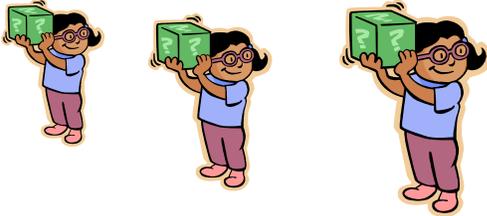


Child Passenger Safety No Question is a Dumb Question

- Technician Refresher IVN Training – July 15, 2011 – Carol Meidinger



LATCH & Tether Weight Limits

- I have questions about LATCH weight limits.
- Should we use tethers with higher weight harness CRs?



LATCH Review

- Tethers came first – most passenger vehicles required to be equipped with tether anchors starting 9/1/99
- LATCH – the system:
 - Lower Anchors
 - Tethers
 - Phased in between 9/1/2000 and 9/1/2002

LATCH Weight Limit Issues

- When LATCH came out, most CR with harnesses had upper weight limits of 40 pounds
- FMVSS 225 (LATCH) does not include specifications about minimum CR weight capacity
- Vehicle manufacturers are not required to publish their specific weight limits

LATCH Weight Limit Issues

- Newer CR have upper weight limits of 50, 65 and 80 pounds



LATCH Weight Guidelines

- Refer to Vehicle Owner's Manual
- Check LATCH Manual - Appendix A (Child Restraint, Page 105) and Appendix B (Vehicle, Pages 154-155)
- Check CR Instructions

LATCH Weight Guidelines

- If no upper weight limit is provided by vehicle manufacturer, LATCH manual or CR manual – **assume that 40 pounds** is the maximum weight limit for the lower anchors
- Install with seat belt instead of lower anchors

What About the Tether?

- Tethers are good – they limit head excursion by 4 inches
- Tether if you can!
- Don't forget pre-2000 vehicles where tether hardware can be added

Weight Limits on Tethers

- May be different if used with lower anchors or with seat belt or if the tether has been retrofitted
- Check vehicle owner's manual
- Check CR instructions
- Check LATCH Manual – Pages 154-155
- If no guidance, **assume 40 pound maximum weight**

Weight Limit on Tethers

- Confusion, different perspectives on exceeding weight limit provided by vehicle manufacturers (SRN – CPS Board)
- Benefits of tether use compared to risk of tether anchor failure
- Bottom line – we need to follow CPS Curriculum

Oh, by the way.....

- The maximum weight for the lower anchors and tether considers only the weight of child occupant
- Except for Subaru, which includes the weight of the child and the CR

Putting it into Practice

- The LATCH manual is your friend.
- Remember to discuss with parents when they should discontinue LATCH and use a seat belt and when they should stop using the tether.
- Tether when possible!

Rear-facing to Age 2 – Explaining to Parents



Rear-facing to Age 2

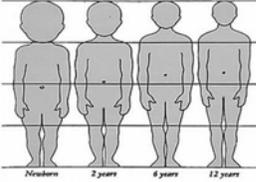
- AAP Policy – March 2011
- Keep kids rear-facing until age 2 or until they have outgrown their RF CR by height or weight
- Head should be within 1 inch of top of CR (if infant seat – move to convertible)

Why Rear-facing?

- Rear-facing is 5X safer
- Risk of small children being killed or injured is 5X greater for forward-facing than for rear-facing

Why Rear-facing?

- Head is 25% mass for child compared to 6% for adult
- Immature bones and connective tissue
- Fragile neck and spinal cord



Why Rear-facing?

- Forward-facing: Body is held back by harness straps, but head is not. Child's LARGE head is thrown forward – stressing, stretching and breaking spinal cord.
- Rear-facing: Shell of the car seat absorbs crash forces, cradling head, neck and back of child. Little or no force applied to head, neck and spine.

What about the legs?



What about the legs?

- Parents concerned about safety and comfort of child in RF
- Safety:
 - No increased risk of injury for children ages 12-23 months due to RF (CHOP research)
 - 2nd most common crash injury to FW children is lower extremity injuries – legs flailing and hitting interior of car, usually back of vehicle front seat

What about the legs?

- Comfort:
 - RF is actually more comfortable than having legs dangling in FW position
 - Children are flexible and will usually sit cross-legged or frog-legged (even at play)
 - CRs that RF to higher weights usually have deeper seats, providing more leg room

Putting it into Practice

- Encourage, but don't push, especially if child is currently riding FW
- Focus on keeping RF children riding RF longer
- Place RF car seats for older children more upright
- Remove head restraints (if allowed), so child can see out back window

Putting it into Practice

- Not misuse if FW allowed by manufacturer's instructions at age 1
- Provide AAP guidelines to pediatricians, family practice physicians in your communities – need their support
- There will be transition – medical community, parents and techs

Boosters & LATCH



- Should you use LATCH with booster seats?

Boosters & LATCH

- Several CR manufacturers recommend securing boosters with lower anchors and/or tethers – Refer to CR Instructions
- Purpose: Hold booster in place while child climbs in and out and prevents booster from being a flying missile

Boosters & LATCH

- How tight? Some instructions recommend tight installation, others snug enough to remove slack, others loose installation.
- LATCH weight limits do not apply when used to secure boosters
- Should not interfere with ability to buckle seat belt (lower anchors overlapping seat belt buckle)

Expiration Dates

- Is 6 years the expiration date for all seats?
- How do you explain why seats expire?



Do not use after....

- Life spans of current CRS vary by manufacturer
- HWH seats may have longer use time – some are marked 8 or 9 years
- Combination seats may have two dates – one with harness and one as booster
- Expiration dates may be found on back of seat, some on label with date of manufacture

Why do seats expire?

- Heavy use
- Environmental stresses – hot summers, cold winters
- More likely to have missing parts, outdated instructions
- Material (plastic) degradation has not been conclusively demonstrated
- Technology

Bounty Programs

- Offer good way to educate on expired seats, crashed seats, second-hand seats



Infant Seat Handles

- Is there a list of manufacturers with handle positions?



Infant Seat Handles

- I'm glad you asked. CR instructions are sometimes confusing or don't address it at all.
- SafetyBeltSafe has compiled list. Go to www.carseat.org. Under Resources – Reproducible Materials



Correct Recline Rear-facing Seats



- I have difficulty getting RF seats with a good recline. Am I getting them too tight? Do we always need to use noodles?

Recline Indicators

- Bubbles, lines, dials



Correct Recline

- 30-45 degrees. Do not recline past 45 degrees. If over-reclined, crash forces are transferred from seat back to child's shoulders and neck
- Recline for newborns – keeping airway open
- Older children can be more upright

Factors that Affect Recline

- Cushy vehicle seats
- Slope of vehicle seat
- Over-tightening of seat belt or lower anchor straps
- Is vehicle level with ground? Parked on flat surface

Side Air Bags



- General info on side air bags? How can you tell if you have them? Can you install car seats near them?

Side Impact Air Bags

- Designed to protect head and chest in side impact crashes
- Chest SABs – seat mounted or door mounted
- Head SABs – mounted in roof rail – tubular or curtain
- Head/Chest Combination – mounted in side of seat – larger than chest SABs

SABs & Children

- Currently, SABs not a risk to children in correctly-used CRs
- Possible risk to out-of-position children in seat belts or boosters (leaning on door, unrestrained, face against window)
- In 1999, NHTSA issued Consumer Advisory warning against seating children next to active SABs. Very few cars had these in rear seating positions.

SABs & Children

- Technical Working Group developed testing procedures to minimize risk potential for out-of-position children. Vehicles that meet testing receive an “M” for Meets requirement in Features chart at www.safercar.gov

Putting it into Practice

- Check vehicle for side air bags. Look towards roof rail for labels
- Check vehicle owner's manual or CR instructions for warnings about CR installation near SABs
- Evenflo Instructions:
 - **Vehicles built prior to 2002:** Do not use this restraint in a vehicle seating position equipped with a side impact airbag unless authorized by the vehicle manufacturer.
 - **Model year 2002 and newer vehicles:** Refer to vehicle owner's manual before placing this restraint in a seating position equipped with a side impact airbag

Putting it into Practice

- Advise parents – child should not lean or rest against chest-only or head/chest combination SABs
- No risk to children from current roof-mounted head SABs

Inflatable Seat Belts

- Seat belts have air bags in them? What the heck.....
- Which vehicles? Can you use a car seat with them?



Inflatable Seat Belts



Inflatable Seat Belts

- 2011 Ford Explorer SUV – Rear Seat
- Function like regular seat belts – shoulder belt portion looks padded and has softer edges than regular seat belts
- Two retractors – one for lap belt and another for shoulder belt
- Lap belt has switchable retractor for CR use

Inflatable Seat Belts

- Vehicle sensors – front or side impact
- Inflation is slower than front or side air bag
- Covers 5X more surface than regular seat belt, reducing pressure to chest
- Ford: No adverse reaction with CRs
- CR Manufacturers: Some warning against installing CRs with inflatable belt

Putting it into Practice

- Look for inflatable seat belts (2011 Ford Explorer, Ford Flex, Lincoln
- Recognizable – thicker & softer than regular seat belts
- Review vehicle owner’s manual & CR instructions
- Install with LATCH or move to position with conventional seat belt
