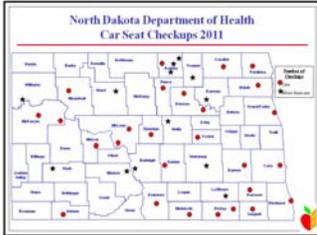


CR Misuse in North Dakota - 2011

922 restraints assessed



Car Seats Assessed For

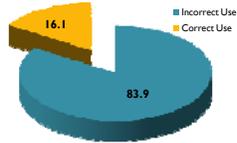
- **Selection** – was seat appropriate for age, weight, height of child.
- **Securing** – how was child riding in the car seat.
- **Installation** – how was seat installed in vehicle.
- **Condition** – crashes, recalls, outdated.

Type of Car Seat

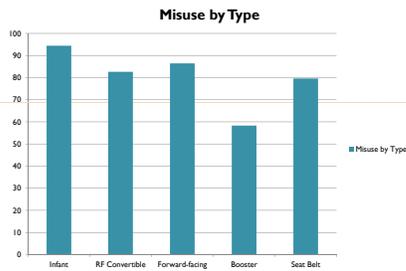
- **Infant-only** -38.7 percent
- **Rear-facing convertible** -11.7 percent
- **Forward-facing** -29.5 percent
- **Booster seats** -14.2 percent
- **Seat belts** -5.86 percent

Was Seat Used Correctly?

- Overall misuse:
 - 83.9 percent had at least one error in use.



Incorrect Use by Type



Comments

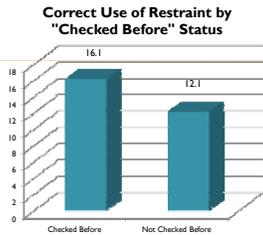
- Infant seats had highest rate of misuse – most likely because many of them are new users of car seats
- Boosters had lowest rate – relatively easy to use

Seat Checked Before Status

- 16.8 percent had been checked before.
- 77.9 percent had not been checked prior to participating in this checkup.
- 5.3 percent did not have a response.

Correct Use by "Checked Before" Status

- Of seats checked before – 16.1 percent were used correctly.
- Of seats not checked before – 12.1 percent were used correctly.

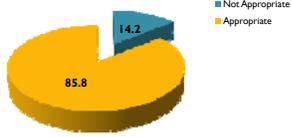


Comments

- Correct use is slightly higher if restraint was checked before.
- Why not even higher?
 - Different vehicle with different systems
 - Different child (age, weight)
 - First time using LATCH
 - Different direction
 - Seat may have become recalled or expired since last visit

Was Restraint Appropriate for Child?

- **85.8 percent** were appropriate for age, weight and height of child riding in them.
- Based on manufacturer's instructions and/or best practice.



Category	Percentage
Appropriate	85.8
Not Appropriate	14.2

Restraint Not Appropriate

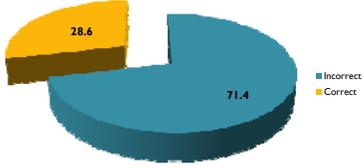
- Of cases where restraint was not appropriate:
 - **30.9 percent** child was too large (infant seats and combination seats – harness left in too long)
 - **51.8 percent** child was too small (boosters and seat belts)
 - **55.5 percent** child was too young (boosters and seat belts)

Comments

- **77.8 percent** of seat belts were not appropriate for child riding in them
- **Reasons:**
 - **Confusing messages** from health and safety organizations – 80 pounds, 4'9" tall, age 8
 - **State law** – child restraint to age 7
 - **Use updated materials**
 - **Best indicator is when seat belt fits** – many 8-12 year olds should still be in booster

Was Child Secured Correctly?

- 71.4 percent not correctly secured in car seat or seat belt.



Category	Percentage
Incorrect	71.4
Correct	28.6

Securing Errors

- Harness straps too loose – 52.6 percent
 - CPS Tech Update – lateral head excursion increases with loose harnesses
- Harnesses in wrong slots – 28.8 percent
- Retainer clip positioned wrong – 33.7 percent
- Harness threaded wrong – 16.7 percent

Securing Errors

- Boosters – seat belt positioned wrong – 37.2 percent
- Seat belts – lap and shoulder belt positioned wrong – 77.8 percent

Comments

- **Harness straps** – Use pinch test.
- **Harness slots** (RF – at or below) (FW – at or above), but watch for infinite harnesses – **at** shoulder either direction.
- Harness straps **attached and threaded** correctly. Follow harness from beginning to end, check adjustments, straighten twisted straps.
- **Retainer clip** – threaded correctly, armpit level, interference with harness comfort covers.

Comments

- Some harnesses have **2 loops** (to accommodate lower/higher weight ranges).



When upper loops are used, the ends of the straps must hang in front of splitter plate, not behind (diagrams 1 and 2). For bigger babies, use the lower loops and top two sets of slots.

Comments

- Car seat head and body pads, inserts – check instructions when to remove.

Graco Nautilus: Never allow body support to bunch or fold behind child. Use body support with bottom harness slots only.

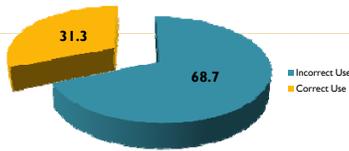
Chicco Key Fit 30: NEVER USE Insert if child weighs more than 11 lbs! ONLY USE Insert with infants who weigh between 4 and 11 lbs.

Comments

- Boosters & seat belts – check for lap and shoulder belt positioning.
- Check for head protection.
- On boosters & seat belts: if child is out of seat: ask parent if child buckles self. If he/she does, have child do it in front of you. Remind parent to double check if child buckles self.
- High-back boosters – be sure parent understands how to adjust head (shoulder belt positioning guide)

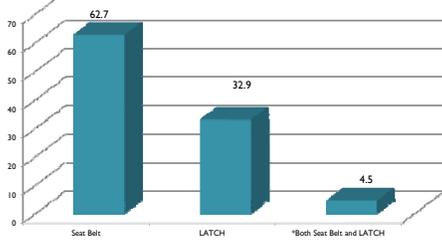
Correct Installation

- **68.7 percent** installed incorrectly in vehicle.



How Installed

How the Car Seat was Installed



Installation Errors

- Installed too loosely in vehicle – 48.8 percent.
- Infant seat handle in wrong position – 22.4 percent
- Recline incorrect – 13.9 percent

Installation “LATCH” Errors

- 13.3 percent of LATCH anchors were hooked incorrectly.
- 6 percent of the center lower anchors were used when not approved.
- 27 percent of lower anchors were used without the top tether (forward-facing).

Use of Tether Straps

- 196 of the installed child restraints had tether straps on them and were in vehicles with tether hardware. 53.1 percent of the tethers were attached.
- When tether was used, 26 percent were using it incorrectly.

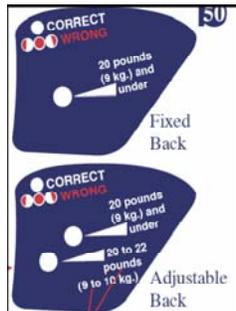
Other Installation Errors

- Backless boosters without head protection.
- Misuse of locking clips.
- Car seat facing wrong direction.
- Seat belts not locked (usually switchable retractors).

Comments

- **Correct direction** – 1 year and 20 pounds is considered correct, even though longer is better for best practice. (Higher RF).
- **Handles on infant car seats** – must check instructions for correct positions
- **Recline** – some FVV-facing allow seat to be reclined; some infant seats have 2 recline indicators (lower-higher weight ranges).

Baby Trend



Comments

- Tight installation – check at belt path – no more than 1” movement – parent must be able to replicate.
- Correct belt path – Rear-facing or forward-facing.
- Use of locking clip (when seat tilts). Try the system first. If use locking clip on switchable retractor, leave retractor in ELR.

Comments

- Belt path – get under the pad and be sure lower anchor straps are threaded correctly so as not to interfere with harnesses.
- Locate storage locations for lower anchors and tethers.
- Use of center latch hooks – refer to vehicle owner’s manual, car seat instructions or LATCH manual.

Comments

- Either LATCH or seat belts – not both.
- LATCH hooks face down
- Special issues with tethers in pickups, SUVs, vans.
- Use of lower anchors, but not tether.

Condition of Seat

- Recalled – 3.2 percent
- In a crash – 4.6 percent
- Outdated/expired – 6.6 percent of the car seats were outdated

Comments

- Recall – use most-current list.
- Original owner/history – if seat came from friend or relative, check “Yes”
- Outdated seats – check for expiration dates.
 - Know reasons for expiration dates – changes in technology, wear/tear, extreme weather changes, manufacturer says.

Comments

- Crash history – know NHTSA criteria for replacing. Refer to instructions – if manufacturer says to replace – overrides NHTSA.
- Ask if seat has been registered. If not, provide information on registering seat and reason to register. Reminder: consumer information cannot be sold.

Unregulated Products

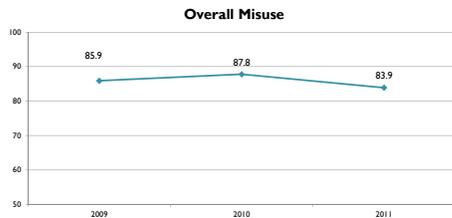
- 15.4 percent had aftermarket products added to car seat or vehicle.
- 71.1 percent were removed with parent's permission.

Comments

- OK to use if same manufacturer as car seat.
- Examples: toys on handles, head pads, pads under seat. Also, look for mirrors, window shades.
- Offer to remove now. Show parents in instructions where it says not to use (usually in front under Warnings).

2009-2011 Comparison

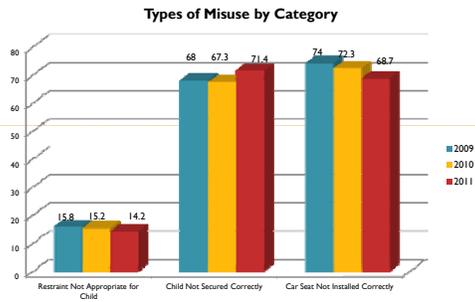
- 3,880 restraints checked in 3-year period



Conclusions

- Misuse of child restraints has remained fairly consistent during the three-year period. The slight decrease in overall misuse between 2010 and 2011 is encouraging, but at this point, it is too soon to know if this is a trend that will continue.

Comparison 2009-2011



Conclusions – Restraint Appropriate

- Parents seem to be doing a better job in selecting the car seat that is most appropriate for their child’s age, weight, height and developmental level, as evidenced by a slight, but continued decrease in the number of restraints that were not appropriate for the child – from 15.8 percent in 2009 to 14.2 percent in 2011.

Conclusions – Securing Errors

- During the three-year period, there was a slight increase in the number of children who were not secured correctly in their restraint, from 68 to 71.4 percent.
- However, upon further analysis, there is good news that shows a reduction, from 59.5 percent to 52.6 percent, in loose harnesses, a critical component of correct use.

Securing Errors

	2009	2010	2011
Securing Error: Harness too loose	59.5	58.2	52.6
Securing Error: Retainer clip positioned wrong	32	26.2	33.7
Securing Error: Harness straps wrong slots	21.8	24.1	28.8
Securing Error: Harness straps threaded wrong	10.8	20.4	16.7

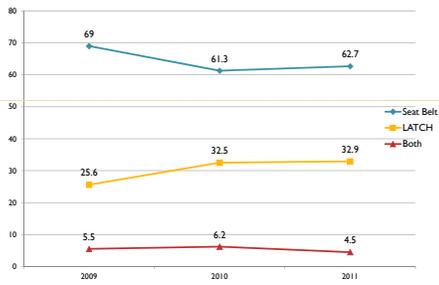
Conclusions – Installation Errors

- Gradual decline in installation errors from 74 percent in 2009 to 68.7 percent in 2011.
- Worth noting is that during each of the three years, half of the car seats were installed tightly.
- The decline in installation errors may be due to educational campaigns, technician training and general increase in knowledge about the importance of correct installation and the importance of reading vehicle owner’s manuals.

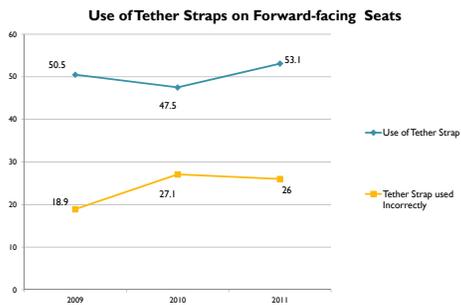
Installation Errors

Installation Error: Car seat not tight	49.3	50.7	48.8
Installation Error: Handle in wrong position	14.8	23.7	22.4
Installation Error: Incorrect recline	11	13.3	13.9
Installation Error: Incorrect belt path	2.8	2.2	2.0
Installation Error: Wrong direction	1.9	4	3.5

How Installed



Use of Tethers on Forward-facing Seats



Conclusions – Tether Straps

- The use of tether straps on forward-facing car seats has increased during the three-year period.
- This could be attributable to the increase in use of the LATCH system (which requires use of the top tether) or to an increase in education about the importance of using top tethers whenever possible.
- Unfortunately, as the use of tethers has increased, so has incorrect use.
- Parents should be encouraged to read their vehicle owner’s manual for correct locations of tether anchors in the vehicle.

Condition of Restraint

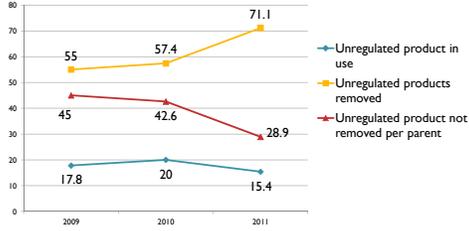
	2009	2010	2011
Car seat recalled or missing labels	5	4	3.23
Not original owner of car seat or unsure	9.9	5.3	4.4
Car seat in a crash or unsure of history	9.5	5.7	4.6
Car seat outdated or unsure	7.4	5.2	6.6

Conclusions – Condition of Restraint

- Throughout the three-year period, parents seemed to be aware of the importance of not using old or second-hand car seats or those that had been in a crash, with relatively low numbers in all “condition of restraint” categories.
- Even with the low beginning numbers, improvements were made in all categories, but particularly in use of second-hand seats and seats involved in crashes.
- Much media attention has been given to these topics, along with car seat roundups that collect and destroy old car seats.



Unregulated Aftermarket Accessories



Conclusions – Aftermarket Accessories

- During the three year period, approximately 15-20 percent of the restraints checked included unregulated aftermarket accessories.
- On a positive note, parents/caregivers removed accessories on 71 percent of the restraints at the 2011 checkups, compared to 55 percent in 2009.
- Over the past two years, certified technicians have been more assertive in warning parents against use of aftermarket products and in assisting them with removal of the accessories.