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Crash Data Confirms Child Safety Seats, Boosters Offer Survival Advantage to Child Passengers

Philadelphia --A new study has found that children who were using child restraints were 28 percent less likely to be killed in a crash than children who were wearing seat belts alone. Published today in *The Archives of Pediatric and Adolescent Medicine*, the research from the Center for Injury Research and Prevention at The Children's Hospital of Philadelphia studied results for nearly 9,000 children aged two through six involved in serious motor vehicle crashes.

When cases of gross misuse of a child restraint were included in the crash analysis -- for example, if the restraint was not attached to the vehicle seat or the child was not wearing the harness, the overall reduction of risk declined to 21 percent.

"For every 100 children who were killed in a crash wearing only a seatbelt, 28 of them would have survived if they'd been in a car seat or booster seat," explained study author Dennis Durbin, M.D., M.S.C.E., a pediatric emergency medicine physician and co-scientific director at the Center for Injury Research and Prevention. "These findings build on many years of real-world and laboratory research which has consistently found child restraints to be very effective at preventing injuries."

Children's Hospital's injury research center is known for its ongoing research partnership with State Farm Mutual Insurance Company® called Partners for Child Passenger Safety (PCPS), which is the largest study of children in crashes. PCPS researchers have published numerous studies that demonstrated the effectiveness of various child restraint types at reducing nonfatal injury risk as compared with seat belts alone. They found that, for children under age eight, those who were appropriately restrained for their age and size could reduce their risk of serious injury in a crash to less than one percent.

"Until now, PCPS had not examined fatal crashes. Our research to date has focused primarily on preventing serious injury, because we felt this is where we could have the greatest effect," explains Dr. Durbin. "Now we can assure parents that, while rear seating and seat belts are better than no restraint at all, child restraints are significantly more effective at preventing both injuries *and* death for children less than seven years old." PCPS research has also confirmed that rear seating is the safest seating position for children younger than 13 years.

The new findings provide more up-to-date estimates of restraint effectiveness based on tow-away crashes that involved two- to six-year old children, occurring between 1998 and 2003. Thus, the data represents vehicles and child restraint designs in use by today's families. Previous analyses of child crash fatalities and restraint types involved crashes dating back to 1975.

"The data we had available to us in the past made it difficult to assess whether the improvements that reduced injury rates were also effective in reducing fatalities," explains co-author Flaura Winston, M.D., Ph.D., founder and co-scientific director of the Center for Injury Research and Prevention. "For this study, we combined data from fatal and non-fatal crashes to avoid potential biases we've identified in past analyses that looked only at fatal crashes."

Children's Hospital researchers combined cases from two national crash databases: the U.S. Department of Transportation's Fatality Analysis Reporting System (FARS) - a database of all crashes in which at least one person died; with cases from the National Automotive Sampling System (NASS), which tracks police-reported crashes in which a vehicle was towed. This new method of analysis provides opportunities for the researchers to examine questions that can lead to improved safety practices and technology.

Vehicle seat belts are designed to protect an average adult-sized male. Improper positioning of both the lap and shoulder portions of seat belts place children at risk for ejection from the belt and from the vehicle, as well as for serious injuries to the head, neck, abdomen and spinal cord. Child restraints, such as child safety seats and belt-positioning booster seats are designed to keep children safe until they are old enough for the adult seat belt-- usually when they reach at least eight years old or four feet, nine inches tall.

Children's Hospital provides a multimedia website to address questions parents have about appropriate restraint and correct installation of child restraint systems. Parents can view brief videos, listen to helpful instructions and browse quick tips in English and Spanish at www.chop.edu/carseat.

About The Center for Injury Research and Prevention at The Children's Hospital of Philadelphia
The Center for Injury Research and Prevention at The Children's Hospital of Philadelphia, formerly known as TraumaLink, is a comprehensive pediatric injury research center based at The Children's Hospital of Philadelphia and the University of Pennsylvania. The center consists of a multidisciplinary team of experts who conduct and disseminate research on the causes of childhood, adolescent, and young adult injury and develop and evaluate interventions to prevent injury and its psychological effects. For more information on the Center, www.chop.edu/injury.

The Children's Hospital of Philadelphia was founded in 1855 as the nation's first pediatric hospital. Through its long-standing commitment to providing exceptional patient care, training new generations of pediatric healthcare professionals and pioneering major research initiatives, Children's Hospital has fostered many discoveries that have benefited children worldwide. Its pediatric research program is among the largest in the country, ranking second in National Institutes of Health funding. In addition, its unique family-centered care and public service programs have brought the 430-bed hospital recognition as a leading advocate for children and adolescents. For more information, visit www.chop.edu.

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