



National Child Restraint Use Special Study

From June to August of 2011 the National Highway Traffic Safety Administration conducted the National Child Restraint Use Special Study (NCRUSS), a survey of child restraint system (CRS) use. This survey was nationally representative, with data collected at 24 randomly selected geographic areas within the United States. The survey data includes observations of the restraint systems of child passengers from birth to age 8, conducted by certified child passenger safety technicians (CPSTs), as well as associated interview data given by the drivers of these child passengers. In total, 4,167 complete observations (child restraint inspections with driver interviews) were gathered by the research staff. This report gives some of the early findings of this survey. A detailed analysis is currently in progress.

The child seat inspections include detailed information about how the CRS (if any) was installed in the vehicle and how the child passenger was installed in the CRS. Here are the five significant mistakes in CRS and child installation most commonly observed in the survey.

1. Wrong harness slot used: For a rear-facing restraint, the harness slot used was more than 2 inches *above* child's shoulder. For forward-facing, the harness slot used was more than 2 inches *below* the child's shoulder.

Best Practice: For rear-facing seats, use the slots located at or below the child's shoulders. For forward-facing seats, use the slots located at or above the child's shoulders.

Safety Risk: Using the wrong slots may increase the risk of excessive excursion.

2. Improper harness retainer/chest clip position: Retainer/chest clip positioned over the abdomen or not used.

Best Practice: Proper chest/retainer clip positioning is at armpit level.

Safety Risk: Improper positioning can increase the risk of excessive excursion.

3. Loose CRS installation: The CRS can be moved more than 2 inches side-to-side or front to back across the vehicle seat.

Best Practice: The car seat should not move more than 1 inch from side to side or front to back when checked at the belt path.

Safety Risk: A loose installation may allow excessive forward movement of the child restraint (and therefore of the child). A tight (< 1" movement) installation reduces the forward and side excursion and therefore the risk of injury.

4. Loose harness strap: More than 2 inches of total slack found in the harness strap using the pinch test.

Best Practice: There should be no slack if you pinch the strap at the child's shoulder.

Safety Risk: For both rear-facing and forward-facing CRS, loose harness straps may result in excessive excursion or increased risk of ejection that could increase the risk of injury.

5. **Improper lap belt placement:** For a child in a booster seat or lap and shoulder (adult) belt, the lap belt is across the abdomen/ribcage.

Best Practice: The lap belt should lie snugly across the upper thighs and not the stomach. The shoulder belt should lie snugly across the shoulder and chest, not the neck or face.

Safety Risk: An improperly placed lap belt may increase risk of excessive excursion or abdominal injury due to submarining (occurs when the child's hips slide under the lap belt). An improperly placed shoulder belt may increase risk of excessive forward movement, and may also be removed or placed behind the arm or back by the child due to discomfort which may reduce the effectiveness of the belt.

The driver interviews showed that 20 percent of all drivers of child passengers do not read any instructions on how to properly install their child restraints. The interviews also showed a high rate of confidence among drivers; 90 percent of them said that they were "confident" or "very confident" that their CRSs were installed correctly and the children seated correctly. A survey of CRS misuse conducted in 2003 found that 72.6 percent of observed child restraints had at least one "critical" misuse.¹ Highly confident drivers misusing CRSs is a concern, since they might not seek out information on how to correctly restrain their child passengers. Best practice recommendations for child passengers can be found at www.safercar.gov/therightseat.

¹ Decina, L. E., & Lococo, K. H. (2003, May). *Misuse of child restraints*. (Report No. DOT HS 809 671). Washington, DC: National Highway Traffic Safety Administration. Available at <http://www.nhtsa.gov/people/injury/research/misuse/pages/TOC.html>

