

Traffic Safety Facts

Research Note

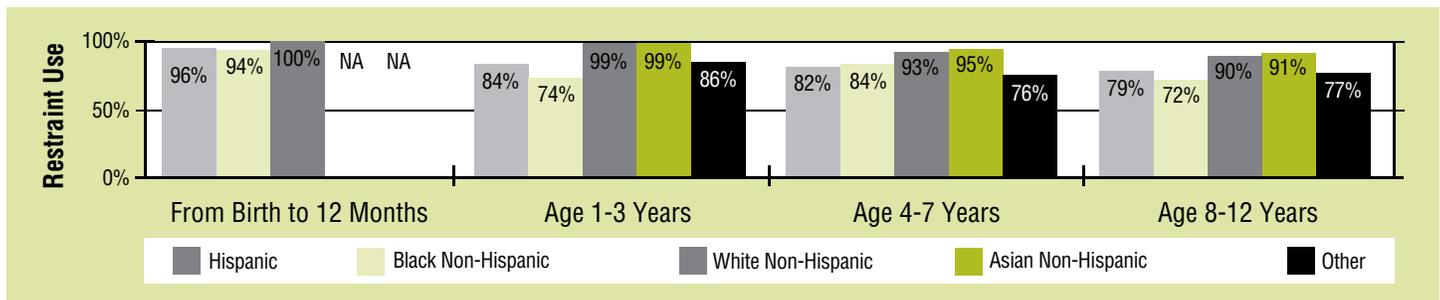
Child Restraint Use in 2008 – Demographic Results

Compared to non-Hispanic children as a group, Hispanic children 1 to 12 years old have significantly lower restraint use rates (use of front-facing child safety seats, booster seats, and seat belts). This result is from the National Survey of the Use of Booster Seats (NSUBS), the only probability-based nationwide child restraint survey that observes restraint use and collects race and ethnicity. The NSUBS is conducted by the National Center for Statistics and Analysis (NCSA) of the National Highway Traffic Safety Administration.

Other findings from the 2008 survey include the following:

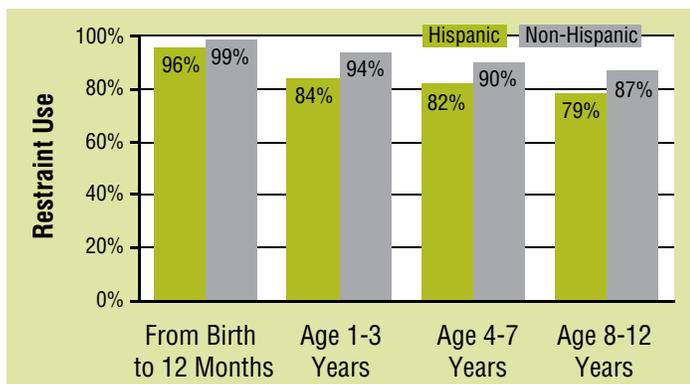
- Although the pattern of use rates by race and ethnicity varied somewhat among the survey's age groups (birth-12 months, 1-3 years, 4-7 years, and 8-12 years), use rates tended to be highest among White and Asian non-Hispanic children and lowest among African-American non-Hispanic children.
- The use for African-American children ages 4 to 7 increased from 73 percent in 2007 to 84 percent in 2008, and this increase is statistically significant.
- The restraint use rates among boys and girls are not statistically different.

Child Restraint Use by Age and Race / Ethnicity in 2008



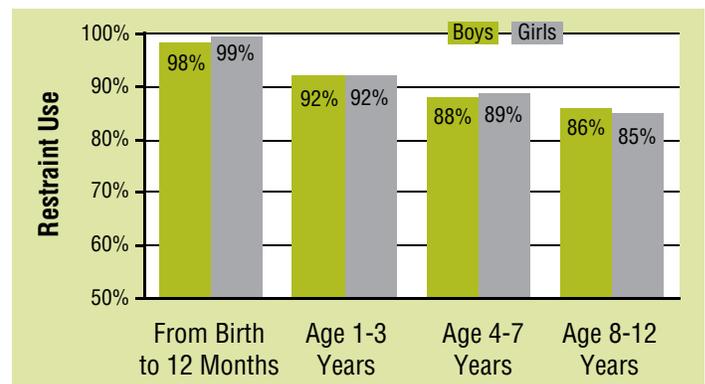
NA: Data not sufficient to produce a reliable estimate Source: National Survey of the Use of Booster Seats, NCSA / NHTSA, 2008

Child Restraint Use by Age and Hispanic Origin in 2008



Source: National Survey of the Use of Booster Seats, NCSA / NHTSA, 2008

Child Restraint Use by Age and Gender in 2008



Source: National Survey of the Use of Booster Seats, NCSA / NHTSA, 2008

Restraint Use Among Children From Birth to 12 Months

Subgroup of Children From Birth to 12 Months ^{1,4}	2007		2008		2007-2008 Change	
	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Change in Percentage Points	Confidence in a Change in Use ⁵
All Children From Birth to 12 Months	98%		99%		1	51%
Children Who Are						
Boys	96%	93%	98%	83%	2	55%
Girls	99%	93%	99%	83%	0	32%
Children Reported to Be ⁴						
White Non-Hispanic	100%	96%	100%	99%	0	76%
Black or African-American Non-Hispanic	98%	63%	94%	95%	-4	80%
Asian Non-Hispanic	NA	NA	NA	NA	NA	NA
Other Non-Hispanic	100%	98%	NA	NA	NA	NA
Hispanic or Latino	87%	94%	96%	88%	9	68%
Children Reported to Be ⁴						
Hispanic or Latino	87%	94%	96%	88%	9	68%
Neither Hispanic nor Latino	100%	94%	99%	88%	-1	88%
Children Whose Height ⁴ Is Between						
0 and 36 Inches	98%	98%	99%	99%	1	53%
37 and 53 Inches	NA	NA	NA	NA	NA	NA
54 and 56 Inches	NA	NA	NA	NA	NA	NA
57 Inches or More	NA	NA	NA	NA	NA	NA
Children Who Weigh ⁴ Between						
0 and 19 Pounds	99%	95%	99%	78%	0	82%
20 and 40 Pounds	94%	95%	98%	78%	4	65%
41 and 60 Pounds	NA	NA	NA	NA	NA	NA
61 Pounds or More	NA	NA	NA	NA	NA	NA
Children Surveyed at a						
Gas Station	98%	73%	98%	64%	0	25%
Fast-Food Restaurant	99%	81%	94%	98%	-5	92%
Day Care Center	97%	78%	100%	100%	3	88%
Recreation Center	97%	57%	100%	99%	3	66%

¹ Survey data was obtained on children from birth to age 12 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 child safety seats (front- 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 level of statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidence levels that meet or exceed 90 percent are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100 percent" confidence are between 99.5 percent and 100.0 percent.

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

⁵ The degree of statistical confidence that the 2008 use rate is different from the 2007 rate. Confidence levels that meet or exceed 90 percent are formatted in boldface type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Restraint Use Among Children Ages 1 – 3

Subgroup of Children Ages 1-3 ^{1,4}	2007		2008		2007-2008 Change	
	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Change in Percentage Points	Confidence in a Change in Use ⁵
All Children Ages 1-3	96%		92%		-4	100%
Children Who Are						
Boys	98%	95%	92%	58%	-6	99%
Girls	93%	95%	92%	58%	-1	30%
Children Reported to Be ⁴						
White Non-Hispanic	99%	100%	99%	100%	0	11%
Black or African-American Non-Hispanic	82%	100%	74%	100%	-8	63%
Asian Non-Hispanic	NA	NA	99%	100%	NA	NA
Other Non-Hispanic	95%	55%	86%	92%	-9	86%
Hispanic or Latino	91%	97%	84%	98%	-7	84%
Children Reported to Be ⁴						
Hispanic or Latino	91%	97%	84%	98%	-7	84%
Neither Hispanic nor Latino	97%	97%	94%	98%	-3	94%
Children Whose Height ⁴ Is Between						
0 and 36 Inches	96%	71%	91%	99%	-5	100%
37 and 53 Inches	94%	72%	96%	99%	2	37%
54 and 56 Inches	NA	NA	NA	NA	NA	NA
57 Inches or More	NA	NA	NA	NA	NA	NA
Children Who Weigh ⁴ Between						
0 and 19 Pounds	96%	56%	75%	82%	-21	70%
20 and 40 Pounds	96%	69%	92%	86%	-4	100%
41 and 60 Pounds	97%	68%	93%	61%	-4	85%
61 Pounds or More	NA	NA	NA	NA	NA	NA
Children Surveyed at a						
Gas Station	91%	94%	95%	93%	4	75%
Fast-Food Restaurant	95%	57%	94%	77%	-1	66%
Day Care Center	96%	79%	91%	94%	-5	100%
Recreation Center	99%	96%	98%	100%	-1	65%

¹ Survey data was obtained on children from birth to age 12 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 child safety seats (front- 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 level of statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidence levels that meet or exceed 90 percent are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100 percent" confidence are between 99.5 percent and 100.0 percent.

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

⁵ The degree of statistical confidence that the 2008 use rate is different from the 2007 rate. Confidence levels that meet or exceed 90 percent are formatted in boldface type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Restraint Use Among Children Ages 4 – 7

Subgroup of Children Ages 4-7 ^{1,4}	2007		2008		2007-2008 Change	
	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Change in Percentage Points	Confidence in a Change in Use ⁵
All Children Ages 4-7	85%		89%		4	68%
Children Who Are						
Boys	85%	53%	88%	82%	3	76%
Girls	85%	53%	89%	82%	4	55%
Children Reported to Be ⁴						
White Non-Hispanic	90%	97%	93%	100%	3	55%
Black or African-American Non-Hispanic	73%	100%	84%	95%	11	97%
Asian Non-Hispanic	94%	98%	95%	100%	1	8%
Other Non-Hispanic	87%	59%	76%	100%	-9	54%
Hispanic or Latino	75%	88%	82%	100%	7	59%
Children Reported to Be ⁴						
Hispanic or Latino	75%	88%	82%	100%	7	59%
Neither Hispanic nor Latino	88%	88%	90%	100%	2	38%
Children Whose Height ⁴ Is Between						
0 and 36 Inches	85%	50%	89%	68%	4	52%
37 and 53 Inches	85%	68%	88%	61%	3	73%
54 and 56 Inches	85%	52%	90%	61%	5	71%
57 Inches or More	96%	99%	79%	89%	-17	98%
Children Who Weigh ⁴ Between						
0 and 19 Pounds	NA	NA	NA	NA	NA	NA
20 and 40 Pounds	84%	63%	87%	93%	3	48%
41 and 60 Pounds	85%	67%	91%	100%	6	80%
61 Pounds or More	83%	62%	84%	98%	1	10%
Children Surveyed at a						
Gas Station	83%	70%	84%	100%	1	32%
Fast-Food Restaurant	87%	66%	82%	100%	-5	85%
Day Care Center	84%	61%	91%	100%	7	73%
Recreation Center	89%	85%	92%	100%	3	95%

¹ Survey data was obtained on children from birth to age 12 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 child safety seats (front- 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 level of statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidence levels that meet or exceed 90 percent are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100 percent" confidence are between 99.5 percent and 100.0 percent.

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

⁵ The degree of statistical confidence that the 2008 use rate is different from the 2007 rate. Confidence levels that meet or exceed 90 percent are formatted in boldface type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Restraint Use Among Children Ages 8 – 12

Subgroup of Children Ages 8-12 ^{1,4}	2007		2008		2007-2008 Change	
	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Estimated Restraint Use ²	Confidence That Use Is High or Low in Group ³	Change in Percentage Points	Confidence in a Change in Use ⁵
All Children Ages 8-12	83%		85%		2	49%
Children Who Are						
Boys	83%	71%	86%	59%	3	54%
Girls	82%	71%	85%	59%	3	42%
Children Reported to Be ⁴						
White Non-Hispanic	86%	88%	90%	100%	4	95%
Black or African-American Non-Hispanic	82%	56%	72%	99%	-10	95%
Asian Non-Hispanic	99%	100%	91%	91%	-8	91%
Other Non-Hispanic	78%	62%	77%	78%	-1	4%
Hispanic or Latino	78%	83%	79%	97%	1	9%
Children Reported to Be ⁴						
Hispanic or Latino	78%	83%	79%	97%	1	9%
Neither Hispanic nor Latino	85%	83%	87%	97%	2	45%
Children Whose Height ⁴ Is Between						
0 and 36 Inches	93%	93%	NA	NA	NA	NA
37 and 53 Inches	79%	94%	87%	89%	8	79%
54 and 56 Inches	85%	70%	83%	84%	-2	25%
57 Inches or More	86%	96%	85%	67%	-1	51%
Children Who Weigh ⁴ Between						
0 and 19 Pounds	NA	NA	NA	NA	NA	NA
20 and 40 Pounds	44%	95%	NA	NA	NA	NA
41 and 60 Pounds	86%	86%	88%	94%	2	37%
61 Pounds or More	83%	52%	84%	95%	1	34%
Children Surveyed at a						
Gas Station	81%	69%	86%	61%	5	93%
Fast-Food Restaurant	82%	56%	85%	54%	3	71%
Day Care Center	83%	51%	83%	75%	0	3%
Recreation Center	87%	88%	92%	100%	5	96%

¹ Survey data was obtained on children from birth to age 12 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 child safety seats (front- 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 level of statistical confidence that use in the occupant group (e.g., child occupants who are boys) is higher or lower than use in the corresponding complementary occupant group (e.g., child occupants who are girls). Confidence levels that meet or exceed 90 percent are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100 percent" confidence are between 99.5 percent and 100.0 percent.

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

⁵ The degree of statistical confidence that the 2008 use rate is different from the 2007 rate. Confidence levels that meet or exceed 90 percent are formatted in boldface type.

NA: Data not sufficient to produce a reliable estimate.

Source: The National Survey of the Use of Booster Seats, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Survey Methodology

The National Survey of the Use of Booster Seats obtains its data by sending trained data collectors to a probability sample of gas stations, day care centers, recreation centers, and restaurants in five national fast-food chains across the United States. The choice of these types of data collection sites stems from the necessity of observing restraint use from a close range in a slow-moving or stopped vehicle and the ability to conduct interviews with the drivers of stopped vehicles, combined with the desire to capture large numbers of children.

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 (obtained in compliance with OMB standards for such data) and the heights, weights, and ages of child occupants appearing to be under age 13. (The approximate ages of other occupants (expressed as an age range, such as 16-24 years), and the genders of all occupants, are subjectively assessed by the data collectors.)

In order to capture restraint usage before children unfasten the restraints, restraint use is observed by the 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.

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

Sites, Vehicles, Occupants, and Children Age 12 and Younger in NSUBS

Numbers of	2007	2008	Percentage Change
Data Collection Sites	430	440	3%
Vehicles Observed	4,800	6,200	29%
Occupants Observed	14,000	18,000	28%
Children Age 12 and Younger Observed	7,500	9,700	29%
Children Age 12 and Younger Interviewed*	6,600	7,600	16%

* Data obtained by interview with an adult occupant.

The 2008 NSUBS survey data is based on the observation of 18,000 occupants, 9,700 of whom were under age 13, in 6,200 vehicles at 45 day care centers, 142 fast-food restaurants, 209 gas stations, and 45 recreation centers nationwide. The survey interviews covered 7,632 children under age 13, including 412 infants under 1 year old, 1,795 children 1 to 3 years old, 2,905 children 4 to 7 years old, and 2,520 children 8 to 12 years old. The data was collected between July 17 and July 31, 2008, while the 2007 data was collected between July 19 and August 2, 2007.

The NSUBS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation and variance estimation procedures. See the NHTSA Technical Report referenced below for more information on these procedures, as well as for more information on the survey's data collection protocols.

The design of the survey, survey preparation activities, data collection, estimation, and variance estimation for the NSUBS were conducted by Westat, Inc., under the direction of the National Center for Statistics and Analysis in NHTSA under Federal contract number DTNH22-07-D-00057. The OMB clearance number for the NSUBS is 2127-0644.

What Do the Survey Results Tell Us? Are the Results Representative?

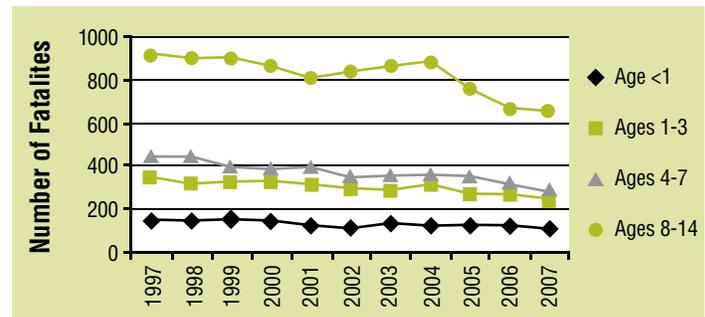
By design and necessity, the NSUBS survey data is obtained from a restricted set of site types, namely gas stations, day care centers, recreation centers, and restaurants in five fast-food chains. However the survey uses a probability sample of these site types, and so its results are representative of children who frequent these types of sites.

For instance, the survey result of 82 percent restraint use among 4- to 7-year-old Hispanic children means that among children in this age range who were taken by passenger vehicles to gas stations, day care centers, recreation centers, or fast-food restaurants in 2008, 82 percent were in seat belts, booster seats, or child safety seats. Whether or not the restraint use rate for children of this age group, race, and ethnicity who do not frequent these site types is comparable to the national average is an open question, and not one that the NSUBS (or any other available survey) can answer.

Progress in Reducing Child Fatalities

We note that child occupant fatalities have declined in the past decade, as demonstrated by NHTSA's Fatality Analysis Reporting System (FARS). Booster seats, child safety seats, and seat belts provide key tools to achieve further fatality reductions.

Occupant Fatalities Among Children Age 14 and Younger By Age Groups, 1997-2007



Source: Fatality Analysis Reporting System (FARS), NHTSA's National Center for Statistics and Analysis, 1997-2007

Definitions

The NSUBS supports NHTSA's multicultural initiative by providing critical data on restraint use by race/ethnicity. Race/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 or 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 the adult occupants of vehicles to report the race and ethnicity of all occupants. (In particular, the race and ethnicity of children are as reported by adult 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)

In the survey, a child is considered to be "restrained" if the child meets any of the following five definitions:

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

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

High-Backed Booster Seat - The child occupant is in a seat with a seat back that sits on top of the vehicle seat, and has a seat

belt across the front of the child's body, whether lap or lap/shoulder. No harness is in use.

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

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

For More Information

This research note was written by Timothy M. Pickrell, a mathematical statistician in the Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA and by Tony Jianqiang Ye, a contractor employed by URC Enterprises, working with the Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA. For questions regarding the information presented in this document, please contact timothy.pickrell@dot.gov.

The NSUBS provides a rich data source for information on the restraint use of all children under age 13. In particular, the NSUBS provides the agency's estimate of booster seat use among 4- to 7-year-olds and provides data on the premature graduation of children from birth to age 12 to restraint types that are inappropriate for their height or weight. This publication is part of a series that presents overall results from the survey on these topics. Please see the companion publications "Booster Seat Use in 2008" and "Child Restraint Use in 2008—Use of Correct Restraint Types" for the latest data on these topics. Detailed information on the NSUBS survey design and analysis procedures are provided in the NHTSA Technical Report "The 2006 National Survey of the Use of Booster Seats—Methodology Report."

These publications are available at the Web site <http://www-nrd.nhtsa.dot.gov/CMSWeb/ViewCatalogbyCategory.aspx>.

Additional results related to demography and child restraints are provided by NHTSA's National Occupant Protection Use Survey, a survey that employs purely observational means (i.e., does not conduct interviews) to measure restraint use on the Nation's roadways. Please see the publications "Seat Belt Use in 2007 – Demographic Results" and "Child Restraint Use in 2007 – Overall Results" for the latest results in these topics. These are available at the above NHTSA Web page.

For more information on the campaign by NHTSA to increase child restraint use, see www.nhtsa.gov.

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.