Improving Child Passenger Safety Standards

What the Research Tells Us

Motor vehicle collisions are a leading cause of death among children in the United States, but many of these deaths and injuries are preventable with appropriate use of child passenger restraints. The American Academy of Pediatrics (AAP) recommends that children use rear-facing car seats until they are two years old; forward-facing car seats until they are four; and booster seats until they are at least eight and big enough to fit in an adult seat belt. Despite these recommendations, many children are prematurely transitioned to seat belts, increasing their chances of serious injury or death in a motor vehicle collision. State laws vary widely, and transitions considered premature under AAP guidelines are legal in many states. Seeking the reasons for these premature transitions, Dr. Michelle Macy has conducted several studies of child passenger restraint use.

In January 2010, Dr. Macy and her colleagues conducted an online, national survey of parents with children between the ages of four and eight to investigate the relationship between carpooling and use of child passenger restraints. AAP guidelines recommend that all children in this age group use booster seats. Macy and her colleagues found that nearly two-thirds of parents of four to eight year old children carpooled (i.e., drove children other than their own), and many reported allowing their own children who usually used booster seats to use only seat belts when riding with other drivers. Dr. Macy and her colleagues also found that parents living in states with laws requiring the use of child safety seats were more likely to use booster seats than parents living in states that permitted the use of seat belts. Parents who were familiar with their state’s laws were more likely to use child safety seats than parents unaware of their state’s laws. This correlation suggests that the introduction of more stringent laws that align with best practice recommendations could increase appropriate restraint use, particularly in combination with efforts to increase parental awareness of updated requirements.

In a 2010 survey of emergency physicians and pediatric emergency physicians, Dr. Macy and her colleagues found that more than four out of five respondents agreed that they played an important role in educating parents on child passenger safety but responses to two clinical scenarios indicated missed opportunities to provide parents with best-practice recommendations for child passenger safety. The study also showed that more than one-third of physicians surveyed were unsure whether child safety resources such as seat inspections and reduced-price car seat or booster seat programs were available in their community. These findings suggest a need for greater physician education on child passenger safety best practice recommendations, particularly within general, non-pediatric emergency departments.

Dr. Macy’s work has also shown significant racial disparities in child passenger restraint use. Along with Dr. Gary Freed (Department of General Pediatrics), Dr. Macy analyzed data from the 2007–2009 National Highway Traffic Safety Administration National Surveys on the Use of Booster Seats. Their analysis found that black and Hispanic children were more likely to be prematurely transitioned or ride unrestrained than white children. Dr. Macy and colleagues also conducted a cross-sectional survey of parents whose children aged 1–12 were seen in two Michigan emergency departments in 2011 and 2012. This study provided further evidence of substantial disparities in appropriate restraint use: premature transitions were almost three times more frequent among children with nonwhite parents than those with white parents. This research indicates a need for culturally appropriate interventions aimed at eliminating these disparities.

Dr. Macy’s current work includes a study of size-appropriate child passenger restraint use. Because proper restraint fit depends on size and child growth varies widely, children who are small or large for their age may be better protected through size-based rather than age-based guidelines. Using the data gathered in her 2011–2012 survey of parents who...
brought their children into emergency departments. Dr. Macy is analyzing the frequency of size-appropriate restraint use, agreement between age-based and size-based measures of restraint appropriateness, and predictors of size-appropriate restraint use.

Dr. Macy’s findings indicate that many factors contribute to suboptimal use of appropriate child passenger restraints, but there are ways to increase appropriate use. The introduction of new laws better aligned with best practice recommendations, provider education, and culturally appropriate interventions could help ensure that all children are adequately protected in the event of a collision.

**Impact of the Research**

Dr. Macy’s expertise on child passenger safety continues to be recognized by the media and state legislators. Dr. Macy authored an op-ed urging the implementation of Michigan laws requiring size-appropriate restraint use as part of the Center for Healthcare Research and Transformation’s Policy Fellowship in September 2013. A second op-ed calling for national standardization was published in October 2014. Additionally, her work has been featured in a wide variety of local and national news outlets. Dr. Macy is working to educate legislators about this subject, and provided testimony during the Michigan Occupant Protection Assessment. As a member of the Office of Highway Safety Planning’s Michigan Occupant Protection Action Team, she helped to draft Michigan’s Occupant Protection Action Plan, a statement of goals and strategies for increasing appropriate restraint use and reducing injury in the state.

**About the Researcher**

Dr. Michelle Macy, M.D., M.S., is an Assistant Professor of Emergency Medicine and Pediatrics and a member of the Institute for Healthcare Policy and Innovation. She conducts research within the Child Health Evaluation and Research (CHEAR) Unit.

To learn more about Dr. Macy and her work please see: [http://www.chear.org/people/faculty-investigators/michelle-macy-md](http://www.chear.org/people/faculty-investigators/michelle-macy-md).

---


© 2014 Regents of the University of Michigan.