



## Booster Seat Use among Colorado Children, 2004 and 2005

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### Booster Seat Use Increases in Low-Income Populations, Declines Among Children Ages 6-8

Studies have shown that the use of booster seats by children ages 4 to 7 lowers the risk of injury in vehicle crashes by 59 percent compared to the use of seat belts.<sup>1</sup> Colorado's booster seat law went into effect in August 2003 with a year of education and warnings only. The full enforcement of the law began on August 1, 2004.<sup>2</sup>

Previous studies by the Colorado Department of Public Health and Environment showed a significant increase in booster seat use from 2001 to 2004 (see [www.cdphe.state.co.us/pp/injepi/BriefBooster0328.pdf](http://www.cdphe.state.co.us/pp/injepi/BriefBooster0328.pdf)). In 2001, adults reported that 85.8 percent of the 4- to 8-year-olds in their household always used a restraint while riding in a vehicle. Of those who always used a restraint, 15.4 percent used a booster seat. In 2004, the percentage of children who always used a restraint remained high at 88.7 percent, but booster seat use increased to 45.2 percent. The use of booster seats by children ages 4 to 8 increased nearly three-fold from 2001 to 2004. This assessment provided evidence that legislation in combination with enforcement and education could lead to a significant change in how children are restrained in a motor vehicle.

This brief presents the results of a follow-up study to determine whether use of booster seats continued to increase from 2004 to 2005. Booster seat use was assessed using the statewide Child Health Survey conducted by the Survey Research Unit at the Colorado Department of Public Health and Environment.

Overall restraint use results for 2004 and 2005 are shown in Table 1. A comparison of results showed no significant increase in overall booster seat use, which remained at 45 percent in 2005. However, when the results of subpopulations were examined, differences in booster seat use were seen (Table 2 on page 2).

	2004		2005	
	Sample Size	Percent	Sample Size	Percent
Type of Restraint	257		275	
Lap belt	4	0.9 (0 - 2.2)	5	2.0 (0.1 - 4.0)
Lap/shoulder belt	97	38.3 (30.3 - 46.3)	105	38.3 (31.9 - 44.8)
Child car seat	30	12.2 (7.2 - 17.1)	23	7.7 (4.4 - 11.0)
<b>Booster seat</b>	114	<b>45.2 (37.2 - 53.2)</b>	125	<b>45.6 (39.0 - 52.2)</b>
Other	12	3.4 (0.6 - 6.3)	17	6.3 (3.0 - 9.5)

Booster seat use was statistically the same for 4-, 5-, and 6-year-olds (Table 2) in 2004 and 2005. Although not statistically different, booster seat use appeared to decline among 7-year-olds and remained quite low for 8-year-olds in both 2004 and 2005.

<sup>1</sup> Durbin DR, Elliott MR, Winston FK. Belt-positioning booster seats and reduction in risk of injury among children in vehicle crashes. JAMA 2003;289(21):2835-40.

<sup>2</sup> Details on the Colorado Child Restraint Law are available at [www.carseatscolorado.com](http://www.carseatscolorado.com).

In 2004, booster seat use was slightly higher among the 4- to 5-year-old age group than the 6- to 8-year-old age group, although the difference was not statistically significant. By 2005, booster seat use among 4- to 5-year-olds (64.7 percent) was significantly higher than among 6- to 8-year-olds (30.3 percent).

The declining use of booster seats by children ages 6-8 might be the result of the state booster seat law that is limited to 4- and 5-year-olds only. The current Colorado law allows all children ages 6 and older to ride legally using only a seatbelt. Parents may feel that following the law will adequately protect their children. However injury research has shown that children ages 6-7 also benefit from the use of booster seats.<sup>1</sup>

In both 2004 and 2005, there was no statistically significant difference in booster seat use between rural and urban areas. Differences were seen, however, in households with an annual income less than \$25,000. In 2004, booster seat use was significantly lower among low income households compared to households with middle to high incomes. In 2005, the percent of booster seat use reported by low income households increased from 18.9 percent to 42.7 percent, although the difference is not statistically significant, due to small response numbers. In 2005, booster seat use in low income households was similar to that in middle to high income households.

Table 2: Prevalence of booster seat use (95% confidence intervals), by selected characteristics for Colorado children ages 4-8, among children who always used a restraint, Child Health Survey 2004 and 2005		
	2004	2005
Age	Prevalence, (95% CIs)	Prevalence, (95% CIs)
4	40.9 (25.3 - 56.4)	60.2 (46.6 - 73.8)
5	75.1 (57.9 - 92.3)	68.9 (55.8 - 82.0)
6	64.2 (47.8 - 80.6)	52.4 (38.0 - 66.8)
7	60.8 (40.3 - 81.3)	37.1 (21.3 - 52.9)
8	1.2 (0 - 3.6)	0.8 (0 - 2.5)
Age Groups		
4-5	55.3 (43.1 - 67.5)	64.7 (55.3 - 74.1)
6-8	38.2 (27.9 - 48.5)	30.3 (22.2 - 38.4)
Region		
Urban	47.1 (38.3 - 55.9)	43.6 (36.4 - 50.9)
Rural	39.2 (17.7 - 60.7)	56.2 (40.8 - 71.6)
Household Income		
< \$25,000	18.9 (4.3 - 33.5)	42.7 (26.4 - 59.1)
\$25,000-\$50,000	52.4 (36.7 - 68.1)	42.7 (30.1 - 55.4)
>\$50,000	50.1 (38.4 - 61.7)	50.1 (41.0 - 59.1)

### Colorado's Child Restraint Law

- Infants must ride in rear-facing car seats until they are at least one year old and at least 20 pounds.
- Children ages 1 to 4 years who weigh 20 to 40 pounds must be restrained in a forward-facing car seat.
- Children who are less than 6 years old but weigh more than 40 pounds must continue to ride in a child restraint (unless they are 55 inches tall). Typically this is a booster seat.
- Children ages 6 to 16 years must be restrained in a seat belt.

Complete details on the Colorado Child Restraint Law are available at: [www.carseatscolorado.com](http://www.carseatscolorado.com)

Note: Safety advocates recommend that children should use booster seats until they are about 57 inches tall and that all children ages 12 and younger should ride in the back seat.

### Motor vehicle injuries can be prevented

Health agencies and safety advocates can assist in prevention by participating in community coalitions that combine education and enforcement in a multi-faceted approach. Best practice strategies include the following:

- develop distribution and education programs for child safety seats and booster seats.
- support increased enforcement of seatbelt and child safety seat laws and community-wide information.
- promote seatbelt use for **all** occupants through education and enforcement. Studies show that restraint use by children is highly correlated to restraint use of the driver.

More information on Best Practices is available at:

*Colorado Injury Prevention Strategic Plan 2003-2008*

[www.cdphe.state.co.us/pp/injuryprevention/IP\\_03-08finalstrategicplan.pdf](http://www.cdphe.state.co.us/pp/injuryprevention/IP_03-08finalstrategicplan.pdf)

Booster Seat Promotion Program Resources

[www.cdphe.state.co.us/pp/injuryprevention/boosterseat/index.html](http://www.cdphe.state.co.us/pp/injuryprevention/boosterseat/index.html)

Best Practice: Motor Vehicle Injury Prevention (children 0-14)

[www.colorado.gov/bestpractices/MotorVehicleInjury0-14/index.html](http://www.colorado.gov/bestpractices/MotorVehicleInjury0-14/index.html)

*Guide to Community Preventive Services (Community Guide): Motor Vehicle Occupant Injury*

[www.thecommunityguide.org/mvoi](http://www.thecommunityguide.org/mvoi)

*The Behavioral Risk Factor Surveillance System (BRFSS) survey was initiated in 1990 as a joint project of the Colorado Department of Public Health and Environment, and the Centers for Disease Control and Prevention. In January 2004 the Health Statistics Section of CDPHE initiated the Child Health Survey in conjunction with the annual BRFSS survey. Once a respondent completed the BRFSS survey, the interviewer inquired if they had a child in the target age range of 1 to 14. In 2004, 997 interviews were completed; in 2005, 915 interviews were completed. The percentages were weighted to reflect the probability of selection and to provide statewide estimates. The use of booster seats may be over reported in the surveys if adults answering the survey do not understand the definition of a booster seat or car seat.*