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3-28-2002

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Winston, Flaura K. and Durbin, Dennis. The Risk of Injury to Children in Compact Pickup Trucks. LDI Issue Briefs. 2002; 7 (6). <http://ldi.upenn.edu/brief/risk-injury-children-compact-pickup-trucks>

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The Risk of Injury to Children in Compact Pickup Trucks

Abstract

Nearly one million compact pickup trucks were sold last year in the US. Manufacturers now produce extended-cab models of pickups such as the Ford Ranger, Chevrolet S-10, Dodge Dakota, and Toyota Tacoma that can accommodate at least two rear-seated passengers, making them attractive to families with children. However, the safety of these rear seats for children has not been determined. This Issue Brief summarizes a new study that examines and quantifies the risk of injury to children riding in compact pickup trucks. Based on these findings, parents should be advised against using these vehicles as family transportation.

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LDI *Issue Brief*

Volume 7, Number 6
March/April 2002

Leonard Davis Institute of Health Economics

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The Risk of Injury to Children in Compact Pickup Trucks

Editor's Note: Nearly one million compact pickup trucks were sold last year in the US. Manufacturers now produce extended-cab models of pickups such as the Ford Ranger, Chevrolet S-10, Dodge Dakota, and Toyota Tacoma that can accommodate at least two rear-seated passengers, making them attractive to families with children. However, the safety of these rear seats for children has not been determined. This Issue Brief summarizes a new study that examines and quantifies the risk of injury to children riding in compact pickup trucks. Based on these findings, parents should be advised against using these vehicles as family transportation.

Partners for Child Passenger Safety

Since 1997, Partners for Child Passenger Safety (PCPS) has used a surveillance system to investigate the nature and extent of childhood injuries due to motor vehicle crashes. PCPS is an ongoing research collaboration among the Children's Hospital of Philadelphia, the University of Pennsylvania, and the State Farm Insurance Companies.

- PCPS is the nation's largest surveillance system of children in crashes. PCPS compiles and analyzes data on real-world crashes by combining State Farm claims information with detailed telephone interviews and on-site crash investigations. The database now contains information on nearly 150,000 crashes involving more than 220,000 children ages 0-15.
 - Previous PCPS studies identified the protective effect of booster seats for preschoolers, and the dangers of premature use of adult seat belts in young children. These and other findings can be found in the latest PCPS interim report available at:
http://www.chop.edu/traumalink/download/interim_report2002.pdf
 - The present study focuses on compact extended-cab pickup trucks, which typically have small rear occupant compartments with side-facing, fold-down, or "jump" seats. Because these seats are designated as "auxiliary,"
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they are exempt from regulatory safety testing. Auto manufacturers' instructions recommend that children be seated in the front seat in appropriate child restraints rather than in the auxiliary seats. However, many parents, following longstanding recommendations to seat their children in the rear of conventional cars, seat their children in the rear of extended-cab pickup trucks.

Study tracks outcomes of crashes involving children in extended-cab pickups

From December 1998 to November 2000, Winston, Durbin, and colleagues collected information on nearly 7,200 crashes involving more than 11,000 children. The investigators compared the outcomes of children riding in extended-cab pickups with children riding in other vehicles with two full rows of seats.

- Injuries occurred in 3.8% of children riding in extended-cab pickup trucks, compared to 1.6% of children in other vehicle crashes.
- On average, children in compact extended-cab pickup truck crashes were older, more likely to be restrained and seated in the front row, and more likely to contact the interior of the vehicle than children in other vehicles. About 46% of children in extended-cab compact pickups were seated in the rear, indicating that these seats are common seating positions for child passengers.
- Extended compact pickups were not involved in crashes that were more severe, but they were more likely to be involved in frontal-impact crashes.

Children have three times the risk of being injured in an extended-cab pickup truck crash than in other vehicles.

Winston and colleagues estimated the risk of injury to children in compact extended-cab pickups, after adjusting for the child's age, use of car seats or other child restraints, point of impact, vehicle weight, and crash severity.

- Children in compact extended-cab pickups were nearly three times more likely to be injured in a crash, and more than four times as likely to be hospitalized, than children riding in other vehicles. The danger was particularly great for rear passengers, where the risk of injury was nearly five times greater than for children in the rear seats of other vehicles.
 - Unlike other vehicles, seating a child in the rear seat of an extended-cab pickup truck, rather than the front seat, does not offer any protection against injury. In other vehicles, rear-row seating decreases the risk of injury by nearly 30%.
 - Even when the investigators limited their analysis to children riding in pickup trucks, they found that children in the rear of compact pickups were at more than twice the risk of injury than children in the rear of full-
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size pickups. Children in the front row of compact pickups were also at greater risk of injury than those in the front row of full-size pickups, although the difference is less pronounced than in the rear seat.

Unique hazards of compact extended-cab pickups put children at risk

The increased risk of injury appears to be caused at least in part by contact with the interior of the vehicle at impact.

- The rear occupant compartment of extended-cab pickup trucks is smaller than that of conventional vehicles.
- The rear seats provide lap-only restraints that allow for dangerous upper body movement in the event of a crash.
- The increased risk of injury may also indicate inadequate vehicle padding. For example, the unpadded rear wall of most compact trucks may be struck by occupants either directly (in rear collisions) or on rebound (in frontal collisions), with children seated sideways.
- Manufacturers of child safety seats recommend against using them in sideways-facing seats, since the restraints are designed to protect children against sudden changes in velocity in the forward and back direction.

POLICY IMPLICATIONS

This study demonstrates that children seated in compact extended-cab pickup trucks are not as safe as children in other vehicles.

- Parents with a choice of vehicles available to transport their children should not use compact pickup trucks. State Farm records show that about 75% of clients who own a compact extended-cab pickup also own another vehicle, indicating that they have an alternative for transporting their children.
 - When an alternative vehicle is not available, it is not clear whether front vs. rear seating is optimal for children in compact extended-cab pickup trucks, though either is clearly better than riding in the cargo area, which has a well-described risk of death.
 - Federal regulations require safety testing of automobile seats except those designated as “auxiliary.” Because rear extended-cab pickup seats are often used for children with sometimes devastating effects, results from this study suggest that the National Highway Traffic Safety Administration should reconsider this exemption. Standards and testing are needed to ensure occupant protection in extended-cab compact pickup trucks, including sufficient rear occupant space and adequate interior padding.
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This Issue Brief is based on the following article: F.K. Winston, M.J. Kallan, M.R. Elliott, R.A. Menon, D.R. Durbin. Risk of Injury to Child Passengers in Compact Extended Cab Pickup Trucks. JAMA, March 6, 2002, vol. 287, pp. 1147-1152; see also D.R. Durbin, E. Bhatia, J.H. Holmes, K.N. Shaw, J.V. Werner, W. Sorenson, and F.K. Winston. Partners for Child Passenger Safety: a Unique Child-Specific Crash Surveillance System. Accident Analysis and Prevention, May 2001, vol. 33, pp. 407-412; F.K. Winston, D.R. Durbin, M.J. Kallan, E.K. Moll. The Danger of Premature Graduation to Seat Belts for Young Children. Pediatrics, June 2000, vol. 105, pp. 1179-1183, and previous LDI Issue Brief, When "Buckle Up" Is Not Enough: Enhancing the Safety of Children in Motor Vehicles, June 2000, vol. 5, no. 9, available at: http://www.upenn.edu/ldi/issuebrief5_9.pdf

For more information, downloads, and educational materials on child passenger safety, go to:
<http://www.chop.edu/consumer/jsp/division/generic.jsp?id=70854>

Published by the Leonard Davis Institute of Health Economics, University of Pennsylvania, 3641 Locust Walk, Philadelphia, PA 19104-6218, 215-898-5611.

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Leonard Davis Institute
of Health Economics
University of Pennsylvania

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