Traffic Safety Facts
Research Note

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# Child Restraint Use in 2006 — Overall Results

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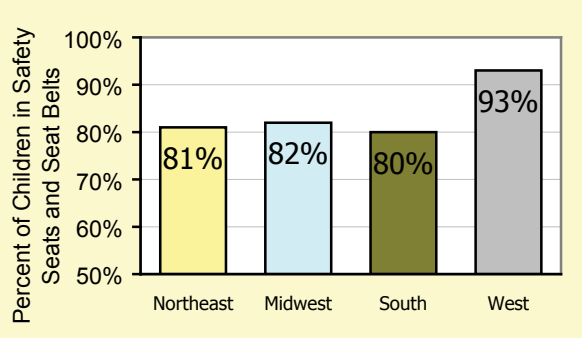
The majority of young children riding in motor vehicles in the United States continued to be restrained by some type of child safety seat or seat belt, with 98 percent of infants and 89 percent of children ages 1 to 3 so restrained in 2006. This result is from the National Occupant Protection Use Survey (NOPUS), which provides the only probability-based observed data on child restraint use in the United States. The NOPUS is conducted annually by the National Center for Statistics and Analysis of the National Highway Traffic Safety Administration (NHTSA).

The 2006 survey also found the following:

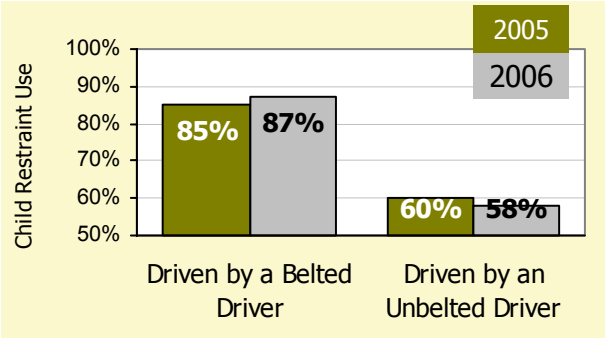
- Children between the ages of 4 and 7 continued to be restrained at somewhat lower rates than younger children, with 78 percent of these children restrained by a safety seat or seat belt in 2006.
- Most children continued to ride in the rear seat of vehicles. In 2006, 93 percent of infants, 94 percent of children ages 1 to 3, and 91 percent of children ages 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 2006.
- Child restraint use continued to be lower when the driver was unbelted than for belted drivers in 2006.

## Child Restraint Use by Region



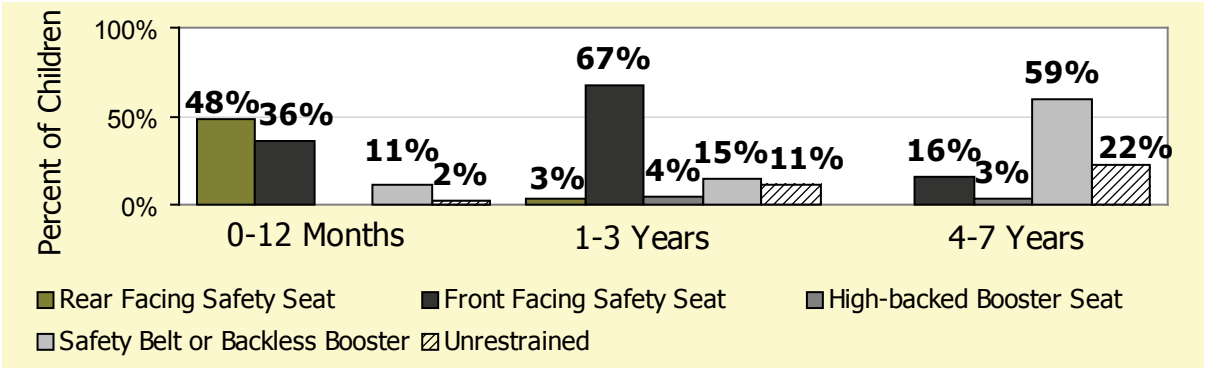

**Source:** National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2006

## Child Restraint Use by Driver Belt Status




**Source:** National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2005-2006

## Child Restraint Use, by Age and Restraint Type




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

# Child Restraint Use in Passenger Motor Vehicles, by Major Characteristics

| Child Passenger Group[1] | 2005 | | 2006 | | 2005-2006 Change | | |
|---|---|---|---|---|---|---|---|
| | Restraint Use[2] | Confidence That Use Is High or Low in Group[3] | Restraint Use[2] | Confidence That Use Is High or Low in Group[3] | Change in Percentage Points | Confidence in a Change in Use[4] | Conversion Rate[5] |
| All Child Passengers (Ages <8) | 82% | | 84% | | 2 | 30% | 9% |
| Age <1 (Infants) | 98% | **100%** | 98% | **100%** | 0 | 9% | 9% |
| Ages 1-3 | 89% | **100%** | 89% | **96%** | 0 | 6% | 3% |
| Ages 4-7 | 76% | **100%** | 78% | **100%** | 2 | 45% | 11% |
| Children Driven by | | | | | | | |
| a Belted Driver | 85% | **100%** | 87% | **100%** | 2 | 34% | 12% |
| an Unbelted Driver | 60% | **100%** | 58% | **100%** | -2 | 15% | -4% |
| a Male Driver | 79% | 88% | 86% | 77% | 7 | 76% | 31% |
| a Female Driver | 84% | 88% | 82% | 77% | -2 | 33% | -12% |
| a Driver Age 16-24 | 75% | 89% | 83% | 59% | 8 | 57% | 29% |
| a Driver Age 25-69 | 83% | 86% | 84% | 63% | 1 | 14% | 4% |
| a Driver Age 70+ | 92% | **98%** | 79% | 68% | -13 | 63% | -151% |
| a White Driver | 87% | **100%** | 86% | **94%** | -1 | 13% | -5% |
| a Black Driver | 61% | **100%** | 64% | **100%** | 3 | 39% | 9% |
| a Driver of Another Race | 80% | 65% | 86% | 70% | 6 | 49% | 27% |
| Children in | | | | | | | |
| the Front Seat | 88% | **94%** | 86% | 72% | -2 | 22% | -11% |
| the Rear Seat | 82% | **94%** | 83% | 72% | 1 | 34% | 10% |
| Child Passengers on | | | | | | | |
| Expressways | 85% | 89% | 84% | 50% | -1 | 24% | -11% |
| Surface Streets | 81% | 89% | 84% | 50% | 3 | 51% | 16% |
| Child Passengers Traveling in | | | | | | | |
| Fast Traffic | 84% | 75% | 78% | 85% | -6 | 65% | -37% |
| Medium-Speed Traffic | 82% | 54% | 86% | 72% | 4 | 44% | 20% |
| Slow Traffic | 80% | 76% | 85% | 67% | 5 | 69% | 24% |
| Child Passengers Traveling in | | | | | | | |
| Heavy Traffic | NA | **98%** | NA | **100%** | NA | NA | NA |
| Moderately Dense Traffic | 82% | 51% | 99% | **100%** | 17 | **96%** | 94% |
| Light Traffic | 82% | 64% | 83% | **100%** | 1 | 21% | 6% |
| Child Passengers Traveling Through | | | | | | | |
| Light Precipitation | 83% | 57% | 88% | 75% | 5 | 63% | 29% |
| Fog | 87% | 66% | 90% | 74% | 3 | 9% | 28% |
| Clear Weather Conditions | 82% | 71% | 83% | 86% | 1 | 21% | 6% |
| Child Passengers in | | | | | | | |
| Passenger Cars | 76% | **100%** | 78% | **100%** | 2 | 38% | 11% |
| Vans & SUVs | 92% | **100%** | 91% | **100%** | -1 | 16% | -7% |
| Pickup Trucks | 79% | 67% | 86% | 61% | 7 | 45% | 31% |
| Child Passengers in the | | | | | | | |
| Northeast | 76% | 87% | 81% | 70% | 5 | 39% | 20% |
| Midwest | 77% | **92%** | 82% | 71% | 5 | 62% | 19% |
| South | 79% | 82% | 80% | 79% | 1 | 14% | 6% |
| West | 91% | **100%** | 93% | **100%** | 2 | 30% | 19% |
| Child Passengers in | | | | | | | |
| Urban Areas | 80% | 79% | 73% | **96%** | -7 | 57% | -32% |
| Suburban Areas | 83% | 64% | 87% | **95%** | 4 | 61% | 24% |
| Rural Areas | 83% | 59% | 84% | 55% | 1 | 17% | 7% |
| Child Passengers Traveling During | | | | | | | |
| Weekdays | 82% | 59% | 84% | 64% | 2 | 42% | 14% |
| Rush Hours | 86% | **97%** | 78% | **95%** | -8 | 71% | -58% |
| Nonrush Hours | 78% | **97%** | 89% | **95%** | 11 | **100%** | 49% |
| Weekends | 83% | 59% | 83% | 64% | 0 | 5% | -2% |

[1] Passengers under 8 years old observed between 8 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 2006 use rate is different from the 2005 rate.

[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 Percent of Children Who Ride in the Rear Seat, by Major Characteristics

| Child Passengers Group[1] | 2005 | | 2006 | | 2005-2006 Change | | |
|---|---|---|---|---|---|---|---|
| | Percentage Who Were in the Rear Seat[2] | Confidence That Use Is High or Low in Group[3] | Percentage Who Were in the Rear Seat[2] | Confidence That Use Is High or Low in Group[3] | Change in Percentage Points | Confidence in a Change in Rear Seat Occupancy[4] | Percentage Reduction in Front Seat Occupancy[5] |
| | 91% | | 92% | | 1 | 65% | 18% |
| Age <1 (Infants) | 97% | **99%** | 93% | 58% | -4 | 75% | -153% |
| Ages 1-3 | 98% | **100%** | 94% | 89% | -4 | 72% | -169% |
| Ages 4-7 | 85% | **100%** | 91% | **91%** | 6 | **98%** | 39% |
| Child Passengers in States With[6] | | | | | | | |
| Law Requiring Children Ages <6 Be in the Rear Seat | 92% | 79% | 95% | **97%** | 3 | 75% | 38% |
| No Such Law | 90% | 79% | 91% | **97%** | 1 | 62% | 15% |
| Children Driven by | | | | | | | |
| a Belted Driver | 90% | 75% | 92% | 55% | 2 | 68% | 20% |
| an Unbelted Driver | 92% | 75% | 92% | 55% | 0 | 5% | -2% |
| a Male Driver | 92% | 82% | 92% | 58% | 0 | 8% | 3% |
| a Female Driver | 90% | 82% | 92% | 58% | 2 | 73% | 26% |
| a Driver Age 16-24 | 93% | **91%** | 94% | 81% | 1 | 23% | 15% |
| a Driver Age 25-69 | 90% | 84% | 92% | 74% | 2 | 69% | 19% |
| a Driver Age 70+ | 82% | 77% | 89% | 66% | 7 | 26% | 37% |
| a White Driver | 90% | 67% | 92% | 67% | 2 | 58% | 18% |
| a Black Driver | 92% | 81% | 91% | 66% | -1 | 29% | -20% |
| a Driver of Another Race | 90% | 51% | 94% | 88% | 4 | 69% | 39% |
| Child Passengers on | | | | | | | |
| Expressways | 92% | 90% | 93% | 56% | 1 | 2% | 1% |
| Surface Streets | 90% | 90% | 92% | 56% | 2 | 78% | 25% |
| Child Passengers Traveling in | | | | | | | |
| Fast Traffic | 91% | 53% | 92% | 51% | 1 | 51% | 17% |
| Medium-Speed Traffic | 93% | **95%** | 90% | 89% | -3 | 66% | -34% |
| Slow Traffic | 88% | **91%** | 94% | **92%** | 6 | **93%** | 48% |
| Child Passengers Traveling in | | | | | | | |
| Heavy Traffic | NA | NA | NA | NA | NA | NA | NA |
| Moderately Dense Traffic | 95% | **97%** | 100% | **100%** | 5 | 87% | 93% |
| Light Traffic | 90% | **98%** | 92% | **100%** | 2 | 68% | 19% |
| Child Passengers Traveling Through | | | | | | | |
| Light Precipitation | 93% | 77% | 88% | 83% | -5 | 44% | -61% |
| Fog | 95% | **95%** | 92% | 57% | -3 | 55% | -75% |
| Clear Weather Conditions | 90% | **94%** | 93% | 85% | 3 | 78% | 24% |
| Child Passengers in | | | | | | | |
| Passenger Cars | 91% | 64% | 93% | 72% | 2 | 51% | 21% |
| Vans & SUVs | 94% | **100%** | 94% | **93%** | 0 | 1% | 0% |
| Pickup Trucks | 70% | **100%** | 74% | **100%** | 4 | 36% | 14% |
| Child Passengers in the | | | | | | | |
| Northeast | 95% | **95%** | 96% | **100%** | 1 | 34% | 19% |
| Midwest | 90% | 61% | 89% | 88% | -1 | 10% | -5% |
| South | 91% | 60% | 93% | 61% | 2 | 46% | 19% |
| West | 89% | 72% | 90% | 81% | 1 | 17% | 9% |
| Child Passengers in | | | | | | | |
| Urban Areas | 88% | 77% | 90% | 79% | 2 | 29% | 13% |
| Suburban Areas | 91% | 67% | 93% | 88% | 2 | 68% | 25% |
| Rural Areas | 91% | 64% | 91% | 70% | 0 | 4% | -2% |
| Child Passengers Traveling During | | | | | | | |
| Weekdays | 90% | 54% | 91% | **95%** | 1 | 19% | 5% |
| Rush Hours | 88% | **93%** | 92% | 81% | 4 | 73% | 35% |
| Nonrush Hours | 92% | **93%** | 90% | 81% | -2 | 62% | -34% |
| Weekends | 91% | 54% | 94% | **95%** | 3 | 74% | 37% |
| Child Passengers in a | | | | | | | |
| Rear-Facing Car Seat | 98% | **100%** | 92% | **100%** | -6 | 82% | -263% |
| Front-Facing Car Seat | 79% | **100%** | 99% | 52% | 20 | **100%** | 94% |
| High-Backed Booster Seat | 99% | **100%** | 99% | **100%** | 0 | 2% | -4% |
| Seat belt or Backless Booster Seat | 99% | **100%** | 86% | **100%** | -13 | **100%** | -872% |
| No Restraint Observed | 93% | **94%** | 93% | 78% | 0 | 1% | 0% |

[1] Passengers under 8 years old observed between 8 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 2006 is different from the analogous percentage from 2005.

[5] The percentage reduction that occurred during the period 2005-2006 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

# The Types of Restraints Used by Children

| Restraint Type[1] | The Percentage of Children Observed Using the Restraint Type[1] | | 2005-2006 Change | | What We Should See[4] |
|---|---|---|---|---|---|
| | 2005[7] | 2006[7] | Change in Percentage Points[2] | Confidence in a Change in Percentage[3] | |
| Infants (Age <1) | | | | | |
| Rear-Facing Car Seat | 45% | 48% | 3 | 24% | 100% |
| Front-Facing Car Seat | 49% | 36% | -13 | 80% | 0% |
| High-Backed Booster Seat | NA | NA | NA | NA | NA |
| Seat belt or Backless Booster Seat | 1% | 11% | 10 | **100%** | 0% |
| No Restraint Observed | 2% | 2% | 0 | 9% | 0% |
| Children Ages 1-3 Years | | | | | |
| Rear-Facing Car Seat | 6% | 3% | -3 | 82% | 1.5% |
| Front-Facing Car Seat | 66% | 67% | 1 | 16% | 98 - 98.5% |
| High-Backed Booster Seat | 5% | 4% | -1 | 25% | See footnote 5. |
| Seat belt or Backless Booster Seat | 13% | 15% | 2 | 32% | See footnote 5. |
| No Restraint Observed | 11% | 11% | 0 | 6% | 0% |
| Children Ages 4-7 Years | | | | | |
| Rear-Facing Car Seat | NA | NA | NA | NA | NA |
| Front-Facing Car Seat | 12% | 16% | 4 | 76% | 48 - 97% |
| High-Backed Booster Seat | 8% | 3% | -5 | **95%** | See footnote 6. |
| Seat belt or Backless Booster Seat | 56% | 59% | 3 | 50% | See footnote 6. |
| No Restraint Observed | 24% | 22% | -2 | 45% | 0% |

[1] Among Passengers who appear to be under 8 years old, observed between 8 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.
[2] The percentage point difference between the percentage of children who were in the restraint type in 2006 and the analogous percentage from 2005.
[3] The degree of statistical confidence that the percentage of children who were in the restraint type in 2006 is different from the analogous percentage from 2005.
[4] The distribution of restraint types that we would see if all children were restrained in the type of restraint recommended by NHTSA.
[5] Between 0 and 0.5 percent of children ages 1-3 years old should be in booster seats, and virtually none should be in seat belts.
[6] Between 3 and 51 percent of children ages 4-7 years old should be in booster seats, and virtually none should be in seat belts.
[7] Cells might not sum to 100% due to rounding.
NA: Data insufficient to form a reliable estimate.
Source: Data on percentages of children observed in the restraint types are from the National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis. The final column of data labeled "What We Should See" was calculated from the *CDC Growth Charts: United States*, Center for Disease Control and Prevention, National Center for Health Statistics, May 2000.

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

| Child Passenger Group[1] | 2005 | | 2006 | | 2005-2006 Change | | |
|---|---|---|---|---|---|---|---|
| | Restraint Use[2] | Confidence That Use Is High or Low in Group[3] | Restraint Use[2] | Confidence That Use Is High or Low in Group[3] | Change in Percentage Points | Confidence in a Change in Use[4] | Conversion Rate[5] |
| **Infants (Age <1)** | | | | | | | |
| All Infants | 98% | **100%** | 98% | **100%** | 0 | 9% | 9% |
| Infants Driven by | | | | | | | |
| a Belted Driver | 98% | 57% | 99% | 88% | 1 | 31% | 33% |
| an Unbelted Driver | NA | 57% | 94% | 88% | NA | NA | NA |
| a Male Driver | 97% | 78% | 100% | **100%** | 3 | 73% | 100% |
| a Female Driver | 99% | 78% | 97% | **100%** | -2 | 65% | -118% |
| Infants in | | | | | | | |
| Passenger Cars | 97% | 67% | 98% | **100%** | 1 | 8% | 11% |
| Vans & SUVs | 98% | 64% | 98% | **100%** | 0 | 0% | 0% |
| Pickup Trucks | NA | **98%** | NA | NA | NA | NA | NA |
| Infants in the | | | | | | | |
| Northeast | 97% | 65% | 93% | **100%** | -4 | 35% | -114% |
| Midwest | 97% | 62% | 99% | **100%** | 2 | 46% | 82% |
| South | 98% | 60% | 99% | **100%** | 1 | 57% | 67% |
| West | 99% | 74% | 100% | NA | 1 | 66% | 100% |
| Infants in | | | | | | | |
| Urban Areas | 96% | 70% | 92% | **100%** | -4 | 44% | -102% |
| Suburban Areas | 98% | 51% | 99% | **100%** | 1 | 46% | 60% |
| Rural Areas | 100% | **97%** | 99% | **100%** | -1 | 82% | NA |
| **Children Ages 1-3 Years** | | | | | | | |
| All Children Ages 1-3 | 89% | **100%** | 89% | **96%** | 0 | 6% | 3% |
| Children Ages 1-3 Driven by | | | | | | | |
| a Belted Driver | 93% | **100%** | 92% | **99%** | -1 | 11% | -9% |
| an Unbelted Driver | 67% | **100%** | 70% | **99%** | 3 | 13% | 8% |
| a Male Driver | 83% | **97%** | 90% | 57% | 7 | 75% | 42% |
| a Female Driver | 93% | **97%** | 89% | 57% | -4 | 58% | -63% |
| Children Ages 1-3 in | | | | | | | |
| Passenger Cars | 82% | **100%** | 84% | **100%** | 2 | 22% | 11% |
| Vans & SUVs | 97% | **100%** | 97% | **100%** | 0 | 20% | -25% |
| Pickup Trucks | 78% | 76% | 99% | **100%** | 21 | **92%** | 94% |
| Children Ages 1-3 in the | | | | | | | |
| Northeast | 75% | **99%** | 85% | **100%** | 10 | 46% | 40% |
| Midwest | 89% | 51% | 90% | **100%** | 1 | 6% | 6% |
| South | 90% | 66% | 85% | **100%** | -5 | 55% | -53% |
| West | 93% | **94%** | 98% | **100%** | 5 | **92%** | 74% |
| Children Ages 1-3 in | | | | | | | |
| Urban Areas | 89% | 53% | 77% | **100%** | -12 | 68% | -118% |
| Suburban Areas | 87% | **95%** | 95% | **100%** | 8 | 89% | 59% |
| Rural Areas | 98% | **100%** | 87% | **100%** | -11 | **94%** | -488% |

| Child Passenger Group[1] | 2005 | | 2006 | | 2005-2006 Change | | |
|---|---|---|---|---|---|---|---|
| | Restraint Use[2] | Confidence That Use Is High or Low in Group[3] | Restraint Use[2] | Confidence That Use Is High or Low in Group[3] | Change in Percentage Points | Confidence in a Change in Use[4] | Conversion Rate[5] |
| **Children Ages 4-7 Years** | | | | | | | |
| All Children Ages 4-7 | 76% | **100%** | 78% | **100%** | 2 | 45% | 11% |
| Children Ages 4-7 Driven by | | | | | | | |
| a Belted Driver | 79% | **99%** | 83% | **100%** | 4 | 55% | 17% |
| an Unbelted Driver | 45% | **99%** | 43% | **100%** | -2 | 14% | -5% |
| a Male Driver | 75% | 56% | 82% | 82% | 7 | 67% | 26% |
| a Female Driver | 76% | 56% | 76% | 82% | 0 | 1% | 0% |
| Children Ages 4-7 in | | | | | | | |
| Passenger Cars | 68% | **100%** | 71% | **100%** | 3 | 29% | 8% |
| Vans & SUVs | 86% | **100%** | 87% | **100%** | 1 | 22% | 9% |
| Pickup Trucks | 78% | 62% | 81% | **100%** | 3 | 13% | 10% |
| Children Ages 4-7 in the | | | | | | | |
| Northeast | 74% | 57% | 76% | **100%** | 2 | 21% | 9% |
| Midwest | 72% | 82% | 75% | **100%** | 3 | 33% | 11% |
| South | 70% | **95%** | 75% | **100%** | 5 | 44% | 18% |
| West | 88% | **100%** | 88% | **100%** | 0 | 4% | 3% |
| Children Ages 4-7 in | | | | | | | |
| Urban Areas | 71% | **90%** | 68% | **100%** | -3 | 30% | -11% |
| Suburban Areas | 78% | 85% | 80% | **100%** | 2 | 34% | 13% |
| Rural Areas | 74% | 63% | 81% | **100%** | 7 | 64% | 25% |

[1] Passengers under 8 years old observed between 8 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 2006 use rate is different from the 2005 rate.
[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 Types of Restraints Used

The NOPUS observes the following categories of restraints: rear-facing safety seats; front-facing safety seats; high-backed booster seats; and seat belts or backless booster seats. Backless booster seats cannot reliably be distinguished from seat belts from roadside observation. Consequently NOPUS cannot estimate booster seat use.

NHTSA recommends the following concerning the type of restraint that children should use when traveling in motor vehicles:

- Children under 1 year old should be in rear-facing safety seats.
- Children 1 or older who are between 20 and 40 pounds should be in front-facing safety seats.
- Children who have exceeded the height or weight limits for their forward-facing safety seats and are less than 4'9" tall should be in booster seats.

Based on these recommendations and data on the height and weight distributions of children, we have calculated the distributions of restraint types that we would see if all children were restrained in the recommended restraint types. These appear in the last column of the table, "The Types of Restraints Used by Children." Note that the distributions for children ages 1-3 and children ages 4-7 involve ranges, reflecting that front-facing safety seats have a range of height and weight limits.

# 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.

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 8 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 the NOPUS captures the untainted behavior of occupants. The 2006 NOPUS data was collected between June 5 and June 26, while the 2005 data was collected between June 6 and June 25, 2005.

## Sites, Vehicles, and Occupants Observed

| Numbers of | 2005 | 2006 | Percentage Change |
|---|---|---|---|
| Sites Observed | 1,200 | 1,200 | 0% |
| Vehicles Observed | 43,000 | 43,000 | 0% |
| Children Observed | | | |
| Age <1 | 300 | 250 | -13% |
| Ages 1-3 Years | 800 | 700 | -12% |
| Ages 4-7 Years | 1,500 | 1,350 | -11% |

Because the 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 2005 and 2006 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 NOPUS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation and variance estimation procedures. The 2006 survey results reflect the partial incorporation of a new set of probabilistically-designed observation sites. Specifically, the 2006 survey utilized half of the observation sites from the previous survey years and half of the sites from the newly designed sample of observation sites. The 2005 data was obtained from the old observation sites only.

Data collection, estimation, and variance estimation for the NOPUS are conducted by Westat, Inc., under the direction of the National Center for Statistics and Analysis in NHTSA under Federal contract number DTNH22-05-D-01002.

# 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.
- 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.

## States With Laws Requiring Children Age 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, 2006. Also includes DC. In no other States did such laws take effect during the period June 30, 2005 – June 30, 2006.

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.

At the time the 2006 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 2005 who were restrained in 2006.

"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 - 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 - 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/departments/nrd-30/ncsa/AvailInf.html in 2007.

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

The 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 2006 – Overall Results," for the latest data on these topics.