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The 2013 National Survey of the Use of Booster Seats

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Abstract

This technical report presents results from the 2013 National Survey of the Use of Booster Seats (NSUBS). NSUBS is the only probability-based nationwide child restraint use survey in the United States that observes restraint use and interviews an adult occupant to collect race, ethnicity, and other data. NHTSA's National Center for Statistics and Analysis conducts the NSUBS. The 2013 NSUBS found that 46 percent of 4- to 7-year-old children were restrained in booster seats in 2013 as compared to 47 percent in 2011. Restraint use for all children under 13 remained the same at 91 percent in 2013. Although there were some indications of premature graduation to restraint types that are not appropriate for children's age, height and weight, there were some improvements in use of appropriate restraint types in 2013 as compared to 2011.

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Executive Summary

This report presents results from the 2013 National Survey of the Use of Booster Seats (NSUBS). NSUBS is the only probability-based nationwide child restraint use survey in the United States that observes restraint use and interviews an adult occupant to collect data such as the race and ethnicity of all occupants in the vehicle. The National Highway Traffic Safety Administration's National Center for Statistics and Analysis conducts the NSUBS.

In 2000, Congress passed the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act that directed the Department of Transportation to reduce by 25 percent the deaths and injuries among 4- to 7-year-olds caused by the failure to use booster seats. In response, NHTSA began the NSUBS survey in 2006 to provide a national estimate of booster seat use in order to target its outreach programs. Since 2009, the NSUBS survey is conducted every other year and in 2013, the NCSA conducted the sixth NSUBS.

The primary purpose of NSUBS is to estimate booster seat use among 4- to 7-year-old children. In addition, the survey provides restraint use estimates for all children under 13, race and ethnicity breakouts of restraint use among all occupants in a vehicle, and estimates of the extent to which children are "prematurely graduated" to restraint types that are inappropriate for their age as well as height and weight.

The following are some major findings from the 2013 NSUBS:

- Booster seat use among 4- to 7-year-old children was 46 percent in 2013, compared to 47 percent in 2011. This change is not statistically significant.
- The appropriate restraint system for 4- to 7-year-old children is either a forward-facing car seat or a booster seat, depending on the child's height and weight. However, the NSUBS found that 33 percent of children 4- to 7 years old in the United States were not being properly restrained; 24 percent were restrained by seat belts and 9 percent were unrestrained.
- Premature graduation to restraint types that are not appropriate for children's age, height, and weight continues in 2013. However, there was improvement in the use of appropriate restraint types among children of a few categories in 2013 compared to 2011.
    - About 10 percent of children 1 to 3 years old were restrained in rear-facing car seats in 2013, a significant increase from 7 percent in 2011.
    - Only 9 percent of children 1 to 3 years old were prematurely graduated to booster seats in 2013, a significant decrease from 12 percent in 2011.
    - About 20 percent of children 4 to 7 years old were restrained in forward-facing car seats in 2013, an increase from 18 percent in 2011.
    - About 24 percent of children 4 to 7 years old were prematurely graduated to seat belts in 2013, a decrease from 25 percent in 2011.
    - Booster seat use among children up to 12 years old who were 37 to 53 inches tall held constant at 38 percent in 2013; meanwhile, seat belt use decreased from 33 percent in 2011 to 32 percent in 2013.
    - Booster seat use among children up to 12 years old who were 54 to 56 inches tall increased from 13 percent in 2011 to 15 percent in 2013; meanwhile, seat belt use increased from 72 percent in 2011 to 73 percent in 2011.
- Restraint use for all children under 13 years old held constant at 91 percent in 2013; the restraint use rates for children from birth to 12 months old, 1 to 3 years old, 4 to 7 years old, and 8 to 12 years old in 2013 were 98 percent, 95 percent, 91 percent, and 89 percent, respectively.
- Restraint use among Non-Hispanic White children 8 to 12 years old increased significantly to 95 percent in 2011 from 91 percent in 2011.

- Restraint use by Hispanics was significantly lower than Non-Hispanics among children 1 to 12 years old.
- A statistically significant lower seat belt use was again observed for Hispanics, and for non-Hispanic Black or African-Americans than non-Hispanic Asians and non-Hispanic Whites among passenger vehicle occupants 25 to 69 years old traveling with children.

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1. Introduction

In 2000, Congress passed the Transportation Recall Enhancement, Accountability, and Documentation Act (Pub. L. 106-414; November 1, 2000), which directed the Department of Transportation to develop a 5-year strategic plan to reduce by 25 percent deaths and injuries among 4- to 7-year-olds caused by failure to use booster seats. Therefore, there was a need for reliable data on who was not using booster seats in order to direct outreach programs where they are most needed.

Prior to the NSUBS, research sponsored by NHTSA and several other organizations have estimated booster seat use in the United States; however, these estimates were not sufficiently reliable because they used data either from a non-probability sample that may not result in nationally representative estimates or from telephone interviews that may not result in reliable estimates.

In 2006, NHTSA conducted the first-ever nationwide probability-based survey of booster seat use in the United States and collected data based on the observation of children in vehicles. The NSUBS yields demonstrably representative results on a certain population of children. The population of children captured by the NSUBS comprises children who are conveyed by passenger vehicles to gas stations, fast-food restaurants, day care centers, or recreation centers.

NHTSA has used the NSUBS data in its outreach programs and campaigns on child passenger safety in recent years. In 2012 (the most current data available), the total number of traffic crash fatalities among children 4 to 7 years old was reduced by half, to 291 as compared to 570 in 2000 (NHTSA, 2014).

The 2013 NSUBS was conducted from July 12 to July 31, 2013. The survey estimates were computed based on the results of 11,098 children observed in 7,229 vehicles at 428 observation sites across the country.

The purpose of this report is to present results from the 2013 NSUBS.

It should be noted that this report has classified child restraint system use into four general categories: car seats (with harness strap, including rear-facing and forward-facing), booster seats (without harness strap, including high-backed and backless), seat belts, and unrestrained. Please refer to the appendix for detailed definitions. Unless otherwise indicated, "significant" always means "statistically significant" in this report. Percentages may not add up to 100 due to rounding in figures and tables.

2. The National Estimates of Booster Seat Use

Who Should Be in Booster Seats?

NHTSA's new car seat recommendation for children 4 to 7 years old is: Keep your child in a forward-facing car seat with a harness until he or she reaches the top height or weight limit allowed by your car seat's manufacturer. Once your child outgrows the forward-facing car seat with a harness, it's time to travel in a booster seat, but still in the back seat.

The National Estimates

The 2013 NSUBS found that booster seat use among 4- to 7-year-old children slightly decreased from 47 percent in 2011 to 46 percent in 2013 (Figure 1). This is not a statistically significant change.

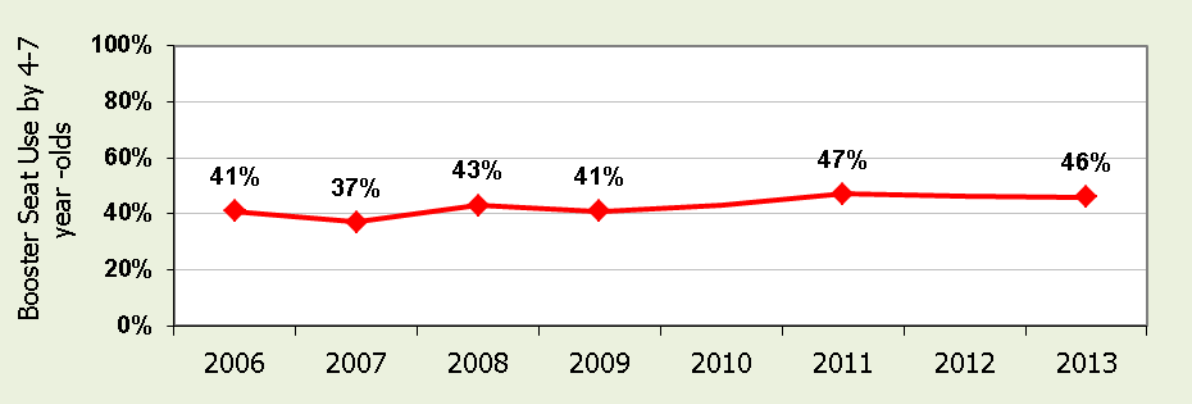

Figure 1: Booster Seat Use, National Estimates

The appropriate restraint system for children 4 to 7 years old is either a forward-facing car seat or a booster seat, depending on the child's height and weight. However, the NSUBS found that in 2013, 46 percent of children in this age group were using booster seats (either high-backed or backless), 20 percent were restrained in child car seats, 24 percent were in seat belts, and 9 percent were unrestrained (Figure 2). These results indicate that as many as 33 percent (24 percent in seat belts and 9 percent unrestrained) of children 4 to 7 in the United States were not being properly restrained. However, the percent of children 4 to 7 restrained in seat belts slightly decreased from 25 percent in 2011 to 24 percent in 2013.

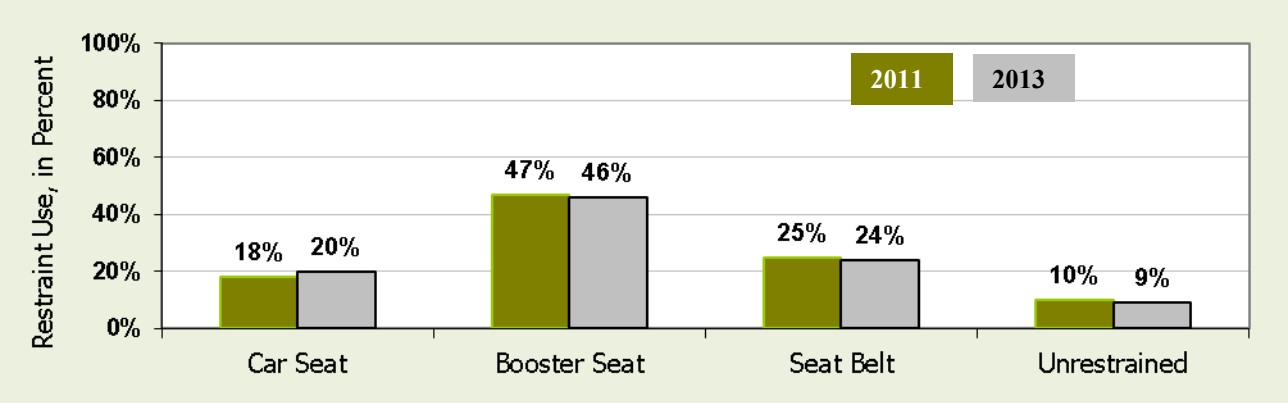

Figure 2: Restraint Use for Children 4 to 7 Years Old

As in 2011, the 2013 NSUBS survey found that among the 4- to 7-year-olds, the younger children (4 and 5-year-olds) had higher booster seat use than the older (6 and 7- year-old) children. In 2013, 48 percent of children 4 and 5, as compared to 44 percent of children 6 and 7, were restrained in booster seats. However, booster seats use among children 6 and 7 slightly increased from 43 percent in 2011 to 44 percent in 2013. Figures 3 and 4 show the distributions of restraint use for these two sub-age groups, as well as the changes between 2011 and 2013.

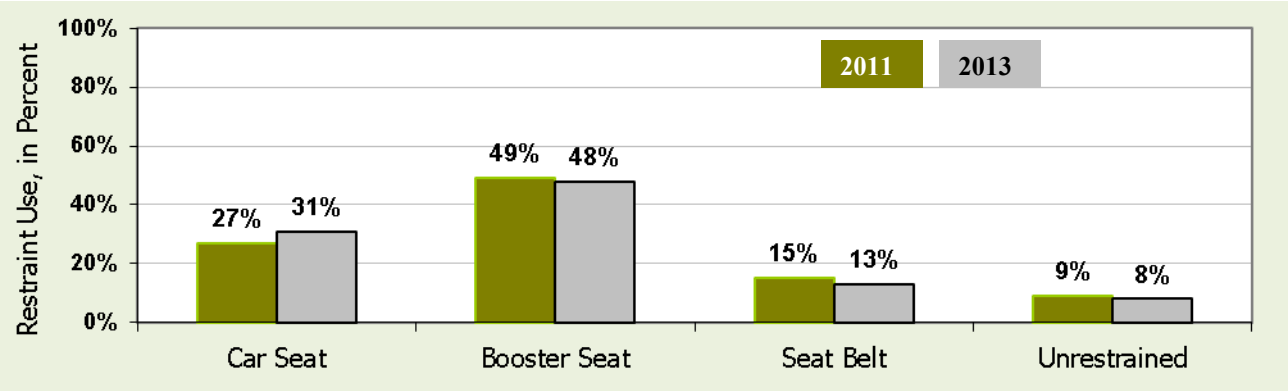

Figure 3: Restraint Use for Children 4 and 5 Years Old

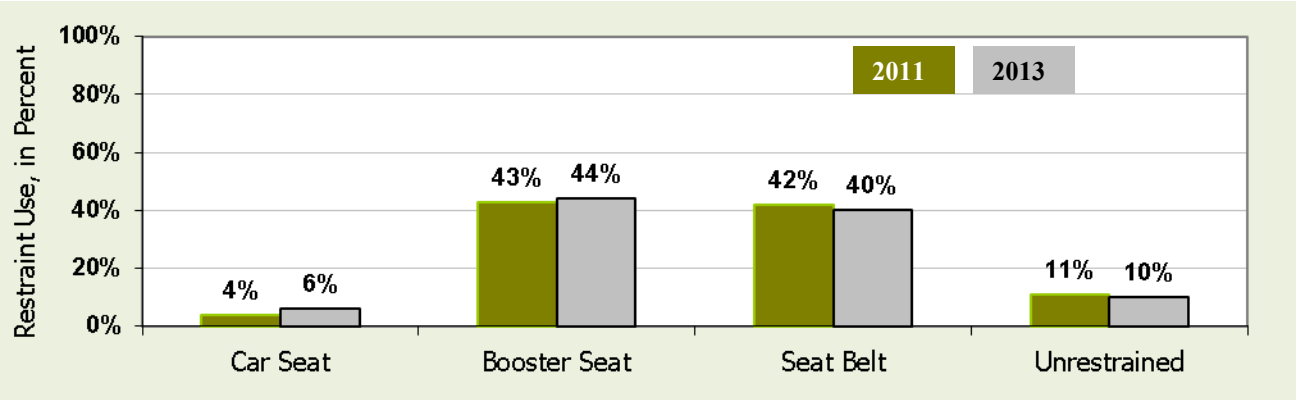

Figure 4: Restraint Use for Children 6 and 7 Years Old

Table 1: Booster Seat Use, by Age, Weight, or Height

Booster Seat Type[1]	2011		2013		2011-2013 Change	
	Percentage[2] of Children[3] Using the Booster Type	Standard Error	Percentage[2] of Children[3] Using the Booster Type	Standard Error	Change in Percentage Points	Confidence in a Change in Percentage[4]
Children 1 to 3 Years Old						
Booster Seat (Overall)	12%	1%	9%	1%	-3	**96%**
High-Backed Booster Seat	9%	1%	7%	1%	-2	**93%**
Backless Booster Seat	3%	0%	3%	1%	-1	71%
Children 4 to 7 Years Old						
Booster Seat (Overall)	47%	2%	46%	2%	0	8%
High-Backed Booster Seat	25%	1%	26%	2%	1	26%
Backless Booster Seat	21%	1%	20%	2%	-1	40%
Children 8 to 12 Years Old						
Booster Seat (Overall)	8%	1%	10%	2%	2	79%
High-Backed Booster Seat	3%	0%	3%	1%	0	47%
Backless Booster Seat	5%	0%	7%	2%	1	83%
Children Who Weigh 20 to 40 Pounds						
Booster Seat (Overall)	20%	1%	21%	2%	1	42%
High-Backed Booster Seat	14%	1%	13%	1%	-1	48%
Backless Booster Seat	6%	1%	8%	2%	2	90%
Children Who Weigh Between 41 to 60 Pounds						
Booster Seat (Overall)	45%	2%	44%	2%	0	14%
High-Backed Booster Seat	22%	1%	23%	2%	1	57%
Backless Booster Seat	23%	1%	21%	2%	-2	66%
Children up to 12 Years Old Who Weigh More Than 60 Pounds						
Booster Seat (Overall)	10%	1%	9%	2%	0	12%
High-Backed Booster Seat	4%	0%	4%	1%	0	9%
Backless Booster Seat	6%	1%	6%	2%	0	9%
Children Who Are at Most 36 Inches Tall						
Booster Seat (Overall)	12%	1%	11%	1%	-1	61%
High-Backed Booster Seat	8%	1%	8%	1%	-1	35%
Backless Booster Seat	4%	0%	4%	1%	-1	68%
Children up to 12 Years Old Who Are 37 to 53 Inches Tall						
Booster Seat (Overall)	38%	1%	38%	2%	1	24%
High-Backed Booster Seat	20%	1%	21%	2%	0	19%
Backless Booster Seat	17%	1%	18%	1%	0	18%
Children up to 12 Years Old Who Are 54 to 56 Inches Tall						
Booster Seat (Overall)	13%	2%	15%	5%	2	46%
High-Backed Booster Seat	5%	1%	5%	3%	0	10%
Backless Booster Seat	8%	1%	9%	3%	2	61%
Children up to 12 Years Old Who Are Taller Than 56 Inches						
Booster Seat (Overall)	3%	0%	4%	1%	1	83%
High-Backed Booster Seat	1%	0%	1%	1%	0	13%
Backless Booster Seat	1%	0%	2%	1%	1	82%

[1] Booster seats are classified into two types: those with seat backs ("high-backed") and those without ("backless").
[2] Estimates might not sum to totals due to rounding.

[3] Survey data is obtained for children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains. Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window.
[4] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
Note: Booster seat use rates for children newborn to 12 months old and who weigh less than 20 pounds are not provided due to the insufficient data to produce reliable estimates.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

Table 2: Distribution of Restraint Types Among Children 4 to 7 Years Old, by Sub-Age Groups

Restraint Type[1]	2011		2013		2011-2013 Change	
	Percentage[2] of Children[3] Observed in the Restraint Type	Standard Error	Percentage[2] of Children[3] Observed in the Restraint Type	Standard Error	Change in Percentage Points	Confidence in a Change in Percentage[4]
Children 4 and 5 Years Old						
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	27%	2%	31%	2%	3	**92%**
Booster Seat (Overall)	49%	3%	48%	3%	-1	18%
High-Backed Booster Seat	30%	1%	31%	2%	0	16%
Backless Booster Seat	19%	2%	17%	2%	-1	48%
Seat Belt	15%	2%	13%	2%	-1	42%
No Restraint Observed	9%	2%	8%	1%	-1	47%
Children 6 and 7 Years Old						
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	4%	1%	6%	1%	2	**97%**
Booster Seat (Overall)	43%	2%	44%	3%	1	23%
High-Backed Booster Seat	18%	1%	20%	3%	2	58%
Backless Booster Seat	25%	2%	25%	2%	-1	35%
Seat Belt	42%	2%	40%	3%	-2	62%
No Restraint Observed	11%	1%	10%	2%	-1	25%
Children 4 to 7 Years Old						
Rear-Facing Car Seat	0%	0%	NA	NA	NA	NA
Forward-Facing Car Seat	18%	1%	20%	2%	2	87%
Booster Seat (Overall)	47%	2%	46%	2%	0	8%
High-Backed Booster Seat	25%	1%	26%	2%	1	26%
Backless Booster Seat	21%	1%	20%	2%	-1	40%
Seat Belt	25%	1%	24%	2%	-1	33%
No Restraint Observed	10%	1%	9%	1%	-1	40%

[1] Survey data is obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Estimates might not sum to totals due to rounding.
[3] Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window
[4] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

3. Premature Graduation

The NSUBS, although its primary purpose is to estimate booster seat use, also provides estimates of the extent to which children are "prematurely graduated" to restraint types that are inappropriate for their age and size. In this section, we discuss the phenomenon of premature graduation by age groups since NHTSA's car seat recommendations are primarily based on age.

NHTSA recommends that parents refer to the specific car seat manufacturer's instructions on weight and height limits. Car seats on the market exhibit a wide variation in height and weight limits. Many height limits range from 36 to 54 inches, and many weight limits range from 40 to 60 pounds. These limits were considered in discussing the extent of premature graduation in previous NSUBS publications. For comparison purposes, we will briefly discuss similar results from the 2011 NSUBS survey.

It should be noted that if a column corresponding to a data series or a data category is missing from a figure in this section, it means that there are not sufficient data to produce a reliable estimate for the data category. Also, please note that sometimes estimates might not sum to totals due to rounding.

Premature Graduation Among Children Under Age 1

NHTSA recommends: "Your child under age 1 should always ride in a rear-facing car seat. There are different types of rear-facing car seats: Infant-only seats can only be used rear-facing. Convertible and 3-in-1 car seats typically have higher height and weight limits for the rear-facing position, allowing you to keep your child rear-facing for a longer period of time." (Source: www.safercar.gov)

As shown in Figure 5, about 10 percent of children under age 1 were not in rear-facing car seats in 2013; most of these infants were prematurely graduated to forward-facing car seats.

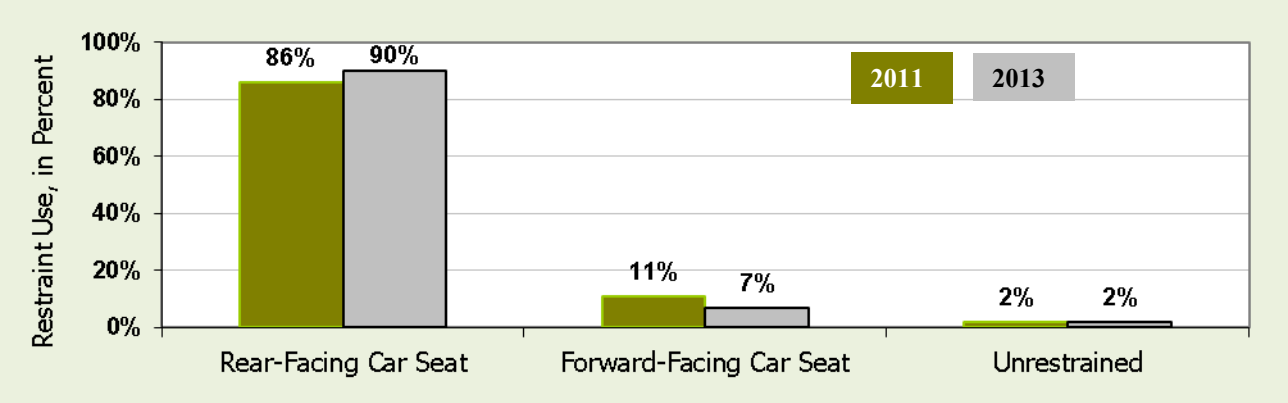

Figure 5: Restraint Use for Children Under Age 1

Premature Graduation Among Children 1 to 3 Years Old

NHTSA recommends: "Keep your 1 to 3-year-old children in rear-facing car seats for as long as possible. It's the best way to keep them safe. They should remain in a rear-facing car seat until they reach the top height or weight limit allowed by your car seat's manufacturer. Once outgrown the rear-facing car seat, they are ready to travel in a forward-facing car seat with a harness."

Therefore, the appropriate restraint types for children 1 to 3 years old should be either rear-facing car seats or forward-facing car seats. The 2013 NSUBS found that only 83 percent of children 1 to 3 years old were restrained either in rear-facing car seats (10%) or in forward-facing car seats (73%) in 2013. About 9 percent of children 1 to 3 years old were prematurely graduated to booster seats and 3 percent to seat belts. Figure 6 shows the distribution of restraint types for children 1 to 3 years old in 2011 and 2013.

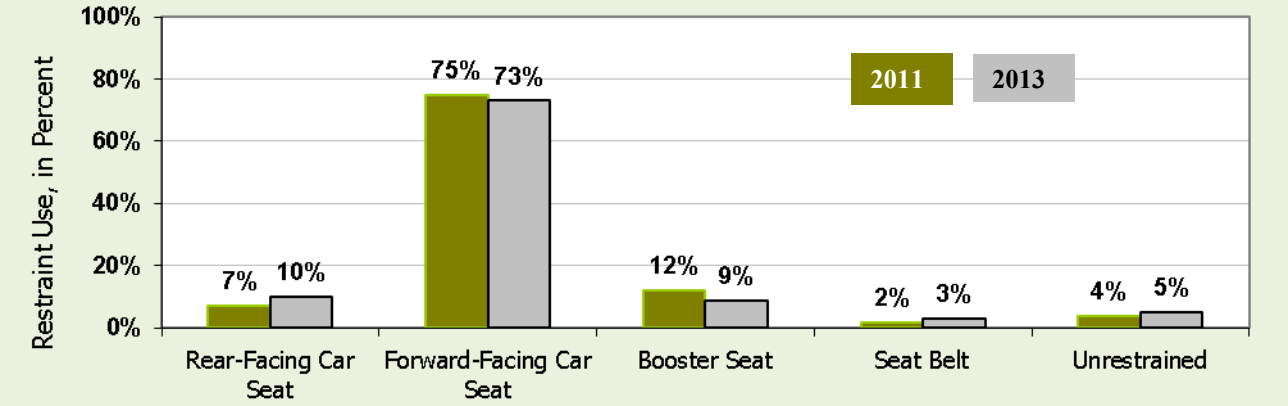

Figure 6: Restraint Use for Children 1 to 3 Years Old

As compared to 2011, there were two improvements for children of this age group as shown in Figure 6:

1) About 10 percent of children were restrained in rear-facing car seats in 2013, a significant increase from 7 percent in 2011.
2) About 9 percent of children were prematurely graduated to booster seats in 2013, a significant decrease from 12 percent in 2011.

Premature Graduation Among Children 4 to 7 Years Old

NHTSA recommends: "Keep your 4- to 7-year-old children in forward-facing car seats with a harness until they reach the top height or weight limit allowed by your car seat's manufacturer. Once they outgrow their forward-facing car seat with a harness, it's time to travel in a booster seat ... and still in the back seat."

Therefore, the appropriate restraint types for children 4 to 7 years old should be either forward-facing car seats or booster seats. However, the 2013 NSUBS found that only 66 percent of children 4 to 7 years old were restrained either in forward-facing car seats (20%) or in booster seats (46%) in 2013. About 24 percent of children 4 to 7 years old were prematurely graduated to seat belts and 9 percent were unrestrained. Figure 7 shows the distribution of restraint types for children 4 to 7 years old in 2011 and 2013.

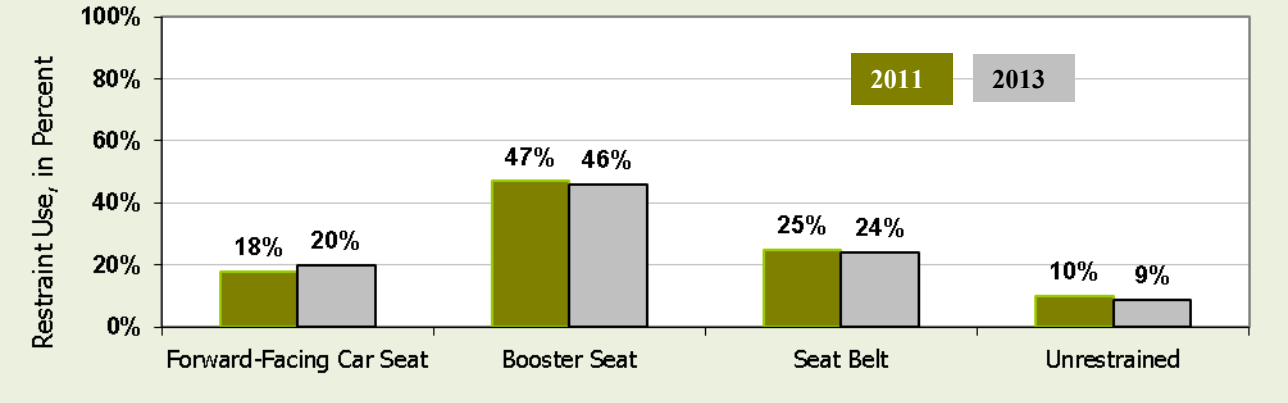

Figure 7: Restraint Use for Children 4 to 7 Years Old

As compared to 2011, there were some changes for children of this age group in 2011 as shown in Figure 7:

1) About 20 percent of children were restrained in forward-facing car seat in 2013, an increase from 18 percent in 2011.
2) About 24 percent of children were prematurely graduated to seat belt in 2013, a decrease from 25 percent in 2011.

Restraint Use Among Children 8 to 12 Years Old

NHTSA recommends: "Keep your 8 to 12-year-old children in booster seats until they are big enough to fit in a seat belt properly."

However, the 2013 NSUBS found that 11 percent of children 8 to 12 years old were unrestrained in 2013. Figure 8 shows the distribution of restraint types for children 8 to 12 years old in 2011 and 2013.

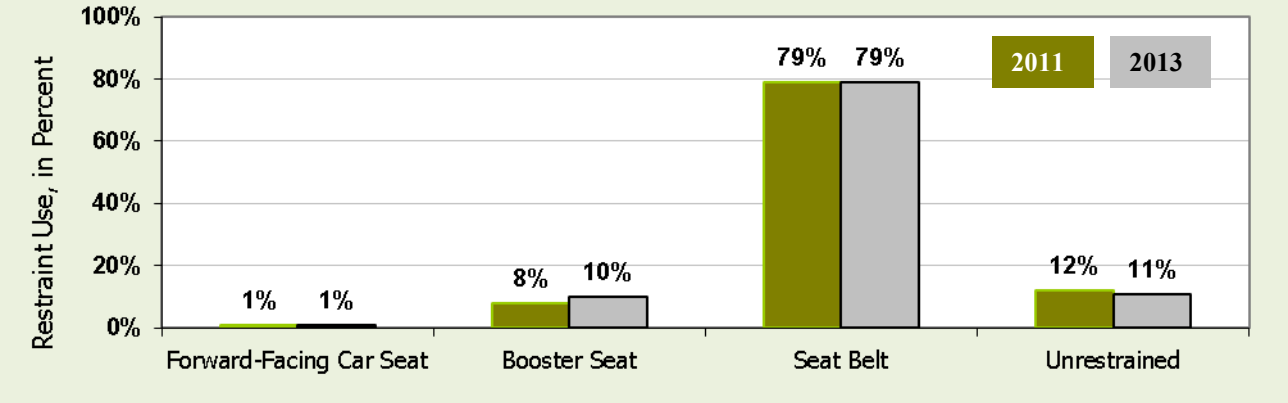

Figure 8: Restraint Use for Children 8 to 12 Years Old

As compared to 2011, 10 percent of children 8 to 12 years old were restrained in booster seats in 2013, an increase from 8 percent in 2011 (Figure 8).

Premature Graduation Based on Weight and Height

NHTSA's car seat recommendations for children of all ages are:

- Select a car seat based on your child's age, height, and weight.
- Keep your child in the car seat for as long as possible, as long as your child fits the seat's height and weight requirements.
- All children under 13 should ride in the back seat.

Although NHTSA does not specify the weight and height recommendations for each age group as in its old guidelines, the agency still recommends consulting the manufacturer's manual for car seat weight and height limits.

Child car seats on the market exhibit a wide variation in height and weight limits. Height limits range between 36 and 54 inches, and weight limits range from 40 to 60 pounds. These limits have been considered in applying NHTSA's old guidelines to assess the survey results in the NSUBS publications in previous years. This report will examine of the weight and height benchmarks specified in NHTSA's old guidelines for any premature graduation changes in 2013.

Children Weighing Less Than 20 Pounds

According to NHTSA's new car seat recommendation, children under age 1 should be in rear-facing car seats. Since most children under 1 weigh less than 20 pounds, NHTSA recommends that these children be restrained in rear-facing car seats.

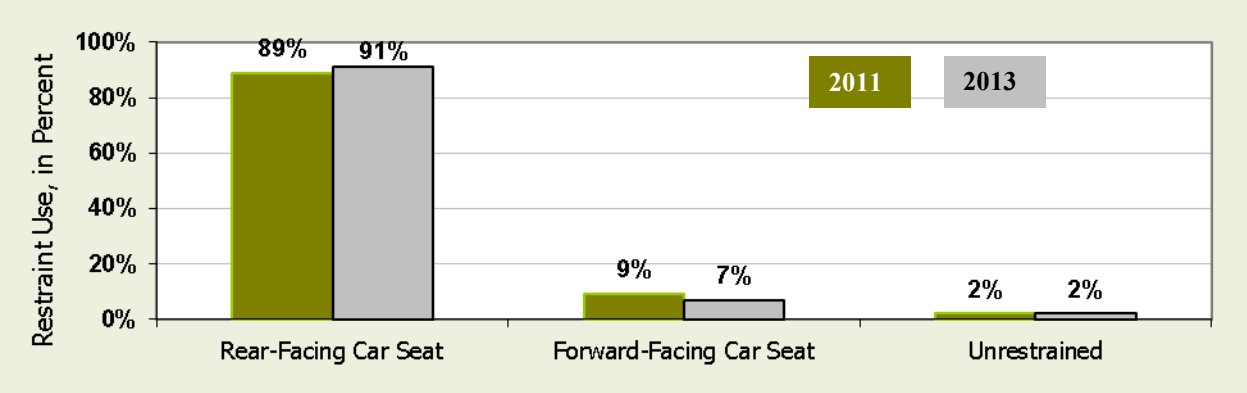

Figure 9: Restraint Use for Children Under 20 Pounds

As shown in Figure 9, the 2013 NSUBS found that 9 percent of children less than 20 pounds were not restrained in rear-facing car seats in 2013 (7% prematurely graduated to forward-facing car seats and 2% unrestrained).

However, as compared to 2011, more children under 20 pounds were in rear-facing seats in 2013: 91 percent of children weighing less than 20 pounds were in rear-facing car seats, up from 89 percent in 2011 (Figure 9).

Children Weighing 20 to 40 Pounds

NHTSA recommended that when children outgrow their rear-facing car seats (at a minimum age 1 and at least 20 pounds) they should ride in forward-facing car seats, in the back seat, until they reach the upper weight or height limit of the particular seat (usually at around age 4 and 40 pounds).

The 2013 NSUBS found that 42 percent of children weighing 20 to 40 pounds were not in forward-facing car seats in 2013 (39 percent in 2011) (Figure 10). Note, however, that some 20- to 40-pound children could be infants who should be in rear-facing car seats, and note that some booster seats have weight limits as low as 30 pounds.

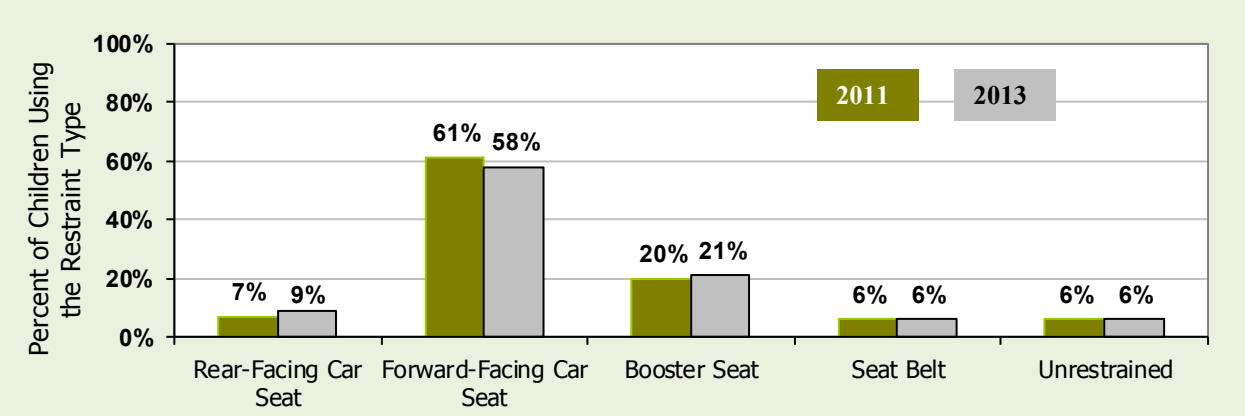

Figure 10: Distribution of Restraint Types for Children Up to 12 Years Old Who Were 20 to 40 Lbs

Children Less Than 57 Inches Tall

NHTSA's old guideline recommended that once children outgrow their forward-facing car seats (usually at around age 4 and 40 pounds), they should ride in booster seats, in the back seat, until the vehicle seat belts fit properly. Seat belts fit properly when the lap belt lays across the upper thighs and the shoulder belt fits across the chest (usually at age 8 or when they are 57 inches tall).

The 2013 NSUBS found that:

- Forty percent of children newborn to 12 years old who were 37 to 53 inches tall were either unrestrained or prematurely graduated to seat belts in 2013 (43% in 2011; Figure 11)
- Eighty-four percent of children up to 12 years old who were 54 to 56 inches tall were either unrestrained or prematurely graduated to seat belts in 2013 (85% in 2011; Figure 11). However, since 54 to 56 inches is marginally below NHTSA's previously set 57-inch benchmark, it might not be significant as a public safety result.

Figure 11 shows many of those children less than 57 inches tall prematurely graduated to seat belts in 2013.

- Booster seat use among children up to 12 years old who were 37 to 53 inches tall held constant at 38 in 2013; meanwhile, seat belt use decreased from 33 percent in 2011 to 32 percent in 2013. (Figure 12)

- Booster seat use among children newborn to 12 years old who were 54 to 56 inches tall increased from 13 percent in 2011 to 15 percent in 2013; meanwhile, seat belt use increased from 72 percent in 2011 to 73 percent in 2013. (Figure 13)

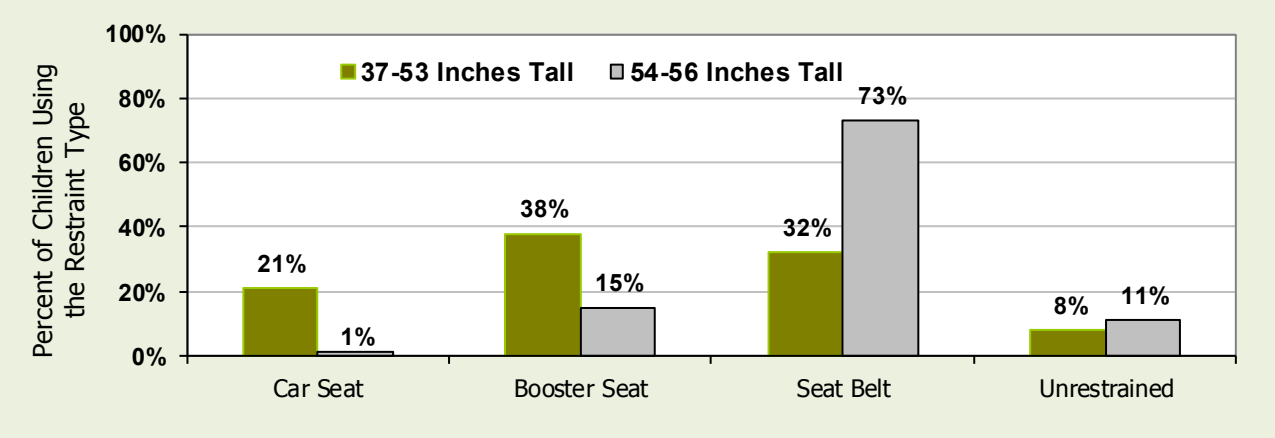

Figure 11: Distribution of Restraint Types in 2013 for Children up to 12 Years Old Who Were 37-56 Inches Tall

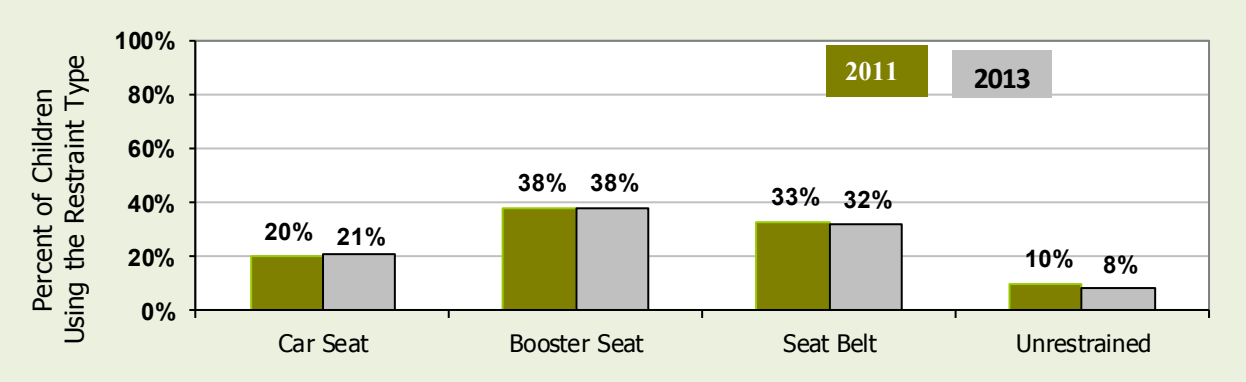

Figure 12: Distribution of Restraint Types for Children up to 12 Years Old Who Were 37-53 Inches Tall

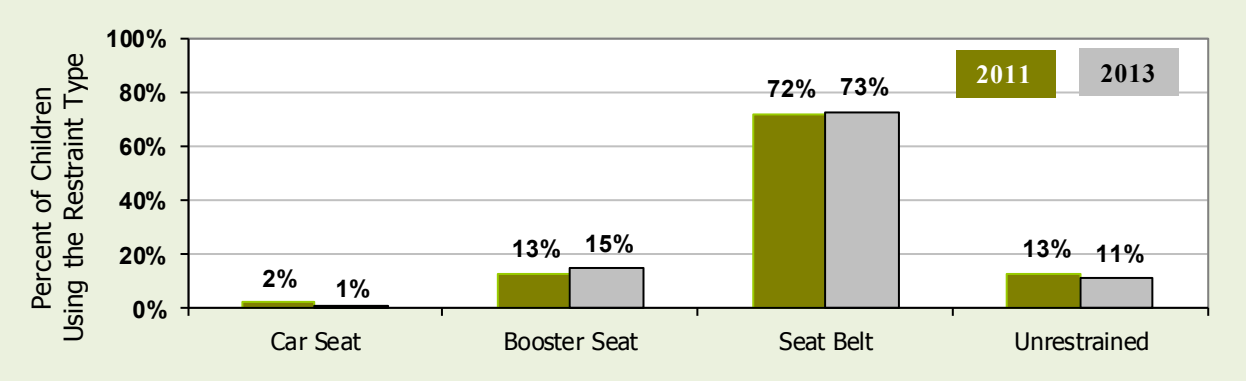

Figure 13: Distribution of Restraint Types for Children up to 12 Years Old Who Were 54-56 Inches Tall

Table 3: The Types of Restraints Used by Children Newborn to 12 Years Old, by Age

Restraint Type[1]	2011		2013		2011–2013 Change	
	Percentage[2] of Children[3] Observed Using the Restraint Type	Standard Error	Percentage[2] of Children[3] Observed Using the Restraint Type	Standard Error	Change in Percentage Points	Confidence in a Change in Percentage[4]
Children Less Than 1 Year Old						
Rear-Facing Car Seat	86%	2%	90%	2%	4	89%
Forward-Facing Car Seat	11%	2%	7%	2%	-4	**97%**
High-Backed Booster Seat	NA	NA	NA	NA	NA	NA
Backless Booster Seat	NA	NA	NA	NA	NA	NA
Seat Belt	NA	NA	NA	NA	NA	NA
No Restraint Observed	2%	1%	2%	1%	0	19%
Children 1 to 3 Years Old						
Rear-Facing Car Seat	7%	1%	10%	1%	4	**100%**
Forward-Facing Car Seat	75%	1%	73%	2%	-3	85%
High-Backed Booster Seat	9%	1%	7%	1%	-2	**93%**
Backless Booster Seat	3%	0%	3%	1%	-1	71%
Seat Belt	2%	0%	3%	1%	1	72%
No Restraint Observed	4%	1%	5%	1%	1	42%
Children 4 to 7 Years Old						
Rear-Facing Car Seat	0%	0%	NA	NA	NA	NA
Forward-Facing Car Seat	18%	1%	20%	2%	2	87%
High-Backed Booster Seat	25%	1%	26%	2%	1	26%
Backless Booster Seat	21%	1%	20%	2%	-1	40%
Seat Belt	25%	1%	24%	2%	-1	33%
No Restraint Observed	10%	1%	9%	1%	-1	40%
Children 8 to 12 Years Old						
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	1%	0%	1%	1%	0	48%
High-Backed Booster Seat	3%	0%	3%	1%	0	47%
Backless Booster Seat	5%	0%	7%	2%	1	83%
Seat Belt	79%	1%	79%	2%	0	8%
No Restraint Observed	12%	1%	11%	1%	-2	76%

[1] Survey data are obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Estimates might not sum to totals due to rounding.
[3] Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window
[4] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

Table 4: The Types of Restraints Used by Children Newborn to 12 Years Old, by Weight

Restraint Type[1]	2011		2013		2011–2013 Change	
	Percentage[2] of Children[3] Observed Using the Restraint Type	Standard Error	Percentage[2] of Children[3] Observed Using the Restraint Type	Standard Error	Change in Percentage Points	Confidence in a Change in Percentage[4]
Children Who Weigh Less Than 20 Pounds						
Rear-Facing Car Seat	89%	2%	91%	2%	2	54%
Forward-Facing Car Seat	9%	2%	7%	2%	-2	73%
High-Backed Booster Seat	NA	NA	NA	NA	NA	NA
Backless Booster Seat	NA	NA	NA	NA	NA	NA
Seat Belt	NA	NA	NA	NA	NA	NA
No Restraint Observed	2%	1%	2%	1%	0	16%
Children Who Weigh Between 20 and 40 Pounds						
Rear-Facing Car Seat	7%	1%	9%	1%	2	**95%**
Forward-Facing Car Seat	61%	2%	58%	3%	-3	87%
High-Backed Booster Seat	14%	1%	13%	1%	-1	48%
Backless Booster Seat	6%	1%	8%	2%	2	90%
Seat Belt	6%	1%	6%	1%	0	8%
No Restraint Observed	6%	1%	6%	1%	0	10%
Children Who Weigh Between 41 and 60 Pounds						
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	11%	1%	12%	2%	1	51%
High-Backed Booster Seat	22%	1%	23%	2%	1	57%
Backless Booster Seat	23%	1%	21%	2%	-2	66%
Seat Belt	34%	1%	34%	2%	0	1%
No Restraint Observed	10%	1%	9%	1%	0	23%
Children Who Weigh More Than 60 Pounds						
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	1%	0%	1%	1%	0	24%
High-Backed Booster Seat	4%	0%	4%	1%	0	9%
Backless Booster Seat	6%	1%	6%	2%	0	9%
Seat Belt	77%	1%	79%	3%	2	80%
No Restraint Observed	13%	1%	11%	1%	-2	77%

[1] Survey data are obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Estimates might not sum to totals due to rounding.
[3] Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window
[4] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

Table 5: The Types of Restraints Used by Children Newborn to 12 Years Old, by Height

Restraint Type[1]	2011		2013		2011–2013 Change	
	Percentage[2] of Children[3] Observed Using the Restraint Type	Standard Error	Percentage[2] of Children[3] Observed Using the Restraint Type	Standard Error	Change in Percentage Points	Confidence in a Change in Percentage[4]
Children Who Are at Most 36 Inches Tall						
Rear-Facing Car Seat	17%	2%	22%	2%	4	**100%**
Forward-Facing Car Seat	60%	2%	56%	2%	-4	**98%**
High-Backed Booster Seat	8%	1%	8%	1%	-1	35%
Backless Booster Seat	4%	0%	4%	1%	-1	68%
Seat Belt	5%	1%	6%	1%	1	61%
No Restraint Observed	5%	1%	5%	1%	0	20%
Children Who Are 37 to 53 Inches Tall						
Rear-Facing Car Seat	0%	0%	0%	0%	0	52%
Forward-Facing Car Seat	20%	1%	21%	2%	1	62%
High-Backed Booster Seat	20%	1%	21%	2%	0	19%
Backless Booster Seat	17%	1%	18%	1%	0	18%
Seat Belt	33%	1%	32%	2%	-1	25%
No Restraint Observed	10%	1%	8%	1%	-1	65%
Children Who Are 54 to 56 Inches Tall						
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	2%	1%	NA	NA	NA	NA
High-Backed Booster Seat	5%	1%	5%	3%	0	10%
Backless Booster Seat	8%	1%	9%	3%	2	61%
Seat Belt	72%	2%	73%	5%	1	14%
No Restraint Observed	13%	2%	11%	2%	-2	65%
Children Who Are Taller Than 56 Inches						
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	NA	NA	1%	1%	NA	NA
High-Backed Booster Seat	1%	0%	1%	1%	0	13%
Backless Booster Seat	1%	0%	2%	1%	1	82%
Seat Belt	86%	2%	85%	2%	-2	56%
No Restraint Observed	10%	1%	11%	2%	1	23%

[1] Survey data are obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Estimates might not sum to totals due to rounding.
[3] Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window
[4] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

4. Demographic Results

Although its primary purpose is to estimate booster seat use among 4- to 7-year-olds, the NSUBS has information on the restraint use of all children under 13 as well as information on race/ethnicity for occupants of all ages. This section reports some major demographic results of child restraint use from the 2013 NSUBS.

It should be noted that if a column corresponding to a data series or a data category is missing from a figure in this section, it means that there are not sufficient data to produce a reliable estimate for the data category. Also note that sometimes estimates might not sum to totals due to rounding.

Overall, restraint use for all children newborn to 12 years old held constant at 91 percent in 2013, compared to 2011.

Age

The restraint use rates for children from birth to 12 months old, 1 to 3 years old, 4 to 7 years old and 8 to 12 years old in 2013 were 98 percent, 95 percent, 91 percent, and 89 percent, respectively. Figure 14 compares the restraint use of children newborn to 12 years old by age in 2011 and 2013. Please note that the restraint use percentages in Figure 14 include any type of restraint, even those that may be inappropriate for a child's age, weight and height.

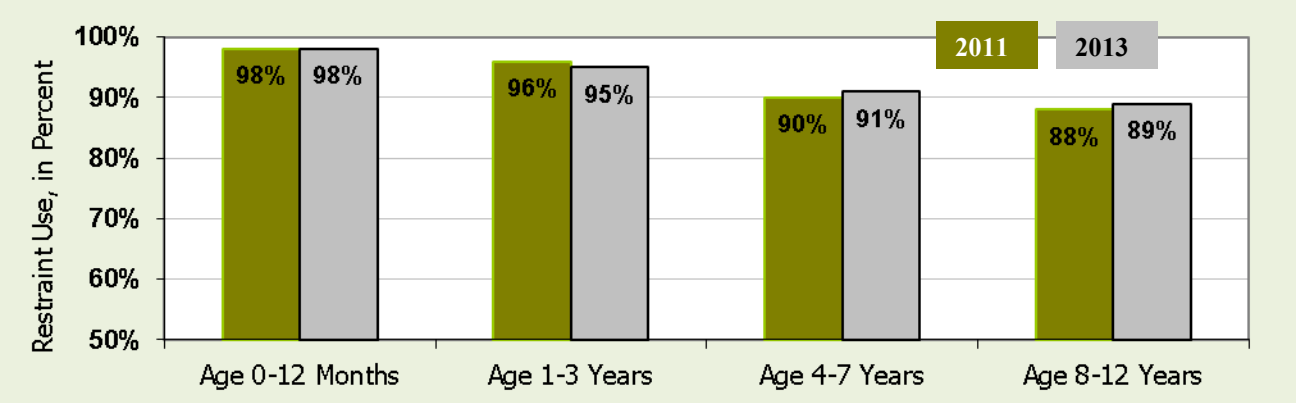

Figure 14: Child Restraint Use by Age and Year

Race and Ethnicity

Unlike the National Occupant Protection Use Survey (NOPUS) in which racial information of vehicle occupants is obtained by visual assessment, NSUBS data collectors conduct interviews to obtain race and ethnicity of passenger vehicle occupants including all child occupants under 13.

Figure 15 shows the overall picture of child restraint use by race and ethnicity across all age groups. Across all age groups, Non-Hispanic White children from birth to 12 months old had the highest restraint use (100%) while Non-Hispanic Black children 8 to 12 years old had the lowest (69%).

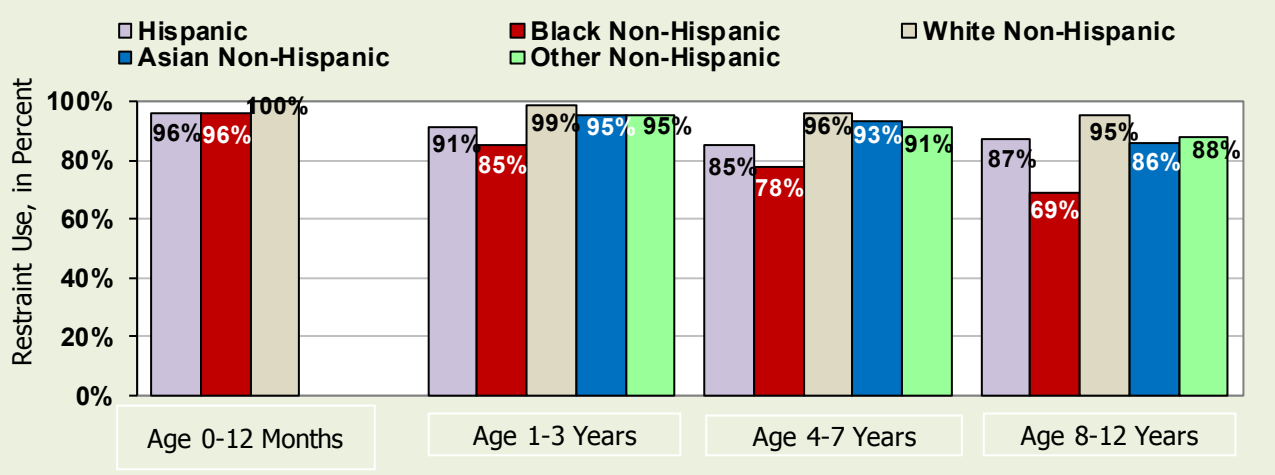

Figure 15: Child Restraint Use by Age and Race/Ethnicity in 2013

As shown in Figure 16, Hispanics had generally lower restraint use rates than Non-Hispanics among children younger than 13. This difference was most pronounced among children in the 4 to 7 age group.

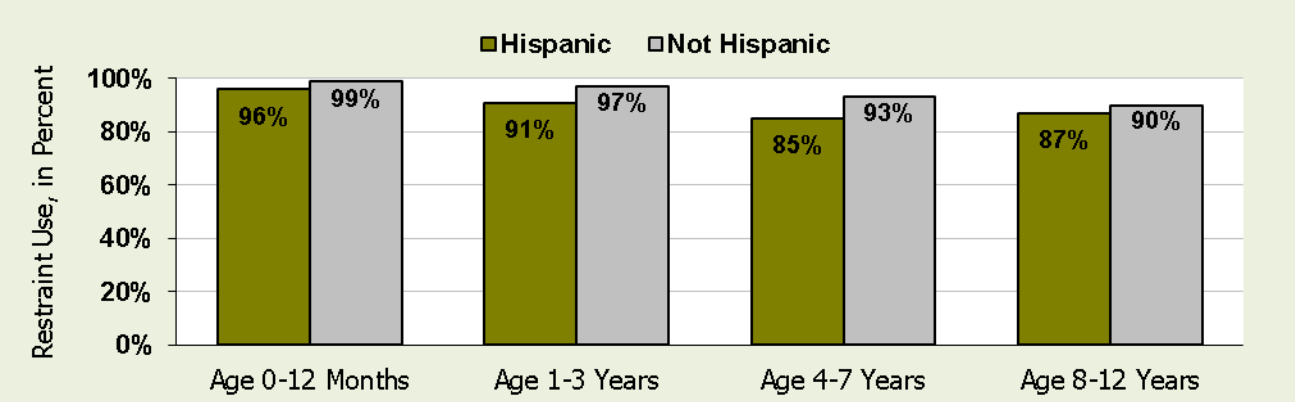

Figure 16: Child Restraint Use by Age and Hispanic Origin in 2013

The 2013 NSUBS also shows that restraint use among children 4 to 7 years old who are Non-Hispanic White held constant at 96 percent in 2013 from 2011 (Table 8). Restraint use among Non-Hispanic Asian children 8 to 12 years old decreased to 86 percent in 2013 from 96 percent in 2013 (Table 9).

Race and ethnicity data in the NSUBS is collected in accordance with Federal standards set forth by the Office of the Management and Budget (OMB). Specifically, the following 10 race/ethnicity categories are employed in the survey data collection.

Not Hispanic nor Latino and

- American Indian or Alaska Native
- Asian

- Black or African-American
- Native Hawaiian or Pacific Islander
- White

Hispanic or Latino and

- American Indian or Alaska Native
- Asian
- Black or African-American
- Native Hawaiian or Pacific Islander
- White

The NSUBS data collectors ask an adult occupant of a vehicle (usually the driver) to report the race and ethnicity of all occupants. Respondents reporting themselves (or others) to be multiracial are recorded by the data collector as such.

Because of insufficient numbers of children observed in certain race/ethnic groups, we report the NSUBS data using the following five collapsed race/ethnicity groups.

- Hispanic or Latino
- White Non-Hispanic
- Black or African-American Non-Hispanic
- Asian Non-Hispanic
- Other Non-Hispanic (which comprises people not of Hispanic origin who are American Indian, Alaska Native, Native Hawaiian, or Pacific Islander)

For information on the OMB standards for the collection of race and ethnicity data in government surveys, please see *Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity*, Federal Register Notice, Volume 62, Number 210, pages 58781-58790, October 30, 1997, available at www.omb.gov.

Sex

Figure 17 shows that the restraint use rates among boys and girls across for each age group in 2013.

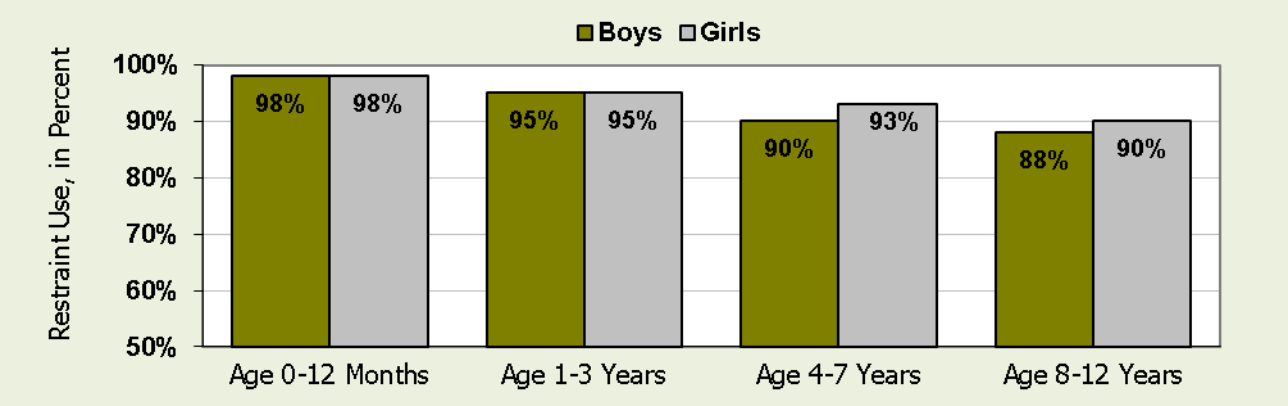

Figure 17: Child Restraint Use by Age and Sex in 2013

Table 6: Restraint Use Among Children From Birth to 12 Months Old

Subgroup of Children 0-12 Months[1,4]	2011		2013		2011–2013 Change	
	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Use[5]
All Children 0-12 Months	98%		98%		0	19%
Children Who Are						
Boys	99%	**90%**	98%	68%	-1	35%
Girls	97%	**90%**	98%	68%	1	41%
Children Who Are Reported to Be[4]						
White Non-Hispanic	99%	**97%**	100%	**100%**	1	32%
Black or African-American Non-Hispanic	92%	86%	96%	**96%**	4	57%
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA
Hispanic or Latino	95%	87%	96%	**93%**	1	14%
Children Reported to Be[4]						
Hispanic or Latino	95%	87%	96%	**93%**	1	14%
Neither Hispanic nor Latino	98%	87%	99%	**93%**	0	23%
Children Whose Height[4] Is						
0 to 36 Inches	98%	**95%**	98%	**100%**	0	19%
37 to 53 Inches	NA	NA	NA	NA	NA	NA
54 to 56 Inches	NA	NA	NA	NA	NA	NA
57 Inches or More	NA	NA	NA	NA	NA	NA
Children Who Weigh[4]						
Up to 19 Pounds	99%	**94%**	99%	**99%**	0	32%
20 to 40 Pounds	95%	**94%**	95%	**99%**	0	3%
41 to 60 Pounds	NA	NA	NA	NA	NA	NA
61 Pounds or More	NA	NA	NA	NA	NA	NA
Children Surveyed at a						
Gas Station	94%	**92%**	96%	**94%**	2	38%
Fast-Food Restaurant	95%	80%	99%	**90%**	3	72%
Day Care Center	99%	**98%**	98%	67%	-1	90%
Recreation Center	NA	NA	100%	100%	NA	NA

[1] Survey data are obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Use of car seats (forward- or rear-facing), booster seats, and seat belts. Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window.
[3] The statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100 percent.
[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.
[5] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

Table 7: Restraint Use Among Children 1 to 3 Years Old

Subgroup of Children 1 to 3 Years Old[1,4]	2011		2013		2011–2013 Change	
	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Use[5]
All Children 1 to 3 Years Old	96%		95%		-1	42%
Children Who Are						
Boys	97%	**98%**	95%	56%	-1	83%
Girls	95%	**98%**	95%	56%	0	21%
Children Who Are Reported to Be[4]						
White Non-Hispanic	99%	**100%**	99%	**100%**	0	36%
Black or African-American Non-Hispanic	90%	**98%**	85%	**100%**	-5	76%
Asian Non-Hispanic	100%	**100%**	95%	55%	-5	89%
Other Non-Hispanic	95%	56%	95%	71%	-1	30%
Hispanic or Latino	90%	**100%**	91%	**100%**	1	28%
Children Reported to Be[4]						
Hispanic or Latino	90%	**100%**	91%	**100%**	1	28%
Neither Hispanic nor Latino	97%	**100%**	97%	**100%**	-1	66%
Children Whose Height[4] Is						
Up to 36 Inches	97%	**99%**	96%	**98%**	-1	60%
37 to 53 Inches	93%	**99%**	93%	**98%**	0	0%
54 to 56 Inches	NA	NA	NA	NA	NA	NA
57 Inches or More	NA	NA	NA	NA	NA	NA
Children Who Weigh[4]						
Up to 19 Pounds	92%	**93%**	93%	72%	1	15%
20 to 40 Pounds	96%	**97%**	96%	**98%**	0	31%
41 to 60 Pounds	94%	**91%**	89%	**97%**	-4	74%
61 Pounds or More	NA	NA	NA	NA	NA	NA
Children Surveyed at a						
Gas Station	93%	**97%**	91%	**100%**	-2	63%
Fast-Food Restaurant	92%	**98%**	96%	74%	4	**93%**
Day Care Center	97%	**100%**	96%	**97%**	-1	56%
Recreation Center	98%	**98%**	97%	84%	-1	42%

[1] Survey data are obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Use of car seats (forward- or rear-facing), booster seats, and seat belts. Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window.
[3] The statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100 percent.
[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.
[5] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

Table 8: Restraint Use Among Children 4 to7 Years Old

Subgroup of Children 4 to 7 Years Old[1,4]	2011		2013		2011–2013 Change	
	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Use[5]
All Children 4-7	90%		91%		1	40%
Children Who Are						
Boys	89%	**90%**	90%	**100%**	0	14%
Girls	91%	**90%**	93%	**100%**	1	62%
Children Who Are Reported to Be[4]						
White Non-Hispanic	96%	**100%**	96%	**100%**	0	45%
Black or African-American Non-Hispanic	84%	**99%**	78%	**100%**	-5	82%
Asian Non-Hispanic	99%	**100%**	93%	69%	-6	**92%**
Other Non-Hispanic	88%	72%	91%	51%	3	43%
Hispanic or Latino	79%	**100%**	85%	**100%**	6	88%
Children Reported to Be[4]						
Hispanic or Latino	79%	**100%**	85%	**100%**	6	88%
Neither Hispanic nor Latino	94%	**100%**	93%	**100%**	-1	43%
Children Whose Height[4] Is						
Up to 36 Inches	87%	**98%**	88%	**98%**	1	30%
37 to 53 Inches	91%	**98%**	92%	**99%**	1	46%
54 to 56 Inches	89%	68%	88%	82%	-1	12%
57 Inches or More	91%	58%	88%	72%	-4	36%
Children Who Weigh[4]						
Up to 19 Pounds	NA	NA	NA	NA	NA	NA
20 to 40 Pounds	91%	67%	92%	86%	1	37%
41 to 60 Pounds	91%	78%	91%	55%	0	16%
61 Pounds or More	87%	**93%**	89%	80%	2	60%
Children Surveyed at a						
Gas Station	86%	**97%**	86%	**100%**	0	7%
Fast-Food Restaurant	83%	**95%**	93%	81%	9	87%
Day Care Center	94%	**99%**	93%	**97%**	-1	41%
Recreation Center	94%	**95%**	93%	85%	-1	35%

[1] Survey data are obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Use of car seats (forward- or rear-facing), booster seats, and seat belts. Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window.
[3] The statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100 percent.
[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.
[5] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

Table 9: Restraint Use Among Children 8 to 12 Years Old

Subgroup of Children 8 to 12 Years Old[1,4]	2011		2013		2011–2013 Change	
	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Estimated Restraint Use[2]	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Use[5]
All Children 8-12	88%		89%		2	76%
Children Who Are						
Boys	86%	**92%**	88%	**95%**	2	74%
Girls	89%	**92%**	90%	**95%**	1	50%
Children Who Are Reported to Be[4]						
White Non-Hispanic	91%	**100%**	95%	**100%**	4	**100%**
Black or African-American Non-Hispanic	76%	**100%**	69%	**100%**	-7	79%
Asian Non-Hispanic	96%	**100%**	86%	72%	-10	88%
Other Non-Hispanic	91%	85%	88%	62%	-3	48%
Hispanic or Latino	83%	**96%**	87%	**95%**	4	62%
Children Reported to Be[4]						
Hispanic or Latino	83%	**96%**	87%	**95%**	4	62%
Neither Hispanic nor Latino	89%	**96%**	90%	**95%**	1	59%
Children Whose Height[4] Is						
Up to 36 Inches	NA	NA	NA	NA	NA	NA
37 to 53 Inches	87%	85%	90%	77%	3	90%
54 to 56 Inches	87%	81%	89%	62%	2	76%
57 Inches or More	90%	**98%**	89%	68%	0	19%
Children Who Weigh[4]						
Up to 19 Pounds	NA	NA	NA	NA	NA	NA
20 to 40 Pounds	NA	NA	NA	NA	NA	NA
41 to 60 Pounds	88%	63%	90%	72%	2	65%
61 Pounds or More	87%	69%	89%	61%	2	73%
Children Surveyed at a						
Gas Station	85%	**92%**	89%	80%	3	88%
Fast-Food Restaurant	84%	**96%**	90%	78%	6	**94%**
Day Care Center	93%	**99%**	89%	52%	-3	84%
Recreation Center	91%	88%	90%	58%	-1	31%

[1] Survey data are obtained on children newborn to 12 years old in passenger vehicles at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
[2] Use of car seats (forward- or rear-facing), booster seats, and seat belts. Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window.
[3] The statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100 percent.
[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.
[5] The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

5. Occupants Traveling With Children

Although its primary purpose is to estimate booster seat use among 4- to 7-year-olds, the NSUBS also collects information on the race and ethnicity of other occupants traveling with children. This section reports the restraint use, by major race and ethnicity results, of occupants traveling with children from the 2013 NSUBS.

The NSUBS data collectors approach passenger vehicles appearing to have child occupants under 13, observe the restraint use of up to nine occupants in the first three rows of seats, and conduct interviews to obtain the race and ethnicity of all occupants. The approximate ages of non-child occupants (expressed as an age range, such as 16 to 24 years old) and the sexes of all occupants are subjectively assessed by the data collectors. Since race and ethnicity of all occupants are obtained through interviews instead of subjective assessment of data collectors as in NOPUS and most other observational surveys, NSUBS provides more accurate estimates on race and ethnicity of passenger vehicles occupants. However, it should be noted that by design and necessity, the NSUBS survey only collects restraint use of vehicle occupants who are transporting or riding with children under 13 to a restricted set of sites such as gas stations, day care centers, recreation centers, and restaurants in five fast-food chains, not of all vehicle occupants on the road.

The major findings from the 2013 survey on the demographic characteristics of occupants traveling with children include the following:

- Seat belt use continued to be lower for Hispanics, and for non-Hispanic Black or African-Americans, than other race and ethnicity groups among passenger vehicle occupants 25 to 69 years old traveling with children (Figure 18).
- Among occupants 25 to 69 years old restraint use for non-Hispanic occupants increased significantly from 91 percent in 2011 to 92 percent in 2013; restraint use for Asian non-Hispanic occupants decreased from 97 percent in 2011 to 94 percent in 2013 (Table 10).
- Among occupants 13 to 15 years old restraint use for non-Hispanic occupants increased significantly from 79 percent in 2011 to 87 percent in 2013; restraint use for White non-Hispanic occupants increased significantly from 86 percent in 2011 to 92 percent in 2013 (Table 10).

Please note that if a column corresponding to a data series or a data category is missing from a figure in this section, it means that there are not sufficient data to produce a reliable estimate for the data category. Also note that sometimes estimates might not sum to totals due to rounding.

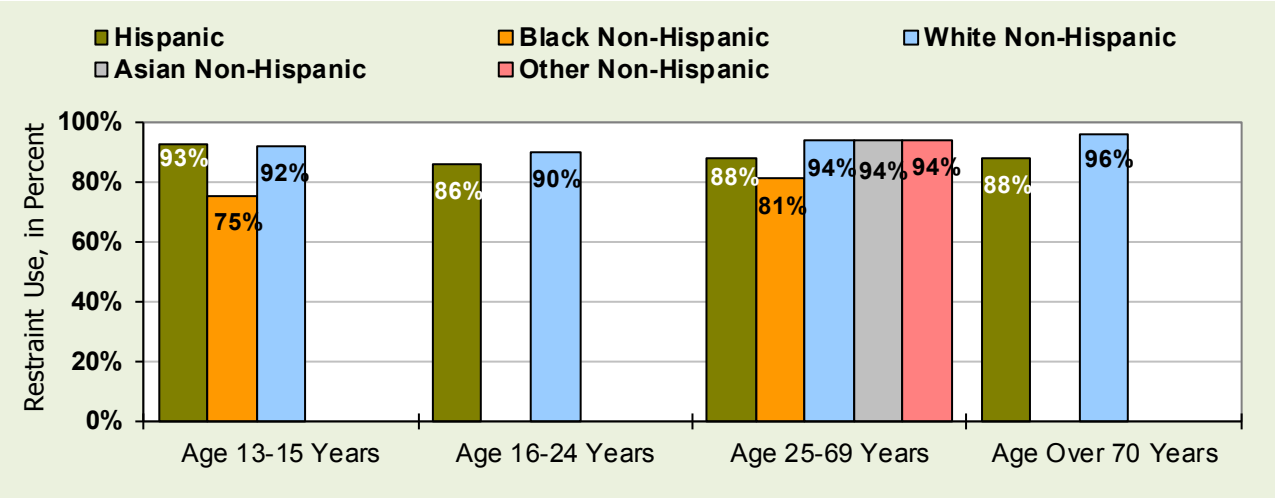

Figure 18: Restraint Use by Age and Race/Ethnicity for Occupants Traveling With Children in 2013

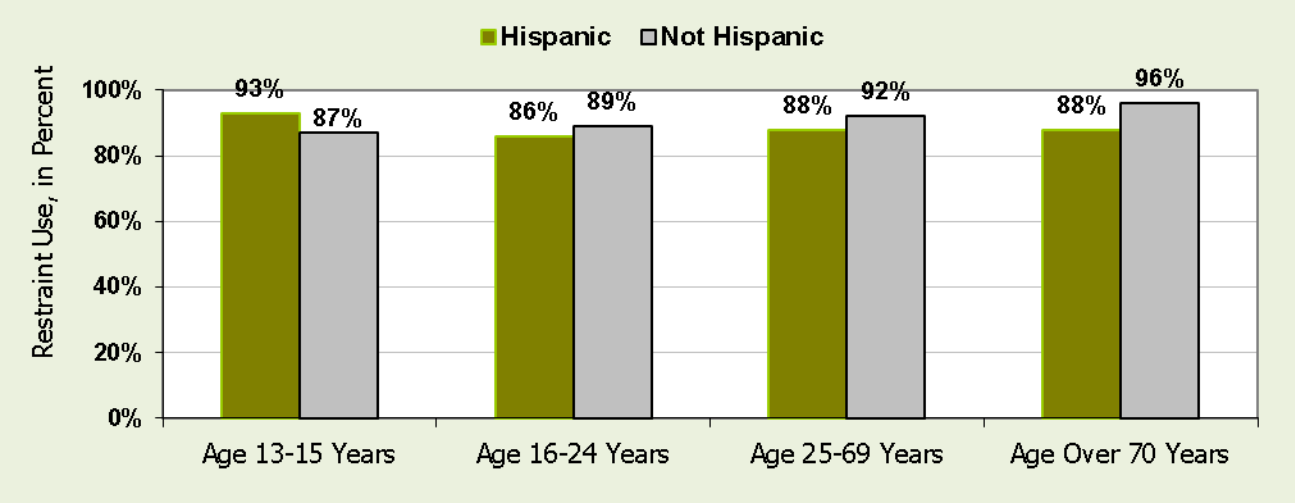

Figure 19: Restraint Use by Age and Hispanic Origin for Occupants Traveling with Children in 2013

Table 10: Restraint Use of Occupants Traveling With Children by Age and Race/Ethnicity

Subgroup of Occupants[1]	2011			2013			2011–2013 Change	
	Estimated Restraint Use[2]	Standard Error	Confidence That Use Is High or Low in Group[3]	Estimated Restraint Use[2]	Standard Error	Confidence That Use Is High or Low in Group[3]	Change in Percentage Points	Confidence in a Change in Use[4]
Occupants 13 to 15 Years Old								
Occupants Reported to Be[5]								
White Non-Hispanic	86%	4%	**100%**	92%	5%	**92%**	6	**92%**
Black or African-American Non-Hispanic	45%	14%	**100%**	75%	12%	**98%**	30	**99%**
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Hispanic or Latino	76%	12%	68%	93%	4%	**95%**	17	**94%**
Occupants Reported to Be[5]								
Hispanic or Latino	76%	12%	68%	93%	4%	**95%**	17	**94%**
Neither Hispanic nor Latino	79%	5%	68%	87%	4%	**95%**	8	**96%**
Occupants 16 to 24 Years Old								
Occupants Reported to Be[5]								
White Non-Hispanic	77%	7%	58%	90%	8%	79%	13	**97%**
Black or African-American Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Hispanic or Latino	81%	7%	79%	86%	7%	69%	5	57%
Occupants Reported to Be[5]								
Hispanic or Latino	81%	7%	79%	86%	7%	69%	5	57%
Neither Hispanic nor Latino	76%	6%	79%	89%	6%	69%	13	**98%**
Occupants 25 to 69 Years Old								
Occupants Reported to Be[5]								
White Non-Hispanic	92%	1%	**100%**	94%	1%	**100%**	2	**97%**
Black or African-American Non-Hispanic	80%	5%	**100%**	81%	3%	**100%**	1	25%
Asian Non-Hispanic	97%	2%	**100%**	94%	2%	**95%**	-3	81%
Other Non-Hispanic	86%	5%	85%	94%	3%	87%	7	87%
Hispanic or Latino	85%	4%	**99%**	88%	2%	**100%**	3	76%
Occupants Reported to Be[5]								
Hispanic or Latino	85%	4%	**99%**	88%	2%	**100%**	3	76%
Neither Hispanic nor Latino	91%	1%	**99%**	92%	1%	**100%**	2	**95%**
Occupants Over 70 Years Old								
Occupants Reported to Be[5]								
White Non-Hispanic	86%	9%	**98%**	96%	4%	86%	10	**91%**
Black or African-American Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA	NA	NA
Hispanic or Latino	99%	2%	**99%**	88%	6%	**96%**	-10	**99%**
Occupants Reported to Be[5]								
Hispanic or Latino	99%	2%	**99%**	88%	6%	**96%**	-10	**99%**
Neither Hispanic nor Latino	86%	9%	**99%**	96%	4%	**96%**	10	**92%**

1 Survey data are obtained on drivers and passengers of passenger vehicles appearing to contain a child under 13 years old at a nationwide probability sample of gas stations, day care centers, recreation centers, and restaurants in five fast-food chains.
2 Restraint use is observed by trained data collectors prior to or just as the vehicle comes to a stop, except in the case of observation at fast-food drive-through lanes, where restraint use is observed prior to the vehicle reaching the drive-through window.
3 The statistical confidence that use in the occupant group (e.g., occupants who are Hispanic or Latino) is higher or lower than use in the corresponding complementary occupant group (e.g., occupants who are neither Hispanic nor Latino). Confidences that meet or exceed 90 percent are formatted in boldface type. Confidences are rounded to the nearest percentage point, and so confidences reported as "100 percent" are between 99.5 percent and 100.0 percent.
4 The degree of statistical confidence that the 2013 use rate is different from the 2011 rate. Confidences that meet or exceed 90 percent are formatted in boldface type.
5 Race and ethnicity of all occupants are obtained by interviewing an adult occupant in the vehicle (usually the driver).
Note: some estimates have large standard errors, e.g., standard error for belt use among Non-Hispanic Blacks or Africans 13 to 15 years old was 12 percent in 2013, which means that the margin of error for this estimate was +/- 24 percentage points, and thus the estimate could be as low as 51 percent.
NA: Data not sufficient to produce a reliable estimate.
Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2011, 2013

6. NSUBS Methodology

This section discusses briefly the sample design, sample size, data collection, and estimation used in the 2013 NSUBS. For more details on the methodology of the survey, refer to *The 2006 National Survey of the Use of Booster Seats – Methodology Report* (Glassbrenner, 2009), which is available at www-nrd.nhtsa.dot.gov/Pubs/811111.PDF.

Sample Design

The NSUBS uses a complex multi-stage probability sample. The primary sampling unit (PSU) sampling frame consists of the 50 sampled PSUs from the NOPUS of 2005, the year when the NSUBS was designed. For more information on the NOPUS PSUs, refer to *The Safety Belt and Helmet Use in 2002 – Overall Results* (Glassbrenner, 2002). As a first step to select the NSUBS PSUs, 16 NOPUS PSUs were selected from the above sampling frame: two with certainty (i.e., probability one) and 14 using equal probability systematic sampling. Then, each of the selected 16 NOPUS PSUs was partitioned into county groups (i.e., a county or two neighboring counties) resulting in a total of 43 county groups. A single county group was selected from each of the 16 partitioned NOPUS PSUs using probability proportional to size (PPS) sampling with the population of children under 5 based on the 2000 Census as a measure of size. The selected 16 county groups form the sampled PSUs of the NSUBS.

The site sampling frame consists of gas stations, recreation centers, day care centers, and restaurants in five fast-food chains in the 16 sampled NSUBS PSUs. These four site types make four strata. The 2013 NSUBS selected 680 sites using stratified systematic sampling from the sampling frame.

Sample Size

Due to the nature of the survey, the NSUBS data collectors have to obtain cooperation from the sample sites. Cooperation with recreation centers and day care centers is obtained in advance by visiting these sites via sending letters requesting cooperation followed by phone calls to secure cooperation. For fast-food restaurants and gas stations, trained data collectors approach each establishment in person to secure cooperation.

For the 2013 NSUBS, a total of 428 sites of the 680 sites sampled gave permission for the survey to be conducted on their premises. The cooperation rate was 63 percent. Of these 428 data collection sites, 162 were gas stations, 127 fast-food restaurants, 107 day care centers, and 32 recreation centers.

Table 11 shows the observed sample size of the 2013 NSUBS. A total of 20,543 occupants were observed in the 7,229 vehicles at the 428 data collection sites. Of these observed occupants, 11,098 were children newborn to 12 years old. The data on 8,887 children newborn to 12 years old were obtained by interviews with adult occupants who were traveling together with those children.

Table 11: Sites, Vehicles, Occupants, and Children Newborn to 12 Years Old in NSUBS

Numbers of	2011	2013	Percentage Change
Data Collection Sites	405	428	6%
Vehicles Observed	6,350	7,229	14%
Occupants Observed	18,284	20,543	12%
Children Newborn to 12 Years Old Observed	9,849	11,098	13%
Children Newborn to 12 Years Old Interviewed*	8,050	8,887	10%

* Data obtained by interview with an adult occupant.

Data Collection

The 2013 NSUBS data collection was conducted between 7 a.m. and 6 p.m. during the period from July 12, 2011 to July 31, 2013.

Trained data collectors approach passenger vehicles appearing to have child occupants under 13; observe the restraint use of up to nine occupants in the first three rows of seats; and conduct interviews to obtain the race and ethnicity of all occupants and the heights, weights, and ages of child occupants appearing to be under 13. The approximate ages of other occupants (expressed as an age range, such as 16 to 24 years old) and the sexes of all occupants are subjectively assessed by the data collectors.

Note that the data on race/ethnicity in the NSUBS are collected in compliance with OMB standards. NHTSA obtained approval to collect race/ethnicity data for the 2013 to 2015 surveys under OMB clearance number 2127-0644. The notice of OMB review can be found in the Federal Register, Volume 77, Number 113, page 35111, June 12, 2012.

In order to capture restraint use before children unfasten the restraints, data collectors observe restraint use prior to or just as the vehicle comes to a stop except fast-food drive-through lanes. In that case, restraint use is observed prior to the vehicle reaching the drive-through window.

In order to reach as wide an audience as possible, the NSUBS uses some Spanish-speaking data collectors.

Estimation

Let C denote the characteristic of occupants and R denote restraint type. The NSUBS estimates the rate of occupants restrained in restraint type R among the occupants having characteristic C by the following formula,

$$\text{Restraint Use}_{\text{CR}} = \frac{\sum_{i,j,k} w_{ijk} F_{ijk} CR_{ijk}}{\sum_{i,j,k} w_{ijk} F_{ijk} C_{ijk}},$$

where w_{ijk} and F_{ijk}, respectively, denote the base weight and the product of various weight adjustment factors at the site k in the stratum j of the PSU i. CR_{ijk} stands for the number of observed occupants having characteristic C and restrained in restraint type R and C_{ijk} denotes the number of observed occupants having characteristic C at the site k in the stratum j of the PSU i. For example, the booster seat use among 4- to 7- year- old children is estimated using the above formula, where CR_{ijk} is the number of observed children 4 to 7 years old in booster seat and C_{ijk} is the number of observed children 4 to 7 years old at the site k in the stratum j of the PSU i.

Note that the NSUBS site sampling frame is restricted to the four site types: gas stations, day care centers, recreation centers, and restaurants in five fast-food chains as described in the sample design sub-section. Since the NSUBS uses a probability sample of these site types, the NSUBS estimates are national representative of children who frequently visit these types of sites. For instance, 46 percent booster seat use among 4- to 7-year-old children as shown in Figure 1 means that among children in 2013 in this age range who were taken by passenger vehicles to gas stations, day care centers, recreation centers, or fast-food restaurants, 46 percent were in booster seats.

Please note that NHTSA employs the following suppression rule for the NSUBS publications:

Use estimates whose numerator is based on fewer than five persons observed, whose denominator is based on fewer than 30 persons observed, or that are not statistically different from 0 percent use (i.e., the standard error is at least half the point estimate) are to be suppressed. These should be reported as "NA" in publications, and any related estimates (i.e., change in use and confidence estimates) should also be suppressed.

This same rule was used for the NOPUS survey.

Please also note that suppressed estimates do not appear in the figures throughout this report (displayed as missing columns in the figures).

7. References

Glassbrenner, D. (2009, April). *The 2006 National Survey of the Use of Booster Seats – Methodology Report*. (Report No. DOT HS 811 111). Washington, DC: National Highway Traffic Safety Administration.

National Highway Traffic Safety Administration. (2005, November). *Improving the Safety of Older Child Passengers – "4 Steps for Kids."* (Report No. DOT HS 809 953). November 2005. Washington, DC: Author. Available at http://www.nhtsa.gov/people/injury/childps/boosterseatprogress/pages/4Steps.htm

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Public Law 106-414, 106th Congress. *Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act*, 114 STAT. 1800, November 1, 2000.

Public Law 107-318, 107th Congress. *Anton's Law*, 114 STAT. 1800, December 4, 2002.

Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, Federal Register Notice, Volume 62, Number 210, pages 58781-58790, October 30, 1997.

Appendix: Definitions and Categories in NSUBS

In the survey, an occupant considered to be "restrained" if the occupant meets any of the following five definitions:

Rear-Facing Car Seat - The child occupant is in a seat that sits on top of the vehicle seat in such a way that the child faces the rear of the vehicle, and the harness straps are across the child's front. The harness straps might be secured or not.

Forward-Facing Car Seat – The child occupant is in a seat that sits on top of the vehicle seat in such a way that the occupant faces the front of the vehicle, and with harness straps that are across the child's front.

High-Backed Booster Seat - The child occupant is in a seat with a seat back that sits on top of the vehicle seat, and has a seat belt across the front of the child's body, whether lap or lap/shoulder. No harness is in use.

Backless Booster Seat - The child occupant is sitting on a platform with no seat back that sits on top of the vehicle seat, and has a seat belt across the front of the child's body, whether lap or lap/shoulder. No harness is in use.

Seat Belt – The occupant is sitting on the vehicle seat and the seat belt is across front of the body (includes lap belts).

Unrestrained – All other cases.

Although the NSUBS collects children's individual ages, heights, and weights, we combine these results into categories in order to produce reliable estimates.

Age categories

The NSUBS uses the following age categories: 0, 1-3, 4-7, 8-12, 13-15, 16-24, 25-69, and 70 and above. The choice of these age groups is motivated by consistency with the NOPUS survey, which uses the age groups 0, 1-3, 4-7, 8-12, 13-15, 16-24, 25-69, and 70 and above, combined with taking into account that the NSUBS collects interview data on children newborn to 12 years old.

Height and weight categories

The NSUBS uses the following height categories: under 36 inches tall, 37 to 53 inches, 54 to 56 inches, and 57 inches or taller. The survey uses the weight categories 0 to 19 pounds (herein referred to as "up to 19 pounds"), 20 to 40 pounds, 41 to 60 pounds, and 61 pounds or heavier. These categories were chosen because they are used in NHTSA's old recommendations for the choice of restraint use for children.

Regional categories

The 16 PSUs selected in the NSUBS constitute a probability sample of PSUs (counties and groups thereof) in the U.S. The data are not sufficient to produce state-by-state results. However NSUBS can and does produce regional estimates using the following categories.

Northeast: ME, VT, NH, MA, RI, CT, NY, PA, NJ
Midwest: MI, OH, IN, IL, WI, MN, IA, MO, KS, NE, SD, ND
South: WV, MD, DE, VA, KY, TN, NC, SC, GA, FL, AL, MS, AR, LA, OK, TX, DC
West: AK, WA, OR, CA, NV, ID, UT, AZ, NM, CO, WY, MT, HI

These definitions of the four NSUBS regions are the same regional definitions utilized in the NOPUS survey. The NSUBS regional categories were chosen to be the same as the NOPUS categories for the purpose of consistency.

Race and ethnicity categories

Please consult Section 4 “Demographic Results” for the classifications of race and ethnicity in NSUBS.

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U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

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