

Governor's EMS and Trauma Advisory Council (GETAC)

Injury Prevention Committee

Position Statement: Child Passenger Safety

March 2009

The Governor's EMS and Trauma Advisory Council's Injury Prevention Committee is dedicated to providing scientifically sound recommendations to prevent injuries in the State of Texas. Based on the findings from leading researchers, medical societies and transportation agencies, resulting from many years of scientific research, the Committee presents the following information on the protection of child passengers ages four through seven, in moving motor vehicles:

Nationwide, over 400 children between the ages of 4 and 8 are killed in MVCs annually (Insurance Institute for Highway Safety, 2004). MVCs are the leading cause of death for children of this age cohort, (Office of Statistics and Programming, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 2005).

When children in this age cohort survive a MVC, they frequently sustain debilitating injuries with lifelong medical and financial sequelae (Winston, Durbin, Kallan, & Moll, 2000). These injuries are often the direct result of improperly restraining a 4 to 8 year old child in a seatbelt system designed for adults. Safety devices known as "booster seats" are effective in preventing such injuries (Durbin, Elliot, & Winston, 2003), at a level

similar to the protective effects traditional child safety seats (CSS) provide for children under 4 years of age.

Vehicle seats and vehicle restraint systems are designed for the height and femur length of adults. When a child sits in a vehicle seat too large for his body, his short femur length will not allow him to bend his knees at the edge of the seat. For comfort, he will usually slide down into a “slouch” to be able to bend his knees at a 90 degree angle. In doing so, the lap belt moves above the pelvic bones, resting over his soft abdominal area. While seated in this position the shoulder belt will rest on the child’s neck or face, not on the clavicle as it does for adults. For comfort, the child will often place the shoulder belt under his arm, endangering his lungs and heart, or, worse, place it completely behind his back.

During most crashes, the child’s body will travel forcefully toward the front of the vehicle and will essentially “jackknife” as the lap belt exerts force on his abdominal area. This force causes the constellation of injuries to the bowel, organs and lumbar spine known as “seat belt syndrome” (Winston, Durbin, Kallan, & Moll, 2000). The child’s head will travel forward, often colliding with the seat in front of him, the dash, or even the seat or floor beneath him. This upper body motion places the child at serious risk for spine and brain injury.

Booster seats, widely available at major retailers at prices ranging from fifteen to forty dollars, add artificial height to the child’s seated body to create a proper seat belt fit. By

guiding the lap belt across a child's bony pelvis and the shoulder belt across the clavicle and center chest, booster seats help the seat belt to reduce movement during the crash, distribute crash forces along the strongest parts of their skeletal system, and provide protection from seat belt syndrome and head and spine injuries. Booster seats, unlike CSS for younger children, are not installed in the vehicle and are considered much easier to use. During a motor vehicle crash, booster seats reduce the odds of injury for children four to seven years old by 59% when compared to a seat belt alone (Durbin, Elliott, & Winston, 2003).

Findings such as these have prompted recommendations supporting booster seat use until a child fits an adult seat belt, from the American Academy of Pediatrics (2002), Safe Kids Worldwide (2005), the Texas Child Fatality Review Team (2009), and the National Highway Traffic Safety Administration (2003), as well as laws in most other states. As of March 1, 2009, Texas was one of only six states without a law requiring booster seats (Safe Kids Worldwide, 2009). Specifically, the National Highway Traffic Safety Administration (NHTSA) recommends that all children who have outgrown child safety seats should be properly restrained in booster seats until they are at least 8 years old or they are 4'9" tall.

The Injury Prevention Committee of the Governor's EMS and Trauma Advisory Council supports these recommendations, and therefore advises the State of Texas and its citizens that children should be restrained in a child safety seat or booster

seat, used according to manufacturer's instructions, until they are at least 8 years of age, or 4' 9" in height.

American Academy of Pediatrics: Committee on Injury and Poison Prevention (2002).

Selecting and using the most appropriate car safety seats for growing children:

Guidelines for counseling parents. *Pediatrics*, 109: 550-553.

Durbin, D. R., Elliott, M. R., & Winston, F. K. (2003). Belt-positioning booster seats and reduction in risk of injury among children in vehicle crashes. *JAMA : The Journal of the American Medical Association*, 289: 2835-2840.

Insurance Institute for Highway Safety. *Fatality Facts, Children* (2004). Retrieved August 20, 2006 from http://www.iihs.org/research/fatality_facts/children.html.

National Highway Traffic Safety Administration. (2003). *Motor vehicle occupant protection facts*. Retrieved October 13, 2004 from <http://www.nhtsa.dot.gov/people/injury/airbags/occupantprotectionfacts/index.htm>

Office of Statistics and Programming, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. (n. d.). *WISQARS*. Retrieved December 2, 2005 from <http://www.cdc.gov/ncipc/wisqars/>

Safe Kids Worldwide (2009). *Summary of child booster seat laws*. Retrieved March 1, 2009. Available from Safe Kids Worldwide Advocacy Department.

Safe Kids Worldwide. (n. d.). *Safety tips: Motor vehicle safety*. Retrieved December 3, 2005 from http://www.safekids.org/tips/tips_car.htm.

Texas Child Fatality Review Team. "Committee Position Statement: Motor Vehicle Safety for Infants and Children." Retrieved March 1, 2009 from:

http://www.dshs.state.tx.us/mch/Child_Fatality_Review.shtm.

Winston, F. K., Durbin, D. R., Kallan, M. J., & Moll, E. K. (2000). The danger of premature graduation to seat belts for young children. *Pediatrics*, *105*, 1179-1183.