Transporting Children with Special Healthcare Needs: What the Pediatrician Needs to Know

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Indiana University School of Medicine & Riley Hospital at IU Health
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Objectives

• Recognize which patients may need a specialized restraint for travel

• Understand the category of restraint that may be selected to meet the needs of a child with a specific medical condition

• Identify where you can access the needed assessment and restraint in your community

Restraint Options

• Conventional restraints
  – Meet federal motor vehicle safety standards
  – Wide variety of manufacturers and models
  – Purchased at local retail stores
Restraint Options

- Specialized or adaptive restraints are designed for children who:
  - Must lie down
  - Can’t bend at hips
  - Can’t use a traditional harness system
  - Have outgrown conventional CSS and require additional postural support
  - Demonstrate severe behavioral problems

Specialized Child Restraints

- Less variety
- Often, more expensive up to $2,000+
- Not as readily available
- May be available through hospital loan, purchase, or giveaway programs
- May need to be ordered through local durable medical equipment (DME) provider
- Third party payers may cover cost with documentation

Selection Factors

- Size of child
- Medical diagnosis or procedures
- Positioning requirements
- Availability and/or affordability
- Family vehicle and occupants
- Family choices
CONVENTIONAL RERAINTS

Conventional Restraints

• Use if possible
• Less expensive
• Readily available
• Easier to use

Conventional Restraints

• Features helpful for children with special healthcare needs:
  – Multiple harness slots and crotch strap positions
  – Accessories, such as preemie inserts, or extra padding
  – Rear-facing weight limits up to 40 pounds
  – Forward facing built-in recline or recline mechanism
  – Forward-facing harnesses up to 65-80 pounds
  – Boosters with weight limits up to 120 pounds and/or adjustability features
• Rear-facing only car safety seat
• Multiple harness slots
• Minimum weight of 4 pounds
• Seat comes with positioning insert for small baby

Infant born prematurely

• Rear-facing only car safety seat
• Does not come with positioning insert
• Rolled receiving blankets used to position infant

Infant born prematurely

• 1 year old with achondroplasia
• In rear-facing only car safety seat
18 month old with Down syndrome in rear-facing car safety seat with higher rear-facing weight limit

Convertible car safety seat with built-in forward-facing recline

- Forward-facing car safety seat with higher weight harness (65 lbs.)
- Towel rolls and soft cervical neck collar for positioning
- Often helpful as interim solution

5 year-old with cerebral palsy and scoliosis
10 year-old with achondroplasia in booster seat with adjustable sides and head support.

6 year-old, approximately 95 lbs. in booster seat with upper weight limit of 120 lbs.

SPECIALIZED OR ADAPTIVE RESTRAINTS

Involve Rehab Therapists in Complex Cases.
Rehabilitation Therapist Role

- Obtain prescription from doctor (prior to appointment)
- Interview family and client
- Assess positioning needs
- Recommend restraint options

Rehabilitation Therapist Role

- Agree upon vendor/supplier with family input
- Write letter of medical necessity
- Vendor receives funding approval and orders child restraint system
- Deliver equipment

Rehabilitation Therapist Role

- Few are trained in car safety seats and need to work with child passenger safety technicians (CPSTs)
- Vendors may be making decisions without input from trained therapist
  - Equipment may be less than ideal
Children who must travel lying down

<table>
<thead>
<tr>
<th>CRD</th>
<th>Size</th>
<th>Harness</th>
<th>Positioning</th>
<th>Comments</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angel Ride</td>
<td>&lt;9 lbs.</td>
<td>&lt;21.5&quot;</td>
<td>3-point harness</td>
<td>Right-side Abdomen (only if medically necessary)</td>
<td>Head toward center $78.50</td>
</tr>
<tr>
<td>Dream Ride</td>
<td>5-22 lbs.</td>
<td>19-26&quot;</td>
<td>3-point harness</td>
<td>Right-side Abdomen (only if medically necessary)</td>
<td>Head toward center $58.50</td>
</tr>
<tr>
<td>Hope</td>
<td>4.5-35 lbs.</td>
<td>Up to 23&quot;</td>
<td>3-point harness</td>
<td>Right-side Abdomen (only if medically necessary)</td>
<td>Head toward center Requires 2 seat belts $250</td>
</tr>
<tr>
<td>Modified E-Z-On Vest</td>
<td>1-12 yrs.</td>
<td>20-100 lbs.</td>
<td>Vest with hip, chest, and shoulder straps and crotch strap</td>
<td>Right-side Abdomen</td>
<td>Must fit lengthwise on bench seat $125</td>
</tr>
</tbody>
</table>
Baby with encephalocele after VP shunt: able to ride in conventional car safety seat.

Children who cannot bend at the hip
**CRD** | **Size:** Add wt. of cast | **Harness** | **Comments**
--- | ---: | --- | ---
Car beds | Varies (<8 lbs. up to 35 lbs.) | 3-point harness; one has restraint bag; | Some can take up to 2 seating positions; Install lengthwise.
|  |  |  | Can order HOPE w/cast cut outs $58.50-$850.
Hippo car seat | 5-35 lbs. RF 1 year and 20-65 lbs. FF | 5-point harness | Shallow seat depth and low sides; Positioning wedge; Install rear or FF facing.
|  |  |  | $500
Modified E-Z-ON vest | 1-12 yrs. old 20-100 lbs | Vest with hip, chest, and shoulder straps and crotch strap | Must fit lengthwise on bench seat.
|  |  |  | $125

Rear-facing baby in Hippo convertible car safety seat that rear faces to 35 lbs.
Forward-facing child in Hippo that forward faces to 65 pounds

Children who cannot use traditional harnesses
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<tr>
<td>Hope car bed</td>
<td>4.5-35 lbs. Up to 29&quot;</td>
<td>Restraint bag</td>
<td>Back Abdomen Right-side</td>
<td>Requires 2 seat belts $850</td>
</tr>
<tr>
<td>Jefferson</td>
<td>7.5-40 lbs.</td>
<td>Yoke harness</td>
<td>Semi-upright Rear-facing angle up to 50 degrees</td>
<td>Rear-facing only $850</td>
</tr>
</tbody>
</table>

2 weeks old; born 4 weeks prematurely; omphalocele and trisomy 3; positioned in Hope car bed restraint bag

9 months, 18 pounds
Source: Children’s Hospital of the King’s Daughters Norfolk, VA
Children who require additional postural support

<table>
<thead>
<tr>
<th>CRD</th>
<th>Size</th>
<th>Description</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large medical CSS</td>
<td>Varies: 20-150 lbs.</td>
<td>Look similar to FF CSS  Require some type of tethering system</td>
<td>Head support pads, abductor wedge, seat extenders, lateral supports, scoliosis harness, incontinence covers $597-$2,000</td>
</tr>
<tr>
<td>Adaptive boosters</td>
<td>Varies: 30-175 lbs.</td>
<td>Must use shoulder/lap belt across child for restraint Some require LATCH</td>
<td>Postural harness Head support pads Abductor, seat extender, lateral supports, footrests, trays $595-$2,000</td>
</tr>
</tbody>
</table>

Hazel

- 18-y.o. with autism, blindness, and sensory processing disorder with communication deficits and lack of safety awareness
  - 60 pounds
  - 55 inches
- Currently in lap/shoulder belt
- Mom concerned that Hazel does not sit still and will put shoulder belt behind back
Hazel

- Hazel nearing height or weight limits for many large medical seats
- Selected Churchill booster seat:
  - Provided upright sitting position
  - Includes adjustable vest that provided compression helpful in calming Hazel
  - Booster cushion with no sides facilitated ease in transferring

Rose

- 15-y.o. with spastic cerebral palsy & scoliosis
  - 90 pounds
  - 53 inches
- Riding in adaptive booster seat
- Booster did not provide lateral support required to hold her in upright sitting position

Rose

- Selected Columbia 2500 large medical seat
Rose

- Rigid sides and block style support pads provided more support for scoliotic curvature
- Allowed for proper harness adjustment
- Rigid pommel helped to position pelvis

Nancy & Joan

- 10-y.o. and 12-y.o sisters with trichothiodystrophy
  - 44 pounds, 48 inches
  - 49 pounds, 48 inches
  - Riding in car safety seats with harnesses they had outgrown
  - Dad concerned because they fell over in car, due to lack of support offered by car safety seats

Nancy & Joan

- Selected Monza adaptive boosters:
  - Both girls fit well in seats
  - Had long and lean body type
  - Both adaptive boosters fit well in small back seat of family vehicle
Children with severe behavioral issues

Child with autism in booster seat

Child with Down syndrome in booster seat
“Desperate” Measures

<table>
<thead>
<tr>
<th>CRD with Anti-Escapism Features</th>
<th>Size</th>
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<tr>
<td>Large medical seat with “anti-escapism” accessories</td>
<td>Varies: 20-130 lbs.</td>
<td>Use with specific CSS, not interchangeable. Additional charge for accessory.</td>
</tr>
<tr>
<td>E-Z-ON vest with floor mount tether</td>
<td>At least 2-y.o., 20-168 lbs.</td>
<td>Bench seat or captain’s chair. Heavy duty hardware anchored to vehicle floor. Tether wraps around vehicle seat and attaches at shoulder and hip D-rings.</td>
</tr>
</tbody>
</table>

Lucy

- 5-y.o. with autism
  - 36 pounds
  - 40 inches

- Riding in a child safety seat with harness to higher weights

- Pushes chest clip down, wiggles out of harness
Lucy

- Selected Roosevelt large medical seat with "anti-escapism" features

Lucy

- Chest clip guard

- Buckle cover

Mia

- 7-y.o. old with autism
- Riding in 5-point harness
- Pushes chest clip down
- Mom had made homemade chest clip cover
Mia

- Chose E-Z-On vest with rear zipper and floor mount tether
- Eliminates use of seat belt
- All closures/hooks behind Mia
- Ensured Mia will stay buckled in vehicle

RESOURCES

Pennsylvania

- Loan programs for conventional car safety seats: search www.pakidstravelsafe.org
- Hope car beds and Hippo car safety seats in ~ 35 hospitals
- Hope car beds in a number of rural pediatric practices identified through the medical home project
- Call 1-800-CAR-BELT for details
National

- National Center for the Safe Transportation of Children with Special Healthcare Needs
- 1.800.755.0912
- Safe Travel for All Children course
- www.preventinjury.org

National

- [http://cert.safekids.org](http://cert.safekids.org)
  - Search for child passenger safety technicians with special needs training
- www.healthychildren.org

- AAP policy statements
  - Premature and low birth weight infants reaffirmed in 2013
  - Special needs being revised

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<th>Product</th>
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<th>Website</th>
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<tbody>
<tr>
<td>Angle Ride</td>
<td>Angel Guard</td>
<td><a href="http://www.angel-guard.com">www.angel-guard.com</a></td>
</tr>
<tr>
<td>Dream Ride SE</td>
<td>Dorel Juvenile Group</td>
<td><a href="http://www.djusa.com">www.djusa.com</a></td>
</tr>
<tr>
<td>Hope</td>
<td>Merritt Manufacturing</td>
<td><a href="http://www.eztether.com">www.eztether.com</a></td>
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<tr>
<td>Hippo Convertible Car Seat</td>
<td>Britax Distributed by Snug Seat</td>
<td><a href="http://www.snugseat.com">www.snugseat.com</a></td>
</tr>
<tr>
<td>Modified E-Z-ON Vest</td>
<td>E-Z-ON Products</td>
<td><a href="http://www.ezonpro.com">www.ezonpro.com</a></td>
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<tr>
<td>Hope</td>
<td>Refer to Car Beds table</td>
<td>Refer to Car Beds table</td>
</tr>
<tr>
<td>Jefferson Rear-Facing Car Seat</td>
<td>Merritt Manufacturing</td>
<td><a href="http://www.eztether.com">www.eztether.com</a></td>
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### LARGE MEDICAL SEATS

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<tr>
<th>Product</th>
<th>Manufacturer</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrie Car Seats: Preschool, elementary, junior, small adult</td>
<td>Tumble Forms</td>
<td><a href="http://www.pattersonmedical.com">www.pattersonmedical.com</a></td>
</tr>
<tr>
<td>Columbia: 2000, 2500, 2400 Spirit</td>
<td>Columbia Medical</td>
<td><a href="http://www.columbiamedical.com">www.columbiamedical.com</a></td>
</tr>
<tr>
<td>Recaro ProSPORT Reha</td>
<td>Recaro/Thomashilfen</td>
<td><a href="http://www.thomashilfen.us">www.thomashilfen.us</a></td>
</tr>
<tr>
<td>Roosevelt</td>
<td>Merritt Manufacturing</td>
<td><a href="http://www.eztether.com">www.eztether.com</a></td>
</tr>
<tr>
<td>Special Tomato: Small and large</td>
<td>Bergeron</td>
<td><a href="http://www.specialtomato.com">www.specialtomato.com</a></td>
</tr>
<tr>
<td>Traveller Plus EL</td>
<td>Britax/Snug Seat</td>
<td><a href="http://www.snugseat.com">www.snugseat.com</a></td>
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<th>Product</th>
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<tbody>
<tr>
<td>Carrot 3</td>
<td>Convaid</td>
<td><a href="http://www.convaid.com">www.convaid.com</a></td>
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<tr>
<td>Churchill</td>
<td>Merritt Manufacturing</td>
<td><a href="http://www.eztether.com">www.eztether.com</a></td>
</tr>
<tr>
<td>Monza</td>
<td>Recaro/Thomashilfen</td>
<td><a href="http://www.thomashilfen.us">www.thomashilfen.us</a></td>
</tr>
<tr>
<td>Pilot</td>
<td>Snug Seat</td>
<td><a href="http://www.snugseat.com">www.snugseat.com</a></td>
</tr>
<tr>
<td>Recaro Start 2.0 Plus</td>
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### CRD WITH “ANTI-ESCAPISM” FEATURES

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<tr>
<th>Product</th>
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<tbody>
<tr>
<td>Specific Large Medical CSS</td>
<td>Refer to Large Medical CSS table</td>
<td>Refer to Large Medical CSS table</td>
</tr>
<tr>
<td>E-Z-ON Vest</td>
<td>E-Z-ON Products</td>
<td><a href="http://www.ezonpro.com">www.ezonpro.com</a></td>
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