

The Child Passenger Safety Movement in the United States

This document was originally prepared as a background paper for The Bridgespan Group in 9/2016 by Stephanie Tombrello, Deborah Stewart, Denise Donaldson, and Joe Colella. This version has been edited and enhanced by Stephanie Tombrello and Deborah Stewart and published by SafetyBeltSafe U.S.A., 9/2017.

Overview

Over the past 50 years, car seats (referred to as safety seats, child restraint systems or CRS in the field) have become a fixture of child safety standards in the U.S. Every single state has passed laws requiring car seats for infants and young children. Their use has reduced the risk of death for infants (aged <1 year) by 71% and risk of death for toddlers (aged 1–4 years) by 54% in passenger vehicles. In addition, booster seat use reduces the risk for serious injury by 45% for children aged 4–8 years when compared with safety belt use alone.¹ Widespread usage of car seats (2006 National Highway Traffic Safety Administration [NHTSA])² and improved technology have reduced the number of motor vehicle crash deaths among children younger than 13 riding in a car from 1,384 in 1975 to 602 (57% decline) in 2014 and among infants under one from 190 in 1975 to 48 in 2014 (75% decline).³

Key turning points in the movement

1. Developing car seats as a social norm and legal requirement
2. Improving the effectiveness and usage of car seats

1. Developing car seats as a social norm

Lt. Col. John Paul Stapp's widely publicized experiments showing the efficacy of safety belts in the 1950s and Ralph Nader's auto industry exposé in 1965, *Unsafe at Any Speed*, galvanized the public and led to the passage of the National Traffic and Motor Vehicle Safety Act in 1966. This law mandated the installation of safety belts in every new vehicle, while ushering in a new wave of cognizance about road safety. In 1970, the Highway Safety Act established the National Highway Traffic Safety Administration (NHTSA), with the aim of improving highway safety for Americans.⁴

Development of the child passenger safety movement involved several contemporaneous efforts: research and engineering, product standards, and professional/ parent education. Some advocates in the 1960s began to push for seat belt use while others began to focus on a particularly at-risk and important population: children. While car seats at the time were made to provide a platform for a child, there was no intention or expectation that they were safe. The concept of child restraint systems (car seats designed to reduce crash forces on a child's body and otherwise prevent injury) entered the mainstream in 1968, when GM and Ford engineers designed the first child restraints that were crash tested. Several other innovative car seat makers, such as Bobby Mac and Peterson, began to produce seats with occupant protection in mind as well.

¹ http://www.cdc.gov/motorvehiclesafety/child_passenger_safety/cps-factsheet.html

² <http://www.murfreesboropost.com/doctor-seatbelts-landmark-act-remembered-cms-8760>

³ <http://www.iihs.org/iihs/topics/t/child-safety/fatalityfacts/child-safety>

⁴ Bridgespan Case Study on Seatbelts

In 1971, NHTSA adopted the first standard for child seating systems (FMVSS 213), which focused on using seat belts to attach child seats but did not require crash testing. Soon after, in 1972, *Consumer Reports* published crash test results for all of the car seats on the market, which showed that almost all were dangerously insufficient, despite meeting the standard.⁵ This spurred the auto and car seat manufacturers to improve their products despite having no national standard to follow. NHTSA spent considerable time conducting research that eventually led to an improved federal standard 213 based on crash (dynamic) testing. The upgraded regulation took effect in 1981.

Physicians for Automotive Safety (PAS), founded in the 1960s by pediatrician Dr. Seymour Charles, assisted by Annemarie Shelness, PAS executive director, was the first group to focus on parent education. The awareness that the 1971 standard was ineffective spurred citizen action.⁶ Groups of parents, nurses, and others began to campaign nationally and in their communities for the use of car seats and improvement of FMVSS 213. Many were inspired by a 1970 article that appeared in *Women's Day* about the need for safer child seats, which was written by Judith Candler, the first female auto columnist. In California, Stephanie Tombrello (then Russell) took her concerns about the issue to a newly formed community group, Women for Political and Social Action (WPSA). Annemarie Shelness of PAS was instrumental in encouraging the WPSA group, as well as Action for Child Transportation Safety, a national group with a number of local chapters. The work of these pioneering groups to improve product standards and inform parents further mobilized advocates across the country to be involved in child passenger safety (CPS). In 1980, Tombrello and others formed the L. A. Area Child Passenger Safety Association (which would later be renamed SafetyBeltSafe U.S.A.) to advocate for stronger regulations and greater awareness. Thus were the seeds sown for the larger push for car-seat use laws and even better product safety standards, through the collaboration of parents and other health care advocates, such as childbirth educators and emergency room nurses. (At the same time, these professional and citizen advocates began the parallel effort for better school bus safety, including promoting the installation and use of seat belts on buses. This work has been a saga of its own.)

In the late 1970s, the federal agency NHTSA, which had focused initially on developing an adequate federal standard, became more involved in the promotion of child safety seats. It began to focus on mobilizing local stakeholders through efforts to connect police, public health officials, doctors, and other advocates in various regions. A significant step occurred in 1978-1979, when a NHTSA grant was awarded to University of North Carolina Highway Safety Research Center to host regional workshops on child passenger safety. These sessions brought together for the first time many of the individuals across the country who had pioneered child passenger safety action, spurring local advocates to become better organized. For example, grassroots groups called "child passenger safety associations" sprang up in many localities—many of them continuing for years. Soon, The National Child Passenger Safety Association formed as an umbrella organization, although it lasted only five years due to funding difficulties. In 1978, the first national child passenger safety conference was held in Nashville, and the second was held in Washington DC in 1979,⁷ both supported by NHTSA. Ever since, national

⁵ <http://saferidenews.com/srndnn/LinkClick.aspx?fileticket=NIPfcuqNL1U%3D&tabid=375>

⁶ <http://www.people.com/people/archive/article/0,,20080205,00.html>

⁷ <http://saferidenews.com/srndnn/LinkClick.aspx?fileticket=NIPfcuqNL1U%3D&tabid=375>

conferences have been organized by successive small non-profit organizations. Another important step forward during this period was the creation by PAS of the first parental education film about child passenger safety, "Don't Risk your Child's Life," In 1978. It was produced on a shoestring without outside funding and was sold at low cost. (The 9th edition of this film, now a DVD, was released in 2017.)

Passage of State Laws: 1976–85

Despite improvements in child safety seat technology and ongoing educational efforts on a limited scale by poorly funded volunteer groups, it was clear that progress was limited. (A 1979 study revealed that only 15% of children were using safety seats.⁸) In 1975, Dr. Bob Sanders, a pediatrician and PAS member in Tennessee, began lobbying his state legislature to pass a law requiring car seat usage, arguing that he had "signed too many death certificates for young accident victims." A law was voted down in 1976, but it passed in 1978. It required car seats for all children in Tennessee under age 4 and provided 1,200 infant car seats to lend to drivers who couldn't afford them. Following Dr. Sanders' work in Tennessee, the American Academy of Pediatrics became actively involved, spurring members to work, through their state chapters in collaboration with local advocacy groups, to pass such laws in all states,.

The successful Tennessee law brought considerable attention to child passenger protection and helped make the movement one of the most successful public health efforts in this country. The AAP became the lead private organization to develop and update best-practice guidelines based on the latest medical and social research findings. By 1982, 20 states had passed legislation requiring safety seats for children. Allan F. Williams, a traffic safety expert with the Insurance Institute for Highway Safety, was quoted in a 1982 *New York Times* article saying: "In the last year or so this movement really seems to have picked up steam. You're dealing with young children, which gets to be kind of an emotional issue. It caught the fancy of a lot of people, and it's getting to be a pretty big movement now."⁹

From there, even more states passed similar laws. A big study published in the *Journal of the American Medical Association* in 1984 showed significant benefits of child restraint systems and further galvanized the movement.¹⁰ By 1984, 46% of children were using car seats, and by 1985, all 50 states had child safety laws on the books.¹¹ A bill generated by a California Congressman after visiting a local volunteer child passenger safety exhibit, allocated funding for safety seats for every state. According to Denise Donaldson, Editor of *Safe Ride News*, the impact of these laws on behavior was important, even though many laws weren't actively enforced. "Parents looked to the laws for the best practice on how to keep their kids safe."¹²

2. Improving the effectiveness of child safety seats

Although the passage of state laws and subsequent increased usage of car seats were huge victories, in the early-1980s, child safety advocates became aware of need to improve correct usage of car seats. PAS led the way with its survey, published in *Pediatrics* in 1983, showing that

⁸ <http://www.nhtsa.gov/cars/rules/regrev/evaluate/806890.html>

⁹ <http://www.nytimes.com/1982/11/28/us/results-praised-in-states-requiring-auto-safety-devices-for-children.html>

¹⁰ <http://www.nytimes.com/1984/11/11/us/auto-restraints-cut-child-deaths-study-says.html>

¹¹ <http://www.nhtsa.gov/cars/rules/regrev/evaluate/806890.html>

¹² Denise Donaldson Interview

installation of safety seats was seldom done properly. National Transportation Safety Board studies of the outcomes for children in crashes put a spotlight on the deficiencies of technology in the real world.

The training of advocates to make them capable of helping parents effectively was pioneered by SafetyBeltSafe U.S.A. Beginning in the early 1980's, it developed a curriculum and conducted CPS awareness and technical training for advocates, law enforcement officers, and health care professionals. This was used across California and in some other states. In 1990-92, that curriculum became the basis of a series of training courses funded by NHTSA and offered in every state. In an effort to assure technical accuracy of information given to the public by advocates and others, a system for certifying "child passenger safety technicians" came into being in the late 1990s: a national certification with a standardized curriculum. (see below).

Safe Kids, created by Children's National Medical Center in 1987 with the help of an initial \$1M grant from Johnson and Johnson, emerged as a powerful national organization with state and local chapters aiming to teach parents how to properly install car seats. In the 1990s, Safe Kids (eventually renamed Safe Kids Worldwide) and other grassroots movements began to coordinate more effectively. In 1995, a settlement with GM over fuel tank explosions in some of their vehicles included \$10M to spend on child passenger safety. Most of this money went to Safe Kids Worldwide. After that funding ran out, GM voluntarily provided \$8M per year for several years to support the work of Safe Kids Worldwide.¹³ As their operations became more complex, influence of Safe Kids Worldwide grew, leading even to advocacy and training in a number of countries.

An ongoing process of enhancing state laws to keep requirements current with research findings and best practice has been underway ever since the 1980s. Advocates for Highway and Auto Safety began publishing a scorecard of CRS laws by state and lobbying for improved policy. Their advocacy, in combination with that of local coalitions of Safe Kids and other grassroots activists, was key to enhancing and strengthening the original state usage laws and federal legislation.

The need for better design compatibility between child safety seats and the vehicles in which they are installed became a major issue in 1994 and 1995, when a series of high-profile incidents in which children were killed because of poorly installed car seats or by air bags sparked further regulatory action. NHTSA, under public pressure, formed a Blue Ribbon panel in 1995 on child restraints and vehicle compatibility¹⁴ that included key advocates as well as engineers and medical professionals. That panel recommended the "LATCH" system, an installation system that would require every car and light truck sold in the U.S. to have special bars to which to attach safety seats. Safety seats would be required to have connectors compatible with that system. NHTSA responded quickly to this recommendation and passed a requirement that every car sold in the U.S., beginning in 2002 must have the LATCH system. Later, similar panels focused on air bags and on booster seats.

There also have been improvements made to car seat design above and beyond what is required by FMVSS 213. While NHTSA's ease-of-use safety rating system, established through advocate-backed Congressional action, helped to ensure more usable car seats, market

¹³ Joe Colella Interview

¹⁴ Joe Colella Interview

competition also has been important in improving technology. Car seat laws have increased usage, and demand for easier-to-use safety seats has led to a variety of features for comfort and increased crash protection. Market competition has been vigorous, with much innovation and the emergence of new companies. Moreover, in more recent years, the Internet has allowed parents to discuss their concerns with each other in a whole new way. According to Denise Donaldson, "You can't underestimate the importance of internet forums and blogs dedicated to car-seat-related topics. They have surely motivated manufacturers to up their game."

Roles of research institutions and advocates within them

Since the early days of CR research by General Motors and Ford, there have been engineers in the auto and juvenile products industries and the research community who have championed the need to protect children in vehicles. Their intense interest and research results formed the bases of federal standard FMVSS 213, the new designs that have made CRs extremely protective, and the technical curriculum that is currently taught to CPS Technicians. Arnold Siegel, an engineer, was an early creator of the rear-facing safety seat and other innovative designs, as well as revealing tests of school buses. Consumers Union has tested products and published their results throughout the past 50 years. University of Michigan Highway Safety Research Institute and the University of North Carolina Highway Safety Research Center have been involved since the 1970s. Some vehicle manufacturers have been involved through the Society for Automotive Engineers (SAE) volunteer committees, especially concerning injuries to children from air bag deployments and the various incompatibilities between vehicles and child restraints. In recent years, various medical centers, such as Children's Hospital of Philadelphia, have increased their focus on technical and social research that has enhanced the field. The manufacturers industry organization (Juvenile Products Manufacturers Association) also has been involved in child safety research and regulatory improvements.

Federal Action:

Over the years since the 1970s, there have been people within the National Highway Traffic Safety Administration who were extremely dedicated to the CPS cause within their agency limits. In addition, members of the National Transportation Safety Board contributed to the CPS knowledge base through research into fatal crashes and recommendations for action by NHTSA, the states and industries.

A key action to improve the safety of rear seat passengers, including children, was a petition to NHTSA by the L.A. Area Child Passenger Safety Association in 1986. It called on NHTSA to require installation of rear shoulder-lap belts, which it did in 1989. Not only did this rule change protect adults directly but also it allowed new booster designs not requiring a tethered harness for upper body protection.

Congressional action also has been important. In 2000, the Child Passenger Protection Act passed, providing a boost in funding for CRS education and the first ever NHTSA safety seat rating system. In 2002, Congress passed Anton's law, requiring the development of booster seat testing standards and, finally, a lap-shoulder belt in the center-rear vehicle seating position (first recommended by petition in 1986). From 2001-2009, almost every state passed a new round of laws extending the required car seat age/size to cover children for whom a booster seat would be suitable. The names of these laws showed the influence of individual advocates: Dana's law regarding compatibility between vehicles and safety seats was named for a young girl whose car seat was installed using a seat belt that could not provide adequate securement. Anton's Law

refers to a Washington boy who died in a car crash wearing only a lap-shoulder belt. In both cases, family members were driving forces in bringing change.

National training

As the focus shifted from laws toward promoting the correct use of the restraint systems themselves, the National Transportation Safety Board recommended that local technicians be trained to inspect CRs in use by families and teach parents how to use them correctly. The recommendation was based on the experience of Australia in sponsoring fitting stations.

Funds for technical training were part of Dana's Bill, which passed Congress in 1998. \$30M was allotted over 4 years for technical training and car seat distribution. This supported development by NHTSA of the standardized national certification system. This system continues with regular updates to the information and teaching methods. Today, more than 39,000 individuals are certified to teach parents how to properly install their car seats, 1 for every 1500 children. These trained hospital workers, police officers, firefighters, and others provide a wide network of support for parents to ensure their children's safety. (However, over the course of the 20 years of training, more than 156,000 have been trained, many of whom later left the system.) Although research still finds up to 90% of car seats are not used properly and public interest has shifted toward the dangers of drunk or distracted driving rather than child safety seat use, advocates continue to push for safer products, better educated parents, and additional regulation/enforcement.

Efforts toward self-sufficiency

There are a few examples of efforts to carry on essential aspects of CPS through private enterprise. Some CPS advocates who became CPS Technicians, finding no ongoing source of institutional income, have created local businesses to provide safety seat checkups and educational endeavors. However, the field has tended to exalt "free" services which often must be provided through grants and government agency budgets. Child passenger safety and other social programs rarely have been self-sufficient. Non-profits, such as PAS and SBS USA, have operated on a very thin shoestring, with much volunteer labor. SBS USA has maintained itself with memberships, some corporate and government funding, and sales of its various publications, and continues as a non-profit.

The original CPS video pioneered by PAS has survived despite the closing of the organization. Annemarie Shelness, previously the executive director of PAS, continued the video and its associated pamphlet through Shelness Productions. Since her death this year (2017), her family has continued to publish the video, now in its 9th edition.

The major national CPS conference is held annually by an independent non-profit (Kidz in Motion), based on the concern among many of the long-standing grassroots activists that the other regular conferences in the highway safety arena, such as Lifesavers, cannot cover CPS adequately, although having a CPS track there engages more government agency personnel at all levels.

The goal of local program funding via federal grants has always been "self-sufficiency," yet few of the many excellent pilot programs on the local level have been able to continue after funding ran out. The national newsletter for the CPS field, *Safe Ride News*, is an exception. It was originally published by the American Academy of Pediatrics (starting in 1981) with NHTSA

funding and was converted to a private ownership of Deborah Stewart when federal funds ended in 1996. Safe Ride News Publications (now owned by Denise Donaldson) continues the newsletter to this day, supported modestly by sales of subscriptions and an array of related CPS publications for professionals and parents.

Role of Philanthropy

- Many car companies including GM, Ford, Toyota, Mitsubishi, Honda, Nissan, Volkswagen, and others have given millions to promote car seat safety and advocacy. This has enabled groups like Safe Kids WorldWide and SafetyBeltSafe U.S.A. to expand their 'ground game' to reach more parents and community agencies. Community foundations and local companies have been involved on the community level.
- Johnson and Johnson has given millions to Safe Kids Worldwide over the past 30 years to support their work.
- There was a great deal of grassroots support from concerned individuals. According to Stephanie Tombrello, who organized several efforts to improve car seat legislation, "The CRS law in California was passed with almost no money. The biggest donations I ever got from industry to help explain the need for legislation were \$500."
- Although excellent work was funded in states and localities by NHTSA, over the years there has not been enough ongoing non-federal funding to continue many of these programs. Therefore, effective, even innovative, programs often have died when funding priorities shifted, despite the fact that "new parents are born every day, so the need never ends." Deborah D. Stewart noted, "Unlike an immunization, that -- through one action -- protects for many years, child restraint use must be constantly supported as children grow."

Key Insights

- A commercial child restraint manufacturing market emerged in the mid-1970s as educational efforts spotlighted the failures of the first federal standard FMVSS 213. The competition led to better products, even before upgraded federal standards and state laws were in place. As states passed car seat usage requirements and more research fine-tuned knowledge of the factors involved in child passenger injury and death, product development has accelerated. Four million live births per year in the U.S. and very high child safety seat usage mean the market is huge.
- Centralized movement: The small number of organizations focused on child restraint systems meant that they were able to coordinate easily with each other and pass laws with similar usage requirements in different areas.
- Strong research was essential. According to Stephanie Tombrello, "Kathy Weber and her team at the University of Michigan Transportation Research Institute were essential to our work. Having easy access to a person like that was critical to making technically accurate recommendations to the bigger organizations." The work of UMTRI, CChips, Children's Hospital of Philadelphia, Insurance Institute for Highway Safety, Ohio State University, and many others also was essential as they continually have produced the evidence-based science needed to support the cause and improve protection for children.
- There has been increasing institutionalization of CPS programs at national, state, local, and organizational levels. State offices of highway safety now have specialists focusing on children's safety; many hospitals have health education programs in place; police and fire departments have car seat clinics. This institutionalization has been a goal and is

necessary for progress in this sort of field. The push-and-pull between grassroots advocates and those at higher levels has always existed, but there is a fair amount of communication and consultation among the stakeholders, both professionals and volunteers/advocates. NHTSA and Safe Kids Worldwide, the major players, coexist with grassroots folks who still have considerable energy for activism.