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Reducing Motor Vehicle-related Injuries in Children

By Matthew J. DeGaetano, DC and Steve Baek, DC
Certified in Personal Injury

A National Action Plan for Child Injury Prevention:
Motor vehicle crashes kill more children in the United States than any other cause of death. In 2011, more than 800 children aged 14 years and younger died in motor vehicle crashes[1] and almost 180,000 more were injured as motor vehicle passengers[2] most motor vehicle-related deaths and injuries are predictable and preventable.

Nearly a million children worldwide die every year as a result of unintentional injuries, and the biggest killer is traffic accidents, according to a report from the World Health Organization.

Children are particularly prone to seat belt injury because neither the car seat nor the seat belt/shoulder harness was designed to fit them optimally. Numerous pediatric injuries have been reported and often the most serious are spinal injuries (148,149,162-171), with the most common lumbar injuries occurring at the L2-L4 segments during deceleration (frontal collisions) (170). Perhaps owing to the more elastic and pliable pediatric cervical spine, with its more horizontally oriented facet joints and undeveloped uncovertebral joints, spinal cord injuries may present without radiographic evidence of trauma, i.e. the SCIWORLA syndrome (spinal cord injury without radiographic abnormality) (175) hours or days after initial trauma. Some of these cases, although initially asymptomatic, end in paraplegia or quadriplegia. As a precaution, pediatric patients demonstrating the seat belt sign (visible bruising from the diagonal or horizontal belt webbing), or complaining of extremity pain should be evaluated carefully. This would include peritoneal lavage or MRI. In recent reports, blunt intestinal trauma was found in 5-10% of pediatric MVC trauma; and in 64% of pediatric cases in which the seat belt sign is present (1351).

A National Action Plan

The Centers for Disease Control and Prevention (CDC) is committed to preventing child injury by supporting solutions that will save lives. The National Action Plan for Child Injury Prevention (NAP) was developed by CDC and more than 60 stakeholders to spark action across the nation. The overall goals of the NAP are to raise awareness about the problem of child injury and the effects on our nation, offer solutions by uniting stakeholders around a common set of goals and strategies, and mobilize action to reduce child injury and death.
The NAP contains six domains that include goals and actions based on what we know, where we need to go, and how we can get there. See below for examples of what we can do to further reduce motor vehicle-related injuries among children.
Data and Surveillance—includes the ongoing and systematic collection, analysis, and interpretation of child health data for planning, implementing, and evaluating injury prevention efforts.

Enhance usability of Crash Outcome Data Evaluation Systems (CODES) in states that have them, by standardizing the collection of child safety seat use to rear facing, forward facing, or booster seat; and indicating if the child was properly restrained at the time of the crash.

Encourage use of standardized and tested forms for child passenger safety seat checks and observational occupant surveys to facilitate data comparison across sites and over time.

Research—includes research gaps and priorities in risk factor identification, interventions, and program evaluation, and dissemination strategies needed to reduce injuries.

Conduct interdisciplinary research to further determine why parents do not always restrain their children according to child passenger safety (CPS) recommendations. Further research of the effectiveness of booster seats in reducing nonfatal injuries among children up to age 12 or a height of 4 feet 9 inches.

Update and expand research related to the child height threshold (4 feet 9 inches) for proper fit of vehicle seat belts for child passengers. The most recent research in this area is almost 20 years old, and significant changes have been made to the vehicle fleet during this time.4 Include exploration of the impact of child obesity on seat belt fit.

Communication—includes effective strategies to promote injury prevention to target audiences, through designing messages and information, and delivering them through relevant channels.

Collaborate with police and media to personalize child injury news stories and provide incident-related details (such as proper use of child safety seats and details related to the driver).

Disseminate state-specific CPS messages through multiple channels including "Click-it-or-Ticket" campaigns, day care centers, schools, pediatricians' offices, and work place settings.

Education and training—includes organized learning experiences for increasing knowledge, attitudes, and behavior change conducive to preventing injuries. Encourage child passenger safety certification training among law enforcement, fire, health care, and public health professionals.

Encourage periodic car seat inspection events at day care centers, preschools, and pediatrician offices.

Health systems and health care—includes the health infrastructure required to deliver quality care and clinical and community preventive services. Health systems can:
Counsel parents on the stages and benefits of CPS.

Create "pop-ups" in electronic medical record systems based on child's age, height, and weight to allow pediatricians to give child-specific CPS messages.
Policy—includes laws, regulations, incentives, administrative actions, and voluntary practices that enable safer environments and decision making.
Improve state CPS laws to meet height, weight, age, and location specific recommendations and conduct law enforcement led roadside car seat checkpoints.4,5,6

Require proof of parents having a rear-facing CPS seat prior to newborn hospital discharge, and provide incentives for hospitals to have a nationally certified CPS technician on duty to do car seat checks and CPS education.7

Moving Forward Together

Everyone—including parents, health care providers, educators, and community members—can take steps to prevent injury where they live, work, and play. We all have a part to play in the NAP and in protecting our children—America's future.

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