

# Safe Transportation of Children with Special Health Care Needs:

Do you know what you need to know?



# Introduction

- Marilyn Bull, MD, FAAP
- Joseph O'Neil, MD, MPH, FAAP
- Anthony McGovern, MS, OTR



# Objectives

- **Participants will learn the structured approach to addressing transportation practices for children with special health care needs.**
- **Participants will become familiar with common restraint resources utilized for children with special health care needs.**
- **Participants will learn how to identify local resources for children who have special transportation needs.**



# Disclosure statement

- **We have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider of commercial services discussed in this CEU activity.**
- **We do not intend to discuss an unapproved/investigative use of a commercial product/device in our presentation.**
- **Images used in this presentation are for education only and do not imply an endorsement.**



# Definition

**“Children with special health care needs are those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who require health care and services of a type or amount beyond that required by children generally.”**

**Merle McPherson, MD**  
***Pediatrics, July 1998***



# **National Survey of Children's Health – Information on Children with Special Health Care Needs (CSHCN)**

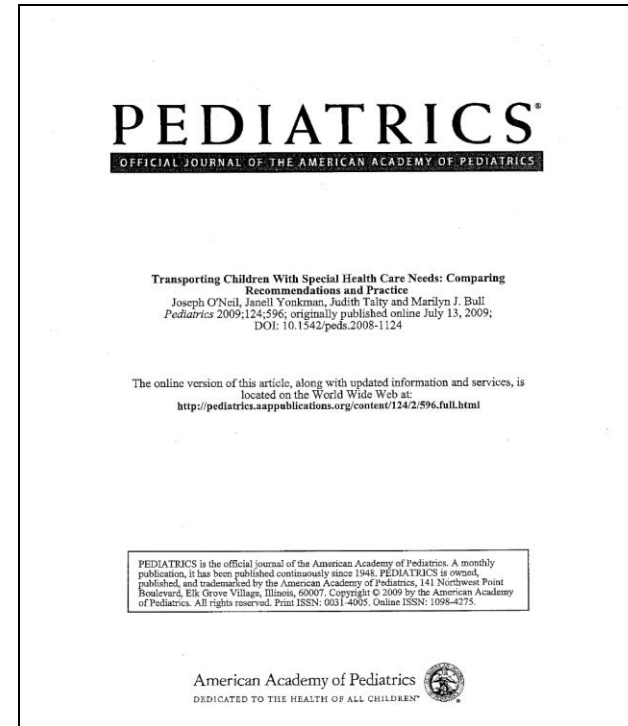
- In 2017-2018 – approximately 13.6 million (18.5%) children in the US, 0-17 years had a special health care need**
- One in four households (24.8%) in the US had one or more CSHCN**
- One in four CSHCN (26.6%) had functional limitations**
- One in five CSHCN (19.9%) were consistently and/or significantly impacted by their health condition**

National Survey of Children's Health, 2017-2018 [www.childhealthdata.org](http://www.childhealthdata.org)



# Issues Affecting Transportation of Children with Special Health Care Needs (CSHCN)

- **Lack of awareness**
- **Lack of resources**
- **Limited research and data**



**Article on transporting children  
with special health care needs**



# Issues Affecting Transportation of Children with Special Health Care Needs (CSHCN)

- **Funding**
- **FMVSS 213**
- **State law exemptions for CSHCN**
- **School Bus Transportation**



Source: Google Images





# The Role of the Child Passenger Safety Technician

- Access appropriate resources
- Provide families with current information
- Develop community-based partnerships
- Solve problems
- Assist families with proper use and installation
- Know your limits



# Working with Families

- **Person-first terminology**
- **Recognize family is the constant**
- **Share complete and unbiased information**
- **Be aware of the impact of change**



Occupational therapist trialing large medical seat with patient and family



# Working with Families

- **Be open-minded and non-judgmental**
- **Be prepared to repeat information**
- **Consider all people who are significant to child's care**
- **Respect choices**



# Team Approach

- Child
- Parents
- Caregivers
- Family members
- CPSTs
- Nurses
- Physicians
- Therapists
- And many more!



Nurse, mother, occupational therapist, physician, and child



# Medical Conditions



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health

# Conditions with Challenges for the CPST

- **Airway Obstruction**
- **Orthopedic Procedures and Conditions**
- **Developmental and Behavioral Challenges**
- **Neuromuscular Problems**
- **Gastrointestinal Conditions**



# Restraint Options for Children with Special Health Care Needs



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health

# Restraints Overview

- **Considerations for Restraint Selection**
- **Basic Guidelines**
- **Conventional Restraints**
- **Adaptive / Specialized Restraints**





# Considerations for Restraint Selection

- **Child's size, age, developmental and behavioral characteristics**
- **Medical condition or procedures**
- **Optimal safety and positioning**



# Considerations for Restraint Selection

- **Recommended position during travel:**
  - **Does the child need to travel flat? Prone? Supine?**
  - **Does the child need to travel on his/her side?**
  - **Does the child have breathing difficulty when sitting?**
  - **Can the child bend at the hips?**
  - **Can the child sit unsupported?**



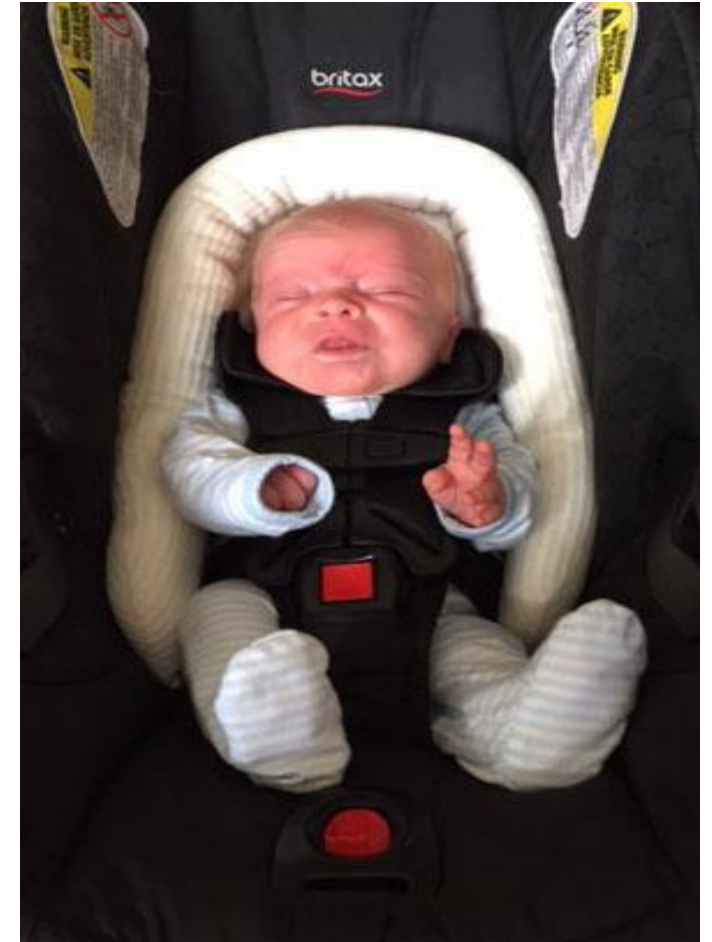
# Considerations for Restraint Selection

- **Availability and/or affordability of restraints**
- **Vehicle(s)**
- **Other occupants**
- **Family choices**



# Basic Guidelines

- **Avoid use of non-approved products**
- **Never modify structure unless crash tested with modification to meet FMVSS-213**
- **Seemingly minor modifications can compromise performance of the restraint**



**Infant using non-approved support pad**



# Basic Guidelines

- **Minimize travel**
- **Make frequent stops**
- **Travel with medical care plan**
- **For long trips, have list of health care providers and durable medical equipment providers, if applicable**
- **Position child in back seat with adult supervision**



**Adult in back seat  
observing child**



# Basic Guidelines

- **Securing medical equipment:**
  - **Place on floor of vehicle wedged with pillows, foam, or blankets**
  - **Secure with adjacent, unoccupied seat belts**
  - **Check vehicle owner's manual about placing items under vehicle seat**
- **Have enough power for equipment and oxygen supply for double the length of the trip**



**Apnea monitor being wedged under vehicle seat with towel roll**



---

# Conventional Restraints



# Conventional Restraints

- **Use conventional restraints whenever possible**
  - **Easier to find**
  - **Easier to use**
  - **Less expensive**
- **Rear-facing as long as possible**
- **Use restraint with higher-weight harness as long as possible**





# Conventional Restraints

**Features helpful for children with special health care needs:**

- **Multiple harness slots and buckle strap positions**
- **Accessories from manufacturer (newborn inserts, extra padding, etc.)**
- **Rear-facing weight ranges from 3-4 pounds up to 40-50 pounds**



# Conventional Restraints

- **Forward-facing with multiple tilt settings**
- **Forward-facing harnesses up to 65/85 pounds**
- **Boosters with weight limits up to 120 pounds and/or adjustability features**
- **Always read and follow instructions for restraint and manual for vehicle**



# AAP Car Seats: Product Listing for 2021

- American Academy of Pediatrics Car Seat Listing
- Search engine: AAP car seat product list 2021
- Toggles between English and Spanish
- Rear-Facing Only, Convertible, All-in-One, Combination, Booster
  - Price Ranges
  - Rear-Facing Weight Limits and Height Limits
  - Forward-Facing Weight Limits, Height Limits, and Age Limits
  - Booster Weight Limits, Height Limits, and Age Limits
  - Recline Options in Forward-Facing
  - Travel Vests
- [www.healthychildren.org/English/safety-prevention/on-the-go/pages/Car-Safety-Seats-Product-Listing.aspx](http://www.healthychildren.org/English/safety-prevention/on-the-go/pages/Car-Safety-Seats-Product-Listing.aspx)



# Conventional Restraints

***NOTE: The restraints presented in these slides may not be all inclusive and do not imply product endorsement.***



# Rear-Facing Only

- More supportive
- Installed with recline
- Extra padding and inserts from manufacturer



Infant born preterm positioned in car seat designed with positioning inserts



Infant born prematurely positioned in car seat with blanket rolls



# Rear-Facing Only

Many different models:

- **Chicco KeyFit**
- **Cosco Light 'n Comfy**
- **Graco SnugRide**
- **Maxi Cosi Mico**
- **Safety 1st Onboard 35**



**Safety 1st Onboard 35**

**Source: Safety 1st**



# Rear-Facing Only

- The Evenflo LiteMax and Evenflo SafeMax infant car seats have updated weight and height requirements, noted below, to allow their use with small occupants:
  - Weight: 3 – 35 pounds
  - Height: 15.75 – 32 inches
- Approval of your child’s healthcare provider
- This update is a retroactive change to existing Evenflo LiteMax and SafeMax infant car seats.
- Date of manufacture 1/1/2018 or newer – infant insert is **OPTIONAL** for child fit
- Date of manufacture 12/31/2017 or older – infant insert is **REQUIRED** for infants who weigh between 3 – 4 lbs and **OPTIONAL** for infants who weigh over 4 lbs.



Source: Evenflo



# Forward-Facing Harness to Higher Weight

- **Children who have outgrown convertible or combination seats and cannot sit unassisted or who may have behavior challenges**
- **Can potentially use towel rolls and/or soft cervical neck collar for positioning**
- **These can be used as interim solution too**



**Five year-old with cerebral palsy and scoliosis**





# Forward-Facing Harness to Higher Weight

Many different models:

- Britax Boulevard
- Cybex Sirona
- Diono Radian
- Evenflo Titan 65
- Safety 1st Grow and Go



**Britax Boulevard**

Source: Britax



# Forward-Facing Harness to Higher Weight

## Maxi-Cosi Pria 85 Max

- 22–85 pounds
- 29–52 inches



Source: Maxi Cosi



# Booster Seats



**Ten year old with achondroplasia  
in booster and head support  
seat with adjustable sides**



**Six year old, who weighed  
about 100 pounds, in booster seat**



# Vests and Harnesses



**Five year old with autism in  
Ride Safer Vest**



**86Y-Harness  
with halo**



**86Y-Harness from  
EZ-ON  
Source: EZ-ON**



# Adaptive / Specialized Restraints



# Adaptive / Specialized Restraints

- **Designed for CSHCN who:**
  - **Have outgrown conventional car seat and still require a five-point harness**
  - **Require devices or accessories to assist with positioning during transportation**
  - **Demonstrate severe behavioral challenges**
- **Usually ordered through local durable medical equipment (DME) provider**
- **Third party payers may cover cost with documentation**



# Adaptive / Specialized Restraints

***NOTE: The restraints presented in these slides may not be all inclusive and do not imply product endorsement.***



# Types of Adaptive / Specialized Restraints

- **Car Beds**
- **Restraints for Casts**
- **Jefferson Rear-Facing Car Seat**
- **Large Medical Seats**
- **Adaptive Booster Seats**
- **Adaptive Vests**





# Car Beds



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health

# Car Beds

- For infants who must lie down
- Preterm/premature birth, low birthweight, apnea, Pierre Robin Sequence, osteogenesis imperfecta



**Angel Ride**



**Dream Ride**



**Hope Car Bed**



# Angel Ride Car Bed

- **Less than 9 pounds**
- **Less than 21.5 inches**
- **Supine**
- **Right side or prone (only with MD order)**



# Recall Information: Angel Ride

- **Merritt Manufacturing has recalled certain Angel Guard Angel Ride car beds. The restraint harness may not have been properly sewn where the buckle is attached**
- **Production Dates: August 8, 2019 - October 24, 2019**
- **In the event of a crash, the harness may not restrain the bed occupant, increasing their risk of injury**
- **Merritt will notify owners, and will provide replacement harnesses, free of charge. The recall began January 15, 2020. Owners may contact Merritt customer service at 317-409-0146 to order free replacement harness**



# Dream Ride

- **5-20 pounds**
- **26 inches or less**
- **Supine**
- **Prone (only with MD order)**



# Hope Car Bed

- 4.5-35 pounds
- Restraint bags
  - 4.5-10 pounds; 10-35 pounds
    - Supine
    - Prone or right side-lying (only with MD order)
- 3-point harness
  - 10-35 pounds
    - Supine
    - Prone (only with MD order)



Source: Merritt Car Seat



# Car Seat Tolerance Screening

- **Observe infants born < 37 weeks gestation in car seats for apnea, bradycardia, oxygen desaturation**
- **Observe a minimum of 90-120 minutes or duration of travel (whichever is longest)**
- **Shorter studies may miss significant events**
- **American Academy of Pediatrics (AAP) Clinical Report, May 2009, reaffirmed 2019**



# Car Seat Tolerance Screening

- **Significant documented events warrant interventions, such as: additional medical assessment, supplemental oxygen, continued hospitalization, or use of car bed**
- **If car bed selected, baby should be re-tested in car bed prior to discharge**
- **Follow-up testing needed before transition to car seat**



**AAP Clinical Report, May 2009, reaffirmed 2019**





# Transporting Low Birth Weight and Preterm Infants Training

- **Currently LBW curriculum is under revision**
- **Designed for hospital staff who are responsible for evaluating preterm infants in car seats or CPSTs interested in learning more about issues related to the transport of preterm infants.**
  - **Selection**
  - **Positioning**
  - **Installation Considerations**
- **Approximately 4-hour training with lecture and hands-on exercises**
- **Information on training available through the National Center for the Safe Transportation of Children with Special Health Care Needs**



# Restraints for Casts



# Casts

- Immobilize a part of the body to stabilize limbs and trunk after trauma or surgery
- Lower Extremities - Fractures, developmental dysplasia of the hip (DDH), muscle or tendon lengthening procedures
- Upper Extremities - Fractures, dislocations, tendon or ligament lengthening procedures, and nerve issues (i.e., brachial plexus injuries) are all common reasons
- Body casts, hip spica casts, long leg casts, shoulder spica casts, and other orthopedic devices can present challenges



# Casts

- **If a child can sit up - a conventional car seat could potentially work**
- **If a child cannot sit up during transportation, a specialized restraint may be necessary:**
  - **Never transport on a reclined vehicle seat**
  - **Some children may require professional transport**



# Hope Car Bed

- **Up to 29” long (longer if legs are permitted to bend)**
- **Contact Merritt Manufacturing regarding potential cutting out of EPS foam and/or car bed shell to accommodate hip spica casts**



Source: Merritt Car Seat



# Wallenberg

- **Convertible seat designed for hip and arm casts**
- **Rear-facing 5-40 pounds**
- **Forward-facing 25-80 pounds and 60 inches or less**
- **Optional hammock**
- **Lighter, narrower version under development – due out 2021**



Source: Merritt Car Seat



# Quokka

- **Convertible seat for children who have difficulty sitting in conventional seat**
- **Rear-facing: 5-39.6 pounds and less than 41 inches**
- **Forward-facing: 22.2-39.6 pounds and less than 41 inches**
- **Spica cast wedge positioning system**



Source: ETAC/Convaid/R82



# Spirit Spica

- **25-130 pounds**
- **Less than 66 inches**
- **Optional wedge cushions and seat depth extender**



Source: [inspiredbydrive.com](http://inspiredbydrive.com)





# Wallaroo

- **22.2-106 pounds**
- **Up to 56 inches**
- **Hip Spica Kit**
  - **Cushion, Positioning wedge, 10-inch buckle strap**



Source: ETAC/Convaid/R82



Spica insert cushion  
907023-60



Spica Positioning Wedge  
907024-60



Spica Cushion Crotch Belt 10"  
907025-60



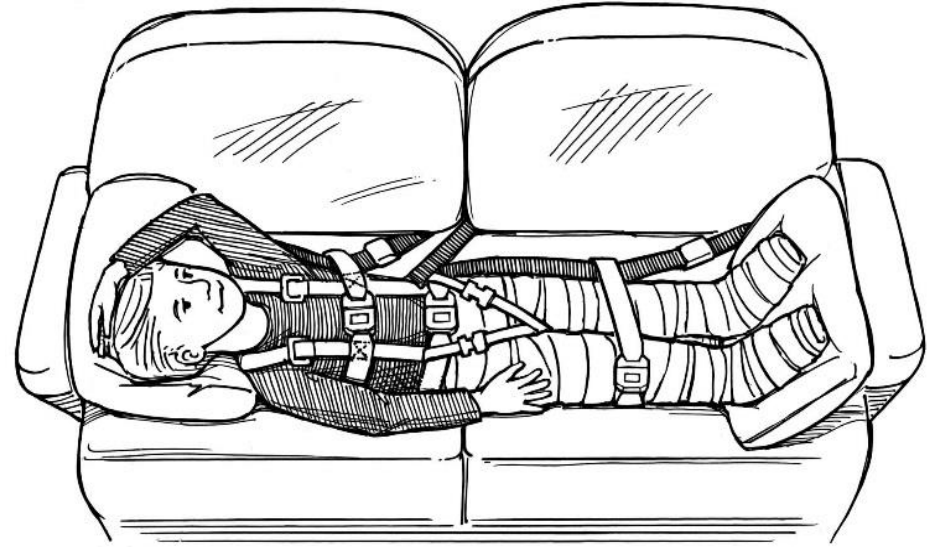
# Hippo

- **Convertible seat for children with hip/lower body casts**
- **Utilizes optional wedge system to accommodate multiple cast configurations**
  - **Discontinued in 2015 and no longer available**
    - **May still be around with expiration in 2021**



# Lay Down EZ-ON Vest

- One year and older
- 22-106 pounds
- Body casts, hip spica casts, braces
- Supine or side-lying on bench seats



# Jefferson Rear-Facing Only Car Seat



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health

# Jefferson Rear-Facing Only Car Seat

- Designed for children with an omphalocele
- Rear-Facing Only
- 7.5-40 pounds
- 19-37 inches



Source: Merritt Car Seat



# Large Medical Seats



# Large Medical Seats

- **Children who have outgrown conventional restraints**
- **Children who may need increased and/or specialized positioning support**
- **Forward-facing restraints**
- **Five-point harness similar to conventional restraint**
- **Mandatory tethering systems**



# Large Medical Seats - Accessories

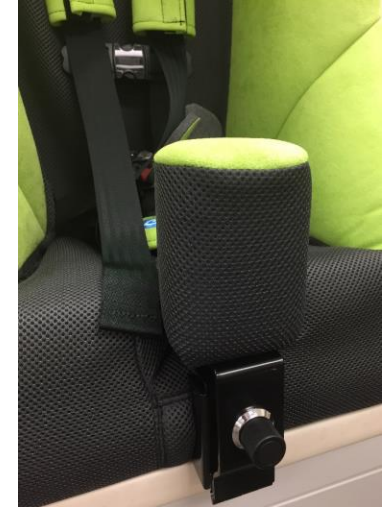
- Provide child with a more customized fit
- Variety and types differ with manufacturer
- Not interchangeable from one restraint to another
- Check with manufacturer for ordering instructions – online ordering forms





# Large Medical Seats - Accessories

- **Seat extenders**
- **Abductors**
- **Head support systems**
- **Lateral Supports**



# Roosevelt

- 35-115 pounds
- 33.5-62 inches
- Scoliosis harness kit
- Extra long harness kit
- Anti-escape options



Seven years old, 48 pounds, with diagnoses of Autism & CP



# Roosevelt



- **Chest Clip Guard**
  - Requires key to lock/unlock
- **EZ Guard Buckle Cover**
- **A-lok Cover (not pictured)**



# Wallaroo

- 22.2-106 pounds
- Up to 56 inches
- 30-degree tilt wedge
- Support tray
- Spica kit



# Inspired by Drive Products



**IPS Car Seat**



**Spirit Car Seat**



**Spirit Spica**



**Spirit Plus**

Source: [inspiredbydrive.com](http://inspiredbydrive.com)



# IPS Car Seat

- 20-102 pounds
- Up to 60 inches tall
- Consider ability of caregiver to transfer since child must be lifted up and over sides
- Speedway Gray - Only Color Now



# Spirit / Spirit Plus

- 25-130 pounds
- Less than 66 inches
- Adjustable swing-away lateral and hip supports
- Retainer clip guard and buckle guards



Swing away trunk and hip support

# Adaptive Booster Seats



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health



# Adaptive Booster Seats

- **Require lap-and-shoulder belt over child as occupant restraint**
- **Harnesses or vests used for positioning, not an occupant restraint**
- **Standard or optional features and accessories to aid positioning**
- **Some require use of lower anchors and tether**
- **Some recommend use of lower anchors and/or tether**



# Carrot 3 Child Restraint

- 30-108 pounds  
37-60 inches
- “LATCH Equipped”
- Lower anchors attached to restraint and tether strap must be added to order form
- Recline and tilt options
- Requires use of lap-and-shoulder belt
- Footrest, tray



Etac/Convoid/R82



# Recaro Monza Nova 2 Reha

- 33.1-110.2 pounds, 37-59 inches
- Requires use of lap-and-shoulder belt
- 5-point positioning harness
- Swivel base, table/tray, footrest
- Integrated speakers in headrest for phone/tablet



Source: Thomashilfen



# Pilot

- 40-120 pounds
- 38-63 inches
- Width adjusting seat back
- Requires use of lap-and-shoulder belt
- Positioning vest
  - Discontinued in Fall 2020



Etac/Convoid/R82



# Churchill

- 65-175 pounds
- 48-72 inches
- Requires use of lap-and-shoulder belt
- Lower anchors and tether required for installation
- Anti-escape 5-point harness option (same as Roosevelt)



Merritt Manufacturing



# Carrot 3 Booster Seat

- 79-165 pounds
- 55-69 inches
- “LATCH Equipped”
- Lower anchors attached to restraint and tether strap must be added to order
- Utilizes 4-point positioning “H-harness”
- Requires use of lap-and-shoulder belt



Source: Etac/Convoid/R82



# Adaptive Vests



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health

# EZ-ON Vest

- 31-168 pounds
- 2 years or older
- May be helpful with children with behavioral challenges
- Alternative for children who have outgrown large medical seats or for vehicles with limited space
- Manufacturer recommends replacement after six years
- Standard push button in front or zipper in back



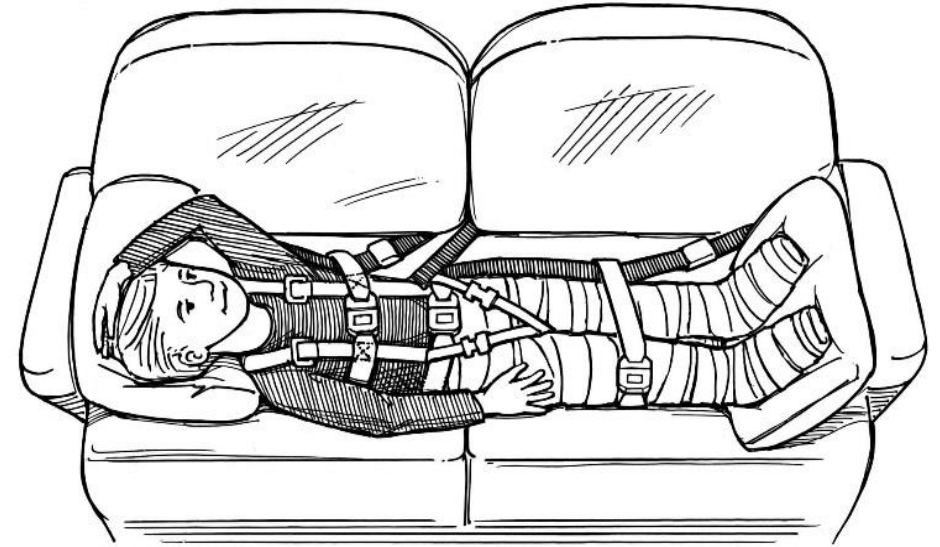
EZ-On Products





# Lay Down EZ-ON Vest

- One year and older
- 22-106 pounds
- Body casts, hip spica casts, braces
- Supine or side-lying on bench seats



EZ-On Products



# Chamberlain

- **Positioning vest only**
- **81- 225 pounds**
- **Top of child's ears must not be above top of vehicle seat back**
- **Requires use of lap-and-shoulder belt**
- **Leg straps for pelvic positioning**
- **Lower anchors and tether required for installation**

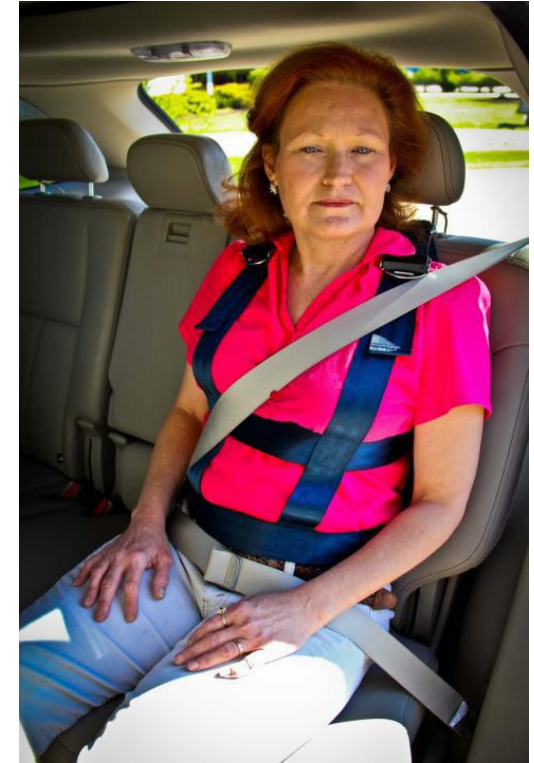


Merritt Manufacturing



# Moore Support Vest

- Positioning vest only
- Lap belt or lap-and-shoulder belt required
- Tether required
- 65 pounds and up
- Sizing according to waist size 30-44 inches



Source: Besi



# Wheelchairs



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health

# Background

- **In general, wheelchairs (WC) not designed for transportation purposes in vehicles**
- **If possible, transfer occupant to appropriate restraint**



# Background

**In some cases,  
children are transported  
in wheelchairs**

- **Transfer difficulties**
- **No restraint fits**
- **Independent mobility**



Source: Google



# Occupant Protection in Wheelchairs

- **Secure the wheelchair independent of the rider**
- **Secure/protect the rider**
  - **Face rider forward**
  - **WC tilted 30 degrees or less**
  - **Upper and lower torso (lap) restraint belts required**
  - **Lap belt angles between 45-75 degrees to vertical**

**Source: University of Michigan Transportation Research Institute (UMTRI)**



# Voluntary Standards

- **There is no government regulation to address the safety needs of using a wheelchair as a transportation device. In response to lack of legislation/standards the Society of Automotive Engineers and Rehabilitation and Engineering Assistive Technology Society of North America (RESNA)**
- **WC18-Compliant**
  - **Wheelchair Tie-Down and Occupant Restraint Systems (WTORS)**
- **WC19-Compliant**
  - **Wheelchairs (frames and seating) used as seats in motor vehicles**
- **WC 20-Compliant**
  - **Seating systems**





# WC19-Compliant

- **Have clearly marked securement points on the frame for tie down attachment**
- **Must be able to hook using one hand in 10 seconds or less**



# Rehabilitation Therapist



**INDIANA UNIVERSITY**  
SCHOOL OF MEDICINE



**Riley Children's Health**  
Indiana University Health

# Rehabilitation Therapist

- **Includes occupational therapists and physical therapists**
- **Assess a child's physical capabilities and determine ways to improve a child's interaction with their environment**
- **Often work with children who have complex positioning needs**
- **Individualized positioning guidelines if questions arise regarding how to position a child in a car seat**
- **Most rehab therapists are not CPSTs but important to involve them when working with children with complex positioning needs**



# Rehabilitation Therapist

- **Patient and family interview**
- **Positioning assessment and intervention**
- **Recommendations**
- **Order equipment – DME provider – third party payer**
- **Deliver equipment**



# What resources are available to a CPST?



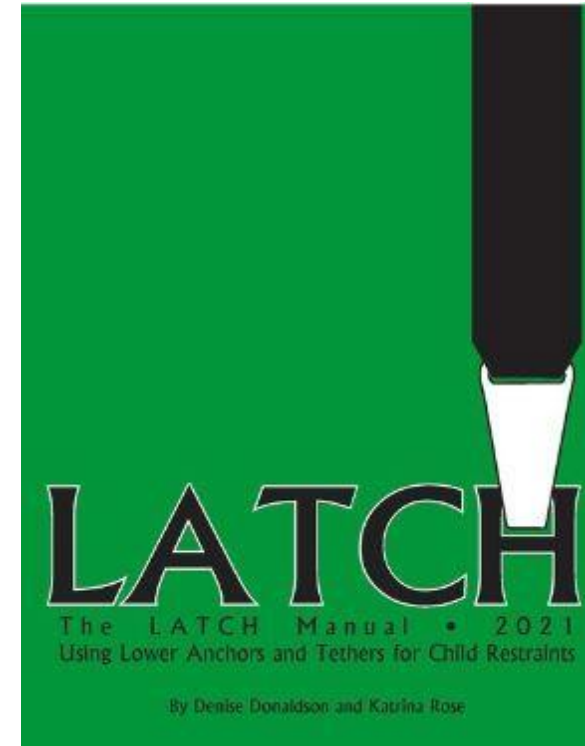
# Next Steps

- **Identify child passenger safety services in your facility and in the community**
- **If you work in a hospital or rehab environment - Review your discharge policies and protocols**
- **Identify additional individuals in your facility to attend the NHTSA CPST training course**
- **Identify CPSTs who have taken or are interested in taking the *Safe Travel for All Children* training course**



# Resources

- **LATCH Manual**
  - **Safe Ride News**
  - [www.saferidenews.com](http://www.saferidenews.com)
- **Adaptive / Specialized Restraint information by manufacturer**



# Become a Tech/Find a Tech/Find a Course

NATIONAL CHILD PASSENGER SAFETY CERTIFICATION  
A Program of Safe Kids Worldwide

Who We Are | Newsletter | Policies and Procedures Manual | Contact Us | 1-877-366-8154

GET A CAR SEAT CHECKED | FIND A TECH | FIND A COURSE | LOG IN

BECOME A TECH | I'M A TECH | COURSE ADMINISTRATION | ORGANIZATION MANAGEMENT | RESOURCES - FAQs

I'M A TECH | BECOME A TECH | FIND A TECH | THE ULTIMATE CAR SEAT GUIDE

ABOUT CPS CERTIFICATION

Have you heard about events where folks get one-on-one personalized instruction on how to properly use their child's car seat? Join the team of over 39,000 nationally certified Child Passenger Safety Technicians (CPST) and be that community advocate or resource in your community! As a CPS technician, you will put your knowledge to work through a variety of activities, including community presentations and/or child safety seat checks where parents and caregivers receive education and hands-on assistance with the proper use of child restraint systems and seat belts. A majority of parents still misuse their child restraints and need help to get it right.

BUBBLE WRAP OR A CPS TECH? GO WITH THE TECH!

Bubble Wrap: Having Trouble Installing Your Car Seat...

- [cert.safekids.org](https://cert.safekids.org)
- Information about becoming a certified child passenger safety technician and finding technicians in your area
- Check 'Special Needs' in Extra Training to find CPSTs that have taken the Safe Travel for All Children training



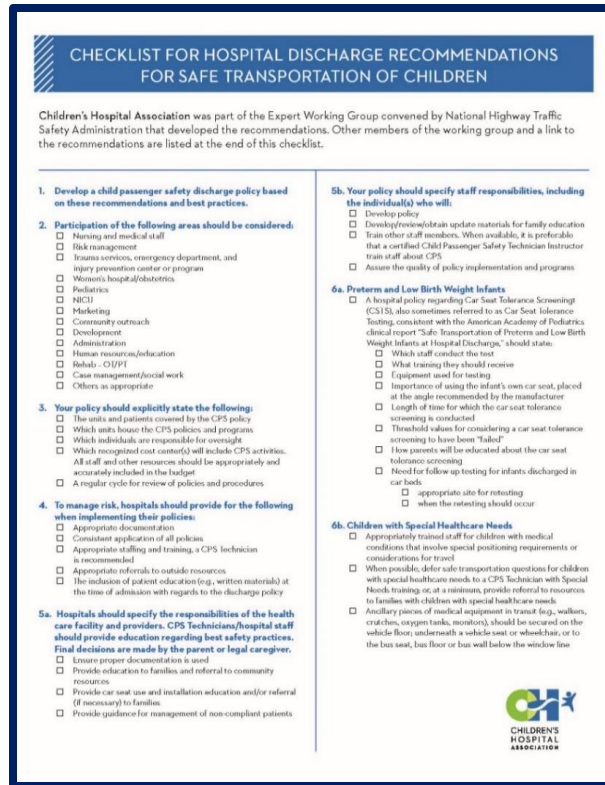


# Special Needs Transport In-Service for Hospital Personnel



- Designed to increase awareness among medical professionals regarding transportation of CSHCN
- Can be taught by any CPST
- Approximately 1 hour
- [www.safekids.org/safe-travel-inservice](http://www.safekids.org/safe-travel-inservice)

# Hospital Discharge Recommendations



Discharge checklist from  
Children's Hospital Association

- Comprehensive hospital discharge policy and protocol necessary to ensure safe travel
- Recommendations from Expert Working Group including NHTSA, AAP and NSC

- [www.cpsboard.org/wp-content/uploads/2020/04/Checklist-for-Hospital-Discharge-Recommendations-for-Safe-Transportation-of-Children.pdf](http://www.cpsboard.org/wp-content/uploads/2020/04/Checklist-for-Hospital-Discharge-Recommendations-for-Safe-Transportation-of-Children.pdf)



# Wheelchairs

- Ride Safe brochure
  - Available online
  - Spanish and French versions available
- Information for families
  - [www.travelsafer.org](http://www.travelsafer.org)

## Ride Safe

Information to help you travel more safely in motor vehicles while seated in your wheelchair.

Change style: standard large text simple

### Vehicle Safety for People Who Use Wheelchairs

When traveling in a motor vehicle, it is generally safest for wheelchair users to transfer to a vehicle seat and use the vehicle seatbelt system or a child safety seat that complies with federal safety standards. The wheelchair should then be stored and secured in the vehicle.



If transferring is not feasible, it is very important to secure the wheelchair to the vehicle facing forward and to use crash-tested seatbelts for the wheelchair-seated rider.



This website presents information on selecting wheelchairs and tiedown equipment, securing wheelchairs in vans and buses, and properly restraining the rider. Follow the links at the left or click [here](#) to see step-by-step procedures.



The information in this website is also available as a [brochure \(PDF\)](#) in Adobe Acrobat format (PDF) or as a hard-copy brochure.

Brochures are available from:  
University of Michigan Transportation Research Institute  
Email: [umtridocs@umich.edu](mailto:umtridocs@umich.edu)  
Phone: 734-764-2171  
Fax: 734-936-1081

Development of the brochure and website was supported by:

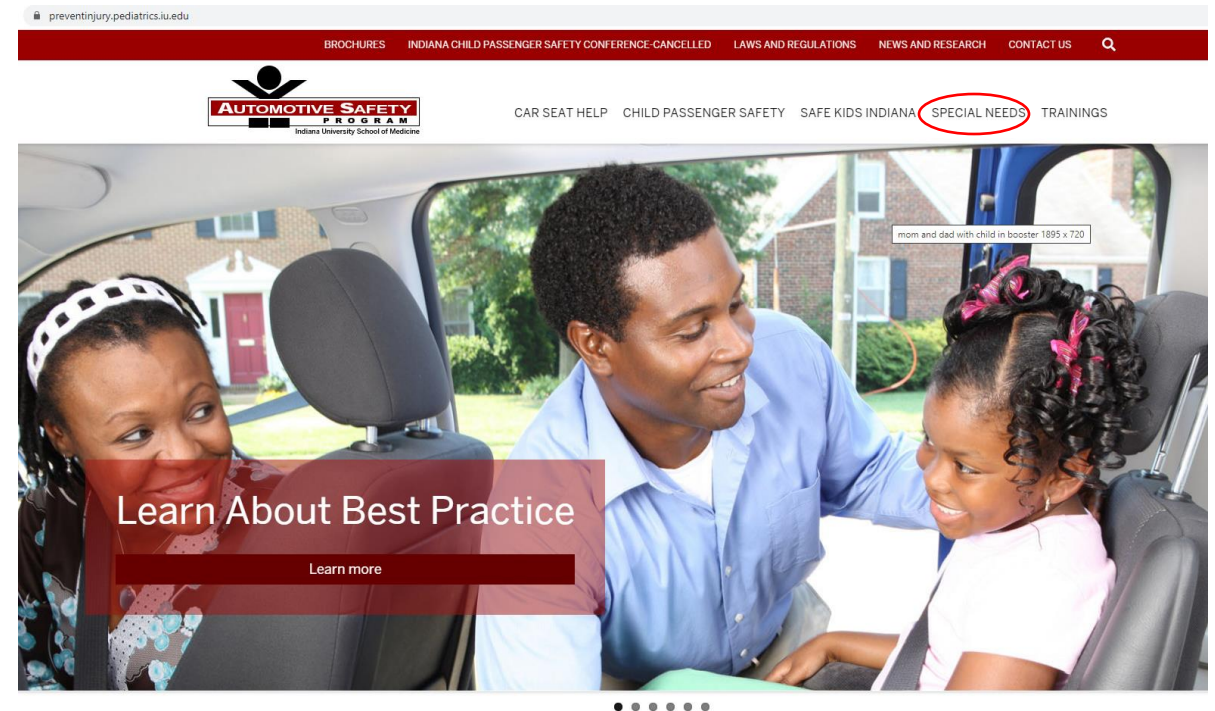
 [Rehabilitation Engineering Research Center on Wheelchair Transportation Safety](#)

[University of Michigan Transportation Research Institute](#)  
[University of Michigan Health System](#)



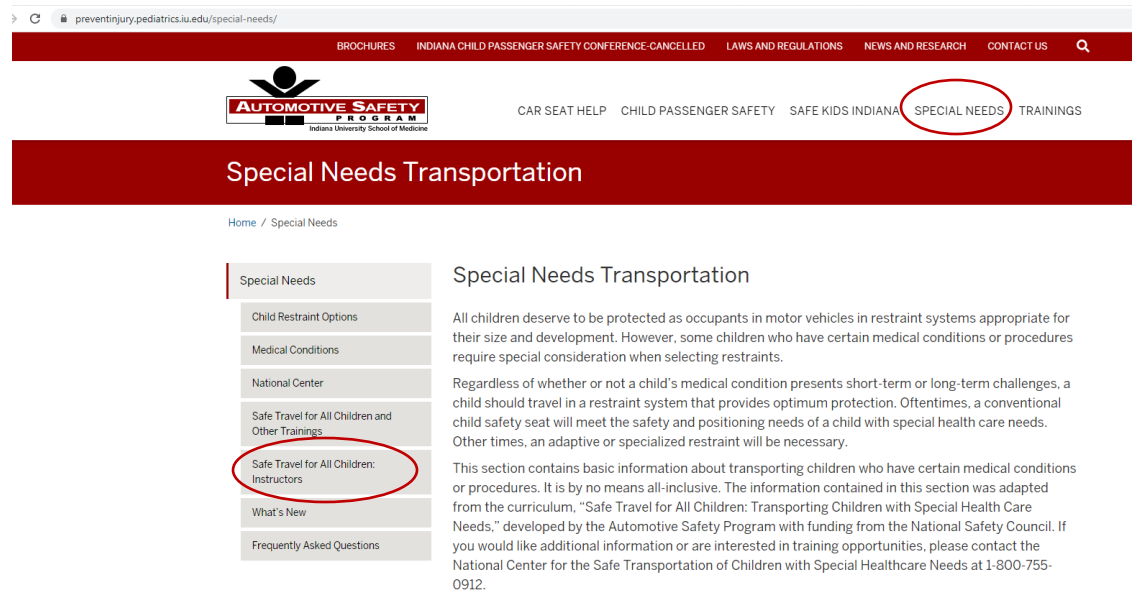
# National Center for the Safe Transportation of Children with Special Health Care Needs at IU School of Medicine

- [preventinjury.pediatrics.iu.edu](http://preventinjury.pediatrics.iu.edu)
- Info on adaptive transportation:
  - Medical conditions
  - Restraint options
  - Trainings
  - Research
  - Brochures
- Occupational therapist on staff
- 1-800-755-0912



# Safe Travel for All Children: Transporting Children with Special Health Care Needs

- Enrichment course on adaptive / specialized transportation developed by the National Center
- Two-day course
- Course offered throughout US
- **MUST** be a CPST to take course
- [preventinjury.pediatrics.iu.edu](http://preventinjury.pediatrics.iu.edu)



The screenshot shows a web browser at the URL [preventinjury.pediatrics.iu.edu/special-needs/](http://preventinjury.pediatrics.iu.edu/special-needs/). The page features a red navigation bar with links for BROCHURES, INDIANA CHILD PASSENGER SAFETY CONFERENCE-CANCELLED, LAWS AND REGULATIONS, NEWS AND RESEARCH, and CONTACT US. Below this is the AUTOMOTIVE SAFETY PROGRAM logo, with additional links for CAR SEAT HELP, CHILD PASSENGER SAFETY, SAFE KIDS INDIANA, SPECIAL NEEDS (circled in red), and TRAININGS. The main content area has a red header for 'Special Needs Transportation' and a breadcrumb trail 'Home / Special Needs'. A sidebar on the left contains a list of links: Special Needs, Child Restraint Options, Medical Conditions, National Center, Safe Travel for All Children and Other Trainings, Safe Travel for All Children: Instructors (circled in red), What's New, and Frequently Asked Questions. The main text area is titled 'Special Needs Transportation' and contains introductory text about child safety seats and medical conditions.



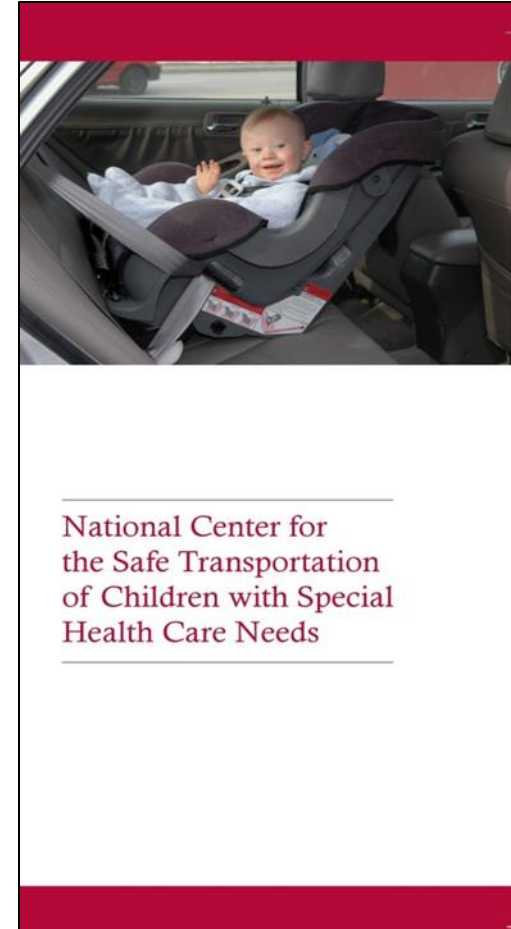
# Safe Travel for All Children Instructors

- National database of instructors at [preventinjury.pediatrics.iu.edu](http://preventinjury.pediatrics.iu.edu)

The screenshot shows a web browser at the URL [preventinjury.pediatrics.iu.edu/special-needs/safe-travel-for-all-children-instructor/database/](http://preventinjury.pediatrics.iu.edu/special-needs/safe-travel-for-all-children-instructor/database/). The page features a red navigation bar with links for BROCHURES, INDIANA CHILD PASSENGER SAFETY CONFERENCE, LAWS AND REGULATIONS, NEWS AND RESEARCH, and CONTACT US. Below this is the logo for the AUTOMOTIVE SAFETY PROGRAM, Indiana University School of Medicine, and a secondary navigation bar with links for CAR SEAT HELP, CHILD PASSENGER SAFETY, SAFE KIDS INDIANA, SPECIAL NEEDS, TRAININGS, and GIVE. The main content area has a red header for 'Special Needs Transportation' and a breadcrumb trail: Home / Special Needs / Safe Travel for All Children: Instructors / Database. On the left is a sidebar menu with 'Database' circled in red. The main content area is titled 'Database' and contains the text: 'Over 60 certified child passenger safety technicians are approved instructors of the Safe Travel for All Children course.' Below this text is a dropdown menu for state selection, currently set to 'Indiana', with a 'GO' button. The dropdown list includes: Please choose a state..., Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District Of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana (highlighted), Iowa, Kansas, Kentucky, and Louisiana. A 'Privacy - Terms' icon is visible in the bottom right corner of the page.

# National Center Brochure

- Order or download copies free of charge from [preventinjury.pediatrics.iu.edu](http://preventinjury.pediatrics.iu.edu)
- Opens into poster of adaptive / specialized restraints
- Great resource for CPSTs, parents, caregivers, families, therapists, etc.



# National Center for the Safe Transportation of Children with Special Health Care Needs



**Angel Ride**  
 Weight: Less than 9 pounds  
 Height: Less than 21.5 inches  
 For infants who must travel lying down in a car bed.  
 (Contact: Merritt Car Seat, 317-409-0148, merrittcarseat.com)



**Dream Ride SE**  
 Weight: 5-20 pounds  
 Height: 26 inches or less  
 For infants who must travel lying down in a car bed.  
 (Contact: Dorel Juvenile Group, 800-544-1108, na.doreljuvenile.com)



**Hope Car Bed**  
 Weight: 4.5-35 pounds  
 Height: Up to 29 inches (longer if legs permitted to bend)  
 For infants who must travel lying down in a car bed.  
 (Contact: Merritt Car Seat, 317-409-0148, merrittcarseat.com)



**Wallenberg**  
 Weight: 5-40 pounds rear-facing  
 25-80 pounds forward-facing  
 Height: Up to 60 inches forward-facing  
 For children in hip casts.  
 (Contact: Merritt Car Seat, 317-409-0148, merrittcarseat.com)



**Quokka**  
 Weight: 5-39.6 pounds rear-facing  
 22-39.6 pounds forward-facing  
 Height: Up to 41 inches rear-facing and forward-facing  
 For children in hip casts with spica wedge insert.  
 (Contact: Etac/Convaid/R82, 800-336-7684, r82.com)



**Modified EZ-ON Vest**  
 Ages: 1 year and older  
 Weight: 22-106 pounds  
 Height: Child must fit lengthwise on vehicle bench seat.  
 For children who must travel lying down.  
 (Contact: EZ-ON Products, 800-323-6598, ezonpro.com)



**EZ-ON Vest**  
 Ages: 2 years and older  
 Weight: 31-168 pounds  
 For children who have behavioral challenges.  
 Tether mount or Floor mount required.  
 (Contact: Etac/Convaid/R82, 888-266-8243, ezonpro.com)



**IPS Car Seat**  
 Weight: 20-102 pounds  
 Height: Up to 60 inches  
 For children who need more support because of difficulty sitting upright or behavioral challenges.  
 Tether required. FAA approved.  
 (Contact: Inspired by Drive, 800-454-6612, inspiredbydrive.com)



**Spirit/Spirit Plus**  
 Weight: 25-130 pounds  
 Height: Up to 66 inches  
 For children who need more support because of difficulty sitting upright or behavioral challenges.  
 Tether required.  
 (Contact: Inspired by Drive, 800-454-6612, inspiredbydrive.com)



**The Roosevelt**  
 Weight: 35-115 pounds  
 Height: 33.5-62 inches  
 For children who need more support because of difficulty sitting upright or behavioral challenges.  
 Tether/EZ tether required. FAA approved.  
 (Contact: Merritt Car Seat, 317-409-0148, merrittcarseat.com)



**Wallaroo**  
 Weight: 22-106 pounds  
 Height: Up to 56 inches  
 For children who need more support because of difficulty sitting upright or behavioral challenges.  
 Tether required.  
 (Contact: Etac/Convaid/R82, 888-266-8243, convaid.com)



**Convaid Carrot 3 Car Seat**  
 Weight: 30-108 pounds  
 Height: 37-60 inches  
 For children who need more support because of difficulty sitting upright or behavioral challenges.  
 Internal harness for positioning and uses lap/shoulder belt for occupant protection. Lower anchors required. Tether highly recommended.  
 (Contact: Etac/Convaid/R82, 888-266-8243, convaid.com)



**Convaid Carrot 3 Booster Seat**  
 Weight: 79-165 pounds  
 Height: 55-69 inches  
 For older children who need more support because of difficulty sitting upright or behavioral challenges.  
 Internal harness for positioning and uses lap/shoulder belt for occupant protection.  
 Lower anchors required. Tether highly recommended.  
 (Contact: Etac/Convaid/R82, 888-266-8243, convaid.com)



**Recaro Monza Nova 2 Reha**  
 Weight: 33.1-110.2 pounds  
 Height: 37-59 inches  
 For older children who need more support because of difficulty sitting upright or behavioral challenges.  
 Internal harness for positioning and uses lap/shoulder belt for occupant protection.  
 (Contact: Thomashiffen, 866-870-2122, thomashiffen.us)



**Pilot**  
 Weight: 30-120 pounds  
 Height: 38-63 inches  
 For older children who need more support because of difficulty sitting upright or behavioral challenges.  
 Internal harness for positioning and uses lap/shoulder belt for occupant protection.  
 (Contact: Etac/Convaid/R82, 800-336-7684, r82.com)



**The Churchill**  
 Weight: 65-175 pounds  
 Height: 48-72 inches  
 For older children who need more support because of difficulty sitting upright or behavioral challenges.  
 Uses lap/shoulder belt for occupant protection. LATCH required.  
 (Contact: Merritt Car Seat, 317-409-0148, merrittcarseat.com)



**The Chamberlain**  
 Weight: 81-225 pounds  
 Height: 48 inches until top of ears exceed top of vehicle seat back or headrest  
 For older children who need more support because of difficulty sitting upright or behavioral challenges.  
 Uses lap/shoulder belt for occupant protection. LATCH required.  
 (Contact: Merritt Car Seat, 317-409-0148, merrittcarseat.com)

This poster does not imply product endorsement and may not be all inclusive.

800-755-0912 preventinjury.pediatrics.iu.edu



**INDIANA UNIVERSITY**  
 SCHOOL OF MEDICINE



**Riley Children's Health**  
 Indiana University Health



# Questions?



## Contact Information

- Marilyn Bull, MD, FAAP
- Joseph O'Neil, MD, MPH, FAAP
- Anthony McGovern, MS OTR, CPST
  - [ajmcgove@iu.edu](mailto:ajmcgove@iu.edu) / 1-800-755-0912 or 317-274-6716

