U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

NHTSA

DOT HS 812 309

April 2025 (Revised)

The 2015
National Survey of the
Use of Booster Seats

Disclaimer

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Suggested APA Format Citation for This Document:

Li, H. R., Pickrell, T. M., & KC, S. (2025, April, Revised). *The 2015 National Survey of the Use of Booster Seats* (Report No. DOT HS 812 309). Washington, DC: National Highway Traffic Safety Administration.

1. Report No. DOT HS 812 309	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle **The 2015 National Survey of the Use of Booster Seats**		5. Report Date April 2025 (Revised)
		6. Performing Organization Code NSA-210
7. Authors **Hongying (Ruby) Li,[*] Timothy M. Pickrell,[*] and Shova KC[†]**		8. Performing Organization Report No.
9. Performing Organization Name Mathematical Analysis Division, National Center for Statistics and Analysis National Highway Traffic Safety Administration U.S. Department of Transportation, NSA-210 1200 New Jersey Avenue SE. Washington, DC 20590		10. Work Unit No. (TRAIS)
		11. Contract or Grant No.
12. Sponsoring Agency Name and Address Mathematical Analysis Division, National Center for Statistics and Analysis National Highway Traffic Safety Administration U.S. Department of Transportation, NSA-210 1200 New Jersey Avenue SE. Washington, DC 20590		13. Type of Report and Period Covered NHTSA Technical Report
		14. Sponsoring Agency Code

15. Supplementary Notes
* Mathematical Statistician, Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA
† Statistician, Bowhead Logistics Solutions LLC., contractor working at NHTSA

Abstract
This technical report presents results from the 2015 National Survey of the Use of Booster Seats (NSUBS), 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 2015 NSUBS found that 44.5 percent of 4- to 7-year-old children were restrained in booster seatsas compared to 46.3 percent in 2013 when the last NSUBS was conducted. Restraint use for all children under 13 decreased slightly to 89.2 percent in 2015. There were some indications of premature graduation to restraint types that are not appropriate for children's age, height, and weight along with some decline in use of appropriate restraint types in 2015 as compared to 2013. About 12.6 percent of children under age one were not in rear-facing car seats in 2015.

17. Key Words Booster seats, child restraints, child safety, car seats, seat belt use, race, ethnicity, occupant protection, Hispanic, premature graduation	18. Distribution Statement This document is available to the public from the National Technical Information Service, www.ntis.gov.		
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 40	22. Price

Form DOT F 1700.7 (8-72)   Reproduction of completed page authorized

Executive Summary

This report presents results from the 2015 National Survey of the Use of Booster Seats (NSUBS), 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 2015 the NCSA redesigned NSUBS and conducted the seventh NSUBS survey.

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.

In 2015, NSUBS was redesigned. The original NSUBS was designed in 2006 and was based on the primary sampling units (PSUs) selected from the original 1994 National Occupant Protection Use Survey (NOPUS) design. The data used for designing the 2006 survey was outdated and needed to be brought up to date. Additionally, conducting the study through several cycles has provided valuable knowledge on needed improvements. Please consult Section 6, "NSUBS Methodology," for details about the redesign.

The following are some major findings from the 2015 NSUBS:

- Booster seat use among 4- to 7-year-old children was 44.5 percent in 2015, compared to 46.3 percent in 2013 when the last NSUBS was conducted. 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 37.4 percent of children 4- to 7 years old in the United States were not being properly restrained -- 25.8 percent were restrained by seat belts and 11.6 percent were unrestrained.

- Premature graduation to restraint types that are not appropriate for children's age, height, and weight continues in 2015. There was decline in the use of appropriate restraint types among children of a few categories in 2015 compared to 2013. About 13.6 percent of children 1 to 3 years old were prematurely graduated to booster seats in 2015, a significant increase from 9.3 percent in 2013. However, most of the categories are not statistically significant. .

- Restraint use among 8- to 12-years-old girls decreased significantly to 82.6 percent in 2015 from 90.5 percent in 2013.

- Restraint use among children 8 to 12 years old whose height is between 37 to 53 inches decreased significantly to 83.4 percent in 2015 from 90.0 percent in 2013.

Table of Contents

List of Figures

List of Tables

Definitions and Categories in NSUBS

In the survey, an occupant is 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 must be secured.

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. The harness straps must be secured.

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, but the child must be secured by the vehicle seat belt.

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, but the child must be secured by the vehicle seat belt.

Seat Belt – The occupant (of any age) is sitting on the vehicle seat and the seat belt is across front of the body (includes lap and shoulder belts or lap in the case of lap-only belts). In a lap/shoulder combination, the shoulder belt must be over the shoulder and cannot be under his or her arm.

Unrestrained – All other cases: no restraint type is used at all or the restraint type is used not as it is intended. This includes the seat belt not being buckled or the shoulder strap being placed behind the shoulder, or the harness straps being unbuckled.

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 for interview data. The choice of these age groups is motivated by consistency with the NOPUS survey, which uses the same age groups.

The age groups for the observation data are different since there is only one age group, 0-12 for children.

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 current recommendations for the choice of restraint use for children.

Regional Categories
The 30 PSUs selected in the NSUBS constitute a probability sample of PSUs (counties and groups thereof) in the United States. The data is not sufficient to produce State-by-State results. However NSUBS can and does produce regional estimates using the Census Regions defined as follows.

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 used in the NOPUS survey. The NSUBS regional categories were chosen to be the same as the NOPUS categories for the purpose of consistency.

Time of Day and Day of Week Categories
The NSUBS uses the following day of week and time of day categories:

Weekday Rush Hour: Before 10 a.m. and 3:30-6 p.m. on Monday – Friday
Weekday Outside of Rush Hour: 10 a.m. – 3:30 p.m. on Monday – Friday
Weekend: 8 a.m. – 6 p. m. on Saturday and Sunday

Race and Ethnicity Categories
Please consult Section 4 "Demographic Results," for the classifications of race and ethnicity in NSUBS.

1. Introduction

In 2000 Congress passed the Transportation Recall Enhancement, Accountability, and Documentation Act (Pub. L. 106-414), 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.

In 2006 NHTSA conducted the first-ever nationwide probability-based survey of booster seat use in the United States: National Survey of the Use of Booster Seats (NSUBS). NSUBS collected data based on the observation of children in vehicles. 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. 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 national estimates or from telephone interviews that may not result in reliable estimates.

NHTSA has used the NSUBS data in its outreach programs and campaigns on child passenger safety in recent years. In 2014 (the most current data available) the total number of traffic crash fatalities among children 4 to 7 years old was310 as compared to 570 in 2000, a reduction of 45.6 percent (NHTSA, 2015).

In 2015, NSUBS was redesigned. The original NSUBS was designed in 2006 and based upon the primary sampling units (PSUs) selected from the original 1994 National Occupant Protection Use Survey (NOPUS) design. The data used for designing the 2006 survey was outdated and needed to be brought up to date. Additionally, conducting the study through several cycles has provided valuable knowledge on needed improvements. Please consult Section 6, "NSUBS Methodology," for details about the redesign.

The 2015 NSUBS was conducted from July 16 to August 6, 2015. The survey estimates were computed based on the results of 9,259 children observed in 6,060 vehicles at 384 observation sites across the country.

This report presents the survey results from the 2015 NSUBS. It includes the national estimates of the booster seat use among 4- to 7-year-old children since 2006, the restraint type and usage by age, weight, and race and ethnicity in 2015 and 2013 when the last NSUBS was conducted. It explains the NSUBS methodology, especially the redesign for 2015 survey.

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 "Definitions and Categories in NSUBS" for detailed definitions.

Unless otherwise indicated, the terms "significant" and "statistically significant" are used interchangeably throughout this report. "Significant" always means "statistically significant" and the statistical significance level is 0.05. In the tables below, the significant changes (those with p-values that are less than 0.05) are formatted in boldface type. 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 current car seat recommendation for children 4 to 7 years old is: Keep your child in a forward-facing car seat with a harness and tether 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 2015 NSUBS found that booster seat use among 4- to 7-year-old children slightly decreased from 46.3 percent in 2013 to 44.5 percent in 2015 (Figure 1 and Tables 1 and 2). This is not a statistically significant change.
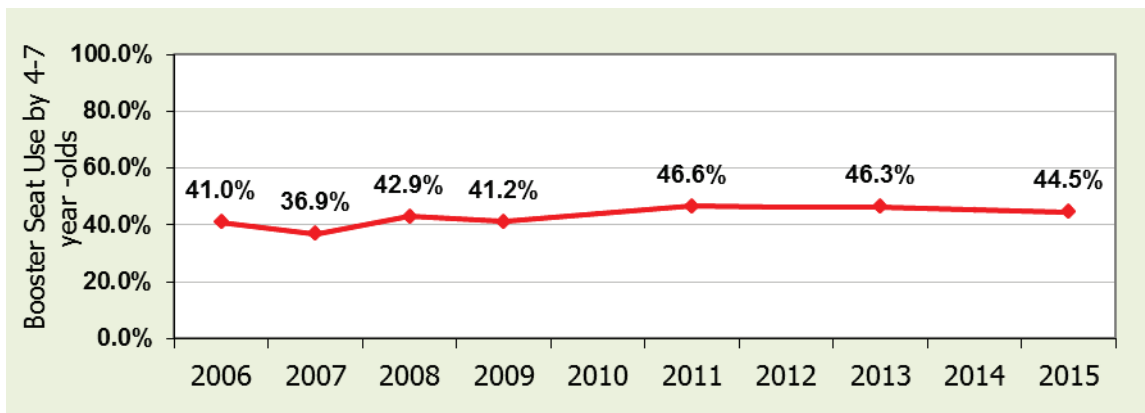
Figure 1: Booster Seat Use, National Estimates

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 2015 about 44.5 percent of children in this age group were using booster seats (either high-backed or backless), 17.9 percent were restrained in child car seats, 25.8 percent were in seat belts, and 11.6 percent were unrestrained (Figure 2 and Table 2). These results indicate that as many as 37.4 percent (25.8 percent in seat belts and 11.6 percent unrestrained) of children 4 to 7 in the United States were not being properly restrained. The percentage of children 4 to 7 restrained in forward-facing car seat decreased slightly from 20.3 percent in 2013 to 17.9 percent in 2015.
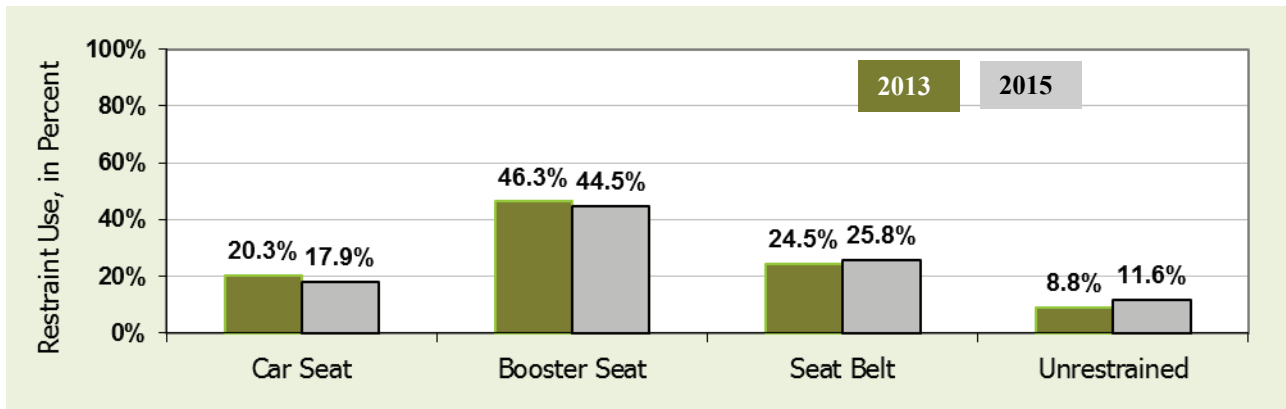
Figure 2: Restraint Use for Children 4 to 7 Years Old

As in 2013, the 2015 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 2015 about 47.9 percent of children 4 and 5, as compared to 40.1 percent of children 6 and 7 were restrained in booster seats. Booster seats use among children 6 and 7 decreased slightly from 44.1 percent in 2013 to 40.1 percent in 2015. Figures 3 and 4 and Table 2 show the distributions of restraint use for these two age sub-groups, as well as the changes between 2013 and 2015.

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

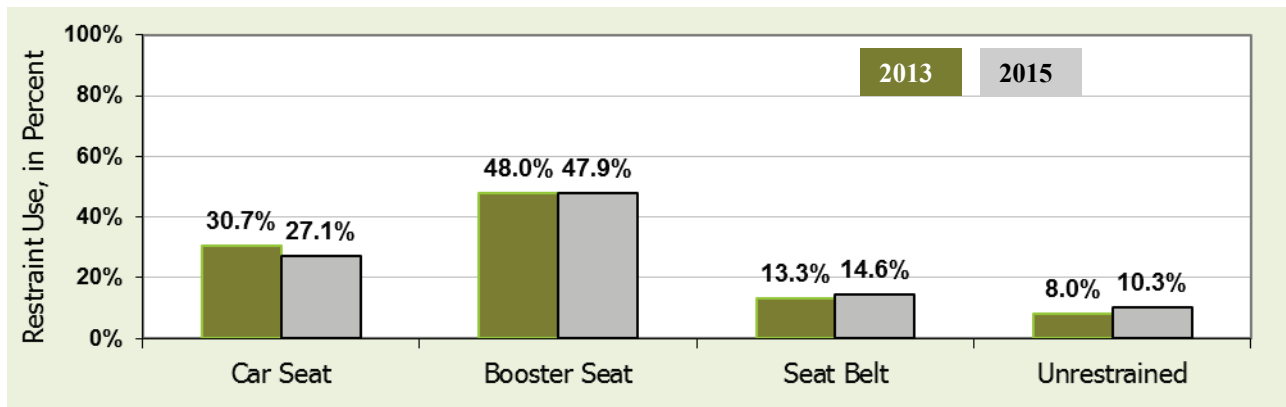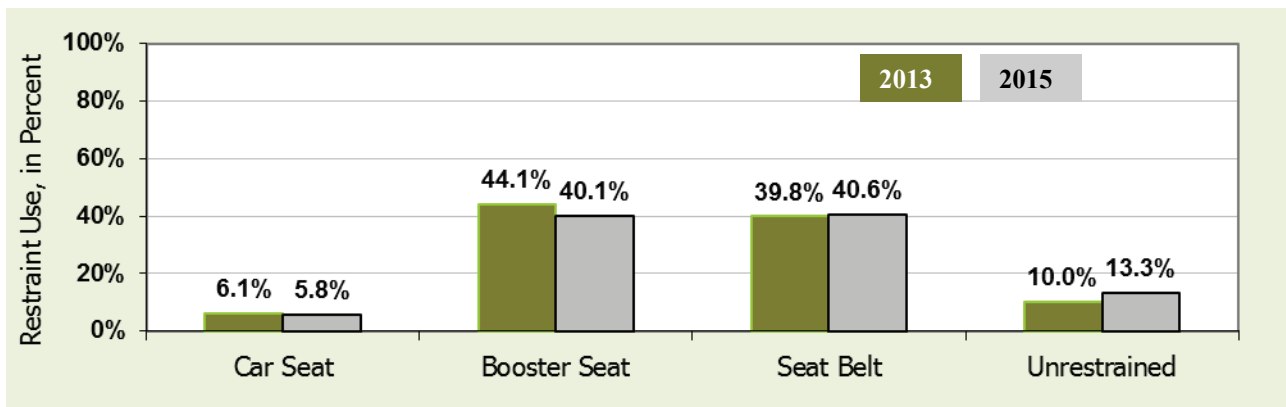| Booster Seat Type[1]	2013		2015		2013-2015 Change		
	Percentage[2] of Children[3] Using the Booster Type	95% Confidence Interval4	Percentage[2] of Children[3] Using the Booster Type	95% Confidence Interval[4]	Change in Percentage Points	95% Confidence Interval[5]	P-Value[6]
Children 1 to 3 Years Old							
Booster Seat (Overall)	**9.3%**	**(6.8, 12.5)**	**13.6%**	**(10.9, 16.7)**	**4.3**	**(0.4, 8.2)**	**0.03[6]**
High-Backed Booster Seat	**6.8%**	**(4.8, 9.4)**	**11.0%**	**(8.5, 14.1)**	**4.2**	**(0.7, 7.7)**	**0.02[6]**
Backless Booster Seat	2.5%	(1.6, 4.0)	2.6%	(2.1, 3.3)	0.1	(-1.2, 1.4)	0.87
Children 4 to 7 Years Old							
Booster Seat (Overall)	46.3%	(41.7, 51.0)	44.5%	(40.6, 48.6)	-1.8	(-7.8, 4.2)	0.56
High-Backed Booster Seat	25.9%	(21.9, 30.4)	22.6%	(18.9, 26.9)	-3.3	(-9.0, 2.3)	0.25
Backless Booster Seat	20.4%	(17.1, 24.1)	21.9%	(18.1, 26.3)	1.5	(-3.7, 6.8)	0.57
Children 8 to 12 Years Old							
Booster Seat (Overall)	9.6%	(6.3, 14.3)	9.1%	(7.0, 12.0)	-0.5	(-5.0, 4.1)	0.85
High-Backed Booster Seat	3.0%	(2.0, 4.5)	2.4%	(1.6, 3.8)	-0.6	(-2.2, 1.0)	0.48
Backless Booster Seat	6.6%	(4.0, 10.6)	6.7%	(5.0, 9.0)	0.1	(-3.6, 3.9)	0.94
Children Who Weigh 20 to 40 Pounds							
Booster Seat (Overall)	20.9%	(16.7, 26.0)	21.7%	(18.8, 24.9)	0.8	(-4.6, 6.2)	0.77
High-Backed Booster Seat	13.4%	(10.7, 16.5)	15.2%	(12.4, 18.5)	1.9	(-2.2, 5.9)	0.37
Backless Booster Seat	7.6%	(5.0, 11.3)	6.5%	(5.2, 8.1)	-1.1	(-4.4, 2.3)	0.53
Children Who Weigh Between 41 to 60 Pounds							
Booster Seat (Overall)	44.4%	(40.2, 48.7)	41.6%	(37.1, 46.2)	-2.8	(-8.8, 3.2)	0.36
High-Backed Booster Seat	23.0%	(18.7, 28.0)	19.3%	(16.1, 23.0)	-3.7	(-9.3, 1.9)	0.19
Backless Booster Seat	21.4%	(17.8, 25.4)	22.3%	(18.6, 26.4)	0.9	(-4.3, 6.2)	0.73
Children up to 12 Years Old Who Weigh More Than 60 Pounds							
Booster Seat (Overall)	9.3%	(6.0, 14.2)	9.8%	(8.0, 11.8)	0.4	(-3.9, 4.8)	0.84
High-Backed Booster Seat	3.6%	(2.4, 5.5)	2.4%	(1.7, 3.4)	-1.3	(-3.0, 0.4)	0.15
Backless Booster Seat	5.7%	(3.0, 10.5)	7.4%	(5.7, 9.5)	1.7	(-2.3, 5.7)	0.41
Children Who Are at Most 36 Inches Tall							
Booster Seat (Overall)	11.2%	(8.6, 14.4)	14.8%	(12.0, 18.1)	3.6	(-0.5, 7.6)	0.08
High-Backed Booster Seat	7.5%	(5.4, 10.4)	10.5%	(8.1, 13.5)	3.0	(-0.5, 6.5)	0.10
Backless Booster Seat	3.7%	(2.4, 5.5)	4.3%	(3.3, 5.5)	0.6	(-1.2, 2.4)	0.51
Children up to 12 Years Old Who Are 37 to 53 Inches Tall							
Booster Seat (Overall)	38.5%	(34.3, 42.8)	36.2%	(32.7, 39.8)	-2.3	(-7.7, 3.1)	0.41
High-Backed Booster Seat	20.8%	(17.3, 24.9)	17.9%	(14.6, 21.8)	-2.9	(-8.0, 2.2)	0.27
Backless Booster Seat	17.7%	(14.9, 20.8)	18.3%	(15.2, 21.8)	0.6	(-3.6, 4.9)	0.77
Children up to 12 Years Old Who Are 54 to 56 Inches Tall							
Booster Seat (Overall)	14.8%	(7.3, 27.8)	11.6%	(8.0, 16.3)	-3.3	(-14.1, 7.5)	0.55
High-Backed Booster Seat	5.4%	(2.0, 14.1)	2.1%	(0.9, 5.0)	-3.3	(-9.1, 2.6)	0.27
Backless Booster Seat	9.4%	(4.9, 17.3)	9.4%	(6.5, 13.4)	0.0	(-6.8, 6.8)	1.00
Children up to 12 Years Old Who Are Taller Than 56 Inches							
Booster Seat (Overall)	3.8%	(2.2, 6.4)	2.8%	(1.7, 4.4)	-1.0	(-3.4, 1.4)	0.40
High-Backed Booster Seat	1.4%	(0.6, 3.6)	1.0%	(0.5, 1.9)	-0.4	(-1.9, 1.1)	0.58
Backless Booster Seat	2.3%	(1.0, 5.5)	1.8%	(1.0, 3.2)	-0.6	(-2.9, 1.7)	0.62

[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 Wilson confidence interval is used in the estimated percentages in the children group (e.g., children in high-backed booster seat), which is in the form: $\left\{(2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)}\right\}/\left(2(n_{EFF} + t^2)\right)$, where p is the estimated percentage of belt use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold 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, NCSA, 2013, 2015

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

Restraint Type[1]	2013		2015		2013-2015 Change		
	Percentage[2] of Children[3] Observed in the Restraint Type	95% Confidence Interval[4]	Percentage[2] of Children[3] Observed in the Restraint Type	95% Confidence Interval[4]	Change in Percentage Points	95% Confidence Interval[5]	P-Value[6]
Children 4 and 5 Years Old							
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	30.7%	(26.1, 35.7)	27.1%	(20.9, 34.3)	-3.5	(-11.5, 4.5)	0.39
Booster Seat (Overall)	48.0%	(42.4, 53.6)	47.9%	(43.5, 52.3)	-0.1	(-7.0, 6.8)	0.98
High-Backed Booster Seat	30.6%	(26.3, 35.2)	29.1%	(25.0, 33.7)	-1.4	(-7.5, 4.6)	0.64
Backless Booster Seat	17.4%	(14.0, 21.4)	18.7%	(14.7, 23.6)	1.3	(-4.2, 6.9)	0.64
Seat Belt	13.3%	(10.2, 17.2)	14.6%	(10.4, 20.0)	1.2	(-4.5, 6.9)	0.68
No Restraint Observed	8.0%	(5.6, 11.3)	10.3%	(6.8, 15.2)	2.3	(-2.6, 7.1)	0.36
Children 6 and 7 Years Old							
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	6.1%	(3.8, 9.5)	5.8%	(3.6, 9.2)	-0.3	(-4.1, 3.5)	0.89
Booster Seat (Overall)	44.1%	(38.5, 49.8)	40.1%	(34.5, 46.0)	-3.9	(-11.8, 3.9)	0.33
High-Backed Booster Seat	19.5%	(14.6, 25.6)	14.0%	(11.0, 17.7)	-5.5	(-11.8, 0.7)	0.08
Backless Booster Seat	24.5%	(20.1, 29.5)	26.1%	(21.7, 31.1)	1.6	(-4.9, 8.0)	0.63
Seat Belt	39.8%	(33.5, 46.4)	40.6%	(35.0, 46.5)	0.8	(-7.6, 9.2)	0.85
No Restraint Observed	10.0%	(7.2, 13.8)	13.3%	(9.0, 19.3)	3.3	(-2.5, 9.1)	0.26
Children 4 to 7 Years Old							
Rear-Facing Car Seat	NA	NA	0.2%	(0.1, 0.4)	NA	NA	NA
Forward-Facing Car Seat	20.3%	(17.2, 23.8)	17.9%	(13.2, 23.9)	-2.4	(-8.4, 3.7)	0.45
Booster Seat (Overall)	46.3%	(41.7, 51.0)	44.5%	(40.6, 48.6)	-1.8	(-7.8, 4.2)	0.56
High-Backed Booster Seat	25.9%	(21.9, 30.4)	22.6%	(18.9, 26.9)	-3.3	(-9.0, 2.3)	0.25
Backless Booster Seat	20.4%	(17.1, 24.1)	21.9%	(18.1, 26.3)	1.5	(-3.7, 6.8)	0.57
Seat Belt	24.5%	(20.9, 28.5)	25.8%	(20.6, 31.8)	1.3	(-5.2, 7.8)	0.70
No Restraint Observed	8.8%	(6.6, 11.8)	11.6%	(7.9, 16.7)	2.7	(-2.2, 7.7)	0.27

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are in high-backed booster seat), which is in the form: $\left\{ (2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)} \right\}/(2(n_{EFF} + t^2))$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

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.

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 or more 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 2015 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 all-in-one 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: Safercar.gov)

As shown in Figure 5, about 12.6 percent of children under age 1 were not in rear-facing car seats in 2015; most of these infants were prematurely graduated to forward-facing car seats.
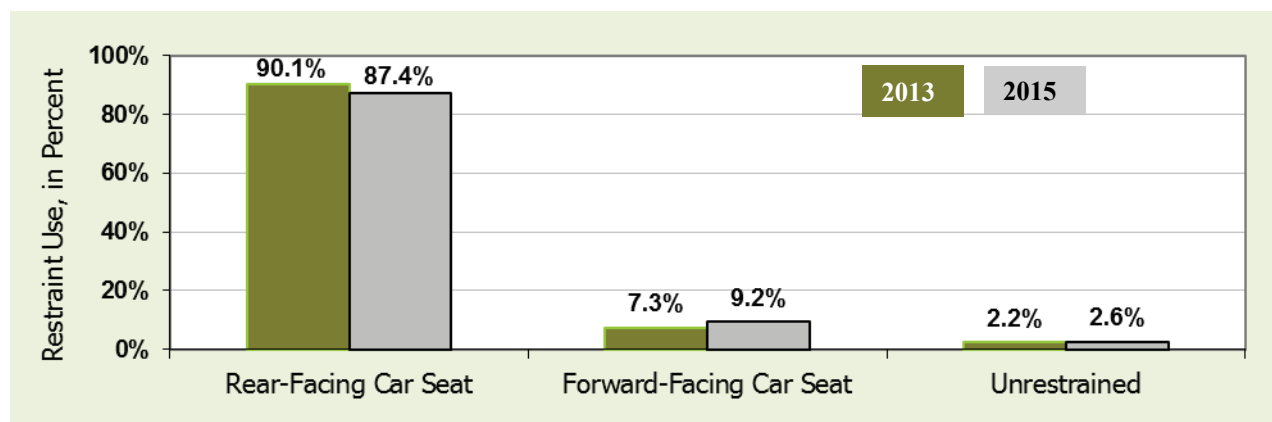
Figure 5: Restraint Use for Children Under Age 1

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 him or her safe. Your child should remain in a rear-facing car seat until he or she reaches the top height or weight limit allowed by your car seat's manufacturer. Once your child outgrows the rear-facing car seat, your child is ready to travel in a forward-facing car seat with a harness and tether. " (Source: Safercar.gov)

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 2015 NSUBS found that only 77.0 percent of children 1 to 3 years

14

old were restrained either in rear-facing car seats (9.4%) or in forward-facing car seats (67.6%) in 2015. About 13.6 percent of children 1 to 3 years old were prematurely graduated to booster seats and 3.7 percent to seat belts. Figure 6 shows the distribution of restraint types for children 1 to 3 years old in 2013 and 2015.

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

As compared to 2013, there were no improvements for children of this age group as shown in Figure 6:

1) About 9.4 percent of children were restrained in rear-facing car seats in 2015, a slight decrease from 10.3 percent in 2013.
2) About 13.6 percent of children were prematurely graduated to booster seats in 2015, a significant increase from 9.3 percent in 2013.

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 and tether 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, but still in the back seat." (Source: Safercar.gov)

Therefore, the appropriate restraint types for children 4 to 7 years old should be either forward-facing car seats with harness or booster seats. However, the 2015 NSUBS found that only 62.4 percent of children 4 to 7 years old were restrained either in forward-facing car seats (17.9%) or in booster seats (44.5%) in 2015. About 25.8 percent of children 4 to 7 years old were prematurely graduated to seat belts and 11.6 percent were unrestrained. Figure 7 shows the distribution of restraint types for children 4 to 7 years old in 2013 and 2015.
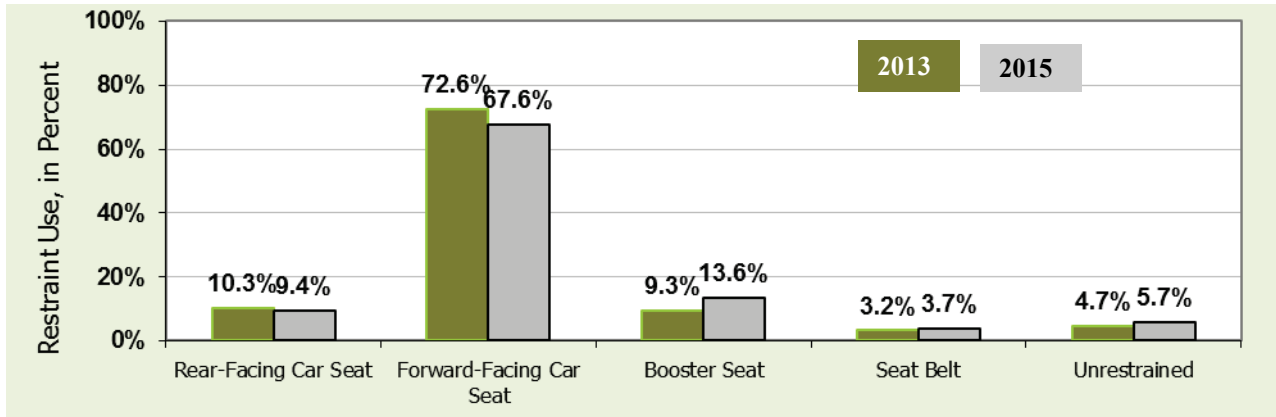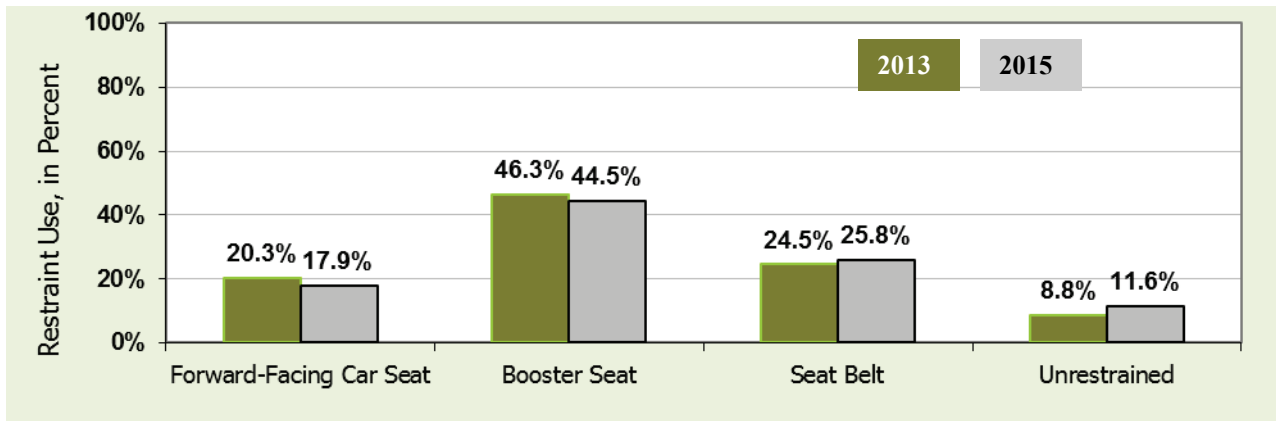
Figure 7: Restraint Use for Children 4 to 7 Years Old

As compared to 2013, there were some changes for children of this age group in 2015 as shown in Figure 7:

1) About 17.9 percent of children were restrained in forward-facing car seats in 2015, a decrease from 20.3 percent in 2013. This is not a statistically significant change.
2) About 25.8 percent of children were prematurely graduated to seat belt in 2015, an increase from 24.5 percent in 2013. This is not a statistically significant change.

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." (Source: Safercar.gov)

However, the 2015 NSUBS found that 15.6 percent of children 8 to 12 years old were unrestrained in 2015. Figure 8 shows the distribution of restraint types for children 8 to 12 years old in 2013 and 2015. As compared to 2013, Figure 8 also shows 15.6 percent of children 8 to 12 years old were unrestrained in 2015, an increase from 10.6 percent in 2013.
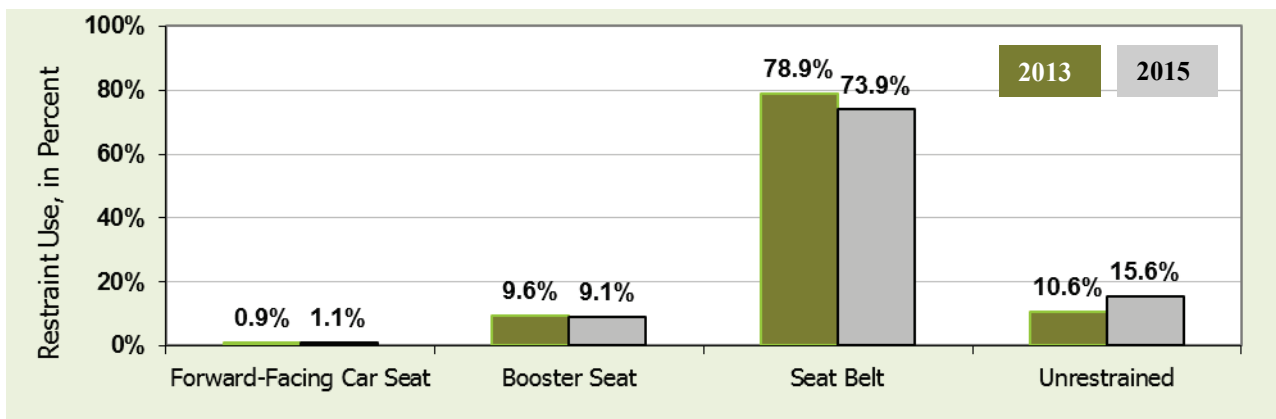
Figure 8: Restraint Use for Children 8 to 12 Years Old

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 and size (height and weight), choose a seat that fits in your vehicle, and use it every time.
- Always refer to your specific car seat manufacturer's instructions (check height and weight limits) and read the vehicle owner's manual on how to install the car seat using the seat belt or lower anchors and a tether, if possible.
- To maximize safety, keep your child in the car seat as long as your child fits the seat's height and weight requirements.
- Keep your child in the back seat at least through age 12.

NHTSA recommends consulting the manufacturer's manual for car seat weight and height limits, as noted above.

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 or more 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 the weight and height benchmarks referencing NHTSA's current guidelines for any premature graduation changes in 2015.

Children Weighing Less Than 20 Pounds

According to NHTSA's current car seat recommendation, children under age 1 should be in rear-facing car seats. NHTSA recommends that these children be restrained in rear-facing car seats.
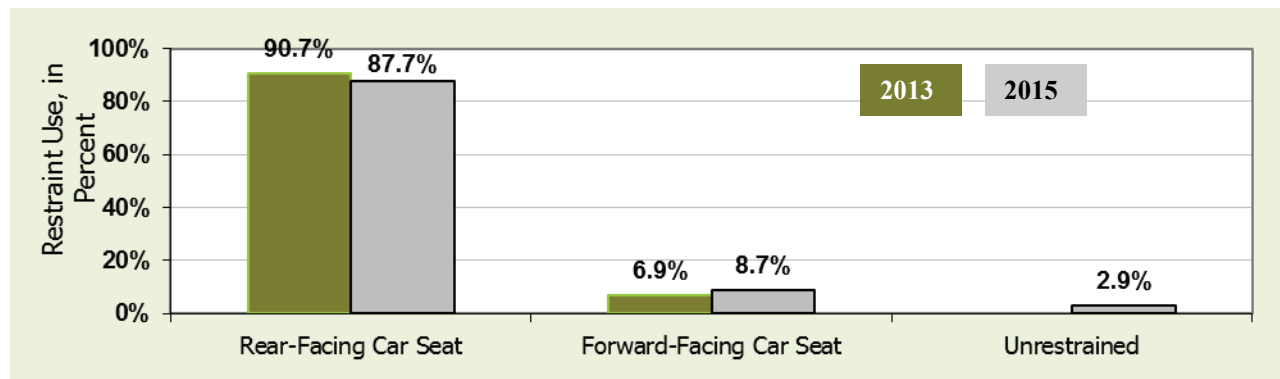
 Figure 9: Restraint Use for Children Under 20 Pounds

As shown in Figure 9, the 2015 NSUBS found that 11.5 percent of children under 20 pounds were not restrained in rear-facing car seats in 2015 (8.7% prematurely graduated to forward-facing car seats and 2.9% unrestrained).

Compared to 2013, fewer children under 20 pounds were in rear-facing seats in 2015: 87.7 percent of children weighing under 20 pounds were in rear-facing car seats, down from 90.7 percent in 2013 (Figure 9).

<u>Children Weighing 20 to 40 Pounds</u>

NHTSA recommends that when children outgrow their rear-facing car seats they should ride in forward-facing car seats, in the back seat, with a harness and tether.

The 2015 NSUBS found that 44.8 percent of children weighing 20 to 40 pounds were not in forward-facing car seats in 2015 (42.2% in 2013) (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.
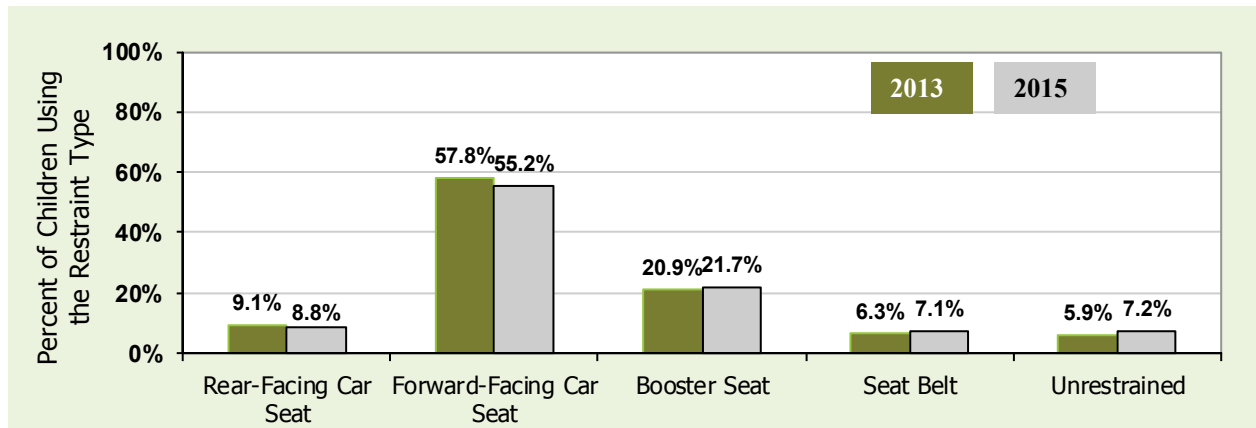
Figure 10: Distribution of Restraint Types for Children Who Were 20 to 40 Lbs

<u>Children Less Than 57 Inches Tall</u>

NHTSA recommends that once children outgrow their forward-facing car seats, they should ride in booster seats, in the back seats, until the vehicle seat belts fit properly. A seat belts fits properly when the lap belt lies snugly across the upper thighs, not the stomach. The shoulder belt should lie snugly across the shoulder and chest and not cross the neck or face.

The 2015 NSUBS found that:
- 45.1 percent of children newborn to 12 years old who were 37 to 53 inches tall were either unrestrained (11.1%) or prematurely graduated to seat belts (34.0%) in 2015 (Table 5 and Figure 11); and
- 86.7 percent of children up to 12 years old who were 54 to 56 inches tall were either unrestrained (16.8%) or prematurely graduated to seat belts (69.9%) in 2015 (Table 5 and 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 2015.

- Booster seat use among children up to 12 years old who were 37 to 53 inches tall decreased slightly to 36.2 percent in 2015 from 38.5 percent in 2013; meanwhile, seat belt use increased from 32.0 percent in 2013 to 34.0 percent in 2015 (Figure 12).
- Booster seat use among children newborn to 12 years old who were 54 to 56 inches tall decreased from 14.8 percent in 2013 to 11.6 percent in 2015; seat belt use also decreased from 73.0 percent in 2013 to 69.9 percent in 2015 (Figure 13).
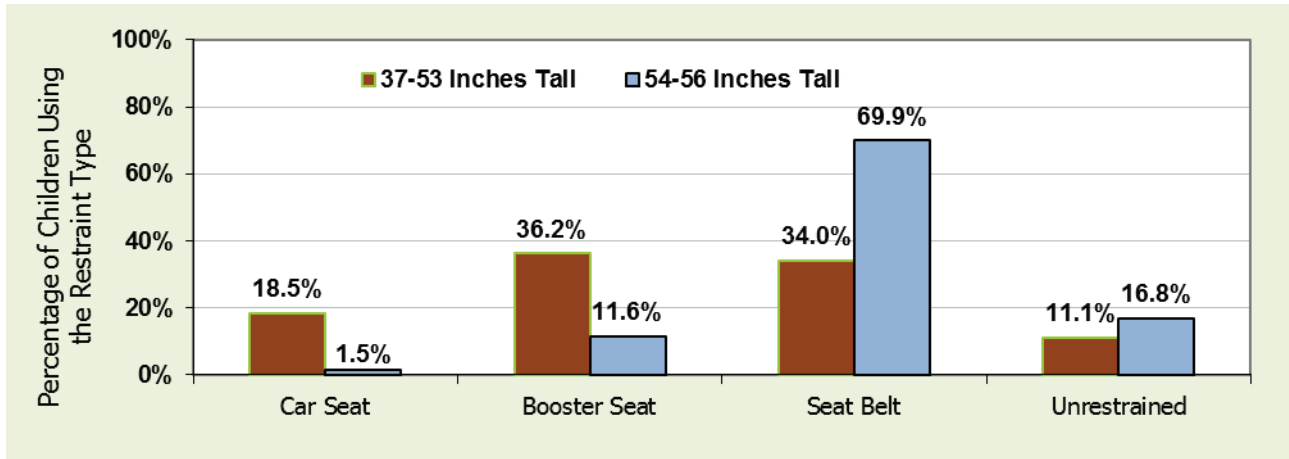
Figure 11: Distribution of Restraint Types in 2015 for Children up to 12 Years Old Who Were 37-56 Inches Tall

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

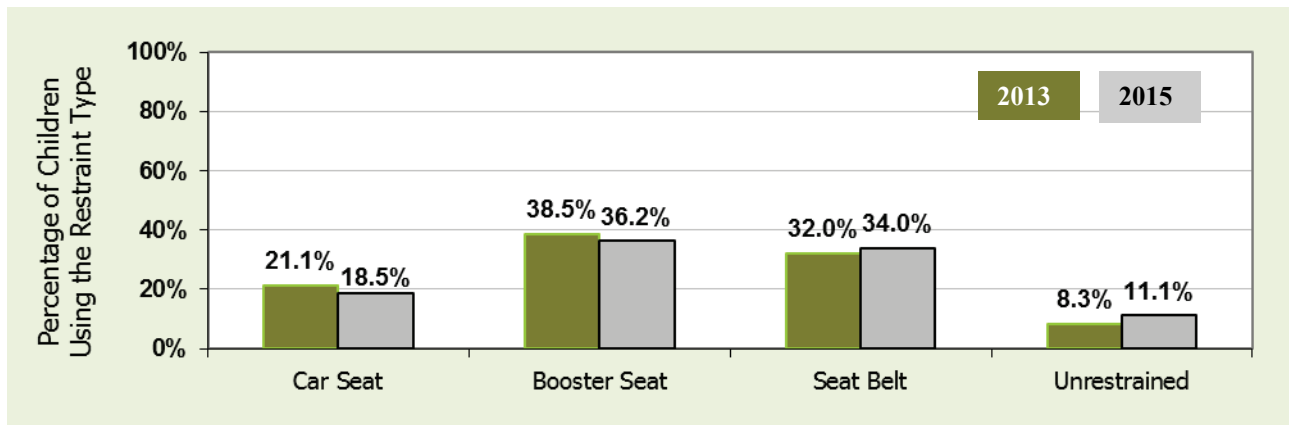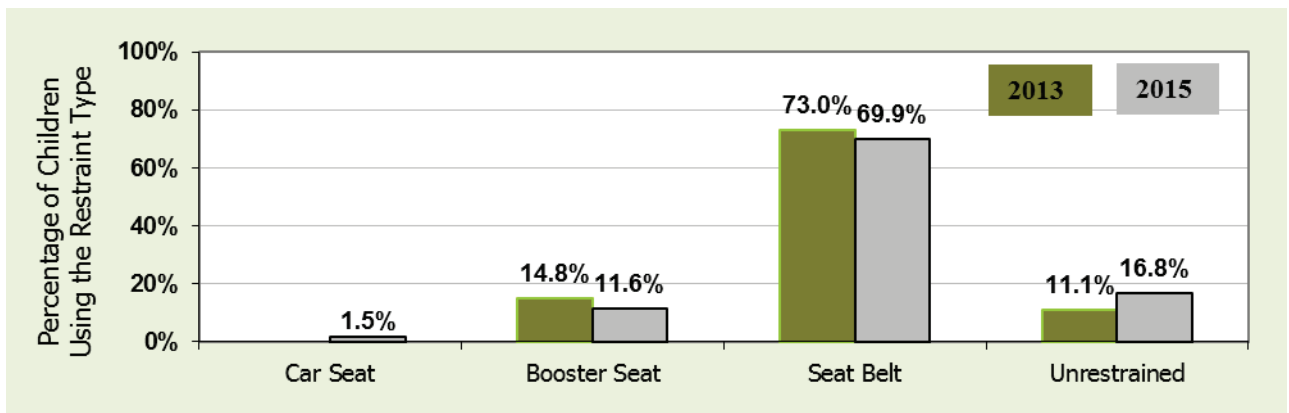| Restraint Type[1]	2013		2015		2013-2015 Change		
	Percentage[2] of Children[3] Observed Using the Restraint Type	95% Confidence Interval[4]	Percentage[2] of Children[3] Observed Using the Restraint Type	95% Confidence Interval[4]	Change in Percentage Points	95% Confidence Interval[5]	P-Value[6]
Children Less Than 1 Year Old							
Rear-Facing Car Seat	90.1%	(84.7, 93.8)	87.4%	(80.9, 91.9)	-2.7	(-9.6, 4.1)	0.43
Forward-Facing Car Seat	7.3%	(4.1, 12.7)	9.2%	(5.7, 14.3)	1.9	(-3.9, 7.7)	0.52
Booster Seat (Overall)	NA	NA	NA	NA	NA	NA	NA
High-Backed Booster Seat	NA	NA	NA	NA	NA	NA	NA
Backless Booster Seat	NA	NA	NA	NA	NA	NA	NA
Seat Belt	NA	NA	NA	NA	NA	NA	NA
No Restraint Observed	2.2%	(0.9, 5.3)	2.6%	(1.3, 4.9)	0.4	(-2.1, 3.0)	0.74
Children 1 to 3 Years Old							
Rear-Facing Car Seat	10.3%	(7.7, 13.6)	9.4%	(7.6, 11.5)	-0.9	(-4.3, 2.5)	0.60
Forward-Facing Car Seat	72.6%	(67.9, 76.8)	67.6%	(62.4, 72.5)	-4.9	(-11.5, 1.6)	0.14
Booster Seat (Overall)	**9.3%**	**(6.8, 12.5)**	**13.6%**	**(10.9, 16.7)**	**4.3**	**(0.4, 8.2)**	**0.03**
High-Backed Booster Seat	**6.8%**	**(4.8, 9.4)**	**11.0%**	**(8.5, 14.1)**	**4.2**	**(0.7, 7.7)**	**0.02**
Backless Booster Seat	2.5%	(1.6, 4.0)	2.6%	(2.1, 3.3)	0.1	(-1.2, 1.4)	0.87
Seat Belt	3.2%	(1.5, 6.6)	3.7%	(2.4, 5.7)	0.6	(-2.2, 3.4)	0.68
No Restraint Observed	4.7%	(2.8, 7.9)	5.7%	(3.0, 10.3)	1.0	(-3.2, 5.1)	0.65
Children 4 to 7 Years Old							
Rear-Facing Car Seat	NA	NA	0.2%	(0.1, 0.4)	NA	NA	NA
Forward-Facing Car Seat	20.3%	(17.2, 23.8)	17.9%	(13.2, 23.9)	-2.4	(-8.4, 3.7)	0.45
Booster Seat (Overall)	46.3%	(41.7, 51.0)	44.5%	(40.6, 48.6)	-1.8	(-7.8, 4.2)	0.56
High-Backed Booster Seat	25.9%	(21.9, 30.4)	22.6%	(18.9, 26.9)	-3.3	(-9.0, 2.3)	0.25
Backless Booster Seat	20.4%	(17.1, 24.1)	21.9%	(18.1, 26.3)	1.5	(-3.7, 6.8)	0.57
Seat Belt	24.5%	(20.9, 28.5)	25.8%	(20.6, 31.8)	1.3	(-5.2, 7.8)	0.70
No Restraint Observed	8.8%	(6.6, 11.8)	11.6%	(7.9, 16.7)	2.7	(-2.2, 7.7)	0.27
Children 8 to 12 Years Old							
Rear-Facing Car Seat	NA	NA	0.2%	(0.1, 0.8)	NA	NA	NA
Forward-Facing Car Seat	0.9%	(0.3, 2.8)	1.1%	(0.6, 1.9)	0.2	(-1.0, 1.4)	0.70
Booster Seat (Overall)	9.6%	(6.3, 14.3)	9.1%	(7.0, 12.0)	-0.5	(-5.0, 4.1)	0.85
High-Backed Booster Seat	3.0%	(2.0, 4.5)	2.4%	(1.6, 3.8)	-0.6	(-2.2, 1.0)	0.48
Backless Booster Seat	6.6%	(4.0, 10.6)	6.7%	(5.0, 9.0)	0.1	(-3.6, 3.9)	0.94
Seat Belt	78.9%	(73.6, 83.4)	73.9%	(68.6, 78.5)	-5.0	(-11.8, 1.7)	0.14
No Restraint Observed	10.6%	(8.3, 13.3)	15.6%	(10.9, 22.0)	5.1	(-0.8, 10.9)	0.09

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are in high-backed booster seat), which is in the form: $\left\{(2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)}\right\}/(2(n_{EFF} + t^2))$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

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

Restraint Type[1]	2013 Percentage[2] of Children[3] Observed Using the Restraint Type	2013 95% Confidence Interval[4]	2015 Percentage[2] of Children[3] Observed Using the Restraint Type	2015 95% Confidence Interval[4]	2013-2015 Change in Percentage Points	2013-2015 Change 95% Confidence Interval[5]	P-Value[6]
Children Who Weigh Less Than 20 Pounds							
Rear-Facing Car Seat	90.7%	(84.8, 94.4)	87.7%	(77.9, 93.6)	-2.9	(-11.7, 5.8)	0.51
Forward-Facing Car Seat	6.9%	(3.8, 12.3)	8.7%	(4.0, 17.7)	1.7	(-5.8, 9.3)	0.65
Booster Seat (Overall)	NA	NA	NA	NA	NA	NA	NA
High-Backed Booster Seat	NA	NA	NA	NA	NA	NA	NA
Backless Booster Seat	NA	NA	NA	NA	NA	NA	NA
Seat Belt	NA	NA	NA	NA	NA	NA	NA
No Restraint Observed	NA	NA	2.9%	(1.4, 5.6)	NA	NA	NA
Children Who Weigh Between 20 and 40 Pounds							
Rear-Facing Car Seat	9.1%	(7.1, 11.4)	8.8%	(7.8, 10.0)	-0.3	(-2.6, 2.1)	0.83
Forward-Facing Car Seat	57.8%	(52.6, 62.9)	55.2%	(49.7, 60.5)	-2.7	(-9.9, 4.6)	0.47
Booster Seat (Overall)	20.9%	(16.7, 26.0)	21.7%	(18.8, 24.9)	0.8	(-4.6, 6.2)	0.77
High-Backed Booster Seat	13.4%	(10.7, 16.5)	15.2%	(12.4, 18.5)	1.9	(-2.2, 5.9)	0.37
Backless Booster Seat	7.6%	(5.0, 11.3)	6.5%	(5.2, 8.1)	-1.1	(-4.4, 2.3)	0.53
Seat Belt	6.3%	(4.7, 8.5)	7.1%	(5.1, 9.8)	0.8	(-2.1, 3.7)	0.59
No Restraint Observed	5.9%	(4.2, 8.2)	7.2%	(4.3, 11.8)	1.3	(-2.7, 5.3)	0.51
Children Who Weigh Between 41 and 60 Pounds							
Rear-Facing Car Seat	NA	NA	0.2%	(0.1, 0.6)	NA	NA	NA
Forward-Facing Car Seat	12.1%	(9.2, 15.6)	11.8%	(9.0, 15.4)	-0.3	(-4.6, 4.1)	0.91
Booster Seat (Overall)	44.4%	(40.2, 48.7)	41.6%	(37.1, 46.2)	-2.8	(-8.8, 3.2)	0.36
High-Backed Booster Seat	23.0%	(18.7, 28.0)	19.3%	(16.1, 23.0)	-3.7	(-9.3, 1.9)	0.19
Backless Booster Seat	21.4%	(17.8, 25.4)	22.3%	(18.6, 26.4)	0.9	(-4.3, 6.2)	0.73
Seat Belt	34.3%	(30.2, 38.8)	35.4%	(30.3, 40.9)	1.1	(-5.5, 7.7)	0.75
No Restraint Observed	9.2%	(7.0, 12.0)	10.9%	(7.3, 16.0)	1.8	(-3.1, 6.6)	0.47
Children Who Weigh More Than 60 Pounds							
Rear-Facing Car Seat	NA	NA	0.2%	(0.1, 0.7)	NA	NA	NA
Forward-Facing Car Seat	1.2%	(0.5, 2.7)	1.5%	(0.9, 2.7)	0.4	(-0.9, 1.6)	0.59
Booster Seat (Overall)	9.3%	(6.0, 14.2)	9.8%	(8.0, 11.8)	0.4	(-3.9, 4.8)	0.84
High-Backed Booster Seat	3.6%	(2.4, 5.5)	2.4%	(1.7, 3.4)	-1.3	(-3.0, 0.4)	0.15
Backless Booster Seat	5.7%	(3.0, 10.5)	7.4%	(5.7, 9.5)	1.7	(-2.3, 5.7)	0.41
Seat Belt	78.8%	(73.4, 83.4)	71.8%	(66.0, 76.9)	-7.1	(-14.2, 0.1)	0.05
No Restraint Observed	10.7%	(8.0, 14.0)	16.7%	(11.6, 23.5)	6.1	(-0.3, 12.4)	0.06

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are in high-backed booster seat), which is in the form: $\left\{ (2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)} \right\}/(2(n_{EFF} + t^2))$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

5 The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

6 A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

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

Restraint Type[1]	2013		2015		2013-2015 Change		
	Percentage[2] of Children[3] Observed Using the Restraint Type	95% Confidence Interval[4]	Percentage[2] of Children[3] Observed Using the Restraint Type	95% Confidence Interval[4]	Change in Percentage Points	95% Confidence Interval[5]	P-Value[6]
Children Who Are at Most 36 Inches Tall							
Rear-Facing Car Seat	21.5%	(18.1, 25.4)	20.3%	(17.1, 23.8)	-1.2	(-6.0, 3.5)	0.61
Forward-Facing Car Seat	55.9%	(51.5, 60.3)	51.4%	(46.6, 56.2)	-4.5	(-10.8, 1.8)	0.16
Booster Seat (Overall)	11.2%	(8.6, 14.4)	14.8%	(12.0, 18.1)	3.6	(-0.5, 7.6)	0.08
High-Backed Booster Seat	7.5%	(5.4, 10.4)	10.5%	(8.1, 13.5)	3.0	(-0.5, 6.5)	0.10
Backless Booster Seat	3.7%	(2.4, 5.5)	4.3%	(3.3, 5.5)	0.6	(-1.2, 2.4)	0.51
Seat Belt	5.9%	(3.9, 8.9)	6.2%	(4.4, 8.8)	0.3	(-2.9, 3.5)	0.87
No Restraint Observed	5.4%	(3.4, 8.5)	7.4%	(4.4, 12.0)	1.9	(-2.4, 6.2)	0.38
Children Who Are 37 to 53 Inches Tall							
Rear-Facing Car Seat	0.1%	(0.0, 0.4)	0.2%	(0.1, 0.6)	0.1	(-0.1, 0.4)	0.40
Forward-Facing Car Seat	21.1%	(17.3, 25.4)	18.5%	(14.6, 23.2)	-2.5	(-8.2, 3.1)	0.38
Booster Seat (Overall)	38.5%	(34.3, 42.8)	36.2%	(32.7, 39.8)	-2.3	(-7.7, 3.1)	0.41
High-Backed Booster Seat	20.8%	(17.3, 24.9)	17.9%	(14.6, 21.8)	-2.9	(-8.0, 2.2)	0.27
Backless Booster Seat	17.7%	(14.9, 20.8)	18.3%	(15.2, 21.8)	0.6	(-3.6, 4.9)	0.77
Seat Belt	32.0%	(28.0, 36.4)	34.0%	(29.0, 39.3)	1.9	(-4.5, 8.4)	0.56
No Restraint Observed	8.3%	(6.5, 10.6)	11.1%	(7.6, 15.8)	2.8	(-1.6, 7.1)	0.21
Children Who Are 54 to 56 Inches Tall							
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	NA	NA	1.5%	(0.7, 3.2)	NA	NA	NA
Booster Seat (Overall)	14.8%	(7.3, 27.8)	11.6%	(8.0, 16.3)	-3.3	(-14.1, 7.5)	0.55
High-Backed Booster Seat	5.4%	(2.0, 14.1)	2.1%	(0.9, 5.0)	-3.3	(-9.1, 2.6)	0.27
Backless Booster Seat	9.4%	(4.9, 17.3)	9.4%	(6.5, 13.4)	0.0	(-6.8, 6.8)	1.00
Seat Belt	73.0%	(61.4, 82.1)	69.9%	(63.0, 76.1)	-3.1	(-15.2, 9.0)	0.62
No Restraint Observed	11.1%	(7.2, 16.7)	16.8%	(10.1, 26.6)	5.7	(-3.4, 14.8)	0.22
Children Who Are Taller Than 56 Inches							
Rear-Facing Car Seat	NA	NA	NA	NA	NA	NA	NA
Forward-Facing Car Seat	0.7%	(0.1, 3.4)	0.5%	(0.2, 1.3)	-0.1	(-1.4, 1.1)	0.82
Booster Seat (Overall)	3.8%	(2.2, 6.4)	2.8%	(1.7, 4.4)	-1.0	(-3.4, 1.4)	0.40
High-Backed Booster Seat	1.4%	(0.6, 3.6)	1.0%	(0.5, 1.9)	-0.4	(-1.9, 1.1)	0.58
Backless Booster Seat	2.3%	(1.0, 5.5)	1.8%	(1.0, 3.2)	-0.6	(-2.9, 1.7)	0.62
Seat Belt	84.5%	(79.4, 88.6)	81.5%	(74.6, 86.9)	-3.0	(-10.4, 4.4)	0.42
No Restraint Observed	11.0%	(7.7, 15.5)	15.1%	(10.3, 21.7)	4.1	(-2.5, 10.8)	0.22

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are in high-backed booster seat), which is in the form: $\left\{(2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)}\right\}/(2(n_{EFF} + t^2))$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

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 and ethnicity for occupants of all ages. This section reports some major demographic results of child restraint use from the 2015 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 decreased to 89.2 percent in 2015, compared to 91.1 percent in 2013. This is not a statistically significant change. (Figure 14)

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 2015 were 97.4 percent, 94.3 percent, 88.4 percent, and 84.4 percent, respectively. Figure 14 compares the restraint use of children newborn to 12 years old by age in 2013 and 2015. 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. Also note that none of these changes from 2013 to 2015 are statistically significant.
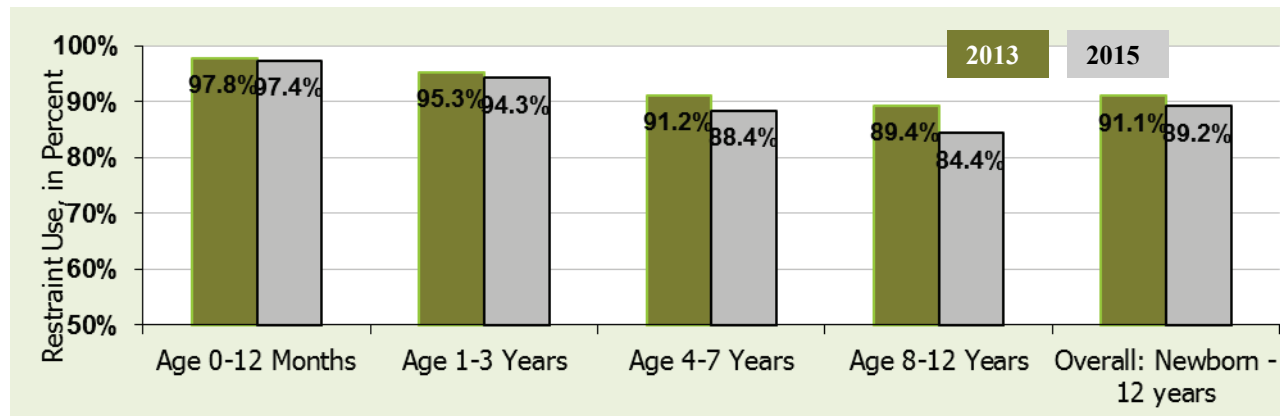
Figure 14: Child Restraint Use by Age and Year

Race and Ethnicity

NSUBS data collectors conduct interviews to obtain self-identified race and ethnicity of passenger vehicle occupants including all child occupants under 13. This is different from the way that NOPUS collected racial information of vehicle occupants through visual assessment.

Figure 15 shows the overall picture of child restraint use by race and ethnicity across all age groups. Please note that Hispanic children from birth to 12 months old had the highest restraint use (100.0%) while Non-Hispanic black children 8 to 12 years old had the lowest (72.4%).
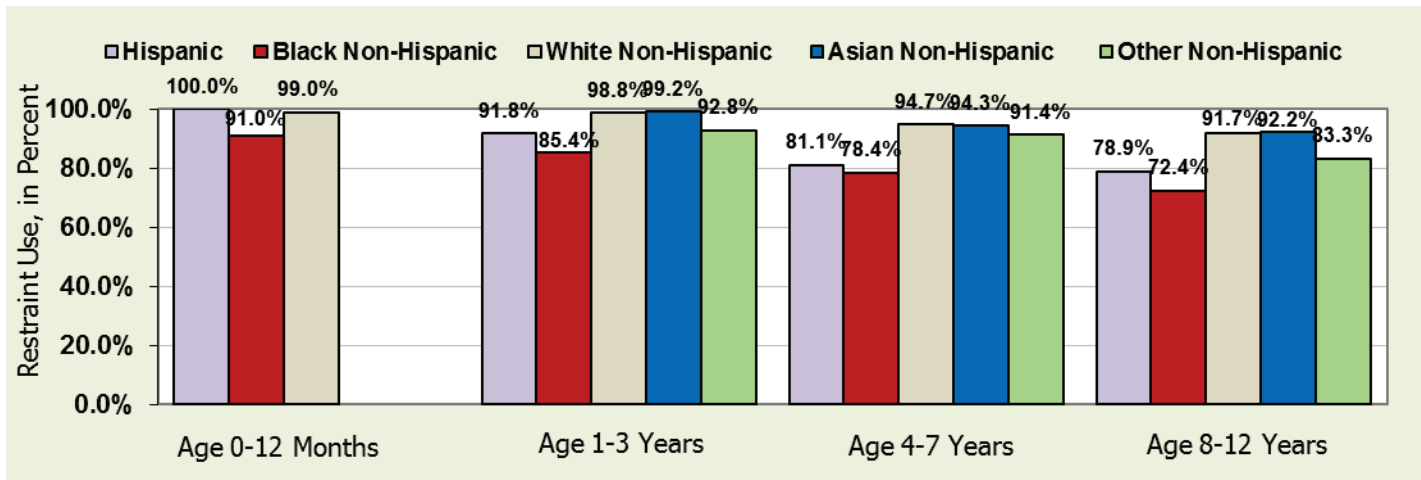
Figure 15: Child Restraint Use by Age and Hispanic Origin in 2015

As shown in Figure 16, Hispanics had generally lower restraint use rates than Non-Hispanics among children younger than 13 except the Hispanic children from birth to 12 months old. This difference was most pronounced among children in the 4 to 7 age group.
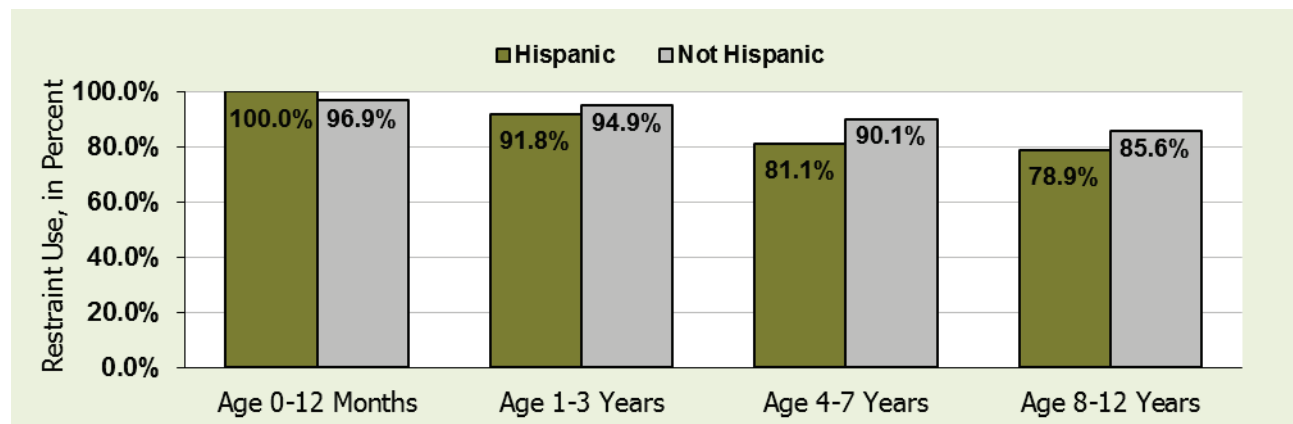
Figure 16: Child Restraint Use by Age and Hispanic Origin in 2015

The 2015 NSUBS also shows that restraint use among children 4 to 7 years old who are Non-Hispanic White decreased from 96.4 percent in 2013 to 94.7 percent in 2015 (Table 8). Restraint use among Hispanic children 8 to 12 years old decreased from 86.9 percent in 2013 to 78.9 percent in 2015 (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 2015. It shows that the restraint use rates among boys and girls were not statistically different in all age groups except the children 8 to 12 years old. Restrain use among children 8 to 12 years old who are girls decreased significantly to 82.6 percent in 2015 from 90.5 percent in 2013 (Table 9).
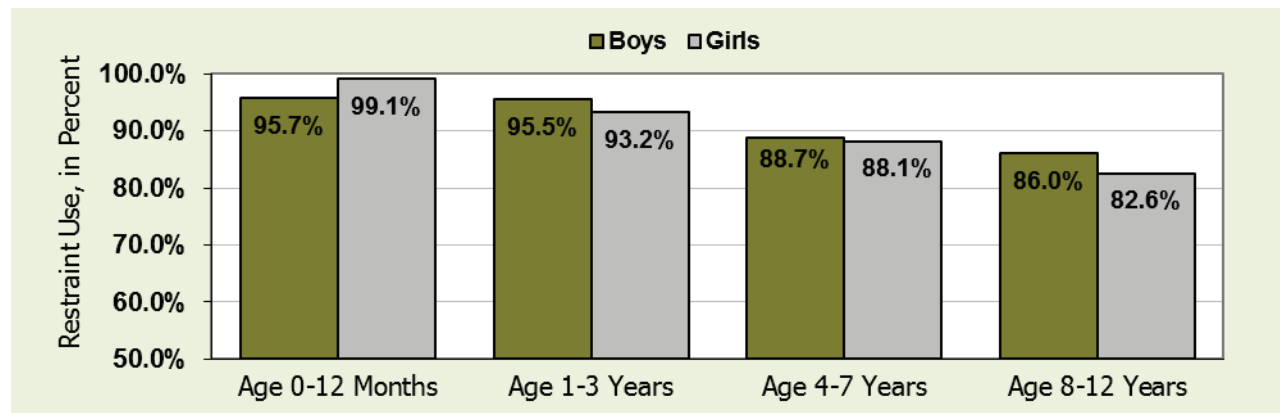

Figure 17: Child Restraint Use by Age and Sex in 2015

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

Subgroup of Children 0-12 Months[1,4]	2013 Estimated Restraint Use[2]	2013 95% Confidence Interval[3]	2015 Estimated Restraint Use[2]	2015 95% Confidence Interval[3]	2013-2015 Change Change in Percentage Points	2013-2015 Change 95% Confidence Interval[5]	P-Value[6]
All Children 0-12 Months	97.8%	(94.7, 99.1)	97.4%	(95.1, 98.7)	-0.4	(-3.0, 2.1)	0.74
Children Who Are							
Boys	98.2%	(90.3, 99.7)	95.7%	(92.5, 97.6)	-2.5	(-6.7, 1.7)	0.25
Girls	97.5%	(92.8, 99.2)	99.1%	(96.1, 99.8)	1.6	(-1.6, 4.7)	0.33
Children Who Are Reported to Be[4]							
White Non-Hispanic	99.5%	(94.5, 100.0)	99.0%	(97.2, 99.6)	-0.6	(-2.4, 1.2)	0.54
Black or African-American Non-Hispanic	96.3%	(93.4, 98.0)	91.0%	(82.5, 95.6)	-5.3	(-11.8, 1.1)	0.10
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Hispanic or Latino	95.6%	(83.8, 98.9)	100.0%	(100.0, 100.0)	4.4	(-2.1, 10.8)	0.18
Children Who Are Reported to Be[4]							
Hispanic or Latino	95.6%	(83.8, 98.9)	100.0%	(100.0, 100.0)	4.4	(-2.1, 10.8)	0.18
Neither Hispanic nor Latino	98.7%	(96.6, 99.5)	96.9%	(94.2, 98.3)	-1.8	(-4.1, 0.5)	0.12
Children Whose Height[4] Is							
0 to 36 Inches	97.8%	(94.7, 99.1)	97.4%	(95.1, 98.7)	-0.4	(-3.0, 2.2)	0.75
37 to 53 Inches	NA	NA	NA	NA	NA	NA	NA
54 to 56 Inches	NA	NA	NA	NA	NA	NA	NA
57 Inches or More	NA	NA	NA	NA	NA	NA	NA
Children Who Weigh[4]							
Up to 19 Pounds	99.4%	(98.8, 99.7)	97.2%	(94.0, 98.7)	-2.2	(-4.3, 0.0)	0.05
20 to 40 Pounds	95.3%	(86.7, 98.5)	97.8%	(93.4, 99.3)	2.5	(-3.3, 8.3)	0.40
41 to 60 Pounds	NA	NA	NA	NA	NA	NA	NA
61 Pounds or More	NA	NA	NA	NA	NA	NA	NA
Children Surveyed at a							
Gas Station	96.1%	(89.9, 98.6)	99.4%	(96.2, 99.9)	3.2	(-0.9, 7.3)	0.12
Fast-Food Restaurant	98.9%	(94.0, 99.8)	98.2%	(89.6, 99.7)	-0.7	(-4.8, 3.4)	0.75
Day Care Center	98.1%	(91.1, 99.6)	96.1%	(92.1, 98.1)	-2.0	(-6.3, 2.3)	0.35
Recreation Center	100.0%	(100.0, 100.0)	100.0%	(100.0, 100.0)	0.0	(0.0, 0.0)	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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are reported to be Hispanic or Latino), which is in the form: $\left\{(2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)}\right\}/\left(2(n_{EFF} + t^2)\right)$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

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

Subgroup of Children 1 to 3 Years Old[1,4]	2013		2015		2013-2015 Change		
	Estimated Restraint Use[2]	95% Confidence Interval[3]	Estimated Restraint Use[2]	95% Confidence Interval[3]	Change in Percentage Points	95% Confidence Interval[5]	P-Value[6]
All Children 1 to 3 Years Old	95.3%	(92.1, 97.2)	94.3%	(89.7, 97.0)	-1.0	(-5.1, 3.2)	0.65
Children Who Are							
Boys	95.4%	(91.3, 97.6)	95.5%	(88.7, 98.3)	0.1	(-5.0, 5.3)	0.96
Girls	95.2%	(91.0, 97.5)	93.2%	(88.9, 95.9)	-2.0	(-6.5, 2.5)	0.38
Children Who Are Reported to Be[4]							
White Non-Hispanic	98.9%	(97.3, 99.5)	98.8%	(97.7, 99.4)	0.0	(-1.3, 1.2)	0.95
Black or African-American Non-Hispanic	84.7%	(71.2, 92.6)	85.4%	(76.1, 91.5)	0.7	(-12.2, 13.5)	0.92
Asian Non-Hispanic	94.9%	(75.0, 99.1)	99.2%	(94.4, 99.9)	4.3	(-5.7, 14.4)	0.40
Other Non-Hispanic	94.6%	(87.4, 97.8)	92.8%	(74.0, 98.3)	-1.9	(-13.4, 9.7)	0.75
Hispanic or Latino	91.1%	(83.4, 95.5)	91.8%	(87.1, 94.9)	0.7	(-6.2, 7.5)	0.85
Children Reported to Be[4]							
Hispanic or Latino	91.1%	(83.4, 95.5)	91.8%	(87.1, 94.9)	0.7	(-6.2, 7.5)	0.85
Neither Hispanic nor Latino	96.6%	(94.0, 98.0)	94.9%	(89.6, 97.5)	-1.7	(-5.8, 2.4)	0.42
Children Whose Height[4] Is							
Up to 36 Inches	95.9%	(92.8, 97.7)	94.3%	(90.2, 96.8)	-1.5	(-5.4, 2.3)	0.43
37 to 53 Inches	93.3%	(87.4, 96.6)	94.3%	(87.0, 97.6)	1.0	(-5.5, 7.5)	0.76
54 to 56 Inches	NA	NA	NA	NA	NA	NA	NA
57 Inches or More	NA	NA	NA	NA	NA	NA	NA
Children Who Weigh[4]							
Up to 19 Pounds	93.1%	(71.4, 98.6)	96.8%	(81.2, 99.5)	3.7	(-10.0, 17.4)	0.60
20 to 40 Pounds	95.6%	(92.7, 97.4)	94.6%	(90.4, 97.0)	-1.0	(-4.8, 2.7)	0.59
41 to 60 Pounds	89.3%	(71.8, 96.4)	89.0%	(72.3, 96.2)	-0.3	(-16.4, 15.9)	0.98
61 Pounds or More	NA	NA	NA	NA	NA	NA	NA
Children Surveyed at a							
Gas Station	91.1%	(83.7, 95.3)	90.7%	(78.9, 96.2)	-0.4	(-10.1, 9.4)	0.94
Fast-Food Restaurant	96.0%	(91.6, 98.1)	95.7%	(91.6, 97.8)	-0.3	(-4.5, 3.8)	0.88
Day Care Center	96.4%	(91.0, 98.6)	95.1%	(90.5, 97.5)	-1.3	(-6.0, 3.4)	0.59
Recreation Center	97.1%	(84.8, 99.5)	94.2%	(85.3, 97.8)	-2.9	(-10.9, 5.0)	0.47

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are reported to be Hispanic or Latino), which is in the form: $\left\{(2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)}\right\}/\left(2(n_{EFF} + t^2)\right)$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

Table 8: Restraint Use Among Children 4 to 7 Years Old

Subgroup of Children 4 to 7 Years Old[1,4]	2013		2015		2013-2015 Change		
	Estimated Restraint Use[2]	95% Confidence Interval[3]	Estimated Restraint Use[2]	95% Confidence Interval[3]	Change in Percentage Points	95% Confidence Interval[5]	P-Value[6]
All Children 4-7	91.2%	(88.2, 93.4)	88.4%	(83.3, 92.1)	-2.7	(-7.7, 2.2)	0.27
Children Who Are							
Boys	89.8%	(86.3, 92.5)	88.7%	(83.7, 92.3)	-1.1	(-6.2, 4.0)	0.67
Girls	92.5%	(89.1, 95.0)	88.1%	(82.4, 92.1)	-4.5	(-9.9, 0.9)	0.11
Children Who Are Reported to Be[4]							
White Non-Hispanic	96.4%	(94.3, 97.7)	94.7%	(92.9, 96.1)	-1.7	(-4.0, 0.5)	0.13
Black or African-American Non-Hispanic	78.4%	(69.2, 85.4)	78.4%	(66.2, 87.0)	0.0	(-12.9, 12.9)	1.00
Asian Non-Hispanic	92.7%	(76.1, 98.1)	94.3%	(68.6, 99.2)	1.6	(-14.1, 17.3)	0.84
Other Non-Hispanic	91.0%	(66.3, 98.1)	91.4%	(83.2, 95.8)	0.4	(-15.4, 16.2)	0.96
Hispanic or Latino	85.1%	(77.9, 90.3)	81.1%	(73.2, 87.0)	-4.1	(-13.0, 4.9)	0.38
Children Reported to Be[4]							
Hispanic or Latino	85.1%	(77.9, 90.3)	81.1%	(73.2, 87.0)	-4.1	(-13.0, 4.9)	0.38
Neither Hispanic nor Latino	93.4%	(90.4, 95.5)	90.1%	(85.2, 93.5)	-3.3	(-8.0, 1.3)	0.16
Children Whose Height[4] Is							
Up to 36 Inches	88.3%	(81.6, 92.8)	83.4%	(74.5, 89.7)	-4.9	(-14.0, 4.2)	0.29
37 to 53 Inches	91.9%	(89.2, 93.9)	90.0%	(86.1, 93.0)	-1.9	(-5.9, 2.1)	0.36
54 to 56 Inches	88.1%	(71.9, 95.6)	78.3%	(58.8, 90.2)	-9.8	(-29.1, 9.6)	0.32
57 Inches or More	87.5%	(56.3, 97.5)	NA	NA	NA	NA	NA
Children Who Weigh[4]							
Up to 19 Pounds	NA	NA	NA	NA	NA	NA	NA
20 to 40 Pounds	91.7%	(88.1, 94.3)	88.5%	(81.6, 93.1)	-3.1	(-9.3, 3.1)	0.32
41 to 60 Pounds	91.1%	(87.1, 93.9)	90.0%	(85.6, 93.2)	-1.1	(-6.0, 3.8)	0.67
61 Pounds or More	89.5%	(81.5, 94.2)	80.9%	(72.0, 87.5)	-8.5	(-18.2, 1.2)	0.08
Children Surveyed at a							
Gas Station	85.6%	(79.4, 90.2)	81.4%	(71.4, 88.5)	-4.2	(-14.0, 5.5)	0.40
Fast-Food Restaurant	92.6%	(83.9, 96.8)	91.8%	(87.1, 94.9)	-0.8	(-7.9, 6.3)	0.82
Day Care Center	92.6%	(88.2, 95.5)	90.4%	(82.3, 95.0)	-2.2	(-9.1, 4.7)	0.53
Recreation Center	92.8%	(86.2, 96.4)	88.2%	(81.7, 92.6)	-4.6	(-11.7, 2.5)	0.20

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are reported to be Hispanic or Latino), which is in the form: $\left\{ (2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)} \right\} / (2(n_{EFF} + t^2))$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

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

Subgroup of Children 8 to 12 Years Old[1,4]	2013 Estimated Restraint Use[2]	2013 95% Confidence Interval[3]	2015 Estimated Restraint Use[2]	2015 95% Confidence Interval[3]	2013-2015 Change in Percentage Points	2013-2015 Change 95% Confidence Interval[5]	P-Value[6]
All Children 8-12	89.4%	(86.7, 91.7)	84.4%	(78.0, 89.1)	-5.1	(-10.9, 0.8)	0.09
Children Who Are							
Boys	88.5%	(84.7, 91.4)	86.0%	(78.2, 91.4)	-2.4	(-9.5, 4.6)	0.50
Girls	**90.5%**	**(86.9, 93.2)**	**82.6%**	**(75.5, 87.9)**	**-7.9**	**(-14.6, -1.2)**	**0.02**
Children Who Are Reported to Be[4]							
White Non-Hispanic	94.9%	(91.2, 97.1)	91.7%	(88.9, 93.8)	-3.2	(-6.8, 0.4)	0.09
Black or African-American Non-Hispanic	69.3%	(57.8, 78.7)	72.4%	(57.3, 83.7)	3.2	(-13.5, 19.9)	0.71
Asian Non-Hispanic	85.6%	(55.2, 96.6)	92.2%	(75.6, 97.8)	6.7	(-16.6, 29.9)	0.57
Other Non-Hispanic	88.3%	(71.1, 95.8)	83.3%	(63.3, 93.5)	-5.0	(-24.0, 14.0)	0.61
Hispanic or Latino	86.9%	(80.2, 91.6)	78.9%	(71.0, 85.1)	-8.0	(-16.8, 0.7)	0.07
Children Reported to Be[4]							
Hispanic or Latino	86.9%	(80.2, 91.6)	78.9%	(71.0, 85.1)	-8.0	(-16.8, 0.7)	0.07
Neither Hispanic nor Latino	90.5%	(87.1, 93.0)	85.6%	(78.9, 90.4)	-4.9	(-11.1, 1.3)	0.12
Children Whose Height[4] Is							
Up to 36 Inches	NA	NA	NA	NA	NA	NA	NA
37 to 53 Inches	**90.0%**	**(87.3, 92.1)**	**83.4%**	**(76.4, 88.7)**	**-6.5**	**(-12.9, -0.2)**	**0.04**
54 to 56 Inches	89.1%	(83.4, 93.0)	84.0%	(74.7, 90.4)	-5.0	(-13.9, 3.8)	0.26
57 Inches or More	89.1%	(84.4, 92.5)	85.2%	(78.9, 90.0)	-3.8	(-10.4, 2.8)	0.26
Children Who Weigh[4]							
Up to 19 Pounds	NA	NA	NA	NA	NA	NA	NA
20 to 40 Pounds	NA	NA	NA	NA	NA	NA	NA
41 to 60 Pounds	90.2%	(85.2, 93.6)	86.1%	(78.7, 91.2)	-4.1	(-11.3, 3.2)	0.27
61 Pounds or More	89.3%	(85.9, 92.0)	83.8%	(77.2, 88.7)	-5.5	(-11.8, 0.7)	0.08
Children Surveyed at a							
Gas Station	88.6%	(84.1, 91.9)	83.3%	(77.0, 88.1)	-5.3	(-11.9, 1.2)	0.11
Fast-Food Restaurant	90.3%	(85.5, 93.7)	85.5%	(78.0, 90.7)	-4.9	(-12.1, 2.4)	0.19
Day Care Center	89.3%	(84.4, 92.9)	82.3%	(61.3, 93.2)	-7.0	(-23.2, 9.2)	0.39
Recreation Center	90.0%	(74.3, 96.6)	87.2%	(80.7, 91.8)	-2.8	(-14.6, 9.0)	0.64

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are reported to be Hispanic or Latino), which is in the form: $\left\{(2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)}\right\}/\left(2(n_{EFF} + t^2)\right)$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[4] Race, ethnicity, height, weight, and age of children are obtained by asking an adult occupant.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

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 race and ethnicity results, of occupants traveling with children from the 2015 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 seven fast-food chains, not of all vehicle occupants on the road.

The major findings from the 2015 survey on the demographic characteristics of occupants traveling with children include the following:
- Seat belt use continued to be lower for Hispanics, Black non-Hispanic or African-Americans, and for other non-Hispanic than White non-Hispanic and non-Hispanic Asian 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 decreased from 92.3 percent in 2013 to 89.9 percent in 2015; restraint use for Asian non-Hispanic occupants increased from 93.8 percent in 2013 to 96.9 percent in 2015 (Table 10).
- Among occupants 13 to 15 years old restraint use for non-Hispanic occupants decreased from 87.4 percent in 2013 to 82.7 percent in 2015; restraint use for Hispanic occupants also decreased from 92.7 percent in 2013 to 88.5 percent in 2015 (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.
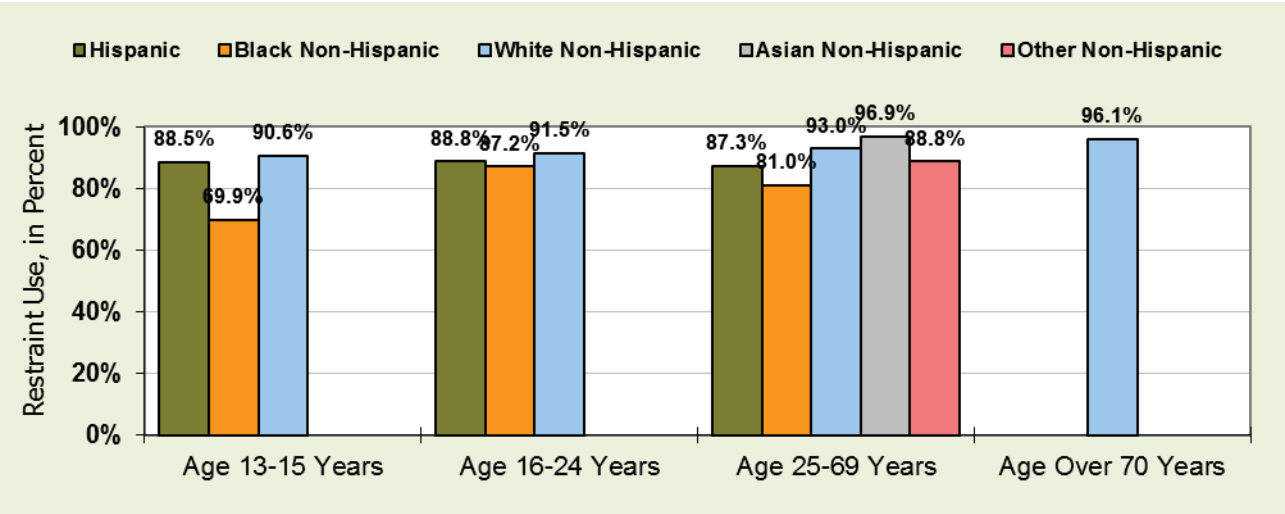
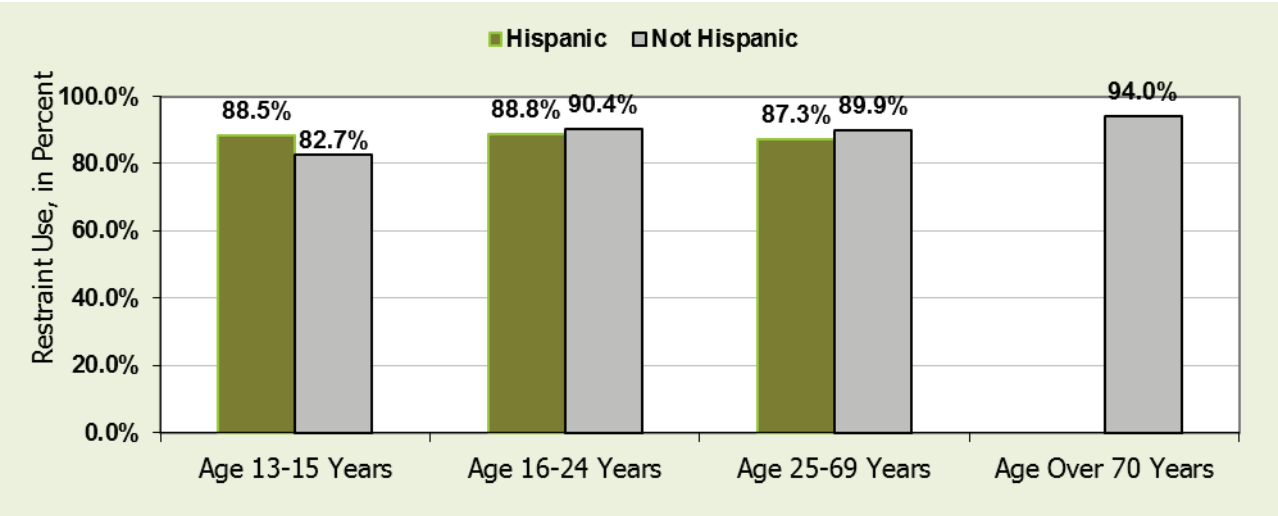**Figure 18: Restraint Use by Age and Race/Ethnicity for Occupants Traveling With Children in 2015**

Figure 19: Restraint Use by Age and Hispanic Origin for Occupants Traveling With Children in 2015

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

Subgroup of Children 13 Years and Older[1,4]	2013		2015		2013-2015 Change		
	Estimated Restraint Use[2]	95% Confidence Interval[3]	Estimated Restraint Use[2]	95% Confidence Interval[3]	Change in Percentage Points	95% Confidence Interval[5]	P-Value[6]
Occupants 13 to 15 Years Old							
Occupants Reported to Be[7]							
White Non-Hispanic	92.3%	(76.7, 97.8)	90.6%	(81.6, 95.4)	-1.7	(-13.3, 9.9)	0.77
Black or African-American Non-Hispanic	75.3%	(48.4, 90.9)	69.9%	(48.2, 85.3)	-5.4	(-35.1, 24.3)	0.72
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Hispanic or Latino	92.7%	(80.2, 97.6)	88.5%	(76.0, 94.9)	-4.3	(-16.2, 7.7)	0.49
Occupants Reported to Be[7]							
Hispanic or Latino	92.7%	(80.2, 97.6)	88.5%	(76.0, 94.9)	-4.3	(-16.2, 7.7)	0.49
Neither Hispanic nor Latino	87.4%	(76.4, 93.7)	82.7%	(73.1, 89.3)	-4.7	(-16.2, 6.7)	0.42
Occupants 16 to 24 Years Old							
Occupants Reported to Be[7]							
White Non-Hispanic	90.2%	(65.6, 97.8)	91.5%	(82.7, 96.0)	1.3	(-15.0, 17.6)	0.88
Black or African-American Non-Hispanic	NA	NA	87.2%	(73.3, 94.4)	NA	NA	NA
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Hispanic or Latino	85.9%	(68.3, 94.5)	88.8%	(68.6, 96.7)	2.9	(-15.5, 21.3)	0.76
Occupants Reported to Be[7]							
Hispanic or Latino	85.9%	(68.3, 94.5)	88.8%	(68.6, 96.7)	2.9	(-15.5, 21.3)	0.76
Neither Hispanic nor Latino	88.5%	(70.8, 96.1)	90.4%	(85.1, 93.9)	1.9	(-11.0, 14.7)	0.78
Occupants 25 to 69 Years Old							
Occupants Reported to Be[7]							
White Non-Hispanic	94.0%	(91.8, 95.7)	93.0%	(89.7, 95.2)	-1.1	(-4.3, 2.1)	0.51
Black or African-American Non-Hispanic	81.0%	(75.3, 85.6)	81.0%	(68.4, 89.4)	0.0	(-11.3, 11.4)	1.00
Asian Non-Hispanic	93.8%	(87.0, 97.1)	96.9%	(88.1, 99.3)	3.1	(-3.4, 9.7)	0.35
Other Non-Hispanic	93.7%	(83.4, 97.8)	88.8%	(79.7, 94.2)	-4.9	(-14.4, 4.6)	0.31
Hispanic or Latino	88.5%	(84.4, 91.6)	87.3%	(80.1, 92.1)	-1.2	(-7.9, 5.5)	0.72
Occupants Reported to Be[7]							
Hispanic or Latino	88.5%	(84.4, 91.6)	87.3%	(80.1, 92.1)	-1.2	(-7.9, 5.5)	0.72
Neither Hispanic nor Latino	92.3%	(90.0, 94.1)	89.9%	(84.8, 93.4)	-2.4	(-6.9, 2.1)	0.30
Occupants Over 70 Years Old							
Occupants Reported to Be[7]							
White Non-Hispanic	95.7%	(78.1, 99.3)	96.1%	(85.3, 99.1)	0.4	(-9.7, 10.6)	0.94
Black or African-American Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	NA	NA	NA	NA	NA	NA	NA
Hispanic or Latino	88.4%	(70.3, 96.1)	NA	NA	NA	NA	NA
Occupants Reported to Be[7]							
Hispanic or Latino	88.4%	(70.3, 96.1)	NA	NA	NA	NA	NA
Neither Hispanic nor Latino	96.3%	(80.7, 99.4)	94.0%	(79.8, 98.4)	-2.3	(-13.2, 8.5)	0.67

[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 Wilson Confidence Interval is used in the estimated percentages in the children group (e.g., children who are reported to be Hispanic or Latino), which is in the form: $\{(2n_{EFF}p + t^2) \pm t\sqrt{(t^2 + 4n_{EFF}pq)}\}/(2(n_{EFF} + t^2))$, where p is the estimated percentage of Belt Use, $n_{EFF} = n/D_{EFF}$ is the effective sample size (where n is the sample size and D_{EFF} is the design effect), $t = t_{(1-\alpha/2)}(df)$, is a multiplier from the t-distribution with df degrees of freedom, and $q = 1 - p$. For percentages these endpoints are multiplied by 100.

[4] The degree of statistical confidence that the 2015 use rate is different from the 2013 rate.

[5] The regular symmetric interval was used for the estimated change in percentage point, which is in the form: $p \pm t_{(1-\alpha/2)}(df)\sqrt{v(p)}$, where p is the estimated change in percentage point, $v(p)$ is its estimated variance, and $t_{(1-\alpha/2)}(df)$ is a multiplier from the t-distribution with df degrees of freedom. The degrees of freedom in 2015 is different from that used in 2013.

[6] A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2014 and 2015 estimates for the group in question, indicated with bold type.

[7] Race and ethnicity of all occupants are obtained by interviewing an adult occupant in the vehicle (usually the driver).

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, NCSA, 2013, 2015

6. NSUBS Methodology

The NSUBS sample was redesigned and implemented to conduct the 2015 survey. This section discusses the sample design, sample size, data collection, and estimation used in the 2015 NSUBS. For sample design prior to 2015 NSUBS, refer to *The 2006 National Survey of the Use of Booster Seats – Methodology Report* (Glassbrenner, 2009), available at www-nrd.nhtsa.dot.gov/Pubs/811111.PDF.

Sample Design

The 2013 and prior NSUBS surveys used a design that was based upon a subset of primary sampling units used for the NOPUS. In 2015, NSUBS was redesigned and became totally independent from NOPUS. The 2015 NSUBS uses a three-stage design.

The first stage sampling is selecting a sample of geographic areas, called PSUs. A PSU is a single county or a group of adjacent counties within State boundaries. There are 1,601 PSUs in the sampling frame, covering the continental United States excluding Alaska and Hawaii. These PSUs are then grouped into 8 strata by Census region (Northeast, Midwest, South, and West) and the status of whether or not the State of the PSU enacted a child restraint use law as of 2014 that covers children up to age 7 at the minimum. A PSU sample of 30 was selected from the sampling frame using the probability-proportional-to-size (PPS) sampling method with the measure-of-size (MOS) of the number of children up to 7 based on the 2012 Census population data.

The second stage of the design is selecting a sample of data collection sites within each PSU. The site sampling frame consists of gas stations, recreation centers, day care centers, and fast food restaurants in the NSUBS' 30 sampled 2015 PSUs. These four site types make four strata. A new site sample size was determined and allocated proportionally to each site type according to the site frame size. The total number of sites in the frame was 20,510 for the 30 selected PSUs. The 2015 NSUBS selected 806 sites using stratified systematic sampling within each site type after sorting the sites by ZIP Code for good geographic dispersion.

The third stage is the selection of all passenger vehicles with child occupants who are observed at the respondent sites.

Sample Size

The PSU sample size for the 2006 design was only 16, and it had been problematic because it caused unstable point and variance estimates. In the 2015 redesign, an increase of the PSU sample size to 30 was achieved without substantially increasing the survey cost. The increased sample size of 30 PSUs eliminated the need of a special variance estimator and substantially simplified the variance estimation as well as improved the sampling efficiency.

To correct uneven distribution in previous NSUBS PSU sample across the census regions, the new design uses proportional allocation to the total MOS, which calls for selecting 5, 7, 11, and 7 PSUs from the Northeast, Midwest, South, and West regions, respectively.

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 2015 NSUBS, 384 sites of the 806 sites sampled gave permission for the survey to be conducted on their premises. The cooperation rate was 47.6 percent. Of these 384 data collection sites, 166 were gas stations, 65 fast-food restaurants, 117 day care centers, and 36 recreation centers.

Table 11 shows the observed sample size of the 2015 NSUBS. A total of 16,993 occupants were observed in the 6,060 vehicles at the 384 data collection sites. Of these observed occupants, 9,259 were children newborn to 12 years old. The data on 8,165 children newborn to 12 years old was 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	2013	2015	Percentage Change
Data Collection Sites	428	384	-10.3%
Vehicles Observed	7,229	6,060	-16.2%
Occupants Observed	20,543	16,993	-17.3%
Children Newborn to 12 Years Old Observed	11,098	9,259	-16.6%
Children Newborn to 12 Years Old Interviewed*	8,887	8,165	-8.1%

* Data obtained by interview with an adult occupant.

Data Collection

There are no major changes to the data collection protocol from the 2015 redesign.

The 2015 NSUBS data collection was conducted between 7 a.m. and 6 p.m. during the period from July 16, 2015, to August 6, 2015.

Trained data collectors approach passenger vehicles appearing to have child occupants under the age of 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 is collected via self-reporting 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 at fast-food drive-through lanes. In that case, restraint use is observed prior to the vehicles reaching the drive-through window.

In order to reach as many respondents as possible, the NSUBS uses some Spanish-speaking data collectors.

Estimation

There was no change in weighting for the redesigned 2015 NSUBS. However, there were substantial changes in the way to estimate the variance.

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,

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

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.

The variance estimation method used for the 2006 design is very complex due to the small PSU sample size. The PSU sample size has been increased from 16 to 30, and we expect the commonly used variance estimators would be reasonably stable. We continue to use the Jackknife variance estimation method with modifications to reflect the new design.

Note that the NSUBS site sampling frame is restricted to the four site types: gas stations, day care centers, recreation centers, and fast-food restaurants 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, 45 percent booster seat use among 4- to 7-year-old children as shown in Figure 1 means that among children in 2015 in this age range who were taken by passenger vehicles to gas stations, day care centers, recreation centers, or fast-food restaurants, 45 percent were in booster seats.

NHTSA employed the following data reporting guidelines for the NOPUS and NSUBS publications: Estimates whose numerator is based on fewer than five observations in the sample, and/or whose denominator is based on fewer than 30 observations in the sample, or that are not statistically different from zero percent are reported as "NA" in publications, including any related estimates (i.e., change in use and confidence estimates).

Please also note that "NA" 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. Available at http://www-nrd.nhtsa.dot.gov/Pubs/811111.PDF

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

NHTSA. (2015). 2014 Traffic Safety Facts: Children. (Report no. DOT HS 812 271). Washington, DC: Author.

NHTSA. (n/a). Car Seat by Child's Age and Size.Car Seat Recommendations for Children. Retrieved from the NHTSA website at www.safercar.gov/parents/CarSeats/Right-Seat-Age-And-Size-Recommendations.htm

Office of Management and Budget (2005, February). *Update of Statistical Area Definitions and Guidance on Their Uses*. (OMB BULLETIN NO. 05-02). Washington, DC: Author.

Pickrell, T. M., & Choi, E-H. (2014, June). *The 2013 National Survey of the Use of Booster Seats*. (Report No. DOT HS 812 037). Washington, DC: National Highway Traffic Safety Administration. Available at www-nrd.nhtsa.dot.gov/Pubs/812037.pdf

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.

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

DOT HS 812 309
April 2025 (Revised)

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

NHTSA