

## Proper Seat Placement of Children Ages 12 or Younger within Vehicles: A Rural/Urban Comparison



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Motor vehicle crashes are the leading cause of death for children between the ages of 1 and 12 in the United States (CDC 2010). Because of this, much attention is given to properly restraining children within vehicles. Restraint use in the United States for younger children (7 years and younger) is relatively high: 87% in 2008 (NHTSA 2009a). However, when restraint use is examined by age, a trend of decreasing use is associated with an increase in age (Figure 1).

As restraint use for children decreases, proper seat placement also suffers. Figure 2 illustrates the decline in child rear placement as children age. In fact, research indicates that restraint use among children who are front-seated is lower than among those who are rear seated (48% to 74% front seat restraint use vs. 88% rear seat restraint use) (NHTSA 2009b, Durbin et al 2004).

In 1997, the National Transportation Safety Board recommended that each state amend its child passenger safety laws to require children to ride in rear seats (Greenberg-Seth et al 2004). To date, 16 states have passed legislation mandating child rear seating. However, only California requires children as old as 12 to sit in the back seat of a vehicle, “if practical”, and one “recommends” that children ages 9-12 sit in the back seat of a vehicle. California is the only state with a law requiring a child of a certain age be rear-seated in a vehicle regardless of the circumstances. Neither North Dakota nor any surrounding states have any legislation in place requiring or recommending child seat placement within a vehicle.

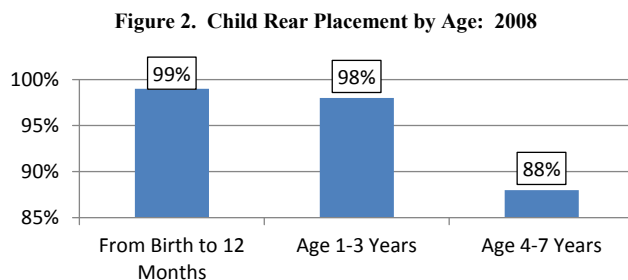
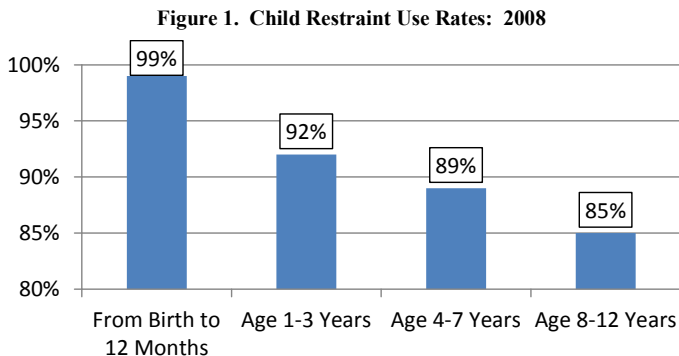
Why is seat placement such an important issue? According to Braver et al. (1998) children ages 12 years or younger who were seated in the back seat were 36% less likely to die as a result of a motor vehicle crash compared with front-seated children. A more recent study by Durbin et al (2005) found that children were 40% safer when seated in the back of a vehicle than in the front when involved in a crash, and the risk of injury declined to less than 2% when rear-seated children were secured in age-appropriate restraint systems. A number of other studies echo findings that children are safer in the back seat.

Of the 1,008 children aged 12 and younger involved in fatal motor vehicle crashes in the United States in 2006, 21% were front-seated (NHTSA 2008a). Of the 61 children aged 12 or younger killed in motor vehicle crashes in North Dakota between 2004 and 2008, 14 or approximately 23% were front-seated (NHTSA 2010). Of those who were front-seated, 57% were unrestrained, as compared to only 17% of those who were rear-seated. It is possible that some of these deaths could have been prevented by properly restraining the children in the back seat of the vehicle.

In North Dakota, slightly more than half of the population lives in rural counties (51%), while 93% of the total fatalities in 2007 occurred in rural areas (USDA Economic Research Service, 2010). Several studies found rates of motor vehicle fatalities for children in rural areas more than twice that of urban areas.

### The Study

A combination of direct observation and focus group research methods was used to gather information on seat placement practice and perceptions. Of the 21 elementary schools in Fargo and West Fargo, six were randomly chosen as sites to conduct seat placement observations. There are six elementary schools located in the “rural” observation zone of Cass County (outside of Fargo/West Fargo). During the urban and rural seat placement observations, random vehicles were chosen to receive recruiting packets containing information regarding an opportunity for parents/caregivers to take part in an upcoming focus group on child traffic safety.



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2008

## Results

A total of 537 vehicles were observed at the four urban schools – with school observations ranging from 105 to 187 vehicles. A total of 150 vehicles were observed at the four rural schools – with school observations ranging from 17 to 62 vehicles.

Children in rural areas were more likely to be front-seated in vehicles than children in urban areas (41.3% vs. 28.7%, respectively) (Figure 3). Overall, nearly one-third of children were front-seated within vehicles (31.4%). The differences between rural/urban in regards to child placement are statistically significant.

Rural children were more likely to be front-seated for all vehicle type than children in urban areas. Children riding in pick-up trucks were most likely to be front-seated in both rural and urban environments, however, the difference between the percent of front-seated children in the rural and urban environments was large – 71.4% rural vs. 48.3% urban (Figure 3). The rural/urban difference between children riding in the front seat in vans was large as well – 39.4% rural vs. 15.1% urban (Figure 3).

Focus groups yielded useful results. Nearly three-fourths of participants said they “Never” allow their children into the front seat of a vehicle (73.7%), while 21% stated they sometimes allow their children into the front seat, and one participant said they rarely allow their children into the front seat (Figure 4).

Participants reported that seat placement, among other issues, was important to children’s safety. They also included

- economic issues (size of vehicle and number of children to be transported; affordability of car seats),
- parent attitudes (not willing to go through the “hassle”/take the responsibility of properly restraining their children),
- inconsistency in recommendations/information between sources (i.e. bulky winter clothing in car seats; when a child should be moved to a different car seat), and
- inconsistency of laws/recommendations between states.

Further, participants discussed some obstacles that prevent parents from correctly placing children in the back seat, including:

- Stigma for child
- Laws are too complicated
- Family size and size of vehicle
- Family situation (blended families – “Mom let’s me sit in the front seat”)
- Parents not being in control of their children (who’s the parent?)
- Parents are too lenient – not consistently requiring their children to sit in the back seat
- Parent/child interaction

## Summary/Discussion

Overall, nearly one-third of vehicles observed had children seated in the front seat. Significant urban/rural differences exist in child seat placement, with children in rural areas much more likely to be front-seated than children in urban areas. Differences also exist among vehicle type, with children riding in pick-up trucks more likely to be front-seated than children in any other type of vehicle. Focus groups, while not able to determine differences between perceptions between the urban and rural, did reveal some common concerns and ideas of parents regarding child seat use and placement. These observations will contribute to further research as we continue to explore ways to improve safety for young passengers.

Figure 3. Front Seat Placement by Vehicle Type and School Rurality

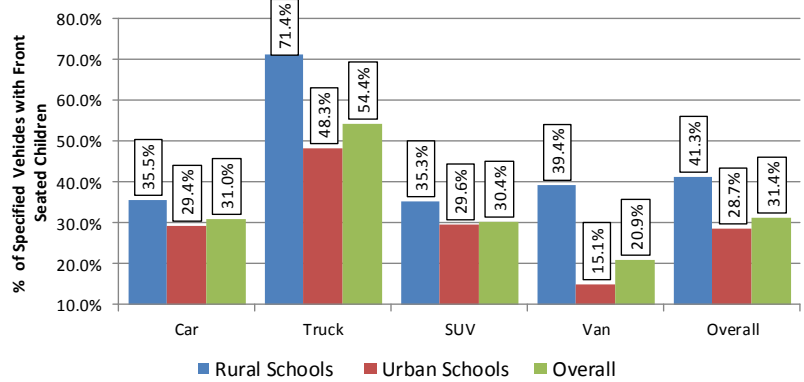
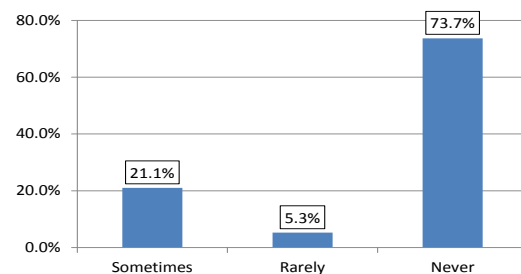


Figure 4. Do you allow children to sit in the front seat?



To read the entire research report and find references, please visit the RTSSC website: <http://www.ugpti.org/rtssc>

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