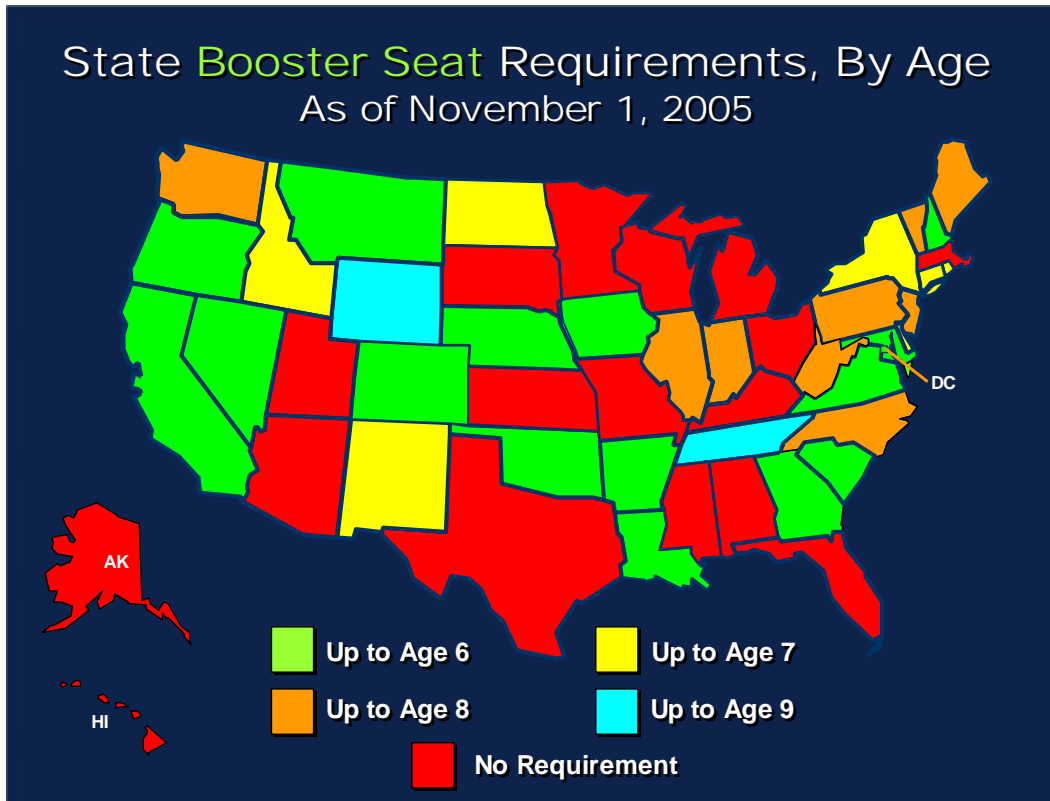
As of November 1, 2005, 33 States and the District of Columbia had enacted provisions in their child restraint laws requiring the use of an appropriate restraint device or booster seat by children who have outgrown their child safety seats but are still too small to use an adult safety belt correctly.

The following jurisdictions have enacted these lifesaving provisions:

| | | |
|----------------------|----------------|----------------|
| Arkansas | Maryland | Pennsylvania |
| California | Montana | Rhode Island |
| Colorado | Nebraska | South Carolina |
| Connecticut | Nevada | Tennessee |
| District of Columbia | New Hampshire | Vermont |
| Delaware | New Jersey | Virginia |
| Georgia | New Mexico | Washington |
| Idaho | New York | West Virginia |
| Iowa | North Carolina | Wyoming |
| Illinois | North Dakota | |
| Indiana | Oklahoma | |
| Louisiana | Oregon | |
| Maine | | |



Specific provisions vary widely from State to State. All laws include an age limit, but some States also emphasize weight limits, while others also stipulate height requirements.



Booster seat provisions were most recently enacted in Connecticut, Idaho, New Mexico, and West Virginia.

Please Note: States have continued to strengthen their child restraint laws in other ways, such as requiring children to ride in the back seat, and prohibiting children, especially infants, from riding in the path of an active front-passenger air bag.

NHTSA-Led Programs and Activities To Increase Booster Seat Use

Anton's Law Mandates Additional Child Passenger Safety Actions

On November 1, 2002, Congress enacted Public Law 107–318, also known as “Anton’s Law,” which contains additional provisions to improve the safety of child restraints in passenger motor vehicles, especially for older-child passengers.

Anton’s Law called on NHTSA to undertake a number of actions, including:

- Establishment of performance requirements for child restraints, including booster seats, for children weighing more than 50 pounds (40 pounds was the upper weight limit of Federal Motor Vehicle Safety Standard (FMVSS) 213, which governs child restraints);
- Examination of situations in which children weighing more than 50 pounds only have access to seating positions with lap belts (a less preferable option than lap/shoulder belts, which offer greater head and upper torso protection than lap belts alone);
- Development and evaluation of an anthropometric test device that simulates a 10-year-old child for use in testing child restraints in passenger vehicles; and
- Requiring a lap-and-shoulder belt assembly for each rear-designated seating position be provided in a passenger motor vehicle with a gross vehicle weight rating of 10,000 pounds or less.

The law was named in memory of Anton Skeen, a 4-year-old boy who was killed in a rollover crash in Washington State in 1996. Anton, who was sitting in the right front seat of his family’s vehicle, and was wearing a lap/shoulder belt, was ejected from the vehicle, and died. The belt remained buckled even after Anton had been ejected. After losing her son, Autumn Alexander Skeen, a local journalist, did extensive research on booster seats and prompted the Washington State legislature to pass the country’s first mandatory booster seat provision, also dubbed “Anton’s Law.” She was also instrumental in advocating for the enactment of Federal legislation.

NHTSA Implements Legislative Mandates

To fulfill the directives in the TREAD Act and Anton’s Law, and to combat this trend among older-child passengers -- both booster-seat-age children 4 to 8 and children 8 through 15 -- NHTSA has initiated and expanded a variety of programs and initiatives.

These include accelerated research, upgraded crash-testing protocols, development of a new anthropometric crash test dummy to approximate the size of a booster-seat-age child, a new three-year public service advertising campaign in cooperation with the Advertising Council, and implementation of a community demonstration program to determine effective ways to increase booster seat use at the local level.

While the bulk of the efforts to date have focused on the safety of booster-age children, NHTSA will soon conduct similar activities addressing the needs of children 8 to 15.

Booster Seat Use Recommendation Revised to Emphasize Age and Height

In 2002, after considerable agency-wide discussion and dialogue with key national partner organizations, NHTSA revised its best practice recommendation for booster seat use. The updated recommendation is: "All children who have outgrown child safety seats should be properly restrained in booster seats until they are at least 8 years old, unless they are 4' 9" tall."

The agency made this modification in order to offer parents and caregivers the best possible guidance about when children can safely use vehicle safety belt systems. A child's weight was determined to be the least valuable predictor of when a vehicle's adult lap/shoulder belt will provide optimal protection for child passengers. A child's age and height were determined to be far more reliable in this regard.

Final Rule Issued Requiring Lap/Shoulder Belts in Rear-Center Seating Positions

On December 8, 2004, NHTSA announced a final rule requiring that rear center seats in all new passenger vehicles be equipped with lap/shoulder safety belts. All passenger vehicles will be required to comply with the new rule by 2008, when NHTSA estimates the change will result in 10 to 23 fewer highway fatalities per year, and 245 to 495 fewer injuries. It comes in response to Anton's Law, passed to increase child passenger safety and to encourage the use of booster seats by older children.

"This rule will greatly improve safety for both children and older people," said former NHTSA Administrator Jeffrey W. Runge, M.D. "One huge advantage is that lap-and-shoulder belts can be used with belt positioning booster seats, making the rear center seat the safest place for older children."

Manufacturers were not previously required to install shoulder belts in rear center seating positions, although many automakers did so voluntarily. Rear center seating positions are the favored location among parents for their children to ride due to their position furthest away from the point of impact in a side collision. As stated previously, booster seats must be used with the lap-and-shoulder belt system, never with the lap belt only.

Since 1989, NHTSA has required that all rear-window-side seats in new passenger vehicles be equipped with lap/shoulder belts. As of December 2004, 23 percent of new passenger cars, along with 51 percent of new vans and light trucks (SUVs and pickups), are only equipped with lap belts for use by rear-center-seat passengers.

In addition to cars and light trucks, the new rule applies to 12- and 15-passenger vans. Side-facing seats are exempt. The rule will be phased in by manufacturers, with half of model year 2006 passenger vehicles offering the lap/shoulder safety belts, increasing to 80 percent of vehicles in model year 2007 and 100 percent in model year 2008.

Effectiveness of State Booster Seat Use Requirements to Be Examined

As of November 1, 2005, legislatures in 33 States and the District of Columbia had enacted booster seat use requirements for older-child passengers (see pages 16-17, preceding). NHTSA initiated a research effort in 2004 to determine the effect of these provisions on parents' and caregivers' level of knowledge about the requirements, their perceptions of risk of being cited and fined for non-compliance, and their actual use of booster seats.

Focus groups of parents, caregivers, and police officers will be conducted in States with both upgraded and non-upgraded child restraint laws to determine the influence of booster seat use requirements on parental practices. In addition, a specialized analysis of related fatality patterns in States with booster seat use requirements will be conducted to determine the link, if any, between the existence of a booster seat use requirement and fatalities among booster-aged children.

Booster Seat Demonstration Program in Full Swing

A NHTSA-funded three-year demonstration program to increase booster seat use was begun by the Think First National Injury Prevention Foundation (see www.thinkfirst.org) in October 2003. Community sites selected for this demonstration program include San Diego, California; Wilmington, Delaware; DuPage County, Illinois; and Charleston, South Carolina.

The thrust of this Cooperative Agreement is two-fold: (1) To conduct targeted and replicable community activities to increase the number of booster-age children riding in booster seats; and (2) to determine effective strategies to reduce the number of unrestrained children in this age group riding at high risk of serious injury and death.

The program includes the development of a tool to directly observe booster seat use and periodic observations of child safety seat and booster seat use. A variety of interventions will be developed and conducted -- including physician counseling, faith-based advocacy and school-based educational activities -- to stimulate increased booster seat use.

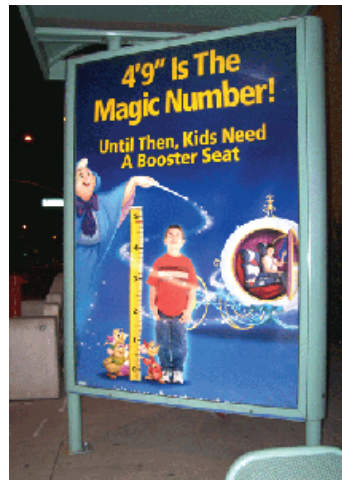
Other Research Activities

- NHTSA began a research project in October 2003 on ways to increase correct restraint use among children 8 to 15. In addition to this ongoing research project, NHTSA plans to award funding in 2005 for a demonstration program focused on increasing correct restraint use among children 8 to 15.
- A follow-up study beginning in 2005 will examine strategies to improve enforcement efforts for law enforcement, and identify promising educational campaigns directed to parents about new, more stringent provisions in their States' child occupant protection laws.

- The Centers for Disease Control and Prevention awarded multiyear grants in 2003 to Michigan and Colorado to demonstrate effective strategies for increasing booster seat use.
- Another NHTSA-funded research project was begun in 2002 to examine the effects of mandatory booster seat use provisions on actual booster seat use in Colorado, Maine, and Maryland. The study will be completed in 2005 and examines changes in booster seat usage in the three States before and after the booster seat use requirements took effect. Preliminary results suggest that booster seat usage increased in States with more-precise-language laws and enforcement of these laws. Also, in some cases, the study found that enforcement of the laws was difficult to implement.

Education and Public Information Activities Pick Up Speed

A three-year NHTSA/Ad Council booster seat public service advertising campaign was launched during Child Passenger Safety Week in February 2004. The campaign included radio ads, a television ad, a new Web site dedicated to booster seat use (www.boosterseat.gov), and a teacher’s guide designed for use in elementary school classrooms. The radio and television ads are available in both Spanish and English.



As part of Year Two of the NHTSA booster seat campaign, in October 2005, the Walt Disney Company released a special “platinum edition” DVD of the classic animated film *Cinderella* with a booster seat cause marketing tie-in. (*Cinderella* has not previously been available on DVD.)

In partnership with NHTSA and the Ad Council, the Walt Disney Company created television, radio and outdoor (billboard) *Cinderella* ads, with the television spots using footage from the original animated feature film. In addition to the television and outdoor ads, a two-page, four-color spread is included in the DVD insert promoting the booster seat message.

Future Program Efforts

Model Language to Be Developed for Mandatory Booster Seat Use Provisions

NHTSA and other organizations will develop model language for State legislators to use to amend their State child restraint laws to better protect older-child passengers. As noted previously, as of November 1, 2005, 33 States and the District of Columbia had enacted provisions requiring the use of booster seats or other appropriate restraint by older-child passengers. Requirements vary widely from State to State, and no law is considered optimal due to the existence of unnecessary loopholes, exceptions, and exemptions.

State Legislators' Involvement in Booster Seat Issue to Be Sought

Specially adapted activities and print and multimedia publications will be developed to raise State legislators' awareness and understanding of the issues involving older-child passengers -- to promote model legislative language (to be developed), and to spur their involvement in State legislative deliberations on this subject. NHTSA will monitor legislation introduced around the country, and will examine the degree to which legislation incorporates the model legislative language.

Periodic Booster Seat Coordination Meetings to Be Convened

Periodic booster seat coordination meetings will provide a focused and organized forum to stimulate discussion about the best ways to increase booster seat use at the local level and facilitate the widespread availability of new research findings. They will enable NHTSA, other Federal agencies, and community-based practitioners to stay abreast of successful intervention strategies in use around the country.

The meetings will also be a source for identifying areas in which gaps in legislation, enforcement, public information, education, and partnerships exist, and will offer suggestions to address these needs.

Specialized Tools for Law Enforcement to Be Developed

Specialized tools will be developed for police officers to use in States with mandatory booster seat use requirements. These may include a "roll call" video and companion educational publications, a user-friendly template for detailing the specific provisions of a State's child restraint law requiring booster seat use, and tips to assist officers in determining whether a violation of these provisions has occurred.

These specialized law enforcement publications will be developed in cooperation with law enforcement agencies to identify special approaches they have found particularly effective in overcoming physical and other barriers to enforcing booster seat requirements (e.g., determining a child's age, height, or weight; overcoming visual barriers, such as glare and tinted glass; and distinguishing the use of an adult safety belt from that of a backless booster seat).

Observational Booster Seat Survey To Be Conducted in 2006

In 2006, NHTSA will conduct an observational booster seat survey to begin the process of obtaining a reliable national estimate of booster seat use among children up to age 12, but will concentrate on children 4 to 8. No existing survey or other data source provides probability-based observational data on booster seat use. The survey will be conducted in conjunction with NHTSA's National Occupant Protection Usage Survey (NOPUS). When screening vehicles for children in booster seats, NHTSA will survey many additional vehicles with other child passengers. The survey will include diverse representation of different topographic and climate regions of the United States, demographic groups, and extent of urbanization.

Partner Activities

Partnership With NADA Expands

NHTSA continues to work actively on booster seat promotional efforts with the National Automobile Dealers Association (NADA) as part of a five-year memorandum of understanding between the two organizations signed in June 2002. As an outgrowth of the NADA/NHTSA partnership, NADA joined the Management Advisory Committee of the Air Bag and Seat Belt Safety Campaign in 2003, and has actively supported efforts to enact primary safety belt legislation at the State level.

In 2003, NADA developed and distributed a special action kit for dealers to use to conduct onsite child passenger safety activities and events, and generated media coverage on the importance of booster seat use. In addition, NADA and NHTSA have conducted an ongoing variety of joint activities, including NADA's pronouncement of October 2004 as "Booster Seat Safety Month" -- a component of NADA's "Boost for Safety" program, jointly developed with NHTSA.

As part of Booster Seat Safety Month, automobile dealers nationwide raised public awareness about child passenger safety and hosted child safety seat inspection events at their dealerships. This national awareness campaign kicked off with a press conference and special child safety seat inspection event at Monument Chevrolet, a new dealership in Pasadena, Texas, on September 23, 2004. Nearly 500 people attended and child safety seats were inspected in 113 vehicles. NADA conducted similar observances in September 2005.

Private Sector Leadership

Avis Rent A Car/Cendant Corporation, a NHTSA partner, continues to promote booster seat safety through the distribution of safety material, postings on its Web site, highlighting child safety seat use during the rental confirmation process, and special promotions. For example, during the summer of 2004, Avis offered a "rent one, get one free" special for booster seats. The promotion enabled customers who rented a booster seat to obtain another seat for use by a second child passenger, free of charge.

Babies “R” Us has maintained a high level of activity in the retail-based promotion of child safety seats and booster seats, and has made child passenger safety an important part of its business. Since 2003, in cooperation with NHTSA, the company has heavily promoted child passenger safety in its stores during Child Passenger Safety Week in February, and during Baby Safety Month (September). Certified child passenger safety technicians have taken part in local store-sponsored child safety seat inspection events and in-store promotions. Babies “R” Us distributed child passenger safety educational material, and printed child safety seat discount coupons --100,000 in 2004 and 125,000 in 2005 -- that were sent to prominent national organizations and distributed to families in need around the country.

CarMax announced in June 2005 its continued financial support for an initiative begun in 2004 by the National Healthy Mothers Healthy Babies Coalition -- a NHTSA partner -- to establish and maintain the National Partnership on Booster Seat Safety. The partnership promotes the use of booster seats, with special emphasis on upgrading state laws and educating parents and caregivers about booster seat safety.

State Farm Mutual Automobile Insurance Company has actively supported Partners for Child Passenger Safety (PCPS) -- the nation's largest study of children in crashes -- since 1997. The research conducted by PCPS, based at Children’s Hospital of Philadelphia, seeks to determine how and why children are being killed or injured in motor vehicle crashes. The data collected and analyzed by PCPS researchers has direct implications for automotive and restraint design, public policy and parent education. Since 1997, PCPS has created a database containing information on more than 223,000 crashes involving 336,000 children. It has become the largest source of data on children involved on motor vehicles crashes.

PCPS is the first academic-corporate partnership devoted to the safety of children in motor vehicles. The program's methodology is unique, combining in-depth telephone interviews, on-site crash investigations, and computer crash simulations, with interdisciplinary analysis and interpretation.

New Organization Emphasizes Booster Seat Use

In 2004, “Kids Safety First,” a newly established nonprofit organization, launched a new program to help increase booster seat use nationwide (see www.kidssafetyfirst.org). Kids Safety First has developed a variety of publications in English and Spanish about the importance of buckling up kids, and how to select and use the correct child safety seat. These include hangtags, posters, and a video containing dramatic crash test footage that demonstrates the potentially disastrous consequences of not using or improperly using child restraint devices in motor vehicles.

Supported in part by Mitsubishi Motors, Kids Safety First hopes this effort will spur increased activity in child passenger safety among other foreign manufacturers, including those based in Japan, Europe, and Korea.

Online Resources to Promote Safety Among Older-Child Passengers

American Academy of Pediatrics - www.aap.org

- *CPS Issue Report on Booster Seats*
- *Car Safety Seats: A Guide for Families, 2004*
- *Moving Kids Safely: Introduction to Car Safety Seats* – online Continuing Medical Education course for physicians and other health care professionals

Children's Hospital of Philadelphia/Partners for Child Passenger Safety/State Farm www.chop.edu/carseat

- *Keeping Kids Safe During Crashes: Every Child Deserves a Safe Ride*
- *What You Need to Know: Car Safety Basics for Your 4- to 8-year-old*
- *What You Need to Know: Car Safety Basics for Older Kids*

National Automobile Dealers Association - www.nada.org

- NADA's *Boost for Safety: Give Kids a Lift for Life* program

National Partnership for Booster Seat Safety – www.boostkids.org

NHTSA/Ad Council Public Service Advertising Campaign Materials - www.boosterseat.gov

- Television/radio ads; Teacher's Guide; *Safety Quick Check*

NHTSA: *Motor Vehicle Traffic Crash Fatality Count/Injury Estimates for 2003* www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/PPT/2003AARelease.pdf

NHTSA: *2003 Motor Vehicle Occupant Safety Survey (MVOSS)*

Go to www.nhtsa.dot.gov, click on the "Traffic Tech Publications" link in the "NHTSA Quick Links" drop-down menu, choose the 2004 drop-down link, item 294 (September).

NHTSA: *Child Restraint Use in 2004 – Overall Results*

www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2005/809845.pdf

NHTSA: *The Use of Child Restraints in 2002 – Results of the 2002 NOPUS Controlled Intersection Study*

www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/Rpts/2003/ChildRestraints.pdf

NHTSA: *Misuse of Child Restraints Study*

www.nhtsa.dot.gov/people/outreach/TrafficTech/2004/trafficTech290/

NHTSA: *Best Practices for Promoting Booster Seat Use -- A How-To Guide Based on Community Demonstration Projects*

www.nhtsa.dot.gov/CPS/promote/index.htm

NHTSA: *Increasing Booster Seat Use for 4- to 8-Year-Old Children*

www.nhtsa.gov/CPS/booster_seat/National_Strategy/index.htm

References

- 2003 Motor Vehicle Occupant Safety Survey (Volume 5: Child Safety Seat Report)*. National Highway Traffic Safety Administration. September 2004.
- Motor Vehicle Traffic Crash Fatality Counts and Injury Estimates for 2003*. National Highway Traffic Safety Administration. August 2004.
- Misuse of Child Restraints*. National Highway Traffic Safety Administration. March 2004.
- Durbin, D.R.; Elliott, M.R.; and Winston, F.K. *Belt-Positioning Booster Seats and Reduction in Risk of Injury Among Children in Vehicle Crashes*. *Journal of the American Medical Association*. June 2003.
- Durbin, D.R.; Runge, J.; Mackay, M.; Meissner, U.; Pedder, J.; Wodzin, E.; and Yoganandan, N. *Booster Seats for Children: Closing the Gap Between Science and Public Policy in the United States*. *Traffic Injury Prevention*. March 2003.
- Glassbrenner, D. *Child Restraint Use in 2002: Results from the 2002 NOPUS Controlled Intersection Study*. National Highway Traffic Safety Administration. February 2003.
- Glassbrenner, D. *Child Restraint Use in 2004 – Overall Results*, National Highway Traffic Safety Administration Research Note, DOT HS 809 845. February 2005.
- A National Strategy: Increasing Booster Seat Use for 4- to 8-Year-Old Children*. National Highway Traffic Safety Administration. October 2002.
- Best Practices for Promoting Booster Seat Use: A How-To Guide Based on Community Demonstration Projects*. National Highway Traffic Safety Administration. June 2004.
- Winston, F.K.; Durbin, D.R., Kallan, M.J.; and Moll, E.K. *The Danger of Premature Graduation to Seat Belts for Young Children*. *Pediatrics*. June 2000.