Recreational Vehicles & Child Occupants

Guidelines & recommendations to provide to parents

Lifesavers Conference, San Antonio, Texas
Workshop: Vacation Travel Risks & What Parents Need to Know
April 23, 2018

James DeCarli, PhD, MPH, PgDip, MPA, CPST
Pro Consumer Safety
RV Facts & Demographics*

- Nationwide 30 million RV enthusiasts (including renters)
  - RV ownership 8.9 million households
  - Average age 48 years
  - Largest increase of age category ages 35-54

- 39% of RV’rs have children under the age of 18 living at home

- Class C is most commonly rented and owned

*Recreational Vehicle Industry Association (RVIA)
Classes of RV’s
(Motorized)

Class A

Class B

Class C
Class A

➢ Largest of motor homes
➢ Built on a bus chassis (not required to meet bus occupant safety standards for rear seating)
➢ Weigh 15,000-30,000 pounds
➢ Required to meet Federal seat belt standards for front occupants only. But not for rear occupants
Class B

➢ Van conversions
➢ Weight 6,000-8,000 pounds
➢ Required to meet Federal seat belt standard for front occupants and passenger testing but not for rear occupants for this weight class.
➢ Some manufacturers meet Federal standards and do independent testing.
Class C

- Constructed on a van chassis
- Weight 10,000-12,000 pounds
- Required to meet Federal seat belt standards for front occupants only. But not for rear occupants
Other Types of RV’s
(Non-Motorized, Towable)

- Trailer
- Tent Trailer
- 5th Wheel
- Truck Camper
Federal Motor Vehicle Safety Standards & Regulations

(Title 49, Code of Federal Regulations, Part 571)

**Standard No. 208** - Occupant Crash Protection Standard:

- Type 1 (lap-belt only) or Type 2 (lap-shoulder belt)
- Performance requirements for anthropomorphic test dummies
- Passenger Cars, Multipurpose Passenger Vehicles, Trucks and Buses with a gross vehicle weight rating of 4,536 kg (10,000 lbs.) or less, and buses (driver's seat only)

- **EXCLUDES Class A and C RV's due to exceeding 10,000 lbs.**
Federal Motor Vehicle Safety Standards & Regulations

(Title 49, Code of Federal Regulations, Part 571)

Standard No. 208 - Occupant Crash Protection Standard:

➢ Specifically for “Motor Homes” (Recreational Vehicles)

1. Rear designated seats in motor homes are excluded from the rear lap/shoulder belt requirements

2. The rear seats in LTVs (Light Truck and Vans) carrying chassis-mount campers with a weight greater than 3,855 kg (8,500 lbs.) and no greater than 4,536 kg (10,000 lbs.) would need to be equipped with a lap belt only

➢ Excludes Class B van conversions
RV Construction Process & Material

1. Chassis
2. Flooring
3. Cabinets/Utility
4. Exterior walls
5. Roofing

Framing Materials:
- Wood
- Aluminum
Rear Seat Belt Construction in RV’s

- Older RV’s seat belts anchored to wooden joists
- Currently: Anchored to vehicle chassis (frame)
Reck Seat Belt
Construction in RV’s

- Seat belts look similar to those in passenger vehicles
Rear Seat Belt Construction in RV’s

➢ Tethers
➢ Installation instructions - Cruise America RV Rentals
RV Crash Estimates & Data

- 75,000 hospitalizations per year**
- Limited data (hospitalization & fatality data)
  1. Lack of standard definition:
     - RV, recreational vehicle, motor home, house car, camper car, etc.
  2. Classification:
     - **Heavy Truck:** Single vehicle or tractor-trailer combination designed for carrying a heavy load of property on or in the vehicle. Includes: single unit trucks (e.g., coal truck), tractor-trailers, motor homes, etc.** *(PA DOT)*

**Federal Motor Carrier Safety Administration (FMCSA)**
## RV Crash Dynamics

<table>
<thead>
<tr>
<th>Cause of Crash</th>
<th>Collision Type</th>
<th>Injuries (all ages)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underinflated tires</td>
<td>Rollover -most common from speeding &amp; sharp turns</td>
<td>Head trauma</td>
</tr>
<tr>
<td>Poorly balanced weight</td>
<td>Sideswipes</td>
<td>Fractures</td>
</tr>
<tr>
<td>Tire blowout</td>
<td>Tilt</td>
<td>Cuts &amp; lacerations</td>
</tr>
<tr>
<td>Overcorrection/oversteering</td>
<td>Rear-end</td>
<td>Facial</td>
</tr>
<tr>
<td>Inexperienced drivers - generally no special training or licensing required for RV drivers</td>
<td></td>
<td>Spinal cord</td>
</tr>
</tbody>
</table>

*Source: Federal Motor Carrier Safety Administration (FMCSA)*
RV Crash Testing Status

➢ NHTSA does not crash test RV’s (except Class B in 1970’s)

Roadtrech Motorhomes, Inc.
➢ Class B
➢ United States
➢ Adult passengers
➢ Not child occupant or CRS’s

Bailey Motorhomes
➢ Class C
➢ United Kingdom
➢ Adult & child passengers
➢ Not CRS’s
Bailey Crash Tests

NOTE: To view videos visit the following link:

Video 1
Pre-modification

Video 4
Pre-modification

Video 5
Post-modification
RV Crash Outcomes
RV CRASH 1

- Class B
- RV crashed into parked semi-trailer
- Fatality: Both front passengers died at scene, 5-year old child rescued

OREGON FEB 25, 2016

RV CRASH 2

- Class B
- Commercial vehicle collides with motorhome
- Fatality: 2-thirteen year old boys in rear of RV

https://arizonadailyindependent.com/2016/06/28/thirteen-year-old-boys-killed-when-commercial-vehicle-crashes-into-motorhome/
Class A

Driver of RV swerved, overcorrected rolled into median

Injury: Severe

WASHINGTON, MAY 29, 2017

RV CRASH 4

➢ Class A
➢ Driver of RV cut off by another vehicle
➢ Injury: non-fatal hospitalization
➢ 3-passengers

CALIFORNIA, OCTOBER 9, 2016

https://rvtravel.com/brutal-crash-obliterates-motorhome/
RV CRASH 5

➢ Class A
➢ Tire blowout
➢ Hit guardrail & overturned

FLORIDA, JANUARY 27, 2011

http://flaglerlive.com/16920/i95-rv-crash/
RV CRASH 6

- Class A
- Early morning loss of control & overturned

http://www.marshlakeyukon.net/FireRescue/2008/Sept282008RVCrash.htm
RV CRASH 7

➢ Class A
➢ Loss of control

http://www.rv.net/forum/index.cfm/fuseaction/thread/tid/27598439/srt/pa/pging/1/page/1.cfm
RV CRASH 8

- Class A
- Loss of control

RV CRASH 9

- Class C
- Loss of control after car strikes RV while trying to pass
Non-Motorized Towable RV Crashes

✓ Trailer
✓ Tent Trailer
✓ 5th Wheel
✓ Truck Camper
Non-Motorized Towable RV Crash Outcomes

Seat belts that meet Federal Occupant Standards
Injury Risks Rear-Seated RV Passengers

1. RV’s are *not required to*:
   - Have rear occupant crash testing or
   - Meet Federal seat belt standard 208 for rear seating.

2. Even though rear bench seats have seat belts anchored to the RV chassis, during a collision, the wooden bench supports can collapse.

3. Kitchen equipment, interior walls and cabinets even when anchored onto the RV Chassis, during a collision, increases the risk of collapsing or becoming a projectile.

4. Storage supplies can also become projectiles.
Guidelines for Parents

Before traveling with a child in an RV
Explain to Parents

➢ RV’s are not crash tested

➢ Rear RV seating - not required to meet Federal seat belt requirements

➢ If choosing an A, B or C Class, never install a car seat or booster seat on a rearward- or side-facing RV seat

➢ During a crash:
  ➢ Even when belted, seat benches can collapse
  ➢ Kitchen equipment & cabinets can become projectiles

➢ Other safety tips:
  ➢ Never leave a child alone in an RV
  ➢ Risks-infants & toddlers (falls, burns, suffocation, poisoning, etc.)
1. Best Alternative

Rent or purchase a non-motorized, tow-able RV”, so the child can ride safely while properly restrained in a passenger vehicle that is pulling the RV.

- Ensure driver is experienced and familiar with towing a trailer
- Reminder: High-profile vehicles are restricted in high winds, inclines, braking, and have risks making sharp turns and backing

Fifth Wheel  Trailer  Tent Trailer  Truck Camper
2. Second Best Alternative

Drive with the child properly restrained in a passenger vehicle and follow the RV.

Class A

Class B

Class C
3. Least Best Alternative

For those with a personal RV, have custom captain chairs that comply with Federal seat belt standards installed*

➢ Risk of cabinets and kitchen equipment anchored into the wooden flooring and joists which can break apart during a collision

➢ Other storage items becoming projectiles

*Never install a car seat or booster seat on a rearward- or side-facing RV seat
Resources for Caregivers

Recreational Vehicles (RV) & Child Passengers

If you are planning on renting, purchasing, or traveling in a private recreational vehicle (RV) with children be aware:

1. The safety of rear passengers (including children) is uncertain due to variations in meeting Federal Motor Vehicle Safety Standards.
Resources for Caregivers

Recreational Vehicles (RV) & Child Passengers

Planning on renting a recreational vehicle (RV), or traveling with family or friend in one, with your child?

Before traveling with your child in an RV, learn of the risks and choose the best alternative that is safest for your child.

1. Motorized RV’s (Class A, B, C and C+) are not required to have rear occupant crash testing or meet Federal seat belt standards for rear seating, depending on the weight of the RV. Check with each manufacturer if it meets seat belt standards.
2. Kitchen equipment anchored to wooden frames and wooden cabinets can collapse or become projectiles during a collision.
3. Other travel supplies, as well as passengers can also become projectiles and injure occupants during a collision.
4. Car seats & booster seats are never to be used in rear-facing or side-facing seating.
5. Never leave a child alone in an RV or motor vehicle.

#1 Best Alternative

Rent or purchase a “non-motorized” trailer, camper, or travel trailer so your child can ride properly restrained in a passenger vehicle that tows the RV. Remember as with any RV the driver must be experienced and familiar with towing a trailer behind their vehicle. RV’s are high-profile vehicles, so they can be restricted during high wind conditions and can be difficult in making sharp turns and backing.

Alternatives for Parents

#2 Second Best Alternative

Drive the child while properly restrained in a passenger vehicle and follow the RV (Class A, B, or C).

#3 Least Best Alternative

For RV owners or those considering in purchasing one, can have captain chairs custom made in the back of the RV that comply with Federal seat belt safety standards. However those are still a significant risk that during a collision, cabinets, kitchen equipment and storage items can become projectiles and injure passengers.


Baby Proof Your RV

Whether you are renting an RV or traveling with family or friends in one, childproofing the RV will help keep your trip a pleasant one and away from the emergency room.

- Unexpected areas where toddlers can climb that increases their risk of a fall, burn, cut, poisoning, etc.
- Doors and cabinets where a child can get inside and become trapped inside, bathroom, bedroom, or RV itself.
- Stairwell areas, doors, windows (screens are not meant to keep children from falling through)
- Loose straps, duffel bag cords, window shades, etc. where a child’s reach can become a strangulation risk
- Electrical heaters make sure a baby cannot put their fingers or other item in resulting in fire or burn risk
- Low level storage doors, vents, utility access, etc. where a toddler can enter
- Possible access to medications, chemicals, etc.
- Hot water temperature: Make sure temperature is less than 120 degrees

RV Baby Safety Items

- Cabinet Locks
- Door Knob Covers
- Outlet Covers
- Oven Knob Covers
- Baby Safety Gate
- Travel Baby Bed
- Travel Toddler Bed
- Baby Changing Pad
- Travel Baby Crib
- Travel High Chair

Never leave a child alone in an RV


www.procarseatssafety.com/health-education.html
Resource for Professionals

FACT SHEET

Recreational Vehicles (RVs) and Child Occupants

While many states may require a booster seat for children under 8 years old, the Federal Motor Vehicle Safety Standards for rear restraint systems do not apply to motor homes. The National Highway Traffic Safety Administration (NHTSA) has not established a safety standard for rear seat restraints in motor homes. However, Federal Motor Vehicle Safety Standards do apply to front seat restraints in motor homes. The standards require that the front seat restraints be compatible with child restraint systems, and that they provide adequate protection for children in the event of a crash. These standards also require that the front seat restraints be securely attached to the vehicle, and that they can be easily adjusted to accommodate the child's size and weight. It is important for parents to ensure that their child is properly restrained in the front seat of a motor home, as the risk of injury in the event of a crash is higher for children in the front seat than in the rear seat. It is also important for parents to ensure that their child is properly restrained in the back seat of a motor home, as the risk of injury in the event of a crash is lower for children in the back seat than in the front seat.
Resources for CPST/CPSTI’s

For CEU’s visit the National Child Passenger Safety Board website:

➢ cpsboard.org/certification-recertification/

➢ “Recreational Vehicles and Child Occupants: Guidelines and Recommendations to Provide Parents” (December 9, 2015 class)

➢ Will be updated at the June 2018 webinar
Contact

James (Jim) DeCarli
jdecarli@ProConsumerSafety.com
(323)491-6197