

# Research in Action

A bimonthly e-newsletter from the Center for Injury Research and Prevention at The Children's Hospital of Philadelphia

Issue No. 8, October 2008

## Get Ready for National Teen Driver Safety Week—Oct. 19 – 25

The second National Teen Driver Safety Week (NTDSW) will take place October 19th to 25th. To draw attention to the issue of teen driver safety, The Children's Hospital of Philadelphia (CHOP) and State Farm Insurance Companies® engaged over 700 teens to create a campaign focusing on increasing awareness of teen driver passenger safety called "Ride Like A Friend." [www.ntdsw2008.org](http://www.ntdsw2008.org) is the home of the peer-to-peer campaign. It offers an online campaign planner featuring evidence-informed messages and activities for teens, parents, and schools/organizations to take action to help prevent teen driver crashes and injuries. This year's campaign theme was developed in response to compelling research showing that the risk of a fatal crash for a teen driver doubles with just one adolescent passenger, and each additional passenger increases that risk.

In partnership with Driver Education and Training Administrators (DETA), the Center's young driver research team hosted a webinar on Sept. 10 for practitioners from education, traffic safety and public health to orient potential community organizers to the web-based campaign planner, developed with input from more than 1,100 teen driver stakeholders. CHOP researchers plan to study the effect of the campaign on students at two Philadelphia area high schools with a total estimated student population of 4,800: Pennsbury High School and Radnor High School. After evaluating our effort, we will be able to make improvements to the "Ride Like A Friend" program, as well as to better understand what communities need to implement successful teen driver safety campaigns.

Early coverage of NTDSW is already high, with articles mentioning this year's messages in the *New York Times* and other publications. The "Ride Like A Friend" websites also have received more than 4,000 visits in the five weeks since the site launched.

## State Farm Recommends Parents Lead by Example When Driving

State Farm recently released survey results of parents of teen drivers that suggest parents need to do a better job of modeling safe driving behaviors, such as not talking on their cell phones while behind the wheel. The survey results indicate that parents unknowingly may be contributing to their teens' risky driving behaviors by not leading by example. The survey is a follow-up to the *National Young Driver Survey*.

## Social Marketing Campaign to Increase Booster Seat Use

Based on PCPS findings related to the effectiveness and demographic patterns of belt-positioning booster seat use, the Injury Center developed and tested an intervention to increase booster use. As a follow-up to that study, Tyra Stephens, MD, a Center affiliate, is conducting a pilot social marketing campaign to determine if the developed intervention is an effective way to increase booster seat use among at-risk populations (those with a high school education or less, as well as families of Latino and African-American heritage). The study, funded by the Delaware Valley Regional Planning Commission, is now underway in communities in PA. Pre-intervention observational surveys of 200 families' child restraint use were completed in early October, and a pilot booster seat awareness campaign is being rolled out later this month. Post-intervention observational results will measure the effect of the campaign compared to the control city.

CHOP has a long tradition of research on booster seat effectiveness and use. According to CHOP research published in *Traffic Injury Prevention*, parents with a high school education or less are among the least likely to use appropriate child restraints for their children, especially those 4 to 8 years old. The development and testing of the intervention were published in the *Journal of Trauma*.

## 2008 Fact and Trend Report Now Available Online

Released in time for National Child Passenger Safety Week (September 21-26), the *Partners for Child Passenger Safety (PCPS) Fact and Trend Report*, the fourth in a series, provides current data about children involved in U.S. motor vehicle crashes and the injuries suffered in these crashes. According to the report, over an 8-year period, from 1999 to 2007, overall child restraint use increased from 51 percent to 80 percent among children younger than 9. During this same period, age appropriate restraint use, including booster seats, among children 4 to 8 years old quadrupled from 15 percent appropriately restrained in 1999 to 63 percent in 2007. More information is included in the report regarding trends in the use of LATCH and different types of child restraints.

## Center Violence Prevention Expert Helps to Build a Healthier America

Joel Fein, MD, MPH, director and principal investigator of the Philadelphia Collaborative Violence Prevention Center (PCVPC), served as an expert panelist on October 2 at the Robert Wood Johnson Foundation Commission to Build a Healthier America's field hearing. The Commission heard testimony from local leaders and national experts about non-medical programs that aim to create healthier homes and communities by improving the built environment, creating safer neighborhoods, and promoting nutrition and physical activity. Established in 2006 as part of the Center for Injury Research and Prevention at CHOP, PCVPC is one of the Centers for Disease Control and Prevention's Urban Partnership Academic Centers of Excellence and the first to be based in Philadelphia.

## Arbogast Weighs In On IHS Booster Seat Study

In two national news articles Kristy Arbogast, PhD, the Center's director of engineering, reinforced the importance of booster seats in reducing crash injuries to children. Her comments were in response to a recent study conducted by the Insurance Institute for Highway Safety (IIHS) that examined the ability of booster seats to position seat belts appropriately

## Focus On: Kristy Arbogast, Ph.D.



Kristy Arbogast, PhD, is a bioengineer with a mission. Through her work as director of Engineering at the Center for Injury Research and Prevention at CHOP, Arbogast leads a team that is developing tools to prevent injuries in children involved in car crashes. They measure how children respond to the forces of a crash and estimate their bodies' tolerance to various types of injury. The team uses field investigation, computational engineering, and lab biomechanics in its studies.

In collaboration with other researchers, she and her team have developed a simulated child abdomen that fits into the standard crash test dummy designed for the average 6-year-old. For years researchers have known that the abdomen is the second most commonly injured body part, after the head, in seat-belted children. With this new insert, safety engineers at vehicle manufacturing companies can now precisely measure the risk of abdominal injury in children ages 4 to 8.

"My research primarily focuses on determining the biomechanical tolerance to injuries for children across the developmental spectrum," says Arbogast. "By analyzing these data and working with the multidisciplinary Injury Center team, we can develop effective tools to study child injury and interventions to prevent or reduce the severity of injury from motor vehicle crashes. Children are not small adults. They have unique needs for safety that cannot be extrapolated from data on adults."

Arbogast's Engineering team also is conducting novel research using a bumper-car ride and another seated simulation with youth volunteers in collaboration with Rowan University to measure how different segments of the body move at various levels of velocity and acceleration. The goal of this research is to help Center researchers gain an understanding of how children move in response to these sub-injurious accelerations. Then they can use computer models to re-create the crash environment.

This concept of studying non-automotive environments and extrapolating to the crash world is also being implemented by Arbogast and her colleagues through a detailed analysis of the chest compressions children receive during cardiopulmonary resuscitation. The data collected in this study will help improve the chests of crash test dummies so that they are more like real children.

A widely-published principal investigator of child passenger safety research using a biomechanical epidemiology approach, Arbogast earned her MSE and PhD in Biomechanical Engineering from The University of Pennsylvania and her BSE in Biomechanical Engineering from Duke University. She is nationally recognized for her contributions to the field of child passenger safety. Among her many honors are the Automotive Occupants Restraints Pathfinder Award, given annually to a pioneer in the

on child occupants.

Read the [Wall Street Journal](#) article

Read the [Associated Press](#) article

Read the [Center's Statement](#)

## PCPS Receives Prestigious Award

For its decade of work to prevent child injuries caused by motor vehicle crashes, the Partners for Child Passenger Safety (PCPS) program at CHOP has received the 2008 Injury Prevention and Control Health Impact Award from the Centers for Disease Control and Prevention (CDC) National Center for Injury Prevention and Control. The award will be presented on October 28th as part of the American Public Health Association Annual Meeting in San Diego, CA.

Publication of PCPS findings, along with outreach initiatives, has helped to dramatically improve child passenger safety. Between 1999 and 2007, overall child restraint use increased from 51 percent to 80 percent among children younger than age 9. During this same period, age-appropriate restraint use, including booster seats, among children ages 4 to 8 quadrupled from 15 percent appropriately restrained in 1999 to 63 percent in 2007. CHOP researchers estimate that approximately 2,085 child occupants' lives were saved between 1998 and 2006. This is due, in part, to advancements in legislation, public education, and vehicle and restraint system design resulting from information generated by this project. PCPS ended its data collection in December 2007.

Today there is no child-focused crash surveillance in the U.S. However, with funding from other sources, the Center's research team continues to analyze the PCPS data. Dennis Durbin, MD, MSCE, was recently awarded a \$25,000 project grant, "Analysis of Data from the PCPS Project," from the San Diego State University Research Foundation.

## Center Website Wins National Award

The Web Marketing Association recently presented its 2008 WebAward for Outstanding Achievement in Website Development to the Center's new state-of-the-art interactive website, [www.aftertheinjury.org](http://www.aftertheinjury.org). Flaura Koplin Winston, MD, PhD, co-scientific director of the Center, Nancy Kassam-Adams, PhD, the Center's associate director for Behavioral Research and co-director of the Center for Pediatric Traumatic Stress (CPTS) at CHOP, and Center researchers are working with injured children and their families to develop effective screening tools and interventions that can be integrated into hospital trauma care. The website, based on a decade of research funded by the Emergency Medical Services for Children program and the Verizon Foundation, provides parents with easy access to credible information, tips, and practical tools to help support their injured children's emotional recovery. In prospective studies of children's and parents' reactions to traffic crashes and other medical emergencies, Center researchers have found that most families experience at least a few acute stress disorder (ASD) symptoms within the first month after injury. Six months later, one in six of them still have clinically significant symptoms.

## Recent Presentations from the Injury Center

- Arbogast K. [Benefits of Rear Facing Restraints](#). Seventh Annual Child Passenger Safety Conference. Atlantic City, NJ, September 26, 2008.
- Arbogast K. [Pediatric Injuries, Child Restraint Systems and Pediatric Injury Thresholds](#). Biomechanical Investigation of Human Injury Course hosted by the Association for the Advancement of Automotive Medicine. San Diego, CA. October 5, 2008.
- Barg F, Keddem S, Ginsburg K, Winston F. [Teen perceptions of good drivers and safe drivers: Implications for reaching adolescents](#). Abstract presentation at the American Public Health Association Conference. San Diego, CA. October 28, 2008.
- Cole V. [Embedding "Learning Theory" Into Driver Education Curricula](#). Driving School Association of the Americas Inc. (DSAA) Seminar. Philadelphia, PA. August 9, 2008.
- Hill S. and Winston F. [Engaging Schools and Teens in National Teen Driver Safety Week 2008](#). Webinar hosted by the Driver Education Training Association (DETA). September 10, 2008.
- Maltese M. [Thoracic and Restraint System Analysis](#). Biomechanical Investigation of Human Injury Course hosted by the Association for the Advancement of Automotive Medicine. San Diego, CA. October 4, 2008.
- Winston, Flaura. [Reducing Traffic Injury: How Do We Get There?](#) 4th International Conference on Traffic and Transport Psychology. Washington, DC. September 2, 2008

## Recent Publications from the Injury Center

- Arbogast KB, Jermakian JS, Durbin DR. [Injury Risk for Rear Impacts: Role of the Front Seat Occupant](#). *Annals of Advances in Automotive Medicine* (52: 109-116). Presented at the Association for the Advancement of Automotive Medicine 52nd Annual Scientific Conference. San Diego, CA. October 6, 2008.
- Kallan M, Jermakian JS. [SUV Rollover in Single Vehicle Crashes and the Influence of ESC and SSF](#). *Annals of Advances in Automotive Medicine* (52: 3-8). Presented at the Association for the Advancement of Automotive Medicine 52nd Annual Scientific Conference. San Diego, CA. October 6, 2008.
- Jacobsohn L. and Hornich RC. [High brand recognition in the context of an unsuccessful communication campaign: The National Youth Anti-Drug Media Campaign](#). *Public Health Branding: Applying marketing for social change*, eds. Evans, W. Douglas & Hastings. Gerard. Oxford University Press, 2008.
- Maltese M., Castner T., Niles D., Balasubramanian S., Nishiasaki A., Sutton R., Nadkarni V., and Arbogast K. [Methods for Determining Pediatric Thoracic Force-Deflection Characteristics from Cardiopulmonary Resuscitation](#). *Stapp Car Crash Journal*. Vol. 52. (To be published in November 2008.)

field who "starts down a new path armed with nothing but one's own vision and integrity," and the "Best Paper Award" at the 2006 Stapp Car Crash Conference.

## The Center for Injury Research and Prevention Family of Websites

- The Center for Injury Research and Prevention ([www.chop.edu/injury](http://www.chop.edu/injury))
- Keeping Kids Safe in Crashes-English language – English language ([www.chop.edu/carseat](http://www.chop.edu/carseat))
- Cómo Mantener a los Niños Fuera de Peligro Durante los Choques – Spanish language ([www.chop.edu/asientos\\_infantiles](http://www.chop.edu/asientos_infantiles))
- Keeping Young Drivers Safe ([www.chop.edu/youngdrivers](http://www.chop.edu/youngdrivers))
- National Teen Driver Safety Week 2008 ([www.ntdsw2008.org](http://www.ntdsw2008.org))

## Research Sponsors Wanted

Our center is performing cutting-edge research on injury prevention in children. Doctors and researchers at the Center for Injury Research and Prevention partner with industry and academia to determine ways to prevent injuries and to effectively cope when injuries do occur. If you are interested in sponsoring our research, please call Karen Matthews, the Center's administrative director, at 215-590-3118.

## Support Our Center

The dedicated doctors, researchers, and outreach professionals at the Center for Injury Research and Prevention at CHOP are fighting to save the lives of children of all ages. But we need your help. To make an on-line donation, please visit The Children's Hospital of Philadelphia Foundation Donation Page and select "Center for Injury Research and Prevention" in the drop-down menu. You also may telephone the CHOP Foundation at 267-426-6500. For more information on our research and programs, please visit [www.chop.edu/injury](http://www.chop.edu/injury).