

# Partners for Child Passenger Safety

Interim Report 2001  
Turning Research into Action



The Egginton family puts safety first.

## A Booster Seat Testimonial



**I**t was near dusk in early October when Kim Egginton of Beavercreek, Ohio, decided to run to Wal-Mart to pick up school clothes for her 7-year-old daughter, Alison. First she strapped 3-month-old Lily into the rear-facing infant car seat in the back center of her sedan. Next, Kim buckled Alison into a high back belt-positioning booster seat located on the right passenger side, next to Lily.

This action may have saved Alison's life. Five minutes later, the blueberry-colored 1995 Nissan Altima was hit as Kim attempted to turn left, within sight of Wal-Mart. "I don't know what happened," says Kim. "I never saw the other vehicle." She heard a sudden thud, and both airbags deployed. Lily screamed as smoky dust filled the air.

Unbuckling her seat belt, Kim reached for Lily and asked Alison if she was okay. "Yes, I'm fine," said her daughter reassuringly. It wasn't until Kim was outside holding her daughters that she realized this was no small accident. The car was totaled, crushed on the passenger side. Thanks to restraints, their injuries were minor. Kim had broken ribs, and Lily suffered a small clavicle fracture. Alison, seated closest to the crash, escaped bruised but unharmed. Kim is convinced that the belt-positioning booster seat saved her daughter's life.

"I don't know anyone else who uses booster seats for kids over 4-years-old," says Kim, who had read a Reader's Digest article containing information about the Partners for Child Passenger Safety study. "I just know that if Alison had been using a regular seat belt, the straps would have been across her neck and stomach"—an inappropriate fit of the lap shoulder belt.

Kim commends her insurance company, State Farm, for providing reimbursement that enabled her husband, Brad, to immediately purchase a new infant seat for Lily and new booster seats for Alison and her sister Samantha, 10, who weighs less than 80 pounds. "State Farm was great," she says. "I appreciate that my insurance company plays such an important role in the Partners for Child Passenger Safety Study."

"Children trust us to keep them safe," says Kim. She stresses the use of belt-positioning booster seats, adding, "Protecting the lives of older kids is as important as little ones."

# Partners:

## A Quick Review

### Fact:

- Motor vehicle crashes remain the leading cause of death and acquired disability in children over age 1 in the United States.
- 36 percent of children fatally injured in motor vehicle crashes during 1999 were, in fact, restrained.



These facts prompted The Children's Hospital of Philadelphia® to partner with State Farm Insurance Companies and the University of Pennsylvania in 1997 to create the first comprehensive investigation of how and why children are injured or killed in crashes. Now in its fifth year, the Partners for Child Passenger Safety study remains the largest single research project in the world devoted exclusively to pediatric motor vehicle injury.

### The Research Team

The Partners study is led by a multidisciplinary research team of internationally recognized experts in medicine, biomechanics, engineering, health education, advocacy and behavioral science.

Flaura Koplin Winston, M.D., Ph.D., principal investigator, and Dennis Durbin, M.D., M.S.C.E., co-principal investigator, are both from The Children's Hospital of Philadelphia. They are considered national leaders in the field of child occupant protection. Dr. Winston is a pediatrician, engineer, clinical researcher and director of Trauma-Link, the Interdisciplinary Pediatric Injury Control Research Center at Children's Hospital. In addition, she is an assistant professor of pediatrics at the University of Pennsylvania School of Medicine. Dr. Durbin is a pediatric emergency physician at Children's Hospital and a clinical epidemiologist and assistant professor of pediatrics at the University of Pennsylvania School of Medicine.

### Study Design

Each day, the Partners research team collects information, with privacy safeguards, from State Farm Insurance Companies on nearly 200 children involved in crashes in 15 states (AZ, CA, DE, IL, IN, MD, MI, NC, NJ, NV, NY, OH, PA, VA and WV) and the District of Columbia. This claims information represents more than 250,000 State Farm-insured children per year under age 16 who are involved in crashes in 1990 or newer vehicles.

Upon consent from the policyholder, claims information is forwarded electronically from State Farm headquarters to the research team at Children's Hospital. Within hours of receipt, data are manually selected for on-site crash investigations based on targeted issues and automatically selected for detailed telephone interviews.

Conducted by Dynamic Science Inc., detailed crash investigations provide the research team with information to formulate hypotheses on mechanisms of injury to children in crashes. At the same time, in-depth telephone interviews conducted by RoperStarch Worldwide give the research team a comprehensive view of the range of crash and injury severity.

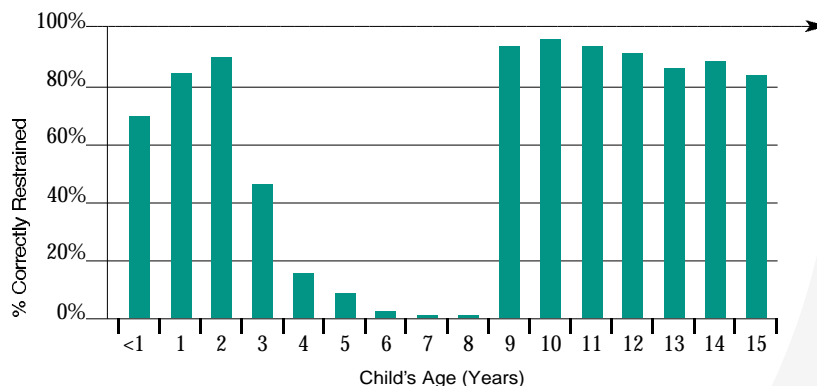
This unique approach allows researchers to identify not only what injuries children are sustaining, but also the factors that influence why they are injured in some crashes, but not in others.

### A Major Finding

- To date, results from the Partners study show that an overwhelming number of children continue to be inappropriately restrained in vehicles.

One of the most significant findings has been that the number of appropriately restrained children drops off dramatically between the ages of 3 and 8. Many of these children, who should be using car seats or belt-positioning booster seats, are being inappropriately graduated to the adult seat belt. As a result, they are more likely to suffer significant injuries, particularly head injuries.

Recommended Restraint Use



While parents generally do a good job of restraining children who are under age 3 and over age 8, this graph shows that the number of appropriately restrained children between ages 3 and 8 drops significantly. Instead of using car seats or belt-positioning booster seats, many of these children are inappropriately restrained in adult seat belts.



## The Year in Review

“As a father of five, I understand first-hand the importance of having strong child safety standards. Results of research from the Partners for Child Passenger Safety study indicate that implementation of The Child Passenger Protection Act will result in significant reductions in the number of children killed and injured in automobile crashes in this country.”

U.S. Senator Rick Santorum (R-Pa.), co-sponsor of The Child Passenger Protection Act.

### Significant Research

In a paper published in the June 2000 issue of *Pediatrics*, researchers at The Children’s Hospital of Philadelphia found that young children who are placed in adult seat belts rather than car seats or booster seats are 3.5 times more likely to suffer head, brain and other injuries in a crash.

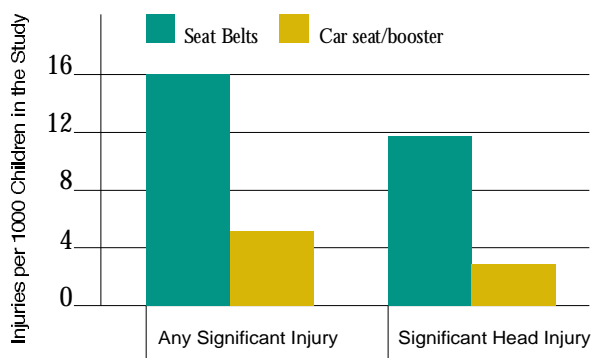
Members of the Partners research team continue to publish research and present findings from the Partners study at various professional conferences.

### Key Findings

“The Danger of Premature Graduation to Seat Belts for Young Children.” *Pediatrics*, June 2000. The Partners for Child Passenger Safety research is the first ever to measure the danger of premature graduation of children into seat belts. Based on the study of 13,853 children between the ages of 2 and 5 in crashes reported to State Farm Insurance Companies, nearly 10 percent suffered some type of injury. Key findings included:

- Researchers determined that children ages 2 to 5 who used adult seat belts were 3.5 times more likely to suffer significant injury and 4 times more likely to suffer head injury when compared to children in the same age group who used car or booster seats.
- Nearly 40 percent of 2-to 5-year-old children were placed in adult seat belts, rather than car or booster seats, dramatically increasing their risk of injury in a crash.
- Five percent of 2-year-olds and 16 percent of 3-year-olds used adult seat belts when they should be restrained in a height/weight-appropriate car seat.
- By age 4, most children were using adult seat belts rather than a car seat or belt-positioning booster seat.

Premature Graduation to Seat Belts Places Young Children at Risk



### Expanding Education and Outreach

During the past year, the Partners research team worked with State Farm Insurance Companies to launch an aggressive educational campaign in order to bring the issue of inappropriate restraint and results of the Partners study to key constituencies, including consumers, advocacy groups, industry officials, government leaders, State Farm policyholders and healthcare professionals.

These efforts included a wide variety of forums: from media coverage aimed at educating consumers to educational presentations at insurance-related conferences; from discussions with local, state and federal safety advocates to outreach with healthcare professionals; from dissemination of data to legislators and federal agencies to collaborative meetings with automobile industry representatives and other organizations interested in child passenger safety.

In an effort to elevate the debate to a national level, the Partners research team engaged in extensive public education and outreach activities throughout the year, including numerous appearances on national television and interviews in major publications. Highlights included two interviews on the NBC’s “Today Show” and a 20-minute segment on NBC’s “Dateline” featuring Drs. Winston and Durbin, who explained the results of the Partners study to date and demonstrated the proper use of child passenger restraints.

### Educating Consumers Through the Media

In addition to the features on NBC, stories about the Partners for Child Passenger Safety project appeared routinely in print and broadcast media outlets across the U.S. during the past year. Between February 2000 and February 2001, the Partners study received coverage in more than 500 media outlets, including CNN’s “Headline News,” MSNBC, USA Today, The New York Times, Los Angeles Times, Chicago Tribune and Parents magazine.

### Collaborating with Advocacy Groups and Vehicle Safety Industry

The Partners research team received numerous requests for customized information and data analysis from the automobile and restraint industry. The team also met with advocacy groups, automobile manufacturers and insurance industry representatives to discuss their research findings and develop collaborative partnerships for future projects.

The graph at left shows that children in seat belts were 3.5 times more likely to suffer a significant injury in a crash as compared to children in car seats or booster seats. In particular, children in seat belts were 4 times more likely to suffer significant head injury as compared to those in car or booster seats.

## Supporting Legislation

Partners research was used by legislators to help bring more child passenger safety initiatives into closer alignment with best practices.

- **Child Passenger Protection Act**—Signed into law as part of the TREAD Act by President Clinton on November 2, 2000. The measure calls on the federal government to modernize outdated testing methods for child safety seats, expand efforts to protect children in various types of collisions and close the gap in occupant restraint laws that leaves older children not optimally restrained. This measure was introduced by U.S. Senator Peter Fitzgerald (R-Ill.) and co-sponsored by U.S. Senators Rick Santorum (R-Pa.) and Blanche Lincoln (D-Ark.).
- **California Child Restraint Law Amended**—Authored by State Senator Jackie Speier, California SB 42 was signed into law by Governor Gray Davis on Sept. 26, 2000, expanding California's passenger safety requirements for children. This law makes California one of the first states in the nation to require children to ride in car or booster seats until they are age 6 or weigh 60 pounds.
- **New Jersey Proposes New Child Passenger Safety Law**—The New Jersey Senate announced four-part legislation to enhance the state's current child passenger restraint laws.

## Informing Federal Policy

The Partners research team worked with various government agencies including the National Highway Traffic Safety Administration and the National Transportation Safety Board:

- Responding to requests for analyses
- Conducting extensive briefings
- Collaborating with representatives
- Presenting findings at public hearings

Through these collaborations, the Partners team hopes to turn research into action—impacting policy regarding child passenger safety.

## Providing Professional Education and Outreach

The Partners research team engaged in outreach efforts to educate professionals about the importance of child passenger safety and its research findings, including:

- Grand Rounds talks to physician groups
- Seminar series at educational institutions
- In-house training/car seat check points
- Multiple presentations at the annual Child Passenger Safety technical conference.

## Participating in Major Initiatives

- Dr. Durbin has taken a major role in organizing a meeting of international experts in pediatric restraint science. This conference, *Booster Seats for Children: Closing the Gap Between Science and Public Policy*, will be held in Washington, D.C., in April 2001. It is sponsored by the Association for the Advancement of Automotive Medicine with funding assistance from State Farm Insurance Companies, Volkswagen of America and The Children's Hospital of Philadelphia.
- State Farm will host a national Volunteer Day on May 12, 2001, an inaugural event dedicated to child passenger safety, involving its 90,000 agents and employees. Working in partnership with local agencies, safety inspection technicians and coordinators, State Farm agents and employees will organize safety seat check points and offer educational programs at State Farm regional offices and claims facilities across the country.
- The Partners research team worked with State Farm to help revise and expand its booster seat safety initiative *Safe Cruisin' With the Good Neigh Bear Program*, using Partners data to create appropriate educational messages. This unique 30-minute public education program, which is presented by State Farm employees at schools and safety events around the U.S., includes speaking points, a curriculum and brochures detailing best practices for child passenger safety. It is the only educational program of its kind targeting children of booster seat age.

Correct vs. Incorrect Restraint of a Child in a Belt-Positioning Booster Seat

### Key Safety Message

Children who weigh 40 to 80 pounds should be properly restrained in a belt-positioning booster seat.

**Correct Restraint**—This simulation (below) shows how a 6-year-old child properly restrained in a belt-positioning booster seat barely moves during a 35 m.p.h. crash.



**Incorrect Restraint**—The same child, improperly restrained in an adult seat belt with the shoulder belt behind the back, is thrown forward dramatically in the same crash. The inappropriate fit of the seat belt and lack of upper body restraint puts the child at risk for severe head, spine, abdominal and brain injury.



“NHTSA will use the valuable data from the Partners for Child Passenger Safety study to enhance the Federal Motor Vehicle Safety Standard 213, Child Restraint Systems.”

Raymond P. Owings, Ph.D., Associate Administrator for Research and Development, National Highway Traffic Safety Administration

## Research Review



### Research Publications

Findings from the Partners for Child Passenger Safety study have been published in many prestigious academic and scientific journals during the past year, including:

- “Assessing Child Restraint Misuse by Parental Survey,” *Injury Prevention*, June 2000.
- “Misuse of Booster Seats,” *Injury Prevention*, December 2000.
- “Child Occupant Protection: A Summary of Current Safety Recommendations,” *Primary Care Update for Ob/Gyns*, in press.
- “Partners for Child Passenger Safety: A Unique Child-Specific Crash Surveillance System,” *Accident Analysis & Prevention*, May 2001.
- “Seat Belt Syndrome: A Case Report and Review of the Literature,” *Pediatric Emergency Care*, in press.
- “Evaluation of a Child With Pre-Existing Disability After a Traumatic Event: An Illustrative Case Report,” *Pediatric Emergency Care*, in press.

### Research in Progress

Areas of current research include:

- Children with special needs in crashes
- Risk of injury to children in side-impact crashes
- Analyses of various vehicle types
- Risk of injury to children from air bags

### Key Research Presentations

During the past year, members of the Partners team have conducted more than 35 presentations. Key presentations include:

- After presenting key results from the Partners study, Dr. Winston received the World Traffic Safety Award from the Greater New York Automobile Dealers Association in April 2000 in recognition of her research on behalf of child passenger safety.
- A paper entitled “The Danger of Premature Graduation to Seat Belts for Young Children” was presented by Dr. Durbin at the Pediatric Academic Societies & American Academy of Pediatrics Joint Meeting in Boston in May 2000.
- A paper on “Factors Influencing Pediatric Injury in Side Impact Collisions” was presented by Kristy Arbogast, Ph.D., at the 44th annual meeting of the Association for the Advancement of Automotive Medicine held in Chicago in October 2000.
- An abstract entitled “The Exposure of Children to Airbags” was presented by Dr. Durbin at the 44th annual meeting of the Association for the Advancement of Automotive Medicine in Chicago in October 2000.

“The first step in passing along new recommendations to patients is convincing their doctors. Learning that a study of actual car crashes has shown that children are safer in belt-positioning booster seats than seat belts was compelling to me. Now when I counsel parents, I can explain why I feel so strongly that children should be graduated to belt-positioning booster seats once they outgrow their convertible car seats.

Knowing this one fact helps me feel more comfortable stressing recommendations for best practices, and it seems to convince parents whose behavior I’m trying to change.”

Daniel Hyman, M.D., pediatrician



“The outcomes of the Partners for Child Passenger Safety study have provided valuable information about the nature of injuries to children in motor vehicle crashes. Understanding more about the patterns of children’s deaths and injuries is helpful in developing effective solutions to help save lives.”

Rose A. McMurray, Associate Administrator for Traffic Safety Programs  
National Highway Traffic Safety Administration

## State Farm Outreach Activities



- State Farm hosted a Leadership Conference for its claims leaders in November 2000 that included a presentation and update about the Partners study by Dr. Flaura Winston.
- State Farm hosted a national interactive distance learning (IDL) broadcast for State Farm employees that included an update on the Partners study by Dr. Winston. Members of the Virginia safety coalition (including advocates, technicians and educators) attended the IDL session, using the information from the Partners study to bring the issue of child occupant safety to the forefront of their legislative efforts.
- State Farm held agency conventions in July and October 2000 for 16,000 agents, who received information about child passenger safety and the Partners project.
- State Farm expanded its Web site (statefarm.com™) in February 2001 to make results about the Partners project available to a national consumer audience.
- State Farm distributed information about the Partners study in News and Notes, a customer newsletter delivered to 70 million State Farm policyholders across the nation.
- State Farm published an article explaining the Partners study in the Summer 2000 issue of State Farm Times, an internal publication that is distributed to 90,000 State Farm agents and employees.
- State Farm will begin airing educational commercials highlighting the Partners study in April 2001.
- State Farm developed television, print and radio public service announcements to increase public awareness about PCPS and child passenger safety best practices.

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