Traffic Safety Facts
Research Note

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Child Restraint Use in 2007—Overall Results

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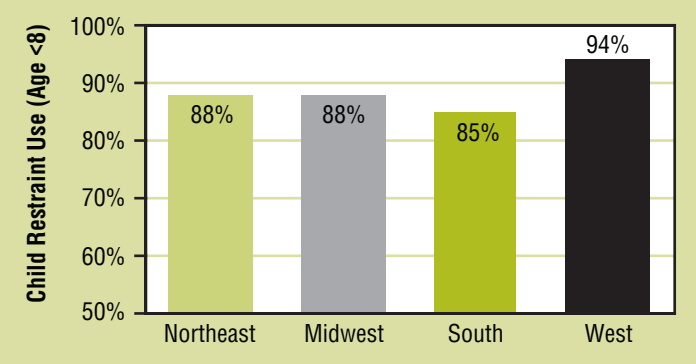
The restraint use for all children from birth to 7 years old increased to 89 percent in 2007 compared to 84 percent in 2006, and this increase is statistically significant. This result is from the National Occupant Protection Use Survey (NOPUS), which provides the only probability-based observed data on child restraint use in the United States. NOPUS is conducted annually by the National Center for Statistics and Analysis of the National Highway Traffic Safety Administration.

The 2007 survey also found the following:

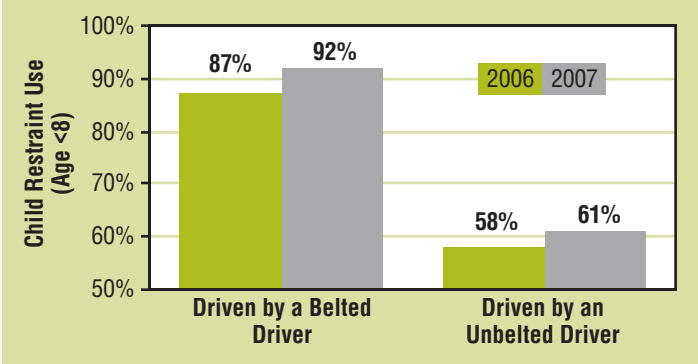
- Restraint use for children driven by a belted driver continued to be higher than for those driven by an unbelted driver, and use among children driven by belted drivers was back up over 90 percent.
- Most children continued to ride in the rear seat of vehicles. In 2007, 95 percent of infants, 98 percent of children age 1 to 3, and 88 percent of children age 4 to 7 rode in the rear seat.
- Child restraint use continued to be higher in the West than other parts of the country in 2007.

Child Restraint Use by Region in 2007



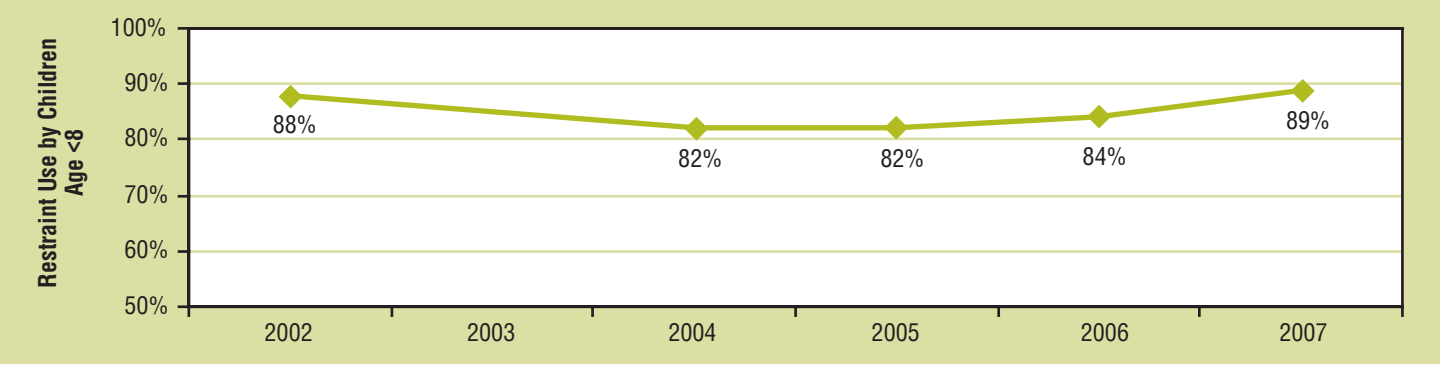
Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2007

Child Restraint Use by Driver Belt Status



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2006-2007

Child Restraint Use Among Children Age <8, 2002-2007



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2002-2007

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Child Restraint Use in Passenger Motor Vehicles, by Major Characteristics

Child Passenger Group[1]	2006 Restraint Use[2]	2006 Confidence That Use Is High or Low in Group[3]	2007 Restraint Use[2]	2007 Confidence That Use Is High or Low in Group[3]	2006-2007 Change in Percentage Points	2006-2007 Confidence in a Change in Use[4]	2006-2007 Conversion Rate[5]
All Child Passengers (From Birth to 7 Years)	84%		89%		5	**94%**	30%
Children Driven by							
a Belted Driver	87%	**100%**	92%	**100%**	5	**94%**	41%
an Unbelted Driver	58%	**100%**	61%	**100%**	3	39%	8%
a Male Driver	86%	77%	86%	**97%**	0	17%	4%
a Female Driver	82%	77%	90%	**97%**	8	**97%**	43%
a Driver Age 16-24	83%	59%	87%	73%	4	62%	26%
a Driver Age 25-69	84%	63%	89%	85%	5	**94%**	31%
a Driver Age 70+	79%	68%	81%	83%	2	15%	11%
a White Driver	86%	**94%**	91%	**100%**	5	89%	34%
a Black Driver	64%	**100%**	80%	**99%**	16	**99%**	44%
a Driver of Another Race	86%	70%	86%	89%	0	3%	-1%
Children in							
the Front Seat	86%	72%	75%	**100%**	-11	**97%**	-84%
the Rear Seat	83%	72%	90%	**100%**	7	**98%**	38%
Child Passengers on							
Expressways	84%	50%	90%	75%	6	69%	37%
Surface Streets	84%	50%	88%	75%	4	**94%**	27%
Child Passengers Traveling in							
Fast Traffic	78%	85%	89%	53%	11	**91%**	48%
Medium-Speed Traffic	86%	72%	88%	56%	2	39%	18%
Slow Traffic	85%	67%	89%	51%	4	**95%**	25%
Child Passengers Traveling in							
Heavy Traffic	NA	NA	NA	NA	NA	NA	NA
Moderately Dense Traffic	99%	**100%**	93%	**92%**	-6	**93%**	-576%
Light Traffic	83%	**100%**	88%	**97%**	5	**95%**	31%
Child Passengers Traveling Through							
Light Precipitation	88%	75%	92%	84%	4	48%	33%
Fog	90%	74%	99%	**100%**	9	58%	92%
Clear Weather Conditions	83%	86%	88%	**94%**	5	**93%**	30%
Child Passengers in							
Passenger Cars	78%	**100%**	88%	83%	10	**99%**	44%
Vans & SUVs	91%	**100%**	91%	**100%**	0	16%	4%
Pickup Trucks	86%	61%	76%	**99%**	-10	74%	-69%
Child Passengers in the							
Northeast	81%	70%	88%	61%	7	79%	37%
Midwest	82%	71%	88%	58%	6	80%	34%
South	80%	79%	85%	**97%**	5	63%	22%
West	93%	**100%**	94%	**100%**	1	25%	14%
Child Passengers in							
Urban Areas	73%	**96%**	85%	89%	12	**90%**	45%
Suburban Areas	87%	**95%**	91%	**99%**	4	81%	29%
Rural Areas	84%	55%	86%	86%	2	64%	14%
Child Passengers Traveling During							
Weekdays	84%	64%	90%	**97%**	6	**96%**	36%
Rush Hours	78%	**95%**	91%	**92%**	13	**98%**	60%
Nonrush Hours	89%	**95%**	89%	**92%**	0	3%	1%
Weekends	83%	64%	86%	**97%**	4	59%	21%

[1] Passengers under 8 years old observed between 7 a.m. and 6 p.m. in the right-front seat or the second row of seats in passenger vehicles with no commercial or government markings that are stopped at a stop sign or stop light. Age, gender, and racial classifications are based on the subjective assessments of roadside observers.

[2] Use of child safety seats (front- or rear-facing), booster seats, and seat belts.

[3] The level of statistical confidence that use in the passenger group (e.g., child passengers in the Northeast) is higher or lower than use in the corresponding complementary passenger group (e.g., combined child passengers in the Midwest, in the South and in the West). 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] The degree of statistical confidence that the 2007 use rate is different from the 2006 rate. Confidence levels that meet or exceed 90 percent are formatted in boldface type.

[5] The "conversion rate" is the percentage reduction in restraint nonuse. This is based on unrounded use rates.

NA: Data not sufficient to produce a reliable estimate.

Source: National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

The Percentage of Children Who Ride in the Rear Seat, by Major Characteristics

Child Passengers Group[1]	2006 Percentage Who Were in the Rear Seat[2]	2006 Confidence That Use Is High or Low in Group[3]	2007 Percentage Who Were in the Rear Seat[2]	2007 Confidence That Use Is High or Low in Group[3]	2006-2007 Change in Percentage Points	2006-2007 Confidence in a Change in Rear Seat Occupancy[4]	2006-2007 Percentage Reduction in Front Seat Occupancy[5]
All Child Passengers (From Birth to 7 Years)	92%		92%		0	17%	4%
Age <1 (Infants)	93%	58%	95%	**93%**	2	51%	32%
Age 1-3	94%	89%	98%	**100%**	4	86%	71%
Age 4-7	91%	**91%**	88%	**100%**	-3	**91%**	-31%
Child Passengers in States With[6]							
Law Requiring Children Age <6 Be in the Rear Seat	95%	**97%**	92%	64%	-3	78%	-59%
No Such Law	91%	**97%**	93%	64%	2	57%	16%
Children Driven by							
a Belted Driver	92%	55%	93%	**99%**	1	51%	14%
an Unbelted Driver	92%	55%	87%	**99%**	-5	85%	-66%
a Male Driver	92%	58%	92%	52%	0	18%	7%
a Female Driver	92%	58%	93%	52%	1	8%	2%
a Driver Age 16-24	94%	81%	96%	**100%**	2	59%	35%
a Driver Age 25-69	92%	74%	92%	**94%**	0	14%	3%
a Driver Age 70+	89%	66%	85%	89%	-4	31%	-36%
a White Driver	92%	67%	93%	79%	1	45%	12%
a Black Driver	91%	66%	93%	51%	2	30%	18%
a Driver of Another Race	94%	88%	91%	78%	-3	75%	-59%
Child Passengers on							
Expressways	93%	56%	95%	**99%**	2	55%	34%
Surface Streets	92%	56%	91%	**99%**	-1	34%	-9%
Child Passengers Traveling in							
Fast Traffic	92%	51%	91%	81%	-1	25%	-15%
Medium-Speed Traffic	90%	89%	93%	63%	3	69%	29%
Slow Traffic	94%	**92%**	93%	81%	-1	16%	-4%
Child Passengers Traveling in							
Heavy Traffic	NA	NA	NA	NA	NA	NA	NA
Moderately Dense Traffic	100%	**100%**	97%	**99%**	-3	83%	-765%
Light Traffic	92%	**100%**	92%	**100%**	0	18%	4%
Child Passengers Traveling Through							
Light Precipitation	88%	83%	97%	**99%**	9	**91%**	71%
Fog	92%	57%	NA	NA	NA	NA	NA
Clear Weather Conditions	93%	85%	92%	**100%**	-1	27%	-7%
Child Passengers in							
Passenger Cars	93%	72%	94%	**99%**	1	47%	18%
Vans & SUVs	94%	**93%**	95%	**100%**	1	61%	15%
Pickup Trucks	74%	**100%**	64%	**100%**	-10	85%	-37%
Child Passengers in the							
Northeast	96%	**100%**	93%	72%	-3	72%	-52%
Midwest	89%	88%	93%	55%	4	85%	32%
South	93%	61%	93%	53%	0	1%	0%
West	90%	81%	92%	68%	2	27%	15%
Child Passengers in							
Urban Areas	90%	79%	91%	79%	1	32%	16%
Suburban Areas	93%	88%	95%	**99%**	2	62%	20%
Rural Areas	91%	70%	89%	**95%**	-2	62%	-27%
Child Passengers Traveling During							
Weekdays	91%	**95%**	93%	82%	2	78%	25%
Rush Hours	92%	81%	94%	**96%**	2	68%	27%
Nonrush Hours	90%	81%	92%	**96%**	2	56%	20%
Weekends	94%	**95%**	91%	82%	-3	74%	-47%
Child Passengers in a							
Rear-Facing Car Seat	92%	**100%**	93%	62%	1	14%	11%
Front-Facing Car Seat	99%	52%	99%	**100%**	0	50%	30%
High-Backed Booster Seat	99%	**100%**	94%	70%	-5	81%	-349%
Seat belt or Backless Booster Seat	86%	**100%**	89%	**100%**	3	74%	24%
No Restraint Observed	93%	78%	84%	**100%**	-9	**100%**	-152%

[1] Passengers under 8 years old observed between 7 a.m. and 6 p.m. in the right-front seat or the second row of seats in passenger vehicles with no commercial or government markings that are stopped at a stop sign or stoplight. Age, gender, and racial classifications are based on the subjective assessments of roadside observers.

[2] The percentage of the child passenger group who were in the second row of seats at the time of observation.

[3] The level of statistical confidence that use in the passenger group (e.g., child passengers in the Northeast) is higher or lower than use in the corresponding complementary passenger group (e.g., combined child passengers in the Midwest, in the South and in the West). 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] The degree of statistical confidence that the percentage of the child passenger group who were in the rear seat in 2007 is different from the analogous percentage from 2006.

[5] The percentage reduction that occurred during the period 2006-2007 in the percentage of the child passenger group that were in the front seat.

[6] Use rates reflect the law in effect at the time data was collected.

NA: Data not sufficient to produce a reliable estimate.

Source: National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Child Restraint Use in Passenger Motor Vehicles, by Age and Other Characteristics

Child Passenger Group[1]	2006 Restraint Use[2]	2006 Confidence That Use Is High or Low in Group[3]	2007 Restraint Use[2]	2007 Confidence That Use Is High or Low in Group[3]	2006-2007 Change in Percentage Points	2006-2007 Confidence in a Change in Use[4]	2006-2007 Conversion Rate[5]
Infants (From Birth to 12 Months)							
Infants Driven by							
a Belted Driver	99%	88%	99%	**96%**	0	58%	47%
an Unbelted Driver	94%	88%	88%	**96%**	-6	62%	-119%
a Male Driver	100%	**100%**	96%	**92%**	-4	UA	UA
a Female Driver	97%	**100%**	99%	**92%**	2	88%	62%
Infants in							
Passenger Cars	98%	**100%**	97%	72%	-1	24%	-21%
Vans & SUVs	98%	**100%**	99%	**98%**	1	52%	65%
Pickup Trucks	NA	NA	NA	NA	NA	NA	NA
Infants in the							
Northeast	93%	**100%**	97%	60%	4	90%	59%
Midwest	99%	**100%**	100%	UA	1	UA	100%
South	99%	**100%**	96%	88%	-3	81%	-458%
West	100%	UA	100%	**97%**	0	UA	UA
Infants in							
Urban Areas	92%	**100%**	99%	**90%**	7	**94%**	90%
Suburban Areas	99%	**100%**	98%	66%	-1	70%	-111%
Rural Areas	99%	**100%**	96%	78%	-3	64%	-248%
Children Age 1-3 Years							
Children Age 1-3 Driven by							
a Belted Driver	92%	**99%**	96%	**100%**	4	65%	45%
an Unbelted Driver	70%	**99%**	69%	**100%**	-1	3%	-2%
a Male Driver	90%	57%	91%	82%	1	14%	9%
a Female Driver	89%	57%	94%	82%	5	65%	42%
Children Age 1-3 in							
Passenger Cars	84%	**100%**	91%	87%	7	70%	41%
Vans & SUVs	97%	**100%**	97%	**100%**	0	15%	13%
Pickup Trucks	99%	**100%**	73%	**94%**	-26	**93%**	-1828%
Children Age 1-3 in the							
Northeast	85%	**100%**	89%	83%	4	24%	26%
Midwest	90%	**100%**	94%	78%	4	58%	45%
South	85%	**100%**	91%	77%	6	78%	37%
West	98%	**100%**	96%	**97%**	-2	84%	-123%
Children Age 1-3 in							
Urban Areas	77%	**100%**	92%	62%	15	81%	64%
Suburban Areas	95%	**100%**	93%	59%	-2	49%	-34%
Rural Areas	87%	**100%**	93%	54%	6	74%	45%
Children Age 4-7 Years							
Children Age 4-7 Driven by							
a Belted Driver	83%	**100%**	89%	**100%**	6	**91%**	36%
an Unbelted Driver	43%	**100%**	51%	**100%**	8	59%	14%
a Male Driver	82%	82%	82%	**96%**	0	3%	-1%
a Female Driver	76%	82%	86%	**96%**	10	**95%**	41%
Children Age 4-7 in							
Passenger Cars	71%	**100%**	84%	59%	13	**99%**	44%
Vans & SUVs	87%	**100%**	86%	89%	-1	25%	-8%
Pickup Trucks	81%	**100%**	74%	**91%**	-7	46%	-33%
Children Age 4-7 in the							
Northeast	76%	**100%**	86%	68%	10	89%	41%
Midwest	75%	**100%**	81%	73%	6	70%	26%
South	75%	**100%**	78%	**99%**	3	31%	11%
West	88%	**100%**	91%	**100%**	3	44%	25%
Children Age 4-7 in							
Urban Areas	68%	**100%**	77%	**96%**	9	77%	28%
Suburban Areas	80%	**100%**	88%	**99%**	8	84%	37%
Rural Areas	81%	**100%**	82%	80%	1	24%	7%

[1] Passengers under 8 years old observed between 7 a.m. and 6 p.m. in the right-front seat or the second row of seats in passenger vehicles with no commercial or government markings that are stopped at a stop sign or stoplight. Age, gender, and racial classifications are based on the subjective assessments of roadside observers.

[2] Use of child safety seats (front- or rear-facing), booster seats, and seat belts.

[3] The level of statistical confidence that use in the passenger group (e.g., child passengers in the Northeast) is higher or lower than use in the corresponding complementary passenger group (e.g., combined child passengers in the Midwest, in the South and in the West). 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] The degree of statistical confidence that the 2007 use rate is different from the 2006 rate. Confidence levels that meet or exceed 90 percent are formatted in boldface type.

[5] The "conversion rate" is the percentage reduction in restraint nonuse. This is based on unrounded use rates.

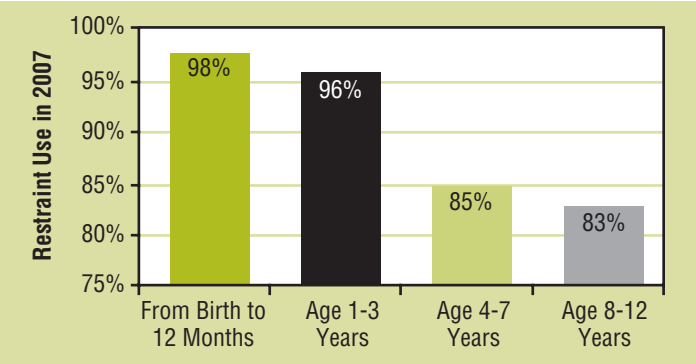
NA: Data not sufficient to produce a reliable estimate. UA: Estimate not available.

Source: National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Child Restraint Use by Age

In January 2008, NHTSA published the 2007 restraint use rates for children under 12 by age as follows: children from birth to 12 months, 98 percent; children age 1 to 3 years old, 96 percent; children age 4 to 7, 85 percent; and children 8 to 12, 83 percent. These rates are from the 2007 National Survey of the Use of Booster Seats (NSUBS), another survey conducted by NHTSA. Since age information is obtained by interviews in NSUBS instead of through visual assessment in NOPUS and therefore is more accurate, NHTSA publishes rates for the sub-age groups from NSUBS instead of NOPUS (fortunately, child restraint use rates from both surveys are highly consistent). Please see the publications "Child Restraint Use in 2007- Demographic Results" and "Child Restraint Use in 2007 – Use of Correct Restraint Types" for race and ethnicity, restraint types, and other information for each age group. These publications are available at the Web site www-nrd.nhtsa.dot.gov/CMSWeb/index.aspx.

Child Restraint Use Rates from 2007 NSUBS



Source: The National Survey of the Use of Booster Seats, NHTSA's National Center for Statistics and Analysis, 2007

Survey Methodology

The National Occupant Protection Use Survey (NOPUS) is the only probability-based observational survey of child restraint use in the United States. The survey observes usage as it actually occurs at a random selection of roadway sites, and so provides the best tracking of the extent to which the Nation's children are being protected by these life-saving devices.

Sites, Vehicles, and Occupants Observed

Numbers of	2006	2007	Percentage Change
Sites Observed	1,200	1,500	25%
Vehicles Observed	43,000	58,000	35%
Children Observed			
Age <1 Year	250	400	60%
Age 1-3 Years	700	1,300	86%
Age 4-7 Years	1,350	1,950	44%

The survey data is collected by sending trained observers to probabilistically sampled intersections controlled by a stop sign or stoplight, where vehicle occupants are observed from the roadside. Data is collected between the hours of 7 a.m. and 6 p.m. Only stopped vehicles are observed to permit time to collect the variety of information required by the survey, including subjective assessments of vehicle occupants' age and race. Observers collect data on the driver, right-front passenger, and up to two passengers in the second row of seats. Observers do not interview vehicle occupants, so that NOPUS captures the untainted behavior of occupants. The 2007 NOPUS data was collected between June 4 and June 25, while the 2006 data was collected between June 5 and June 26.

Because NOPUS sites were chosen through probabilistic means, we can analyze the statistical significance of its results. Statistically significant increases in child restraint use (respectively, rear-seat occupancy rates) between 2006 and 2007 are identified in the tables of child restraint use estimates (respectively, rear-seat occupancy rates) by having a result that is 90 percent or greater in column 7. Statistical confidence levels that restraint use in a given child passenger group, e.g., child passengers in the Northeast, is higher or lower than in the complementary passenger group, e.g., combined child passengers in the Midwest, in the South and in the West, are provided in columns 3 and 5. Such comparisons are made within categories delineated by changes in row shading in the tables. The exceptions to this are the grouping, "Children Driven by…", which is divided into the four categories of driver belt use, driver gender, driver age, and driver race, and the grouping, "Child Passengers Traveling During …," in which weekdays are compared to weekends, and weekday rush hour to weekday nonrush hour.

The 2007 survey yielded nearly a 60-percent increase in the number of child passengers observed (2,300 in 2006 vs. 3,600 in 2007). This could be due in part to our additional efforts to find eligible sites and consequently data was collected from 300 more sites in 2007 than in 2006. Therefore, we have more accurate results in 2007.

In order to better capture early commuters, NOPUS began collecting data one hour earlier in 2007. NOPUS data collection now begins at 7 a.m., instead of 8 a.m. in the 2006 and prior surveys. The survey also changed its definitions of "weekday rush hour" in order to end the morning rush hour 30 minutes earlier. The definition of weekday rush hour in 2006 and prior survey years was that data collection at the site began before 10 a.m. or after 3:30 p.m. The definition used in 2007 is that data collection at the site began before 9:30 a.m. or after 3:30 p.m. Neither the new start time nor the new definition of rush hour appeared to have an appreciable impact on the survey results.

NOPUS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation and variance estimation procedures. The 2007 survey results reflect the partial incorporation of a new

set of probabilistically designed observation sites. Specifically, like the 2006 survey, the 2007 survey used half of the observation sites from the survey years before 2006 and half of the sites from the newly designed sample of observation sites. Data from 2005 and prior years were obtained from the old observation sites only.

Data collection, estimation, and variance estimation for NOPUS are 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.

Definitions

The survey classified a child as:

- restrained in a rear-facing safety seat if the child appeared to be on a seat on top of the vehicle seat, faced the rear of a vehicle, and there were harness straps across the front of the child.
- restrained in a front-facing safety seat if the child appeared to be on a seat on top of the vehicle seat, faced the front of a vehicle, and there were harness straps across the front of the child.
- restrained in a high-backed booster seat if the child appeared to be on a seat on top of the vehicle seat and there was a shoulder belt across the front of the child.
- restrained in a seat belt or backless booster seat if there was a shoulder belt across the front of the child but the observers could not see whether the child was in a seat on top of the vehicle seat.

A child was considered restrained if s/he was restrained in any of these (a rear-facing safety seat, front-facing safety seat, high-backed booster seat, or seat belt or backless booster seat). The remaining children were classified as unrestrained. Note that in the survey there is no such notion of being "unrestrained" in, for example, a front-facing safety seat. NOPUS does not observe the use of lap belts, and does not distinguish between seat belts and backless booster seats, because these assessments cannot be reliably observed from the roadside.

The racial categories "Black", "White", and "Other Races" appearing in the tables reflect subjective characterizations by roadside observers regarding the race of vehicle occupants. Likewise observers' recorded the age group (8-15 years; 16-24 years; 25-69 years; and 70 years or older) that best fit their visual assessment of each observed occupant.

States With Laws Requiring Children Ages 5 and Younger Be in the Rear Seat[1]

California	Delaware	Georgia
Maine	New Jersey	Rhode Island
South Carolina	Tennessee	Washington
Wyoming		

[1]Among children less than 80 pounds and less than 54" tall. States with laws in effect as of June 30, 2007. In no other States did such laws take effect during the period June 30, 2006 – June 30, 2007.

At the time the 2007 survey was conducted, 10 States required children 5 and younger who weigh less than 80 pounds and are less than 54" tall to ride in the rear seat of vehicles.

The "conversion rate" is the percentage reduction in restraint nonuse. This rate roughly reflects the percentage of unrestrained children in 2006 who were restrained in 2007.

"Expressways" are defined to be roadways with limited access, while "surface streets" comprise all other roadways.

A roadway is defined to have "fast traffic" if during the observation period the average speed of passenger vehicles that passed the observer(s) exceeded 50 mph, with "medium-speed traffic" defined as 31 to 50 mph and "slow traffic" defined as 30 mph or slower.

A roadway is defined to have "heavy traffic" if the average number of vehicles per lane mile on the roadway during the observation period exceeded 45 vehicles per lane mile, with "moderately dense traffic" defined as 26 to 45 vehicles per lane per mile and "light traffic" having at most 25 vehicles per lane per mile.

For More Information

Detailed analyses of the data in this publication, as well as additional data and information on the survey design and analysis procedures, will be available in upcoming publications to be posted at the Web site www-nrd.nhtsa.dot.gov/CMSWeb/index.aspx in 2008.

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

NOPUS also observes other types of restraints, such as seat belts and motorcycle helmets, and observes driver cell phone use. This publication is part of a series that presents overall results from the survey on these topics. Please see other members of the series, such as "Motorcycle Helmet Use in 2007 – Overall Results," for the latest data on these topics.

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