

Traffic Safety Facts

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Preliminary Data Indicate That Booster Seat Laws Increase Child Safety Seat Use

On June 1, 2006, Wisconsin enacted a child passenger safety law requiring children between 4 and 8 years old or who weigh between 40 and 79 pounds and are no taller than 4 feet 9 inches to be restrained in booster seats. The law does not require the booster seat to be placed in a back seat. During a six-month grace period, police issued written warnings instead of citations for first-time violations. Beginning January 1, 2007, police issued citations for violations.

Prior to June 1, 2006, Wisconsin law required all children under 4 to be in child restraints, and children between 4 and 8 years old to be in child restraints or safety belts. While Wisconsin's child passenger safety (CPS) law is a primary enforcement law, meaning police can write tickets to parents and caregivers of improperly restrained children, Wisconsin's adult seat belt law is a secondary enforcement law. Police can only give an adult seat belt violation if a driver is pulled over for another violation.

The Wisconsin Department of Transportation developed a one-page information sheet and card to provide details of the new law for law enforcement personnel and the public. The Wisconsin Bureau of Transportation Safety also ran an article on the new law in its May newsletter. The American Automobile Association (AAA) of Wisconsin and Safe Kids Worldwide (SKW) held a news conference in Madison on June 1 in conjunction with SKW car seat checks around the State.

In order to examine the effectiveness of this law to increase booster seat use among children of booster seat age, the National Highway Traffic Safety Administration contracted with TransAnalytics, LLC, and its subcontractor, Program Professionals, Inc., to conduct an observational survey of booster seat use in Wisconsin before and after the law changed.

Method

Booster seat observation sites were located in urban and suburban areas and based on site permission, high numbers of target vehicles entering the site, safety, and location. The most common sites were shopping centers with retail stores that attract the target vehicle group (e.g., Wal-Mart,

Toys“R”Us); elementary schools and child care centers; health care centers; and recreational sites. A convenience sampling approach was used.

To obtain control/comparison data, booster seat observations were also conducted in Michigan, a neighboring State that had no legislative action for enacting a booster seat law. Under Michigan's law, all children under the age of 4 must be in a child restraint system, and children between 4 and 16 must wear a seat belt. All front-seat occupants must wear seat belts. However, in Michigan, both CPS and seat belt laws are primary enforcement laws.

Baseline data was collected in the Milwaukee, Wisconsin, area May 9-11, 2006, and in the Detroit, Michigan, area May 18-24, 2006. Post-intervention data was collected in Wisconsin September 6-23, 2006, and in Michigan September 11 to October 3, 2006.

Data collectors stationed in parking lots and targeted drivers who were (a) parking their cars; and, (b) transporting at least one child passenger appearing to be 4 to 8 years old. Upon receiving the driver's permission to participate in the study, data collectors noted the vehicle type, number of passengers, seating positions, sex, and restraint use.

Results

Overall, the driver and vehicle characteristics (e.g., percentage of female versus male, race, vehicle types, and number of occupants) were similar in Wisconsin and Michigan during the pre- and post-intervention periods.

Although booster seat use among children 4 to 8 years old increased from 40 to 45.9 percent in Wisconsin and from 38.6 to 40.2 percent in Michigan during this same period, these increases were not statistically significant (see Table 1).

However, during the pre- and post-booster-seat-law period, the overall patterns of restraint use (safety belt, child safety seat [CSS], booster, and unrestrained) for children 4 to 8 changed significantly in Wisconsin ($p < .02$) and in Michigan ($p < .01$). In both States, the number of children in child safety seats and booster seats increased, and the number of children

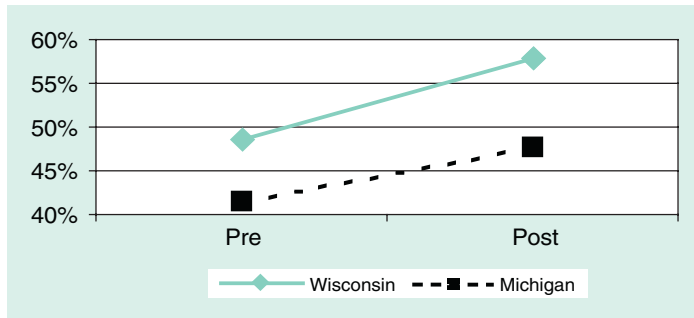
in seat belts decreased. However, in Wisconsin, the number of unrestrained children remained relatively stable, while the number in Michigan increased.

Table 1. Restraint Use for Booster-Seat-Age Children

	Wisconsin		Michigan	
	Pre N=407	Post N=355	Pre N=472	Post N=465
Safety Belt	30.7%	21%	45.6%	35.7%
CSS	8.6%	11.8%	3.0%	7.3%
Booster	40.0%	45.9%	38.6%	40.2%
Unrestrained	20.6%	21%	12.9%	16.8%
Total	100.0%	100.0%	100.0%	100.0%

Since there is a large variation in children’s sizes between 4 to 8 years old, smaller children would be appropriately restrained in CSSs with internal harnesses while larger children would be appropriately restrained in booster seats. There is also some variation in upper weight limits for forward-facing CSSs with internal harnesses (e.g., from 40 to 80 pounds), so a child 40 pounds or over may still be appropriately restrained in a CSS.

Figure 1. Children Ages 4 to 8 Appropriately Restrained in Child Passenger Seats or Booster Seats



A chi-square test was performed to determine if there was a significant difference from the pre- to post-booster-law period in the number of children who were appropriately restrained, without regard to the type of child restraint system. Thus, an appropriately restrained child could be riding in a booster seat or in a CSS. In Wisconsin, significantly more children were appropriately restrained from before to after the law ($p < .02$) while the results for Michigan were not significant. The combination of CSS and booster seat use in Wisconsin

showed an increase of 9.1% (48.6% to 57.7%) and the same combination yielded an increase in Michigan of 5.9% (41.6% to 47.5%, see Figure 1).

There was also a trend for children inappropriately restrained for their age (e.g., in seat belts or completely unrestrained). In Wisconsin, the number of children in seat belts and the number of children who were completely unrestrained decreased 9.1% (51.3% before the law; 42.2% after the law). In Michigan during this same period the number of children in seat belts and the number of children who were unrestrained decreased 6% (58.5% before the law; 52.5% after the law).

For both States, over half of the booster seats were the backless type in the pre- and post-intervention periods. Over one-third of the booster seats were belt-positioning, high-back models in the pre- and post-intervention periods. About 10% were combination seats and only about 2% were shield boosters in each period.

Conclusions

These findings offer the first indications that Wisconsin’s Booster Seat Law had the effect of increasing child restraint system use (CSS or booster seats) for children 4 to 8 years old. However, this study has limitations because it used a convenience sample. While not necessarily representative of the State, the study findings show a significant change in the direction of safer practices from pre- to post- Wisconsin’s booster seat law change.

It can be inferred that the booster seat law motivated parents and caregivers to move their children into some type of restraint that was appropriate for the child’s age and weight. Since there was no concomitant change in the comparison State from pre- to post-intervention (no child booster seat law was implemented in Michigan), it may be inferred that the increase in appropriately restrained children in Wisconsin was the result of the new law.

How to Order

The report for *Preliminary Data Indicate That Booster Seat Laws Increase Child Safety Seat Use* prepared by TransAnalytics, LLC, will be available in the next few months by writing to the Office of Behavioral Safety Research, NHTSA, NTI-130, 1200 New Jersey Avenue SE., Washington, DC 20590, fax 202-366-7096, or download from www.nhtsa.dot.gov. John Siegler, Ph.D., was the Task Order Manager for this project.